Coffee Gold Mine

YESAB Project Proposal

Appendix 31-D Waste Rock and Overburden Management Plan

VOLUME V

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TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

ACRONYMS AND ABBREVIATIONS

Acronym	Definition
%	Percent
ABA	Acid Base Accounting
ACA	average continental abundance
Ag	Silver
ASTM	American Society for Testing and Materials
ARD	Acid rock drainage
Au	Gold
As	Arsenic
BC	British Columbia
Bi	bismuth
BMP	Best Management Practice
Cu	Copper
Fi	Frozen, ice-rich
Fn	Frozen, no visible ice
Fv	Frozen, visible ice
FOS	Factor of safety
ha	hectare
Hg	mercury
HLF	Heap Leach Facility
H:V	Horizontal to vertical
Kaminak	Kaminak Gold Corporation
LOM	Life of mine
MPa	Megapascals
Mt	million tonnes
NP	neutralization potential
PAG	potentially acid generating
ppm	parts per million
Project	Coffee Gold Project
QA/QC	Quality Assurance / Quality Control
ROM	Run-of-mine
S	sulphur
Sb	Antimony
Se	selenium
t	tonne
U	Uranium
USCS	Unified Soil Classification System
WRSF	Waste Rock Storage Facility
Zn	Zinc

1.0 INTRODUCTION

1.1 PROJECT SUMMARY

The proposed Coffee Gold Mine (Project), is an advanced exploration gold project owned by Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc. (Goldcorp or Proponent), and located in the White Gold District of west-central Yukon, approximately 130 kilometres (km) south of the City of Dawson. The Project contains several gold occurrences within an exploration concession covering an area of more than 600 km^2.

The Project, comprising four Open Pits called Latte, Double Double, Supremo and Kona, is proposed to be mined at an average rate of 5 million tonnes per annum (Mt/a) of heap leach feed by conventional shovel and truck methods. The ore will be crushed and placed onto a heap leach facility (HLF) by truck for a minimum of nine months of the year. During the coldest period of the year, run-of-mine (ROM) ore will be stockpiled. Gold will be extracted from pregnant leach solution by a 5 tonnes per day (t/d) adsorption, desorption, recovery carbon plant with mercury retorting to produce a final gold doré product. Conceptual design indicates a total of 60.1 Mt of mined ore over the life of the mine, containing 2.5 million ounces of gold.

1.2 SCOPE AND OBJECTIVES

This Waste Rock and Overburden Management Plan describes the types of waste rock, soil overburden and ROM stockpiles that will be constructed and how their materials will be characterized, segregated, and stored to ensure long-term chemical and physical stability.

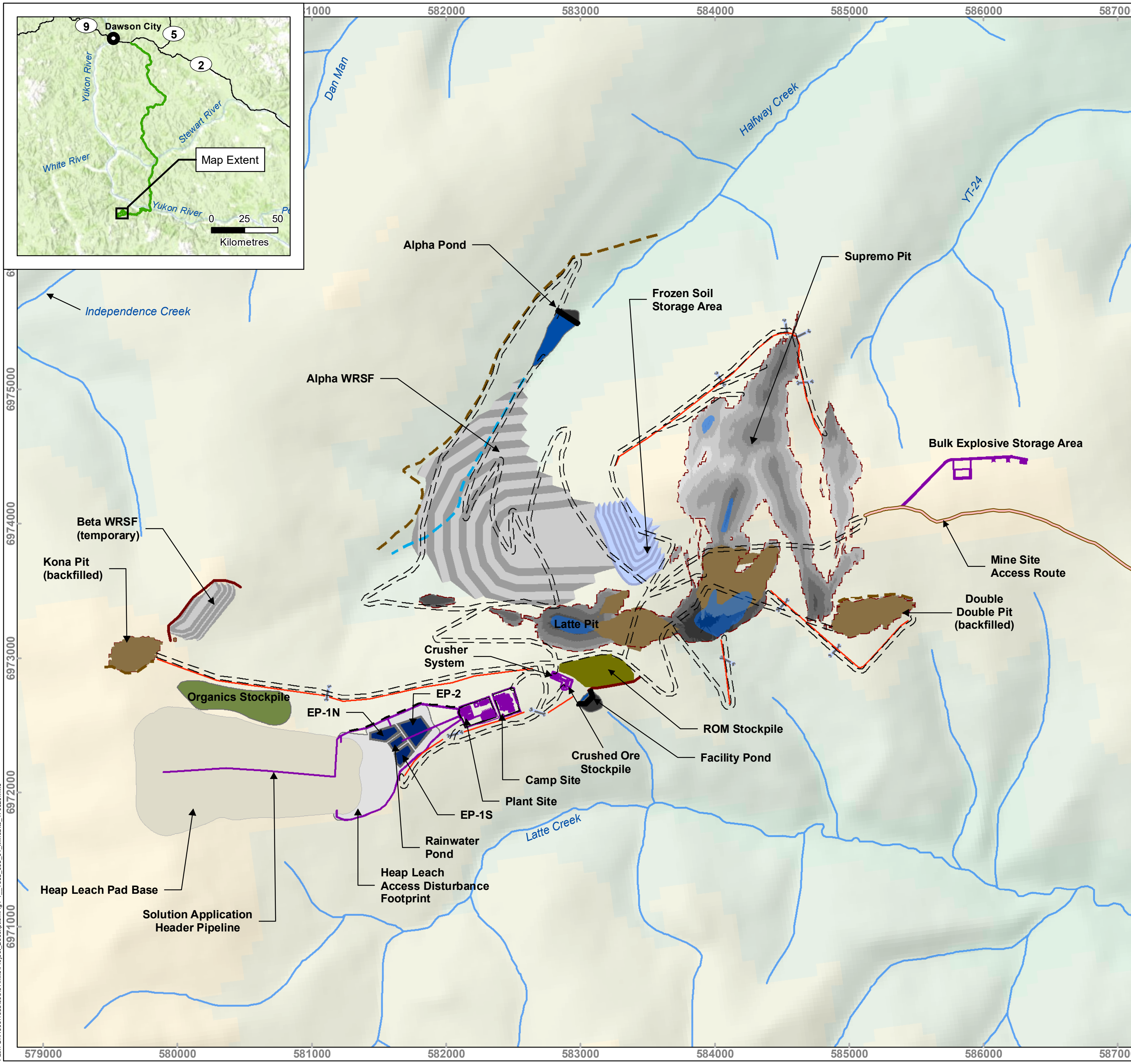
Mining activities will generate waste rock, which will be placed in engineered waste rock storage facilities (WRSFs), with a portion of waste rock back-filled into the Open Pits. The waste rock is non-potentially acid generating (non-PAG); however, proper handling and storage of the waste rock will be required in order to ensure geotechnical and geochemical stability. Clearing and stripping activities will also produce overburden, which will be stockpiled. For the purpose of this plan, overburden is defined as all soils above bedrock consisting of organic soils and inorganic soils in both frozen and unfrozen states. Organics and ice-poor topsoil will be removed and placed in a temporary stockpile located immediately north of the HLF. This material will be used for progressive reclamation purposes. There will be an additional stockpile of ice-rich soils; ice-rich soils are considered those with greater than 15 percent (%) visible ice while ice-poor soils are those containing contain less than 15% visible ice.

This plan provides details about the design, construction and operation of each facility. **Figure 1-1** shows the general arrangement of the facilities described in this plan, including the WRSFs, the ROM stockpile, the temporary organics stockpile and the frozen soil storage area.

1.3 SYNERGIES WITH OTHER PROJECT DOCUMENTS

This plan should be viewed in concert with the following additional management plans:

- Conceptual Reclamation and Closure Plan (**Appendix 31-C**)
- Water Management Plan (**Appendix 31-E**)



COFFEE GOLD MINE

General Arrangement - Mine Site

Legend
- Watercourse
- WRSF Slope
- WRSF Bench
- Total Pit Outline
- Backfill
- Pit Lake
- Organics Stockpile
- ROM Stockpile
- Heap Leach Access Disturbance Footprint
- Heap Leach Pad Base
- Support Infrastructure
- Mine Site Access Route
- Haul Roads
- Culverts
- Pond Berm
- Diversion Channel
- Road Drainage Ditch
- Rock Drain
- Collection Channel
- Event Pond
- Event Pond Slope
- Sedimentation Pond Dam
- Sedimentation Pond

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
2. This is a cumulative disturbance figure showing the maximum extent of all mine site components for the duration of the mine life.

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1:40,000

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Metres

NAD 1983 UTM Zone 7N

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Figure 1-1	Date: Mar 29, 2017	Drawn by: JS	Reviewed: DP

GOLDCORP

2.0 OVERVIEW

2.1 WASTE ROCK STORAGE FACILITIES

Over the life-of-mine (LOM), a total of 300 Mt of waste rock will be produced. Most waste rock from the Open Pits is planned to be deposited into the engineered WRSFs located in the Halfway Creek valley.

WRSF site was selected to meet geotechnical and mine design criteria and will be engineered to minimize operational and closure costs and reduce long-term environmental effects. The WRSF will provide adequate capacity for waste rock over the planned LOM. The sizing and design of the WRSF has been adjusted to reflect the hydrology of their corresponding drainages and to direct WRSF contact waters to sedimentation ponds. The WRSFs will be constructed with primarily 40 metre (m) high benches or lifts at their natural angle of repose (approximately 1.5H:1V) with a 60 m wide safety berm left on each lift, resulting in final overall slopes angles of 3.0H:1V. Waste rock benches will be designed to slope inwards away from the inter-bench slope. Benches will be crowned along the centerline of the WRSF. Runoff will be and collected in channels along the WRSF perimeter. Interim water management structures will be built, as required.

For the purposes of effective water management, a rock drain will be developed beneath the Alpha WRSF. This drain will convey runoff from the upper portion of the Halfway Creek catchment, meteoric water infiltrating through the WRSF, and groundwater discharge to the Halfway Creek channel covered by the WRSF. Limited amounts of the waste rock will also be backfilled during the Operation Phase into mined out pits at Latte, Supremo and Double Double in order to create causeways and facilitate ore haulage routes to the crusher. Waste rock from the Kona Pit will be stored in a temporary WRSF (Beta WRSF) adjacent to the pit during mining and then backfilled into the mined-out pit at the end of mine life. The location of the WRSFs are shown on **Figure 1-1**. The WRSF development sequence is shown annually in **Appendix I**.

2.1.1 ALPHA WRSF

The Alpha WRSF is located on the southeastern limb of the Halfway Creek drainage basin. It will contain waste from all Open Pits, and will have an estimated minimum capacity of 250 Mt and a total footprint of 210 hectares (ha). Construction of the Alpha WRSF will begin during pre-stripping and will continue until the end of LOM.

The Alpha WRSF will be built in a series of 40 m lifts in a bottom-up approach. An access ramp will be developed along the east side of the WRSF, with the possibility of a second ramp developed from the west to support movement of material from Kona Pit. The toe of each lift is planned to be set back a minimum of 60 m from the crest of the previous bench, resulting in a final overall angle of 3.0 H:1V. The lowest elevation of the dump will be 830 metres above sea level (masl), and the highest point will be 1150 masl for a total maximum vertical stack of waste rock of 320 m.

2.1.2 BETA WASTE ROCK STORAGE FACILITY

Although the waste rock from the Kona Pit does not have acid rock drainage (ARD) potential, geochemical characterization indicates that the sulphide ore in the exposed pit walls at the Kona Pit are potentially acid generating (PAG). As such, the Kona waste rock will be stored in a temporary Beta WRSF directly northeast of the pit during mining and then backfilled into the mined out pit. This will ensure that the pit will be backfilled with non-PAG waste rock at closure. The Beta WRSF will have a maximum height of 60 m and have a capacity of approximately 5 Mt, or 1.5% of the total waste rock generated. Construction will occur between the end of Year 1 and early Year 3 of the mining plan.

2.1.3 IN-PIT BACKFILL

Approximately 49 Mt, or 16% of the total waste rock will be backfilled into mined out pits at Latte (13 Mt), Supremo (27 Mt) and Double Double (9 Mt) in order to create causeways and facilitate ore haulage routes to the crusher. The location of the pit areas planned to be backfilled are shown on **Figure 1-1**.

The Double Double Pit will be backfilled completely during portions of Years 10 and 11. In-pit backfilling will occur in the eastern portion of the Latte Pit to construct a causeway during portions of Years 3 and 4. The southern portion of the Supremo Pit will also be backfilled to construct a causeway during Years 6 through 10 of the Project.

2.2 ROM STOCKPILE

A ROM stockpile area will allow the storage of ore when the crusher is not running, particularly during the winter months of January through March. The stockpile will be located directly east of the primary crusher as shown on **Figure 1-1**. The stockpile has been designed with a maximum capacity of 1.5 Mt of ROM ore contained within a design footprint of 9.5 ha. To minimize potential effects of ARD associated with the ROM stockpile, the ROM pad will be lined and the drainage will be collected throughout LOM. Collected drainage will be used as process make-up water to minimize contact water that reports to the receiving environment.

The ROM stockpile will be constructed on top of a graded waste rock pad, from an average elevation of 1,125 masl up to 1,150 masl, resulting in an overall height of approximately 25 m for the ROM material. The waste rock and ROM material slopes will be at their natural angle of repose (approximately 1.5H:1V). A 20-m wide safety berm or offset will be left between the crest of the waste rock foundation pad and the toe of the ROM stockpile along the south side where the pad height will reach its maximum of 25 m. This will result in a maximum overall slope angle of approximately 2.0H:1V. The waste rock foundation pad will require approximately 2 Mt of material to construct.

2.3 TEMPORARY ORGANICS STOCKPILE

Topsoil will be removed from the Open Pits, heap leach pad and portions of the WRSF footprints and placed in a temporary organics stockpile, located immediately north of the heap leach pad, and topographically above the Alpha WRSF. The in-situ thickness of organic material is estimated to be approximately 0.3 m across the Mine Site.

The temporary organics stockpile has been designed with a footprint of 16.3 ha and a maximum capacity of 2.1 million cubic metres (Mm^3). The stockpile has a maximum height of approximately 60 m with side slopes at angle of repose (approximately 1.7H:1V). The current estimated total amount of organics to be stripped from the site is approximately 1.5 Mm^3, assuming a 15% bulking factor. This material will be used for progressive mine reclamation purposes. The organic materials are not anticipated to be ice-rich.

Up to approximately 600,000 m^3 of additional, ice-poor frozen soils may also be stored in the temporary organics stockpile also for use for progressive reclamation.

2.4 FROZEN SOIL STORAGE AREA

A total of approximately 208,000 m^3 (including 15% swell factor) of ice-rich soils are estimated to be hauled and stored within the frozen soil storage area during construction of the mine. Ice-rich soils are considered those with greater than 15% visible ice while ice-poor soils are those containing contain less than 15%. Up to an additional 600,000 m^3 of ice-poor frozen soil may also be stored in the frozen soil storage area. Therefore, the total volume of frozen soils anticipated to be stored in the frozen soil storage area is 808,000 m^3. The frozen soil storage area will be located immediately adjacent to and/or on top of the Alpha WRSF (**Figure 1-1**). The frozen soils will be segregated by type, defined primarily by ice content, to permit recovery of materials that will be utilized in reclamation. If quantities are in excess of closure requirements, some of the frozen soil may be co-disposed of in the WRSFs in thin horizontal lifts.

Depending on the timing of excavation in comparison with Open Pit development, there may not be a suitable amount of waste rock in the Alpha WRSF to act as an effective filter and containing berm for the earliest frozen soils excavated. If that is the case, a small berm will be constructed on the downslope side of the frozen soil storage area to provide initial containment and filtering. Eventually all soils placed in this storage facility will be contained by the waste rock in the Alpha WRSF.

2.5 WATER MANAGEMENT INFRASTRUCTURE

A **Water Management Plan** (**Appendix 31-E**) has been developed to proactively manage suspended sediment and contact water throughout the construction and operation phases of the mine, including the development and operation of the WRSF, temporary stockpiles and other storage areas. Key components of the Water Management Plan that will be utilized during the development, operation and closure of WRSF and overburden stockpiles include:

- The Alpha Pond, which will operate as a sedimentation pond collecting runoff and rock drain seepage from the Alpha WRSF;
- The Facility Pond which will operate as a sedimentation pond collecting runoff from the ROM stockpile, camp and process plant areas;
- Best management practices for controlling sediment adjacent to roads
- A series of diversion ditches and berms around the WRSF and overburden stockpile, HLF and mine infrastructure areas.

3.0 DESIGN CRITERIA

The following sections outline the design criteria that were used to guide the design for the waste rock and overburden management facilities. The WRSF sites were selected to meet geotechnical and mine design criteria and will be engineered to minimize operational and closure costs and reduce long-term environmental effects.

3.1 MATERIAL QUANTITIES

3.1.1 WASTE ROCK

Over the LOM, a total of 300 Mt of waste rock will be produced. A majority of the waste rock (245.1 Mt) produced from the Open Pits will be deposited in the Alpha WRSF. A portion of the waste rock (48.9 Mt) will also be backfilled into mined out pits at Latte, Supremo and Double Double in order to create causeways and facilitate ore haulage routes to the crusher. Waste rock extracted from the Kona Pit will be stored in the Beta WRSF, adjacent to the pit during mining and then backfilled into the mined out pit. The location of the respective storage facilities is shown on **Figure 1-1**. **Table 3-1** summarizes annual tonnages allocated to the individual WRSFs for each year of the LOM production schedule.

Table 3-1 Annual Waste Allocations by Destination (Mt)

	Year												
Destination	**Y- 1**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**	**Total**
Alpha WRSF	15.7	22.1	18.9	15.5	21.8	29.5	26.4	20.5	27.4	24.8	10.4	12.1	245.1
Beta WRSF	-	0.2	3.9	1.1	-	-	-	-	-	-	-	-	5.2
In-pit Backfill	-	-	-	4.1	8.5	-	2.9	9.2	0.1	3.9	17.8	2.4	48.9
TOTAL	**15.7**	**22.3**	**22.8**	**20.8**	**30.2**	**29.5**	**29.3**	**29.7**	**27.6**	**28.7**	**28.2**	**14.6**	**299.5**

To calculate tonnages, a waste rock density of 2.0 t/m^3 was used in the design which is based on an in-situ density of 2.59 t/m^3 and a 30% swell or bulking factor. The average daily deposition rates for the various waste rock and overburden stockpile facilities are estimated as follows:

- 56,000 t/d for the Alpha WRSF
- 6,000 t/day for the Beta WRSF
- 2,500 t/day for the Double Double Pit backfill
- 2,000 t/day for the Latte Pit backfill
- 8,500 t/day for the Supremo Pit backfill.
- Deposition rates for the ROM stockpile will vary with the highest rates occurring in the winter months when the HLF is not being loaded and all ore mined is stockpiled. The average deposition rate will be 3,500 t/day with a maximum rate of 18,000 t/day; and
- The deposition rate for the organics will also vary as the organics are stripped intermittently during development of the mine; however, a maximum rate of 25,000 t/day has been estimated.

3.1.2 OVERBURDEN

Organics and topsoil will be removed from the Open Pits, heap leach pad and portions of the WRSF footprints and placed in a temporary stockpile located immediately north of the HLF. The thickness of organic material is estimated to be 0.3 m on average based on the geotechnical drilling and test pit data. The organic materials have a very dark color and are easily identifiable compared to the soil and bedrock below. Based on the anticipated average depth of 0.3 m, the estimated total volume of organics to be stripped from the site is approximately 1.5 $Mm^{3,}$ assuming a 15% bulking factor.

The temporary organics stockpile has been designed with a maximum capacity of 2.1 Mm^3. The organic materials are not anticipated to be ice-rich. Up to approximately 600,000 m^3 of additional, ice-poor frozen soil may also be stored in the temporary organics stockpile, also for use during progressive reclamation. This material will be used for progressive reclamation purposes during the LOM.

Quantities of frozen materials to be excavated during construction of the Project were estimated based primarily on the **2015 Geotechnical Field Investigation** (**Appendix III**) and the *Permafrost and Related Geohazard Mapping within the Coffee Mine area, Technical memo* (Tetra Tech EBA 2016). To estimate the quantities, materials were separated by grain size and ice content to distinguish between volumes of materials that will require containment when thawed and those that will not require containment. Ice-rich, fine-grained soils will require a containment berm when thawed due to their high moisture contents and tendency to flow. The more granular, unfrozen or ice-poor materials are not expected to require containment and will be separated for use during closure.

A total of approximately 2 Mm^3 of frozen soils are estimated to be excavated during construction of the Project. Approximately 1.8 Mm^3 of the material is expected to be Type I, low-ice content soil which will be suitable for immediate re-use as construction fill and will not require containment within the frozen soil storage area. A total of approximately 0.2 Mm^3 (Types II, III and IV) will likely not be suitable for immediate re-use as fill during construction and will require storage in the frozen soil storage area; however, much of this material is anticipated to be suitable for closure use. Additional details of the four frozen soil types can be found in **Section 3.3 Geotechnical Criteria**.

3.1.3 ROM STOCKPILE

A ROM stockpile will allow the storage of ROM ore when the primary crusher is not running, particularly during the winter months of January through March. The ROM stockpile will be located directly east of the primary crusher (**Figure 1-1**) and contain up to approximately 1.5 Mt of ROM ore. The stockpile will be constructed on top of a graded fill pad, comprised of approximately 2 Mt of waste rock.

3.2 Material Properties

3.2.1 Waste Rock

The Project mineralization is hosted by a package of metamorphosed Paleozoic rocks that was intruded by a large granitic body in the Late Cretaceous time period. The Paleozoic rock package consists of a mafic schistose to gneissic panel with rare lenses of amphibolite. These rocks are in contact to the southwest with the Cretaceous age Coffee Creek granite.

Waste rock generated during mining of the ore will consist primarily of a competent mixture of gneiss, schist and granite with a minor amount of amphibolite. The intact strengths of these rocks have been estimated from laboratory testing of drill core samples, point load testing, and core logging observations. The design uniaxial compressive strength of the gneiss, schist and granite are estimated to be 90 megapascals (MPa), 94 MPa and 130 MPa, respectively. Surficial materials in the waste rock deposits exhibit arsenic concentrations in a similar range to those observed for granitic host rock samples obtained during exploratory drilling (50^{th} percentile arsenic concentration of approximately 120 milligrams per kilogram (mg/kg); 95^{th} percentile concentration of approximately 2,500 mg/kg). Where feasible, waste rock will be managed such that the final 1m of waste rock placed in the WRSF do not exhibit an arsenic concentration that is great than 60 mg/kg, on average. Where this is not practical, Goldcorp will review alternative means of deterring human traffic and prolonged use of facilities in closure (e.g., signage).

Material properties, including densities and material strengths are discussed further in **Section 4.5 Assessment of Physical Stability**. More detailed descriptions of the bedrock geotechnical conditions can be found in **Appendix II Feasibility Pit Slope Stability Evaluation**.

In-situ discontinuity spacings within the rock mass were estimated as part of pit slope geotechnical evaluation (**Appendix II**) and were used to estimate average dimensions of the rock block sizes, prior to blasting. The length of the various discontinuity sets will heavily influence the waste rock block size; however, limited information is available on the discontinuity lengths as the majority of the observations are derived from core, which effectively provides a one-dimensional measurement and can have sampling or orientation bias. Preliminary estimates indicate average in-situ block sizes of about 0.5 m in diameter. Blasting induced fractures during mining operations will also have a substantial effect on waste rock block size. As such, the Kuz-Ram (Cunningham, 2005) blast fragmentation model was used to estimate the average block size after blasting. Using the model, an average particle size of approximately 30 cm derived.

3.2.2 Foundation Soils

Foundation soil conditions have been characterized geotechnically within the rock storage areas using sonic and diamond core drilling, test pit excavation and laboratory testing programs. The results of the characterization program are contained in **Appendix III 2015 Geotechnical Field Investigation Report** and **Appendix IV 2016 Geotechnical Site Investigation Report**. Additional information regarding site physiography can be found in AECOM (2014).

The surficial soils at the Project site are dominated by residual soils and colluvium derived from the physical and chemical weathering of bedrock and transported downslope by erosion, creep, or solifluction processes. Soil depths are typically less than 1 m near the ridge tops, with depths increasing up to approximately 2 m on southerly facing slopes and 6 m on north facing slopes. Soil depths of up to 10 m have been measured in drainage bottoms and valley inverts. The composition of the residual soils and colluvial materials is variable and typically contains mixtures of gravels, sands and silts with organic materials in the upper approximately 20 to 30 cm.

Based on natural moisture contents and Tetra Tech EBA (2016) permafrost mapping, the overburden soils on the ridge tops and upper to mid-slopes are typically ice-poor with natural moisture contents typically ranging from 3 to 30%. Ice-rich samples have been encountered typically on north facing slopes and valley bottoms at depths ranging between 0.2 and 1.1 m below ground surface. Ice-rich samples exhibited natural moisture contents between 50 % to over 300%. Most soils exhibited no to low plasticity, with occasional samples indicating high plasticity.

The near surface fine-grained colluvial soils undergo seasonal freezing and thawing and can be saturated during the summer months due to the presence of underlying permafrost that hinders drainage. Coarser grained, silty sand and gravels drain well and are generally ice poor, while more fine-grained silt mixtures can contain excess ice. Fine-grained soils typically drain poorly and are referred to as potentially thaw-unstable materials due to their potential for strength reduction upon thawing if the rate of thawing is higher than the soils ability to expel the pore water.

Additional information regarding foundation soil drainage characteristics, strengths and densities is contained in **Section 4.1 Foundation Conditions** and **Section 4.5 Assessment of Physical Stability**. **Appendix III 2015 Geotechnical Field Investigation Report** and **Appendix IV 2016 Geotechnical Site Investigation Report** should be referenced for more detailed information.

3.2.3 BEDROCK

The Project area is underlain by a package of metamorphosed Paleozoic rocks that was intruded by a large granitic body in the Late Cretaceous time period. The Paleozoic rock package consists of a mafic schistose to gneissic panel with rare lenses of amphibolite. These rocks are in contact to the southwest with the Cretaceous age Coffee Creek granite. Both the Paleozoic metamorphic rocks and Cretaceous granite are cut by intermediate to felsic dykes of andesitic to dacitic composition, although both these lithologies are volumetrically insignificant (JDS 2016).

Bedrock geotechnical characteristics have been evaluated using diamond drill core primarily near the mineralized zones and Open Pit areas. Subsequent to the core drilling and logging programs, laboratory strength testing was conducted on select samples of core. With the exception of the oxide materials associated with the gold mineralized structures which are mined out, the bedrock is generally of good geotechnical quality. **Table 3-2** contains a summary of bedrock geotechnical data derived from the 2015 geotechnical drilling program for each of the three primary lithology types.

Table 3-2 Summary of Bedrock Geotechnical Data

Lithology	Pit Area	Average Lab UCS (MPa)[1]	Average RMR[2]	Rock Mass Quality Class (RMR[2])	Average RQD (%)[3]	Total Core Length (m)
Gneiss	Supremo and Double Double	90	64	Good	81	515
Schist	Latte	94	64	Good	87	227
Granite	Kona	130	76	Good	95	96

[1] UCS - Uniaxial Compressive Strength testing, conducted according to ASTM Method D7012.

[2] Rock Mass Rating, according to the Bieniawski 1989 system.

[3] RQD - Rock Quality Designation, according to Deere (1963).

The gneiss and schist bedrock have a shallowly-to-moderately southwest dipping pervasive foliation that becomes steeper-dipping to the south. The planar gold mineralized structures exhibit a number of strike orientations, dominated by east-west, north-south, and east-northeast–west-southwest strike directions. Structures are commonly sub-vertical in orientation, with the exception of western Latte which dips steeply at 60° to 70° south. The most dominant rock mass jointing trends typically parallel the primary mineralized structure orientations. Additional information regarding bedrock geotechnical conditions can be found in **Appendix III 2015 Geotechnical Field Investigation Report** and **Appendix IV 2016 Geotechnical Site Investigation Report**.

3.3 Geotechnical Criteria

3.3.1 Waste Rock Storage Facilities

The Alpha WRSF is planned to be constructed with 40 m high lifts with at least 60 m wide safety berms on each lift, resulting in an average overall slope angle of 3.0H:1V. The smaller, temporary Beta WRSF will be constructed with 15 m high lifts and 17.5 m minimum width safety berms resulting in an average overall slope angle of 2.5H:1V. The face of each lift will be at its natural angle of repose (approximately 1.5H:1V) for both WRSFs. Geotechnical design criteria for the WRSFs are shown in **Table 3-3.** The criteria were selected based on guidelines from the British Columbia Mine Waste Rock Pile Research Committee (1991) and experience of the technical experts responsible for the design.

Table 3-3 Geotechnical Design Criteria

Design Criteria	Description
Static Factor of Safety – short term (mine operations)	1.3
Static Factor of Safety – long term (post-closure)	1.5
Pseudostatic Factor of Safety – short and long term	1.1
Design Earthquake Return Period	1-in-475-year event
Maximum Overall Slope Angle	2.5H:1V

Additional information regarding waste rock drainage characteristics, strengths and densities is contained in **Section 4.5 Assessment of Physical Stability**.

3.3.2 ROM Stockpile

At its maximum extent, the ROM stockpile will have an average vertical thickness of approximately 25 m of ROM ore. The slopes of the ROM material and the waste rock foundation pad will be at their natural angle of repose (approximately 1.5H:1V). A 20-m-wide safety berm or offset will exist between the crest of the waste rock foundation pad and the toe of the ROM stockpile on the south side, where the height will be at its maximum, resulting in a maximum overall slope height of approximately 60 m and angle of approximately 1.7H:1V.

3.3.3 Temporary Organics Stockpile

The temporary organics stockpile will be comprised of mostly topsoil that will be removed from the Open Pits, heap leach pad and portions of the WRSF footprints. The thickness of the organics layer is estimated to be approximately 0.3 m on average across the Mine Site. The stockpile will have a maximum height of approximately 60 m and side slopes at angle of repose (approximately 1.7H:1V).

3.3.4 Frozen Soils Storage Area

Frozen soils have been separated into four separate types based on grain size and ice content in order to more efficiently distinguish between materials that will require containment when thawed and those that will not require containment. Ice-rich, fine-grained soils will require a containment berm when thawed due to their high moisture contents and tendency to flow. The more granular, unfrozen or ice-poor materials are not expected to require containment and will be separated for use during closure.

The four different types of frozen soils are described in **Table 3-4.** These material classifications will be utilized to determine the potential use and material handling requirements of each of the frozen soils types.

Table 3-4 Field Identification and Classification of Frozen Soils

Material Classification Type	Soil Type	USCS Soil Types	% Visible Ice
I	Fine and/or coarse-grained colluvial soils, or weathered bedrock	GW, GP, GM, GC, SW, SP, SM, SC, ML, CL, MH and CH	No visible to <5% visible ice content (Fn)
II	Coarse-grained sands and gravels (> 50% retained on No. 200 (0.075 mm) sieve)	GW, GP, GM, GC, SW, SP, SM and SC	Ice content of 5 to15%, moderate visible ice content (lower ice content Fv)
III	Fine-grained soils(> 50% silts and clays)	ML, CL, MH and CH	Ice content of 5 to15%, moderate visible ice content (lower ice content Fv)
IV (Ice-Rich)	Fine or coarse grained soils	GW, GP, GM, GC, SW, SP, SM, SC, ML, CL, MH and CH	Ice content >15% excess ice (higher ice content Fv & Fi)

Note: organic soils (OH, OL & Pt with or without ice) will be excavated and stockpiled for reclamation purposes.

3.4 HYDROLOGIC CRITERIA

The hydrological design criteria for the Project are based on Best Management Practices (BMPs) and engineering and operational judgement. Hydrologic design criteria are presented in **Table 3-5**. These criteria were used to design conveyances and sedimentation ponds.

Table 3-5 Hydrologic Design Criteria for Formulating Peak Flows

Item	Value	Unit	Source
Average Maximum Daily Snowmelt Rate	26	mm/day	Water Management Plan (Appendix 31-E)
Rainfall Distribution	SCS Type I	-	Natural Resources Conservation Service
Minimum Time of Concentration	10	minutes	Engineering Judgement
Rainfall Depths			
1: 10 Year Return Period	55	mm	Lorax (2016)
1: 100 Year Return Period	79	mm	Lorax (2016)
1: 200 Year Return Period	90	mm	Lorax (2016)

The design of conveyances and sedimentation ponds is described in the **Water Management Plan** (**Appendix 31-E**) and should be reference for additional details on the design of water management infrastructure.

3.5 Material Storage Conditions

3.5.1 WRSF Rock Drains and Seepage

A rock drain will be constructed to convey surface water and potential seepage beneath the Alpha WRSF to the downstream Alpha Pond. Where necessary, rock drains will also promote drainage in in-pit backfill.

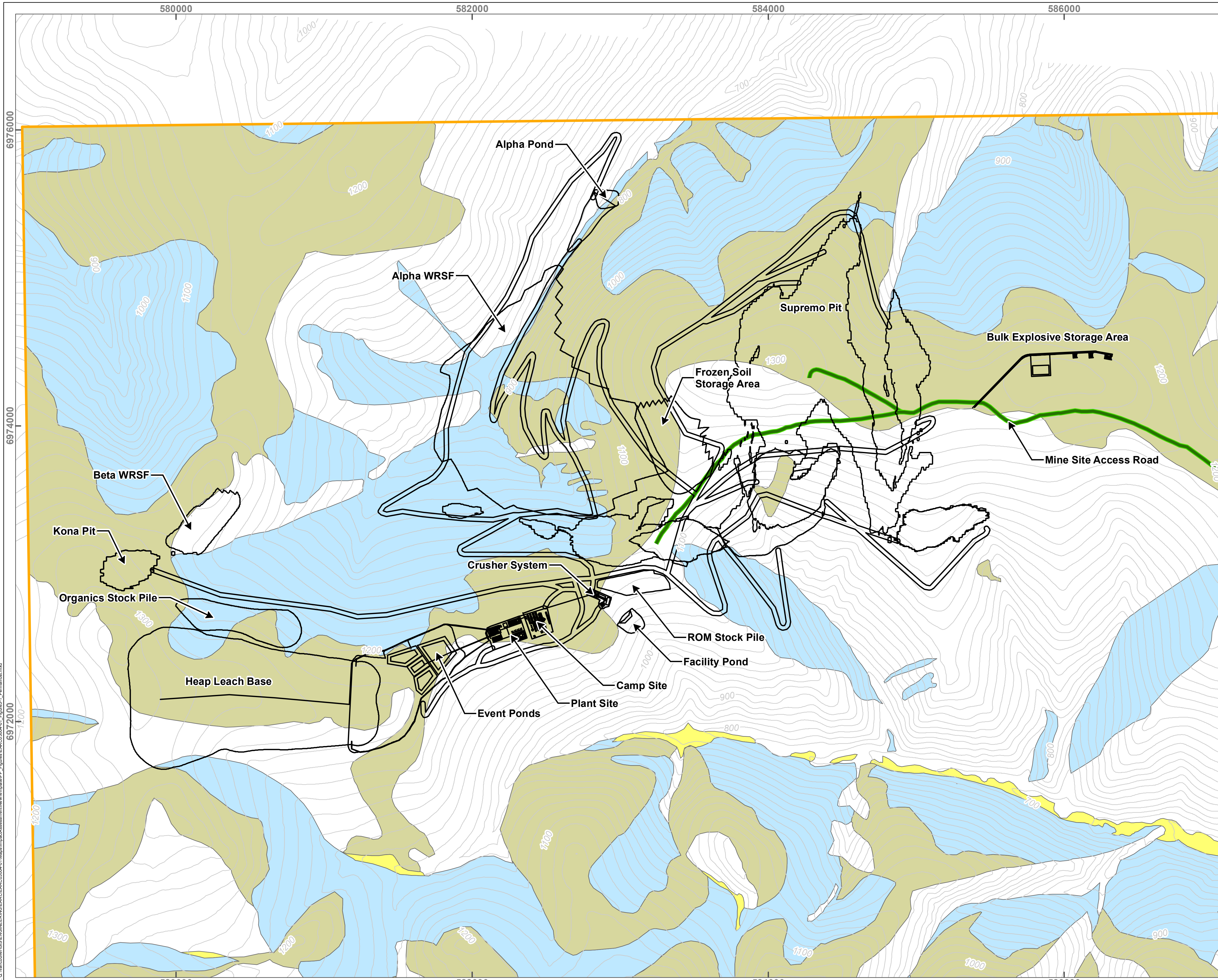
The Alpha WRSF rock drain will be constructed in areas where permafrost may be present; however, the majority of the area has been mapped as unfrozen based on the Tetra Tech EBA (2016) permafrost mapping. Perennial freezing within the drain is not expected. Localized areas of the drain may freeze during the winter as groundwater seeps into the channel, but this ice will melt during freshet flows. The drains are designed to accommodate up to 2 times the 100-year, 24-hour flow and also, due to the perviousness of the waste rock dump, it is unlikely that ice could form and block flow entirely.

Based on industry standards, the material used to construct the rock drain will have a D_{50} of 0.3 m. The rock will either be selected and segregated by screening or end-dumping of the waste rock. It has also been assumed that the rock drain will have a porosity of 30%. Based on these assumptions, and applying a factor of safety (FOS) of 2, the cross-sectional area of the Alpha WRSF rock drain will be 615 m^2. The FOS of 2 is conservative and has been applied to the cross-sectional areas of the rock drain to account for:

- potential migration of fine grained materials into the voids in the drain
- potential freezing of the drain
- decrease in void ratio over time due to compression
- potential degradation of the rock drain material over time.

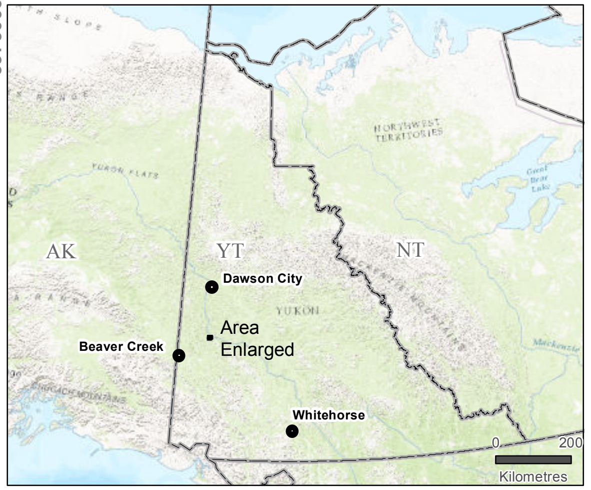
The FOS and these assumptions will be re-evaluated once the drain rock material has been selected during detailed design and once the site-specific conditions of the rock drains are further evaluated.

Additional details regarding surface water management and the design of the rock drains can be found in the **Water Management Plan** (**Appendix 31-E**).



COFFEE GOLD MINE

Distribution of Permafrost



Legend

- Mine Site Study
- Mine Site Layout
- Mine Site Access Road

Permafrost

- Perennially Frozen Ground – very ice-rich
- Perennially Frozen Ground – visible excess ice (> 10% by volume of ice)
- Perennially Frozen Ground – ice visible (< 10% by volume of ice) or not visible
- Unfrozen

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
2. Mine site layout provided by Hemmera (March 17, 2017)
3. Permafrost mapping provided by Tetra Tech (March 21, 2017)

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Kilometres

NAD 1983 UTM Zone 7N

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Figure 3-1	Date: Mar 27, 2017	Drawn by: MEZ	Reviewed: DP

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3.5.2 POTENTIALLY THAW-UNSTABLE MATERIALS

Frozen ground is discontinuous across the site, with ice-rich materials located primarily on lower elevations of north-facing slopes. This includes portions of the proposed Alpha WRSF footprint and to a lesser extent, portions of the temporary organics stockpile. The estimated distribution of permafrost across the site based is shown on **Figure 3-1**.

The near surface fine-grained colluvial soils undergo seasonal freezing and thawing and can be saturated during the summer months due to the presence of underlying permafrost that hinders drainage. The coarser grained silty sand and gravels are generally ice poor, while the more fine-grained silt mixtures can contain excess ice. The fine-grained soils typically drain poorly and are referred to as potentially thaw-unstable materials due to their potential for strength reduction upon thawing if the rate of thawing is higher than the soils ability to expel the pore water. Ice-rich samples were encountered during the 2016 field investigation (**Appendix IV 2016 Geotechnical Site Investigation Report**) and permafrost mapping, primarily on north facing slopes and valley bottoms at depths ranging between 0.2 and 1.1 m below ground surface.

Specific information regarding foundation soils at each of the WRSFs is presented in **Section 4.1 Foundation Conditions**. Additional information regarding material drainage characteristics, strengths and densities is contained in **Section 4.5 Assessment of Physical Stability**.

3.6 WATER QUALITY CRITERIA

Geochemical testing and characterization of waste rock for the Project has been performed with the ultimate objective of generating predictions of waste rock seepage chemistry throughout the LOM and into the Reclamation and Closure Phase. Waste rock will be permanently stored in the Alpha WRSF. Waste rock will also be stored as backfill in the Kona Pit and Double Double Pit and will also be backfilled in Latte Pit and Supremo Pit to provide an access corridor for ore transport.

Geochemical source terms have been developed for each of these facilities (**Appendix 12-D Geochemical Characterization Report** of the Project Proposal) as input to a site-wide water balance and water quality model that predicts water quality in water management sedimentation ponds and the receiving environment (see **Appendix 12-C – Water Balance and Water Quality Model Report** of the Project Proposal). Output from this model is then used to determine if treatment is required for discharges or seepages from the mine in order to meet receiving water quality objectives.

Table 3-6 provides a summary of the predicted geochemical source terms for each of the facilities and compares these concentrations to Metal Mining Effluent Regulations (MMER) concentrations and Project proposed water quality objectives within the receiving environment (**Appendix 12-C Water Balance-Water Quality Model Report**). Based on the comparison, the following parameters are considered parameters of concern: sulphate, arsenic (As), antimony (Sb), uranium (U) and zinc (Zn).

Water balance and water quality modeling (**Appendix 12-C Water Balance-Water Quality Model Report** of the Project Proposal) of the LOM operations and the Reclamation and Closure Phase has been conducted and incorporates the waste rock source terms as described in **Table 3-6** as well as all other sources of mine contact water including the HLF, overburden stockpiles, pit wall runoff and pit lake chemistry. Water quality modeling of waste rock discharges indicates that predicted water quality in the receiving environment meets the proposed water quality objectives, as outlined in **Table 3-6**, under all flow conditions throughout the LOM. As such, no water treatment of waste rock contact water is proposed other than the management of total suspended solids in the sedimentation ponds. The locations of the water quality compliance points are shown on **Figure 3-2**.

Table 3-6 Summary of Waste Rock Seepage Quality Predictions as Compared to MMER Limits and Receiving Water Quality Objectives

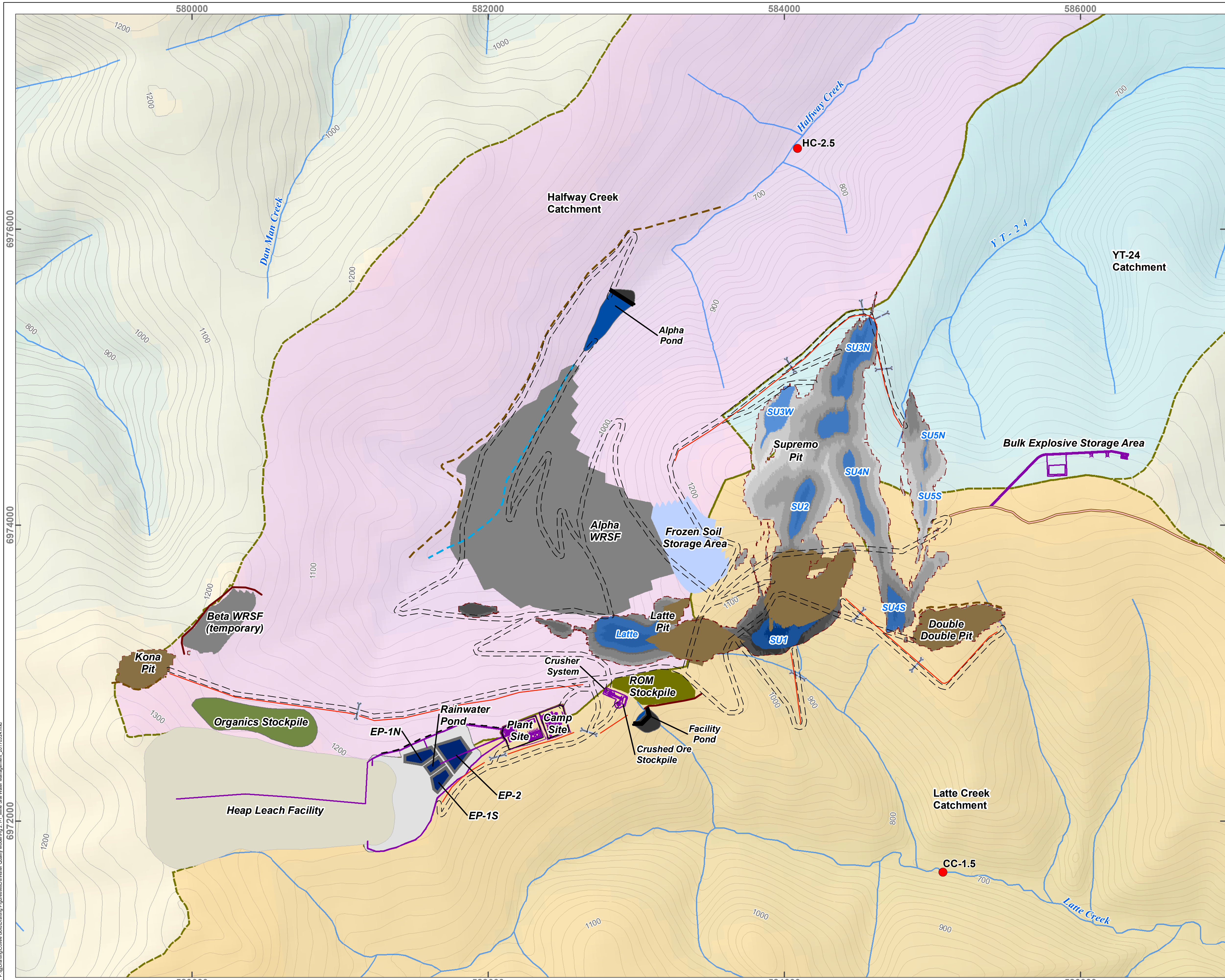
Parameters	Alpha WRSF[1]		In Pit Latte WR		In Pit Supremo WR		Backfill – Kona		Backfill – Double Double		MMER Limits[2]	Water Quality Benchmarks – Halfway Creek	Water Quality Benchmarks – Latte Creek
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			
TSS	1	5	1	5	1	5	1	5	1	5	15	15	15
SO_4	84	461	755	1100	829	1210	274	401	793	1080		218	309
As	0.0004	0.009	0.0072	0.031	0.007	0.031	0.011	0.595	0.007	0.031	0.5	0.005	0.005
Cd	0.000001	0.000033	0.000012	0.000018	0.000014	0.00002	0.000072	0.0001	0.00001	0.000018		0.00011	0.00013
Cu	0.0005	0.0033	0.0021	0.003	0.0023	0.0033	0.0006	0.0008	0.002	0.003	0.3	0.003	0.003
Fe	0.19	0.72	0.02	0.032	0.02	0.03	0.013	0.02	0.02	0.03		1	1
Hg	0.0000079	0.000026	0.0000062	0.000012	0.0000062	0.000013	0.0000029	0.000004	0.0000062	0.000012		0.000026	0.000026
Mo	0.0025	0.055	0.079	0.115	0.086	0.127	0.0047	0.006	0.077	0.113		0.073	0.073
Ni	0.0005	0.003	0.0023	0.0034	0.0025	0.004	0.005	0.007	0.0023	0.003		0.069	0.082
Pb	0.00015	0.00043	0.00037	0.00054	0.00041	0.0006	0.0002	0.0003	0.0003	0.0005	0.2	0.0018	0.0025
Sb	0.001	0.010	0.011	0.016	0.0125	0.018	0.004	0.006	0.011	0.016		0.009	0.009
Se	0.0016	0.0025	0.0009	0.0013	0.001	0.0015	0.0001	0.0002	0.0009	0.0013		0.002	0.002
U	0.022	0.125	0.376	0.86	0.376	0.86	0.132	0.254	0.376	0.86		0.086	0.031
Zn	0.001	0.03	0.042	0.061	0.045	0.067	0.063	0.092	0.041	0.059	0.5	0.013	0.015
Ra-226	0.035	0.06	0.0174	0.029	0.0167	0.028	0.063	0.092	0.017	0.03	0.37 Bq/L		

All units as mg/L

1: includes both the Alpha WRSF seepage and rock drain loadings prior to entering Alpha Pond

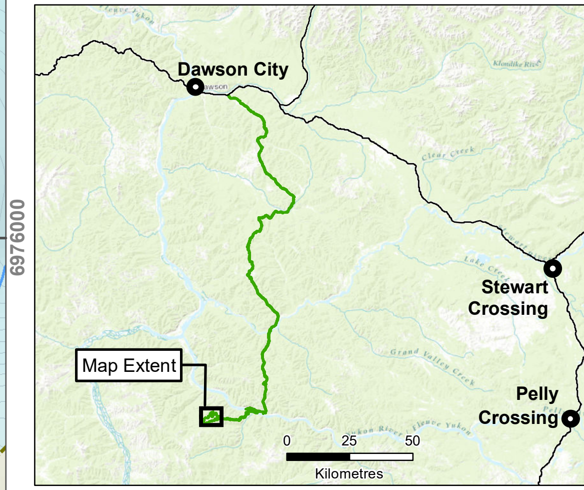
2: maximum authorized monthly mean

shaded parameters indicate predicted concentrations exceed 1.5x receiving water objectives



COFFEE GOLD MINE

Location of Water Quality Compliance Points



Legend

- WQ Model Node
- Project Footprint
- Highway
- Municipality
- Mine Site Access Route
- Catchment Boundary
- Elevation Contour (20m)

End of Year 9 Catchment Areas

- Halfway
- Latte Creek
- YT-24 Creek

Proposed Infrastructure

- WRSF
- Backfill
- Total Pit Outline
- ROM Stockpile
- Organics Stockpile
- Frozen Soil Storage Area
- Event Pond
- Heap Leach Access Disturbance Footprint
- Heap Leach Pad Base
- Haul Road
- Support Infrastructure

Water Management

- Culverts
- Pond Berm
- Diversion Channel
- Road Drainage Ditch
- Underdrain
- Collection Channel
- Settling Pond Dam
- Settling Pond

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Meters

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Figure 3-2	Date: Mar 24, 2017	Drawn by: GM	Reviewed: AS

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4.0 STORAGE FACILITY DESIGN

The following sections provide the specific design for each storage facility that will be operated at the Mine Site.

4.1 FOUNDATION CONDITIONS

4.1.1 WASTE ROCK STORAGE FACILITIES

Foundation conditions have been characterized within the WRSFs based on the recent geotechnical site investigations using sonic and diamond core drilling, test pit excavation and geotechnical laboratory testing programs in (**Appendix III 2015 Geotechnical Field Investigation Report** and **Appendix IV 2016 Geotechnical Site Investigation Report)**. Within the proposed WRSF footprint, foundation conditions generally consist of residual soil or colluvium ranging in thickness from less than 1 m within steep slope sections to in excess of 10 m in lower slopes in colluvial/loess/organic aprons underlain by weathered bedrock. A summary of the foundation conditions anticipated at each of the WRSFs follows.

4.1.1.1 Alpha WRSF

The Alpha WRSF footprint is located within the Halfway Creek valley and its tributaries – on the valley slopes of primarily northerly, westerly and easterly aspects with natural slope angles of approximately 3° to 32°. Boreholes have not been drilled and fieldwork has not been completed on the valley slopes with easterly aspect in the Alpha WRSF footprint. Based on Tetra Tech EBA (2016) permafrost mapping and the Fall 2016 Geotechnical Site Investigation Data Report (**Appendix IV**) the north-facing slopes contain perennially frozen ground with visible excess ice. Vegetation consist of low shrubs and sparse stunted black spruce. Northern portions of the Alpha WRSF footprint are on west-facing slopes that contain perennially frozen ground, which is predominantly ice-poor, i.e. with no visible ground ice and on permafrost-free southeast-facing slopes. Western portions of the Alpha WRSF footprint are on east-facing slopes. Here, the vegetation consists of deciduous trees and low shrubs. These east-facing slopes are interpreted to be permafrost-free terrain with the exception of a tributary valley with northeast-facing slopes which were interpreted to be underlain by moderately to ice-rich permafrost with visible excess ice.

Drilling was performed at the headwaters of Halfway Creek on north-facing slopes (previously proposed sedimentation pond site), it may contain similar permafrost features that occur on the north-facing slopes throughout the Alpha WRSF footprint. Thin surficial organic veneer was found at the surface, underlain by 1 m to 10 m thick coarse colluvium. The colluvial deposits consist of mixes of massive sand, gravel, and silt that are dark grey to brown, subangular, and well graded. Trace clay, boulders, and cobbles are also present. Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in all five boreholes drilled at this site. Excess ice content was measured in silty frozen peat and was determined to be as high as 39% at a depth of 2.4 m. The excess ground ice occurs in the frozen overburden in various forms (e.g., ice lenses (Vs, Vr)) ranging in thickness from less than 1 mm to approximately 3 mm, ice inclusions (Vx) up to 10 mm in diameter or ice coatings (Vc) up to 5 mm thick on gravel and cobbles. Frost-shattered bedrock was present at the basal contact of this unit with bedrock.

Drilling was also performed at the southern upstream portion of the Alpha WRSF footprint on the north-facing slopes of a tributary to Halfway Creek (a previously proposed sedimentation pond site). The slope is vegetated with low shrubs and very sparse black spruce. Wet organic-rich material, locally called black muck (i.e., wind-blown silt intermixed with organic material), forms a veneer underlain by colluvial sand and gravel up to 7.7 m thick. Colluvial deposits at this site are made up of brown, grey, or black sand and subangular gravel, with lesser amounts of silt. Clay, gravel, cobbles, and organics are present locally, but are rare. The colluvium is massive and well graded. The moisture content of the overburden is as low as 7% in sand and gravel at 4.8 m depth, but is as high as 387% in the same material at 2.2 m due to the presence of ice. Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in all boreholes at this site. Excess ice content measured in the ICE and SAND unit was found to be as high as 52% at a depth of 2.2 m. The excess ground ice typically forms ice lenses (Vs, Vr) ranging in thickness from less than 1 mm to approximately 25 mm, ice inclusions (Vx) up to 40 mm in diameter or ice coatings (Vc) up to 6 mm thick on gravel and cobbles.

The extrapolated overburden thickness within the Alpha WRSF footprint ranges from approximately 2.5 m to 3.0 m in the upper slope to approximately 2.0 m in the mid-slope and to approximately 4.0 m to 5.0 m at the toe of the west-facing slope (and at the bottom of the creek valley). It is less than 1 m within the steep lower slope (GT-59). On the north-facing slope, the overburden thickness ranges from <10 m in the mid slope (SRK-15D-10T) to 10 m – 13 m in the lower slope (colluvial/loess/organic apron).

4.1.1.2 Beta Waste Rock Storage Facility

Based on the location near the top of the ridge and existing geotechnical information from the neighboring HLF and infrastructure areas, foundation soils within the footprint of the Beta WRSF are anticipated to consist of a thin veneer of residual soil and colluvium over competent bedrock. These assumptions will be confirmed during the detailed design phase of the Project. Based on the Tetra Tech EBA (2016) permafrost mapping, the Beta WRSF footprint is expected to consist of mostly ice-poor (excess ice not visible) materials with a minor portion being unfrozen.

Based on the site assessment and three boreholes drilled for the **Fall 2016 Geotechnical Site Investigation Data Repor**t (**Appendix IV**) much of the Beta WRSF footprint is interpreted to be permafrost-free terrain. This area slopes to the southeast and south-southeast, with gentle to moderate slopes of 3° to 20° where overburden is thick, and moderately steep slopes of 25° to 35° in the northeast, where bedrock is close to surface. Vegetation includes sparse but tall white spruce and low shrubs.

Coarse colluvial deposits up to 2 m thick cover the bedrock at the north end of the Beta WRSF footprint. Surficial deposits encountered in the boreholes consisted mainly of layers of sand and gravel, with some cobbles and boulders. Silt containing small amounts of sand, gravel, and organics is found in the uppermost 2 m of all the boreholes. Overburden thickness in the third borehole at the southern edge of the Beta WRSF footprint was 15 m where the overburden material may be partially frozen. A very thin layer of wet, fibrous, woody moss with trace silt was noted at the top of one of the boreholes.

Encountered bedrock was slightly to moderately weathered and very weak to very strong.

4.1.2 ROM Stockpile

Bedrock is very shallow beneath the proposed ROM stockpile. The area typically has a thin veneer of organics over approximately 0.5 m of gravelly colluvium. Bedrock is heavily weathered down to approximately 1.2 m. Based on the Tetra Tech EBA (2016) permafrost mapping, the ROM stockpile footprint is in an unfrozen area. No visible ice was observed in the test pit or borehole samples from the immediate area.

4.1.3 Temporary Organics Stockpile

Based on the location near the upper slope and existing geotechnical information from the neighboring HLF and infrastructure areas, foundation soils within the footprint of the temporary organics stockpile are anticipated to consist of relatively shallow residual soil and colluvium over competent bedrock. These assumptions will be confirmed during the detailed design phase of the Project. Based on the Tetra Tech EBA (2016) permafrost mapping, the Beta WRSF footprint is expected to consist of a mix of ice-poor (excess ice not visible) and possibly ice-rich (excess ice visible) materials.

4.1.4 Frozen Soil Storage Area

Frozen overburden soils will be placed in the frozen soil storage area, which will be founded partially on top of or directly adjacent and uphill of the first lift of the Alpha WRSF. As such, foundation soils will consist of either waste rock from the Alpha WRSF or thin colluvium soils, as discussed in **Section 3.1.2**.

4.2 Design Details

4.2.1 Waste Rock Storage Facilities

The sizing and design of WRSFs reflects the hydrology of their corresponding drainages and directs WRSF contact waters to sedimentation ponds. Waste rock benches will be designed to slope inwards from the WRSF crest and runoff will be collected in a ditch and conveyed to ditches along the perimeter of the WRSF. These measures will be conducted over the course of the Construction, Operation, and Reclamation and Closure phases.

In general, the Alpha WRSF is designed in a series of 40 m high wrap-around benches with the toe of each bench designed at a minimum 60 m set back from the crest of the previous bench, resulting in an average overall angle of 3.0H:1V. Where necessary due to existing permafrost conditions, the first 3 to 5 m of waste rock will be placed during the winter months to preserve the foundation permafrost conditions. Foundation soils greater than a distance of approximately 15 m from the toe are anticipated to remain frozen where protected by deep waste rock materials. Any potentially thaw-unstable materials will be removed and replaced with waste rock within 15 m of the toe where seasonal thawing may occur. The removal of ice-rich materials and replacement with waste rock will also occur during winter months to limit potential thawing of the surrounding frozen soils. The location of potentially thaw-unstable materials will be refined with additional drilling and test pit excavations during the detailed design phase of the Project.

The organics will be left in-place within the WRSF footprints to preserve the permafrost conditions, except where foundation soils will require removal to bedrock, near the toe. The slopes of the WRSF are not planned to be re-shaped at the end of mine life. Additional details regarding each of the WRSFs follows.

4.2.1.1 Alpha Waste Rock Storage Facility

The Alpha WRSF is designed with a footprint of approximately 210 ha and an ultimate capacity of approximately 250 Mt. It is anticipated that the Alpha WRSF will be constructed in a bottom-up sequence with a series of 40 m high lifts. An access ramp will be incorporated into the design along the eastern limb of the valley as the WRSF is developed. The slopes are not planned to be re-shaped at the end of mine life.

Construction of the Alpha WRSF will begin during pre-stripping (Year -1) and will be completed at the end of mine life. The lowest topographic point of the dump will be 830 masl, and the highest point will be an elevation of approximately 1,150 masl, although the final configuration will be subject to minor revisions during detailed design. The maximum height of waste will be 320 m. The construction sequence and ultimate configuration of the Alpha WRSF are provided in plan-view in **Appendix I**.

The Alpha WRSF will be located in a primarily north-facing valley with natural slope angles of approximately 12 to 20° on the valley walls.

Due to its coarse particle size, the waste rock material is anticipated to be free draining and will allow water to pass through the waste rock along the native valley invert without buildup of significant pore water pressures. A rock drain has also been designed as added insurance that water will efficiently pass through the base of the WRSF. Additional details regarding the Alpha WRSF rock drain as well as surface water diversion channels can be found in the **Water Management Plan** (**Appendix 31-E**).

4.2.1.2 Temporary Beta Waste Rock Storage Facility

Although the waste rock from the Kona Pit does not have ARD potential, geochemical characterization indicates that the sulphide ore in the exposed pit walls at the Kona Pit are PAG. As such, the Kona waste rock will be stored in a temporary waste rock facility directly northeast of the pit during mining and then backfilled into the mined out pit. This will ensure that the pit will be backfilled with non-PAG waste rock at closure. The temporary Kona WRSF will have a maximum height of 60 m and have a capacity of approximately 5 Mt or 1.5% of the total waste rock generated. Construction will occur between the end of Year 1 and early Year 3 of the mining plan.

4.2.2 ROM STOCKPILE

At its maximum extent, the ROM stockpile will have an average vertical thickness of approximately 25 m of ROM ore up to an approximate elevation of 1,150 masl. The slopes of the ROM material and waste rock foundation pad will be at their natural angle of repose (approximately 1.5H:1V). A 20-m-wide safety berm or offset will exist between the crest of the waste rock foundation pad and toe of the ROM stockpile on its south side, where the pad height will be at its maximum of 40 m. This will result in a maximum overall slope height of approximately 65 m and angle of approximately 1.7H:1V. The ore will be processed during LOM and therefore will not remain at closure.

Runoff collection ditches and sediment basins will be constructed along the down-gradient boundary of the ROM stockpile footprint prior to clearing and grubbing activities. The ROM stockpile will be constructed in an area that is expected to be mostly permafrost free. Clearing and stripping of organics will be undertaken in as short of a time period as practicable in advance of the initial waste rock foundation pad, to limit potential erosion. The ROM stockpile will have a diversion channel downhill to convey water to the Facility Pond. Additional details on sediment and erosion control measures during the Construction Phase are described in **Section 4.7 Surface Water Management** and in the **Water Management Plan** (**Appendix 31-E**).

4.2.3 TEMPORARY ORGANICS STOCKPILE

The temporary organics stockpile has been designed with a footprint of 16.3 ha and a maximum capacity of 2.1 Mm^3. A total of approximately 1.5 Mm^3 of organic materials are anticipated to be stripped during construction and operation. The stockpile has a maximum height of approximately 60 m with side slopes at angle of repose (approximately 1.7H:1V). This material will be used for mine reclamation purposes. The temporary organics stockpile will be located on a mostly north facing slope with natural slope angles of approximately 10° to 12°.

Organic materials will be placed in the stockpile as areas are stripped during the construction and operation of the Project. Similarly, material will be progressively removed from the stockpile for reclamation purposes as certain areas of the Project are ready to be closed. An additional up to 600,000 m^3 of non-frozen inorganic overburden soils may also be stored in the stockpile. The materials placed in the temporary organics stockpile are not anticipated to be ice-rich. This material will be used for mine reclamation purposes and therefore will be removed during Reclamation and Closure.

Details on sediment and erosion control measures during the Construction and Operation phases are described in the **Water Management Plan** (**Appendix 31-E**).

4.2.4 Frozen Soil Storage Area

A total of approximately 2 Mm^3 (including 15% bulking factor) of frozen soils are estimated to be excavated during construction of the Project. Approximately 1.8 Mm^3 of the material is expected to be Type I, low-ice content, soil which will be suitable for immediate re-use as construction fill and will not require containment within the frozen soil storage area. A total of approximately 0.2 Mm^3 (Types II, III and IV) will likely not be suitable for immediate re-use as fill during construction and will require storage in the frozen soil storage area. The frozen soils will be segregated by type, defined primarily by ice content and grain size, in the frozen soil storage area to permit recovery of materials that can be utilized in reclamation. If excess to closure requirements, some of the frozen soil may be co-disposed of in thin horizontal lifts within the WRSFs, as discussed in **Section 4.3.1**.

For the earliest excavated frozen soils, there may not be a suitable amount of waste rock in the Alpha WRSF to act as an effective filter and containing berm, depending on the timing of excavation in comparison with open pit or waste rock development. If that is the case, a small waste rock berm will be constructed on the downslope side of the frozen soil storage area to provide initial containment and filtering. Eventually all soils placed in this storage facility will be contained by the waste rock in the Alpha WRSF.

The storage area berms are designed to be flow-through structures that will allow for excess pore water resulting from the thaw of ice-rich materials to drain while containing the fine-grained materials that may otherwise be thaw-unstable. Coarse waste rock material will be used to construct the berms. Water released from thawing of the frozen soils in the frozen soil storage area will be filtered through the waste rock and flow down to the sedimentation dam beneath the Alpha WRSF, where further sedimentation will occur before being released to the receiving environment. Additional details regarding the management of surface water and sedimentation can be found in the **Water Management Plan** (**Appendix 31-E**).

4.3 Clearing, Stripping and Grubbing

4.3.1 Waste Rock Storage Facilities

The WRSFs will be constructed in areas of discontinuous permafrost which may contain excess ice in some areas. Foundation soils with excess ice will be excavated and removed down to bedrock within 15 m of interim and final WRSF design toes to increase stability. Prior to construction, additional investigations will be undertaken to further delineate and characterize areas of excess ice. With the exception of potentially ice-rich material within 15 m of the WRSF design toes, the foundation soils and organic veneer will generally be left in place to preserve the frozen material below. Additional details are in **Section 4.5 Assessment of Physical Stability**.

Non-organic soils excavated from the WRSF foundations will be either stored in the frozen soil storage area or spread in thin lifts in the Alpha WRSF. All organics will be stored in the temporary organics stockpile for use in reclamation.

The clearing and stripping will be undertaken in as short of a time period as practicable in advance of waste rock placement to minimize the exposure period of the de-vegetated ground thus limiting the potential thawing and erosion of the areas. Water management practices including sediment and erosion control measures during the construction of the WRSFs are described in the **Water Management Plan** (**Appendix 31-E**).

Organic soils will be left in place within the footprint of the rock drains to reduce thermal disturbance. Suitable rock will be placed to a minimum height of approximately 3 m, depending on the final design details of the WRSF and rock drain.

4.3.2 ROM Stockpile

Runoff collection trenches and sediment ponds will be constructed along the down-gradient boundary of the ROM stockpile footprint prior to clearing and grubbing activities. The ROM stockpile will be constructed in an area that is expected to be mostly permafrost-free. Clearing and stripping of organics will be undertaken in as short of a time period as practicable in advance of the initial waste rock foundation pad to limit potential erosion of exposed areas. Water management practices, including sediment and erosion control measures during the construction of the ROM stockpile, are described in the **Water Management Plan** (**Appendix 31-E**).

4.3.3 Temporary Organics Stockpile

Runoff collection trenches and sediment ponds will be constructed along the down-gradient boundaries of the organics soil stockpiles prior to the placement of any top soil or overburden materials. The temporary organics stockpile foundation will not be cleared and grubbed to avoid disturbing and exposing the permafrost to thawing. Topsoil and overburden material will be end-dumped directly on the existing ground.

4.3.4 Frozen Soil Storage Area

Limited site preparation is required for the frozen soil storage area, as the frozen overburden soils will be placed primarily on top of or directly adjacent to the Alpha WRSF to allow free draining of any melt water down through the coarse waste rock. For the earliest excavated frozen soils, there may not be a suitable amount of waste rock in the Alpha WRSF to act as an effective filter and containing berm, in which case a small berm will be constructed on the downslope side of the frozen soil storage area to provide initial containment and filtering. Where feasible, the berm will be keyed into the side slopes to create interlocking of the fill and side slopes. The foundation of the frozen soil storage area is not anticipated to have permafrost and therefore stripping of overburden soils below the upper organics layer will not be required.

4.4 TRANSPORT AND DISPOSAL

Waste rock, ROM ore and overburden soils will be transported from the Open Pits to the appropriate facilities, as discussed above, and end or paddock-dumped and may be spread by dozer.

4.5 ASSESSMENT OF PHYSICAL STABILITY

4.5.1 MATERIAL PROPERTIES

Foundation soil conditions have been characterized geotechnically within the footprint of the WRSFs using sonic core drilling, test pit excavation, chilled diamond core drilling and laboratory testing program. The results of the characterization program are contained in **Appendix III 2015 Geotechnical Field Investigation Report** and **Appendix IV 2016 Geotechnical Site Investigation Report**. Additional geotechnical evaluation is required prior to undertaking detailed design and stability analysis, and a program is in development for 2017 to undertake this work using the same chilled drilling methodology used during the 2016 field program.

4.5.2 STABILITY ANALYSES

The WRSFs will be designed to meet or exceed the acceptable design criteria for short-term conditions during operations (FOS 1.3) and long-term closure criteria (FOS 1.5). Stability analyses have not been completed for the conceptual WRSF configurations presented herein. Geotechnical investigation programs are planned for 2017 in order to attain the data necessary to undertake detailed design and complete both 2D and 3D stability analyses for the facilities.

4.6 CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL

A construction quality assurance (QA) and quality control (QC) plan will be developed for the WRSFs, the frozen soil storage area, temporary organics stockpile and the ROM stockpile prior to the commencement of construction to verify that the parameter assumptions and recommendations developed during the design process are achieved. Elements that will be considered include:

- A qualified environmental professional / technician with appropriate knowledge and training will monitor Project construction and closure activities
- Monitoring of cut slopes and fill material
- Salvaging and storing soil material suitable for reclamation
- An evaluation of topsoil volumes and, based on soil stockpile dimensions, a determination of whether there is sufficient material for reclamation

- Foundation preparation as necessary for geotechnical and environmental considerations
- Permafrost (and ice-rich material) identification
- Construction of berms, lifts, interceptor trenches and sediment ponds
- Implementation of construction constraints related to climate conditions
- Photographs of the construction process at each stage of construction
- Preparation of construction record drawings signed and sealed by a Professional Engineer registered in Yukon, where appropriate.

4.7 SURFACE WATER MANAGEMENT

Surface water will be controlled by a series of channels and berms to segregate water that has contacted mine waste and mine related infrastructure (contact water) from water which has not (non-contact water). Contact water will be collected and routed to the Alpha and Facility sedimentation ponds to allow suspended sediment to settle out of the water prior to discharging into the environment. Pond effluent will meet the MMER guideline for total suspended solids. Additional details regarding management of surface water can be found in the **Water Management Plan** (**Appendix 31-E**).

4.8 ROCK DRAINS

The Alpha WRSF drain will be constructed of coarse waste rock that will be selected and stockpiled in advance. Additional coarse rock for the drain will result from the natural segregation of waste rock that occurs during dumping. The larger waste rock particles segregate naturally at the bottom of each lift because their greater mass causes them to roll the furthest under gravitational forces. Geotextile fabric or a filter (sorted rock layer) may be used to prevent migration of fines into the drain rock from above. Additional waste rock characterization is needed before determining the need for a filter layer. Alternatively, a thicker layer of drain rock could be deposited to account for potential fines migration.

The rock drain is to be constructed in an area where permafrost may be present. Perennial freezing of the drains is not expected. Localized portions of the drain where groundwater discharges may freeze during the winter, but this ice will be melted by freshet flows. The rock drain is designed to convey up to 2 times the 100-year, 24-hour flow to minimize the potential effects. It is unlikely that ice could form and block flow entirely because of the perviousness of the WRSF.

Additional details and estimated volumes for construction of the rock drain can be found in the **Water Management Plan** (**Appendix 31-E**).

5.0 WASTE GENERATION AND DISPOSAL OPERATIONS

The following sections provide a detailed description of the operational plans for the handling, storage and surveillance of the rock and overburden materials at the Mine Site.

5.1 TYPES OF WASTE AND VOLUME

5.1.1 ORE

5.1.1.1 Volume

Gold mineralization at the Project is hydrothermal in origin and is structurally controlled, being associated with intrusive dykes and zones of brecciation. The primary host lithologies are augen gneiss, biotite-feldspar schist and granite. Each mine pit excavates primarily a single host lithology, with biotite-feldspar schist (schist) being generated from the Latte Pit, granite ore from the Kona Pit, and augen gneiss (gneiss) from the Supremo and Double Double Pits. Mineralized structures have undergone extensive weathering as a result of meteoric water percolating downwards through permeable corridors associated with gold mineralization, with complete oxidation up to 350 m below the surface. The majority of ore is classified as oxide (49 Mt) with lesser amounts coming from the upper transition (9.8 Mt) and lower transition (0.9 Mt) weathering zones. The volume of ore excavated from each weathering zones and pit is shown in **Table 5-1.**

Table 5-1 Total Ore Excavations Over Mine Life

Pit	Primary Lithology	Units	Oxide	Upper Transition	Lower Transition	Total
Double Double	Gneiss	Mt	0.6	0.8	0.0	1.5
Supremo	Gneiss	Mt	38.0	3.7	0.3	42.0
Kona	Granite	Mt	1.4	0.2	0.0	1.6
Latte	Schist	Mt	9.4	5.1	0.6	15.0
Total		**Mt**	**49.4**	**9.8**	**1.0**	**60.1**

5.1.1.2 Acid Rock Drainage Potential

As a result of in-situ weathering, sulphide and carbonate minerals have largely been removed from the ore. There is some variation in residual carbonate and sulphur content between the different lithologies and weathering facies. Transitional ore has somewhat elevated sulphur content and neutralization potential (NP) compared to oxide ore. However, the differences between lithologies are generally more distinguishing than those resulting from the weathering zone. The schist lithology has the highest NP (51 kg calcium carbonate ($CaCO_3$)/t), the gneiss has an intermediate NP (2.3 kg$CaCO_3$/t) and the granite has the lowest NP (median of 1.5 kg$CaCO_3$/t). Despite the highly weathered state of ore, some trace sulphur mineralization remains with median to 75th percentile values in granite, gneiss and schist being 0.01 wt.% to 0.03 wt.%, 0.01 wt.% to 0.04 wt.%, and 0.07 wt.% to 0.49 wt.%, respectively.

Due to the lack of sulphur content, relatively minor quantities of acid-neutralizing minerals can maintain a neutral drainage pH. The schist and gneiss ore are classified as non-PAG and have neutral to alkaline rinse pH (6.7 to 8.7) indicating that oxidation of sulphide minerals during in-situ weathering has produced insufficient acidity to deplete acid-buffering minerals. Conversely, granite ore has a mildly acidic rinse pH (4.4 to 6.8) and acid base accounting (ABA) indicates that 39% of granite ore is classified PAG. While this pH range is only mildly acidic, similar to that of rain water (pH 5.6), kinetic testing on granite ore indicates that these mildly acidic conditions will lead to a significant increase in metal leaching potential. Granite ore is therefore treated as PAG for the purposes of mine waste management.

5.1.1.3 Metal Leaching Potential

Analysis of solid phase metal abundances show that all lithologies of ore are enriched in Sb, As, bismuth (Bi), mercury (Hg), selenium (Se) and silver (Ag) with respect to average continental abundances (ACAs). Median U values in gneiss and granite ore are similar, both being 3x ACA with both lithologies having a median value of 14 parts per million (ppm) in the oxide weathering zone. Conversely, schist ore shows little or no U enrichment, with median values being similar to that of average continental abundance (median value of 2.9 ppm versus ACA of 2.7 ppm).

Within each of the gneiss and schist ore units, the highest Sb, As, and U concentrations are associated with the oxide facies and the lowest degree of enrichment is in the lower transition facies, indicating that weathering facies has an influence on the solid phase element concentrations. There is a significant variation in As enrichment between lithologies, with gneiss having significantly lower concentrations (median of 966 ppm) compared to schist and granite ore types (median values of 2450 ppm and 2040 ppm, respectively).

5.1.2 WASTE ROCK

5.1.2.1 Tonnage

Over the LOM, approximately 300 Mt of waste rock will be excavated from four Open Pits. Each pit excavates primarily a single lithology, with associations between lithologies and pits the same as that of ore described above. Non-mineralized waste rock surrounding the weathered ore bodies exhibits a variable degree of weathering, but as a whole is typically less weathered compared to ore zones. A majority of waste rock is either partially weathered and classified as 'lower transition', or unoxidized and classified as 'fresh'. The total volume of waste rock being excavated from each pit is presented in **Table 5-2**

Table 5-2 Total Waste Rock Excavations Over Mine Life

Pit	Primary Lithology	Units	Oxide	Upper Transition	Lower Transition	Fresh	Total
Double Double	gneiss	Mt	1.1	1.3	2.7	10.8	15.9
Kona	granite	Mt	1.4	1.1	0.5	2.3	5.3
Latte	schist	Mt	12.7	5.7	7.3	10.4	36.2
Supremo	gneiss	Mt	34.0	34.4	105.4	67.6	241.4
Total Waste Rock		**Mt**	**49.2**	**42.6**	**115.9**	**91.2**	**299.0**

5.1.2.2 Acid Rock Drainage Potential

Geochemical testwork indicates that all lithologies and weathering facies of waste rock have little or no potential for acid generation. The low potential for acid generation is, in part, related to the lack of sulphur mineralization, with median total sulphur (total S) values in gneiss, granite and schist being 0.01 wt.%, <0.01 wt.%, and 0.03 wt.%, respectively. There is some variation in sulphur content between weathering facies within each lithology, with the fresh weathering zone typically showing greater sulphur content then the transition and oxide zones. However, the sulphur content remains relatively low even in unweathered (fresh) waste rock, with median values ranging from <0.01 wt.% to 0.11 wt.%. Due to the low sulphur concentrations and the presence of carbonate minerals, all waste rock is classified as non-PAG.

5.1.2.3 Metal Leaching Potential

Analysis of solid phase metal concentrations show that the granite and gneiss lithologies are enriched in U and all lithologies of waste rock are enriched in Sb, As, Bi, Hg and Se (relative to ACA). The observed metal enrichments for waste rock is consistent with that observed for ore samples, with concentrations in the ore samples generally higher than that measured for waste rock of the same lithology and weathering group. In particular, Sb and As are one to two orders-of-magnitude higher in ore compared to waste rock of the same lithology and weathering. The difference in U concentrations is much less pronounced, with gneiss and granite ore having approximately twice the U content as waste rock (median values of 14 ppm in ore versus median value of 6.0 ppm to 7.0 ppm in oxide waste rock). Uranium shows no enrichment in schist, with concentrations being below the ACA (2.7 ppm) in all weathering facies.

Elemental enrichment is related to both lithology and weathering facies. In general, the highest Sb, As and Hg concentrations were measured in samples from the oxide facies (with granite having the greatest degree of enrichment). The schist lithology has the highest Se as well as other metals generally associated with sulphide mineralization (i.e., chromium (Cr), cobalt (Co), copper (Cu) and Zn).

5.1.3 Leach Tailings

5.1.3.1 Volume

Leach tailings represent ore that has been mixed with lime and leached with a sodium cyanide solution in the HLF. Ore processing will not involve solids separation (e.g., sulphide flotation), hence, the volume and lithologies of leach tailings is the same as that of ore presented in **Table 5-1**Error! Reference source not found..

5.1.3.2 Acid Rock Drainage Potential

Leach tailings have a lower ARD potential compared to ore due additional NP in the form of lime that will be added to maintain cyanide stability. Lime addition will neutralize any water soluble acidity (e.g., iron (Fe) and aluminum (Al) sulphates minerals) that may be present on the ore. Upon mine closure, excess lime will either be rinsed from the HLF or re-precipitate as calcite.

For the purposes of mine waste management, the same classifications developed for ore will be applied to leach tailings (i.e., granite leach tailings will be classified as PAG). While lime addition will reduce the ARD potential, special handling will nonetheless be incorporated into mine waste management in order to ensure that this rock type is encapsulated within the HLF. Note this rock type makes up less than 2% of total ore stored within the HLF. Due to the small quantity of PAG material being stored in the HLF, the facility as a whole has little or no potential for the development of ARD.

5.1.3.3 Metal Leaching Potential

Irrigating ore with sodium cyanide solution will dissolve gold and other trace metals which form soluble cyanide complexes (e.g., Cu, Hg, cadmium (Cd), nickel (Ni), Zn). While this will affect the metal leaching potential of ore during active leaching, it will only have a minor effect on total metal abundance, and solid phase metal enrichment in leach tailings will remain similar to ore.

Metal leaching potential from the HLF will vary widely at different stages of mine life. During the Operation Phase, addition of sodium cyanide will increase the solubility metals which form cyano-metal complexes (e.g., Cu, Hg, Cd, Ni, Zn). Furthermore, the high pH values created by lime addition will increase the solubility of certain anion-forming elements such as Sb, As, molybdenum (Mo) and U. The highest potential for metal leaching from the HLF will occur during the Operation Phase while the HLF is being actively leached.

After mine closure, metal leaching potential from leach tailings will decline as cyanide is detoxified and the pH of the facility declines, from pH values >11 to circumneutral. Cyanide destruction will occur at the end of mine life, removing residual cyanide from HLF pore water and reducing the metal leaching potential of detoxified leach tailings. Lime is unstable in the presence of water and atmospheric carbon dioxide, and will be either rinsed from the system or re-precipitated as calcite. The metal leaching potential of leach tailings will decline at closure once cyanide detoxification is complete and the pH declines from highly alkaline to circumneutral values.

5.1.4 OVERBURDEN AND TOPSOIL

5.1.4.1 Volume

Topsoil and overburden will be stripped from Project facilities and either stockpiled or used as fill depending on the source, ice content, and organic content. The volumes of topsoil and overburden are outlined in **Section 2.0.**

5.1.4.2 Acid Rock Drainage Potential

Geochemical test results indicate that the Mine Site overburden has little or no potential for acid generation. This is primarily due to the low sulphur content (median of 0.01%). The static test results demonstrate that the Mine Site overburden is at a highly-weathered state, as indicated by the lack of carbonate or sulphide mineralization and the circumneutral to mildly acidic rinse-pH (5.2 to 8.9; median of 7.2) at a pH similar to that of rain water (~pH 5.6). Due to the lack of acid generating minerals, the Mine Site overburden is classified as non-PAG.

5.1.4.3 Metal Leaching Potential

Overburden is relatively depleted in a number of metals, with 90^{th} percentile values for Al, Cd, Co, Cr, Cu, manganese (Mn), Ni and Zn below ACAs. Some samples are enriched in As, Bi, Hg, Sb and Se with respect to ACAs, consistent with solid phase element results for waste rock and ore. The most frequently elevated elements are Bi and Se; however, metal leaching results show concentrations of these metals are generally below the respective detection limits indicating that these elements are not in a readily water soluble form. Overall, the metal leaching potential from overburden is considered low.

5.2 WASTE CHARACTERIZATION AND MONITORING PROTOCOL

Mine rock will be monitored for ML/ARD potential as part of the ongoing effort to characterize mine waste over the Projects life. This monitoring program will provide continuous characterization of the ML/ARD potential of ore, overburden, waste rock and leach tailings as it is produced. The objectives of further characterization and monitoring are as follows:

- Confirm that mine rock is non-PAG and that metal leaching potential is similar to what is predicted in geochemical characterization work conducted as part of mine permitting
- Provide continuous characterization of geologic material sent to various storage facilities or used in construction; and
- Inform periodic revisions and updates to the Reclamation and Closure Plan.

A summary of sample frequency and characterization methods for different material types is shown in **Table 5-3**. Regular sampling will consist of a limited number of NP and Acid potential measurements to confirm ARD potential, and total metals analysis to monitor metal enrichment. Sample frequency will vary depending on the type of geologic material (*i.e.,* waste rock, ore, leach tailings and overburden) and the material source (*e.g.,* elevated sample frequency in Kona Pit). A more complete set of analysis will be conducted for every tenth sample collected as part of the QA/QC program. Note that the sample frequency prescribed in **Table 5-3** will result in over 3,300 samples being collected for geochemical analysis over Project life. All data produced as part of ongoing monitoring activities will be reported in the Environmental Monitoring, Surveillance and Reporting Plan in support of the Quartz Mining License. More detail of sample collection and standard operating procedures will be included in the ML/ARD Management and Monitoring Plan.

Table 5-3 Summary of Sampling Frequency and Analytical Parameters Monitored for Characterization of Mine Rock

Monitoring Program	*Regular Sampling*			*QAQC*	
	Sample Type	Frequency	Parameters	Frequency	Parameters[3]
In-pit mine rock	assay pulp[1]	1/100,000 tonnes	Total S, Total C, aqua regia metals	1/10 samples	ABA, aqua regia metals
In-pit Kona mine rock	assay pulp[1]	1/25,000 tonnes	Total S, Total C,, aqua regia metals	1/10 samples	ABA, aqua regia metals
Inorganic Overburden	composite	1/25,000 m^3	Total S, Sobek NP, aqua regia metals	1/10 samples	ABA, aqua regia metals
Leach Tailings	test pit	4/quarter	Total S, T-C, aqua regia metals	1/10 samples	ABA, aqua regia metals
Access Road Borrow	composite	1/large cut or borrow[2]	Total S, Sobek NP, aqua regia metals	1/10 samples	ABA, aqua regia metals

Notes:

1. Collected from blast hole drill cuttings.
2. Excavation of bedrock or alluvial material >4,000 m^3 (Onsite, 2016).
3. Full suite of ABA includes, paste and rinse pH, total S, sulphate-S, sulphide-S, total and inorganic C, and Sobek NP.

5.3 Waste Segregation Protocol

5.3.1 Waste Rock

Geochemical characterization indicates that waste rock is non-PAG, as such, no special handling to mitigate ARD potential will be required. If PAG material is identified as part of regular monitoring activities, contingency measures will be adopted as described in the ML/ARD Management and Monitoring Plan.

5.3.2 Overburden and Topsoil

Topsoil and overburden will be stripped from the footprint of Project facilities and either stockpiled or used as fill depending on the source, ice content and material type. Organic topsoil will be stripped from the footprints of mine facilities and stored in the soil stockpile for later use as a growing medium for vegetation at the end of mine life. Storage of overburden will vary depending on where it is excavated.

Geochemical characterization of overburden samples collected across the Mine Site show that overburden is non-PAG and has low metal leaching potential. Hence, no segregation or special handling of overburden is required to mitigate ML/ARD potential. If PAG material is identified in overburden during the mine waste monitoring program, contingency measures will be adopted, as will be described in the ML/ARD Management and Monitoring Plan.

5.3.3 Ore

Approximately 60 Mt of ore mined from the Open Pits will either be taken directly to the HLF or temporarily stockpiled on the ROM stockpile. The mass of ore on the ROM pad will fluctuate, with peak volumes occurring during the winter months when ore is still being produced from the pits but no new material is stacked on the HLF. The ROM stockpile will be lined and seepage will be collected and used as makeup water in the HLF process.

A majority of ore is expected to be non-PAG with the exception of granite ore from the Kona Pit, which is classified as PAG for the purposes of mine waste management. While there is no drainage being directly discharged from the ROM stockpile, tracking of granite ore being temporarily placed in the ROM stockpile is required to ensure that it is properly managed when it is placed in the HLF. Granite ore will be tracked on the ROM stockpile as follows:

- The location and volume of ore from Kona Pit will be recorded when it placed on the ROM stockpile; and
- A qualified person will confirm lithology and proper placement of all material being moved from ROM stockpile to the HLF during years 1-3 of mine life when the Kona Pit is active.

In order to ensure that granite ore is properly placed on the HLF, a qualified person must confirm the ore lithology on the ROM pad before it is removed so that the location of granite ore on the HLF facility can be tracked.

5.3.4 LEACH TAILINGS

Crushed ore will be stacked in nominal 10-m lifts. The only material being deposited at the HLF with ARD potential is granite ore from the Kona Pit. Kona ore also has the highest potential for U and As leaching compared to other ore lithologies. Special handling and placement of granite ore in the HLF will take place to mitigate the potential for ARD and minimize the metal leaching potential. The general mitigation strategy for granite ore is encapsulation within the interior of the HLF. In order to achieve this, granite ore will be handled as follows:

- Exclude granite ore from bottom 10 m lift; and
- Place granite ore at least 10 m below final elevation of HLF and 10 m away from HLF slopes.

Excluding granite ore from the bottom lift will ensure that excess NP associated with the gneiss and schist ores will neutralize any acidity generated from granite ore within the HLF. Excluding granite ore from the bottom and top lift and keeping it 10 m away from the HLF slopes will ensure that granite ore is encapsulated at the end of mine life. All granite ore (1.6 Mt) is scheduled to be mined during Years 1, 2 and 3 of the Operation Phase. Over this time period, 15 Mt of gneiss and schist ore is scheduled to be mined from the Latte, Double Double and Supremo pits. Considering that granite ore only represents 2.7% of the total ore volume and is mined concurrently with much greater quantities of schist and gneiss ore, encapsulation and neutralization of this material within the interior of the HLF is not expected to present an operational challenge during LOM.

5.4 MONITORING PROGRAM

Visual observations of the WRSFs, overburden stockpiles, sedimentation pond dams and pit slopes will be the most frequent and most important method of monitoring their geotechnical performance. The purpose of the inspections is to identify apparent physical changes to the facilities that may indicate future instability and to allow the conditions to be mitigated prior to an instability occurring. The geotechnical performance of the waste rock and overburden stockpiles will be monitored via three types of visual inspections:

- Routine inspections
- Annual inspections
- Event-driven inspections.

5.4.1 ROUTINE INSPECTIONS

Facility operators will complete routine visual inspections at least weekly (unless otherwise noted), and more frequently when operational conditions dictate. Conditions which require more frequent inspections include:

- Significant increase in construction (material placement) or excavation rates
- Unusually high amounts of rainfall or snowmelt
- Deformation (heaving or bulging) of facility toes or slope faces
- Excessive settlement or surface cracking above or on slopes
- Seepage coming from slope faces or toes
- Significant changes in material geotechnical properties
- Any other operational changes which could affect slope stability.

Routine geotechnical inspections will be completed for all relevant components of the facilities, including:

- WRSFs, overburden stockpiles and sedimentation pond dam toes, crests and faces (daily)
- Natural foundation slopes prior to material placement (daily)
- Cut and fill slopes created during construction or as part of the removal of unsuitable foundation materials (daily)
- Water outlet structures, emergency spillways, and upstream reservoir banks for the sedimentation dams (monthly)
- Instrumentation
  - Data will be collected and reviewed at a minimum of once per week from all instrumentation or as otherwise specified by the geotechnical engineer. Increased frequency will be necessary if/when concerns are identified.
  - Equipment will be inspected monthly or as otherwise recommended by the manufacturer or geotechnical engineer to verify functionality.
  - Equipment will be calibrated according to the manufacturer’s recommendations.

Engineering, survey, and operational staff that conduct the routine visual inspections will be trained to look for, and be able to recognize, signs of instability as described in Section 8 of the “Mined Rock and Overburden Piles Operating and Monitoring Manual” prepared by the BC Mine Waste Rock Pile Research Committee (1991). Personnel designated as responsible for conducting routine inspections will also be familiar with the triggers for an event-driven inspection. Written records of routine inspections shall be maintained as a permanent record at the Mine Site and stored digitally on an off-site server. Any deviations from normal or expected conditions shall be immediately reported to the geotechnical engineer and operational management.

5.4.2 ANNUAL INSPECTIONS

Annual inspections will be performed by an independent professional engineer experienced with construction and operation of such facilities in cold climates. Annual inspections are to be at a date providing sufficient time before the end of the open water season to allow any resulting action plans to be implemented in a timely manner. These inspections are to include all of the elements within the routine inspection program, plus the following:

- Review recommendations from the prior annual inspection and verify that they have been implemented
- Review all instrumentation and monitoring systems, and all related data for the prior year
- Review the Routine inspection reports
- Review the information gathered on the geotechnical properties and verify that these are consistent with the current design assumptions. Revise this program as indicated
- Prepare a photographic log of the facilities
- Verify the design basis relative to current regulations, industry and engineering standards, and operating practices
- Verify the adequacy of the inspection programs and this Waste Rock and Overburden Management Plan
- Review the construction plans (as-built and future) and verify that they are consistent with the design
- Perform a dam safety review of the embankments for the sedimentation ponds, according to Canadian Dam Association standards (CDA 2007)
- Comprehensive dam reviews shall be performed as recommended by the CDA, no less frequently than every seven years, in the year prior to decommissioning, and following closure.

The inspecting geotechnical engineer shall prepare a report of annual inspection and this report shall be kept as a permanent record at the Mine Site and stored digitally on an off-site server. Any deviations from normal or expected conditions shall be immediately reported to the geotechnical engineer and operational management.

5.4.3 EVENT-DRIVEN INSPECTIONS

Special inspections shall be carried out by the geotechnical engineer if and when any of the following occurs. Inspections shall be completed as soon as possible after the subject event which could include the following:

- Unusually large precipitation, freshet or seismic events. The following can be used as a guideline when special inspections are required under this criteria:
    - Unusually high amounts of rainfall or snowmelt;

  - Precipitation or freshet in excess of the 25-yr/24-hr event;
  - Ground acceleration in excess of 0.08 *g* (as estimated from earthquakes recorded by the regional seismograph network).
- Significant increase in construction (material placement) or excavation rates
- Deformation (heaving or bulging) of facility toes or slope faces
- Excessive settlement or surface cracking above or on slopes
- Seepage coming from slope faces or toes
- Significant changes in material geotechnical material properties;
- Unusual operating conditions including any material damage to the sedimentation dams (i.e., damage that can adversely affect the serviceability of the particular component)
- Any other operational changes which could affect slope stability.

Event-driven inspections, which require follow-up action by the geotechnical, shall include a detailed description of such action with timelines and compliance criteria. Any deviations from normal or expected conditions shall be immediately reported to operational management.

6.0 ADAPTIVE MANAGEMENT PLANS

Each item in the Monitoring section has a corresponding item in the Adaptive Management Plan (**Table 6-1).** The triggers are set to provide reasonable reaction time to possibly adverse changes without being overly sensitive and thus giving false positives. Both the triggers and the actions should be revised as the facility designs are advanced and as operating experience is gained.

Table 6-1 Adaptive Management Triggers & Actions

Location / Item Description	Triggers	Action
1) Toes and faces of WRSFs, Overburden Stockpiles and Sedimentation Pond Embankments	a) Any bulging or deformation of toes or faces	a) Develop action plan as needed but could include: ▫ Increase monitoring frequency ▫ Detailed review and analysis of performance data ▫ Notification of the site engineer, mine manager, and/or Yukon Inspector; ▫ Reduction of the rate or ceasing of material placement; ▫ Stabilize the area of concern as required prior to failure (e.g. unloading of the dump, or buttressing)
	b) Material stacked outside of the design limits	b) Engineer to determine if condition requires action
2) Crests and surfaces of WRSFs, Overburden Stockpiles and Sedimentation Ponds	a) Areas showing excessive slumping or settlement, or b) Areas showing tension cracking	a) Engineer to determine if condition requires action (see Action 1a) b) Engineer to determine if condition requires action (see Action 1a)
3) Cut and fill slopes for WRSFs, Overburden Stockpiles and Sedimentation Ponds	a) Areas of instability including tension cracks, deformation of bulging of toes or faces b) Surface erosion	a) Engineer to determine if condition requires action (see Action 1a) b) Identify source of distress and remediate cause
4) Variation in waste rock and/or overburden material geotechnical properties	a) Significant changes in waste rock or overburden material geotechnical properties	a) Engineer to determine if the variation has potentially adverse effects and then develop and implement action plan, if needed
5) Seepage at the facility toes	a) Seepage noted at the facility toes	a) Engineer to determine if condition requires action and develop action plan as needed
6) Data collection	b) Data from instrumentation does not match visual observation within tolerance of both	c) Engineer to investigate the discrepancy, and develop corrective action plan
7) Instrumentation: ▫ Data to be collected and reviewed ▫ Equipment to be inspected ▫ Equipment to be calibrated	a) Operating conditions for any instrumented component departs from forecast by more than the specified tolerance, or b) Equipment that is not operating as specified or within the manufacture's tolerances, or appears to be reporting incorrect values	a) Engineer is to investigate the discrepancy and develop corrective action plan as needed b) Any equipment that is not operating as specified is to be repaired, replaced or recalibrated as needed

Location / Item Description	Triggers	Action
8) Independent inspection of WRSF and overburden stockpiles	To be in accordance with Independent Engineer's Report of Annual Inspection	
9) Comprehensive inspection of sedimentation dams. All areas of each sedimentation dam are to be inspected including outlet structures, spillways, and the upstream banks of the reservoir.	To be in accordance with report of Comprehensive Dam Review. The inspections are to note any signs of instability, seepage, abnormality, or deviation from the facility design. The inspections will follow the procedures outlined in the Canadian Dam Association's Technical Bulletin: Surveillance of Dam Facilities (2007).	
10) Event-driven inspection	a) Inspection required as soon as possible after trigger event	a) To be in accordance with the Report of Special Inspection as defined in the Event-driven inspection section

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Appendix 31-D-I

Life of Mine Annual Plots

Appendix 31-D-II

Feasibility Pit Slope Stability Evaluation

Appendix 31-D-III

2015 Geotechnical Field Investigation

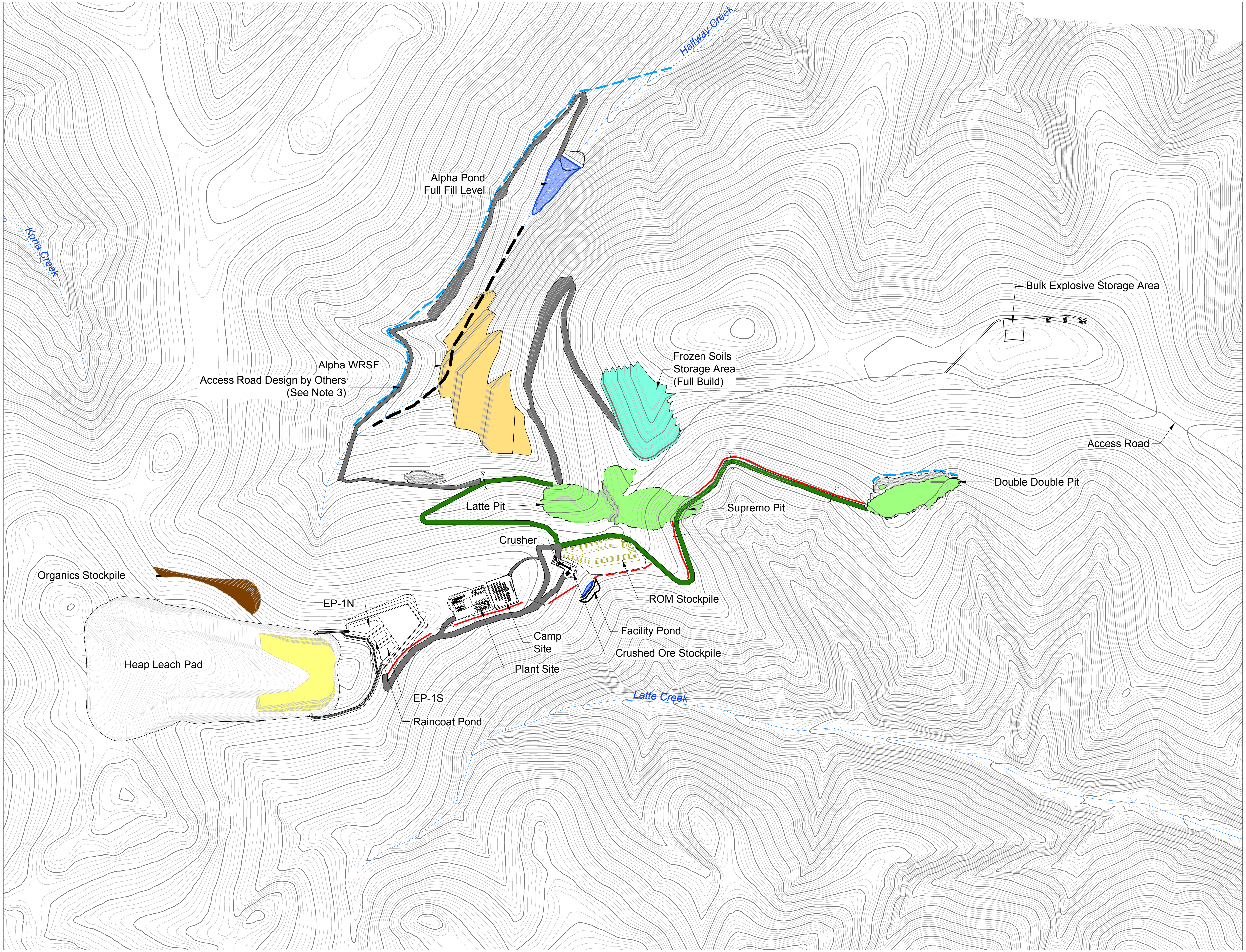
Appendix 31-D-IV

Fall 2016 Geotechnical Site Investigation

Data Report

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year -1



Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
- Haul Road
- Culvert

Notes

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2. Contours shown at a 5 meter contour interval.
3. Access road design to be finalized in next phase.

N

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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

Figure 1	Date: Mar 29, 2017	Drawn by: TAH	Reviewed: DP/TS

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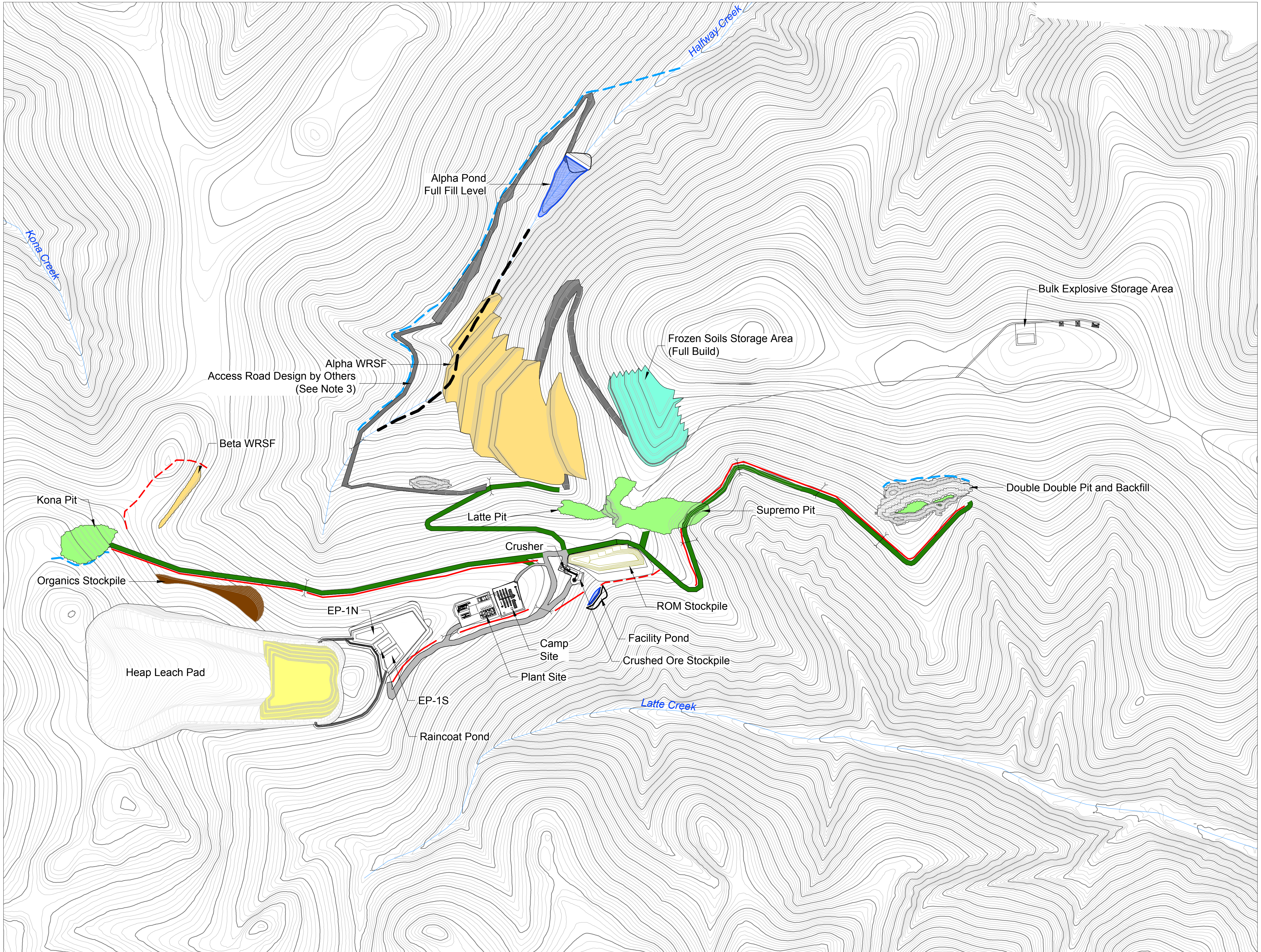

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 1

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
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Metres

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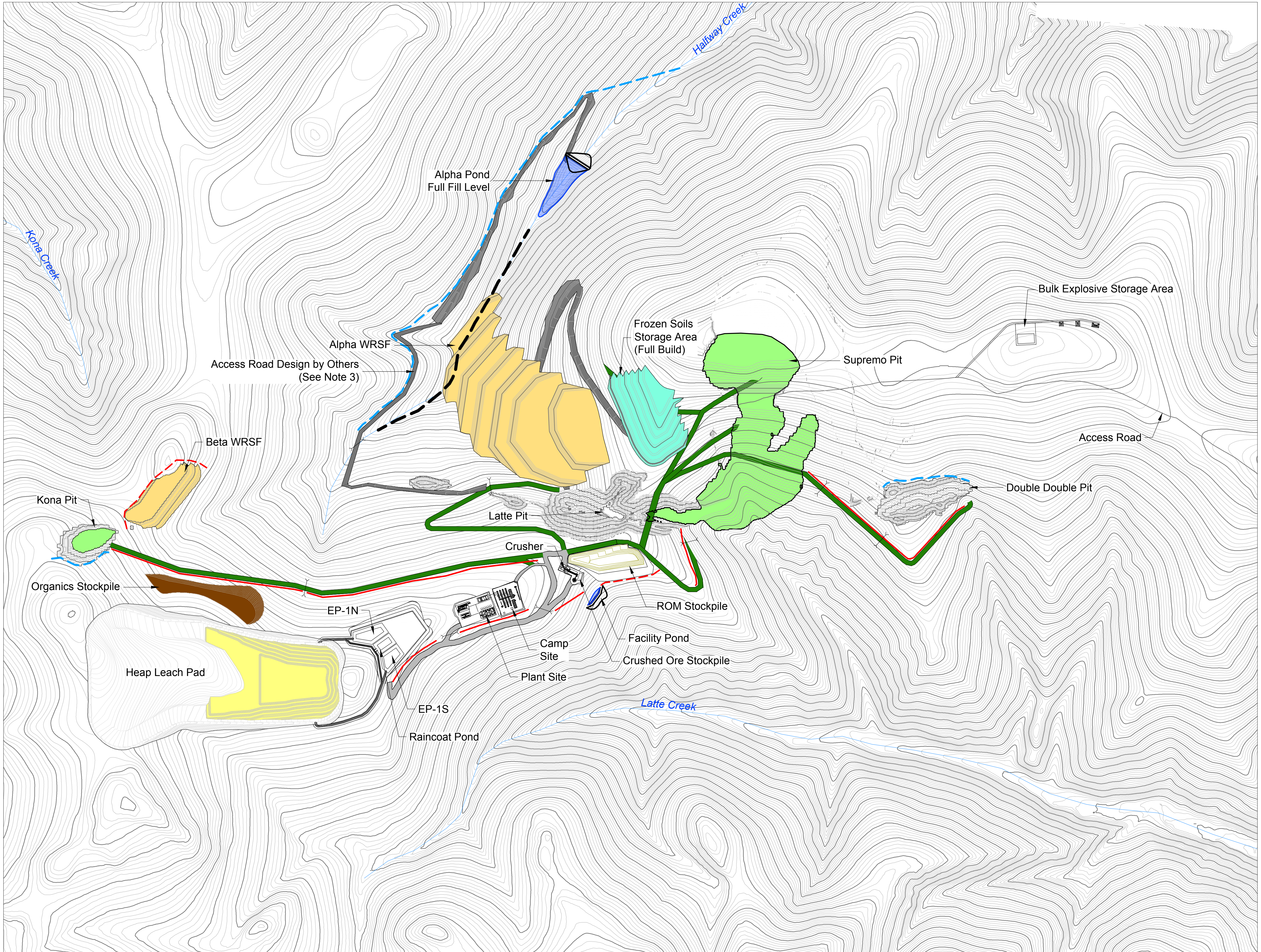

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 2

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
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Metres

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Page Size: 11" x 17"

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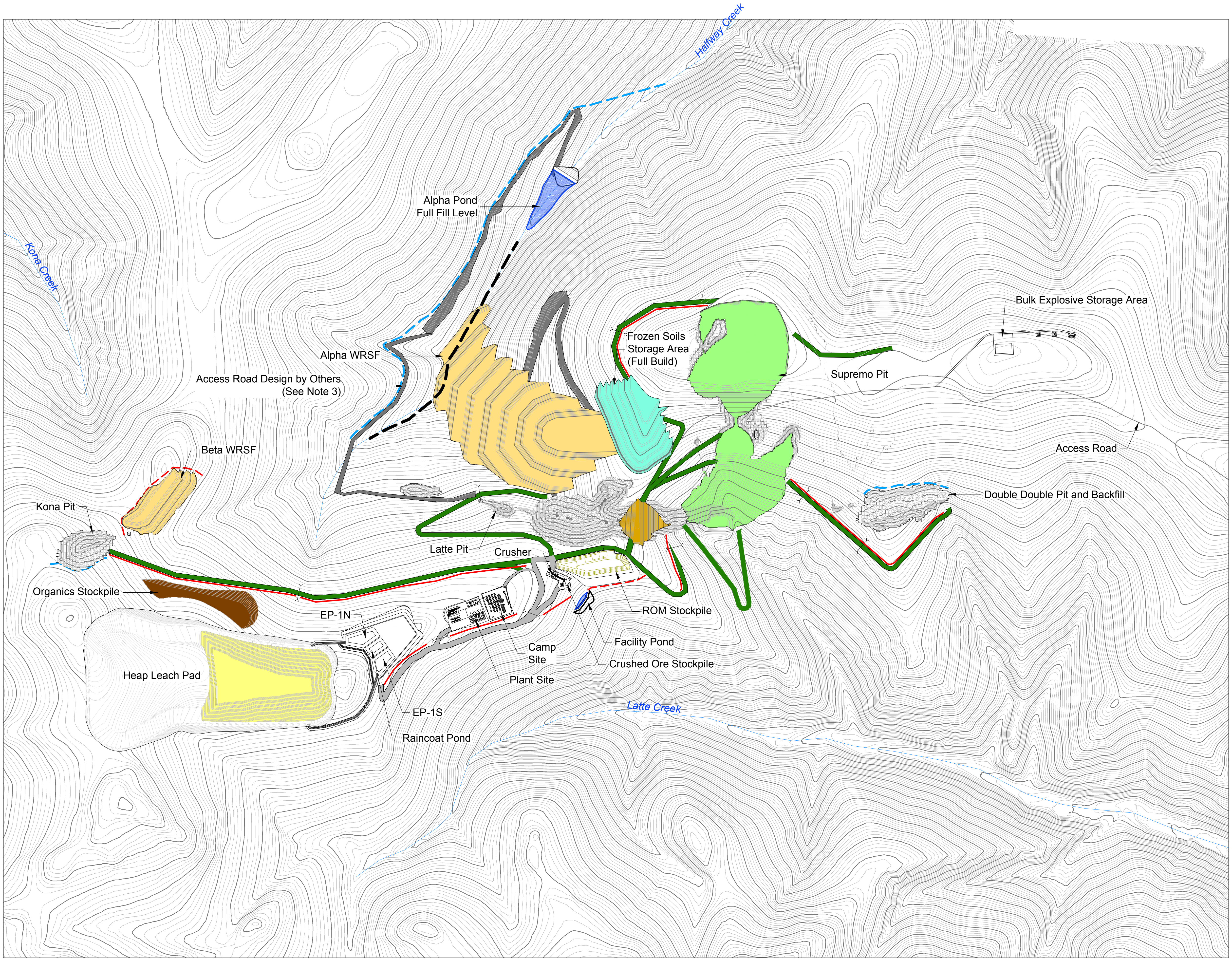

COFFEE GOLD MINE

Mine Site general Arrangement at End of Year 3

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
- Haul Road
- Culvert

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Metres

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Page Size: 11" x 17"

Figure 4	Date: Mar 29, 2017	Drawn by: TAH	Reviewed: DP/TS

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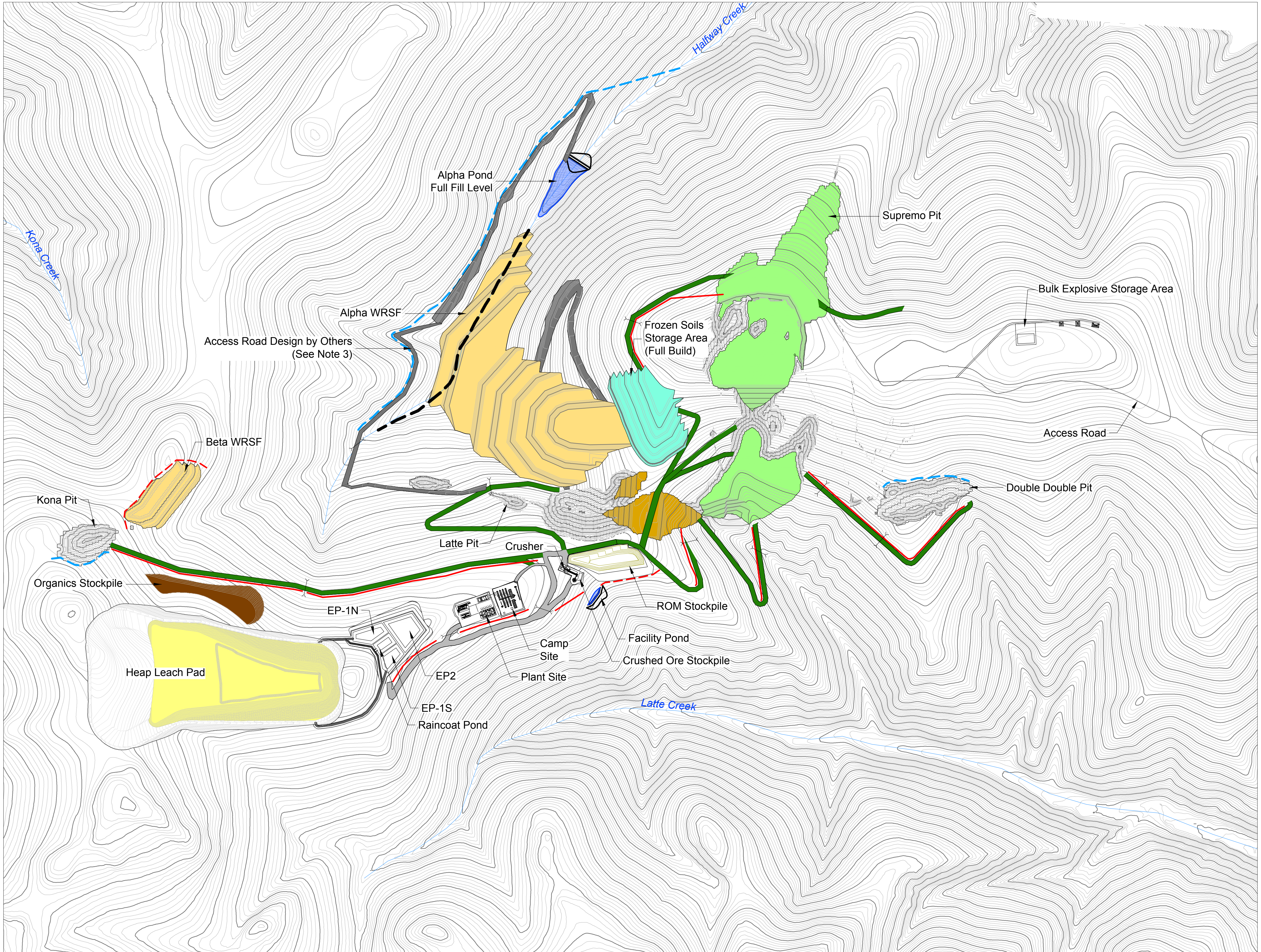
COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 4



Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

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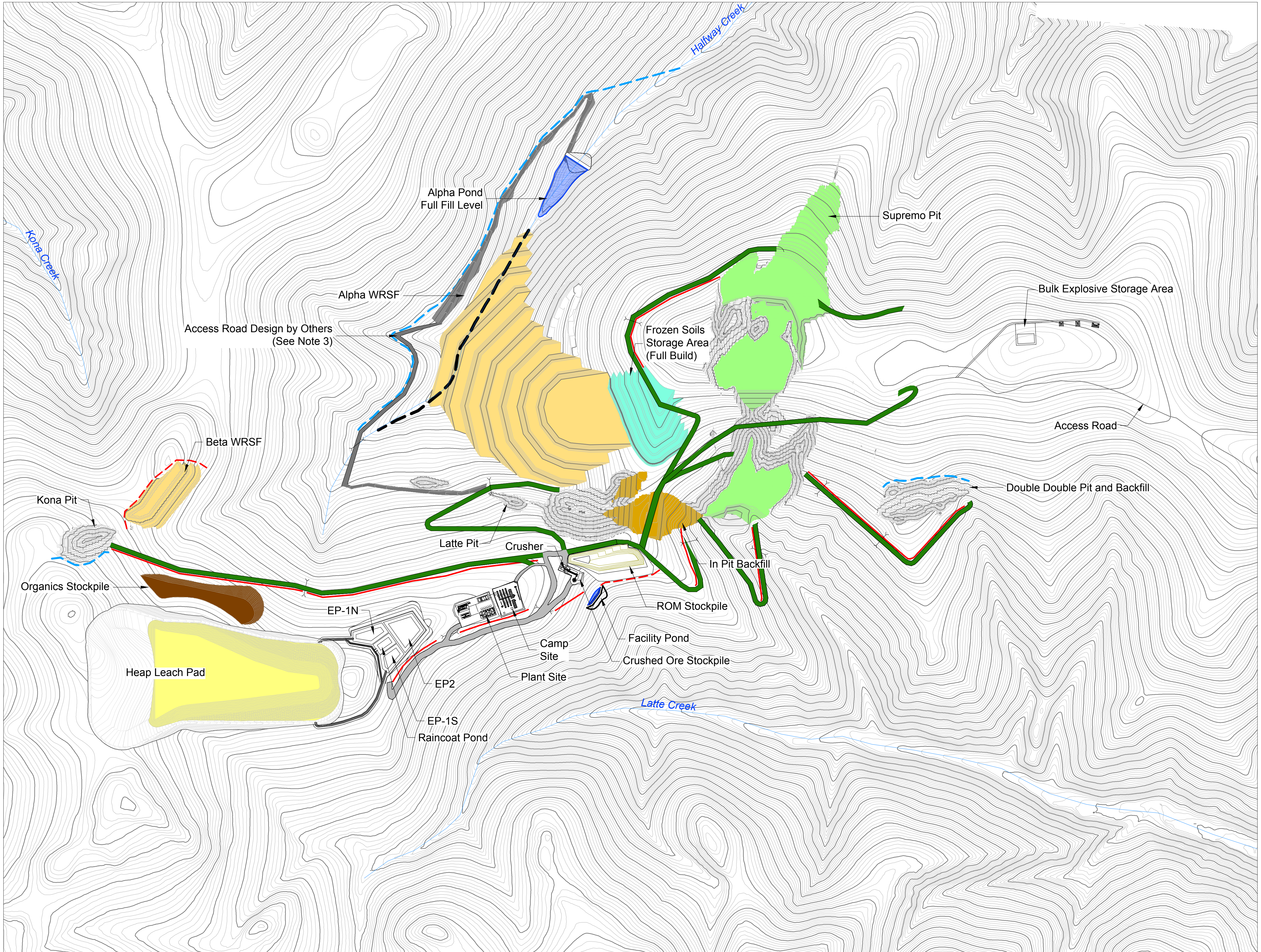

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 5

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
- Haul Road
- Culvert

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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

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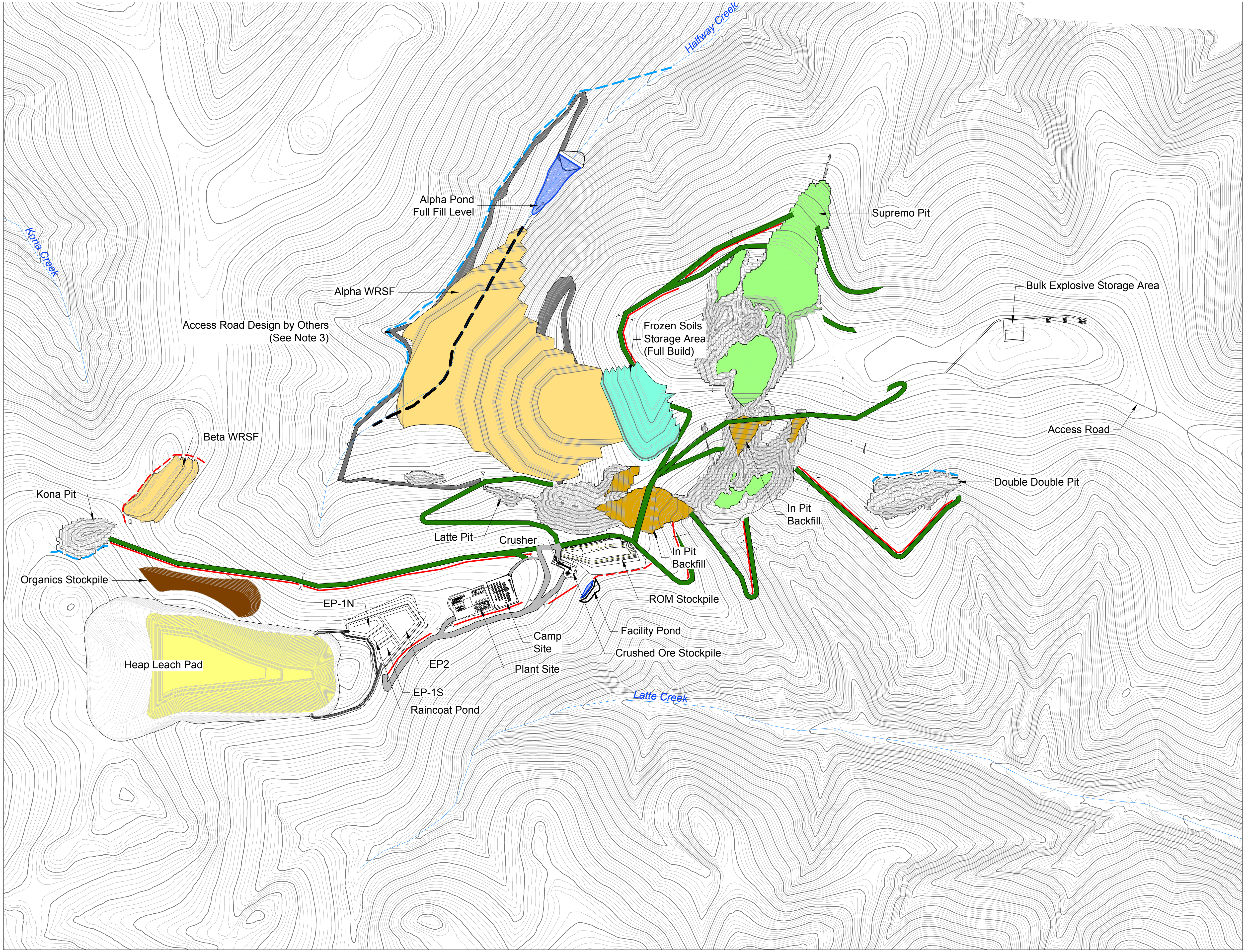

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 6

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
- Haul Road
- Culvert

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Metres

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Page Size: 11" x 17"

Figure 7	Date: Mar 29, 2017	Drawn by: TAH	Reviewed: DP/TS

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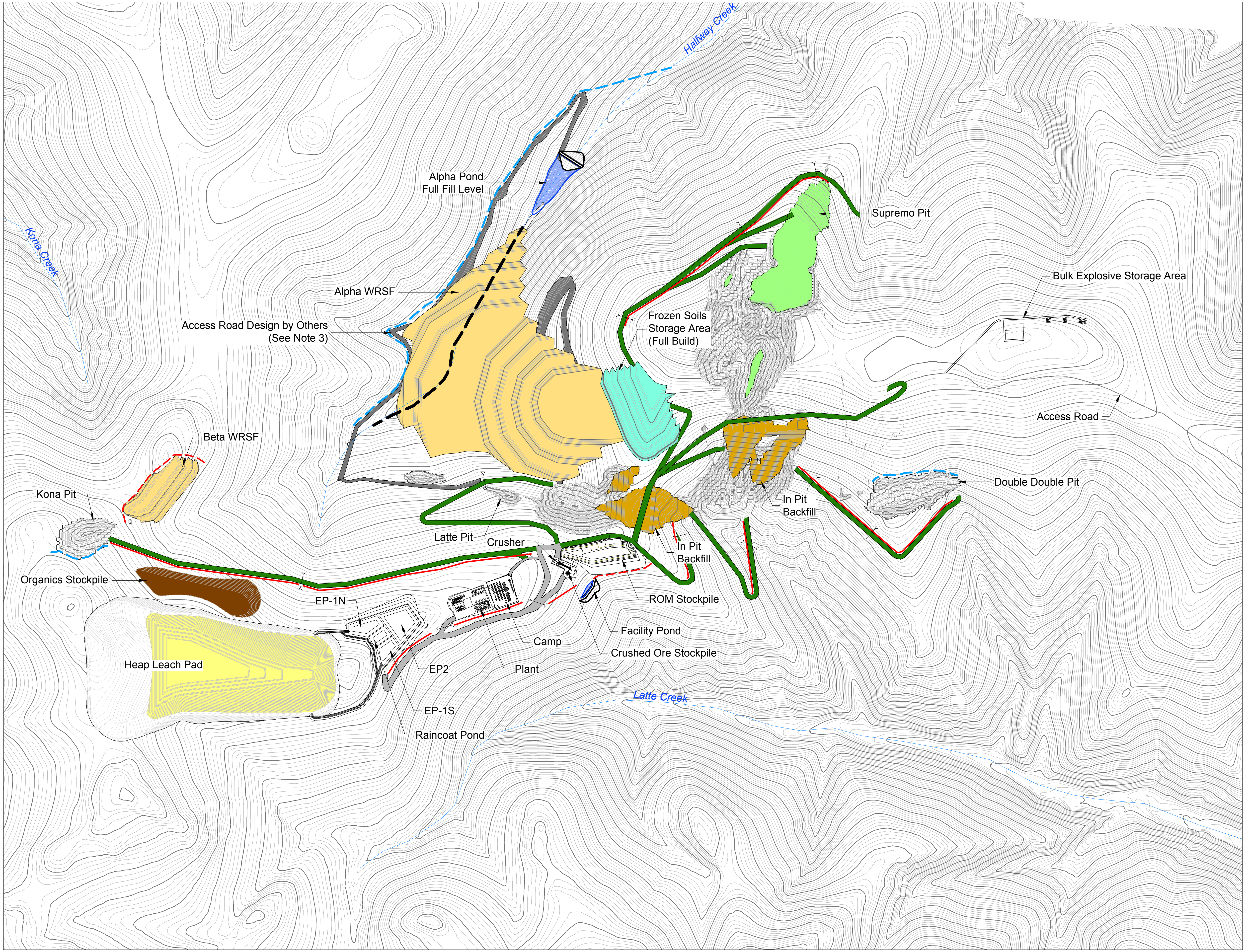

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 7

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
- Haul Road
- Culvert

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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

Figure 8	Date: Mar 29, 2017	Drawn by: TAH	Reviewed: DP/TS

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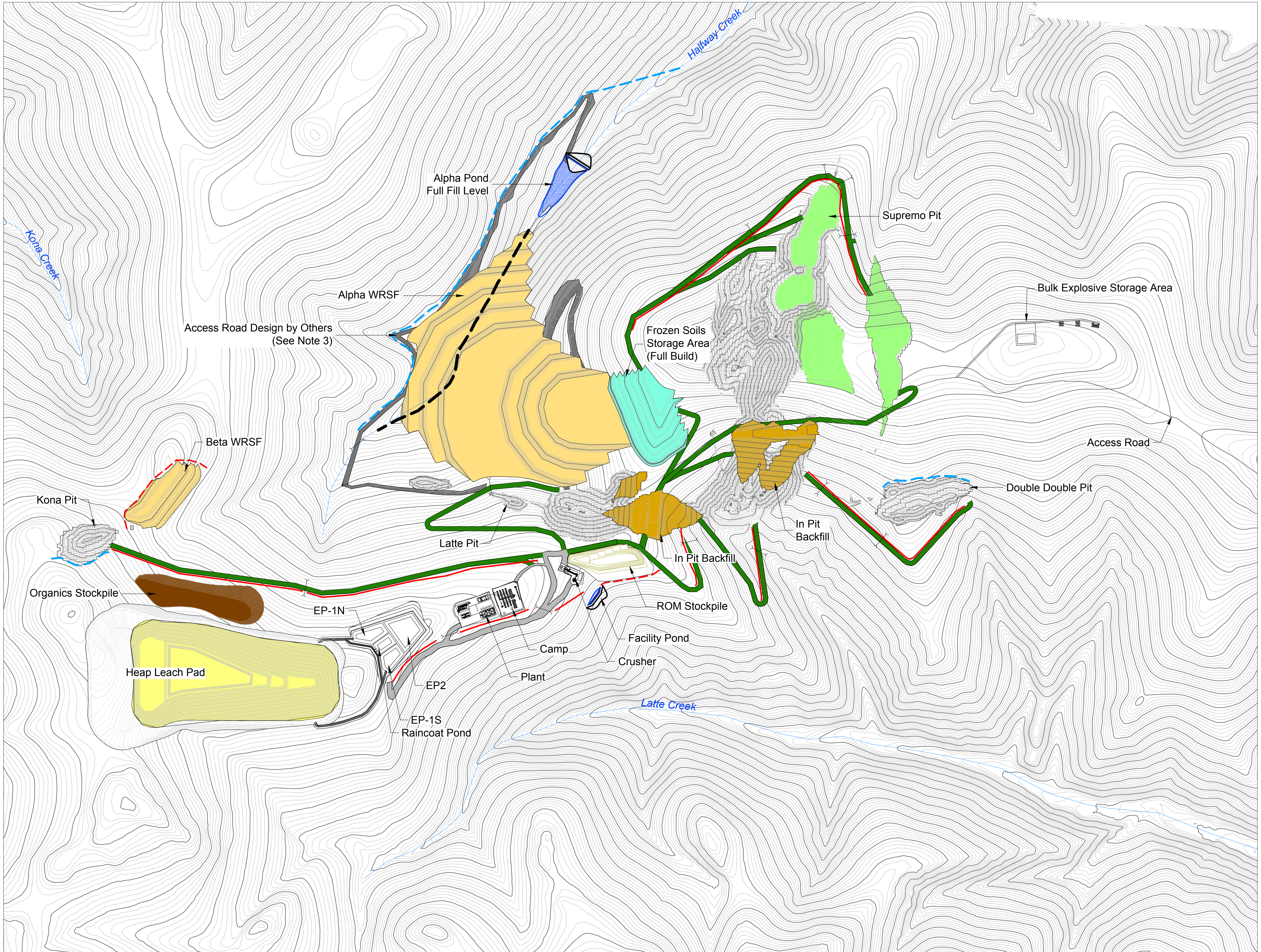

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 8

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
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- Culvert

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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

Figure 9	Date: Mar 29, 2017	Drawn by: T. Haye	Reviewed: DP/TS

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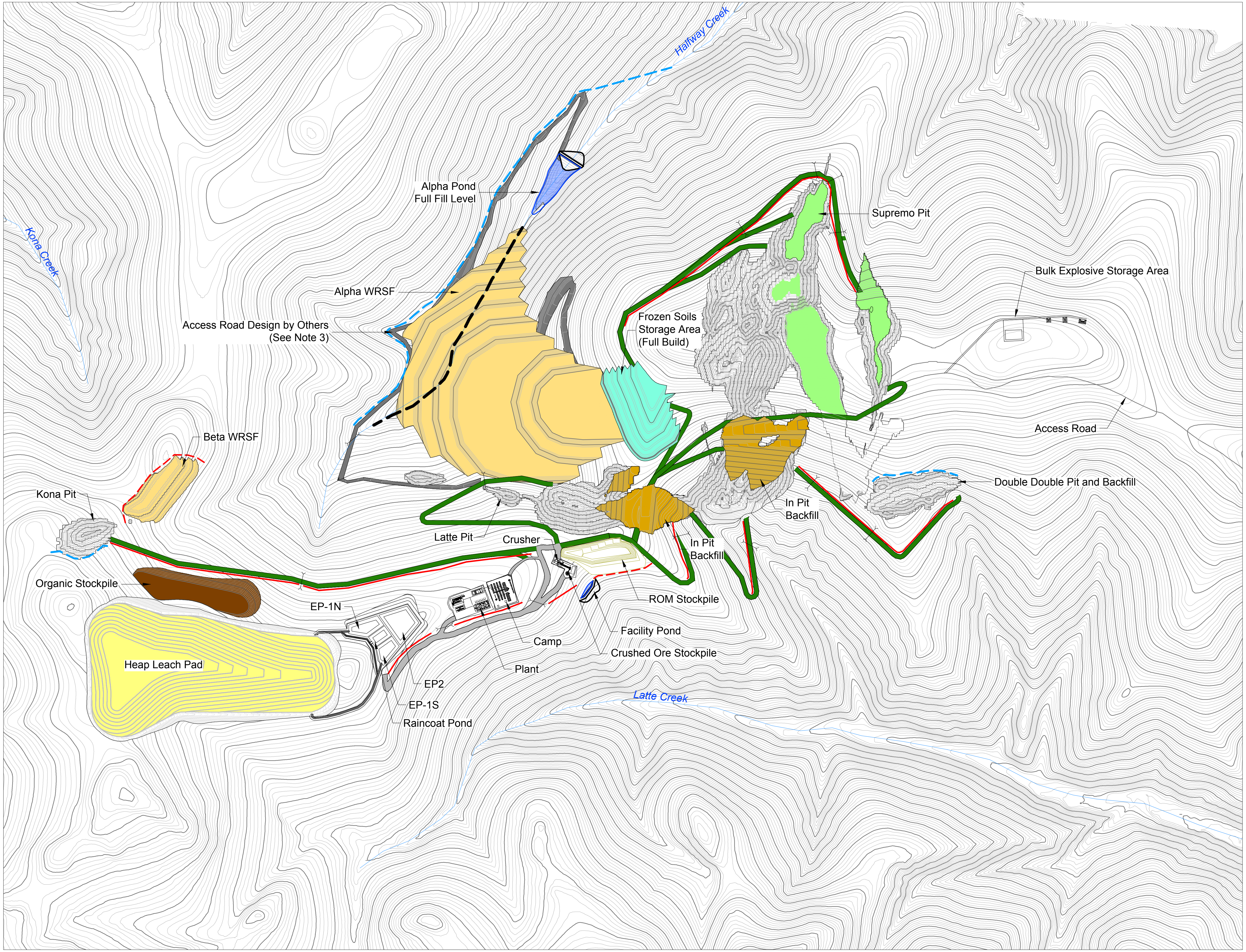
COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 9



Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
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- Haul Road
- Culvert

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Page Size: 11" x 17"

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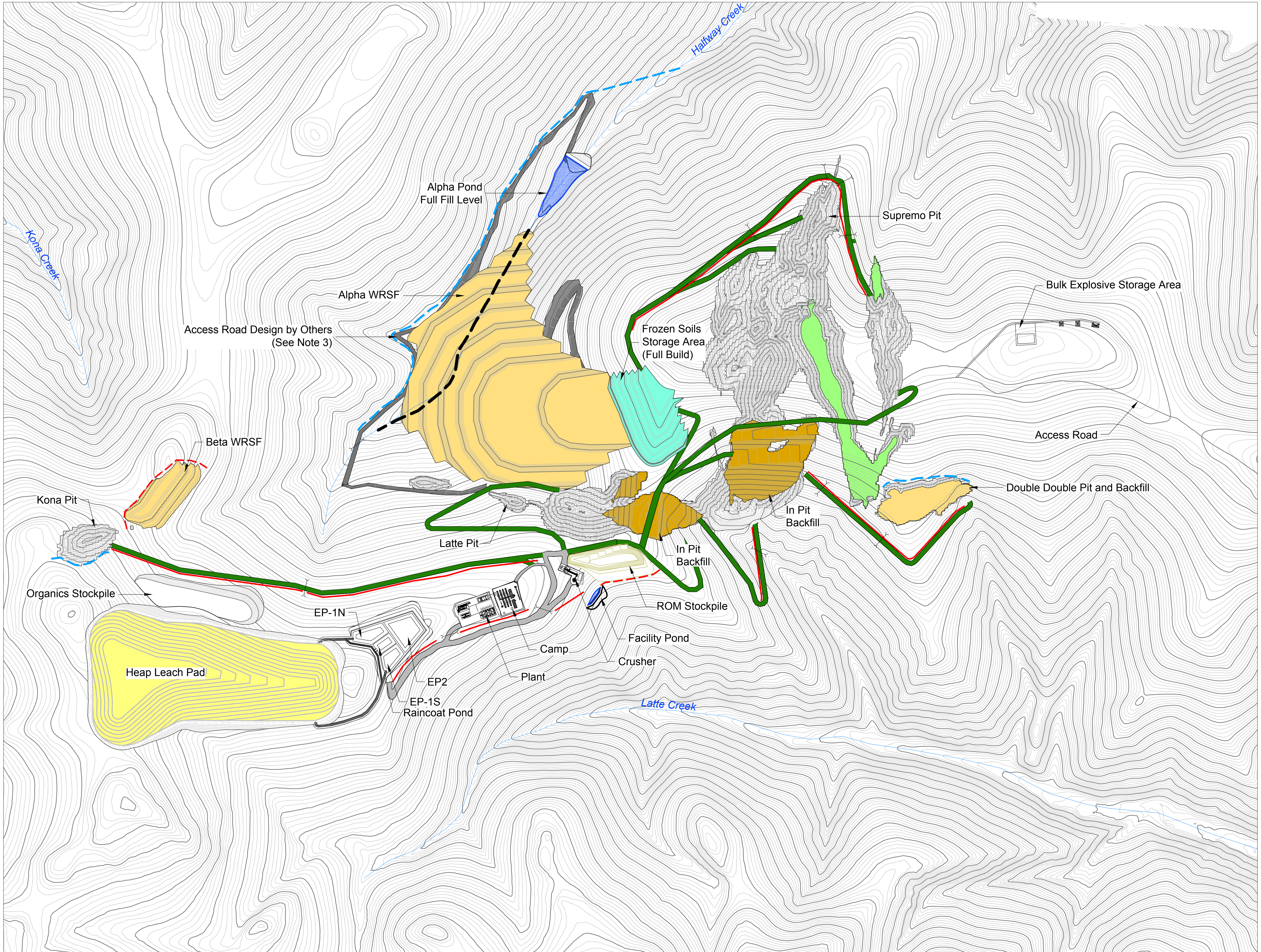

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 10

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
- Heap Stack
- Access Road
- Haul Road
- Culvert

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Metres

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Page Size: 11" x 17"

Figure 11	Date: Mar 29, 2017	Drawn by: T. Haye	Reviewed: DP/TS

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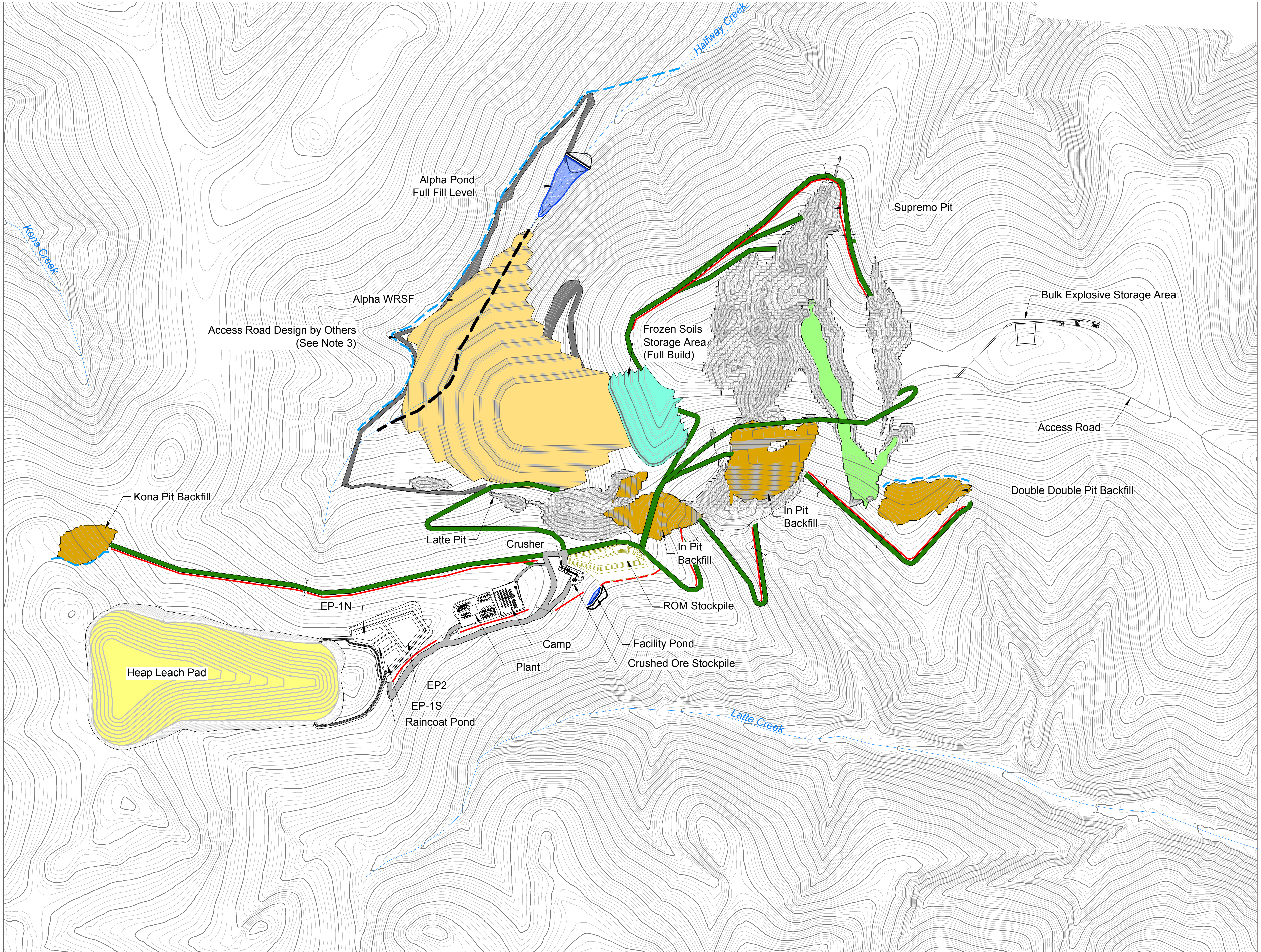

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 11

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
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- Access Road
- Haul Road
- Culvert

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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

Figure 12	Date: Mar 29, 2017	Drawn by: T. Haye	Reviewed: DP/TS

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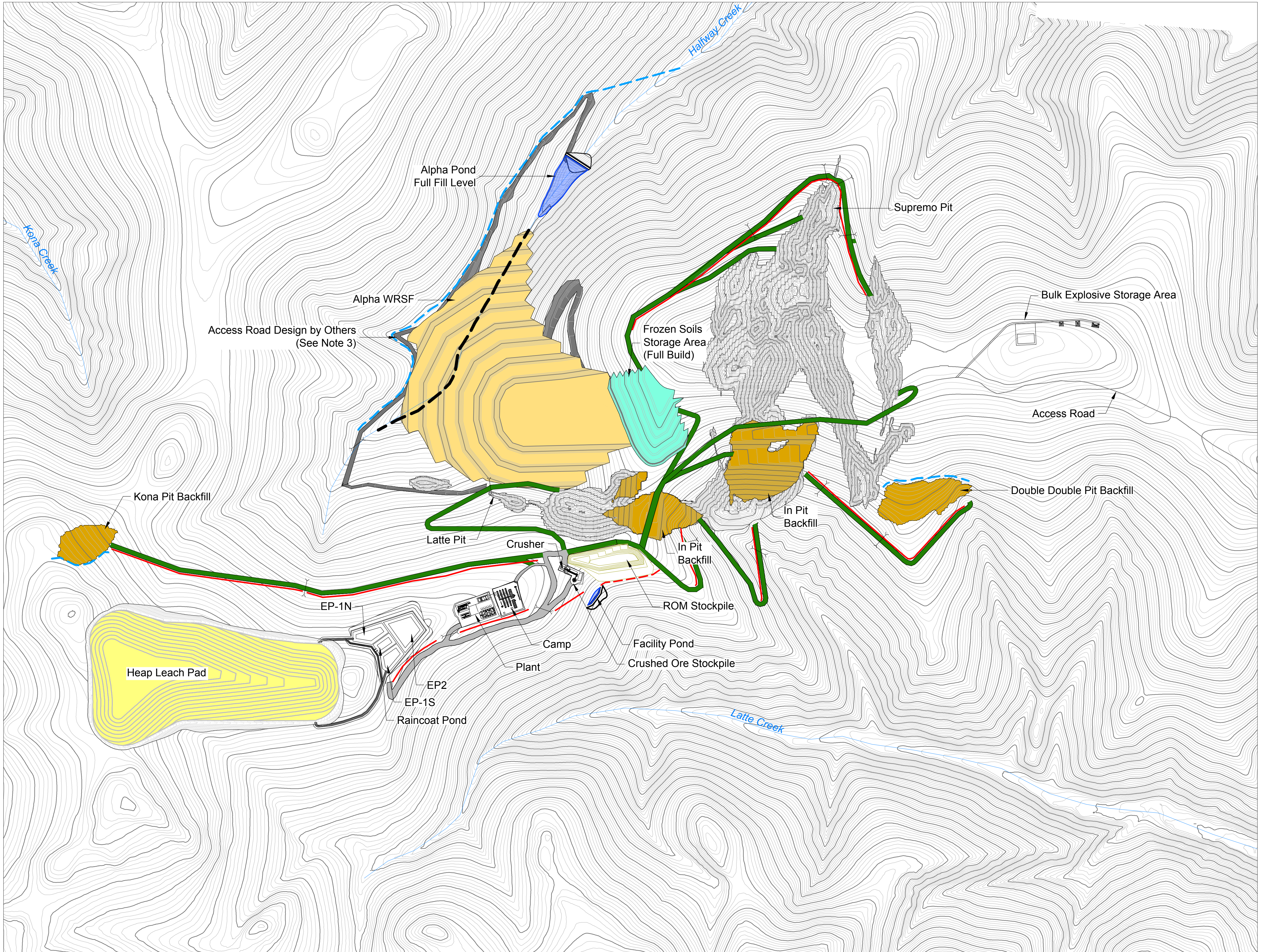

COFFEE GOLD MINE

Mine Site General Arrangement at End of Year 12

Legend

- Diversion Berm
- Rock Drain
- Road Drainage Ditch
- Waste Rock Collection Channel
- Active Pit
- Frozen Soils Storage Area
- Pit Backfill
- Pit Footprint
- Sedimentation Pond
- Waste Rock Storage Facility
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- Access Road
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Metres

NAD 1983 UTM Zone 7N

Page Size: 11" x 17"

Figure 13	Date: Mar 29, 2017	Drawn by: TAH	Reviewed: DP/TS

GOLDCORP

Appendix 31-D-II

Feasibility Pit Slope Stability Evaluation

Feasibility Pit Slope Stability Evaluation
Coffee Gold Project
Yukon Territory, Canada

Report Prepared for

Kaminak Gold Corporation

Report Prepared by

SRK Consulting (U.S.), Inc.
SRK Project Number 338600.020
March 11, 2016

Feasibility Pit Slope Stability Evaluation
Coffee Gold Project
Yukon Territory, Canada

Kaminak Gold Corporation

1020 – 800 West Pender Street
Vancouver, B.C. V6C 2V6
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Denver, CO 80202

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SRK Project Number 338600.020

March 11, 2016

Authors:
Felipe González, Senior Consultant (Rock Mechanics)
Michael Levy, P.E., P.G., Principal Consultant (Geotechnical)

Reviewed by:
John Tinucci, P.E., Ph.D., Practice Leader, Principal Consultant (Geotechnical)

Table of Contents

List of Tables

List of Figures

Appendices

List of Abbreviations

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb.

Abbreviation	Unit or Term
2D	two-dimensional
3D	three-dimensional
°	degree (degrees)
ASTM	American Society for Testing and Materials
bgs	below ground surface
cm/sec	centimeter per second
cm^3	cubic centimeter
FOS	factor of safety
FF/m	fracture frequency per meter
GSI	geologic strength index
Jc	joint condition (according to the Bieniawski 1989 system)
K	hydraulic conductivity (cm/sec)
kg/m^3	kilogram per cubic meter
km	kilometer
kN/m^3	kilonewton per cubic meter
kPa	kilopascal
m	meter
m^2	square meter
m^3	cubic meter
Ma	million years
MPa	megapascal
Mt	million tonnes
oz	ounce
PLT	point load test
%	percent
RQD	rock quality designation
RMR	rock mass rating (according to the Bieniawski 1989 criteria)
t	tonne
t/d	tonnes per day
UCS	uniaxial compressive strength

Executive Summary

SRK Consulting (U.S.), Inc. (SRK) was retained by Kaminak Gold Corporation (Kaminak) to carry out a feasibility-level Pit Slope Stability Evaluation for Kaminak's wholly owned Coffee Gold Project located in west-central Yukon Territory, Canada. The purpose of the evaluation was to develop recommendations for pit slope design parameters and architecture for the Feasibility Study mine planning. As commissioned, the work was conducted to a feasibility level of accuracy and in accordance with NI43-101 guidelines.

Geomechanical Characterization

A field data collection program was designed with the primary objective of rock mass characterization and discontinuity orientation to serve as the basis of geomechanical model development. The program was designed to fill characterization gaps that were identified in Kaminak's existing geomechanical database, which consisted of data collected on select resource drillholes. The 2015 field data collection consisted of geomechanical core logging and discontinuity orientation, point load testing and laboratory rock strength testing. A total of six HQ diameter core holes were logged and tested between the four deposits for a total of 833 m in length.

Results of the geomechanical characterization program suggest that, with the exception of the oxide materials which will be mostly mined and processed, the rock mass at Coffee project is generally of good geomechanical quality. Table 1 contains a summary of rock mass characteristics derived from the 2015 geomechanical drilling program for each of the three primary lithology types at Coffee.

Table 1: Summary of Rock Mass Characteristics

Lithology	Pit	Average UCS[1] (MPa)	No. Valid UCS[1] Tests	Average RMR_{89}[2]	Average RQD[3] (%)	Total Core Length (m)
Gneiss	Supremo & Double Double	90	9	64	81	515
Schist	Latte	94	4	64	87	227
Granite	Kona	130	2	76	95	96

[1] "UCS" = Uniaxial Compressive Strength
[2] "RMR" = Rock Mass Rating
[3] "RQD" = Rock Quality Designation

Slope Stability Analyses

SRK evaluated both global and bench scale stability for the proposed open pits, where global failure is defined as one that occurs relatively deep through the rock mass and is of sufficient scale to impact high interramp and/or overall slopes. Bench scale failures typically involve only one or two bench levels and can be described as block or wedge type failures involving the translation of a block of rock delineated by one or more structural features, such as minor discontinuities or faults.

Given the overall good rock mass quality anticipated to comprise the pit walls at Coffee, the bench configuration was analyzed first to determine the maximum achievable bench face angle based on geologic structure alone. Bench scale and lower interramp slopes are most realistically assessed using stochastic models that evaluate structurally controlled failure mechanisms. This was accomplished using the software program SBlock (Esterhuizen, 2004) as well as SRK statistical programs compiled using functions available in Oracle's Crystal Ball statistical add-on to Microsoft Excel. A maximum probability of failure of 30% was used as the acceptability criteria for SBlock analyses.

The following was concluded from the analyses:

- Benches at Supremo are not anticipated to be significantly impacted by structurally controlled instabilities due to the north-south orientation of the pit. As such, a maximum achievable bench face of 75° was estimated for Supremo based on operational constraints as discussed below;
- The stability of benches on the north Latte and Double Double pit walls will likely be controlled by the dominant southerly (inward) dipping foliation discontinuities. The analyses indicate a maximum achievable bench face angle of approximately 65° for their north walls. Stability of the south and end pit wall benches are not anticipated to be governed by geologic structure controls and were, therefore, estimated to have a maximum achievable bench face of 75° based on operational considerations; and
- Benches on the west Kona pit wall have a slightly higher probability of structurally controlled instabilities fostered by a moderately east (inward) dipping joint set. The analyses indicate a maximum bench face angle of approximately 70° is achievable for this portion of the pit. The remaining pit areas are not anticipated to be significantly impacted by geologic structure controlled instabilities. A maximum achievable bench face of 75° was estimated for the remainder of the pit based on operational constraints.

It should be noted that the bench stability analyses are based solely on orientations of geologic structure and do not directly consider effects of weathering, alteration, blasting or excavation techniques. Depending on the quality of blasting and excavation techniques, achievable bench face angles might be somewhat reduced from the theoretical angles determined by these analyses due to these effects. When taking these operational effects into consideration, it is rare to achieve bench face angles greater than about 75° unless there are steeper structures controlling the bench geometry. Increasing bench face angles to greater than about 75° may be achievable but usually requires more rigorous drilling and blasting effort and specialized controlled blasting techniques than are commonly practiced.

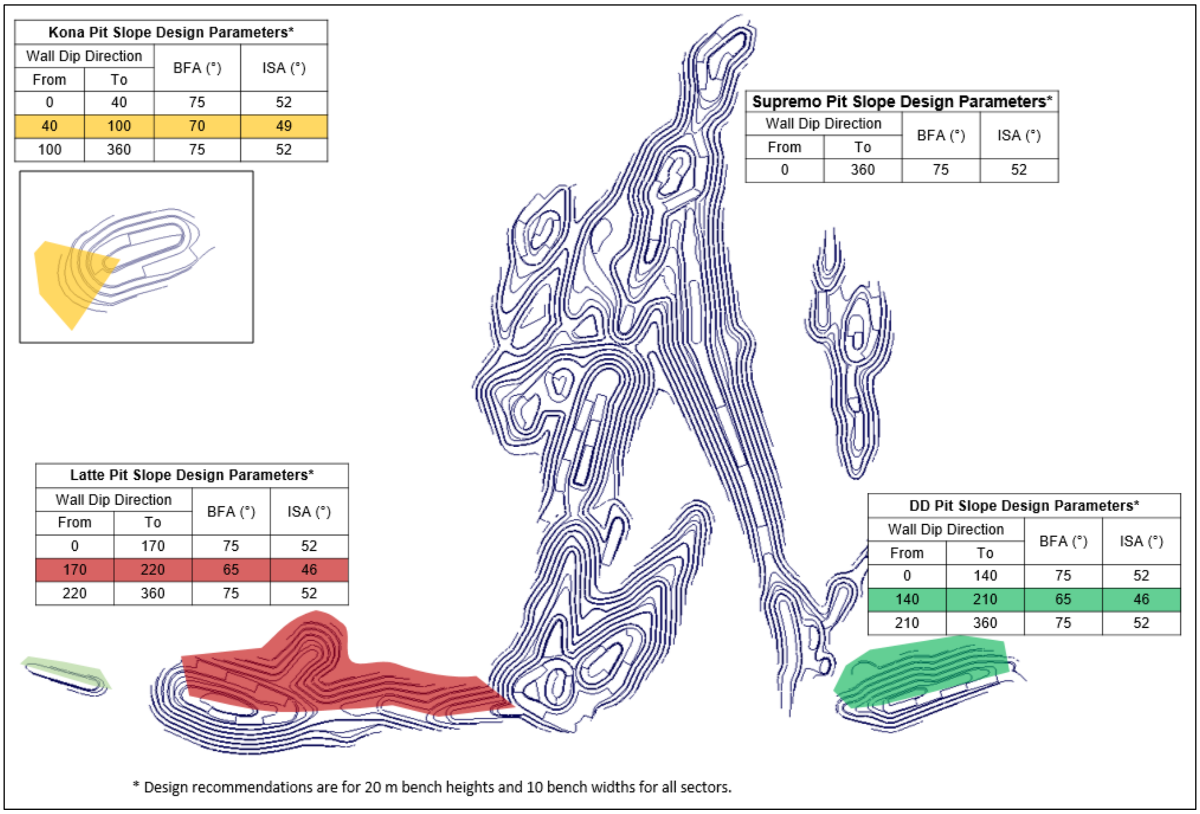
Bench configurations and the resulting maximum interramp slope design parameters were provided by SRK based on the conclusion of the bench design analyses. These parameters were incorporated into an initial detailed pit design by JDS which incorporated the necessary ramps and infrastructure. Stability of the overall slopes in the detailed design was then confirmed using the limit equilibrium slope stability modeling software package, Slide (Rocscience, 2015b). Rock mass shear strengths were developed for each rock type based on the results of the field and laboratory test work assuming the Hoek-Brown (Hoek, et al., 2002) rock mass shear strength criteria. Several variations of rock mass strengths were evaluated for each cross section to investigate the amount of influence different joint lengths may have on the overall rock mass strength. Results of the overall slope stability analyses for the bench configuration based slope angles indicated safety factors between 1.3 and 2.4 which either meet or exceed the minimum acceptable safety factor of 1.3.

Pit Slope Design Recommendations

The resulting geomechanical pit slope design recommendations are shown in Figure 1. The recommendations in Figure 1 are based on dip direction of the pit wall (e.g. for an east-west trending wall, facing south, the slope dip direction would be 180° azimuth).

A 75° bench face angle is recommended for the Latte and Double Double south walls as well as the Supremo pit and a majority of Kona based on the dip and dip directions of the structures relative to the slope orientation. The geomechanical advantage of the 75° bench face angle is improved rockfall control based on the anticipation that the 75° face angle can be successfully achieved without requiring exceptional care in excavation practices. It is recommended that trials in non-critical areas of the pit be implemented in order to determine the necessary operational requirements to achieve this design.

Double benching is recommended as being more favorable in fresh, competent rock. The double (20 m total height) benching will permit the incorporation of more adequately-sized berms for rockfall control, provided the drilling and, to a greater extent, blasting practices meet best practice standards, thereby reducing the number of crests and toes that are subject to potential damage.



Kona Pit Slope Design Parameters*

Wall Dip Direction		BFA (°)	ISA (°)
From	To		
0	40	75	52
40	100	70	49
100	360	75	52

Supremo Pit Slope Design Parameters*

Wall Dip Direction		BFA (°)	ISA (°)
From	To		
0	360	75	52

Latte Pit Slope Design Parameters*

Wall Dip Direction		BFA (°)	ISA (°)
From	To		
0	170	75	52
170	220	65	46
220	360	75	52

DD Pit Slope Design Parameters*

Wall Dip Direction		BFA (°)	ISA (°)
From	To		
0	140	75	52
140	210	65	46
210	360	75	52

BFA = Bench Face Angle (°), ISA = Interramp slope angle (°)

Figure 1: Pit Slope Design Recommendations

Recommendations for Additional Geomechanical Work

A thorough geological and geomechanical bench face mapping program should be undertaken beginning in the early stages of development to verify that the geologic structural conditions encountered are consistent with the assumptions and estimates used in the analyses, and to identify local variations in structural conditions that might increase the risk of localized instabilities. The data collection should concentrate on developing geomechnical databases that will facilitate further refinement of the bench design and optimization of interramp and overall slope angles. Particularly important information will include discontinuity persistence, spacing and variations in orientation as well as assessments of blast performance.

As part of the geologic mapping program, any significant structures or fault zones encountered should be mapped and digitized electronically in 3D and incorporated into the 3D fault model. This will allow projection of such structures to future pit slopes, highlighting areas of potentially instability and allow refinements to the slope design, if necessary. The accurate orientation and projection of fault structures is difficult based strictly on core drilling unless the structures cause a significant offset in mineralization or a marker horizon is present. As such, the identification, mapping and analysis of fault structures of identified in pit walls will be a necessary and ongoing process during pit development.

A slope monitoring program should be designed to ensure that the slopes are behaving as anticipated and warn if significant movements occur. The monitoring program should include a network of survey prisms monitored and analyzed regularly.

1 Introduction and Scope of Work

SRK Consulting (U.S.), Inc. (SRK) was retained by Kaminak Gold Corporation (Kaminak) to carry out a feasibility-level Pit Slope Stability Evaluation for Kaminak's wholly owned Coffee Gold Project located in west-central Yukon Territory, Canada. The purpose of the evaluation was to develop recommendations for pit slope design parameters and architecture for the Feasibility Study mine planning.

1.1 Project Background

The Coffee Gold project is located in the White Gold district, approximately 130 km south of Dawson City and 85 km east of the Alaskan border near the confluence of White and Yukon Rivers. The area consists of low mountainous terrain with steep valleys and rounded ridges, typical of central Yukon. The elevation of the mine site is approximately 1,300 m above sea level.

The project is comprised of four separate open pits, three permanent waste rock storage facilities, a heap leach pad and supporting infrastructure facilities and roadways. The development is primarily located on a central ridge line between Halfway Creek and Latte Creek, with limited impacts beyond the slope of the ridgeline. The footprints of the three proposed waste rocks storage facilities (WRSF) (the North, South and West WRSF) along with the location of the open pits, heap leach pad and mine infrastructure are shown on Figure 1.

The proposed mine will operate over an initial ten year mine-life, including the initial year of pre-production, with average annual gold production in excess of 200,000 oz for the first five years and average annual life-of-mine gold production of 184,000 oz. The Feasibility Study proposes four open pits mined by conventional shovel and truck methods at a nominal ore mining rate of 5 million tonnes per annum for approximately ten years.

A total of 312 Mt of material will be mined to produce 46.4 Mt of ore (5.7:1 strip ratio). Of the approximately 265.6 Mt of waste rock, 216 Mt (82%) will be placed in three engineered WRSFs proximal to the pits from which the waste is sourced. The approximately 3 Mt of waste rock from the Kona pit will be placed in a temporary waste rock facility adjacent to the pit during mining and then backfilled into the mined-out Kona pit due to the geochemical characteristics of the exposed pit walls. The remaining approximately 46.6 Mt of waste rock will be backfilled into mined-out pits at Latte, Supremo and Double Double in order to create causeways and facilitate ore haulage routes to the crusher.

Open pit mining operations will use a fleet comprising industry-standard 16 m^3 hydraulic shovels, 12 m^3 front-end loaders, 4 m^3 excavators, and 144 t haul trucks. This fleet will be supplemented by appropriately sized drills, graders, and dozers. The fleet results in a design ramp width of 27 m.

1.2 Program Objectives

The primary objectives of the pit slope stability evaluation for the Coffee project were:

- To collect geomechanical information pertaining to the in-situ materials at a level appropriate for a feasibility-level evaluation;
- To characterize geomechanical conditions in and around the area of the proposed open pits;

- To undertake laboratory testing of material samples to ascertain geomechanical properties of representative samples of the in-situ materials;
- To develop geomechanical models to serve as the basis for slope stability modeling;
- To conduct slope stability analyses for bench and overall/interramp slopes; and
- Based upon the results of those analyses, to formulate recommendations pertaining to geomechanically optimal slope configurations and pit architecture for mine design purposes.

1.3 Work Program

The principle stages of the geotechnical work program were:

- Recommendation of the number, location and orientation of core holes believed to be appropriate for a feasibility-level characterization of in-situ materials in the open pit areas;
- Geomechanical core logging, point load testing and orientation of discontinuities intersecting core recovered from the drillholes;
- Selection of representative drill core samples for laboratory geomechanical testing from the lithologic units encountered in the geomechanical drilling;
- Submission of the representative samples to a geomechanical laboratory for testing and management of the laboratory program;
- Analyses and interpretation of the geomechanical data and laboratory test results to produce a comprehensive analytical model of in-situ properties for the area including and adjacent to the four pits;
- Modeling of the anticipated behavior of the geomechanical model relative to expected mining-induced stresses, through the use of appropriate analytical methodologies;
- Formulation of recommendations for pit slope design parameters; and
- Compilation of a feasibility-level Pit Slope Stability Evaluation report incorporating recommendations pertaining to geomechanically optimal pit slope configurations and pit architecture for feasibility mine planning purposes.

2 Geologic Setting

The following summary has been reproduced from Section 7 of the JDS (2016) NI 43-101 Feasibility Study Technical Report for the Coffee Gold Project.

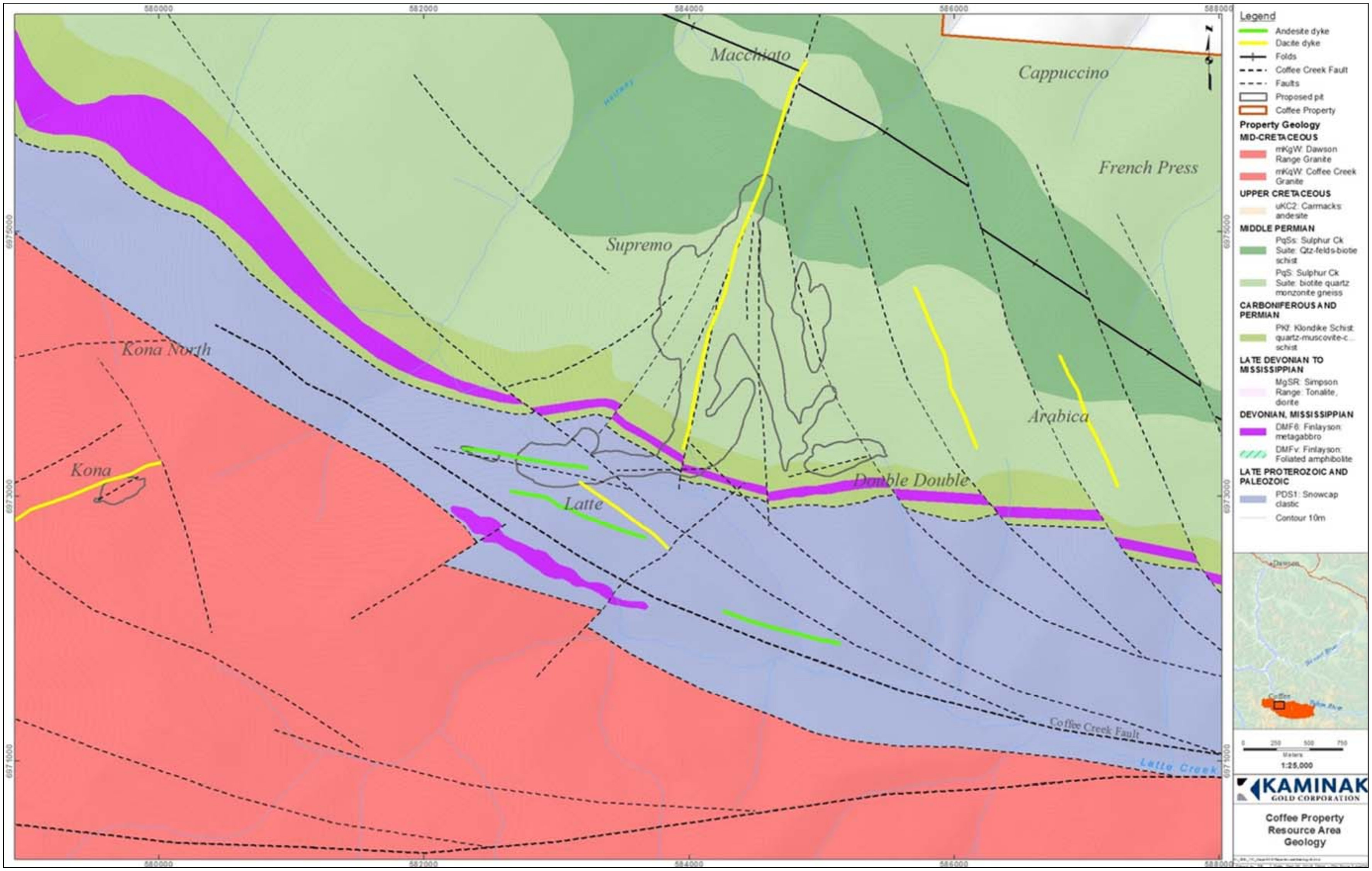
2.1 Property Geology

The Coffee Project area is underlain by a package of metamorphosed Paleozoic rocks of the YTT that was intruded by a large granitic body in the Late Cretaceous. The Paleozoic rock package consists of a mafic schistose to gneissic panel which overlies the Sulphur Creek orthogneiss. Both packages form the southwestern limb of a northwest-trending antiformal fold with limbs dipping shallowly to the northeast and southwest.

The schistose and gneissic mafic rock package comprises a thick panel of biotite (+ feldspar + quartz + muscovite ± carbonate) schist with rare lenses of amphibolite which overlies a panel of amphibolite and metagabbro with arc-derived geochemical signatures. Within the schistose panel, slices of 20 m thick serpentinized ultramafic are in tectonic contact with the surrounding rocks. This rock sequence overlies the augen orthogneiss. These rocks are in contact to the southwest with the 98.2 ± 1.3 Ma Coffee Creek granite. Both the Paleozoic metamorphic rocks and Cretaceous granite are cut by intermediate to felsic dykes of andesitic to dacitic composition.

Due to only rare outcrop exposure on the property (<5%), the geological map (Figure 2-1) has been compiled from a combination of geological traverses, bedrock mapping, borehole data, soil geochemistry, and geophysics (magnetic and radiometric).

The magnesium number from soil samples (Mg# = Mg/Mg+Fe) was used to discern mafic from felsic units with the granite being the most felsic, followed by the felsic gneiss. The mafic schist unit was further subdivided into felsic-intermediate schist, biotite schist, amphibolite, and ultramafic rocks (Table 2-1).



Source: Grodzicki, K. R., Allan, M. M., Hart, C.J.R., and Smith, T. 2015. Geologic Map of the Coffee Gold deposit area, western Dawson Range, Yukon (MDRU Map M-9):

Figure 2-1: Geology in the Supremo, Latte, Double Double, and Kona Areas

Table 2-1: Main Rock Units in the Coffee Gold Project Area

Rock Unit	Description
Felsic Gneiss	Variable quartz + feldspar augen + biotite + muscovite. Typical Mg# 2-28. Low in potassium. Host to gold mineralized zones at Supremo.
Biotite Schist	Biotite+/-feldspar+/-quartz+/-muscovite+/- amphibole. Commonly carbonate-rich. High in potassium. Typical Mg# 20 - 40. Locally mylonitic. Host to gold mineralized zones at Latte.
Muscovite Schist	Mainly quartz + muscovite. Typical Mg# 10 - 20. Locally mylonitic.
Biotite Amphibolite	Amphibole + feldspar + biotite. Typical Mg# 20 -40. Biotite and amphibole both Fe-rich. Contains up to 20% biotite.
Amphibolite	Found within the lower mafic footwall. Amphibole + feldspar ± biotite. Typical Mg# 30-50, biotite and amphibole more Mg rich than biotite amphibolite. Contains up to 15% biotite.
Metagabbro/Amphibolite	Interleaved metagabbro with coarse magnesiohornblende + feldspar, and fine-grained, massive amphibolite with >95% magnesiohornblende. Moderate to strong retrogression to actinolite. High Mg content of biotite, amphibole.
Ultramafics	Serpentinite, pyroxenite or listwaenite. Typical Mg# 50 - 73, higher than all amphibolites and metagabbro. Very high in chromium and nickel.
Granite	Coffee Creek granite and Dawson Range batholith. Both are phases of the Whitehorse Plutonic suite and are uranium-rich. Dawson Range batholith higher in Thorium. Both are identifiable using airborne radiometrics.
Dacite Dykes	Quartz + feldspar phenocryst porphyry. Generally strongly silicified and sericitized. Strong spatial association with mineralized gold zones.
Andesite Dykes	Feldspar phenocrystic. Aphanitic in gold-bearing structures where all original textures are destroyed by intense silicification and sericitization. Strong spatial association with mineralized gold zones

Source: JDS (2016) NI 43-101 Feasibility Study Technical Report for the Coffee Gold Project

2.2 Site Structural Geology

Rocks at the Coffee Project were deformed by a series of three YTT-wide tectonic events (Table 2-2). Gold mineralization at Coffee occurred during the Cretaceous event.

Table 2-2: Tectonic Events at Coffee

<table>
<tr><th>Event</th><th>Age</th><th>Structures</th><th>Mineralization</th></tr>
<tr><td rowspan="2">Extension</td><td rowspan="2">Cretaceous</td><td>Brittle Fractures</td><td rowspan="2">Main Coffee Gold mineralization</td></tr>
<tr><td>Dextral normal faults</td></tr>
<tr><td rowspan="2">YTT-Laurentia Collision</td><td rowspan="2">Jurassic</td><td>East-west shears and thrust faults</td><td rowspan="2">Quartz veining, sericite alteration</td></tr>
<tr><td>Slices of ultramafic rocks</td></tr>
<tr><td>Klondike Orogeny</td><td>Pre- to late-Permian</td><td>Metamorphic gneissosity and schistosity</td><td></td></tr>
</table>

Source: JDS (2016) NI 43-101 Feasibility Study Technical Report for the Coffee Gold Project

<u>Metamorphic Foliation</u>

Gneissose and schistose metasedimentary rocks at Coffee contain a shallowly-to-moderately southwest dipping penetrative cleavage (S2 foliation of Berman et al. (2007). The foliation becomes steeper-dipping to the south. Structural data collected from oriented drill core show the following average orientations:

- *Supremo: 20° to 40° dip to the south-southwest (190° to 230°);*
- *Latte: 35° to 55° dip to the south-southwest (180° to 210°); and*
- *Double Double: 35° to 65° dip to the south-southwest (170° to 200°).*

Jurassic Shearing

As the YTT-Laurentia collision continued and the Slide Mountain Ocean was completely closed, the rocks in the Coffee area developed roughly east-west brittle-ductile shears and younger rocks were thrust north over older rocks. This deformation corresponds to the D3 deformation of Berman et al., 2007. This deformation is best seen in the more mafic rocks of the southern schistose panel where intervals of mylonitic rocks are traceable between multiple sections.

Brittle Fracturing and Faulting

Following post-collision uplift and erosion in the YTT, steep-to-vertical brittle fractures and normal faulting affected all lithologies at Coffee. These brittle structures are the hosts to gold mineralization at Coffee. This deformation corresponds to the D5 deformation of Berman et al. (2007). The faults and fractures are splays of the regional Big Creek fault to the southeast of the property. The faults may have locally followed pre-existing Jurassic shear zones. The faults both deflect along the northern edge of the Coffee Creek granite and cut the granite and therefore are syn-to-post granite emplacement (~98 Ma). Younger dacite and andesite dykes intruded into these brittle fractures.

Gold mineralized structures comprise strike-extensive planar zones exhibiting a continuum of deformation intensity from crackle breccia/stockwork fracture systems through to polyphaser high-energy matrix-supported breccias with intensely altered and reworked clasts. Individual mineralized structures exhibit localized flexures, anastomosing patterns and pinch and swell geometries over scales of tens to hundreds of meters. Overall however, gold mineralization, accompanied by elevated arsenic and antimony, wallrock alteration, deformation intensity, the presence of sub-parallel pre-mineralization dykes, and post-mineral oxidation in the upper 0 to 300 m below surface, display continuity over hundreds of meters in strike and dip, and over 2 km along strike at Supremo T3 and Latte.

Structural measurements of vein orientations and deformation fabrics from oriented drill core provide hard evidence on the structural geometries, but are often not available in the mineralized zones due to the disaggregated nature of fractured and often clay-altered core. Where intact core is able to be measured, various structural fabrics from within mineralized zones are used to measure local orientation of mineralization and guide 3D geometric interpretation of mineralization on section and from section to section. Fabrics measured include the dominant fracture orientation, internal fracture or shear fabric, breccia margin, and vein or dyke margin orientation.

The planar gold mineralized zones at Coffee exhibit a number of strike orientations, dominated by east-west, north-south and east-northeast–west-southwest strike directions. Structures typically have sub-vertical dip, with the exception of western Latte which dips 60° to 70° south.

3 Field Data Collection Program

A field data collection program was designed with the primary objective of rock mass characterization and discontinuity orientation to serve as the basis of geomechanical model development. The program was designed to fill characterization gaps that were identified in Kaminak's existing geomechanical database which consists of data collected on select resource drillholes. The 2015 field data collection consisted of geomechanical core logging and discontinuity orientation, point load testing and laboratory rock strength testing. A total of 6 HQ diameter core holes were logged and tested between the four deposits for a total of 956 m in length.

Collar locations and drillhole azimuths of the six geomechanical specific drillholes are summarized in Table 3-1 and are presented on Figure 3-1.

Table 3-1: Summary of Geomechanical Drillholes

Hole ID	Kaminak Hole ID	Deposit	East (UTM)	North (UTM)	Elev. (masl)	Depth (m)	Azi. (°)	Inc. (°)
SRK-15D-01	CFD0538	Supremo	584411.1	6974465	1256	245	90	-51
SRK-15D-02	CFD0522	Supremo	584167.8	6973424	1031	215	137	-52
SRK-15D-03	CFD0518	Latte	583421.1	6973227	1098	110	359	-50
SRK-15D-04	CFD0508	Latte	582880.7	6973203	1099	152	264	-60
SRK-15D-05	CFD0534	Double Double	585127.3	6973328	1106	134	340	-55
SRK-15D-06	CFD0545	Kona	579715.5	6973046	1262	100	165	-55

Source: Kaminak Gold Corporation

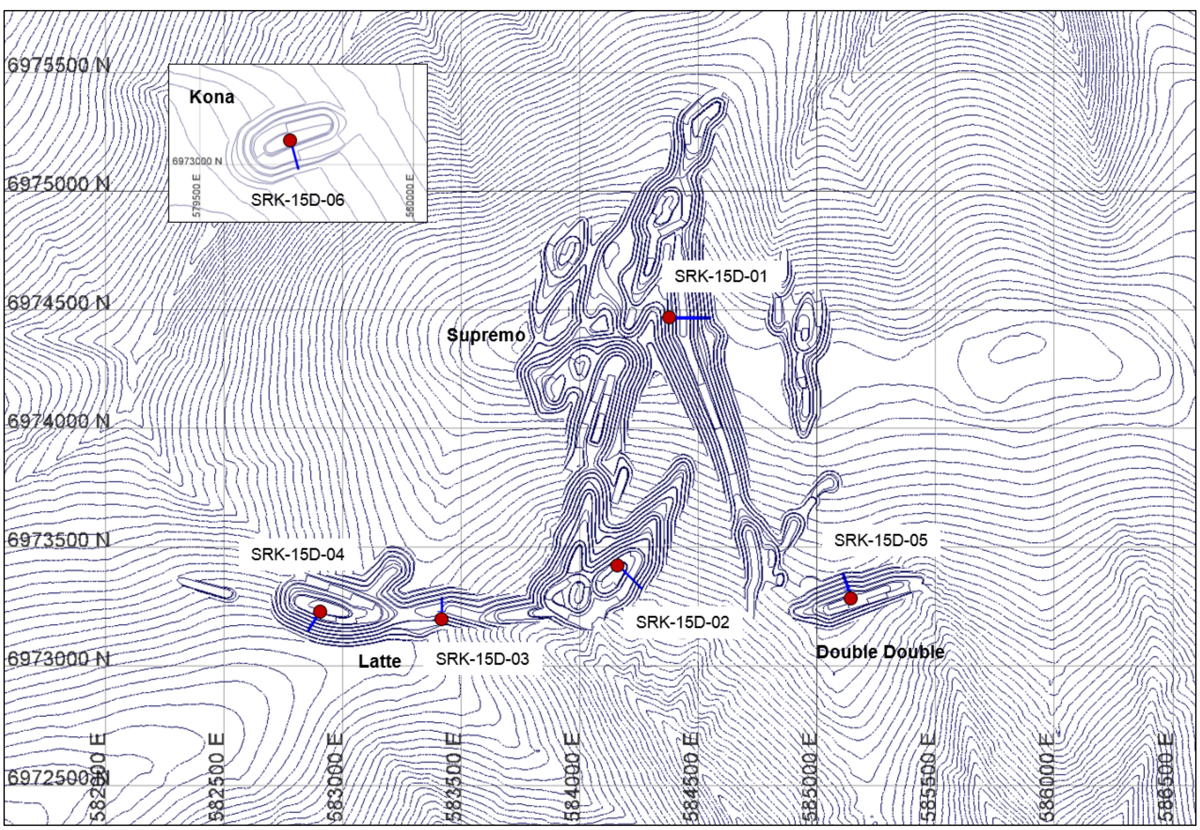


Figure 3-1: Location of Geomechanical Drillholes

3.1 Geomechanical Core Logging

Geomechanical logging, field point load testing and orientation of discontinuities intersected by core recovered from a total of six drillholes were conducted to support this investigation. Drilling was carried out using 1.5 m long, HQ3 diameter triple tube core barrels to preserve the in situ condition of the rock to the largest extent possible. To minimize disturbance, core retrieved from the six holes was logged on a 24-hour per day basis, at the rig, in the liners prior to boxing and transporting.

The geomechanical core logging program was designed to provide information pertinent to pit slope stability evaluation, such as geologic contacts, profiles of rock strength, and characterization and frequency of discontinuities. Specific parameters that were logged included:

- General lithology and structures;
- Total core recovery;
- Rock Quality Designation (RQD);
- Rock weathering/alteration and intact strength indices;
- Frequency of discontinuities;
- Discontinuity characteristics (type, roughness, infillings and wall condition);
- Micro-defect intensity and strength; and
- Discontinuity orientation (when possible).

Care was taken to exclude fractures that were caused during drilling and handling as the inclusion of such would unnecessarily lower rock quality classifications. Geomechanical core logs are presented in Appendix A.

During core logging, representative core samples were selected from each drillhole to provide specimens for laboratory strength testing. Samples were collected at approximately 15 m intervals, or when significant rock type or strength changes were apparent. Each sample was sealed and safely stored at the time of collection. Upon completion of the drilling, test samples were shipped to the Agapito Associates Inc. Geomechanical Laboratory in Grand Junction, Colorado and the University of Arizona Rock Mechanics Laboratory in Tucson, Arizona for testing.

Following the completion of geomechanical logging and sampling, each of the six geomechanical drillholes was logged for lithology and alteration by Kaminak geologists to assure the best possible correlation of the geomechanical data with the current Kaminak geologic model.

3.2 Point Load Testing

Point load testing provides a quick, inexpensive method of relative strength testing of rock core that can be conducted in the field allowing a large number of tests to be carried out. Although not a precise measurement of rock strength, this method typically provides a more accurate estimation of variability compared to laboratory testing as smaller and weaker samples can be immediately tested at their natural moisture content and without potential disturbance that can occur during shipping.

Point load tests (PLT) were routinely conducted during core logging at a frequency of approximately one test per every 2 to 3 m using a Roctest Pil-7 test machine, thereby providing detailed and nearly continuous profiles of relative rock hardness. In addition to the routine tests, at least one PLT was also conducted on core immediately adjacent above and below each uniaxial compressive strength (UCS) sample obtained for laboratory testing. The pairing of PLT results and UCS samples was undertaken to permit estimation of a correlation factor for conversion of the field PLT tests to laboratory UCS values. PLTs were conducted according to International Society for Rock Mechanics (ISRM) procedures (ISRM, 1985).

A total of 380 point load tests were conducted on core from the six geomechanical holes; of those, 272 (72%) met test criteria for valid test results. Point load indices ($Is_{(50)}$) were calculated from the field PLT data using the ISRM (1985) suggested method and are summarized for each drillhole and primary rock type in Table 3-2. Only tests considered valid per ISRM standards, i.e., those tests in which the core did not break along pre-existing weakness, were utilized for the analysis.

Table 3-2: Summary of Point Load Test Results

Hole ID	Primary Lithology	Pit	No. of Tests	PLT $Is_{(50)}$ (MPa)[1]			
				Average	Std. Dev.	Minimum	Maximum
CFD0538	Gneiss	Supremo	86	5.7	2.24	0.2	9.2
CFD0522	Gneiss	Supremo	53	4.6	2.39	0.1	9.1
CFD0518	Schist	Latte	23	1.9	1.54	0.1	5.3
CFD0508	Schist	Latte	34	2.5	1.49	0.3	5.7
CFD0534	Gneiss	Double Double	44	3.5	2.05	0.5	8.1
CFD0545	Granite	Kona	32	5.5	1.57	2.8	8.8

[1] Excludes breaks where the sample broke along a pre-existing weakness such as healed joints or foliation.

3.3 Orientation of Discontinuities

The orientation of discontinuities in each core run was accomplished using the A.C.T. core orientation system manufactured by Reflex Instruments. The depth, alpha angle and beta angle were measured for each discontinuity on all core runs that were successfully oriented. The beta angle, i.e., the angle from the lowest part of the ellipse formed by the intersection of each discontinuity with the core, was measured from the bottom of the core in a clockwise direction when looking down hole. The alpha angle was measured as the maximum angle made by the discontinuity with respect to the core axis.

It was possible to orient a total of 1,581 discontinuities out of the total 2,158 (73%) discontinuities logged for the seven holes, excluding “added” joints where a frequency of 4 joints per 10 cm were added to account for intensely fractured or rubbelized zones where counting of discrete joints was not possible. A summary of discontinuities oriented, by hole, is presented in Table 3-3.

Table 3-3: Summary of Discontinuity Orientation

Hole ID	Total Length (m)	Total Discontinuities (including added joints)	Total Discontinuities (not including added joints)	Total Discontinuities Oriented	Percentage of Fractures Oriented
CFD0538	245	1,635	634	578	91%
CFD0522	215	1,990	606	391	65%
CFD0518	110	1,352	223	116	52%
CFD0508	152	749	268	201	75%
CFD0534	134	797	296	188	64%
CFD0545	100	274	131	107	82%

In addition to discontinuity orientations obtained from the six geomechanical specific drillholes listed above, Kaminak also oriented a large percentage of the diamond resource drillholes. Additional details regarding the resource drillhole orientation database are contained in SRK, 2013 and Section 6 below.

3.4 Data Consistency

The correlation between RQD and FF/m was used as a means of verifying the consistency of the field logging data. The two parameters were plotted against each other for each core run for each of the six geomechanical drillholes. A negative correlation should exist between the two parameters with high RQD values corresponding to low FF/m values and low RQD values corresponding to high FF/m values for a given core run. A plot of FF/m vs. RQD for all six holes combined is contained in Figure 3-2 with plots for each individual hole contained in Appendix B. The theoretical upper and lower-bound limits, as defined by Priest & Hudson (1976), are shown as blue lines in the plots.

As illustrated in Figure 3-2, a majority of the data plots within the theoretical limits and can be considered consistent and reliable. A small percentage of the core runs were logged as having low RQD and low fracture frequencies which are generally inconsistent with each other. These inconsistent values can be verified but, given the small percentage of the overall data that they represent, they are not likely to have a significant impact on the overall analyses.

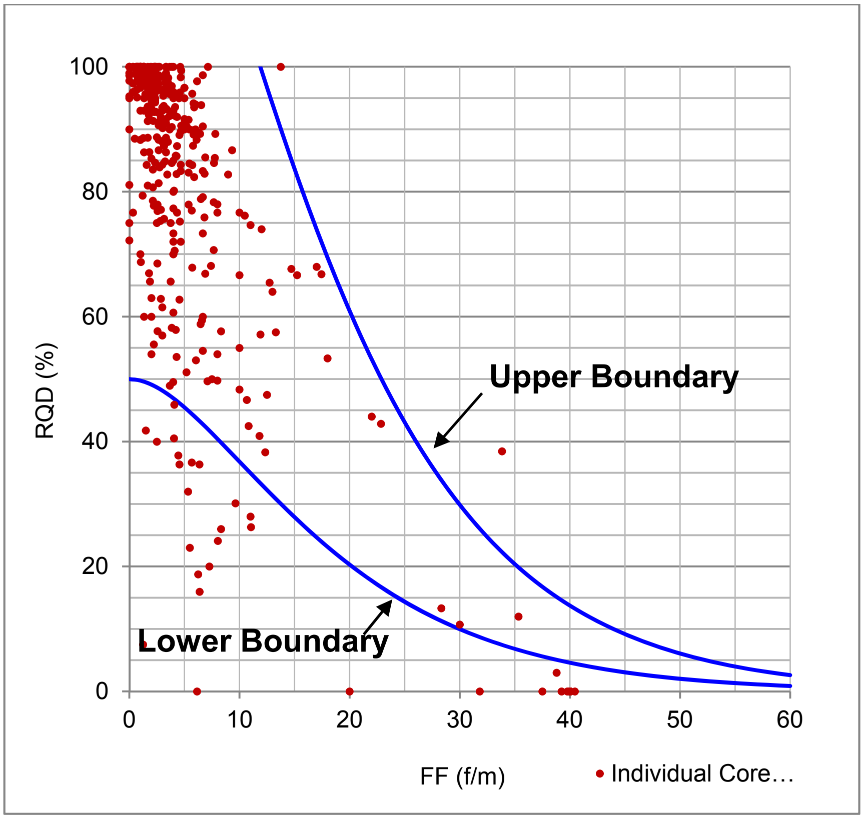


Figure 3-2: Correlation of RQD and FF/m for all holes combined

4 Laboratory Testing Program

A total of 73 laboratory tests were performed on core samples selected to represent the range of the rock conditions observed in core from the 2015 geomechanical drillholes. An additional 30 tests were performed on samples obtained in 2013 on resource drill core (SRK, 2013). The overall laboratory program consisted of uniaxial, triaxial and indirect tensile (Brazilian) strength tests, as well as measurements of unit weight and elastic properties carried out by Agapito Associates Inc. located in Grand Junction, Colorado. Direct shear strength testing was carried out on samples with natural joints at the University of Arizona Rock Mechanics Laboratory in Tucson, Arizona. Raw laboratory test data are included in Appendix C.

After completion of the laboratory testing program, before and after photographs of the test samples were forensically reviewed by SRK to confirm validity of test results. The type and quality of break were assessed through the sample photographs taken before and after the individual tests. With the exception of the schist samples, test samples that broke through a pre-existing structure or fabric and not through intact rock were discounted from the analyses. Due to the relatively high number of schist samples that broke along the schistose fabric or foliation, all schist tests were considered in the analysis.

4.1 Unconfined Compressive Strength and Elastic Properties

The uniaxial compressive strength (UCS) test is the most commonly used measure of intact rock strength and is one of the primary inputs to basic rock mechanics classifications and strength criteria such as rock mass rating systems and the Hoek-Brown (Hoek, et al., 2002) shear strength criteria, both of which are discussed in detail in Section 5.

UCS testing involves the application of a steadily increasing axial load upon a core sample with a length-to-diameter (L/D) ratio of, ideally, between 2.0 and 2.5. The uniaxial compressive strength of the sample is the applied load that produces failure divided by the cross-sectional area of the core.

For selected UCS tests, strain gauges were applied to the samples to monitor longitudinal and lateral strains produced by the axial loading. The elastic properties are derived from the strain gauge output; specifically, Young's Modulus (E) is the ratio of the vertical stress to the longitudinal strain, while Poisson's Ratio (ν) describes the relationship between the lateral strain and the longitudinal strain.

UCS testing was conducted on a total of 30 samples between the 2013 and 2015 drilling programs according to ASTM Method D7012. Elastic properties (Young's Modulus and Poisson's Ratio) were measured for 9 of the 30 UCS samples. The average laboratory UCS test results along with the other laboratory test results are shown by rock type in Table 4-1.

Table 4-1: Average Intact Rock Properties Derived from Laboratory Test Results

Lithology	γ (t/m^3)	σ_t (MPa)	UCS^{1,2} (MPa)	E_i ^{2} (GPa)	ν ^{2}	m_i	σ_{ci} ^{1} (MPa)
Gneiss	2.61 (9)	11.6 (4)	82 (5)	42 (3)	0.25 (3)	12	84
Schist	2.70 (9)	7.9 (7)	47 (3)	27 (2)	0.34 (2)	12[4]	53[3]
Granite	2.62 (2)	9.4 (2)	130 (2)	55 (1)	0.30 (1)	23	130

[1] "UCS" indicates lab UCS test results while "σ_{ci}" represents the intercept of the triaxial strength envelope with the σ_3 axis.
[2] "82 (5)" indicates an average value of 82 MPa based on a total of 5 valid tests.
[3] Value obtained using all Schist laboratory test results including breaks on foliation.
[4] Based on published typical values from (Karzulovic 2006).

4.2 Indirect Tensile Strength Testing

The indirect tensile strength (Brazilian) test measures the tensile strength of the intact rock by applying pressure to opposite sides of a relatively thin disc sample, similar to a diametral field point load test, but in a controlled laboratory environment. The Brazilian tensile strength (BTS) test results provide some verification of field point load testing values and, in conjunction with UCS data, the determination of the Hoek-Brown (Hoek, et al., 2002) m_i value as discussed in Sections 5.2 and 5.3.

A total of 19 BTS tests were conducted according to ASTM Method D3967 between the 2013 and 2015 drilling programs. The average laboratory BTS test value are shown by rock type in Table 4-1 along with the other laboratory test results.

4.3 Direct Shear Strength Testing

Direct shear testing is commonly used for estimating the expected shear strength along natural rock discontinuities such as joints, bedding or foliation planes and faults. Since the stress levels developed within open pits are usually much lower than the rock substance or intact strength, displacement frequently occurs along pre-existing geologic discontinuities, making the determination of discontinuity shear strength a necessity.

The direct shear test involves the application of a load perpendicular (normal) to a discontinuity separating two intact blocks of rock, with the simultaneous application of a shear load parallel to the discontinuity of sufficient magnitude to induce displacement of the blocks relative to each other. To define the overall shear strength envelope, tests are conducted at three or more normal stresses, with continuous displacement/shear stress data being obtained at each of the normal loads. For each normal load, the peak (maximum) and residual (steady state relative to displacement) shear stresses are recorded, thereby defining the peak and residual shear strengths given a normal stress. The relationship between an applied normal stress and the resulting shear strength defines a point on the shear strength envelope. Peak and residual shear strength envelopes can then be determined from the shear strength/normal stress points using statistical regression methods.

A total of 15 core samples were selected between the 2013 and 2015 drillholes for four-point, small scale direct shear (SSDS) tests in accordance with ASTM Method D5607. Natural fractures preserved in the field were used for all of the direct shear tests. The range of normal stresses applied during testing, approximately 170 to 1,400 kPa, was selected to approximate the in situ stresses that are expected to develop within the slopes.

In order to fit a shear strength envelope to the laboratory data points, a linear or curvilinear regression analysis is typically conducted. For a linear fit, the envelope is presented according to the Mohr-Coulomb, or linear, criterion, i.e., in the form of an angle of internal friction (Φ), which corresponds to the inverse tangent of the slope of the least-squares regression line, and an apparent cohesion (c), which corresponds to the shear strength intercept at zero normal stress. Discontinuity shear strengths derived from the direct shear test program are summarized by rock type and fracture type in Table 4-2. Results of all direct shear tests are summarized in Appendix C on page C-5. Cohesion values listed in Table 4-2 were obtained directly from linear regression analysis of the raw laboratory test data and, in some cases, are considered unrealistically high. Joint strength cohesions were typically reduced to 10 kPa for the subsequent stability analyses as discussed in Section 5.4.

Table 4-2: Summary of Laboratory Direct Shear Results

Fracture Type	No.	ϕ (°)	Cohesion (kPa)
Schist Foliation	5	32	35
Gneiss Foliation	4	31	47
Gneiss Joint	4	32	60
Schist Joint	1	29	53
Granite Joint	1	38	53

4.4 Unit Weight

The unit weight or density of each material type is required for slope stability modeling as both the resisting and driving forces of potential instabilities are functions of weight (or stress). Prior to actual testing of rock core samples, sample dimensions and weights were measured and used to calculate total unit weights for each sample. The combined data set included 30 measurements ranging from 25.0 to 28.3 kN/m^3 with a mean value of 26.0 kN/m^3, for all samples. The average unit weights for each rock type are summarized in Table 4-1 along with the previously discussed intact rock properties.

5 Rock Mass Characterization

Following the completion of the 2015 geomechanical drilling and laboratory testing programs, the data was compiled with the previous geomechanical data to form a complete database for analysis. The geomechanical properties were first analyzed by primary rock types for each drillhole and then similar rock types and areas were combined to form domains or units of similar geomechanical quality.

5.1 Rock Mass Classification

Core logging and laboratory test data obtained from the 2015 geomechanical drillholes was used for empirical rock mass characterization according to the Bieniawski (1989) Rock Mass Rating (RMR) system. The RMR system consists of five primary parameters: unconfined compressive strength (UCS), rock quality designation (RQD), discontinuity spacing, joint conditions (Jc) and groundwater. Dry conditions were assumed for the RMR calculations as groundwater pressures are commonly accounted for during slope stability analysis using effective stress type analyses. Similarly, the RMR values were not discounted for adverse joint set orientations joint orientations. The RMR values, with the maximum possible (or most competent rock mass) being 100 for each run, are displayed on the geomechanical core logs presented in Appendix A.

Overall, RMR characterization provides a useful starting point for determining trends in overall rock mass quality and delineating geomechanical domain. However, it is important to note that when combining or averaging the individual RMR parameters over a distance such as a core run interval, important small-scale details such as weak features in the core can become obscured or hidden by the overall RMR value calculated for the interval. For this reason it is important that major structures or weak features observed in the core are logged and analyzed independent of the combined RMR data as was done for the geomechanical drillholes.

Results of the rock mass characterization program suggest that, with the exception of the oxide materials which will be mostly mined and processed, the rock mass at Coffee is generally of good geomechanical quality. Table 5-1 contains a summary of rock mass characteristic data derived from the 2015 geomechanical drilling program for each of the three primary lithology types at Coffee. As shown in Figure 3-1, all five of the 2015 geomechanical drillholes were drilled into the final pit walls. The distribution of the three primary rock types is superimposed on the final pit designs in Figure 5-1.

Table 5-1: Summary of Rock Mass Characteristics

Lithology	Pit	Avg. Laboratory UCS (MPa)	No. Valid UCS Tests	Average RMR_{89}	Average RQD (%)	Total Core Length (m)
Gneiss	Supremo & Double Double	90	9	64	81	515
Schist	Latte	94	4	64	87	227
Granite	Kona	130	2	76	95	96

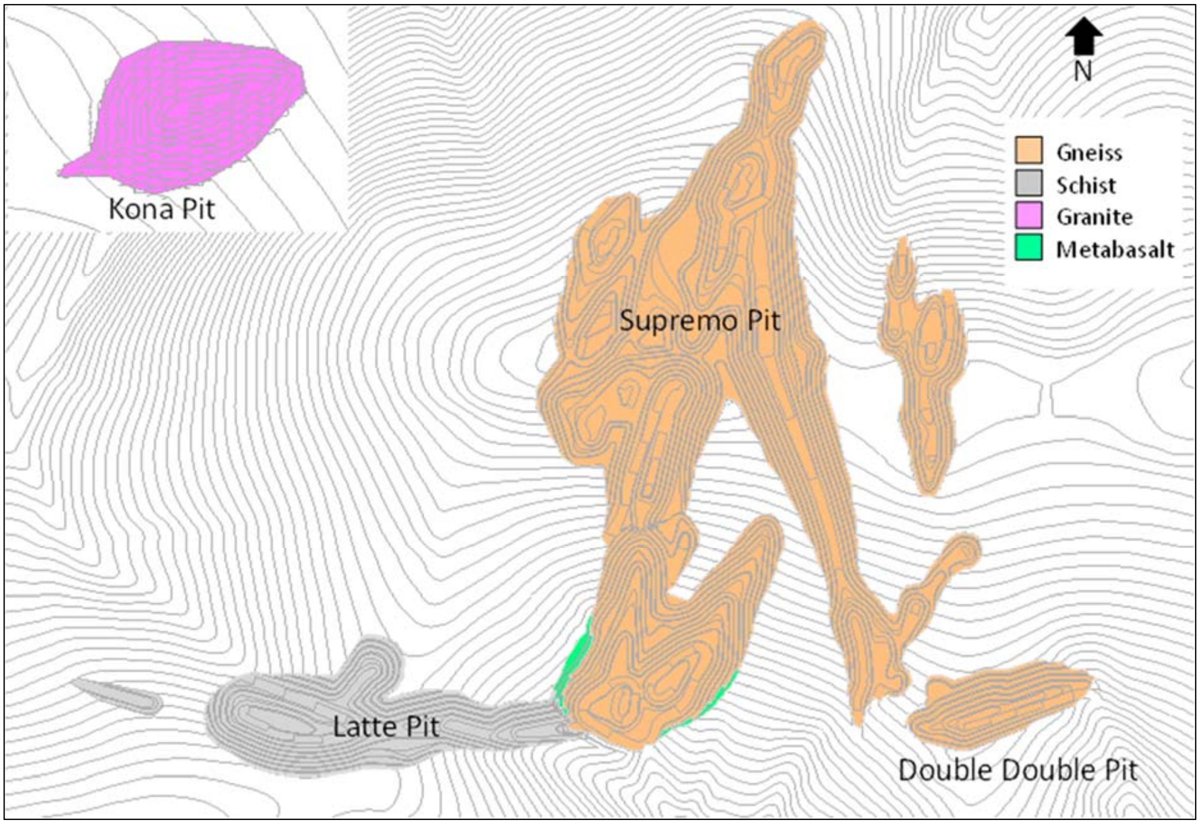


Figure 5-2: Distribution of Primary Lithology Types

5.2 Intact Rock Strength

The term “intact rock” or “substance strength” refers to the rock between discontinuities in a rock mass; in contrast, “rock mass” refers to the entire body of rock, including discontinuities. The intact rock strength was evaluated for the different rock types using point load testing during the core logging program (Section 3.2) and with UCS and BTS testing carried out as part of the laboratory test (Sections 4.1 and 4.2).

Intact rock strength envelopes were developed for the primary rock types using the UCS and BTS test results. Triaxial testing was not conducted due to the shallow pit depths and the overall high rock quality anticipated to comprise pit walls. Hoek-Brown (Hoek, et al., 2002) material constants m_i and σ_{ci} were calculated using the software RocData v 5.0 developed by Rocscience Inc. (2014). Plots of the intact rock strength envelopes are contained in Appendix D.

5.3 Rock Mass Shear Strength

The shear strength/normal stress relationship describes the ultimate shear strength available at a given point within a slope as a function of the effective normal stress acting on that point. Based on review of the lithology, RQD, rock mass rating and intact rock strength, three geomechanical units were identified; the Gneiss, Schist and Granite. Rock mass shear strength/normal stress relationships were developed for the using the Generalized Hoek-Brown criterion (Hoek, et al., 2002).

The Generalized Hoek-Brown criterion defines curvilinear shear strength envelopes that are considered effective representations of intact rock and heavily jointed rock mass behavior. As discussed in Hoek, et al (2002), the following equation defines the rock mass shear strength envelope according to the Generalized Hoek-Brown criterion:

$$\sigma_1' = \sigma_3' + \sigma_{ci}\left(m_b \frac{\sigma_3'}{\sigma_{ci}} + s\right)^a \quad (1)$$

$$m_b = m_i e^{\left(\frac{GSI-100}{28-14D}\right)} \quad (2)$$

$$s = e^{\left(\frac{GSI-100}{9-3D}\right)} \quad (3)$$

$$a = \frac{1}{2} + \frac{1}{6}\left(e^{-GSI/15} - e^{-20/3}\right) \quad (4)$$

Where σ_1' and σ_3' are the effective major and minor principal stresses and σ_{ci} is the uniaxial compressive strength of the rock.

The Geologic Strength Index (GSI) was developed as a qualitative assessment of the lithology, structure/blockiness and condition of discontinuity surfaces in a rock mass by Hoek as input into the Generalized Hoek-Brown shear strength criterion in lieu of the RMR due to increasing realization that a system based more heavily on fundamental, largely subjective geological observations than on potentially less reflective, wholly objective, "numbers" was needed (Hoek, 1994). In practice, the GSI ranges from a value of zero for very weak, intensely sheared and fractured rock masses up to a maximum value of 100 for intact or very massive rock with very few, widely spaced discontinuities. GSI was estimated using the relationship proposed by Hoek et al. (1997): GSI ~ RMR89 – 5. Histograms of GSI for each of the three primary lithology types are contained in Appendix E.

The disturbance factor, D, depends on the degree of disturbance that the rock mass is expected to be subject to as a result of blast damage and stress relaxation caused by excavation of the pit. The disturbance factor ranges from zero, for wholly undisturbed, confined rock masses, to 1 for very disturbed rock masses. For surface mining operations, Hoek et al., 2002 recommends a D of 0.7 for carefully controlled blasting and a D of 1 for heavy large-scale production blasting.

As described by Hoek (1983), the Hoek-Brown intact material constant m_i is very approximately analogous to the angle of friction of the conventional Mohr-Coulomb failure criterion, controlling the curvature of the intact failure envelope and thus, the rate at which the shear strength increases with confinement. Higher m_i values (in the order of 15 to 32), give steeply inclined strength envelopes and high instantaneous friction angles at low normal stress levels. These high mi values tend to be associated with stronger brittle igneous and metamorphic rocks such as andesites, gneisses and granites. Lower mi values (in the order of 3 to 7), give lower instantaneous friction angles and tend to be associated with more ductile carbonate rocks such as limestone or dolomite. Different samples of the same rock type can also have varying m_i values depending on the granularity and interlocking of the crystal structure (Marinos and Hoek, 2000).

Rock mass strength parameters developed from the geomechanical logging and laboratory test data are summarized in Table 5-2.

Table 5-2: Average Rock Mass Properties by Lithological Units

Lithological Unit	Intact Rock		Rock Mass	
	m_i	σ_{ci} (MPa)	GSI	D
Gneiss	12	84	59	0.7
Schist	12*	53	58	0.7
Granite	23	130	71	0.7

* Based on published values due impacts of schistosity on laboratory test results.

6 Geomechanical-Structural Domaining

Geomechanical-structural domains were developed based primarily on the orientations of fracture and joint sets as well as rock mass quality. The domains define reasonably large areas of a rock mass where rock mass quality and discontinuity patterns are sufficiently similar that they can be grouped together for analysis. Rock mass strengths were based on the primary lithology (i.e. schist, gneiss or granite) which was generally uniform across each pit.

6.1 Drillhole Information

Drillhole orientation information was analyzed from the six geomechanical drillholes and a total of 143 oriented resource drillholes spaced across the four pits. Table 6-1 contains a summary of the number of holes analyzed for each pit. Figure 6-1 shows the distribution of the holes graphically.

Table 6-1: Total Number of Drillholes used for Structural Domaining

Pit	Number of Drillholes Considered		Length
	Geomechanical	**Resource**	**(m)**
Kona	1	8	1,145
Latte	2	19	4,004
Supremo	2	100	19,938
Double Double	1	11	2,462
Total	**6**	**138**	**27,549**

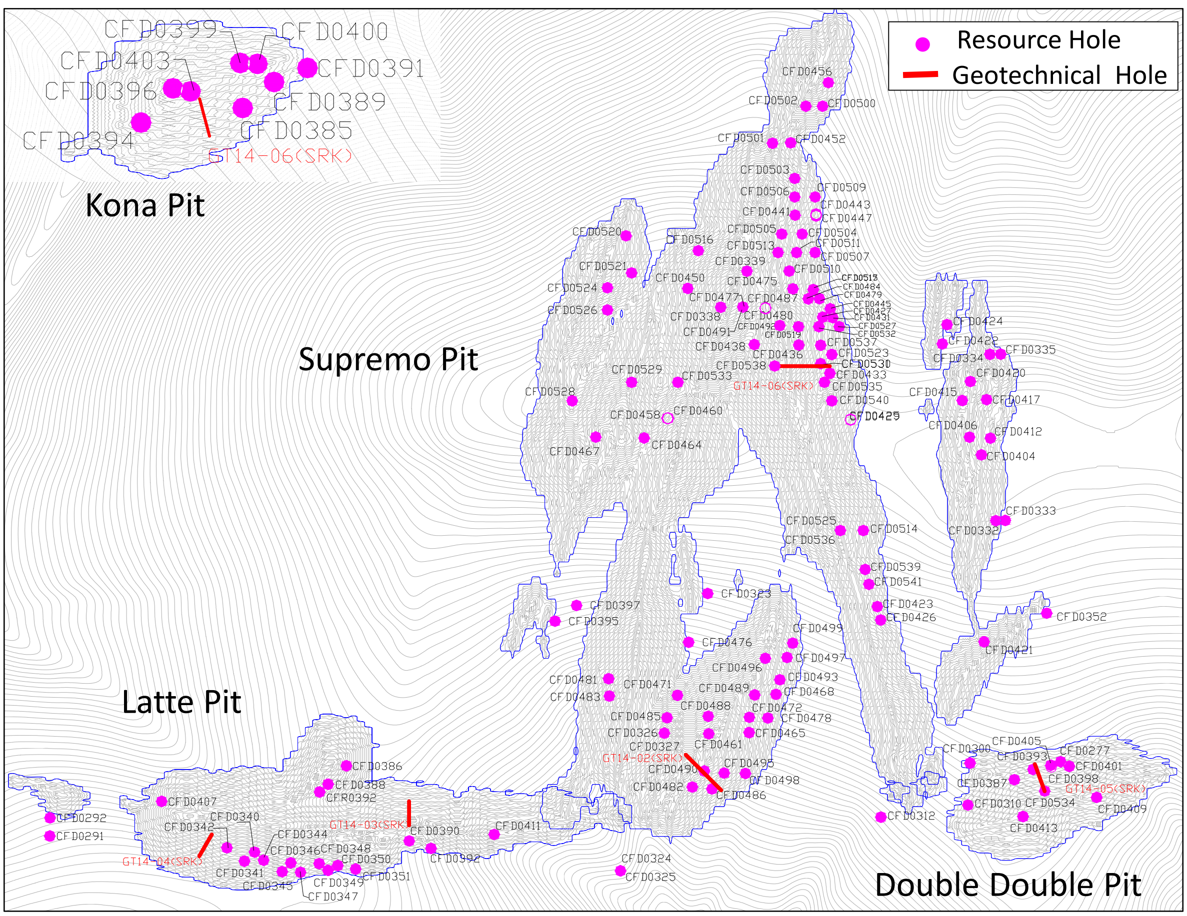


Figure 6-1: Distribution of the Oriented Drillholes used for Structural Analysis

6.2 Structural Domains

In order to identify structural domains, pit areas were initially broken down into areas that were bound by potential major faults and/or lithological contacts. Orientation data was then analyzed within each of these smaller areas using Dips v. 6.0 software (Rocscience, 2015a) and, where similar, combined with neighboring areas forming larger structural domains. Stereonets were plotted for each individual area with joint (J), foliation (F), fabric (Fbr) and fault discontinuities represented separately (Appendix F). For the analyses, the term "foliation" indicates natural open foliation fractures and the term "fabric" indicates the orientation of the schistosity or gneissosity fabric, without any natural open breaks.

Five separate geomechanical-structural domains were estimated for the pit slope stability analyses using this methodology. Each of the Kona, Latte and Double Double pits are essentially their own individual domain while the Supremo pit was divided into two separate domains (i.e. the East and West Domains) as shown on Figure 6-2. Each of the five domains are described individually below:

- **Kona Domain**: A total of eight joint sets were conservatively estimated in the Kona domain. The two principal joint sets are sub-vertical striking east-west (SJ_5) and southwest-northeast;
- **Latte Domain**: Five joint sets and one foliation sets were identified. The most dominant sets are the shallow, south dipping foliation discontinuity set (SF_01) and two set sub-vertical joint sets with north-south (SJ_02) and southwest-northeast (SJ_3b) trends;
- **Double Double Domain**: A total of eight joint sets and one foliation discontinuity set were conservatively estimated. The principal sets are considered to be the shallow, southward dipping foliation set (SF_01) and two joint set with dips typically between 40° and 70° northwest-southeast (SJ_06) and southwest-northeast (SJ_08) trends;
- **Supremo East Domain**: Five joint sets and one foliation discontinuity set were identified in this domain. The principal sets were identified to be the shallow, southerly dipping foliation set (SF_01) and one sub-vertical joint set striking north-south (SJ_02); and
- **Supremo West Domain**: Five joint sets and one foliation discontinuity set were identified in this domain. The principal sets were identified to be the shallow, southerly dipping foliation set (SF_01) and one north-south striking, sub-vertical joint set.

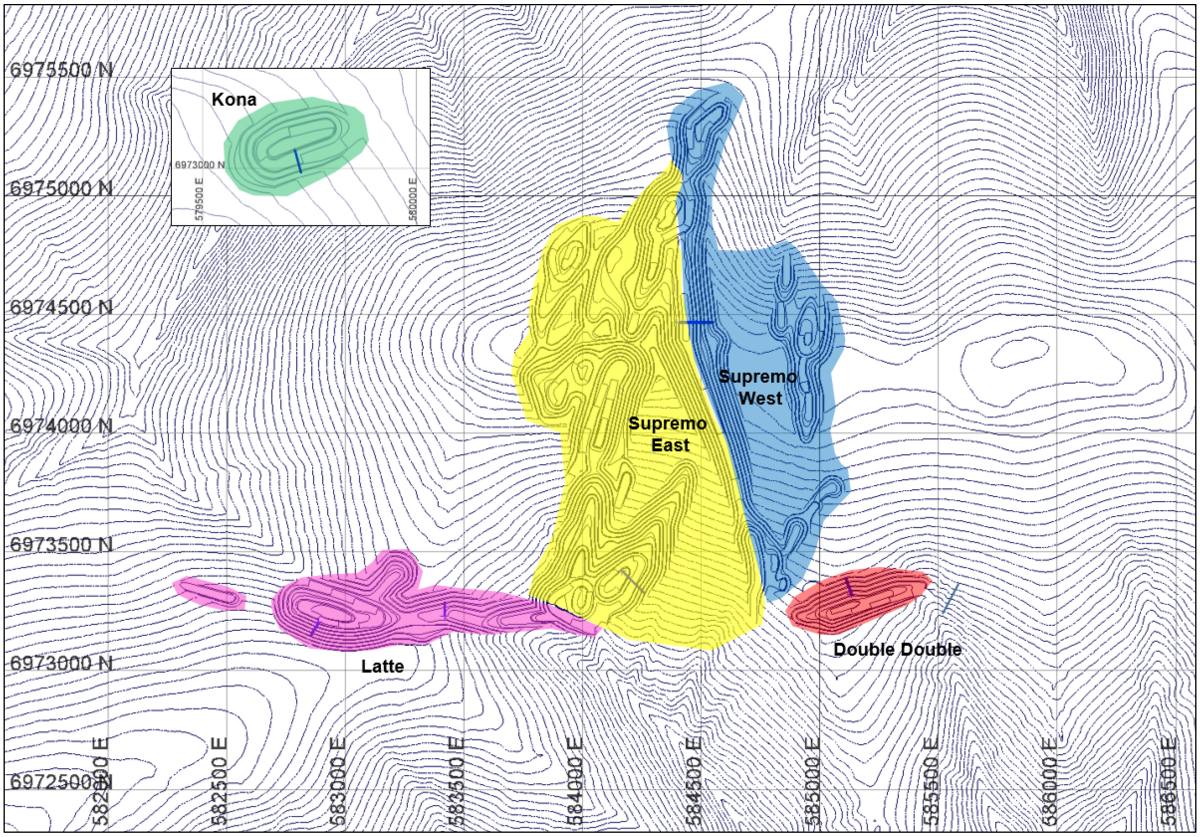
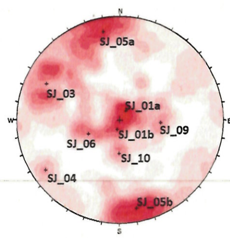
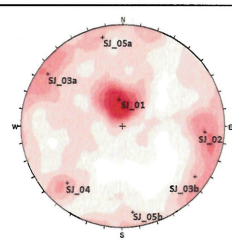
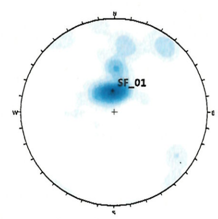
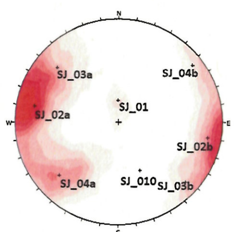
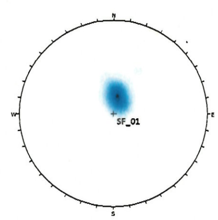
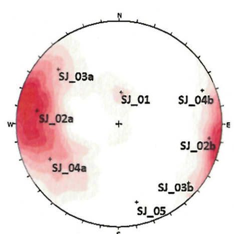
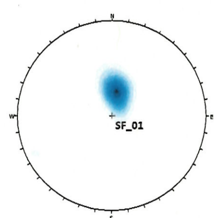
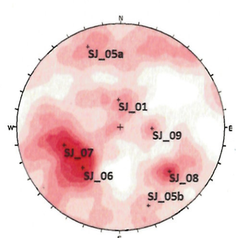
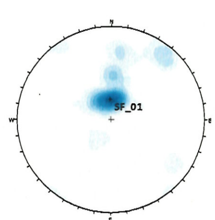


Figure 6-2: Estimated Structural Domains

Structural data for each domain was then analyzed using Dips and applying Terzaghi's weighting to the discontinuities based on potential drillhole bias. The resulting pole plots were used to define the individual joint and foliation discontinuity sets for further analysis. Pole plots for each domain are contained in Appendix G along with information regarding dip, dip direction, range (variability), cluster concentration and percentage of occurrence. Table 6-2 presents a summary of the sets identified within each domain.

Table 6-2: Summary of Discontinuity Sets per Domain

Id	Pole Plots		Joint Sets per Geomechanical-Structural Domain							
	Joint	Foliation	Set ID	Dip (°)			Dip Direction (°)			No. Poles
				Mean	Range		Mean	Range		
Kona		-	SJ_01a	12	23	5	214	160	270	439
			SJ_03	77	63	90	116	97	131	
			SJ_04	82	70	90	56	40	70	
			SJ_05a	82	70	90	169	150	189	
			SJ_05b	82	74	90	349	330	9	
			SJ_06	37	20	54	66	40	89	
			SJ_09	43	30	56	274	260	290	
			SJ_10	36	23	52	1	23	341	
			SJ_11	11	5	20	17	75	331	
Latte			SJ_01	30	12	50	172	140	210	1161
			SJ_02	78	63	90	274	260	290	
			SJ_03a	84	76	90	125	110	140	
			SJ_03b	82	70	90	304	290	320	
			SJ_04	76	64	90	44	29	58	
			SJ_05a	81	70	90	353	7	333	
			SJ_05b	84	75	90	167	153	187	
			SF_01	31	10	50	202	160	238	358
Supremo E			SJ_01	24	10	40	179	150	210	5891
			SJ_02a	79	60	90	101	80	120	
			SJ_02b	82	70	90	280	260	300	
			SJ_03a	77	60	90	132	120	155	
			SJ_03b	82	70	90	312	300	335	
			SJ_04a	75	60	90	48	30	65	
			SJ_04b	84	70	90	232	210	245	
			SJ_10	54	40	70	336	320	350	
			SF_01	22	37	7	192	230	155	1079
Supremo W			SJ_01	34	20	50	184	160	215	4958
			SJ_02a	78	60	90	99	80	120	
			SJ_02b	83	70	90	279	260	300	
			SJ_03a	77	60	90	132	120	150	
			SJ_03b	83	70	90	310	300	330	
			SJ_04a	74	60	90	63	40	80	
			SJ_04b	82	70	90	248	220	260	
			SJ_05	76	62	90	347	7	330	
			SF_01	29	15	45	190	160	225	3242
Double Double			SJ_01	29	15	45	194	165	355	653
			SJ_03	71	56	84	100	88	113	
			SJ_04	78	62	90	206	191	221	
			SJ_05	71	55	83	338	325	355	
			SJ_06	56	40	70	49	26	72	
			SJ_08	65	50	76	311	298	325	
			SJ_09	34	22	46	273	255	295	
			SJ_12	69	54	82	177	161	191	
			SF_01	26	12	43	175	135	221	387

After the individual discontinuity sets were defined, the structural database was used to determine the apparent spacing (distance along drillhole) between each of the discontinuities in each set. The calculated mean (apparent) spacing for each set was used as an input to define a negative exponential distribution necessary to represent the variation in discontinuity spacings for each set for the bench design analyses as discussed in Section 7. Figure 6-3 contains examples of typical discontinuity spacing histograms that were developed from the analysis. Histograms for the individual joint sets and structural domains are contained in Appendix H.

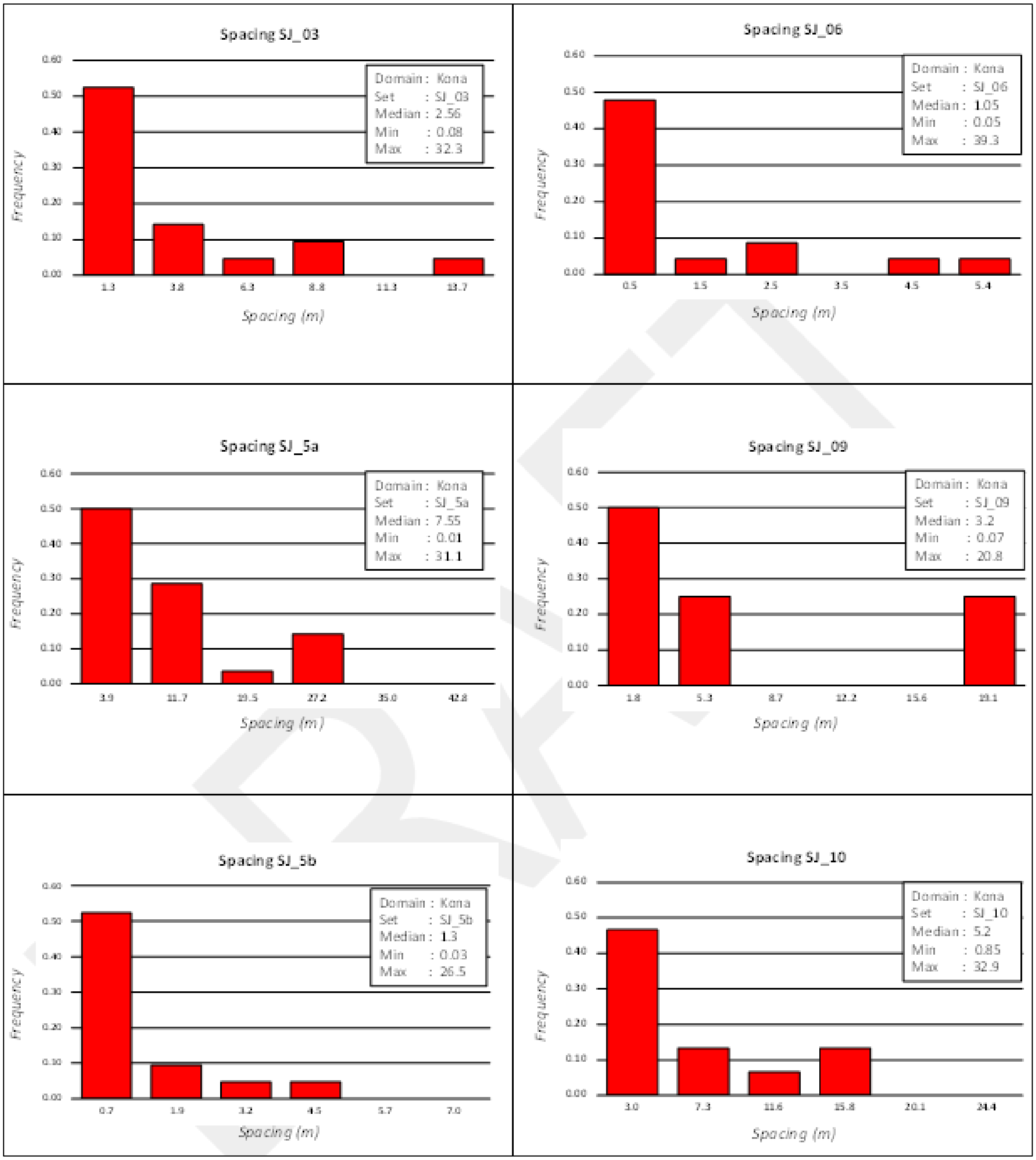


Figure 6-3: Example Histograms of Discontinuity Spacing

7 Bench Design Analyses

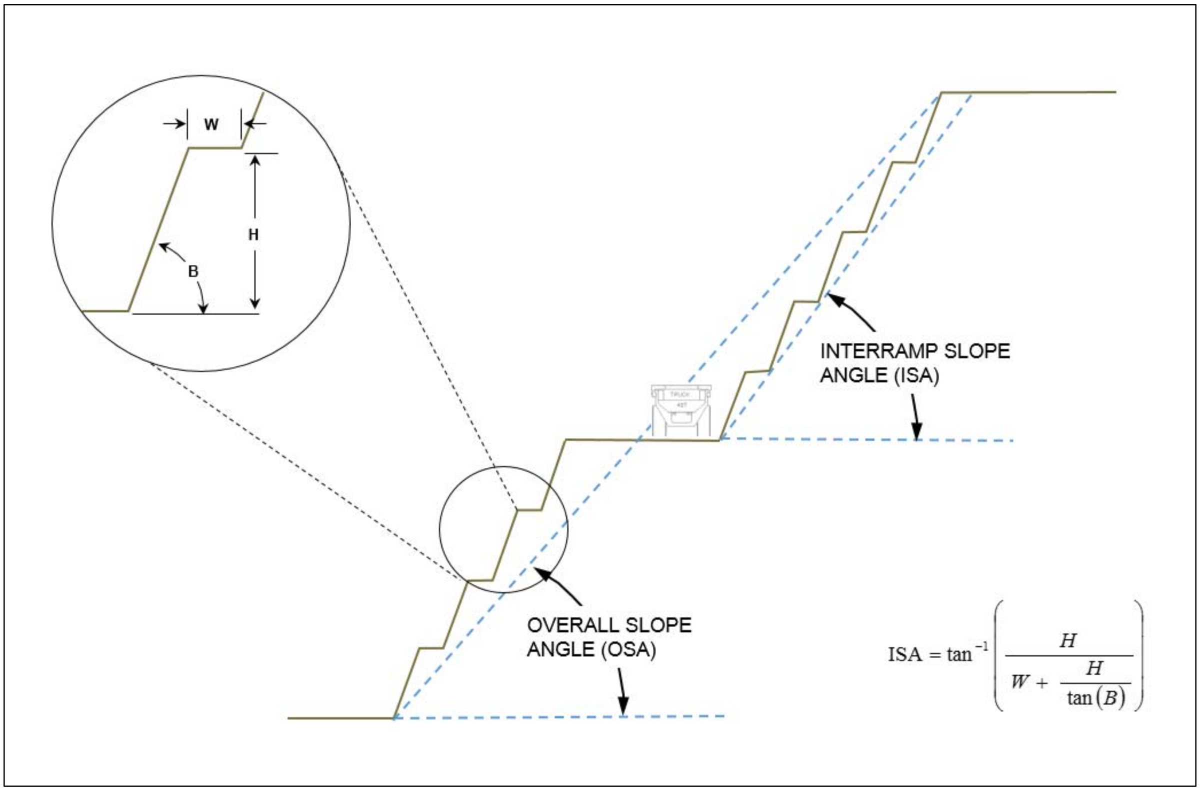
The consequences of an overall or high interramp slope failure on a final pushback commonly produce significant impact on mine economics, in that a substantial quantity of ore is frequently rendered uneconomic by the additional, unanticipated cost of removing the resulting failed wall material. The evaluation of the anticipated stability of final design slopes is therefore necessary and must be incorporated into final design recommendations. Of similar importance and impact on the project economics, though not nearly as dramatic as large scale slope failures, are the design and excavation of the benches and bench stacks, i.e., those slopes comprised of two to three benches. This is a result of the fact that overall slope designs cannot be successfully realized if benches cannot be safely and effectively established as per their design.

Although the expected performance of the overall and higher interramp slopes comprising the open pit can best be predicted and subsequently examined using rock mass failure models, the anticipated behavior of the bench and lower interramp slopes is most realistically assessed using analytical models that incorporate structurally controlled failure mechanisms. This is because rock structure, i.e., joints and other non-fault discontinuities will most likely facilitate structurally controlled failures, whenever the site materials have relatively high rock mass strengths.

In strong, competent materials such as at Kaminak, the development of rock mass failure in benches and in lower height interramp slopes is essentially precluded. Consequently, the evaluation of structurally controlled or kinematic failure potential of benches and lower height interramp slopes is the dominant consideration in the formulation of bench design recommendations.

7.1 Terminology

Slope design involves analysis of the three major components of an open pit slope, i.e., bench configuration, interramp slope angle (ISA) and overall slope angle (OSA) as shown in Figure 7-1. The bench configuration, which is defined by the bench face angle (B), bench height (H) and berm width (W), defines the interramp slope angle. The overall slope angle consists of interramp slope sections separated by wide step-outs for haul roads, mine infrastructure or geomechanical purposes. The overall slope angles at Coffee will be approximately equal to the corresponding interramp angles except in areas where a haul road exists.



Source: SRK, 2015

Figure 7-1: Pit Slope Design Components

7.2 Kinematic Assessment

To assess which of the various discontinuity sets identified in each domain have potential to adversely impact bench stability for the various pit slope orientations, an initial kinematic assessment was completed for the project using stereonets created with Dips v6.0 software (Rocscience, 2015a). The orientation and variability of each set was graphically compared to the various pit slope dip directions to assess which sets, or combination of sets, have the potential to combine and form three dimensional blocks that could displace under gravitational forces. Kinematic analyses such as these conservatively do not consider the length or spacing of discontinuities which are more realistically assessed with stochastic type models as discussed in Section 7.3.

The results of the kinematic assessments are summarized in Figures 7-2 and 7-3 with the individual analyses presented in Appendix I. On Figures 7-2 and 7-3, the left hand image shows the specific area of each pit that could be subject to either planar, wedge or toppling type block movements while the histograms on the right hand side of the figures illustrate the involvement or activity of each individual set in forming either single plane (planar) or double plane (wedge) blocks. The results of the kinematic assessments were subsequently used to define which sets were necessary to include in the SBlock analyses as discussed in Section 7.4.

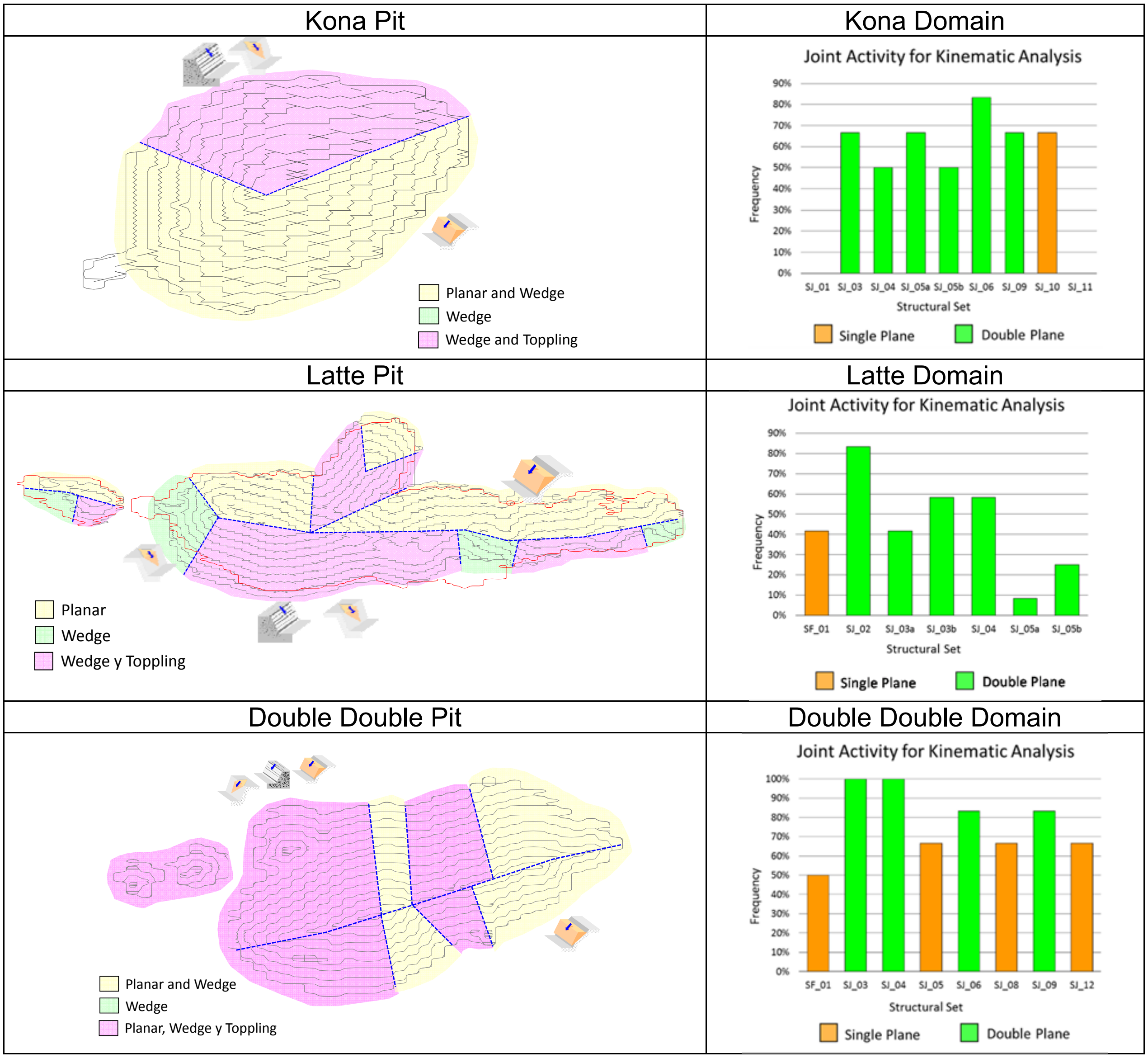


Figure 7-2: Summary of Kinematic Analysis Results for Kona, Latte and Double Double Pits

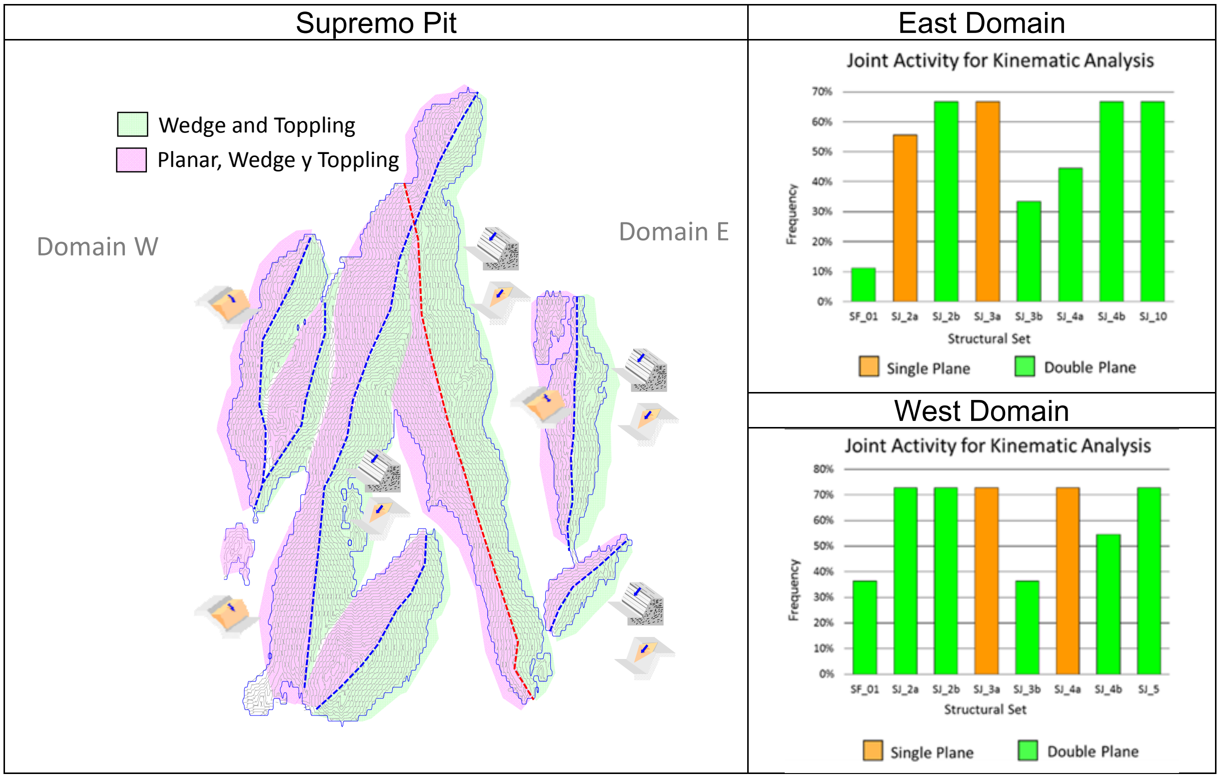


Figure 7-3: Summary of Kinematic Analysis Results for Supremo Pit

7.3 Bench Design Methodology

Bench scale and lower interramp slopes were judged to be most realistically assessed using stochastic models that evaluate structurally controlled failure mechanisms. To accomplish this, the software program SBlock (Esterhuizen, 2004) was used. Sblock is based on the key block theory developed by Goodman & Shi (1985) and uses probabilistic distributions of joint set properties (orientation, spacing and length) to simulate a large number of potential 3D blocks and calculates their removability from a given open pit bench face orientation. It is assumed that a block may contain smaller blocks combined to form larger blocks which are limited in size only by the length of the joints.

Once removability has been established, the program uses vector methods to determine the sliding direction, normal and shear forces on the sliding planes and the safety factor of each block. Sliding can occur along a single plane (planar failure) or along two planes (wedge failure) and occasionally along three planes. The user does not have to identify which type of sliding and failure mode to consider, the program identifies blocks and determines whether they can slide out of the face and the sliding mode. The program automatically looks for combinations of different joints and checks for potential sliding failure modes.

The program repeatedly selects joint surfaces from the provided joint statistics and tests whether a block is formed. A block can be any convex shape with up to 8 facets. Multiple block runs, such as those used for the Coffee analyses, are based on a 200 m bench length. Each time joints are selected, they are analyzed to determine if they intersect “scan lines” that are located at mid height of the bench face. The number of joints intersecting the “scan line” is verified against the expected joint frequency along the scan line. When a sufficient number of joints have been sampled along the scan line, a new bench is started. Statistics are accumulated for each bench for the number of potentially unstable blocks, the volume of failure, safety factors, probability of failure, average bench effective width, which allow users to evaluate the relative stability of different bench face slope angles, orientations and heights. Several applications of SBlock used in operating mines have been presented by Hormazabal (2013).

A SBlock model was constructed for each sector using available joint set information for the respective sectors. The wall dip direction was varied for each model depending on the range of expected wall orientations within each pit sector. Each model and wall orientation was evaluated with a design bench face angle (B) of 65°, 70°, and 75° and bench height (H) of 20 m to determine the probabilities of failure and amount of crest expected for a given geometry.

Double (20 m high) benches were analyzed instead of single (10 m high) benches because properly executed double benches typically result in steeper effective bench face angles due to the confinement on the lower lift(s). For example, the upper bench lift, adjacent to a planned catch bench, is unconfined or free-faced in the upward direction and, consequently, some level of crest loss is unavoidable; however, for the lower lift(s), where there will not be a catch bench left adjacent to the blast, the confinement from the rock above effectively eliminates the potential for crest loss, assuming proper controlled blasting procedures are followed.

In addition, the probability of a discontinuity penetrating through a double bench is lower than that of a single bench, given the increase in bench height and corresponding increase in discontinuity length required to penetrate the bench. The use of double benches also results in wider catchments which are more likely to retain rock fall and provide access to benches for cleaning. Careful cleaning and scaling is required for double benches which, considering the bench height relative to scaling equipment reaching capabilities, must be done after each lift.

7.4 Model Inputs and Assumptions

Joint set properties such as orientation, length, spacing and shear strength are input into SBlock using probabilistic distributions. The orientation (dip and dip direction) of joint sets are represented by normal distributions using the average value and an estimate of the range or variability. Joint spacing and length are both assumed to follow truncated negative exponential distributions. The inputs required to define spacing and lengths include the mean, minimum and maximum values. It is assumed by the model that every joint truncates against another joint. Shear strengths of the joints between blocks are modeled using the linear, Mohr-Coulomb criteria with friction angle and cohesion as inputs.

Spacings of discontinuities were calculated based on drillhole data as discussed in Section 6.2 while lengths of discontinuities had to be estimated given the lack of outcrop exposure at the site. Discontinuity sets that are very prominent such as foliation and sets that are parallel to regional fault trends were generally assigned longer mean lengths and tighter (closer) spacings. Less prominent or secondary joint sets were typically modeled with shorter mean lengths and wider spacings. The shear strength assigned to each joint set was selected based on the direct shear test result for the respective lithology and discontinuity types.

Table 7-1 contains a summary of the various model input parameters for each of the geomechanical-structural domains identified as discussed in Section 6.2. Shear strength parameters (ϕ and c) presented in Table 7-1 were reduced from raw laboratory test results summarized in Table 4-2 to account for the scaler effects of the large scale in-situ joints compared to the small, core diameter scale laboratory tests.

Table 7-1: Summary of Input Parameters per Geomechanical-Structural Domain

Domain	Structural Sets											Strength	
	Id		Orientation (°)			Spacing (m)			Length (m)			c	ϕ
			Dip	Dip Dir	Range	Avg	Min	Max	Avg	Min	Max	(kpa)	(°)
Kona	**SJ_03**	**P**	**77**	**116**	**30**	**1.3**	**0.5**	**20**	**15**	**12**	**25**	**10**	**30**
	SJ_5a	P	82	169	30	3.5	0.5	25	15	12	25	10	30
	SJ_5b	P	82	349	30	0.6	0.4	15	15	12	25	10	30
	SJ_06	P	37	66	30	0.5	0.3	15	15	12	25	10	30
	SJ_09	S	43	274	30	1.8	0.5	20	12	8	20	10	30
	SJ_10	S	36	1	30	3	1	25	12	8	20	10	30
Latte	**SF_01**	**P**	**31**	**202**	**40**	**2**	**0.5**	**18**	**15**	**12**	**25**	**10**	**25**
	SJ_02	**P**	**78**	**274**	**30**	**3**	**1**	**20**	**15**	**12**	**25**	**10**	**30**
	SJ_03a	P	84	125	30	3.5	1	20	15	12	25	10	30
	SJ_03b	S	82	304	30	2	0.5	18	12	8	20	10	30
	SJ_04	P	76	44	30	3.3	1	20	15	12	25	10	30
	SJ_05b	S	84	167	30	4.2	1.5	25	12	8	20	10	30
Supremo West	SF_01	P	29	190	40	1.5	0.5	20	15	12	25	10	30
	SJ_2a	P	78	99	35	0.5	0.3	10	15	12	25	10	30
	SJ_2b	S	83	279	25	1.4	0.7	18	12	8	20	10	30
	SJ_3a	S	77	132	30	1.0	0.5	14	12	8	20	10	30
	SJ_4a	P	74	63	35	0.8	0.4	12	15	12	25	10	30
	SJ_05	P	76	347	30	1.5	0.7	16	15	12	25	10	30
Supremo East	SF_01	P	22	192	40	2.4	0.5	20	15	12	25	10	30
	SJ_2a	P	79	101	30	0.5	0.3	10	15	12	25	10	30
	SJ_2b	S	82	280	25	1.2	0.6	18	12	8	20	10	30
	SJ_3a	S	77	132	30	1.2	0.6	18	12	8	20	10	30
	SJ_4a	P	75	48	30	1.4	0.7	18	15	12	25	10	30
	SJ_10	P	54	336	30	1.6	0.8	18	15	12	25	10	30
Double Double	**SF_01**	**P**	**26**	**175**	**40**	**2**	**0.5**	**18**	**15**	**12**	**25**	**10**	**30**
	SJ_05	S	71	338	30	4	0.5	25	12	8	20	10	30
	SJ_06	**P**	**56**	**49**	**30**	**1.3**	**0.5**	**18**	**15**	**12**	**25**	**10**	**30**
	SJ_08	**P**	**65**	**311**	**30**	**1.6**	**0.5**	**18**	**15**	**12**	**25**	**10**	**30**
	SJ_09	S	34	273	30	8.5	2	35	12	8	20	10	30
	SJ_12	**P**	**69**	**177**	**30**	**0.5**	**0.3**	**15**	**15**	**12**	**25**	**10**	**30**

Note: Bold text indicates the principal or most dominant discontinuity sets in each domain based on the set's frequency of occurrence.

As illustrated in Table 7-1, up to six discontinuity sets were included in each model which is generally considered conservative; however, each set was verified at one or more locations within each sector. Given the relatively high dip angle (greater than 70°) of many of sets, the inclusion of the high number of joint sets in the models is may not significantly impact the results.

7.5 Bench Modeling Results

For each combination of slope dip and dip direction for each domain, model outputs included the probability of failure, average bench width (after crest loss), average failure volume and a plot of joint activity showing the frequency of how each joint set contributed to single plane (plane shear) or double plane (wedge or step path) failures or as a back release. From the average bench widths calculated by the model, the average effective bench face angle, as defined on Figure 7-4, was calculated. An acceptability criterion of a probability of failure (POF) of <30% and an 80% reliability was adopted for the project based on recommendations by Stacey & Read (2009).

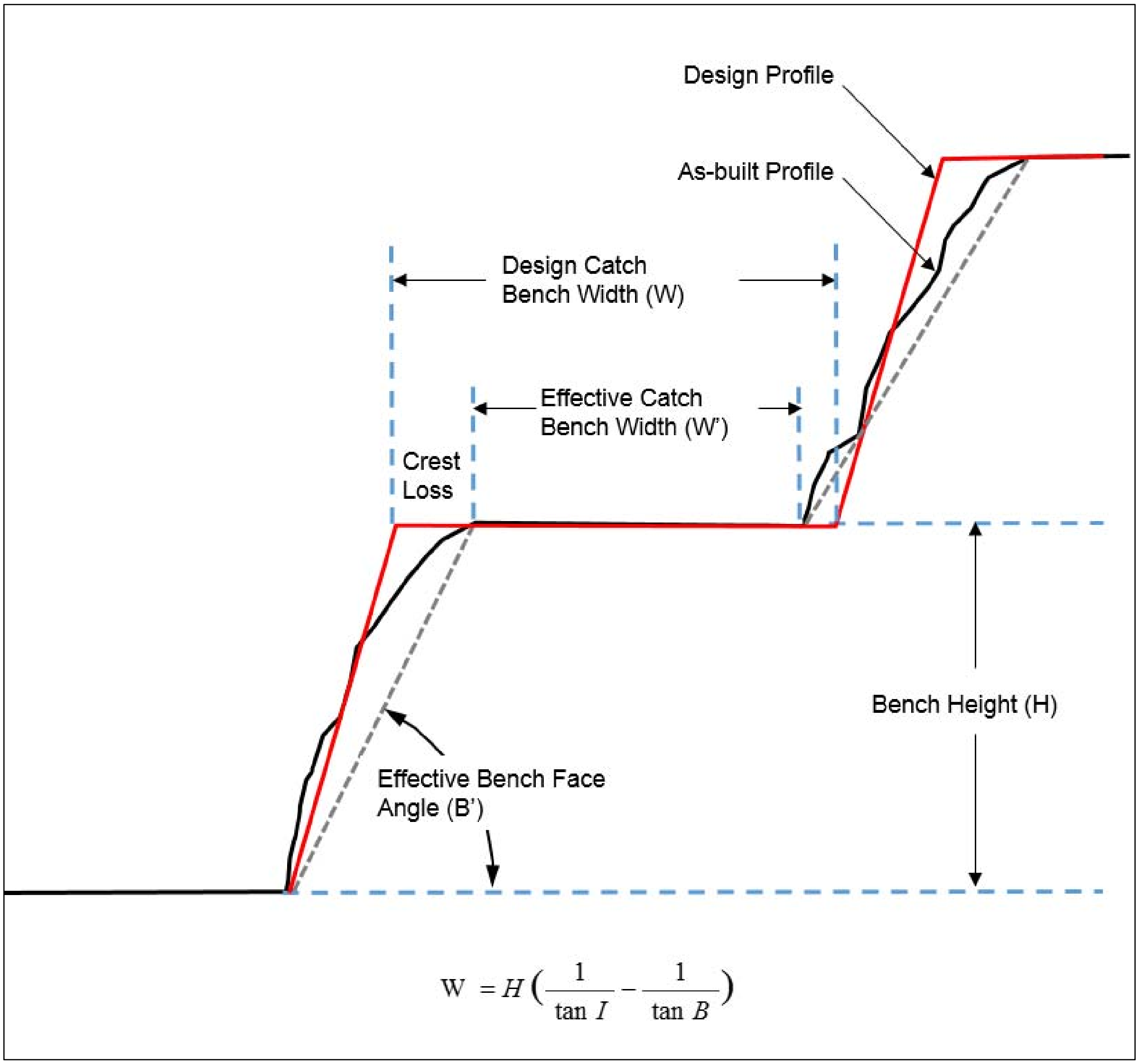


Figure 7-4: Explanation of Bench Design Terminology

The results of the SBlock analyses are summarized in Table 7-2 for Kona and Double Double, Table 7-3 for Latte, and Tables 7-4 and 7-5 for the Supremo East and West Domains, respectively. The probability of failure (POF) for each bench face angle analyzed is summarized for each individual analysis. SRK recommends designing the bench slopes at Coffee based on the average effective bench face angle and a maximum 30% probability of failure. In Tables 7-3, 7-4 and 7-5, the red text indicate cases that exceeded the maximum failure probability criteria of 30% due to the steepness of the bench face angle analyzed for the particular slope orientation. Catch bench widths are designed to meet or exceed those suggested by the Modified Ritchie Criteria as described by Call (1992).

Table 7-2: SBlock Analysis Result for the Kona and Double Double Pits

Domain	Slope Dip Dir. (°)	Bench Design Inputs				Berm Width			POF (%)
		H (m)	B (°)	W (m)	ISA (°)	W' (m)	Required Width (m)	Cumulative Distribution of Bench Width >80%	
Kona	20	20	65	9.5	47	9.4	2.6	8.6	5.7
		20	70	9.5	50	9.2	4.6	8.6	15.4
		20	75	9.5	53	8.9	6.4	8.5	25.9
	90	20	65	9.5	47	9.3	3.3	8.6	8.7
		20	70	9.5	50	9.0	5.4	8.6	20.6
		20	75	9.5	53	8.6	7.2	7.5	31.0
	145	20	65	9.5	47	9.5	0.5	8.6	0.3
		20	70	9.5	50	9.5	0.9	8.6	0.7
		20	75	9.5	53	9.5	1.6	8.6	1.6
	180	20	65	9.5	47	9.5	0.5	8.6	0.3
		20	70	9.5	50	9.5	0.7	8.6	0.3
		20	75	9.5	53	9.5	0.6	8.6	0.3
	330	20	65	9.5	47	9.5	0.7	8.6	0.5
		20	70	9.5	50	9.5	1.2	8.6	1.2
		20	75	9.5	53	9.4	1.9	8.6	3.0
	345	20	65	9.5	47	9.5	1.6	8.6	2.3
		20	70	9.5	50	9.4	2.0	8.6	3.1
		20	75	9.5	53	9.4	2.4	8.6	4.2
Double Double	150	20	65	9.5	47	9.5	0.4	8.6	0.2
		20	70	9.5	50	9.5	1	8.6	0.6
		20	75	9.5	53	9.5	1.3	8.6	1.4
	170	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.6	8.6	0.2
		20	75	9.5	53	9.5	0.9	8.6	0.7
	190	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.9	8.6	0.7
		20	75	9.5	53	9.5	1.2	8.6	1.0
	330	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.8	8.6	0.5
		20	75	9.5	53	9.5	1.3	8.6	1.2
	345	20	65	9.5	47	9.5	0.1	8.6	0.1
		20	70	9.5	50	9.5	0.9	8.6	0.6
		20	75	9.5	53	9.5	1.6	8.6	1.9
	360	20	65	9.5	47	9.5	0.2	8.6	0.1
		20	70	9.5	50	9.5	0.7	8.6	0.7
		20	75	9.5	53	9.5	1.6	8.6	2.0

Notes:
H = Bench height (m)
B = Design bench face angle (°)
W' = Average effective bench width (m)
W = Bench or berm width (m)
ISA = Interramp slope angle (°)
POF = Probability of failure (%)

Table 7-3: SBlock Analysis Result for the Latte Pit

Domain	Slope Dip Dir. (°)	Bench Design				Berm Width			POF (%)
		H (m)	B (°)	W (m)	ISA (°)	W' (m)	Required Width (m)	Cumulative Distribution of Bench Width >80%	
Latte	0	20	65	9.5	47	9.5	0.2	8.6	0.1
		20	70	9.5	50	9.5	0.1	8.6	0.1
		20	75	9.5	53	9.5	0.3	8.6	0.1
	15	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.4	8.6	0.1
		20	75	9.5	53	9.5	0.4	8.6	0.1
	20	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.2	8.6	0.0
		20	75	9.5	53	9.5	0.6	8.6	0.3
	40	20	65	9.5	47	9.5	0.6	8.6	0.4
		20	70	9.5	50	9.5	0.8	8.6	0.5
		20	75	9.5	53	9.5	0.2	8.6	0.1
	100	20	65	9.5	47	9.5	0.4	8.6	0.2
		20	70	9.5	50	9.5	0.7	8.6	0.4
		20	75	9.5	53	9.5	0.8	8.6	0.4
	130	20	65	9.5	47	9.5	1.0	8.6	0.7
		20	70	9.5	50	9.5	1.1	8.6	1.1
		20	75	9.5	53	9.5	1.0	8.6	0.9
	175	20	65	9.5	47	9.3	3.9	8.6	7.1
		20	70	9.5	50	9.3	4.7	8.6	9.6
		20	75	9.5	53	9.0	6.5	8.6	15.0
	190	20	65	11.0	45	10.7	5.5	10.0	12.0
		20	65	9.5	47	9.2	5.3	8.5	11.6
		20	70	9.5	50	9.0	6.7	8.5	16.5
		20	75	9.5	53	8.7	8.0	8.5	20.9
	200	20	65	11.0	45	10.6	6.0	10.0	14.3
		20	65	9.5	47	9.1	6.0	8.5	14.9
		20	70	9.5	50	8.8	7.8	8.5	21.9
		20	75	9.5	53	8.5	9.8	8.5	28.7
	210	20	65	11.0	45	10.6	6.5	10.0	16.8
		20	65	9.5	47	9.0	7.0	8.5	19.6
		20	70	9.5	50	8.8	8.6	8.5	26.2
		20	75	9.5	53	8.4	10.4	8.5	32.9
	315	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.5	8.6	0.2
		20	75	9.5	53	9.5	0.4	8.6	0.2
	325	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.5	8.6	0.3
		20	75	9.5	53	9.5	0.4	8.6	0.1

Notes:
H = Bench height (m)
B = Design bench face angle (°)
W' = Average effective bench width (m)
W = Bench or berm width (m)
ISA = Interramp slope angle (°)
POF = Probability of failure (%)

Table 7-4: SBlock Analysis Result for the Supremo Pit, East Domain

Domain	Slope Dip Dir. (°)	Bench Design				Berm Width			POF (%)
		H (m)	B (°)	W (m)	ISA (°)	W' (m)	Required Width (m)	Cumulative Distribution of Bench Width >80%	
Supremo East	80	20	65	9.5	47	9.5	1.8	8.6	2.9
		20	70	9.5	50	9.4	2.2	8.6	4.1
		20	75	9.5	53	9.5	1.7	8.6	2.5
	100	20	65	9.5	47	9.5	1.8	8.6	2.9
		20	70	9.5	50	9.4	2.4	8.6	4.6
		20	75	9.5	53	9.4	2.2	8.6	3.4
	150	20	65	9.5	47	9.5	0.7	8.6	0.5
		20	70	9.5	50	9.5	0.8	8.6	0.5
		20	75	9.5	53	9.5	0.7	8.6	0.4
	175	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.6	8.6	0.2
		20	75	9.5	53	9.5	0.5	8.6	0.1
	240	20	65	9.5	47	9.5	0.2	8.6	0.1
		20	70	9.5	50	9.5	0.2	8.6	0.1
		20	75	9.5	53	9.5	0.1	8.6	0.0
	260	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.3	8.6	0.1
		20	75	9.5	53	9.5	0.4	8.6	0.1
	270	20	65	9.5	47	9.5	0.6	8.6	0.3
		20	70	9.5	50	9.5	0.8	8.6	0.4
		20	75	9.5	53	9.5	0.7	8.6	0.4
	290	20	65	9.5	47	9.5	0.6	8.6	0.4
		20	70	9.5	50	9.5	0.7	8.6	0.4
		20	75	9.5	53	9.5	0.2	8.6	0.1
	330	20	65	9.5	47	9.5	1.7	8.6	2.4
		20	70	9.5	50	9.4	2.6	8.6	4.4
		20	75	9.5	53	9.3	3.8	8.6	9.1

Notes:

H	= Bench height (m)	W	= Bench or berm width (m)
B	= Design bench face angle (°)	ISA	= Interramp slope angle (°)
W'	= Average effective bench width (m)	POF	= Probability of failure (%)

Table 7-5: SBlock Analysis Result for the Supremo Pit, West Domain

Domain	Slope Dip Dir. (°)	Bench Design				Berm Width			POF (%)
		H (m)	B (°)	W (m)	ISA (°)	W' (m)	Required	Cumulative Distribution of Bench Width >80%	
Supremo West	40	20	65	9.5	47	9.5	1.7	8.6	2.2
		20	70	9.5	50	9.5	1.4	8.6	1.3
		20	75	9.5	53	9.4	2.4	8.6	4.0
	65	20	65	9.5	47	9.5	1.9	8.6	3.1
		20	70	9.5	50	9.4	2.2	8.6	3.4
		20	75	9.5	53	9.5	1.9	8.6	2.5
	80	20	65	9.5	47	9.5	1.8	8.6	3.7
		20	70	9.5	50	9.5	2.0	8.6	3.8
		20	75	9.5	53	9.5	1.9	8.6	3.1
	100	20	65	9.5	47	9.4	1.9	8.6	3.5
		20	70	9.5	50	9.4	2.2	8.6	4.3
		20	75	9.5	53	9.4	2.7	8.6	5.7
	125	20	65	9.5	47	9.5	1.2	8.6	1.4
		20	70	9.5	50	9.5	1.4	8.6	1.6
		20	75	9.5	53	9.5	1.4	8.6	1.5
	140	20	65	9.5	47	9.5	0.9	8.6	0.8
		20	70	9.5	50	9.5	1.2	8.6	1.3
		20	75	9.5	53	9.5	1.1	8.6	0.9
	155	20	65	9.5	47	9.5	0.4	8.6	0.2
		20	70	9.5	50	9.5	0.8	8.6	0.5
		20	75	9.5	53	9.5	0.7	8.6	0.4
	200	20	65	9.5	47	9.5	0.0	8.6	0.0
		20	70	9.5	50	9.5	0.2	8.6	0.0
		20	75	9.5	53	9.5	0.3	8.6	0.1
	245	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.3	8.6	0.1
		20	75	9.5	53	9.5	0.3	8.6	0.1
	255	20	65	9.5	47	9.5	0.3	8.6	0.1
		20	70	9.5	50	9.5	0.4	8.6	0.1
		20	75	9.5	53	9.5	0.5	8.6	0.2
	270	20	65	9.5	47	9.5	0.6	8.6	0.4
		20	70	9.5	50	9.5	0.7	8.6	0.4
		20	75	9.5	53	9.5	0.6	8.6	0.3
	290	20	65	9.5	47	9.5	0.6	8.6	0.4
		20	70	9.5	50	9.5	0.7	8.6	0.3
		20	75	9.5	53	9.5	0.7	8.6	0.6
	310	20	65	9.5	47	9.5	0.6	8.6	0.3
		20	70	9.5	50	9.5	0.6	8.6	0.4
		20	75	9.5	53	9.5	0.8	8.6	0.5
	330	20	65	9.5	47	9.5	0.9	8.6	0.7
		20	70	9.5	50	9.5	1.1	8.6	0.8
		20	75	9.5	53	9.5	1.0	8.6	0.8

Notes:

H	= Bench height (m)	W	= Bench or berm width (m)
B	= Design bench face angle (°)	ISA	= Interramp slope angle (°)
W'	= Average effective bench width (m)	POF	= Probability of failure (%)

The following was concluded from the analyses:

- Due mostly to the north-south orientation of the pit, benches at Supremo are not anticipated to be significantly impacted by structurally controlled instabilities. As such, a maximum achievable bench face of 75° was estimated for Supremo based on operational constraints as discussed below;

- The stability of benches on the north Latte and Double Double pit walls will likely be controlled by the dominant southerly (inward) dipping foliation discontinuities. The analyses indicate a maximum achievable bench face angle of approximately 65° for their north walls. Stability of the south and end pit wall benches are not anticipated to be governed by geologic structure controls and were, therefore, estimated to have a maximum achievable bench face of 75° based on operational considerations; and
- Benches on the west Kona pit wall have a slightly higher probability of structurally controlled instabilities fostered by a moderately east (inward) dipping joint set. The analyses indicate a maximum bench face angle of approximately 70° is achievable for this portion of the pit. The remaining pit areas are not anticipated to be significantly impacted by geologic structure controlled instabilities. A maximum achievable bench face of 75° was estimated for the remainder of the pit based on operational constraints.

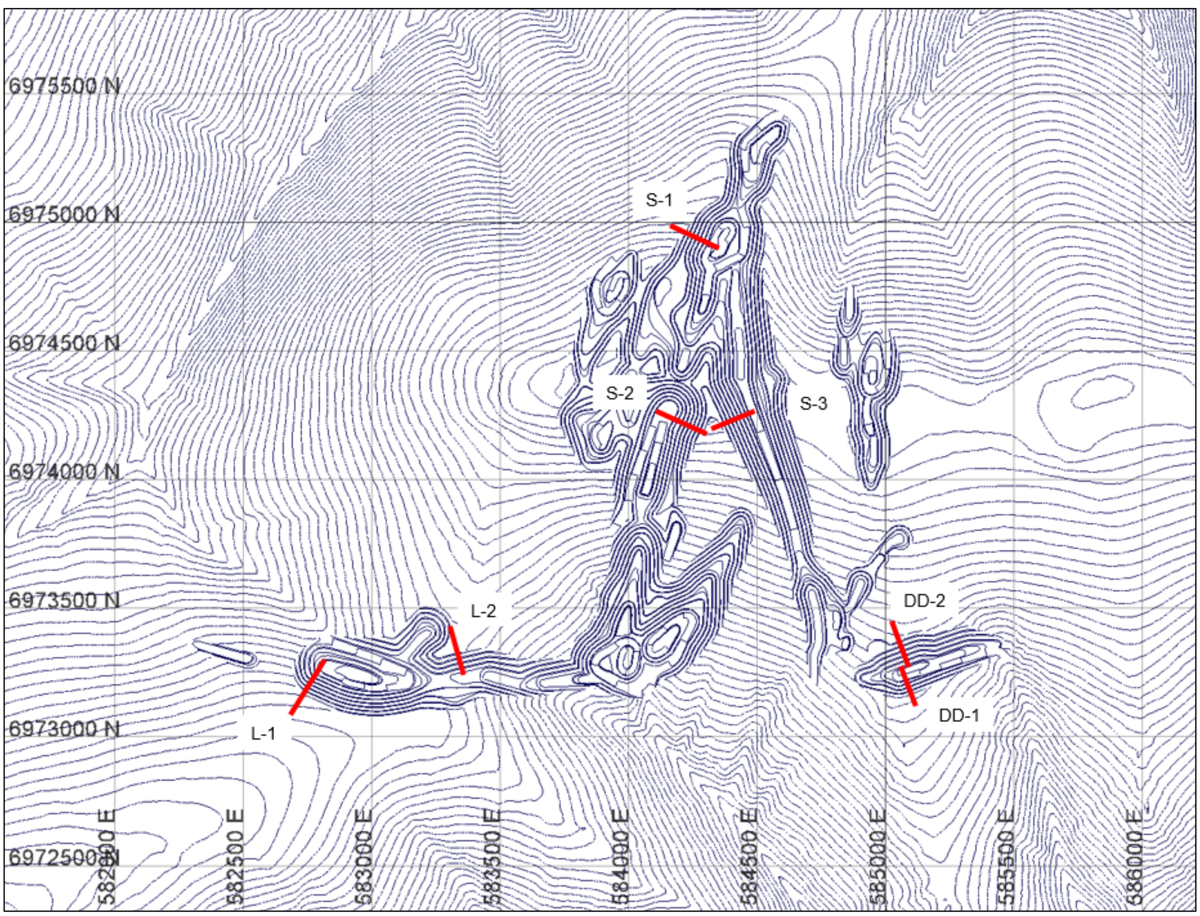
It should be noted that the bench stability analyses are based solely on orientations of geologic structure and do not directly consider effects of weathering, alteration, blasting or excavation techniques. Depending on the quality of blasting and excavation techniques, achievable bench face angles might be reduced from the theoretical angles determined by these analyses. When taking these operational effects into consideration, it is rare to achieve bench face angles greater than about 75° unless there is a steeper structure controlling the bench geometry. Increasing bench face angles to greater than about 75° may be achievable but usually requires more rigorous drilling and blasting effort and specialized controlled blasting techniques than are commonly practiced.

8 Interramp/Overall Slope Stability Analyses

Based on the results of the bench design analyses, recommendations for bench configurations and the resulting maximum interramp slope design were provided to JDS for development of initial detailed pit designs incorporating necessary ramps and infrastructure. The stability of the high interramp and overall slopes of the initial detailed pit designs were then evaluated.

8.1 Slope Stability Sections

Based on the results of the geomechanical characterization program and initial detailed pit design geometries, critical slope stability cross-sections were selected for analysis. A total of seven critical sections were selected to verify stability of the ultimate pit designs; two each at Latte and Double Double and three at Supremo. Critical sections are selected at locations where slope stability conditions are anticipated to be the most adverse such as where the slope height is at its maximum, pit wall materials are low strength and/or pore water pressures may be the highest. Due to the shallow depth (85 m) and relatively high rock mass strength at Kona, an interramp/overall slope stability model was not warranted. The traces of the critical sections are shown on Figure 8-1 with the geometry of each individual section shown in Appendix J.



Source: SRK, 2015

Figure 8-1: Location of Critical Slope Stability Cross Sections

8.2 Methodology

The seven critical cross-sections were analyzed using the slope stability modeling software, Slide 6.033 (Rocscience, 2015b), which uses two-dimensional, limited equilibrium methods with output in terms of safety factors. Spencer's method of slices was used for the analyses due its consideration of both force and moment equilibrium. The non-circular, "path" search method was used in all cases.

To construct the model geometries, vertical cross sections were cut through the respective final pit designs and the primary structures using Vulcan mine planning software (Maptek, 2015). Multiple failure modes were analyzed including overall and interramp slopes and localized failures associated with geological contacts and/or faults.

8.3 Geomechanical Parameters

As discussed in Section 5.3, the Hoek-Brown (Hoek, et al., 2002) criteria was used to represent the shear strength–normal stress relationship for the rock masses for slope stability modeling. The respective average properties were used to represent the rock mass and joint strengths for each of the primary rock types. The rock mass and joint strength parameters are summarized in Table 5-2 and 5-3, respectively.

For the analyses, anisotropic shear strengths were developed to evaluate the impacts of discontinuities as planes of weakness within the rock mass. An equivalent strength approach was used based on Jennings' (1972) equations:

$$c_{eq} = (1-k)c + kc_j \qquad (5)$$

$$tan(\phi_{eq}) = (1-k)\tan(\phi) + k\tan(\phi_j) \qquad (6)$$

Where c and ϕ are the cohesion and friction angle, respectively, of the intact rock bridges, c_j and ϕ_j are the cohesion and friction angle of the discontinuities and k is the coefficient of continuity along the failure plane. Given the lack of discontinuity length information at this stage of the project, sensitivity analyses were conducted varying the continuity coefficient with k = 0.5, k = 0.7 and k = 0.8.

Dry conditions were assumed for the interramp/overall slope stability analyses based on field hydrogeological investigations conducted by SRK (2015) and Lorax (2016).

Based on anecdotal evidence that earthquake ground accelerations are not known to have been the cause of any rock slope failures in mining and that there is little or no experience to suggest that rock slope stability is susceptible to seismic loading, a seismic (or pseudostatic) stability analysis was not performed. This is a common industry assumption for mining rock slope stability.

8.4 Results of Interramp/Overall Stability Analysis

Based on accepted engineering experience, interramp/overall slope designs that yield factors of safety (FOS) of 1.3 for slopes with high failure consequences and 1.2 for low failure consequences are appropriate for most open pit mines. Slopes of high failure consequence are generally those slopes that are critical to mine operations, such as those on which major haul roads are established, those providing ingress or egress points to the pit, or those underlying infrastructure such as processing facilities or structures.

The results of the overall and interramp slope stability analysis are summarized in Table 8-1 for each of the seven critical sections analyzed. Graphical output files showing the critical failure and FOS calculated by Slide for each individual analysis are presented in Appendix J.

Table 8-1: Results of Overall/Interramp Slope Stability Modeling

Pit	Section	Slope	Slope Design			Safety Factor		
			Max Height (m)	OSA (°)	ISA (°)	K (Coefficient of Continuity) 0.5	0.7	0.8
Latte	L1	OSA	162	50	53	2.1 (isotropic)		
		IRA	150	-	53	2.1 (isotropic)		
	L2	OSA						
		IRA	83	-	46	1.9	1.5	1.3
Double Double	DD1	OSA						
		IRA	90	-	52	2.3	1.8	1.6
	DD2	OSA	133	48	46	2.1	1.6	1.4
		IRA				2.0	1.5	1.3
Supremo	S1	OSA	169	50	52	2.3	2.0	1.9
		IRA	143	-	52	2.2	1.9	1.8
	S2	OSA	173	53	52	2.4	2.2	2.0
		IRA				2.3	2.1	2.0
	S3	OSA	163	54	52	2.1	1.9	1.7
		IRA				2.1	1.8	1.7

OSA = Overall Slope Angle
ISA = Interramp Slope Angle

Results of the overall slope stability analyses demonstrate that the bench configuration based slope angles either meet or exceed the minimum acceptable safety factor of 1.3 for slopes with high failure consequences. Critical failure surfaces were typically non-circular, partially through the intact rock mass and partially along the discontinuities as defined in Section 8.3 and Appendix J.

The results indicate that the stability of the Coffee open pit slopes is anticipated to be controlled by achievable bench face angles and not the stability of overall slopes. Calculated safety factors are considered relatively high for typical open pit slope designs; however, steepening of the interramp slope angles would require either steeper bench face angles or reducing the design catch bench width which SRK does not recommend at the feasibility level due to the lack of outcrop to record actual structural information. With detailed geomechanical/geological bench mapping and good quality wall control blasting practices during operation, opportunity may exist to steepen the interramp angles based on the newly acquired and more accurate information.

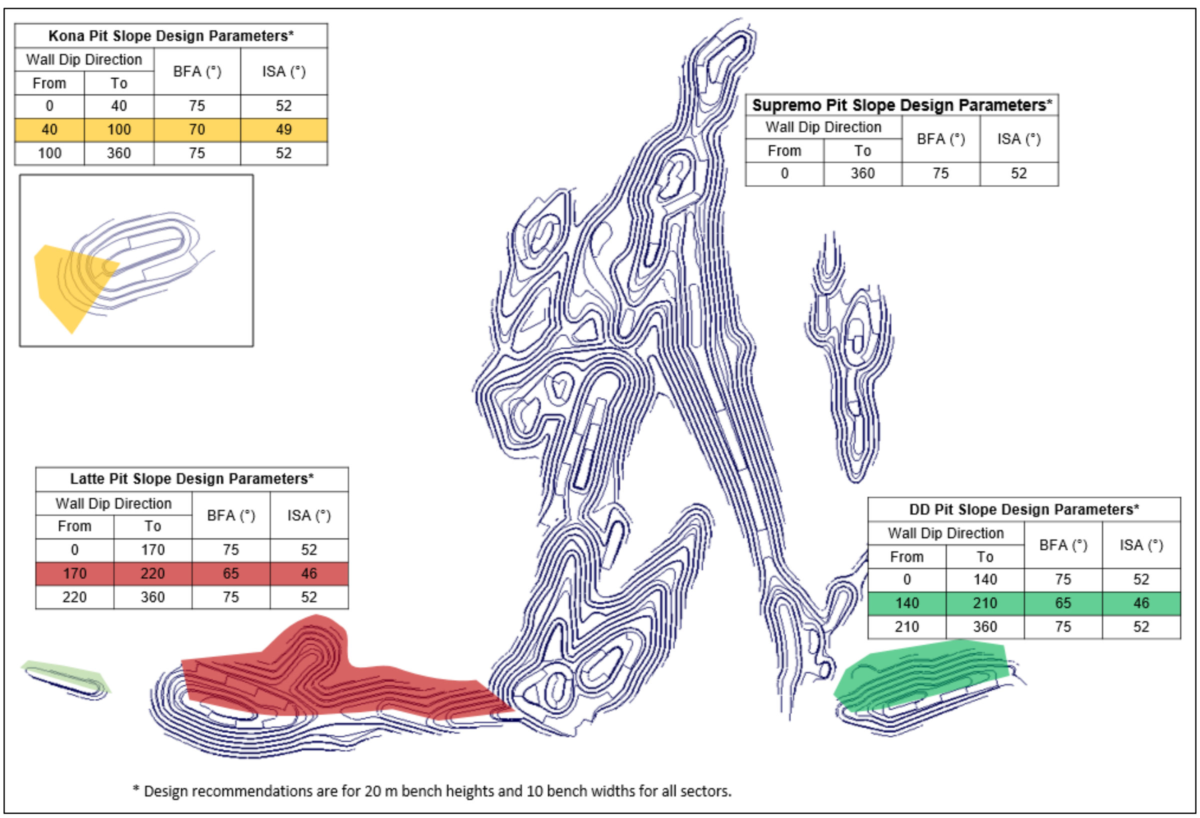
The use of a disturbance factor "D" equal to 0.7 for the entire rock mass is considered conservative given that blast damage and relaxation for relatively small open pits such as the Coffee pits would typically only extend a maximum distance of up to approximately 50 m. Beyond this disturbed zone, a D factor of zero is typically used which would increase the rock mass strength. However, given that the critical surfaces produced by the models are typically near 50 m from the face (approximate limits of the disturbed zone), more detailed modeling or zoning of the D factor would not significantly impact the results. In addition, the conservatively assumed D of 0.7 results in sufficiently high safety factors.

9 Pit Slope Design Recommendations

Pit slope design parameters are summarized in Table 9-1 and shown graphically on Figure 9-1. All recommended parameters are based on a bench height of 20 m.

Table 9-1: Recommended Pit Slope Design Parameters

Deposit	Max. Slope Height (m)	Wall Dip Direction		Bench Face Angle (°)	Bench Width (m)	Max. ISA (°)
		From (°)	To (°)			
Latte	170	0	170	75	10	52
		170	220	65	10	46
		220	360	75	10	52
Supremo	180	0	360	75	10	52
Double Double	135	0	140	75	10	52
		140	210	65	10	46
		210	360	75	10	52
Kona	100	0	40	75	10	52
		40	100	70	10	49
		100	360	75	10	52



Source: SRK, 2016

Figure 9-1: Pit Slope Design Recommendations

It should be noted that bench design analyses, and subsequent recommendations, are based solely on orientations of geologic structure and do not directly consider effects of weathering, alteration, blasting or excavation techniques. Depending on the quality of blasting and excavation techniques, achievable bench face angles might be greatly reduced from the theoretical angles determined by these analyses. It is recommended that field trials be performed of various controlled basting techniques, carefully documenting the results to confirm that the actual slope designs are being achieved or, if necessary, to serve as the basis of slope angle refinements.

10 Assessment of Future Geomechanical Work

A thorough geological and geomechanical bench face mapping program should be undertaken, on a continuing basis, beginning in the early stages of development to verify structural conditions are consistent with assumptions presented herein and to identify local variations in structural conditions that might increase the risk of localized instabilities. The geomechanical data collection should concentrate on providing important data such as discontinuity persistence, spacing and variations in orientation that will allow further refinement of the bench design. The data collected should be used to confirm parameters used in the geotechnical models contained herein and, if determined to be other than assumed in this study, to further refine the analyses providing more accurate estimates of anticipated slope behavior.

As part of the geologic mapping program, any significant structures or fault zones encountered should be mapped and digitized electronically in 3D and incorporated into the 3D fault model. This will allow projection of such structures to future pit slopes, highlighting areas of potentially instability and allow refinements to the slope design, if necessary. The accurate orientation and projection of fault structures is difficult based strictly on core drilling unless the structures cause a significant offset in mineralization or a marker horizon is present. As such, the identification, mapping and analysis of fault structures of identified in pit walls will be a necessary and ongoing process during pit development.

A slope monitoring program should be designed to ensure that the slopes are behaving as anticipated and warn if significant movements occur. The monitoring program should include a network of survey prisms monitored and analyzed regularly. If significant movements are noted, additional prisms should be installed along with extensometers to monitor any tension cracking.

11 Closure

Analyses and recommendations presented herein are based on ultimate pit designs and resource as described in this report, and, as such, any significant changes to mine plans or pit configuration should be reviewed by SRK to verify that recommendations will remain valid for the new plans.

SRK is pleased to have the opportunity to be of service to Kaminak Gold Corporation and trusts that we have addressed the pertinent issues related to the Coffee feasibility pit slopes at this time. Should you, however, have any queries or comments on our visit or on the contents of this report, please do not hesitate to contact us.

Signed on this 11th day of March, 2016.

Prepared by

Signature REDACTED

Felipe González
Senior Consultant (Rock Mechanics)

Signature REDACTED

Michael Levy, P.E., P.G.
Principal Consultant (Geotechnical)

Reviewed by

Signature REDACTED

John Tinucci, P.E., Ph.D.
Practice Leader, Principal Consultant (Geotechnical)

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (U.S.), Inc. (SRK) by Kaminak Gold Corporation (Kaminak). These opinions are provided in response to a specific request from Kaminka to do so, and are subject to the contractual terms between SRK and Kaminak. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report.

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Appendices

Appendix A: Geomechanical Core Logs

srk consulting

DRILLHOLE LOG: SRK-15D-01
AREA: Supremo

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/29/15 **TO:** 06/03/15
DIP: -51.4 **AZIMUTH:** 89.8
COORDINATES: E: 584406 **N:** 6974469 **Elev.:** 1256.5

TOTAL DEPTH: 245
PAGE: 1 **OF** 5
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0538

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

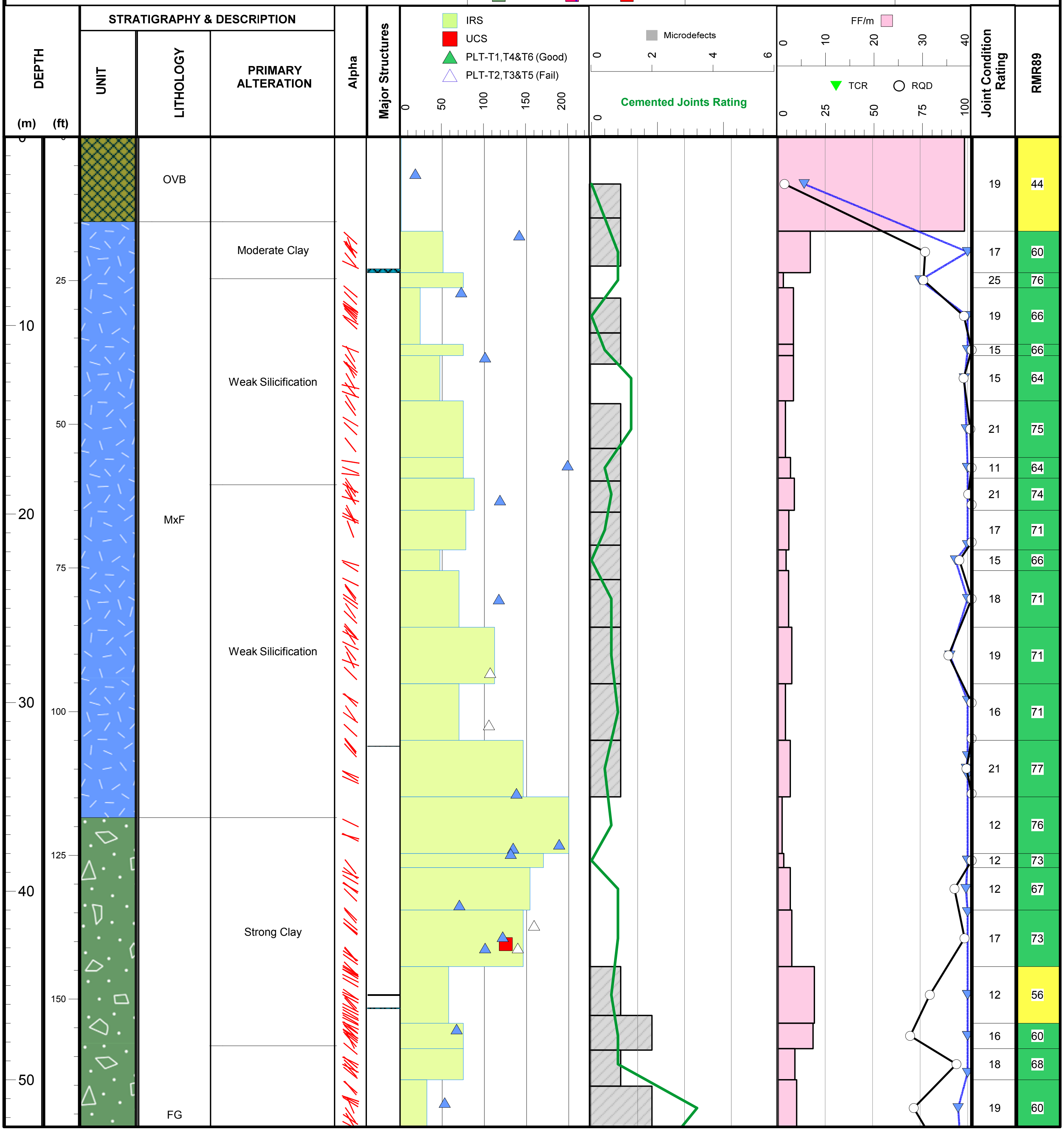
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-01
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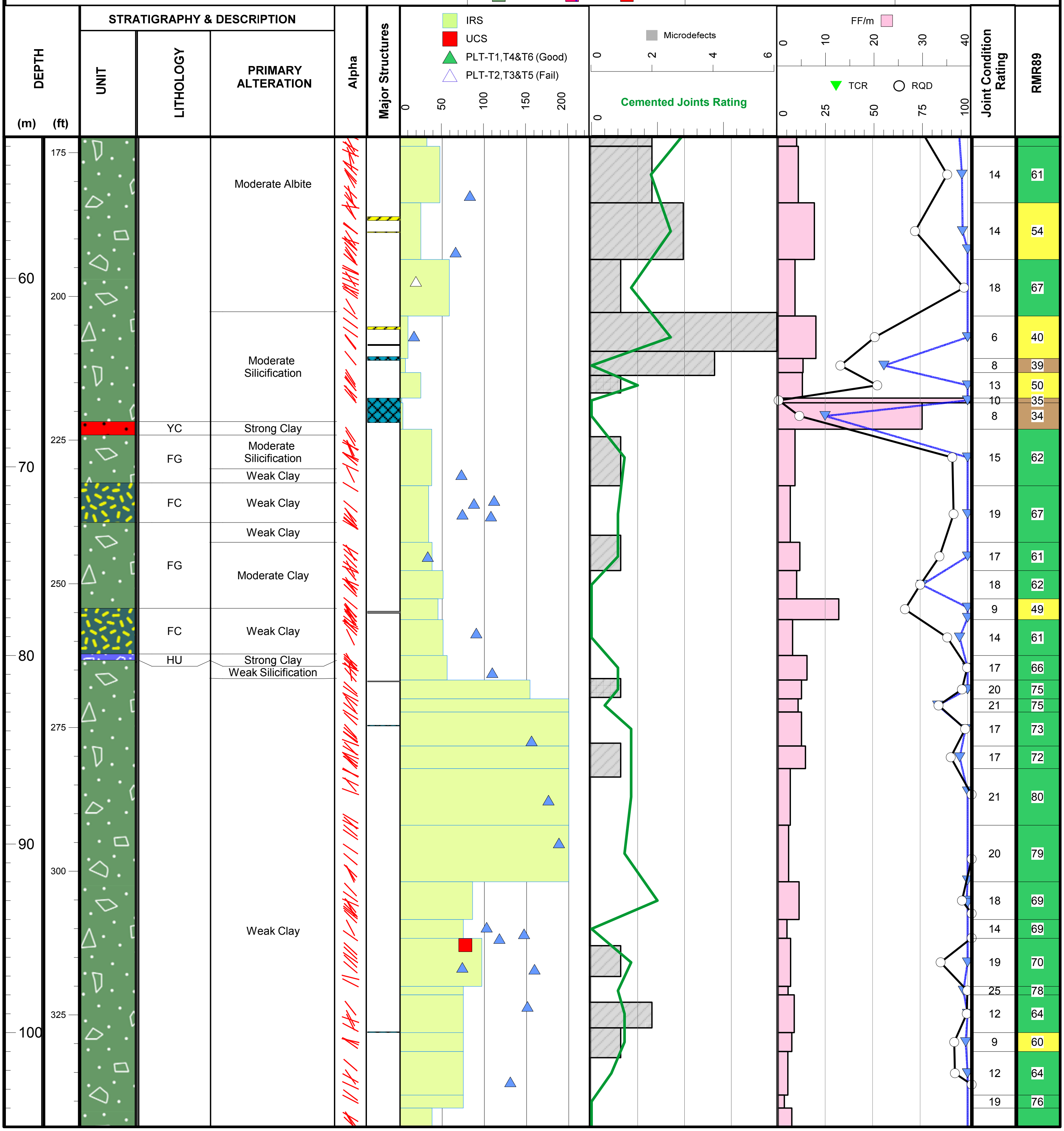

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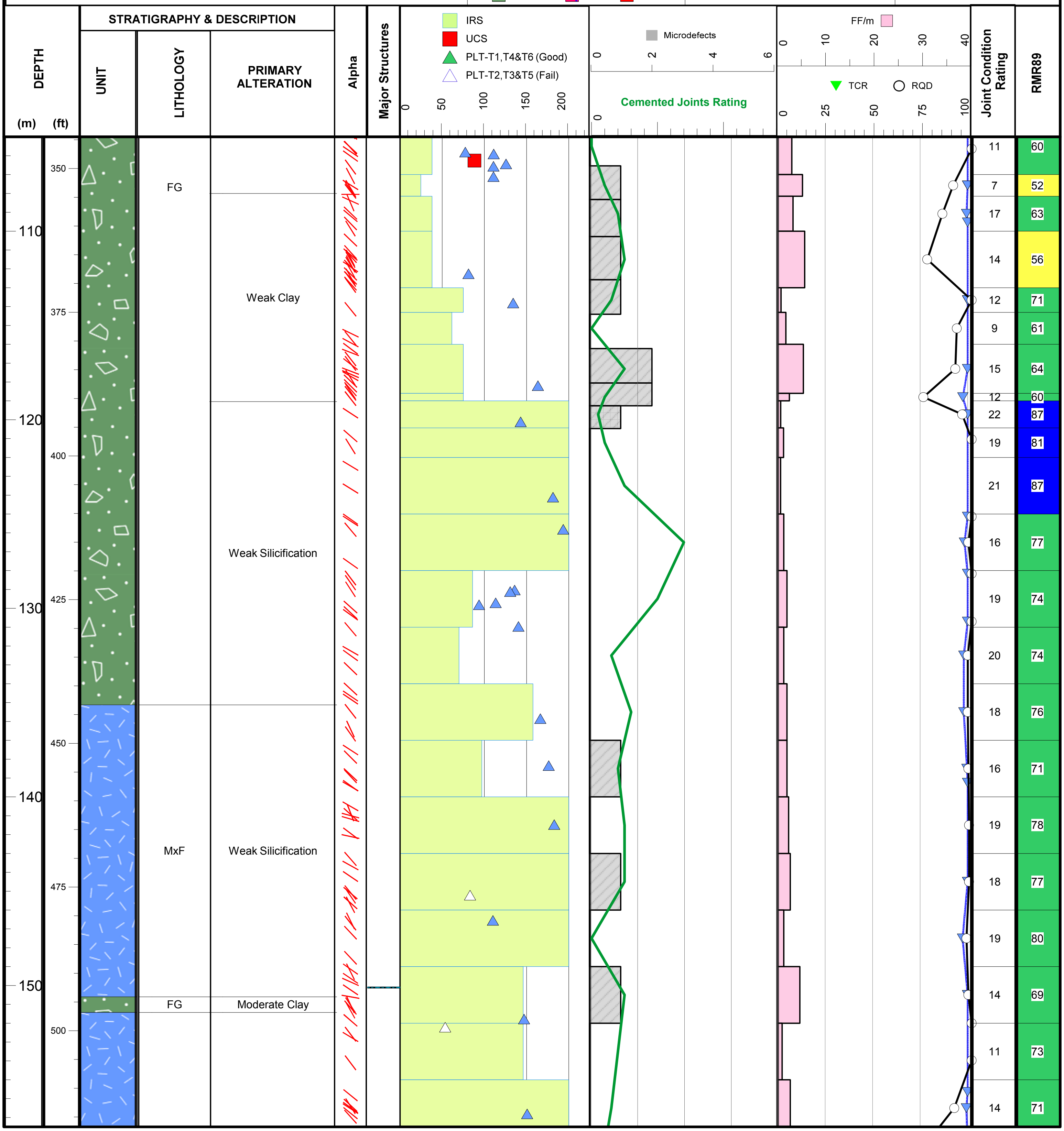

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Gouge, Broken, Core Loss, Sheared, Jointed

LEGEND OF RMR

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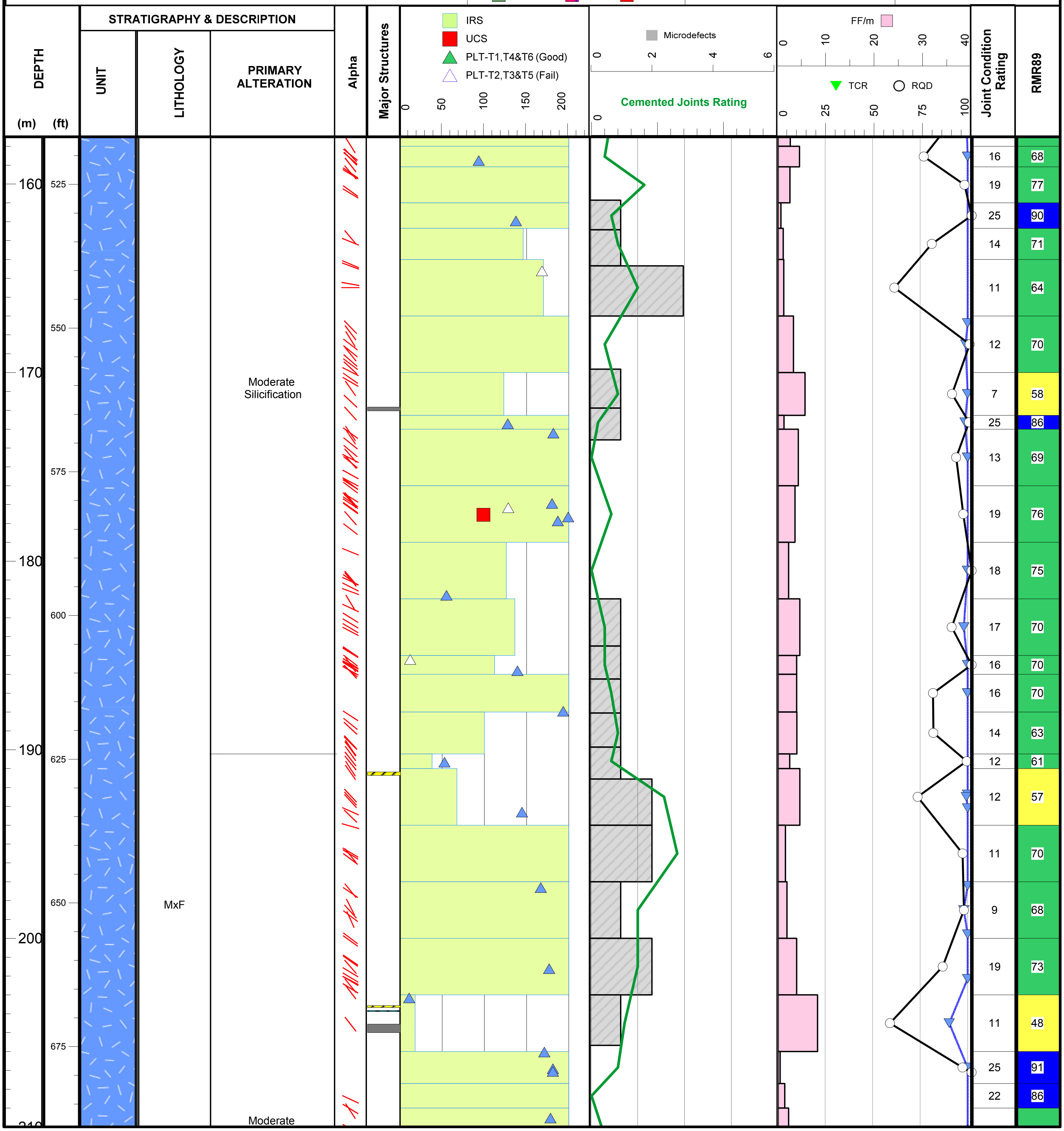

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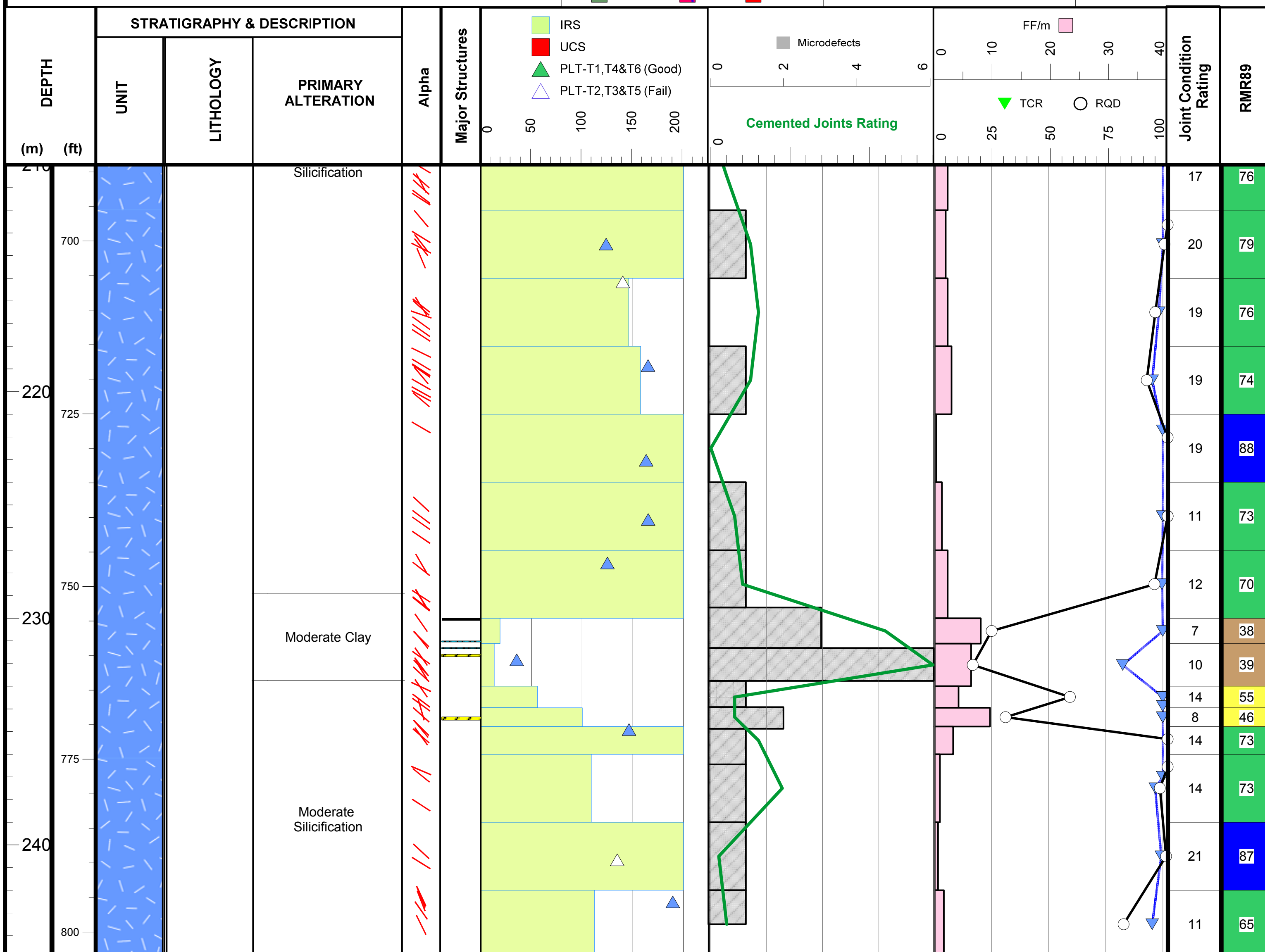

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CASING DEPTH:
PLANNED HOLE ID: CFD0522

DEFINTIONS

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TCR: Total Core Recovery
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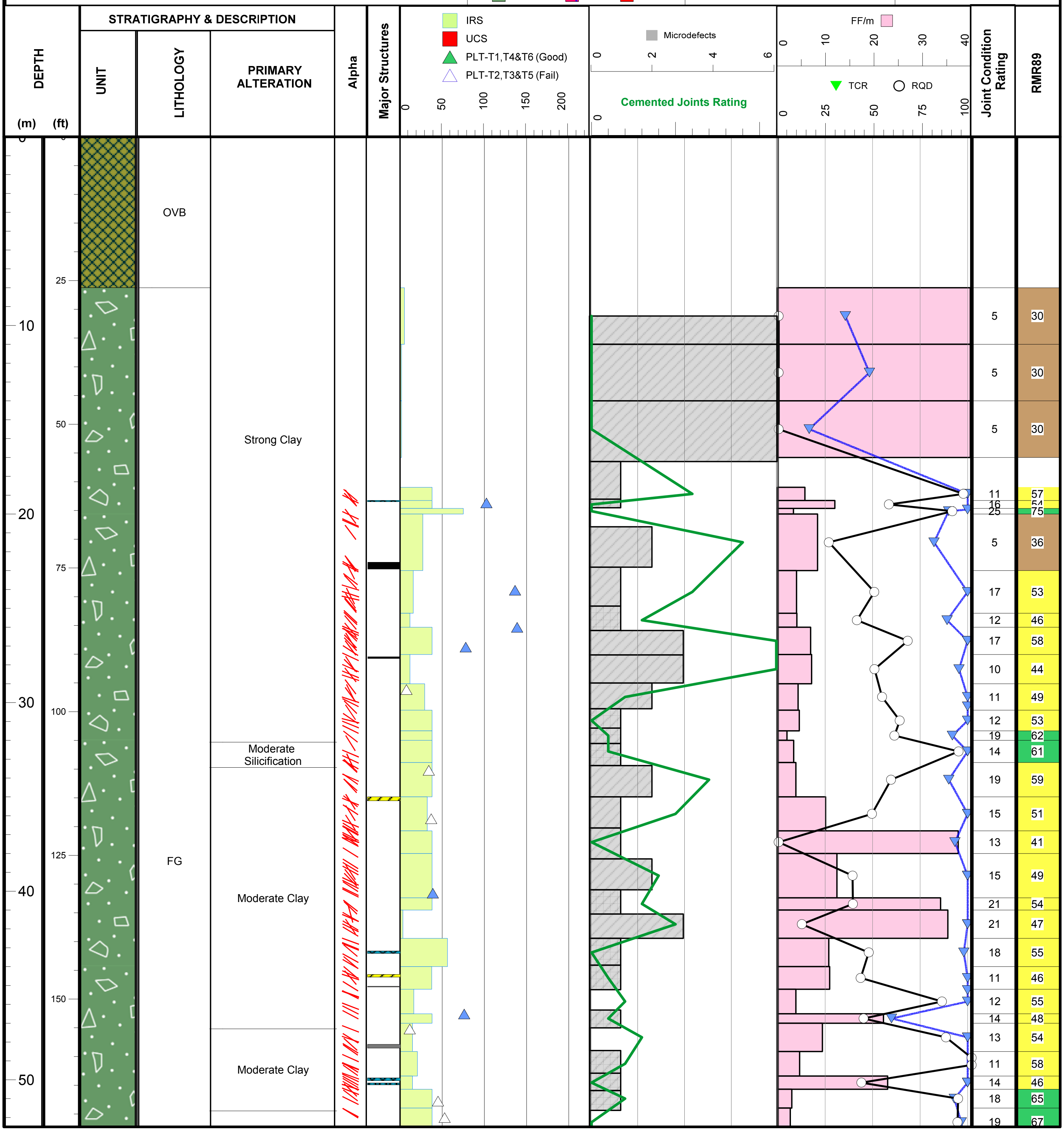

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MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

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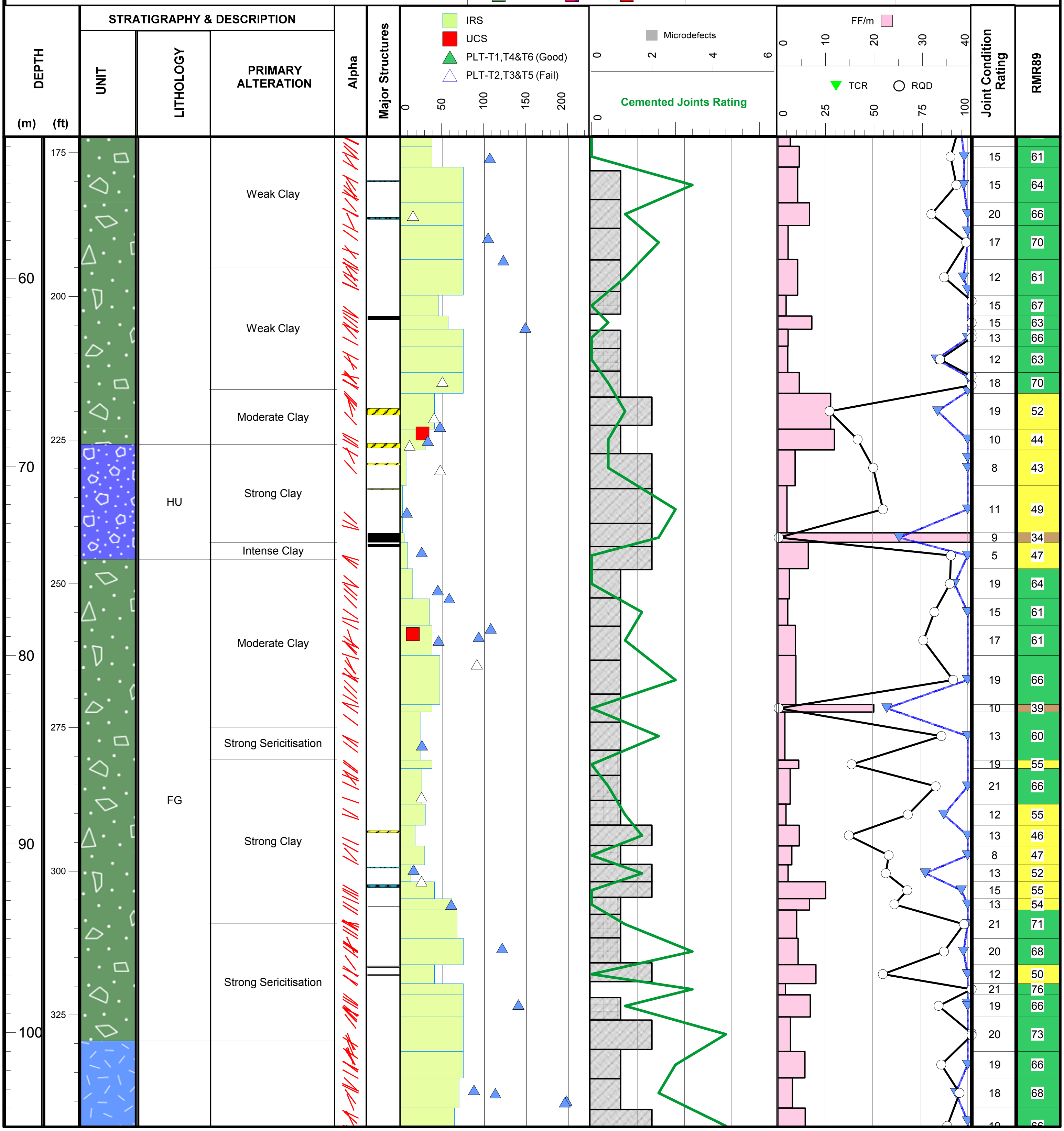

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MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

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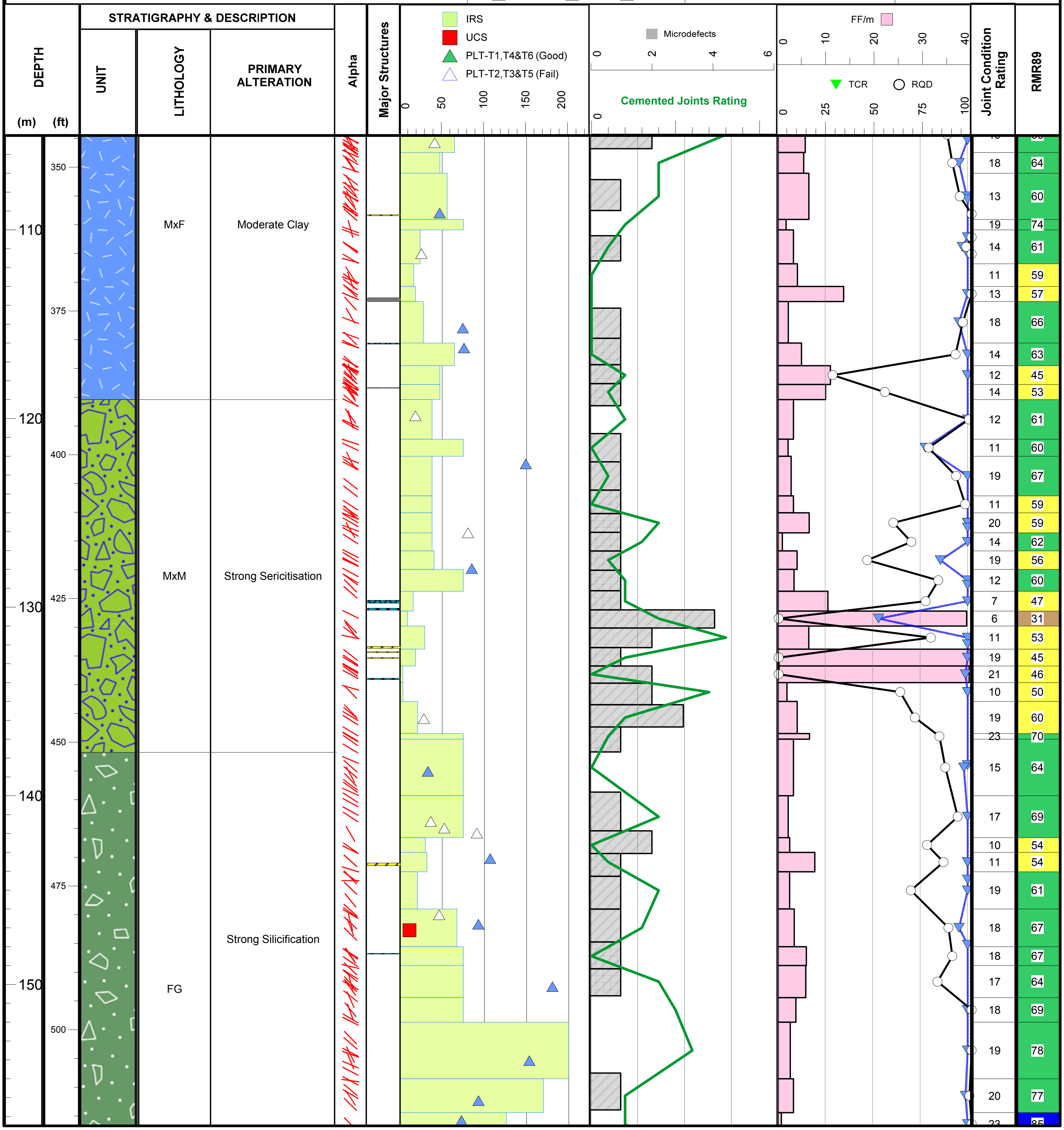

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PAGE: 4 **OF** 5
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0522

DEFINTIONS

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MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

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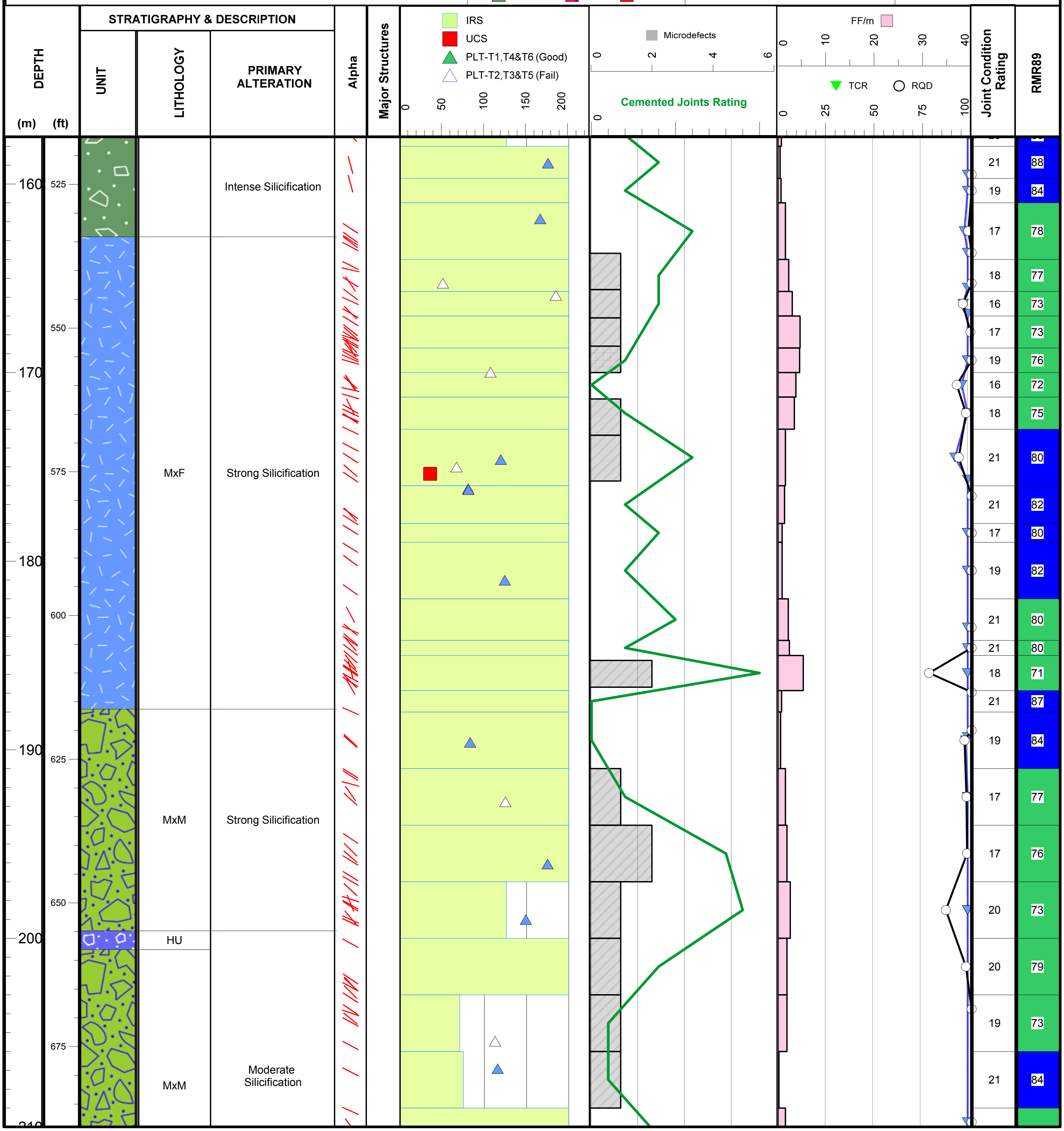

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DRILLHOLE LOG: SRK-15D-02
AREA: Supremo

PROJECT: Kaminak
LOCATION: YT, Canada
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CASING DEPTH:
PLANNED HOLE ID: CFD0522

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MAJOR LITHOLOGY
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES
Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR
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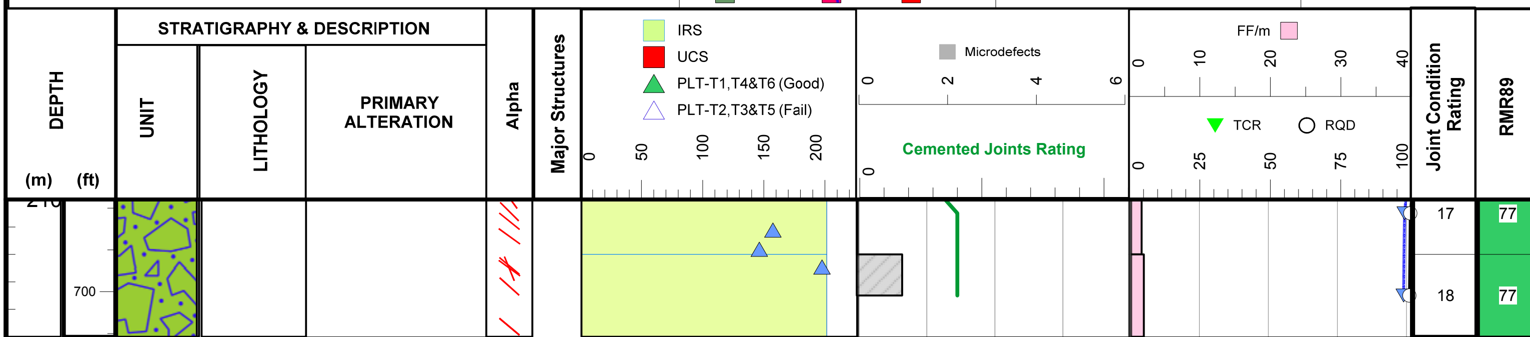


srk consulting

DRILLHOLE LOG: SRK-15D-03
AREA: Latte

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/20/15 **TO:** 05/22/15
DIP: -49.6 **AZIMUTH:** 358.5
COORDINATES: E: 583420 **N:** 6973230 **Elev.:** 1097.9

TOTAL DEPTH: 110
PAGE: 1 **OF** 3
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0518

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

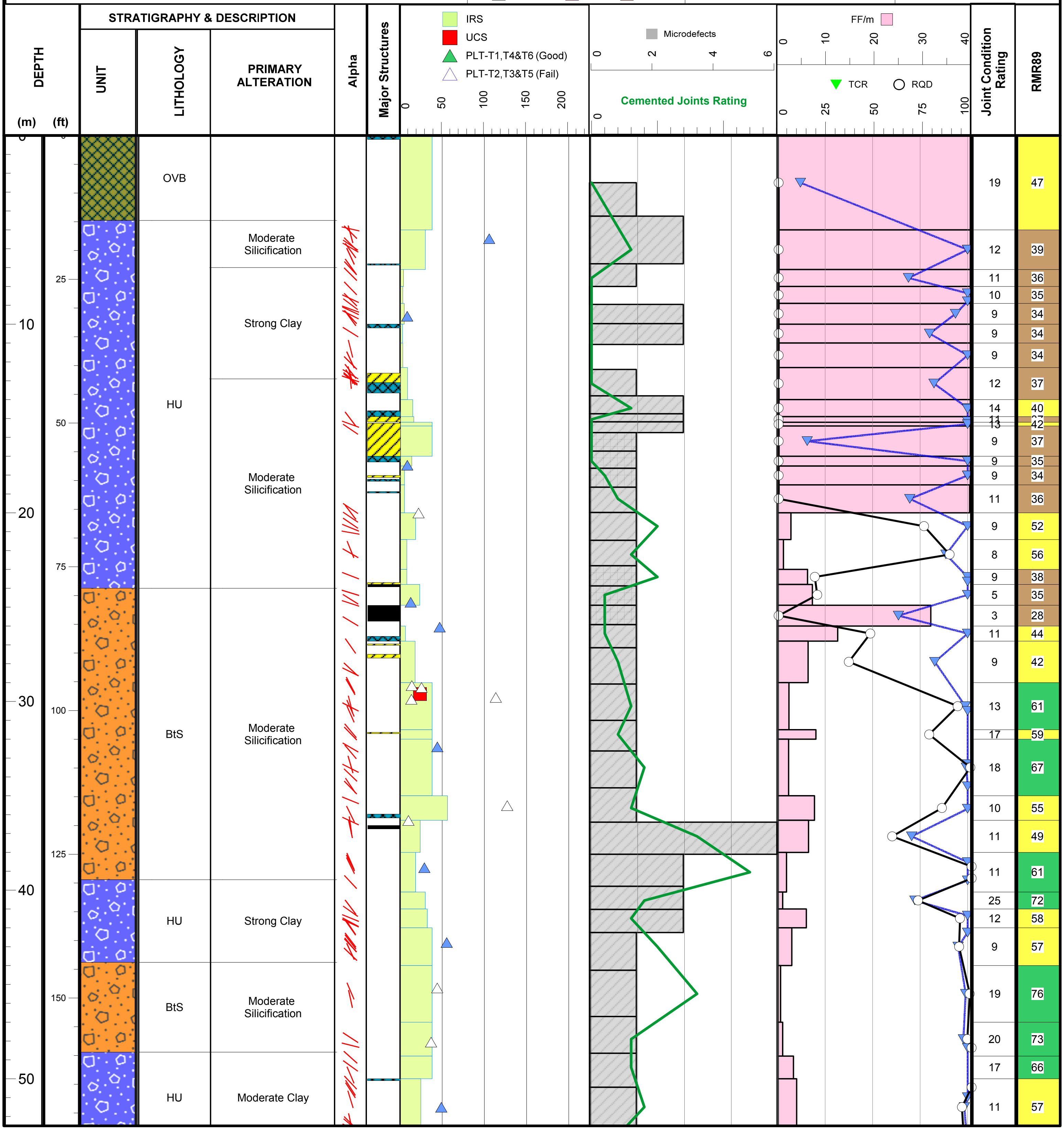
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



DRILLHOLE LOG: SRK-15D-03
AREA: Latte

PROJECT: Kaminak		**TOTAL DEPTH:** 110
LOCATION: YT, Canada		**PAGE:** 2 **OF** 3
SITE & PROJECT No: 338600.02		**DRILL TYPE:** Diamond
BORING DATE: 05/20/15	**TO:** 05/22/15	**CORE DIA.:** HQ
DIP: -49.6	**AZIMUTH:** 358.5	**CASING DEPTH:**
COORDINATES: E: 583420	**N:** 6973230 **Elev.:** 1097.9	**PLANNED HOLE ID:** CFD0518

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

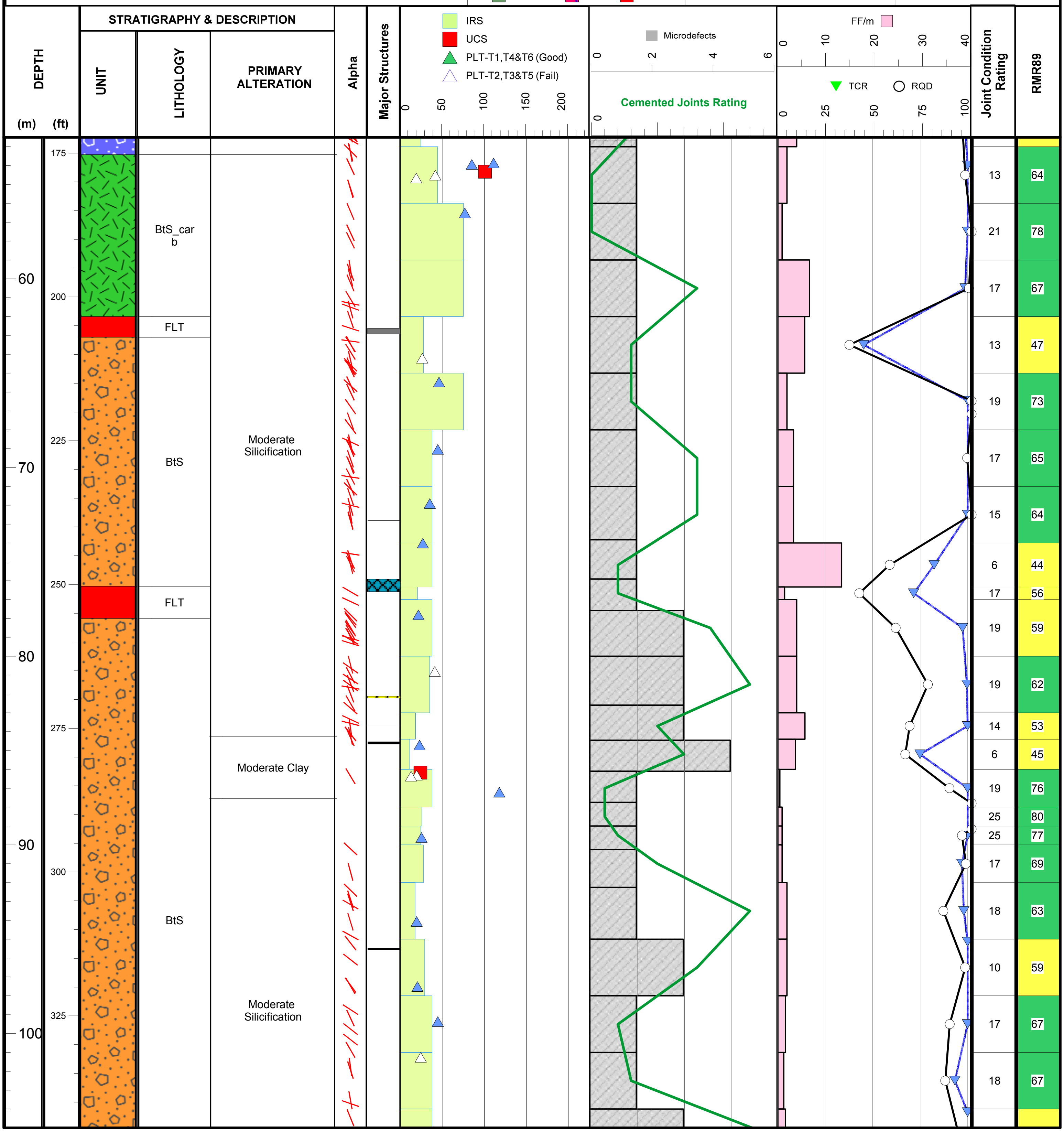
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Broken, Core Loss, Sheared, Jointed

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



DRILLHOLE LOG: SRK-15D-03

AREA: Latte

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/20/15 **TO:** 05/22/15
DIP: -49.6 **AZIMUTH:** 358.5
COORDINATES: E: 583420 **N:** 6973230 **Elev.:** 1097.9

TOTAL DEPTH: 110

DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0518

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

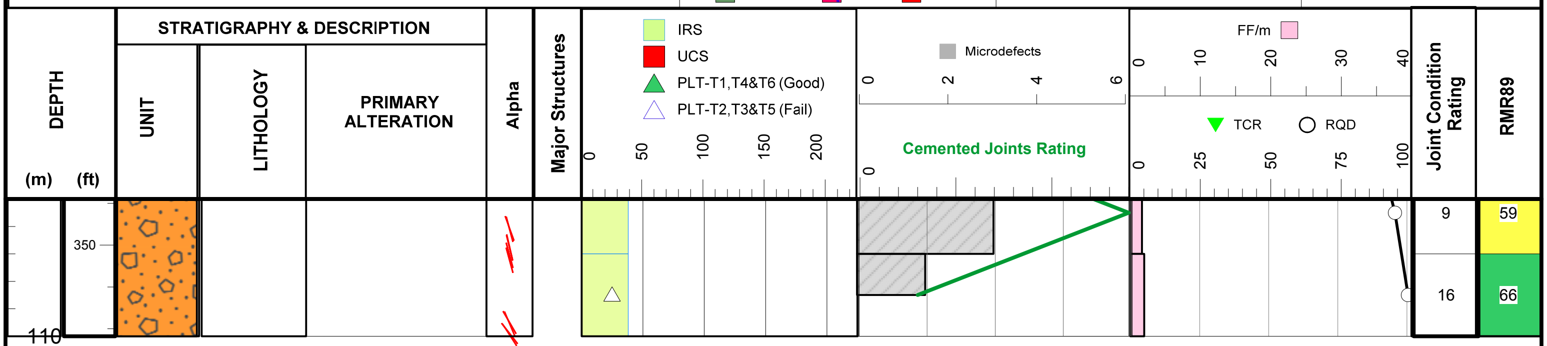
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Broken, Core Loss, Sheared, Jointed

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-04
AREA: Latte

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/16/15 **TO:** 05/19/15
DIP: -61.8 **AZIMUTH:** 213.3
COORDINATES: E: 582889 **N:** 6973205 **Elev.:** 1097.6

TOTAL DEPTH: 152
PAGE: 1 **OF** 3
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0512

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

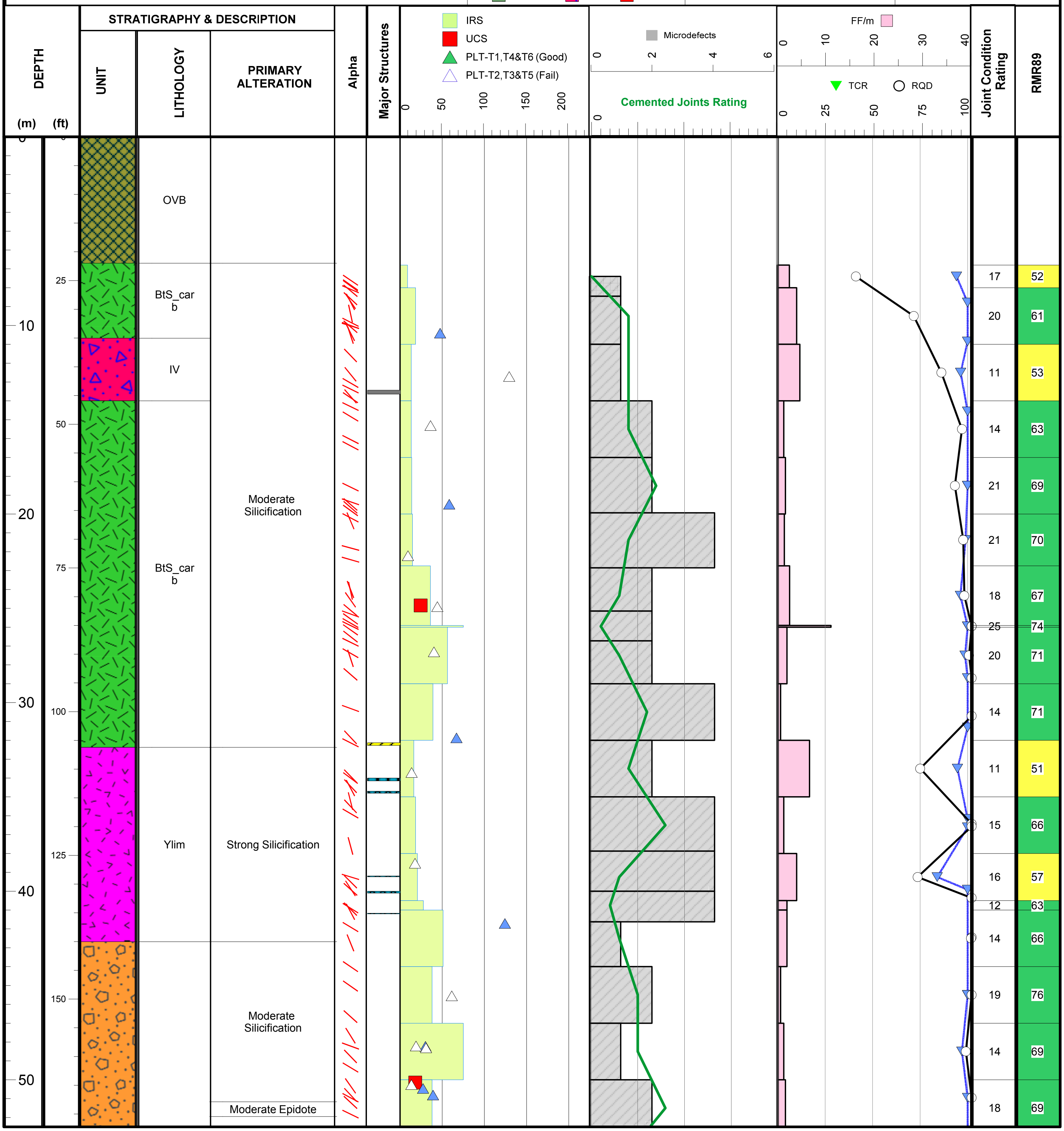
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-04
AREA: Latte

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/16/15 **TO:** 05/19/15
DIP: -61.8 **AZIMUTH:** 213.3
COORDINATES: E: 582889 **N:** 6973205 **Elev.:** 1097.6

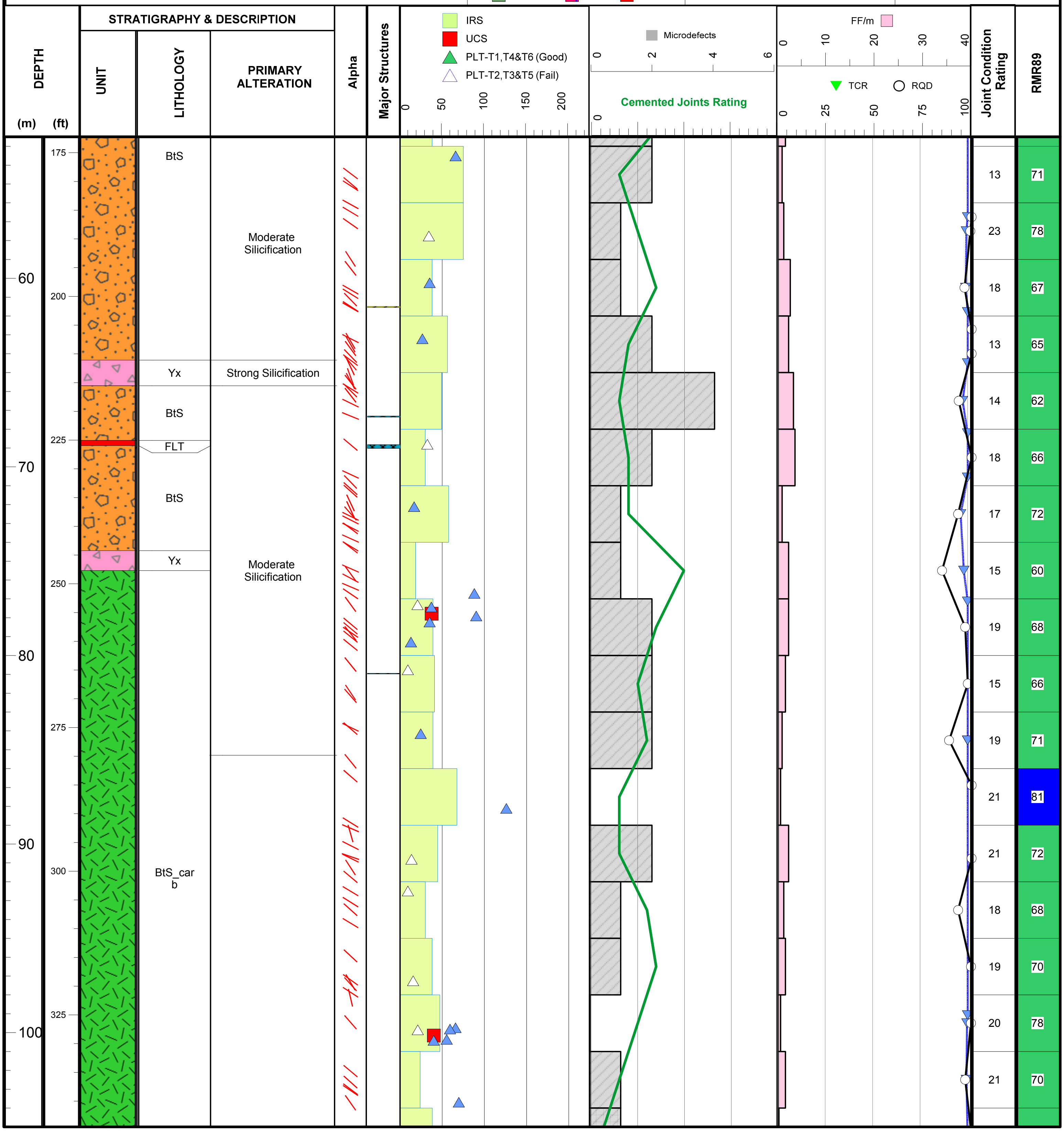
TOTAL DEPTH: 152
PAGE: 2 **OF** 3
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0512

DEFINTIONS
IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES
Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR
0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-04
AREA: Latte

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/16/15 **TO:** 05/19/15
DIP: -61.8 **AZIMUTH:** 213.3
COORDINATES: E: 582889 **N:** 6973205 **Elev.:** 1097.6

DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0512

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

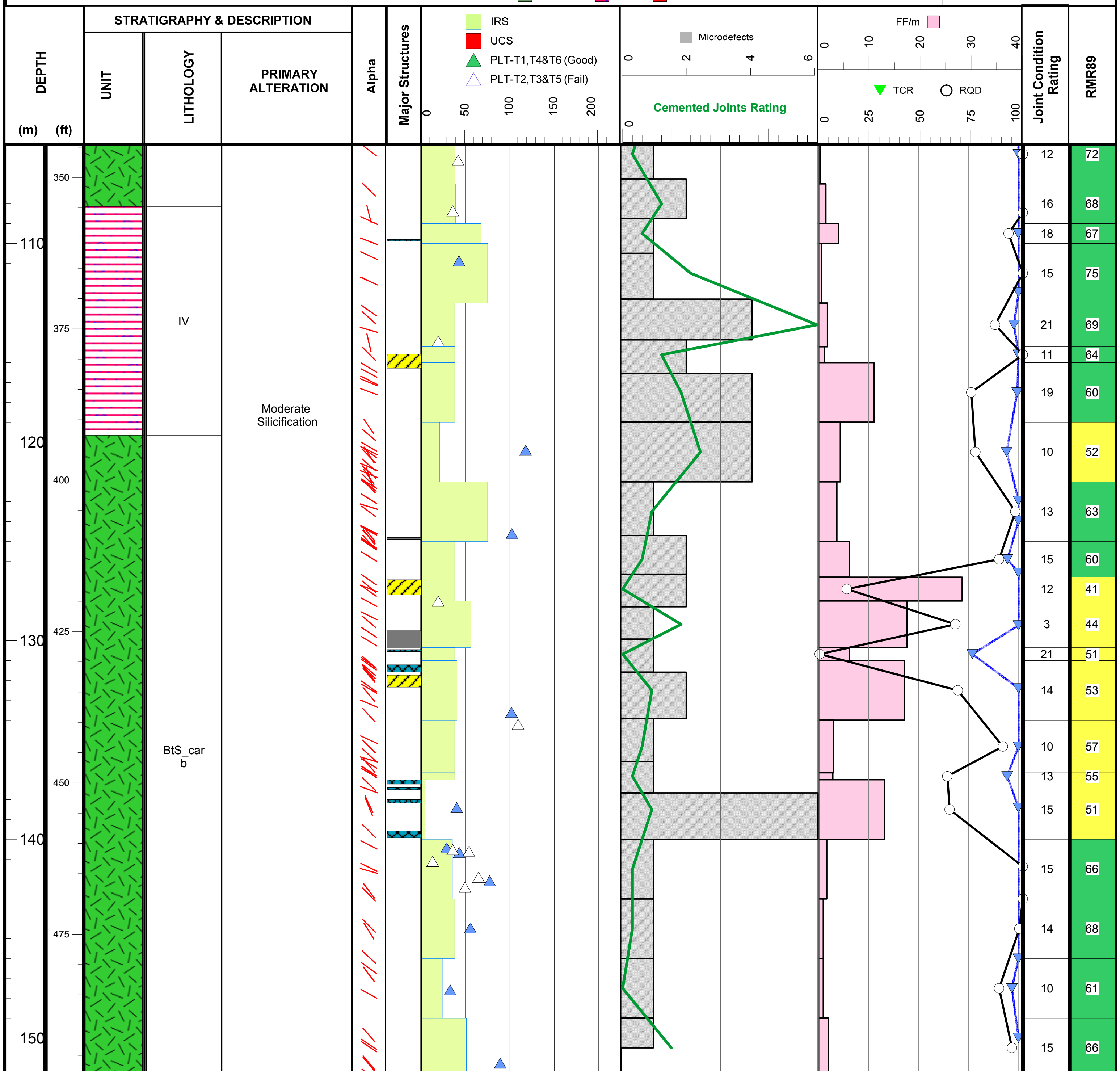
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-05
AREA: Double Double

PROJECT: Kaminak		**TOTAL DEPTH:** 134
LOCATION: YT, Canada		**PAGE:** 1 **OF** 3
SITE & PROJECT No: 338600.02		**DRILL TYPE:** Diamond
BORING DATE: 05/27/15 **TO:** 05/29/15		**CORE DIA.:** HQ
DIP: -54.9 **AZIMUTH:** 339.6		**CASING DEPTH:**
COORDINATES: E: 585134 **N:** 6973322	**Elev.:** 1104.6	**PLANNED HOLE ID:** CFD0534

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

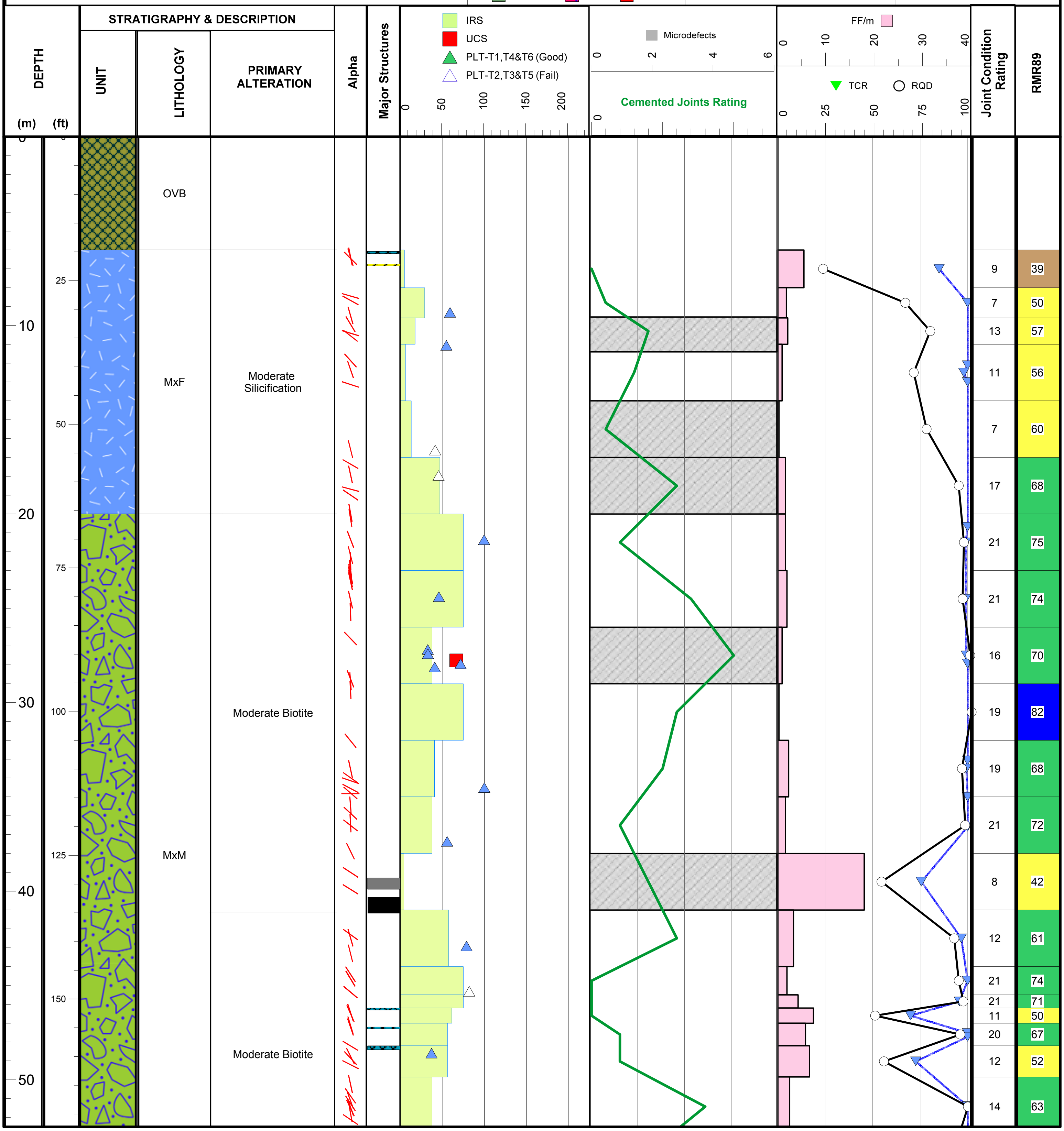
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



srk consulting

DRILLHOLE LOG: SRK-15D-05
AREA: Double Double

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/27/15 **TO:** 05/29/15
DIP: -54.9 **AZIMUTH:** 339.6
COORDINATES: E: 585134 **N:** 6973322 **Elev.:** 1104.6

TOTAL DEPTH: 134

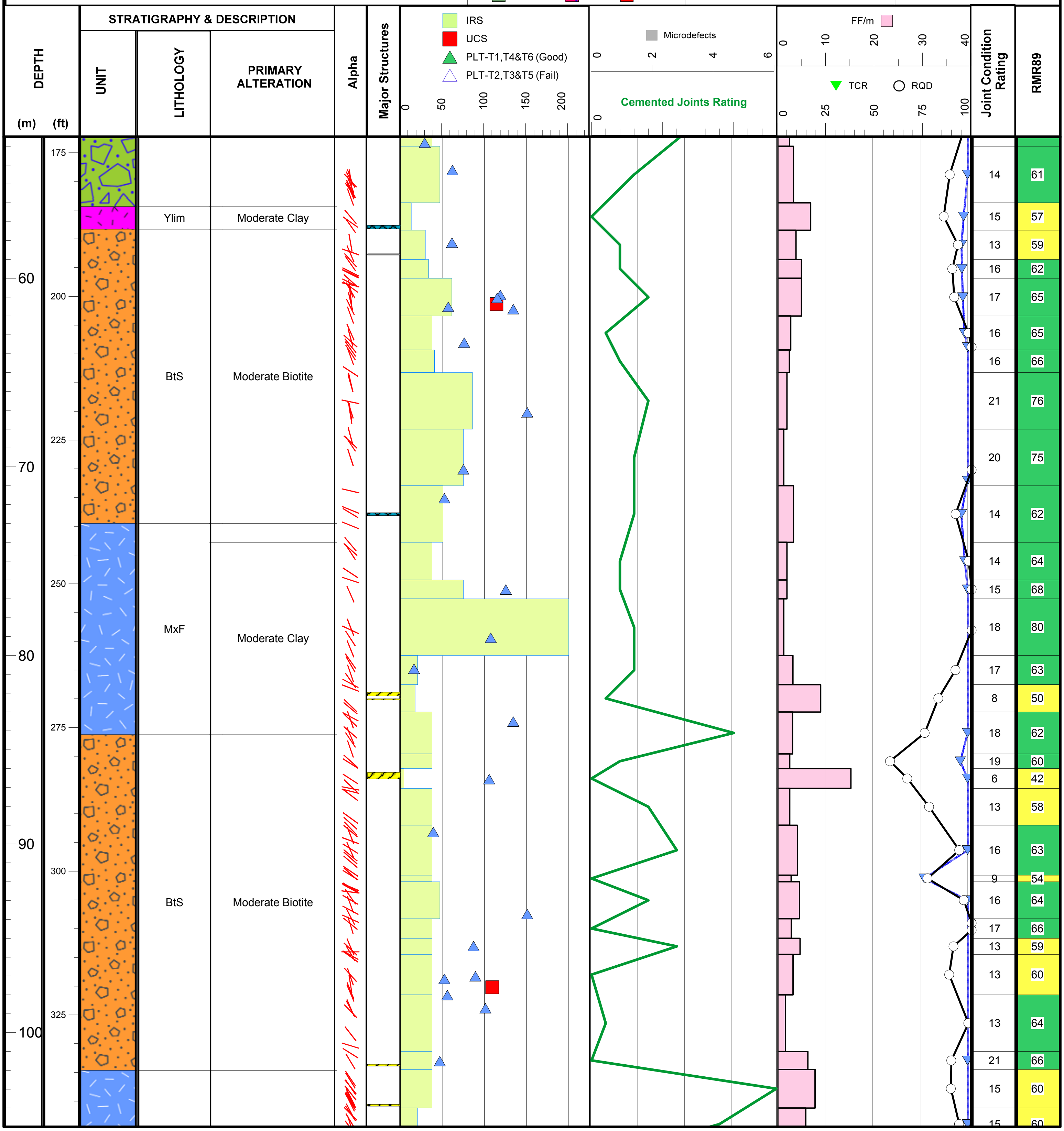
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0534

DEFINTIONS
IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES
Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR
0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-05
AREA: Double Double

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 05/27/15 **TO:** 05/29/15
DIP: -54.9 **AZIMUTH:** 339.6
COORDINATES: E: 585134 **N:** 6973322 **Elev.:** 1104.6

TOTAL DEPTH: 134
PAGE: 3 **OF** 3
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0534

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

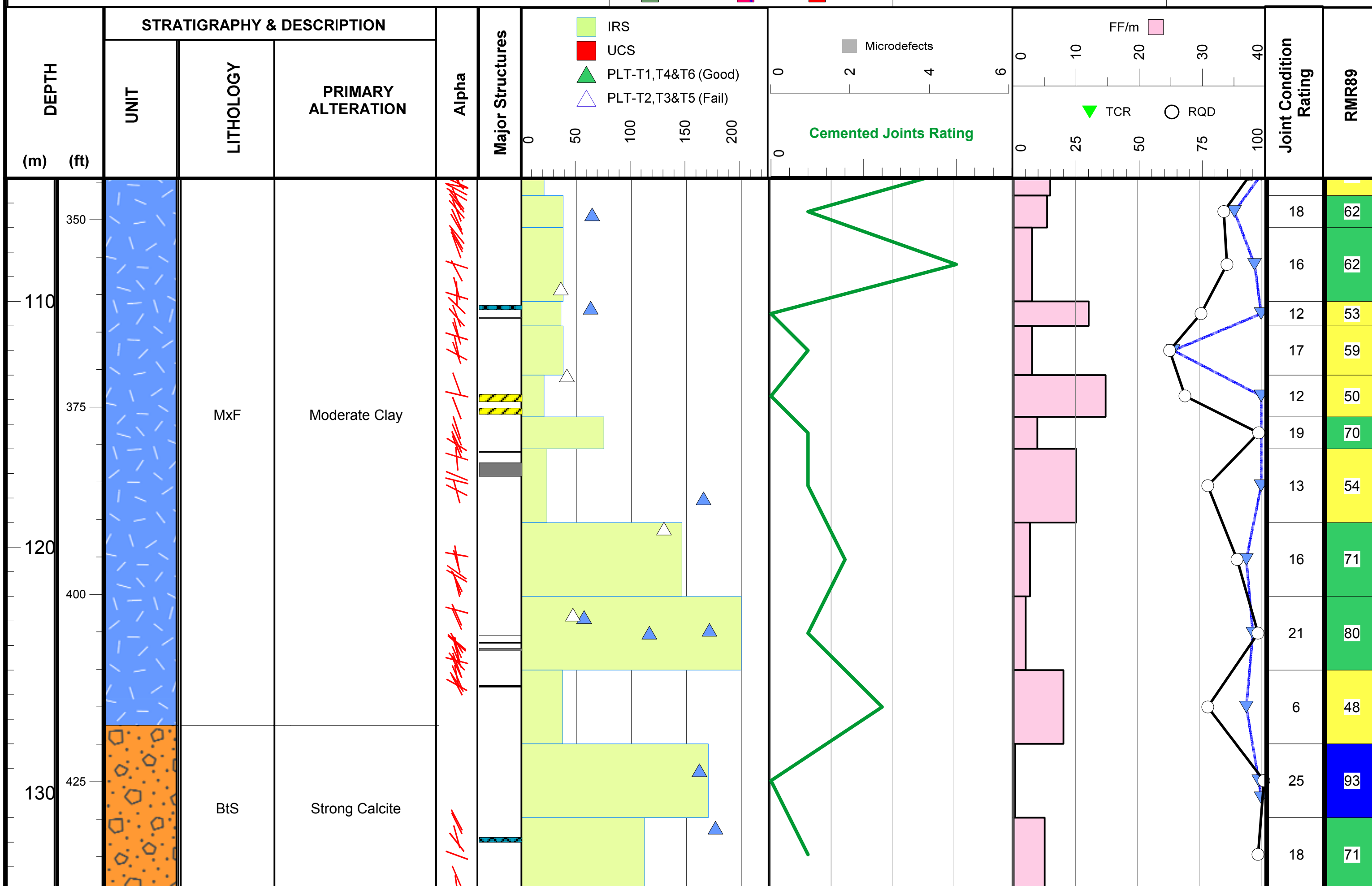
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-06
AREA: Kona

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 06/03/15 **TO:** 06/05/15
DIP: -55.1 **AZIMUTH:** 166
COORDINATES: E: 579716 **N:** 6973044 **Elev.:** 1262.9

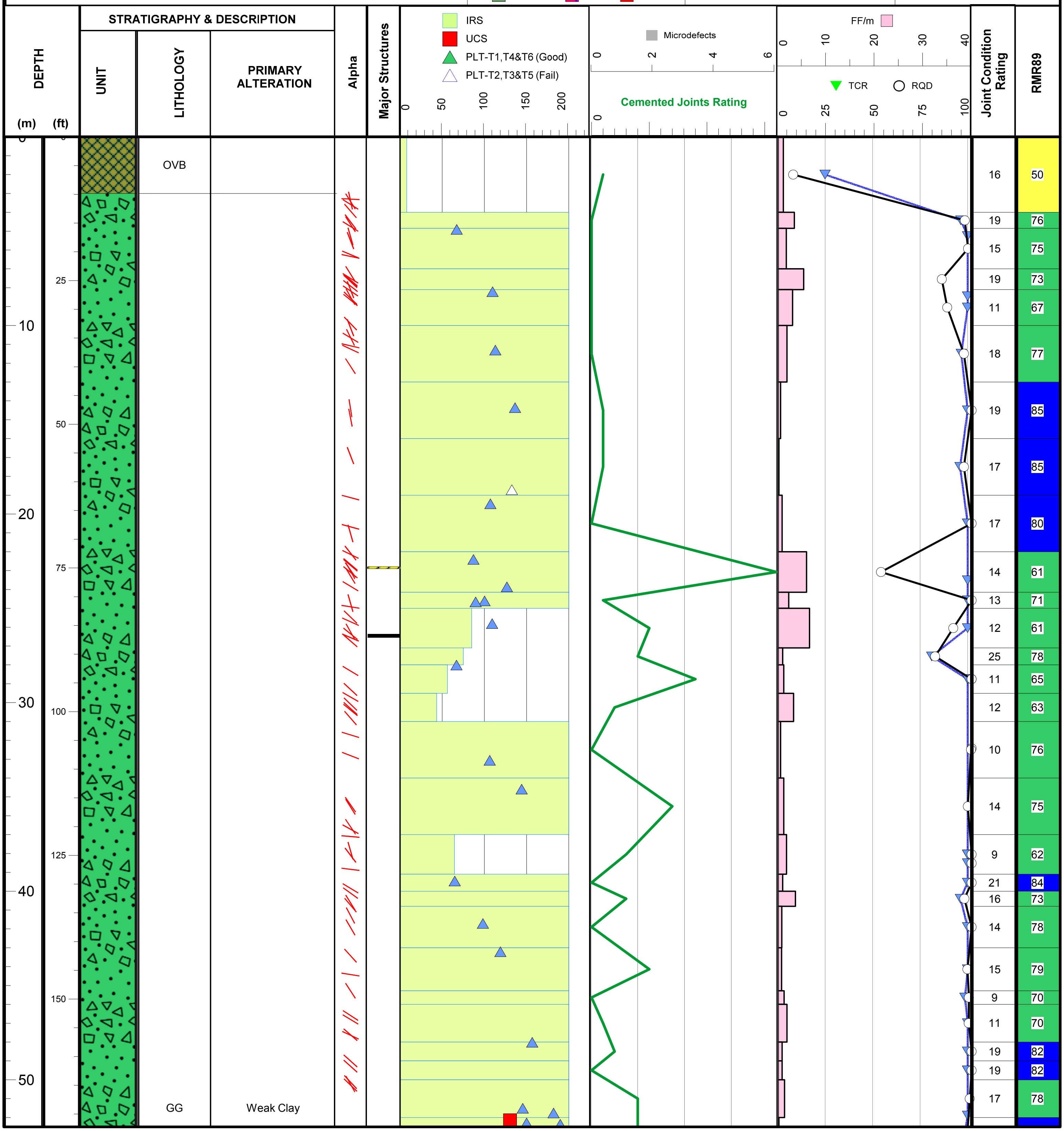
TOTAL DEPTH: 100
PAGE: 1 **OF** 2
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0545

DEFINTIONS
IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES
Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR
0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



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DRILLHOLE LOG: SRK-15D-06
AREA: Kona

PROJECT: Kaminak
LOCATION: YT, Canada
SITE & PROJECT No: 338600.02
BORING DATE: 06/03/15 **TO:** 06/05/15
DIP: -55.1 **AZIMUTH:** 166
COORDINATES: E: 579716 **N:** 6973044 **Elev.:** 1262.9

TOTAL DEPTH: 100
PAGE: 2 **OF** 2
DRILL TYPE: Diamond
CORE DIA.: HQ
CASING DEPTH:
PLANNED HOLE ID: CFD0545

DEFINTIONS

IRS: Intact Rock Strength (field est.)
Pt Load: Point Load Test (MPa)
TCR: Total Core Recovery
RMR: Rock Mass Rating
UCS: Uniaxial Compressive Strength (MPa)
FF/m: Fracture Frequency per metre
RQD: Rock Quality Designation

MAJOR LITHOLOGY

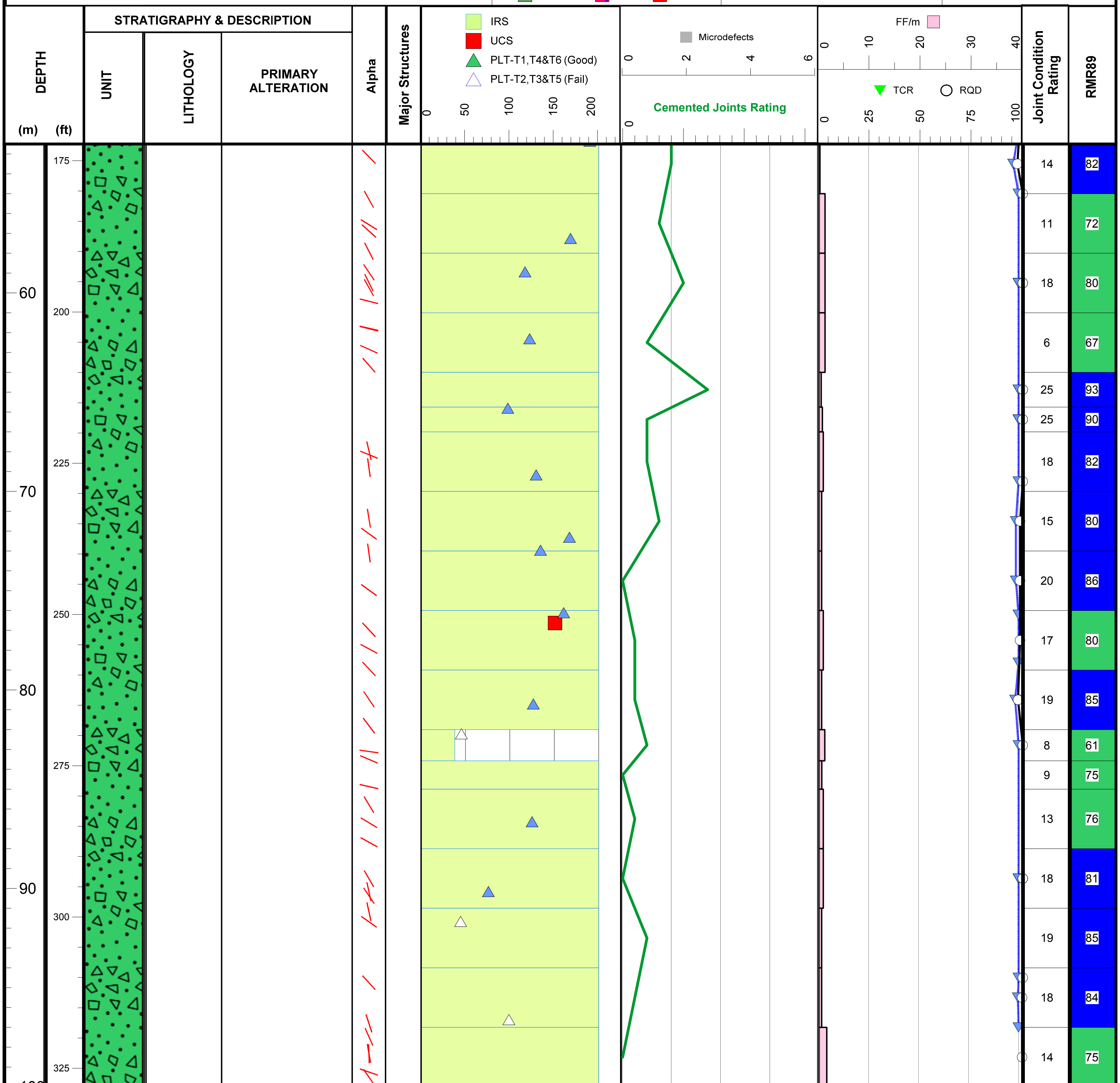
OVB, BtS, BtS_carb, FC, FG, FLT, GG, HU, diobx, IV, MxM, Yx, MxF, Ylim, YC

MAJOR STRUCTURES

Gouge, Core Loss, Jointed, Broken, Sheared

LEGEND OF RMR

0 - 20, 21 - 40, 41 - 60, 61 - 80, 81 - 100



Appendix B: Core Fracture Frequency Analysis

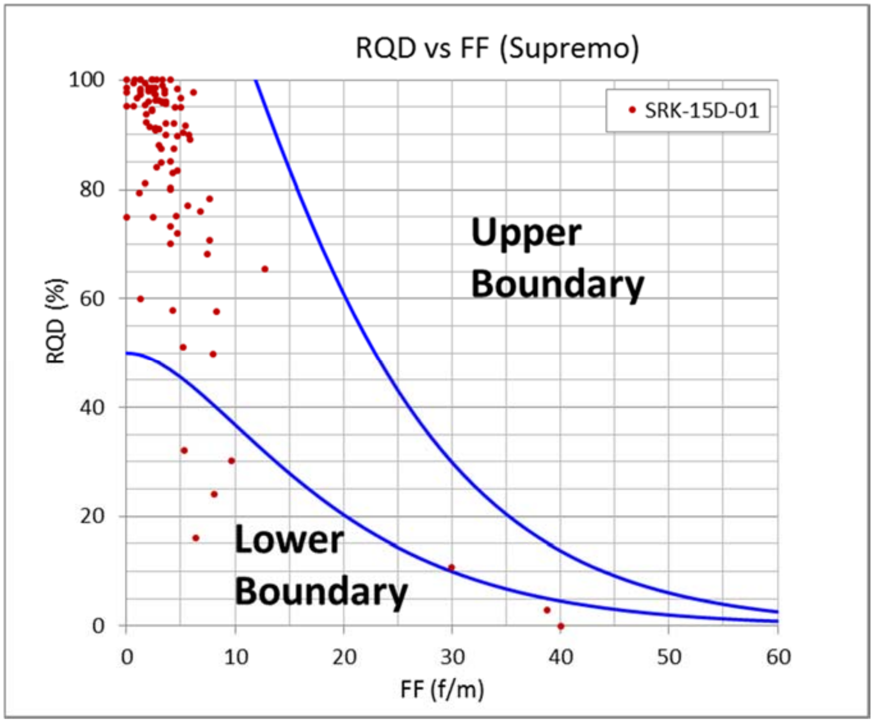


Figure B-1: Correlation and consistency between geotechnical parameters (RQD & FF/m) from geotechnical boreholes from **SRK – 15D-01** (Pit Supremo).

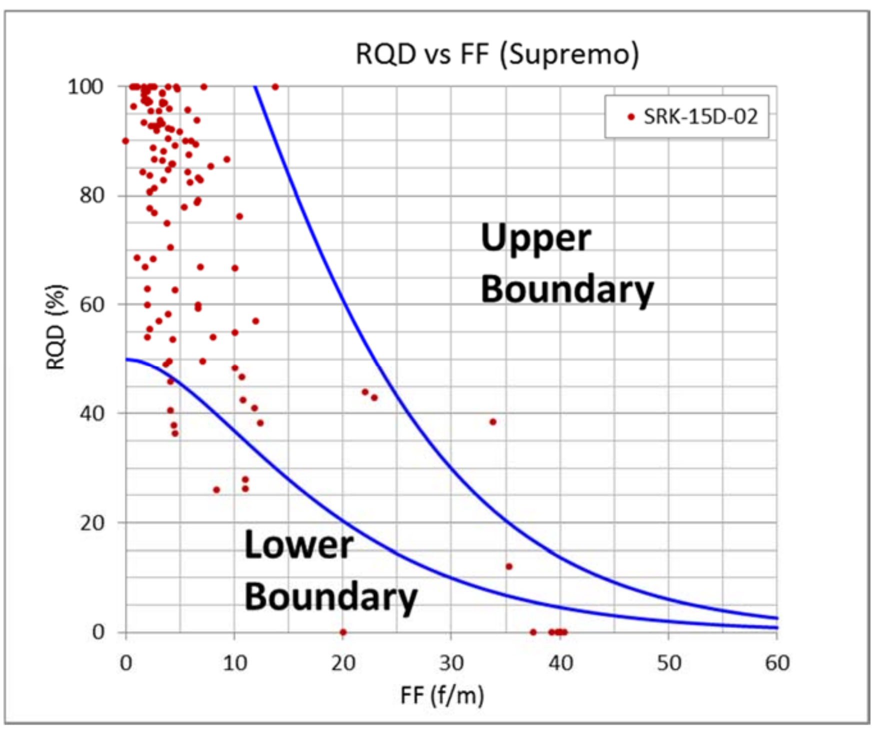


Figure B-2: Correlation and consistency between geotechnical parameters (RQD & FF/m) from geotechnical boreholes from **SRK – 15D-02** (Pit Supremo).

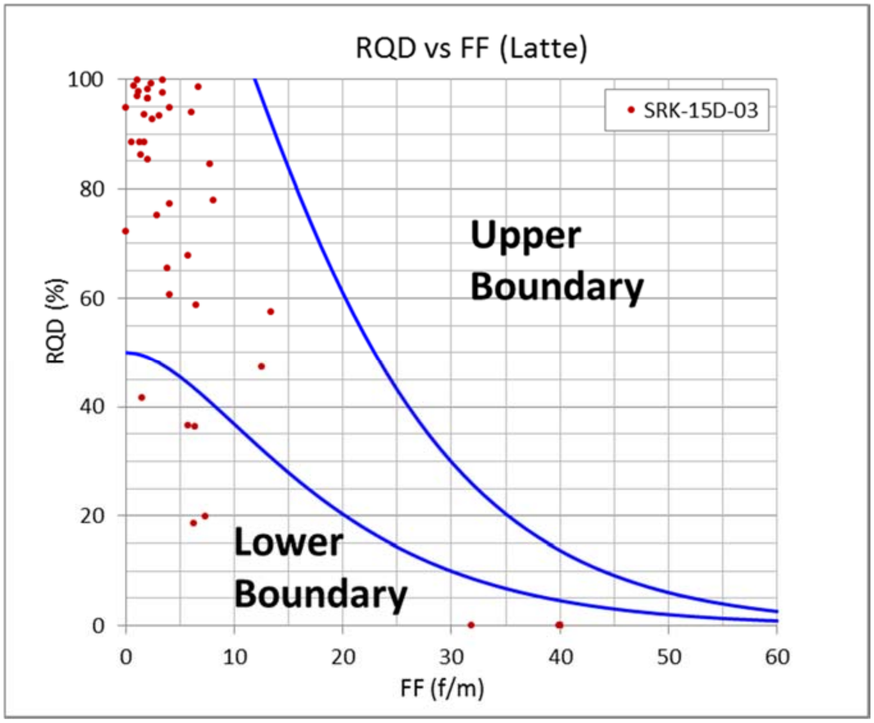


Figure B-3: Correlation and consistency between geotechnical parameters (RQD & FF/m) from geotechnical boreholes from **SRK – 15D-03** (Pit Latte).

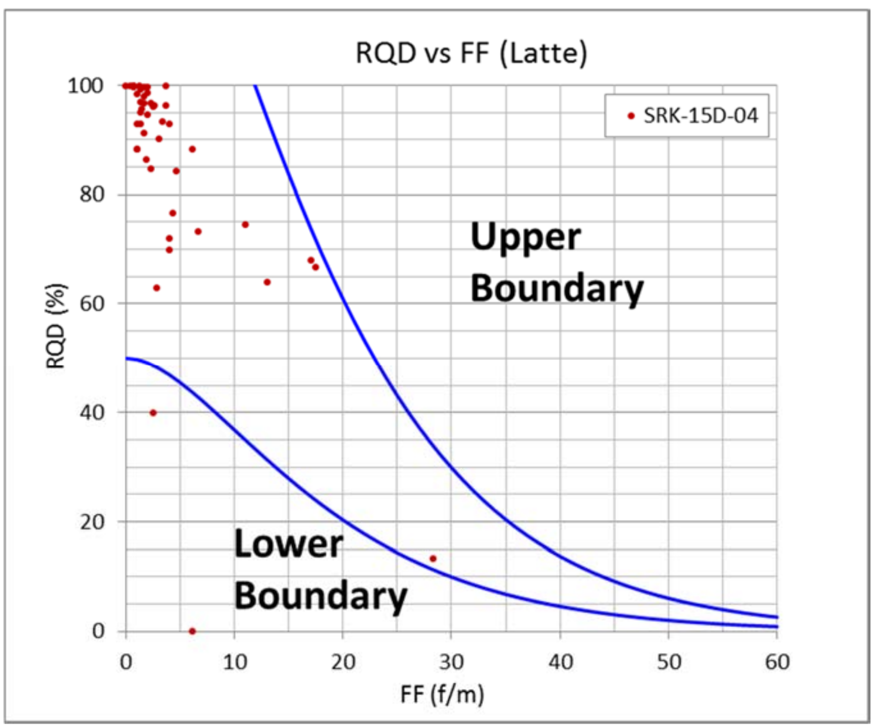


Figure B-4: Correlation and consistency between geotechnical parameters (RQD & FF/m) from geotechnical boreholes from **SRK – 15D-04** (Pit Latte).

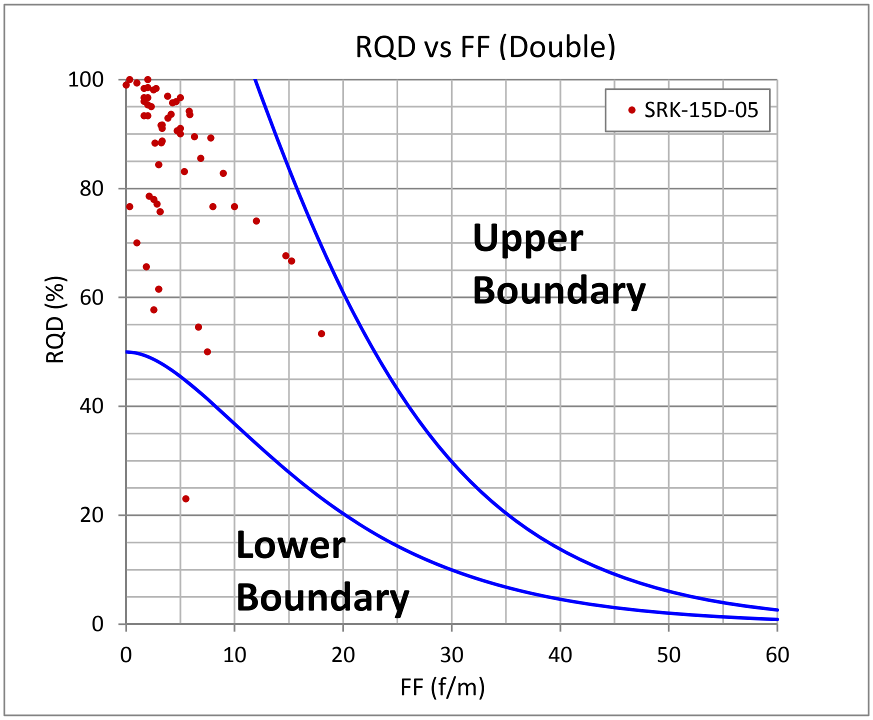


Figure B-5: Correlation and consistency between geotechnical parameters (RQD & FF/m) from geotechnical boreholes from **SRK – 15D-05** (Pit Double Double).

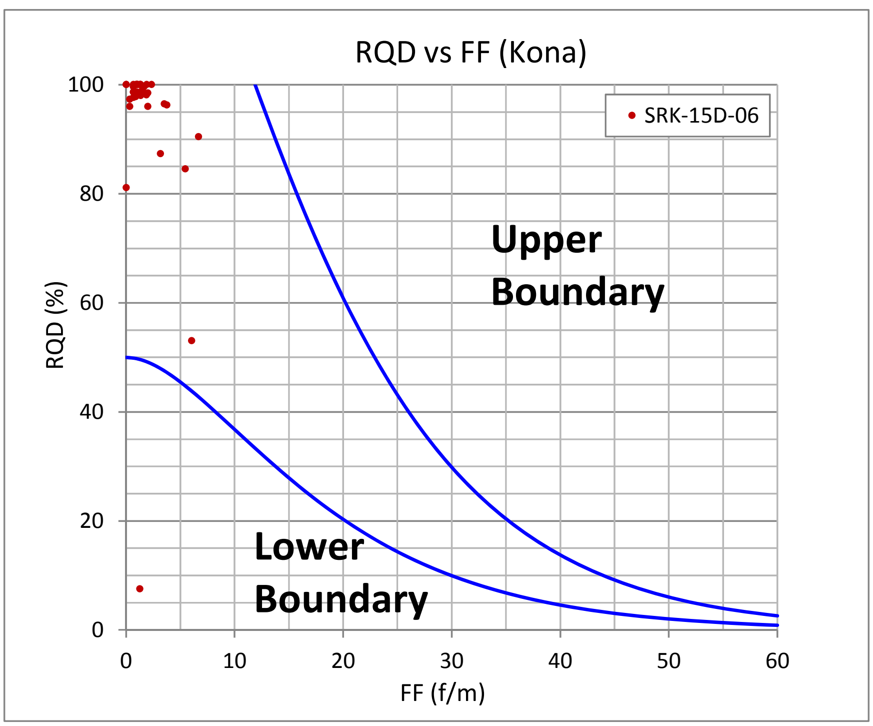


Figure B-6: Correlation and consistency between geotechnical parameters (RQD & FF/m) from geotechnical boreholes from **SRK – 15D-06** (Pit Kona).

Appendix C: Laboratory Test Results

GNEISS							Index Properties		Mechanical Properties						Failure Mode	Date
HOLE ID	Depth (m)	Lithology	ϕ (cm)	h (cm)	Weight (gr)	Relation L/D	γ (t/m^3)	n (%)	S_3^{TI} (Mpa)	UCS (MPa)	S_3 (MPa)	S_1 (Mpa)	E (UCS) (GPa)	ν	UCS/TX	
SRK-15D-01	42.81	FG	6.1	13.20	986.00	2.16	2.56			115.20					Both	8/28/2015
SRK-15D-01	95.365	FG	6.1	13.00	998.00	2.13	2.63		13.00	68.50			36.55	0.28	Both	8/28/2015
SRK-15D-01	106.26	FG	6.1	13.30	1025.00	2.18	2.63		9.20	79.10			37.20	0.25	Both	8/28/2015
SRK-15D-01	177.545	MxF	6.1	13.30	1023.00	2.17	2.61		15.70	89.50			50.95	0.23	Both	8/28/2015
SRK-15D-02	68.225	FG	6.1	13.00	980.00	2.13	2.58			19.20					Fracture	8/28/2015
SRK-15D-02	147.13	FG	6.2	13.10	1034.00	2.13	2.66		8.30	4.20					Fracture	8/28/2015
SRK-15D-02	175.37	MxF	6.2	13.10	1028.00	2.12	2.60		3.20	28.00			23.31	0.19	Fracture	8/28/2015
SRK-15D-02	78.875	FG	6.1	13.20	987.00	2.16	2.55			8.10			4.24	0.50	Fracture	8/28/2015
SRK-15D-05	27.765	MxM	6.1	13.10	1027.00	2.14	2.68			58.10					Both	8/28/2015
Total Test							9	---	5	9	---	---	5	5		
Number of results Valid							9	---	4	5	---	---	3	3		
Maximum value, MAX							2.68	---	15.70	115.20	---	---	50.95	0.28		
Minimum value, MIN							2.55	---	8.30	58.10	---	---	36.55	0.23		
Medium, MED							2.61	---	11.10	79.10	---	---	44.08	0.24		
Average value, MEAN							**2.61**	**---**	**11.55**	**82.08**	**---**	**----**	**41.57**	**0.25**		
Standard Deviation, SDEV							0.04	---	3.44	21.91	---	---	8.13	0.03		
Coefficient of variation, CV							0.02	---	0.30	0.27	---	---	0.20	0.10		

Table C-1: Laboratory Test for Gneiss

SCHIST							Index Properties		Mechanical Properties						Failure Mode	Date
HOLE ID	Depth (m)	Lithology	ϕ (cm)	h (cm)	Weight (gr)	Relation L/D			S_3^{TI} (Mpa)	UCS (MPa)	S_3 (MPa)	S_1 (Mpa)	E (UCS) (GPa)	ν	UCS/TX	
							γ (t/m³)	n (%)								
SRK-15D-03	29.6	BtS	6.1	13.10	986.00	2.15	2.83			16.30					Fracture	8/28/2015
SRK-15D-03	54.3	BtS_carb	6.1	13.00	998.00	2.13	2.73		16.00	91.10					Both	8/28/2015
SRK-15D-03	86.2	BtS	6.1	13.30	1025.00	2.18	2.65		4.00	16.80					Fracture	8/28/2015
SRK-15D-04	24.9	BtS_carb	6.1	13.30	1023.00	2.17	2.64			17.00					Fracture	8/28/2015
SRK-15D-04	50.2	BtS	6.1	13.00	980.00	2.13	2.58		3.50	10.80			10.30	0.50	Fracture	8/28/2015
SRK-15D-04	77.8	BtS_carb	6.2	13.10	1034.00	2.13	2.65		3.50	29.80			27.10	0.34	Fracture	8/28/2015
SRK-15D-04	100.2	BtS_carb	6.2	13.10	1028.00	2.12	2.66		4.10	32.30					Fracture	8/28/2015
SRK-15D-05	61.4	BtS	6.1	13.20	987.00	2.16	2.63		7.40	104.50					Intack	8/28/2015
SRK-15D-05	97.6	BtS	6.1	13.10	1027.00	2.14	2.88		16.70	99.50					Intack	8/28/2015
Total Test							9	---	7	9	---	---	2	2		
Number of results Valid							9	---	7	3	---	---	2	2		
Maximum value, MAX							2.88	---	16.70	104.50	---	---	27.10	0.50		
Minimum value, MIN							2.58	---	3.50	91.10	---	---	10.30	0.34		
Medium, MED							2.65	---	4.10	99.50	---	---	18.70	0.42		
Average value, MEAN							2.70	---	7.89	98.37	---	---	18.70	0.42		
Standard Deviation, SDEV							0.10	---	5.94	6.77	---	---	11.88	0.11		
Coefficient of variation, CV							0.04	---	0.75	0.07	---	---	0.64	0.27		

Table C-2: Laboratory Test for Shist

GRANITE							**Index Properties**		**Mechanical Properties**						**Failure Mode**	**Date**
HOLE ID	**Depth (m)**	**Lithology**	**ϕ (cm)**	**h (cm)**	**Weight (gr)**	**Relation L/D**	**γ (t/m^3)**	**n (%)**	**S_3^{TI} (MPa)**	**UCS (MPa)**	**S_3 (MPa)**	**S_1 (MPa)**	**E (UCS) (GPa)**	**ν**	**UCS/TX**	
SRK-15D-06	52.2	GG	6.1	13.20	1001.00	2.17	2.61		10.40	120.10			54.72	0.30	Intact	8/28/2015
SRK-15D-06	76.6	GG	6.1	13.20	1012.00	2.16	2.63		8.40	140.00					Intact	8/28/2015
Total Test							2	0	2	2	0	0	1	1		
Number of results Valid							2	0	2	2	0	0	1	1		
Maximum value, MAX							2.63	---	10.40	140.00	---	---	54.72	0.30		
Minimum value, MIN							2.61	---	8.40	120.10	---	---	54.72	0.30		
Medium, MED							2.62	---	9.40	130.05	---	---	54.72	0.30		
Average value, MEAN							2.62	---	9.40	130.05	---	---	54.72	0.30		
Standard deviation, SDEV							0.01	---	1.41	14.07	---	---	---	---		
Coefficient of variation, CV							0.00	---	0.15	0.11	---	---	---	---		

Table C-3: Laboratory Test for Granite

Direct Shear Test						***Properties***	
HOLE ID	**from**	**to**	**Lithology**	**Type**	**Deposit**	**ϕ** ***(°)***	**C** ***(KPa)***
CFD0201	18.13	18.45	Bio-fel-schist	Foliation	Supremo - T3	36.5	21
CFD0208	208.27	208.70	Gneiss	Foliation	Supremo - T3	28.6	56
CFD0223	163.65	164.01	Gneiss	Foliation	Supremo - T3	24.1	55
CFD0235	87.36	87.80	Felsic Gneiss	Foliation	Supremo - T3	33.7	19
CFD0305	175.45	175.92	Bio-feld-schist	Foliation	E. Latte & SupT3	37.3	63
SRK-15D-01	14.87	15.27	Gneiss	Joint	Supremo	34.1	13
SRK-15D-01	198.58	199.00	Gneiss	Joint	Supremo	29.9	78
SRK-15D-02	138.87	139.40	Gneiss	Joint	Sup & E. Latte	33.0	124
SRK-15D-02	195.65	195.05	Gneiss	Foliation	Sup & E. Latte	36.0	59
SRK-15D-03	80.26	80.59	Schist	Foliation	Latte	26.1	24
SRK-15D-03	101.77	102.10	Schist	Foliation	Latte	26.1	61
SRK-15D-04	71.00	71.30	Schist	Foliation	Latte	32.5	7
SRK-15D-04	133.52	133.87	Schist	Joint	Latte	29.0	53
SRK-15D-05	103.02	103.42	Gneiss	Joint	Double Double	30.5	23
SRK-15D-06	45.08	45.38	Granite	Joint	Kona	38.2	53
Total Test						15	15
Latte- Schist - Foliation						40	28
Double Double – Gneiss – Foliation						30	32
Supremo – Gneiss - Joint						28	30

Table C-4: Direct Shear Test Result

333-16

DRAFT
ROCK MECHANICS TESTING FOR CORE HOLES
SRK-15D-01, -02, -03, -04, -05, -06

Prepared for

SRK CONSULTING (U.S.) INC.

August 28, 2015

Prepared by

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DRAFT
ROCK MECHANICS TESTING FOR CORE HOLES SRK-15D-01, -02, -03, -04, -05, -06

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

SRK Consulting (U.S.) Inc. (SRK) commissioned Agapito Associates, Inc. (AAI) to complete a rock mechanics laboratory study to determine the mechanical properties of rock samples from core holes SRK-15D-01, -02, -03, -04, -05, -06 from Kaminak Gold Corporation. A shipment of core was delivered to AAI's Grand Junction, Colorado, laboratory facility on July 22, 2015. This laboratory report provides results of the rock mechanics core testing performed by AAI on behalf of SRK.

2.0 LABORATORY PROCEDURES

Prior to testing, specimens were prepared according to ASTM International (ASTM) standard D4543-08.[1] The following test types were performed by AAI according to ASTM standards where applicable:

- Uniaxial (unconfined) compressive strength (UCS) test: D7012-13[2]
- Splitting tensile strength test (Brazilian): D3967-08[3]

3.0 TEST RESULTS

The laboratory results for the UCS tests are summarized in Table 1. Table 1 contains elastic properties calculated using both the tangent (45–55% of UCS) and secant (0–50% of UCS) methods as outlined in ASTM D7012.

The laboratory results for the Brazilian tests are summarized in Table 2. Data sheets for the UCS tests with failure mode descriptions are presented in Appendix A. Before and after photos of the UCS test specimens are in Appendix B. Stress-strain plots for UCS tests are in Appendix C. Data sheets for the Brazilian tests are presented in Appendix D. Before and after photos of the Brazilian test specimens are in Appendix E.

[1]American Society for Testing and Materials (ASTM), "Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional Shape Tolerances," Designation D4543-08.

[2]American Society for Testing and Materials (ASTM), "Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperature," Designation D7012-13 (Methods C and D).

[3]American Society for Testing and Materials (ASTM), "Standard Test Method for Splitting Tensile Strength of Intact Rock Core Specimens," Designation D3967-08.

Table 1. Summary of Uniaxial Compressive Strength Test Results

Specimen No.	Hole ID	Depth From (m)	Depth To (m)	Lithology	Weight (g)	Average Diameter (cm)	Axial Length (cm)	Density (kg/m^3)	Failure Load (kN)	UCS (MPa)	Young's Modulus† (GPa)	Poisson's Ratio†	Young's Modulus‡ (GPa)	Poisson's Ratio‡
SRK-15D-01_UCS_01/U-01	SRK-15D-01	42.63	42.99	Gneiss	986	6.10	13.2	2,561	336	115.2				
SRK-15D-01_UCS_06/U-02	SRK-15D-01	177.37	177.72	Gneiss	1,023	6.12	13.3	2,608	263	89.5	50.95	0.23	50.08	0.10
SRK-15D-02_UCS_01/U-03	SRK-15D-02	68.00	68.45	Gneiss	980	6.10	13.0	2,579	56	19.2				
SRK-15D-02_UCS_04/U-04	SRK-15D-02	146.96	147.30	Gneiss	1,034	6.15	13.1	2,660	13	4.2	-	0.50	82.77	0.20
SRK-15D-03_UCS_01/U-05	SRK-15D-03	29.44	29.78	Gneiss	1,077	6.09	13.1	2,829	47	16.3				
SRK-15D-03_UCS_02/U-06	SRK-15D-03	54.15	54.50	Gneiss	1,028	6.10	12.9	2,734	266	91.1				
SRK-15D-03_UCS_03/U-07	SRK-15D-03	86.00	86.35	Gneiss	982	6.08	12.8	2,651	49	16.8				
SRK-15D-04_UCS_01/U-08	SRK-15D-04	24.70	25.00	Gneiss	998	6.08	13.0	2,635	49	17.0				
SRK-15D-04_UCS_02/U-09	SRK-15D-04	50.00	50.30	Gneiss	995	6.11	13.2	2,581	32	10.8	10.30	0.50	14.33	0.29
SRK-15D-04_UCS_04/U-10	SRK-15D-04	99.98	100.34	Gneiss	1,023	6.10	13.1	2,663	94	32.3				
SRK-15D-05_UCS_01/U-11	SRK-15D-05	27.60	27.93	No description	1,027	6.11	13.1	2,679	170	58.1				
SRK-15D-05_UCS_02/U-12	SRK-15D-05	61.21	61.53	No description	1,003	6.11	13.0	2,630	307	104.5				
SRK-15D-05_UCS_03/U-13	SRK-15D-05	97.44	97.75	Gneiss	1,100	6.11	13.0	2,883	292	99.5				
SRK-15D-06_UCS_02/U-14	SRK-15D-06	52.00	52.30	Granite	1,001	6.09	13.2	2,609	349	120.1	54.72	0.30	54.98	0.12
SRK-15D-06_UCS_03/U-15	SRK-15D-06	76.41	76.86	Granite	1,012	6.10	13.2	2,625	409	140.0				
SRK-15D-02_UCS_05/U-16	SRK-15D-02	175.20	175.54	Gneiss	1,028	6.19	13.1	2,598	84	28.0	23.31	0.19	24.68	0.15
SRK-15D-04_UCS_03/U-17	SRK-15D-04	77.62	77.92	Gneiss	1,018	6.11	13.1	2,650	87	29.8	27.10	0.34	42.04	0.16
SRK-15D-01_UCS_03/U-18	SRK-15D-01	95.14	95.59	Gneiss	998	6.09	13.0	2,625	200	68.5	36.55	0.28	54.32	0.34
SRK-15D-01_UCS_04/U-19	SRK-15D-01	106.10	106.42	Gneiss	1,025	6.10	13.3	2,629	231	79.1	37.20	0.25	35.53	0.17
SRK-15D-02_UCS_02/U-20	SRK-15D-02	78.70	79.05	Gneiss	987	6.12	13.2	2,546	24	8.1	4.24	0.50	5.40	0.24

†Tangent calculation method.

‡Secant calculation method.

Table 2. Summary of Splitting Tensile Strength Test Results

Specimen No.	Hole ID	Depth From (m)	Depth To (m)	Lithology	Weight (g)	Average Diameter (cm)	Axial Length (cm)	Density (kg/m³)	Failure Load (kN)	Splitting Tensile Strength (MPa)
SRK-15D-01_UCS_06/B-01	SRK-15D-01	177.37	177.72	Gneiss	304	6.10	3.95	2,637	60	15.7
SRK-15D-02_UCS_04/B-02	SRK-15D-02	146.96	147.30	Gneiss	290	6.15	3.70	2,648	30	8.3
SRK-15D-03_UCS_02/B-03	SRK-15D-03	54.15	54.50	Gneiss	304	6.10	3.83	2,724	59	16.0
SRK-15D-04_UCS_03/B-04	SRK-15D-04	86.00	86.35	Gneiss	283	6.09	3.72	2,609	14	4.0
SRK-15D-04_UCS_02/B-05	SRK-15D-04	50.00	50.30	Gneiss	277	6.10	3.67	2,579	12	3.5
SRK-15D-04_UCS_04/B-06	SRK-15D-04	99.98	100.34	Gneiss	293	6.10	3.89	2,581	15	4.1
SRK-15D-05_UCS_02/B-07	SRK-15D-05	61.21	61.53	No description	305	6.11	3.97	2,616	28	7.4
SRK-15D-05_UCS_03/B-08	SRK-15D-05	97.44	97.75	Gneiss	321	6.10	3.85	2,848	62	16.7
SRK-15D-06_UCS_02/B-09	SRK-15D-06	52.00	52.30	Granite	295	6.08	3.88	2,617	38	10.4
SRK-15D-06_UCS_03/B-10	SRK-15D-06	76.41	76.86	Granite	294	6.10	3.84	2,615	31	8.4
SRK-15D-02_UCS_05/B-11	SRK-15D-02	175.20	175.54	Gneiss	290	6.19	3.79	2,539	12	3.2
SRK-15D-04_UCS_03/B-12	SRK-15D-04	77.62	77.92	Gneiss	287	6.11	3.73	2,630	13	3.5
SRK-15D-01_UCS_03/B-13	SRK-15D-01	95.14	95.59	Gneiss	286	6.09	3.78	2,602	47	13.0
SRK-15D-01_UCS_04/B-14	SRK-15D-01	106.10	106.42	Gneiss	285	6.10	3.70	2,636	33	9.2

APPENDIX A

UNIAXIAL COMPRESSION STRENGTH TEST DATA SHEET

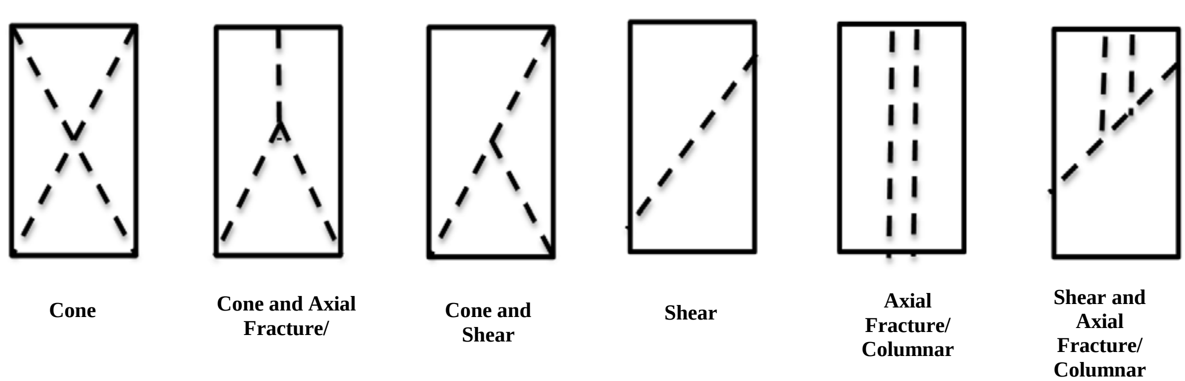
Agapito Associates, Inc.
UNCONFINED COMPRESSION TESTS

CLIENT:	SRK	**HOLE NO:**	SRK-15D-01, -02, -03, -04, -05, -06
JOB NO:	333-16	**MOISTURE CONDITION:**	As received
DATE:	August 3, 2015	**TEMPERATURE:**	70°

Specimen No.	Hole No.	Interval From (m)	Interval To (m)	Length of Interval (m)	Weight (g)	Diameter D_1 (mm)	Diameter D_2 (mm)	Axial Length (mm)	Length-to-Diameter Ratio	Area (mm^2)	Density (kg/m^3)	Specific Gravity
SRK-15D-01_UCS_01/U-01	SRK-15D-01	42.63	42.99	0.36	986	60.99	60.96	131.8	2.2	2,920	2,561	2.56
SRK-15D-01_UCS_06/U-02	SRK-15D-01	177.37	177.72	0.35	1,023	61.18	61.17	133.5	2.2	2,939	2,608	2.61
SRK-15D-02_UCS_01/U-03	SRK-15D-02	68.00	68.45	0.45	980	61.06	61.02	129.9	2.1	2,926	2,579	2.58
SRK-15D-02_UCS_04/U-04	SRK-15D-02	146.96	147.30	0.34	1,034	61.47	61.50	131.0	2.1	2,969	2,660	2.66
SRK-15D-03_UCS_01/U-05	SRK-15D-03	29.44	29.78	0.34	1,077	60.89	60.86	130.8	2.1	2,910	2,829	2.83
SRK-15D-03_UCS_02/U-06	SRK-15D-03	54.15	54.50	0.35	1,028	60.97	60.96	128.8	2.1	2,919	2,734	2.73
SRK-15D-03_UCS_03/U-07	SRK-15D-03	86.00	86.35	0.35	982	60.76	60.79	127.7	2.1	2,901	2,651	2.65
SRK-15D-04_UCS_01/U-08	SRK-15D-04	24.70	25.00	0.30	998	60.85	60.76	130.4	2.1	2,904	2,635	2.63
SRK-15D-04_UCS_02/U-09	SRK-15D-04	50.00	50.30	0.30	995	61.08	61.04	131.7	2.2	2,928	2,581	2.58
SRK-15D-04_UCS_04/U-10	SRK-15D-04	99.98	100.34	0.36	1,023	61.04	61.04	131.3	2.2	2,926	2,663	2.66
SRK-15D-05_UCS_01/U-11	SRK-15D-05	27.60	27.93	0.33	1,027	61.10	61.11	130.8	2.1	2,933	2,679	2.68
SRK-15D-05_UCS_02/U-12	SRK-15D-05	61.21	61.53	0.32	1,003	61.13	61.12	129.9	2.1	2,934	2,630	2.63
SRK-15D-05_UCS_03/U-13	SRK-15D-05	97.44	97.75	0.31	1,100	61.10	61.09	130.2	2.1	2,932	2,883	2.88
SRK-15D-06_UCS_02/U-14	SRK-15D-06	52.00	52.30	0.30	1,001	60.85	60.86	131.9	2.2	2,909	2,609	2.61
SRK-15D-06_UCS_03/U-15	SRK-15D-06	76.41	76.86	0.45	1,012	61.03	61.02	131.8	2.2	2,925	2,625	2.62
SRK-15D-02_UCS_05/U-16	SRK-15D-02	175.20	175.54	0.34	1,028	61.9	61.9	131.4	2.1	3,012	2,598	2.60
SRK-15D-04_UCS_03/U-17	SRK-15D-04	77.62	77.92	0.30	1,018	61.1	61.0	131.2	2.1	2,927	2,650	2.65
SRK-15D-01_UCS_03/U-18	SRK-15D-01	95.14	95.59	0.45	998	61.0	60.9	130.4	2.1	2,916	2,625	2.62
SRK-15D-01_UCS_04/U-19	SRK-15D-01	106.10	106.42	0.32	1,025	61.0	61.0	133.4	2.2	2,921	2,629	2.63
SRK-15D-02_UCS_02/U-20	SRK-15D-02	78.70	79.05	0.35	987	61.2	61.2	131.9	2.2	2,939	2,546	2.55

Specimen No.	Lithological Description	Failure Load (N)	UCS (MPa)	Failure Mode Notes	Comments
SRK-15D-01_UCS_01/U-01	Gneiss	336,286	115.2	Shear	
SRK-15D-01_UCS_06/U-02	Gneiss	262,979	89.5	Shear	
SRK-15D-02_UCS_01/U-03	Gneiss	56,226	19.2	Shear	
SRK-15D-02_UCS_04/U-04	Gneiss	12,611	4.2	Shear	Failed along contact/foliation
SRK-15D-03_UCS_01/U-05	Gneiss	47,440	16.3	Shear/cone	
SRK-15D-03_UCS_02/U-06	Gneiss	265,848	91.1	Shear/cone	
SRK-15D-03_UCS_03/U-07	Gneiss	48,864	16.8	Shear	
SRK-15D-04_UCS_01/U-08	Gneiss	49,420	17.0	Shear	
SRK-15D-04_UCS_02/U-09	Gneiss	31,649	10.8	Shear/axial	Shear fracture near top of sample
SRK-15D-04_UCS_04/U-10	Gneiss	94,436	32.3	Shear	
SRK-15D-05_UCS_01/U-11	No description	170,389	58.1	Axial	
SRK-15D-05_UCS_02/U-12	No description	306,749	104.5	Axial	
SRK-15D-05_UCS_03/U-13	Gneiss	291,670	99.5	Shear and axial	
SRK-15D-06_UCS_02/U-14	Granite	349,274	120.1	Axial	
SRK-15D-06_UCS_03/U-15	Granite	409,348	140.0	Axial	
SRK-15D-02_UCS_05/U-16	Gneiss	84,472	28.05	Shear	
SRK-15D-04_UCS_03/U-17	Gneiss	87,141	29.77	Shear/axial	
SRK-15D-01_UCS_03/U-18	Gneiss	199,836	68.54	Shear	
SRK-15D-01_UCS_04/U-19	Gneiss	231,085	79.11	Shear/axial	
SRK-15D-02_UCS_02/U-20	Gneiss	23,731	8.07	Shear	

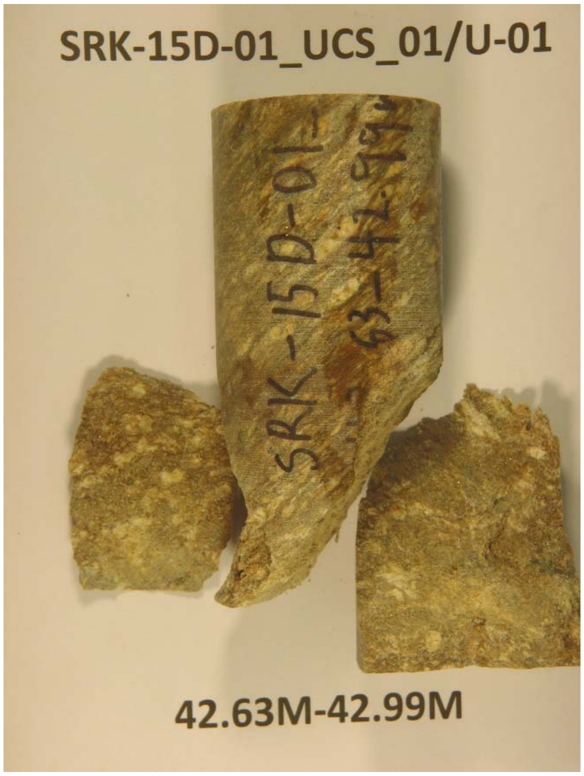
Failure Mode Sketches



APPENDIX B

BEFORE AND AFTER PHOTOGRAPHS OF UNIAXIAL COMPRESSION STRENGTH TEST SPECIMENS

SRK-15D-01_UCS_01/U-01 42.63-42.99 Before



SRK-15D-01_UCS_01/U-01 42.63-42.99 After

SRK-15D-01_UCS_06/U-02 177.37-177.72 Before

SRK-15D-01_UCS_06/U-02 177.37-177.72 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens

SRK-15D-02_UCS_01/U-03 68.00-68.45 Before

SRK-15D-02_UCS_01/U-03 68.00-68.45 After

SRK-15D-02_UCS_04/U-04 146.96-147.30 Before

SRK-15D-02-UCS_04/U-04 146.96-147.30 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-03_UCS_01/U-05 29.44-29.78 Before

SRK-15D-03_UCS_01/U-05 29.44-29.78 After

SRK-15D-03_UCS_02/U-06 54.15-54.50 Before

SRK-15D-03_UCS_02/U-06 54.15-54.50 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-03_UCS_03/U-07 86.00-86.35 Before

SRK-15D-03_UCS_03/U-07 86.00-86.35 After

SRK-15D-04_UCS_01/U-08 24.70-25.00 Before

SRK-15D-04_UCS_01/U-08 24.70-25.00 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-04_UCS_02/U-09 50.00-50.30 Before

SRK-15D-04_UCS_02/U-09 50.00-50.30 After

SRK-15D-04_UCS_04/U-10 99.98-100.34 Before

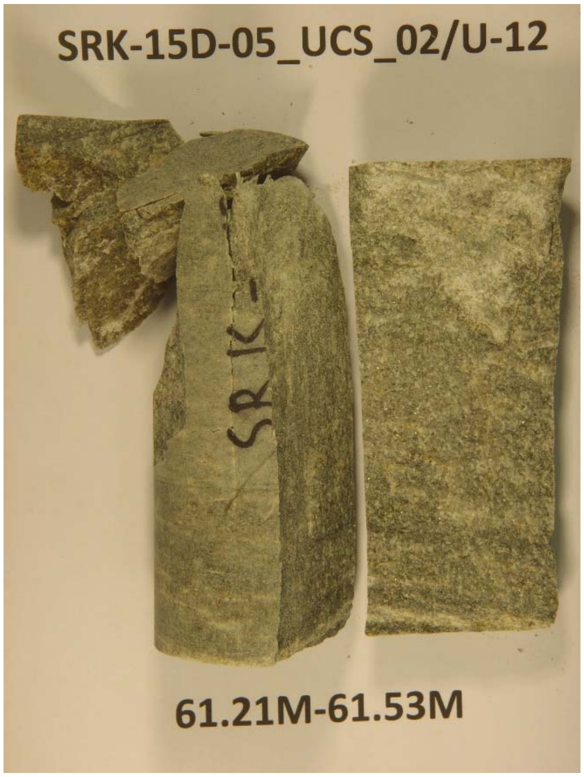
SRK-15D-04_UCS_04/U-10 99.98-100.34 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-05_UCS_01/U-11 27.60-27.93 Before

SRK-15D-05_UCS_01/U-11 27.60-27.93 After

SRK-15D-05_UCS_02/U-12 61.21-61.53 Before



SRK-15D-05_UCS_02/U-12 61.21-61.53 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-05_UCS_03/U-13 97.44-97.75 Before

SRK-15D-05_UCS_03/U-13 97.44-97.75 After

SRK-15D-06_UCS_02/U-14 52.00-52.30 Before

SRK-15D-06_UCS_02/U-14 52.00-52.30 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-06_UCS_03/U-15 76.41-76.86 Before

SRK-15D-06_UCS_03/U-15 76.41-76.86 After

SRK-15D-02-UCS_05 U-16 175.20-175.56 Before

SRK-15D-02-UCS_05 U-16 175.20-175.56 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-04_UCS_03 U-17 77.62-77.92 Before

SRK-15D-04_UCS_03 U-17 77.62-77.92 After

SRK-15D-01_UCS_03 U-18 95.14-95.59 Before

SRK-15D-01_UCS_03 U-18 95.14-95.59 After

Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(continued)*

SRK-15D-01_UCS_04 U-19 106.10-106.42 Before

SRK-15D-01_UCS_04 U-19 106.10-106.42 After

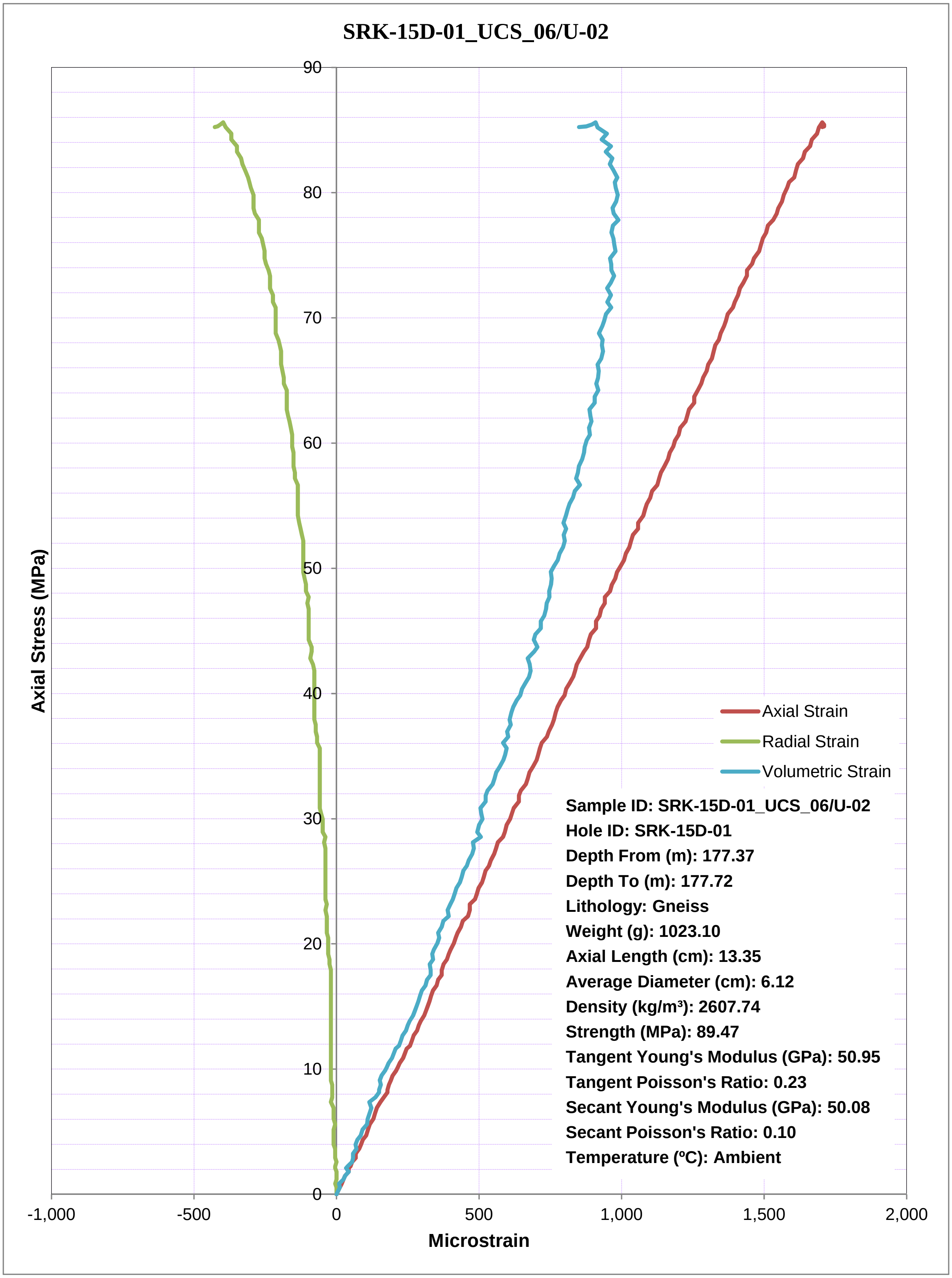
SRK-15D-04_UCS_02/U-20 78.70-79.05 Before

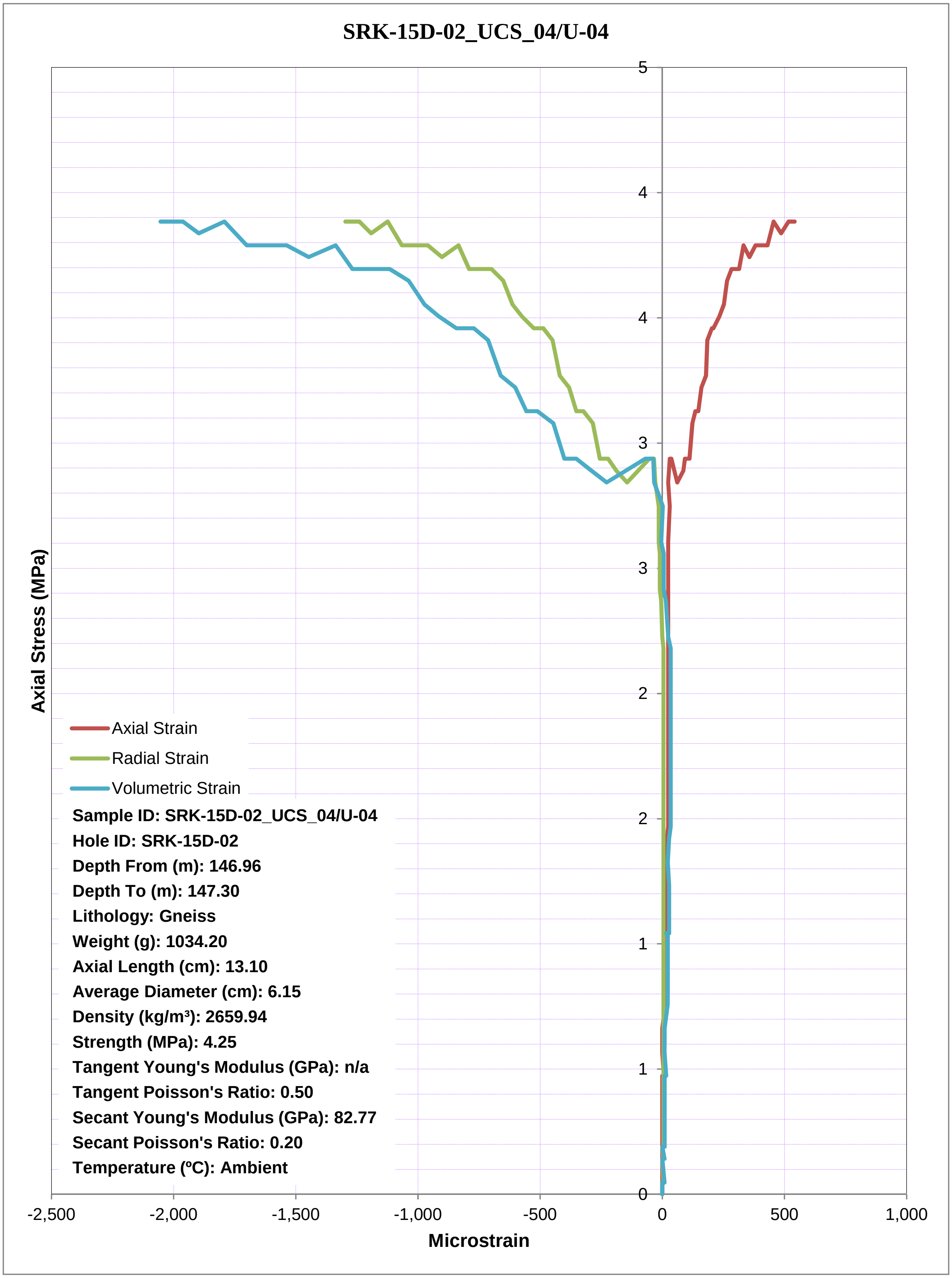
SRK-15D-04_UCS_02/U-20 78.70-79.05 After

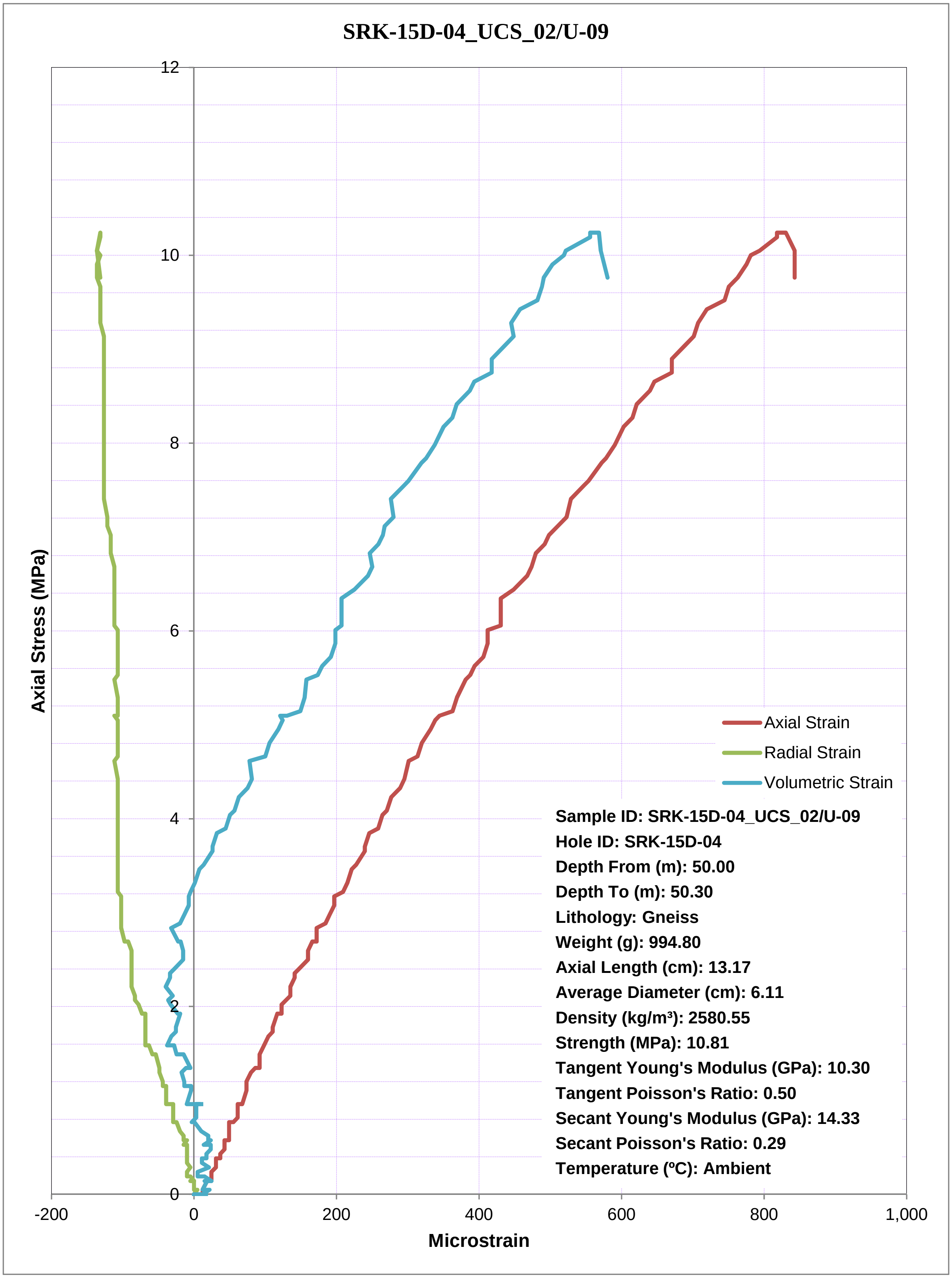
Figure B-1. Before and After Photographs of Uniaxial Compressive Strength Test Specimens *(concluded)*

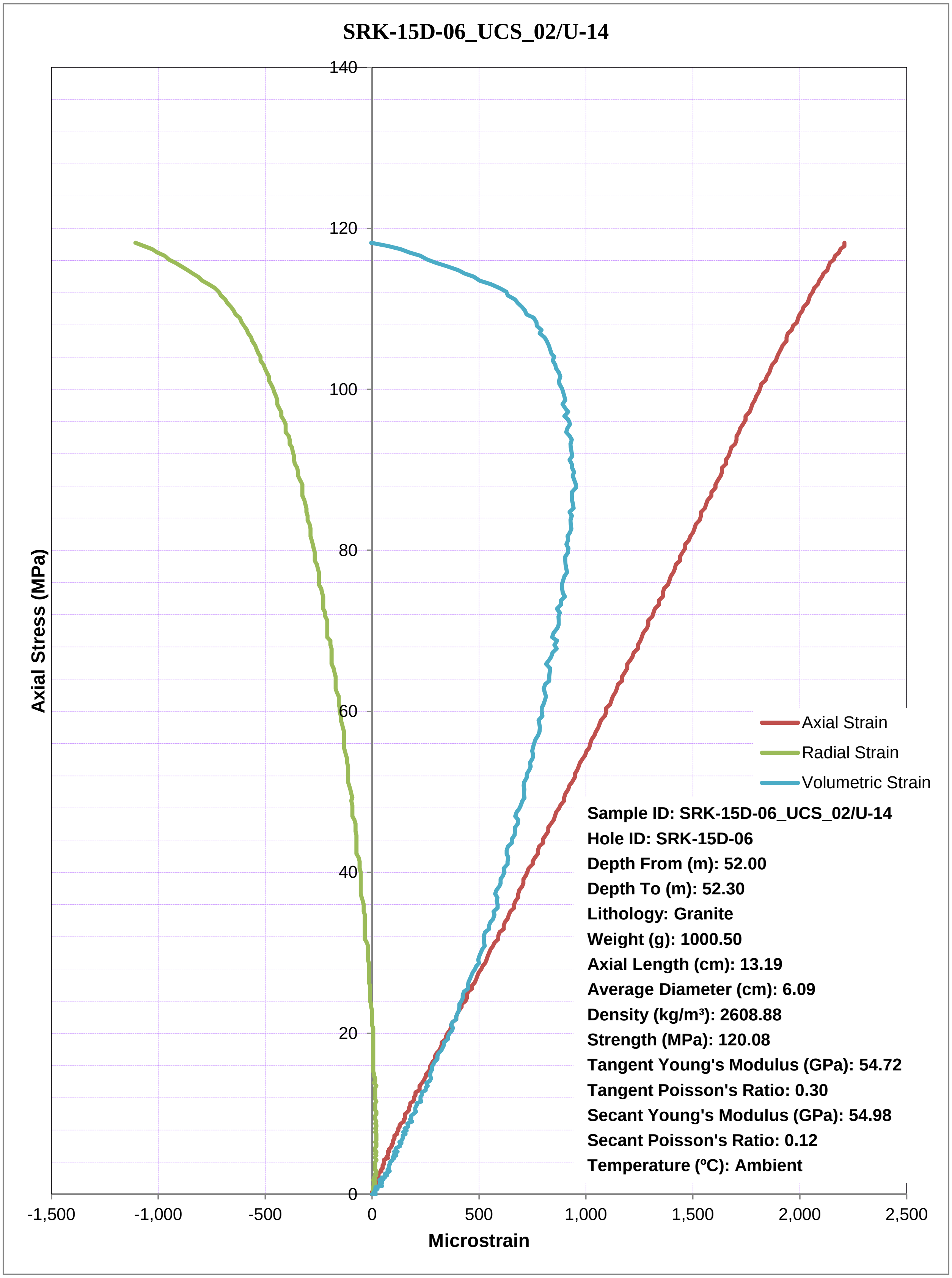
APPENDIX C

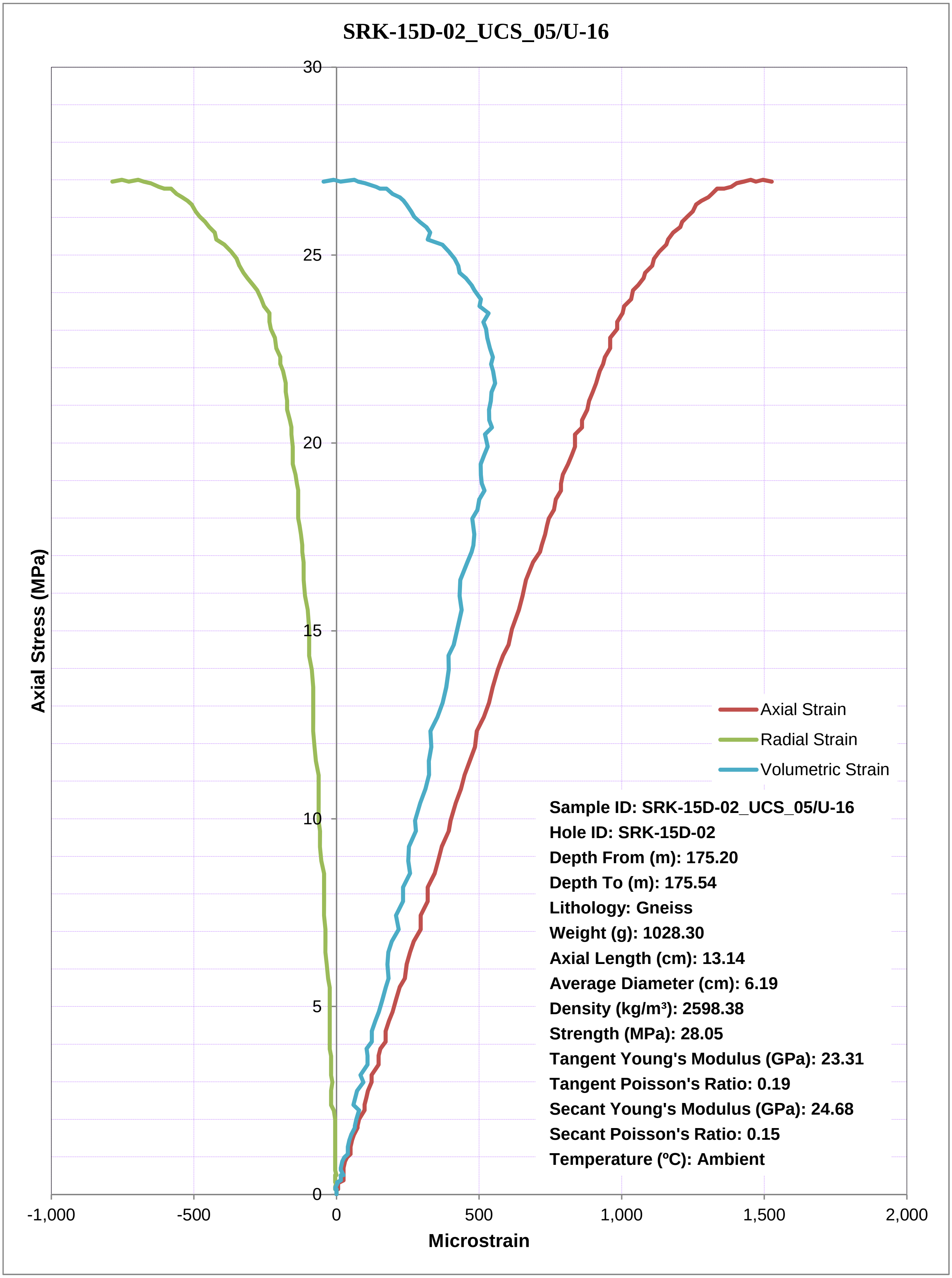
STRESS-STRAIN PLOTS FOR UNIAXIAL COMPRESSIVE STRENGTH TESTS

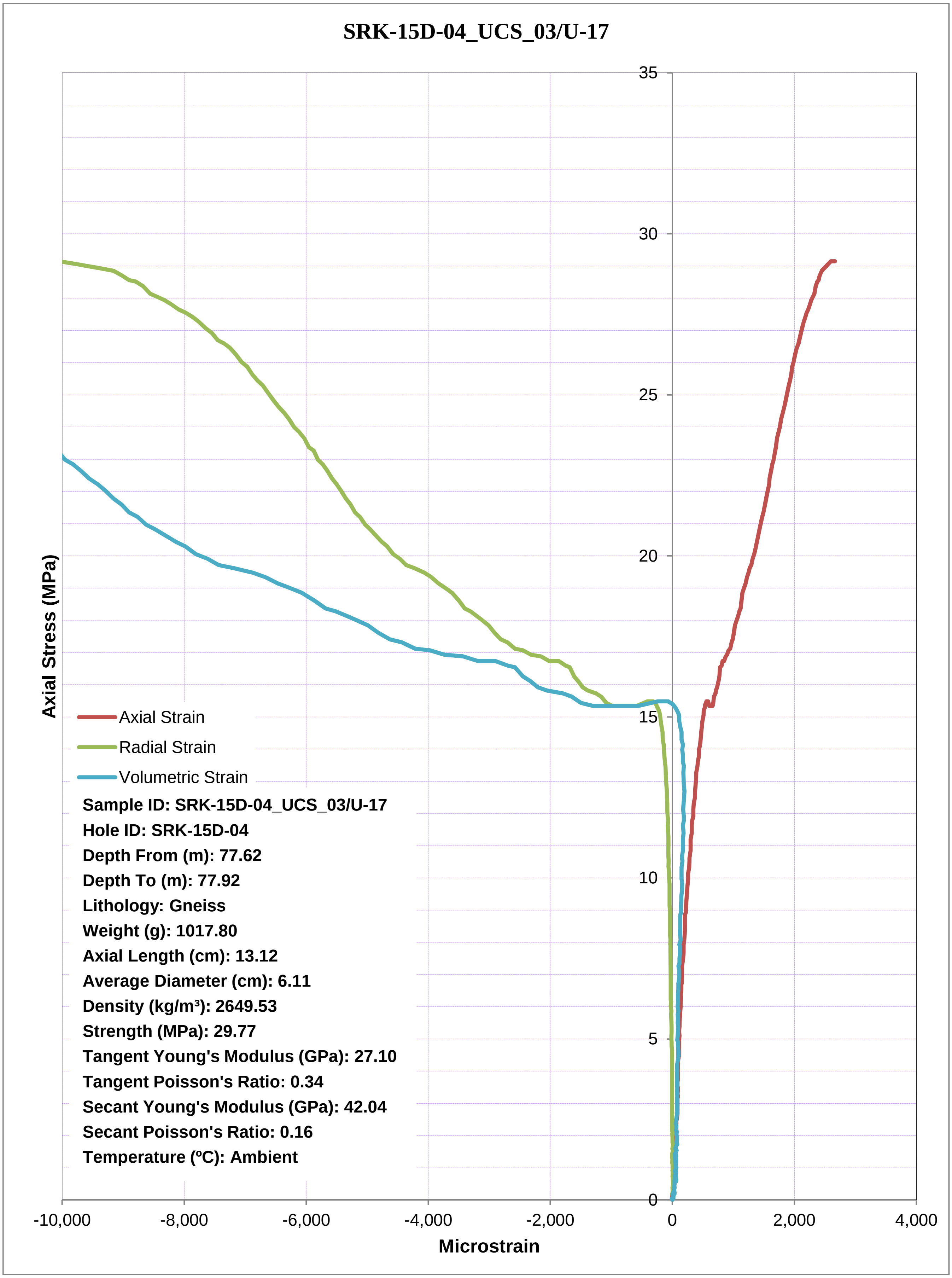

SRK-15D-01_UCS_06/U-02
Axial Stress (MPa)
Microstrain
0
10
20
30
40
50
60
70
80
90
-1,000
-500
0
500
1,000
1,500
2,000
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-01_UCS_06/U-02
Hole ID: SRK-15D-01
Depth From (m): 177.37
Depth To (m): 177.72
Lithology: Gneiss
Weight (g): 1023.10
Axial Length (cm): 13.35
Average Diameter (cm): 6.12
Density (kg/m³): 2607.74
Strength (MPa): 89.47
Tangent Young's Modulus (GPa): 50.95
Tangent Poisson's Ratio: 0.23
Secant Young's Modulus (GPa): 50.08
Secant Poisson's Ratio: 0.10
Temperature (ºC): Ambient

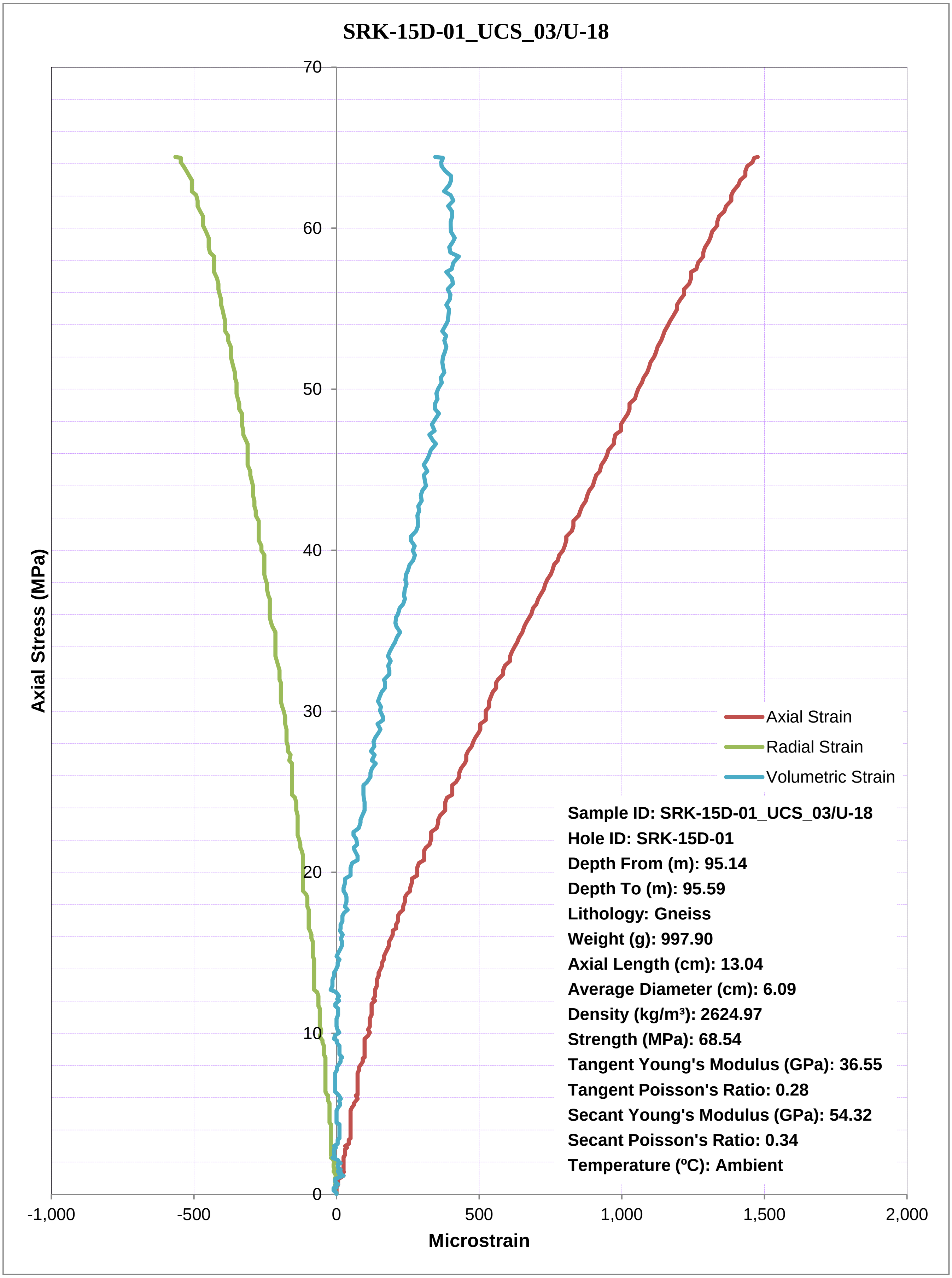

SRK-15D-02_UCS_04/U-04
Axial Stress (MPa)
Microstrain
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-02_UCS_04/U-04
Hole ID: SRK-15D-02
Depth From (m): 146.96
Depth To (m): 147.30
Lithology: Gneiss
Weight (g): 1034.20
Axial Length (cm): 13.10
Average Diameter (cm): 6.15
Density (kg/m³): 2659.94
Strength (MPa): 4.25
Tangent Young's Modulus (GPa): n/a
Tangent Poisson's Ratio: 0.50
Secant Young's Modulus (GPa): 82.77
Secant Poisson's Ratio: 0.20
Temperature (ºC): Ambient
-2,500
-2,000
-1,500
-1,000
-500
0
500
1,000
0
1
1
2
2
3
3
4
4
5

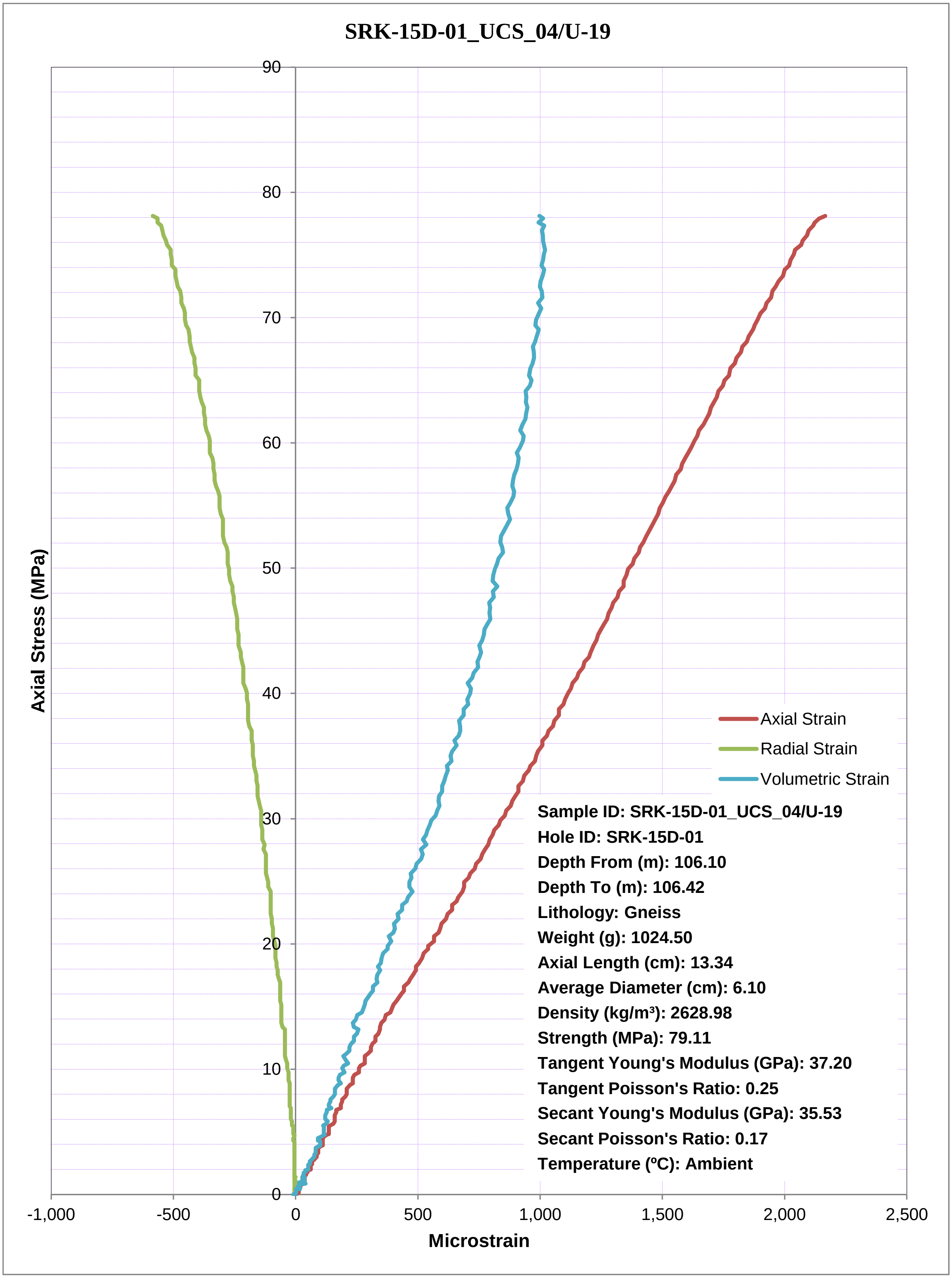

SRK-15D-04_UCS_02/U-09
Axial Stress (MPa)
Microstrain
0
2
4
6
8
10
12
-200
0
200
400
600
800
1,000
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-04_UCS_02/U-09
Hole ID: SRK-15D-04
Depth From (m): 50.00
Depth To (m): 50.30
Lithology: Gneiss
Weight (g): 994.80
Axial Length (cm): 13.17
Average Diameter (cm): 6.11
Density (kg/m³): 2580.55
Strength (MPa): 10.81
Tangent Young's Modulus (GPa): 10.30
Tangent Poisson's Ratio: 0.50
Secant Young's Modulus (GPa): 14.33
Secant Poisson's Ratio: 0.29
Temperature (ºC): Ambient

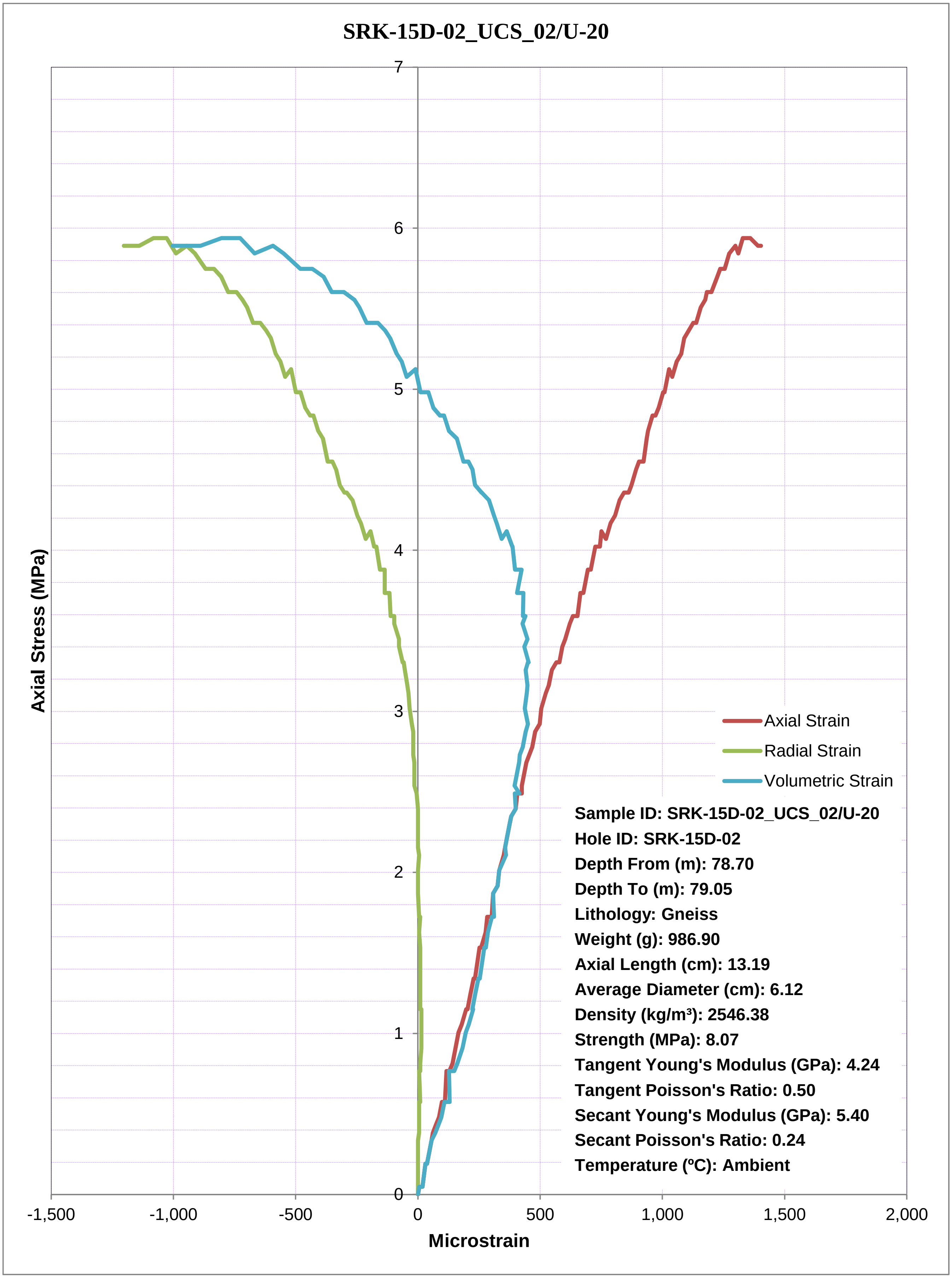

SRK-15D-06_UCS_02/U-14
Axial Stress (MPa)
Microstrain
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-06_UCS_02/U-14
Hole ID: SRK-15D-06
Depth From (m): 52.00
Depth To (m): 52.30
Lithology: Granite
Weight (g): 1000.50
Axial Length (cm): 13.19
Average Diameter (cm): 6.09
Density (kg/m³): 2608.88
Strength (MPa): 120.08
Tangent Young's Modulus (GPa): 54.72
Tangent Poisson's Ratio: 0.30
Secant Young's Modulus (GPa): 54.98
Secant Poisson's Ratio: 0.12
Temperature (ºC): Ambient


SRK-15D-02_UCS_05/U-16
Axial Stress (MPa)
30
25
20
15
10
5
0
-1,000
-500
0
500
1,000
1,500
2,000
Microstrain
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-02_UCS_05/U-16
Hole ID: SRK-15D-02
Depth From (m): 175.20
Depth To (m): 175.54
Lithology: Gneiss
Weight (g): 1028.30
Axial Length (cm): 13.14
Average Diameter (cm): 6.19
Density (kg/m³): 2598.38
Strength (MPa): 28.05
Tangent Young's Modulus (GPa): 23.31
Tangent Poisson's Ratio: 0.19
Secant Young's Modulus (GPa): 24.68
Secant Poisson's Ratio: 0.15
Temperature (ºC): Ambient


SRK-15D-04_UCS_03/U-17
Axial Stress (MPa)
Microstrain
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-04_UCS_03/U-17
Hole ID: SRK-15D-04
Depth From (m): 77.62
Depth To (m): 77.92
Lithology: Gneiss
Weight (g): 1017.80
Axial Length (cm): 13.12
Average Diameter (cm): 6.11
Density (kg/m³): 2649.53
Strength (MPa): 29.77
Tangent Young's Modulus (GPa): 27.10
Tangent Poisson's Ratio: 0.34
Secant Young's Modulus (GPa): 42.04
Secant Poisson's Ratio: 0.16
Temperature (ºC): Ambient
35
30
25
20
15
10
5
0
-10,000
-8,000
-6,000
-4,000
-2,000
0
2,000
4,000


SRK-15D-01_UCS_03/U-18
Axial Stress (MPa)
Microstrain
70
60
50
40
30
20
10
0
-1,000
-500
0
500
1,000
1,500
2,000
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-01_UCS_03/U-18
Hole ID: SRK-15D-01
Depth From (m): 95.14
Depth To (m): 95.59
Lithology: Gneiss
Weight (g): 997.90
Axial Length (cm): 13.04
Average Diameter (cm): 6.09
Density (kg/m³): 2624.97
Strength (MPa): 68.54
Tangent Young's Modulus (GPa): 36.55
Tangent Poisson's Ratio: 0.28
Secant Young's Modulus (GPa): 54.32
Secant Poisson's Ratio: 0.34
Temperature (ºC): Ambient


SRK-15D-01_UCS_04/U-19
Axial Stress (MPa)
Microstrain
90
80
70
60
50
40
30
20
10
0
-1,000
-500
0
500
1,000
1,500
2,000
2,500
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-01_UCS_04/U-19
Hole ID: SRK-15D-01
Depth From (m): 106.10
Depth To (m): 106.42
Lithology: Gneiss
Weight (g): 1024.50
Axial Length (cm): 13.34
Average Diameter (cm): 6.10
Density (kg/m³): 2628.98
Strength (MPa): 79.11
Tangent Young's Modulus (GPa): 37.20
Tangent Poisson's Ratio: 0.25
Secant Young's Modulus (GPa): 35.53
Secant Poisson's Ratio: 0.17
Temperature (ºC): Ambient


SRK-15D-02_UCS_02/U-20
Axial Stress (MPa)
Microstrain
0
1
2
3
4
5
6
7
-1,500
-1,000
-500
0
500
1,000
1,500
2,000
Axial Strain
Radial Strain
Volumetric Strain
Sample ID: SRK-15D-02_UCS_02/U-20
Hole ID: SRK-15D-02
Depth From (m): 78.70
Depth To (m): 79.05
Lithology: Gneiss
Weight (g): 986.90
Axial Length (cm): 13.19
Average Diameter (cm): 6.12
Density (kg/m³): 2546.38
Strength (MPa): 8.07
Tangent Young's Modulus (GPa): 4.24
Tangent Poisson's Ratio: 0.50
Secant Young's Modulus (GPa): 5.40
Secant Poisson's Ratio: 0.24
Temperature (ºC): Ambient

APPENDIX D

SPLITTING TENSILE STRENGTH (BRAZILIAN) TEST DATA SHEET

Agapito Associates, Inc.
INDIRECT TENSILE STRENGTH (BRAZILIAN) TESTS

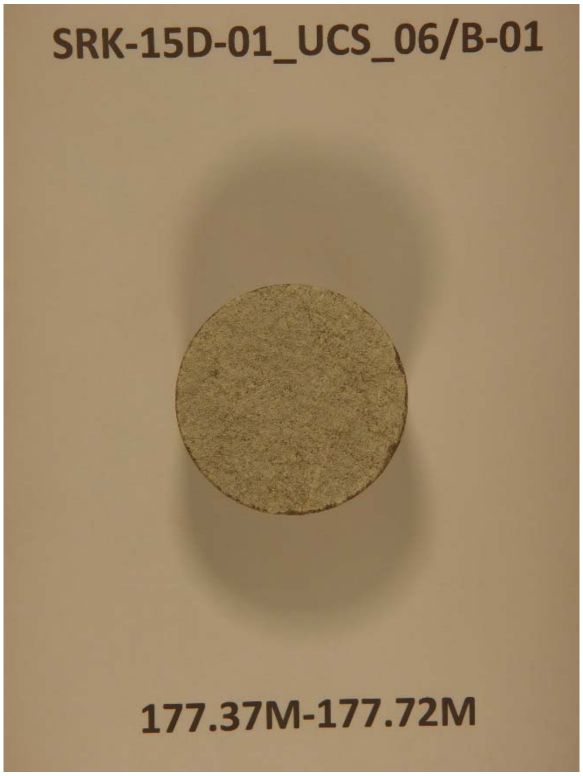
CLIENT:	SRK	**HOLE NO:**	SRK-15D-01, -02, -03, -04, -05, -06
JOB NO:	333-16	**MOISTURE CONDITION:**	As Received
DATE:	August 3, 2015	**TEMPERATURE:**	70°F

Specimen No.	Hole No.	Interval		Length of Interval (m)	Weight (g)	Diameter		Axial Length (mm)	Length-to-Diameter Ratio	Area (mm^2)	Density (kg/m^3)
		From (m)	To (m)			D_1 (mm)	D_2 (mm)				
SRK-15D-01_UCS_06/B-01	SRK-15D-01	177.37	177.72	0.35	304	61.03	61.04	39.45	0.6	2,926	2,637
SRK-15D-02_UCS_04/B-02	SRK-15D-02	146.96	147.30	0.34	290	61.45	61.46	36.97	0.6	2,966	2,648
SRK-15D-03_UCS_02/B-03	SRK-15D-03	54.15	54.50	0.35	304	60.95	60.96	38.26	0.6	2,918	2,724
SRK-15D-04_UCS_03/B-04	SRK-15D-04	86.00	86.35	0.35	283	60.94	60.90	37.24	0.6	2,915	2,609
SRK-15D-04_UCS_02/B-05	SRK-15D-04	50.00	50.30	0.30	277	60.99	60.97	36.73	0.6	2,921	2,579
SRK-15D-04_UCS_04/B-06	SRK-15D-04	99.98	100.34	0.36	293	61.02	61.04	38.85	0.6	2,925	2,581
SRK-15D-05_UCS_02/B-07	SRK-15D-05	61.21	61.53	0.32	305	61.13	61.13	39.66	0.6	2,935	2,616
SRK-15D-05_UCS_03/B-08	SRK-15D-05	97.44	97.75	0.31	321	61.04	61.03	38.47	0.6	2,926	2,848
SRK-15D-06_UCS_02/B-09	SRK-15D-06	52.00	52.30	0.30	295	60.79	60.81	38.76	0.6	2,903	2,617
SRK-15D-06_UCS_03/B-10	SRK-15D-06	76.41	76.86	0.45	294	61.02	61.01	38.42	0.6	2,924	2,615
SRK-15D-02_UCS_05/B-11	SRK-15D-02	175.20	175.54	0.34	290	61.93	61.93	37.92	0.6	3,012	2,539
SRK-15D-04_UCS_03/B-12	SRK-15D-04	77.62	77.92	0.30	287	61.06	61.05	37.27	0.6	2,928	2,630
SRK-15D-01_UCS_03/B-13	SRK-15D-01	95.14	95.59	0.45	286	60.87	60.88	37.80	0.6	2,910	2,602
SRK-15D-01_UCS_04/B-14	SRK-15D-01	106.10	106.42	0.32	285	61.02	61.01	36.96	0.6	2,924	2,636

Specimen No.	Lithological Description	Failure Load (N)	Splitting Tensile Strength (MPa)	Failure Mode Notes
SRK-15D-01_UCS_06/B-01	Gneiss	59,513	15.7	Valid test, platten-to-platten fracture
SRK-15D-02_UCS_04/B-02	Gneiss	29,581	8.3	Valid test, platten-to-platten fracture
SRK-15D-03_UCS_02/B-03	Gneiss	58,728	16.0	Valid test, platten-to-platten fracture
SRK-15D-04_UCS_03/B-04	Gneiss	14,317	4.0	Valid test, platten-to-platten fracture
SRK-15D-04_UCS_02/B-05	Gneiss	12,468	3.5	Valid test, platten-to-platten fracture
SRK-15D-04_UCS_04/B-06	Gneiss	15,115	4.1	Valid test, platten-to-platten fracture
SRK-15D-05_UCS_02/B-07	No description	28,086	7.4	Valid test, platten-to-platten fracture
SRK-15D-05_UCS_03/B-08	Gneiss	61,610	16.7	Valid test, platten-to-platten fracture
SRK-15D-06_UCS_02/B-09	Granite	38,361	10.4	Valid test, platten-to-platten fracture
SRK-15D-06_UCS_03/B-10	Granite	30,833	8.4	Valid test, platten-to-platten fracture
SRK-15D-02_UCS_05/B-11	Gneiss	11,981	3.2	Valid test, platten-to-platten fracture
SRK-15D-04_UCS_03/B-12	Gneiss	12,535	3.5	Valid test, platten-to-platten fracture
SRK-15D-01_UCS_03/B-13	Gneiss	46,955	13.0	Valid test, platten-to-platten fracture
SRK-15D-01_UCS_04/B-14	Gneiss	32,734	9.2	Valid test, platten-to-platten fracture

APPENDIX E

BEFORE AND AFTER PHOTOGRAPHS OF SPLITTING TENSILE STRENGTH (BRAZILIAN) TEST SPECIMENS



SRK-15D-01_UCS_06/B-01 177.37-177.72 Before

SRK-15D-01_UCS_06/B-01 177.37-177.72 After

SRK-15D-02_UCS_04/B-02 146.96-147.30 Before

SRK-15D-02_UCS_04/B-02 146.96-147.30 After

Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens

SRK-15D-03_UCS_02/B-03 54.15-54.50 Before

SRK-15D-03_UCS_02/B-03 54.15-54.50 After

SRK-15D-04_UCS_03/B-04 86.00-86.35 Before

SRK-15D-04_UCS_03/B-04 86.00-86.35 After

Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens *(continued)*

SRK-15D-04_UCS_02/B-05 50.00-50.30 Before

SRK-15D-04_UCS_02/B-05 50.00-50.30 After

SRK-15D-04_UCS_04/B-06 99.98-100.34 Before

SRK-15D-04_UCS_04/B-06 99.98-100.34 After

Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens *(continued)*

SRK-15D-05_UCS_02/B-07 61.21-61.53 Before

SRK-15D-05_UCS_02/B-07 61.21-61.53 After

SRK-15D-05_UCS_03/B-08 97.44-97.75 Before

SRK-15D-05_UCS_03/B-08 97.44-97.75 After

Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens *(continued)*

SRK-15D-06_UCS_02/B-09 52.00-52.30 Before

SRK-15D-06_UCS_02/B-09 52.00-52.30 After

SRK-15D-06_UCS_03/B-10 76.41-76.86 Before

SRK-15D-06_UCS_03/B-10 76.41-76.86 After

Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens *(continued)*

SRK-15D-02_UCS_05 B-11 175.20-175.56 Before

SRK-15D-02_UCS_05 B-11 175.20-175.56 After

SRK-15D-04_UCS_03 B-12 77.62-77.92 Before

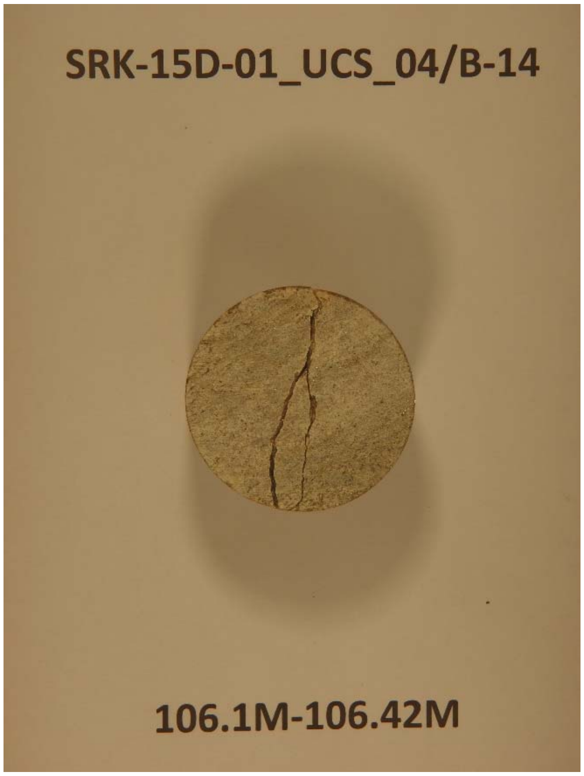
SRK-15D-04_UCS_03 B-12 77.62-77.92 After

Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens *(continued)*

SRK-15D-01_UCS_03 B-13 95.14-95.59 Before

SRK-15D-01_UCS_03 B-13 95.14-95.59 After

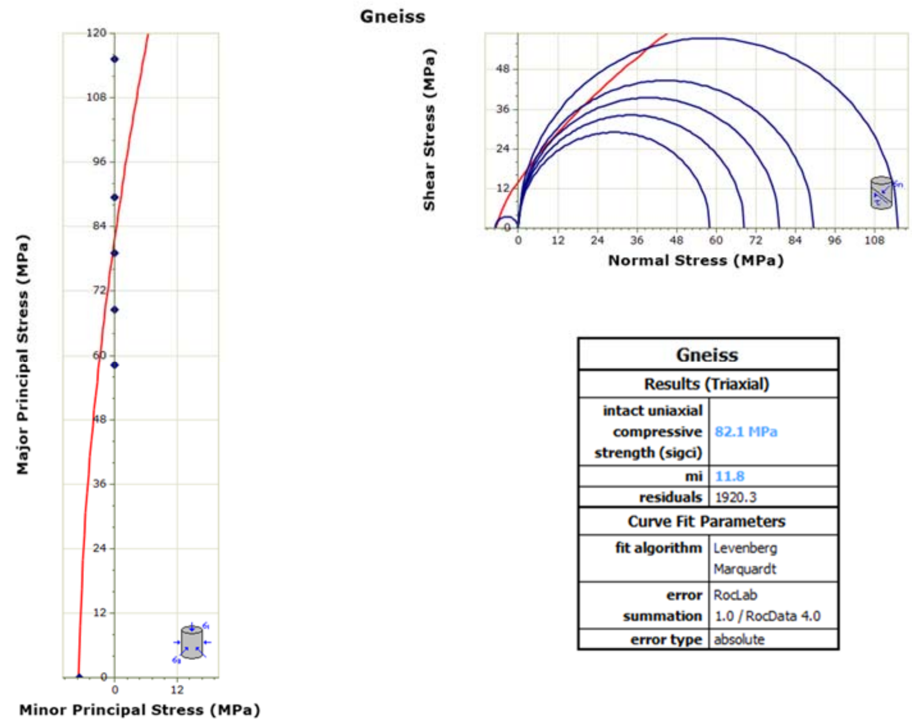
SRK-15D-01_UCS_04 B-14 106.1-106.42 Before



SRK-15D-01_UCS_04 B-14 106.1-106.42 After

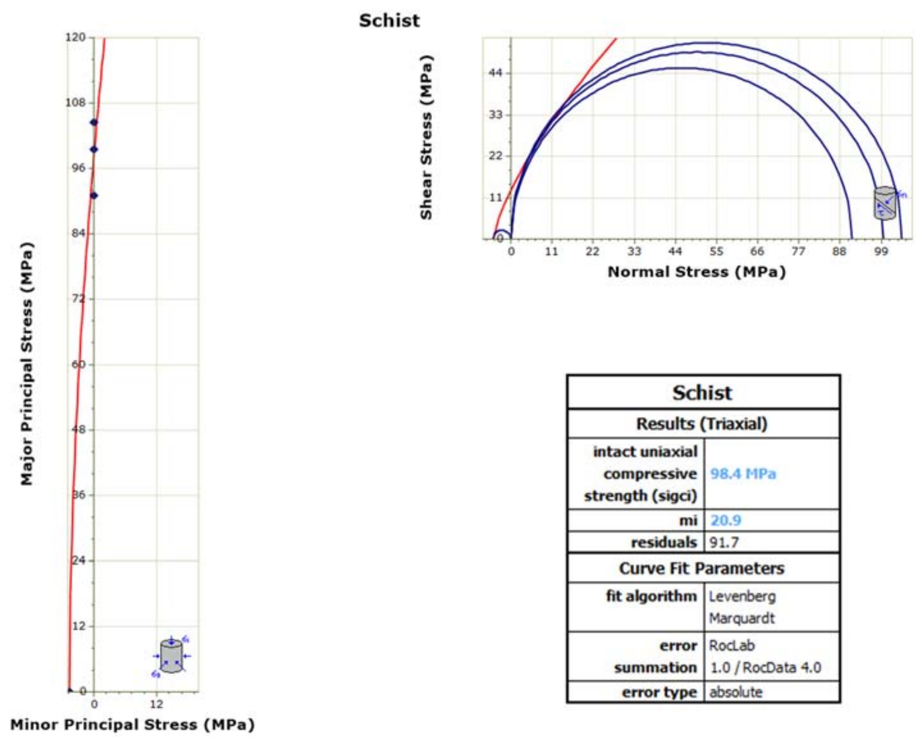
Figure E-1. Before and After Photographs of Splitting Tensile Strength (Brazilian) Test Specimens *(concluded)*

Appendix D: Intact Rock Strength Envelopes



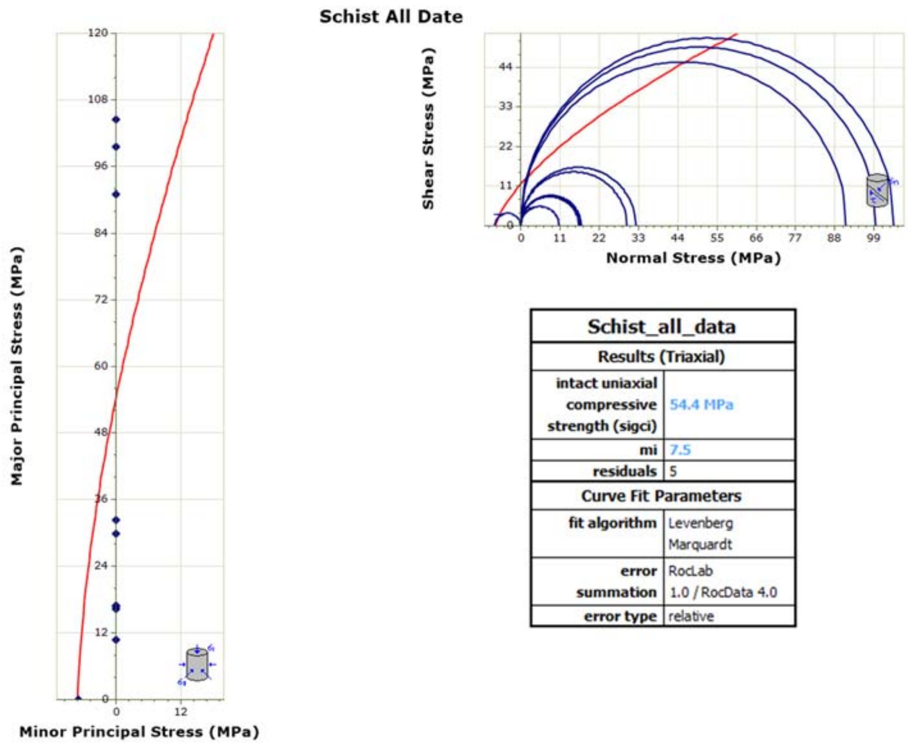
Gneiss	
Results (Triaxial)	
intact uniaxial compressive strength (sigci)	82.1 MPa
mi	11.8
residuals	1920.3
Curve Fit Parameters	
fit algorithm	Levenberg Marquardt
error summation	RocLab 1.0 / RocData 4.0
error type	absolute

Figure D-1: Envelopes of the intact rock for Gneiss



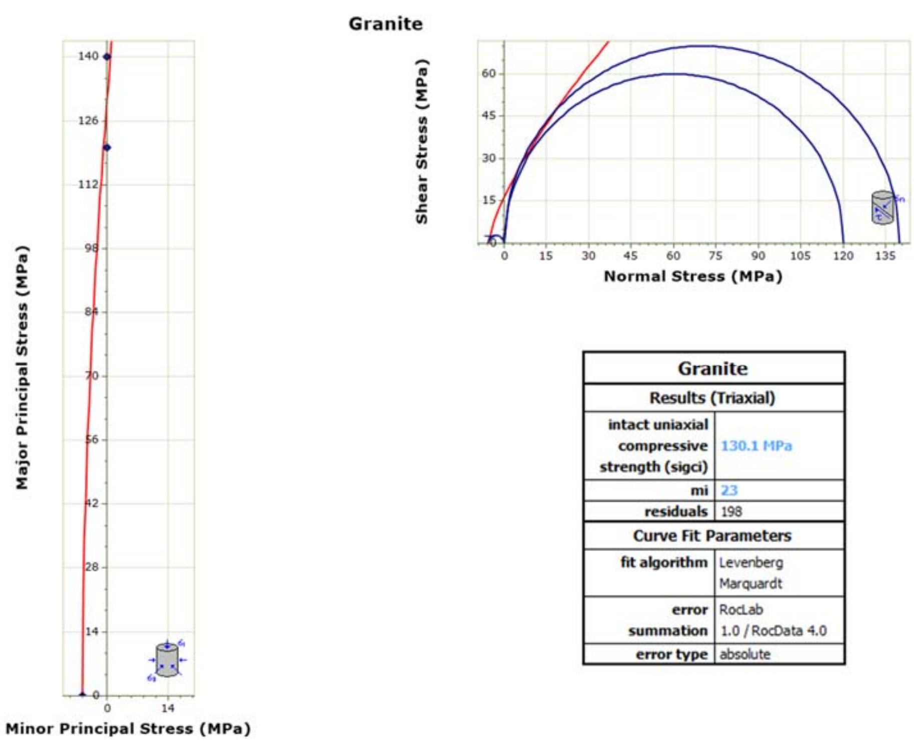
Schist	
Results (Triaxial)	
intact uniaxial compressive strength (sigci)	98.4 MPa
mi	20.9
residuals	91.7
Curve Fit Parameters	
fit algorithm	Levenberg Marquardt
error summation	RocLab 1.0 / RocData 4.0
error type	absolute

Figure D-2: Envelopes of the intact rock for Schist



Schist_all_data	
Results (Triaxial)	
intact uniaxial compressive strength (sigci)	54.4 MPa
mi	7.5
residuals	5
Curve Fit Parameters	
fit algorithm	Levenberg Marquardt
error summation	RocLab 1.0 / RocData 4.0
error type	relative

Figure D-3: Envelopes of the intact rock for Schist all data



Granite	
Results (Triaxial)	
intact uniaxial compressive strength (sigci)	130.1 MPa
mi	23
residuals	198
Curve Fit Parameters	
fit algorithm	Levenberg Marquardt
error summation	RocLab 1.0 / RocData 4.0
error type	absolute

Figure D-4: Envelopes of the intact rock for Granite

Appendix E: GSI Histograms

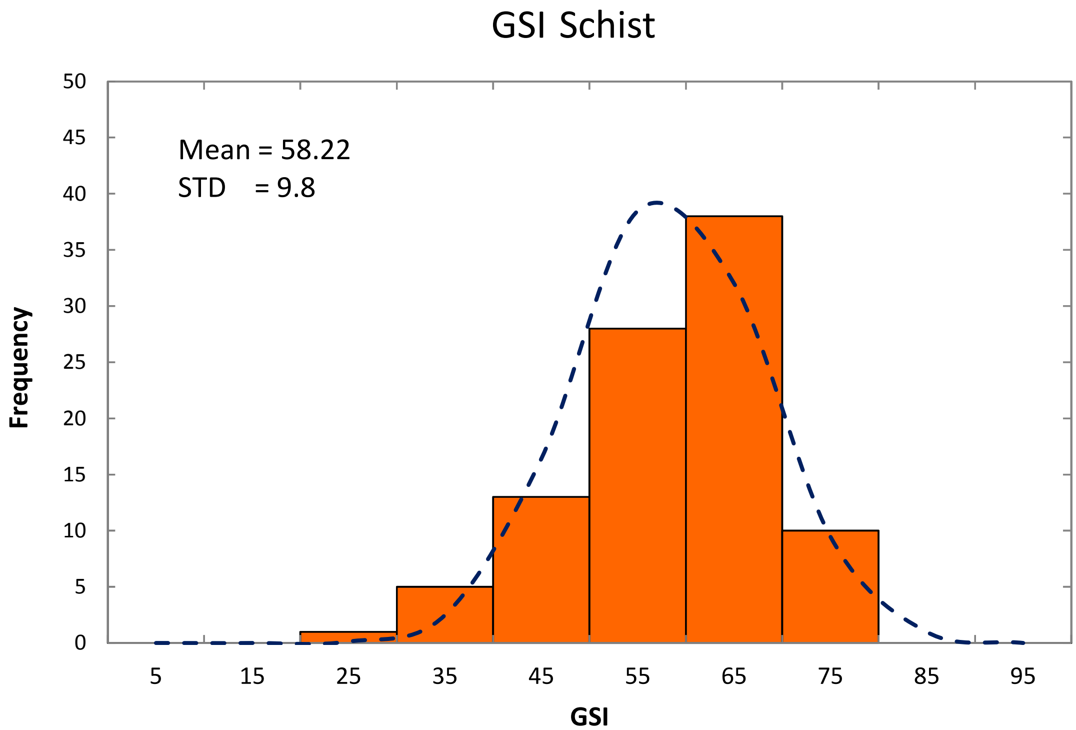


Figure E-1: GSI Histogram for Schist

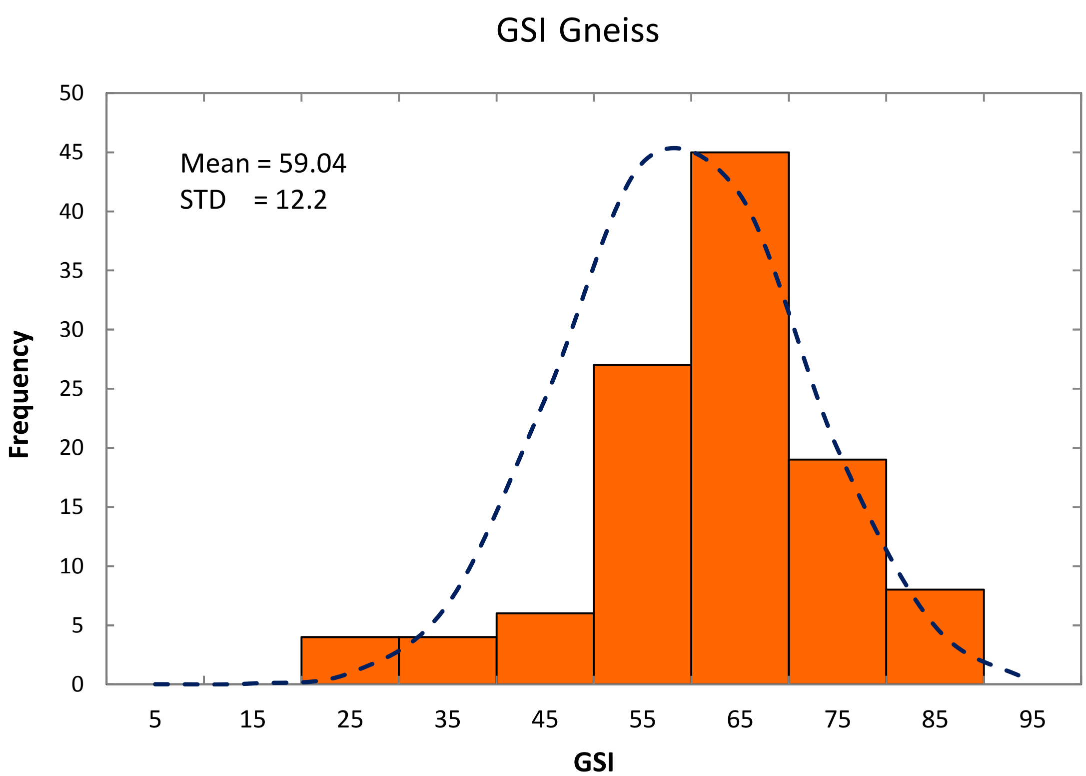


Figure E-2: GSI Histogram for Gneiss

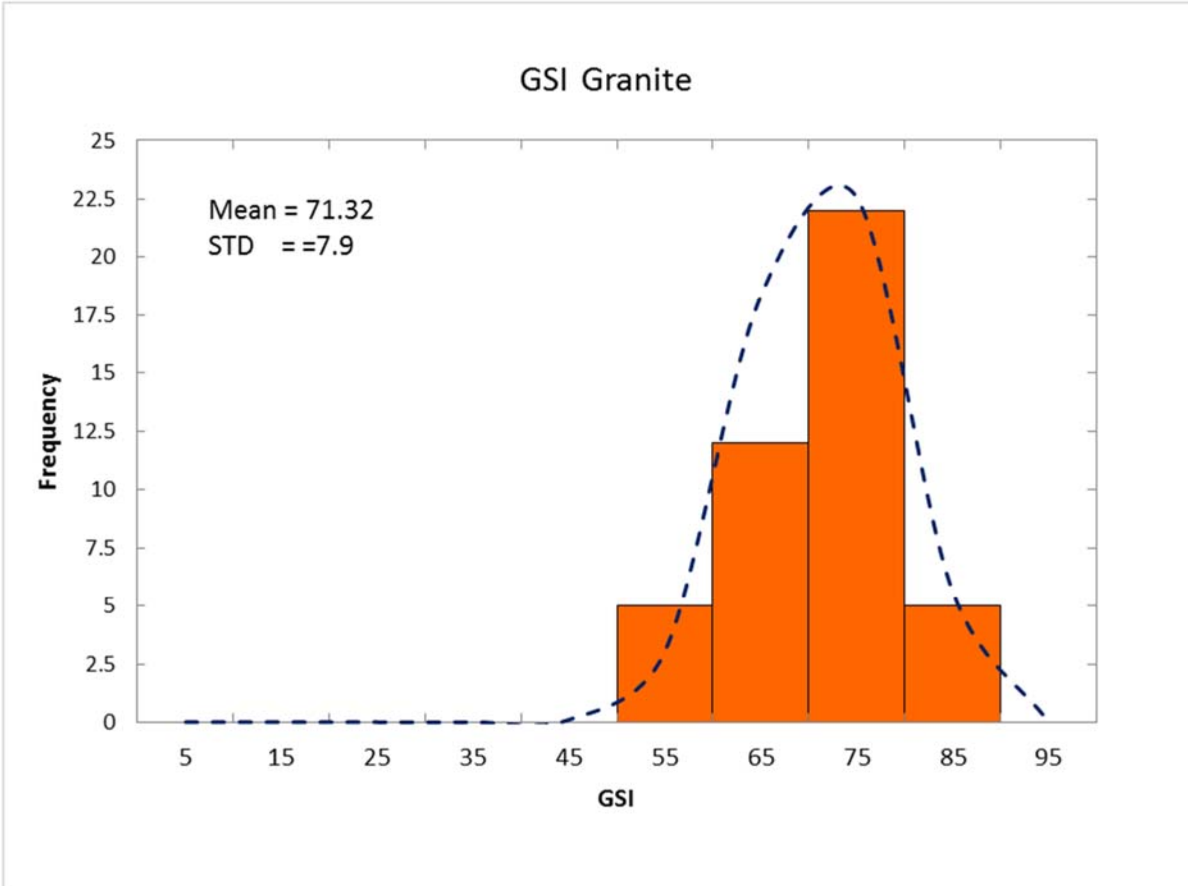


Figure E-3: GSI Histogram for Granite

Appendix F: Drillhole Stereonets

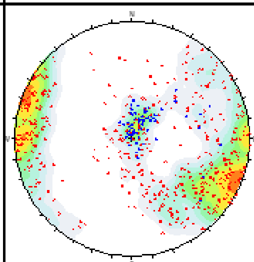
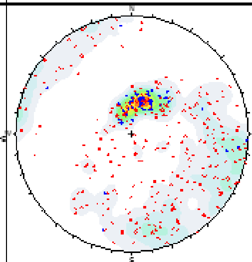
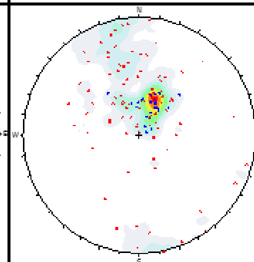
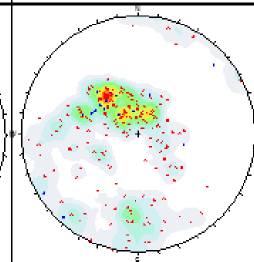
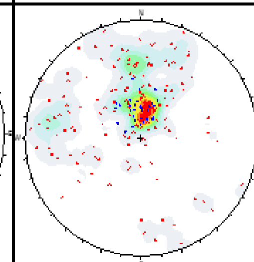
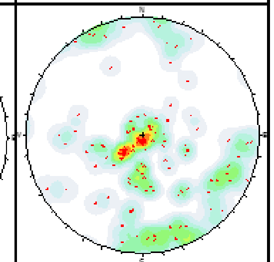
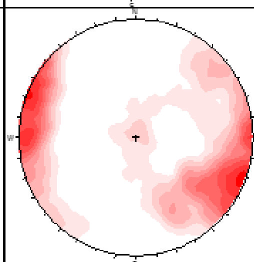
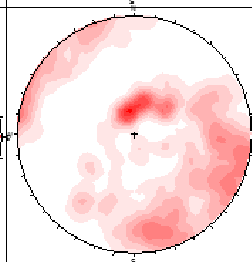
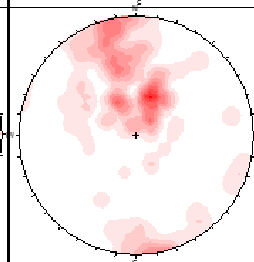
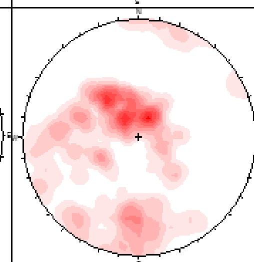
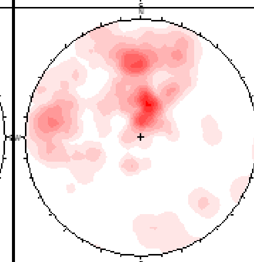
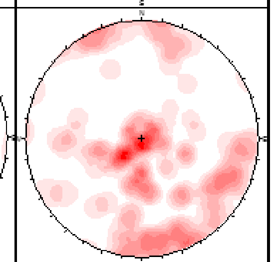
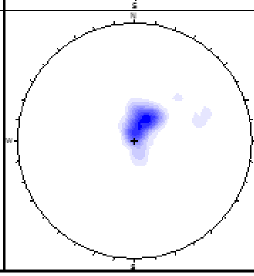
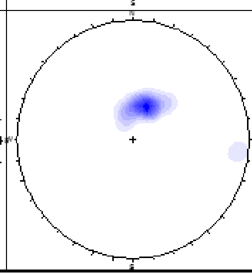
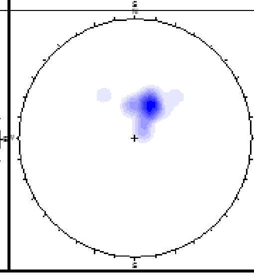
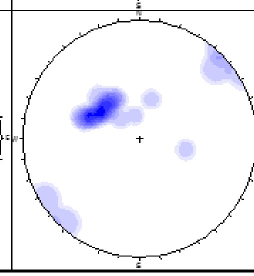
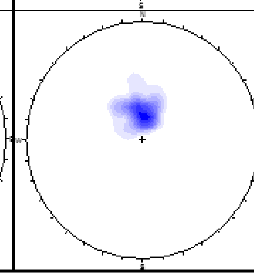
Type Structura	Deposit					
	SRK-15D-01 Pit Area Supr	SRK-15D-02 Pit Area Supremo	SRK-15D-03 Pit Area Latte	SRK-15D-04 Pit Area Latte	SRK-15D-05 Pit Area DouDou	SRK-15D-06 Pit Area Kona
All Data						
Joint						
Foliation						

Figure F-1: Structural Domains at the Kaminak Project

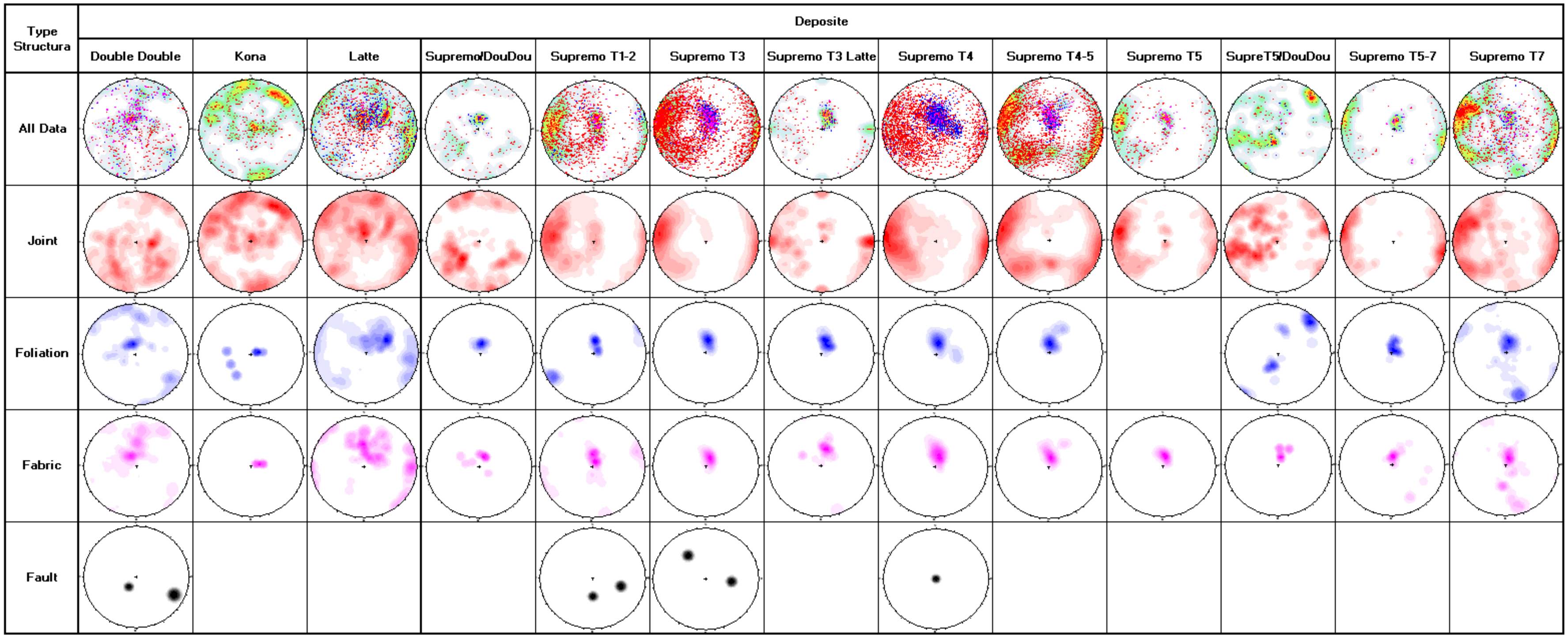


Figure F-2: Structural Domain Kona

Appendix G: Structural Domain Analyses

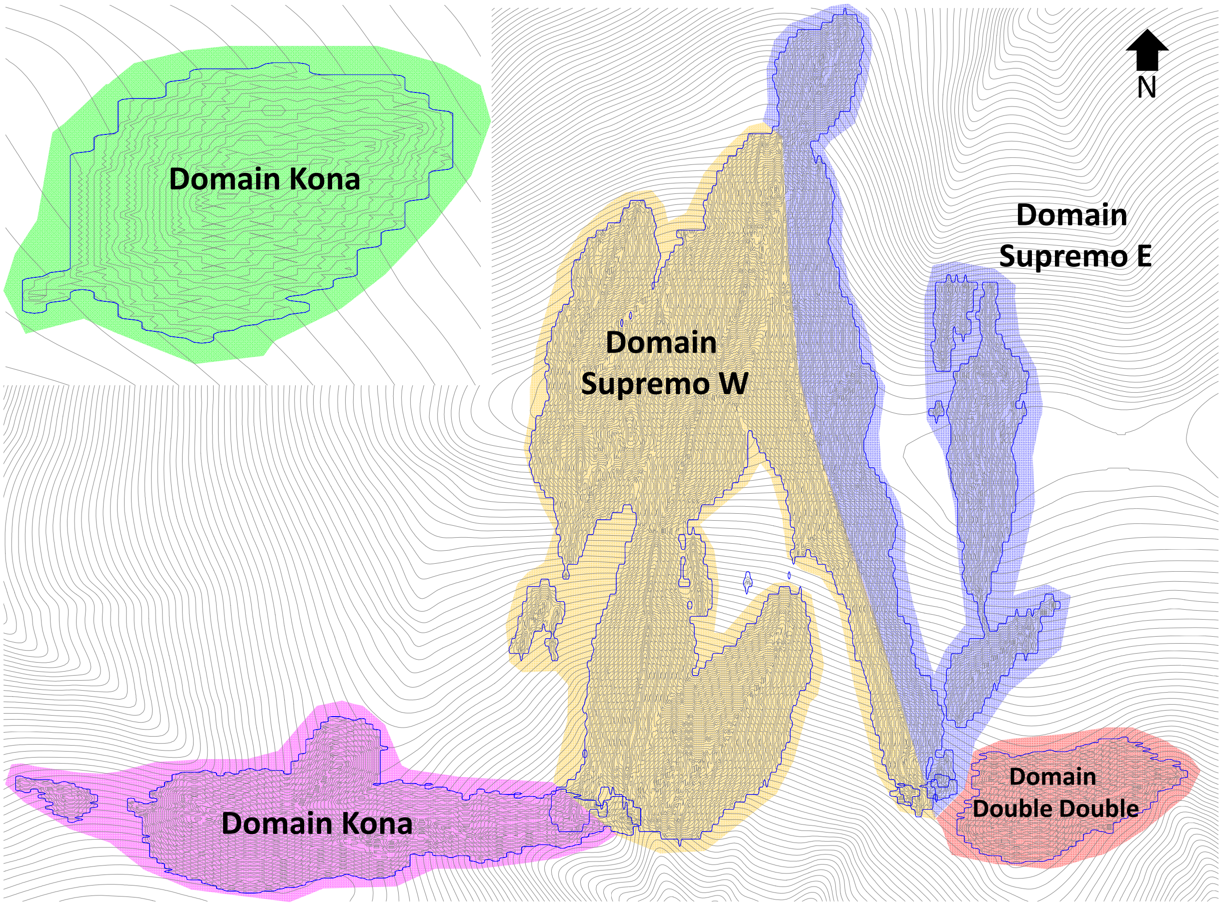
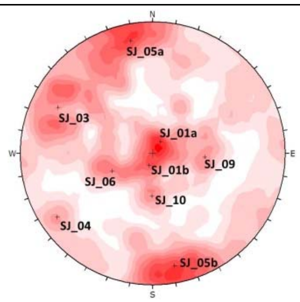
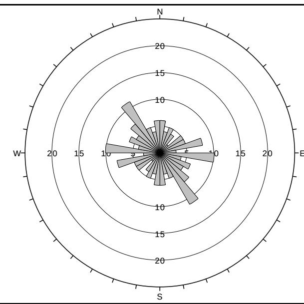
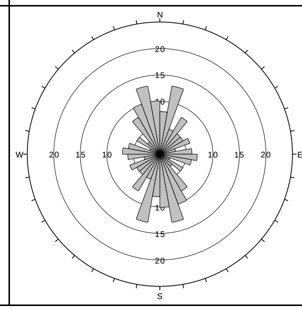
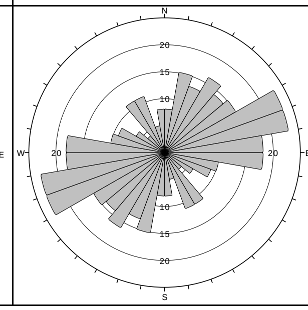


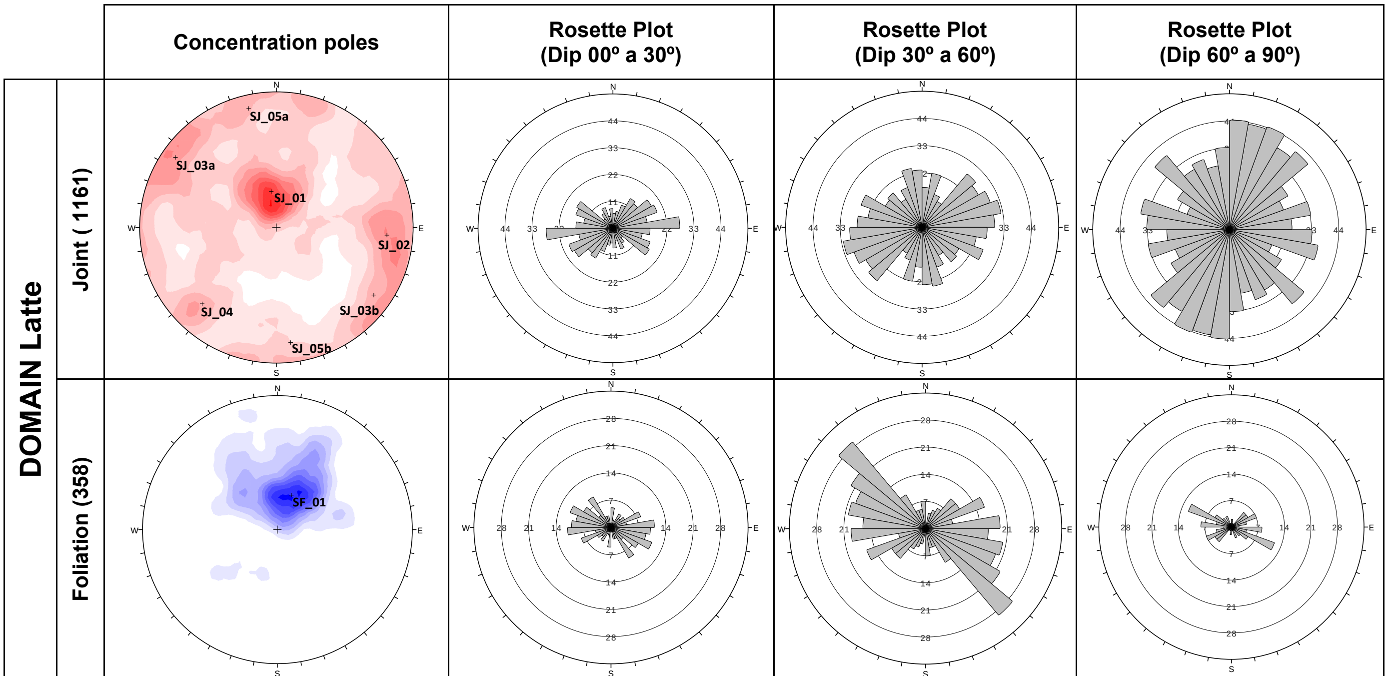
Figure G-1: Structural Domains at the Kaminak Project

		Concentration poles	Rosette Plot (Dip 00º a 30º)	Rosette Plot (Dip 30º a 60º)	Rosette Plot (Dip 60º a 90º)
DOMAIN Kona	Joint (439)				

Notas : White represents concentrations poles <0.5%
The color intense represent concentration poles> 1.0% or 1.5%.

Set	Dip			Dip Dir			Clusters conc	N° Polos.	% Ocurrence		Total	
	Mean	Range		Mean	Range				Relativa	Real	Entries	Poles
SJ_01a	12	23	5	214	160	270	> 1.5 %	28	12	6.4		
SJ_03	77	63	90	116	97	131	> 1.5 %	35	15	8.0		
SJ_04	82	70	90	56	40	70	> 1.0 %	11	5	2.5		
SJ_05a	82	70	90	169	150	189	> 1.5 %	37	16	8.4		
SJ_05b	82	74	90	349	330	9	> 1.5 %	30	13	6.8	439	439
SJ_06	37	20	54	66	40	89	> 1.5 %	30	13	6.8		
SJ_09	43	30	56	274	260	290	> 1.0 %	16	7	3.6		
SJ_10	36	23	52	1	23	341	> 1.0 %	22	10	5.0		
SJ_11	11	5	20	17	75	331	> 1.5 %	18	8	4.1		

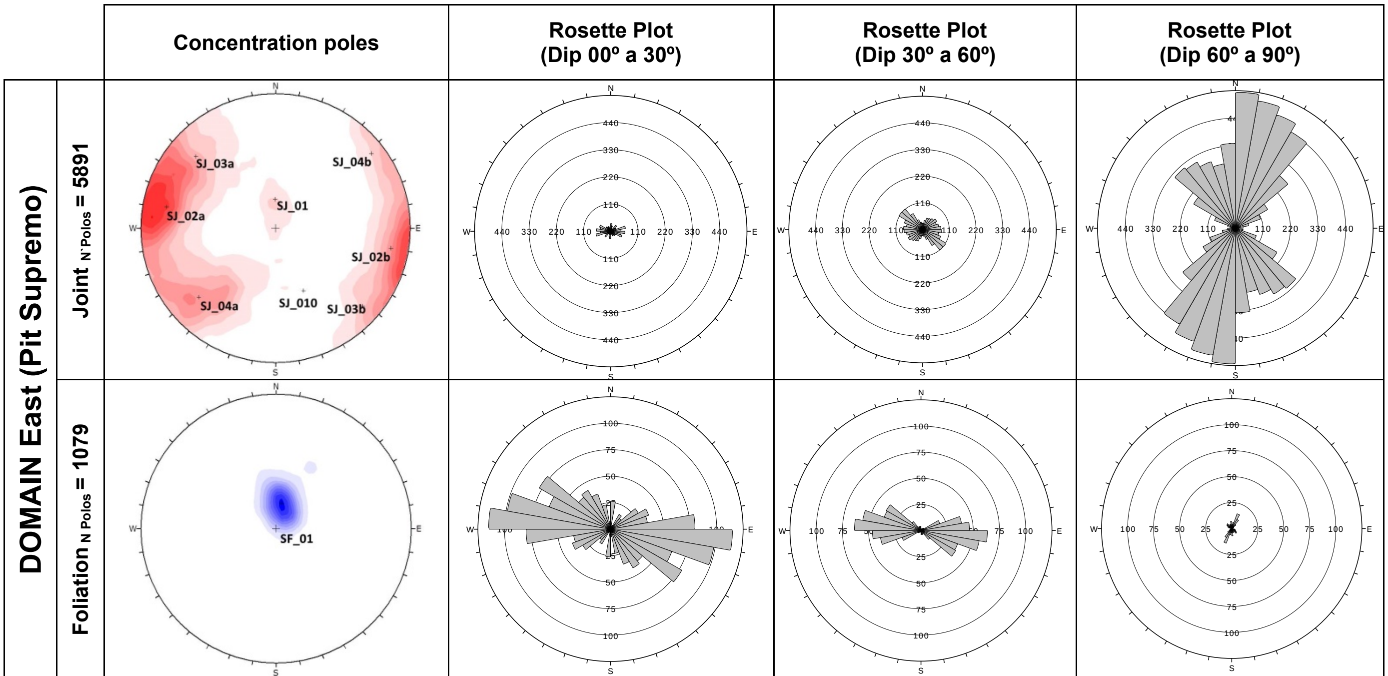
Figure G-2: Structural Domain Kona



Notas : White represents concentrations poles <0.5%
The color intense represent concentration poles> 1.5%.

Set	Dip			Dip Dir			Clusters conc	N° Polos.	% Ocurrence		Total	
	Mean	Range		Mean	Range				Relativa	Real	Entries	Poles
SJ_01	30	12	50	172	140	210	> 1.5 %	197	41	17		
SJ_02	78	63	90	274	260	290	> 1.5 %	75	16	6.5		
SJ_03a	84	76	90	125	110	140	> 1.5 %	48	10	4.1		
SJ_03b	82	70	90	304	290	320	> 1.5 %	41	9	3.5	1161	1161
SJ_04	76	64	90	44	29	58	> 1.5 %	49	10	4.2		
SJ_05a	81	70	90	353	7	333	> 1.5 %	33	7	2.8		
SJ_05b	84	75	90	167	153	187	> 1.5 %	36	8	3.1		
SF_01	31	10	50	202	160	238	> 5.0 %	153	100	42.7	358	358

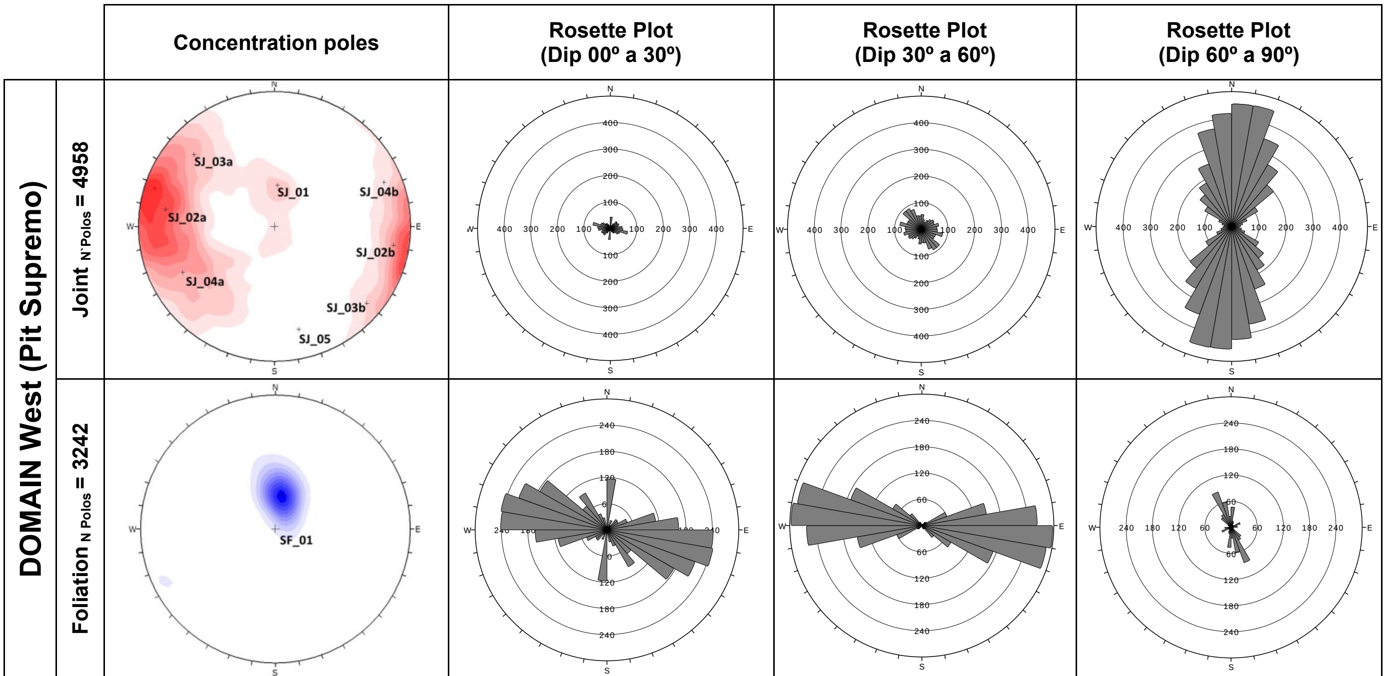
Figure G-3: Structural Domain Latte



Notas : White represents concentrations poles <0.5%
The color intense represent concentration poles > 1.5%.

Set	Dip			Dip Dir			Clusters conc	N° Polos.	% Ocurrence		Total	
	Mean	Range		Mean	Range				Relative	Real	Entries	Poles
SJ_01	24	10	40	179	150	210	> 1.5 %	225	5.7	3.8	5891	5891
SJ_02a	79	60	90	101	80	120	> 1.5 %	1276	32.1	21.7		
SJ_02b	82	70	90	280	260	300	> 1.5 %	549	13.8	9.3		
SJ_03a	77	60	90	132	120	155	> 1.5 %	593	14.9	10.1		
SJ_03b	82	70	90	312	300	335	> 1.5 %	299	7.5	5.1		
SJ_04a	75	60	90	48	30	65	> 1.5 %	784	19.7	13.3		
SJ_04b	84	70	90	232	210	245	> 1.5 %	177	4.5	3.0		
SJ_10	54	40	70	336	320	350	> 1.5 %	71	1.8	1.2		
SF_01	22	37	7	192	230	155	> 4.0 %	591	---	54.8	1079	1079

Figure G-4: Structural Domain Supremo East

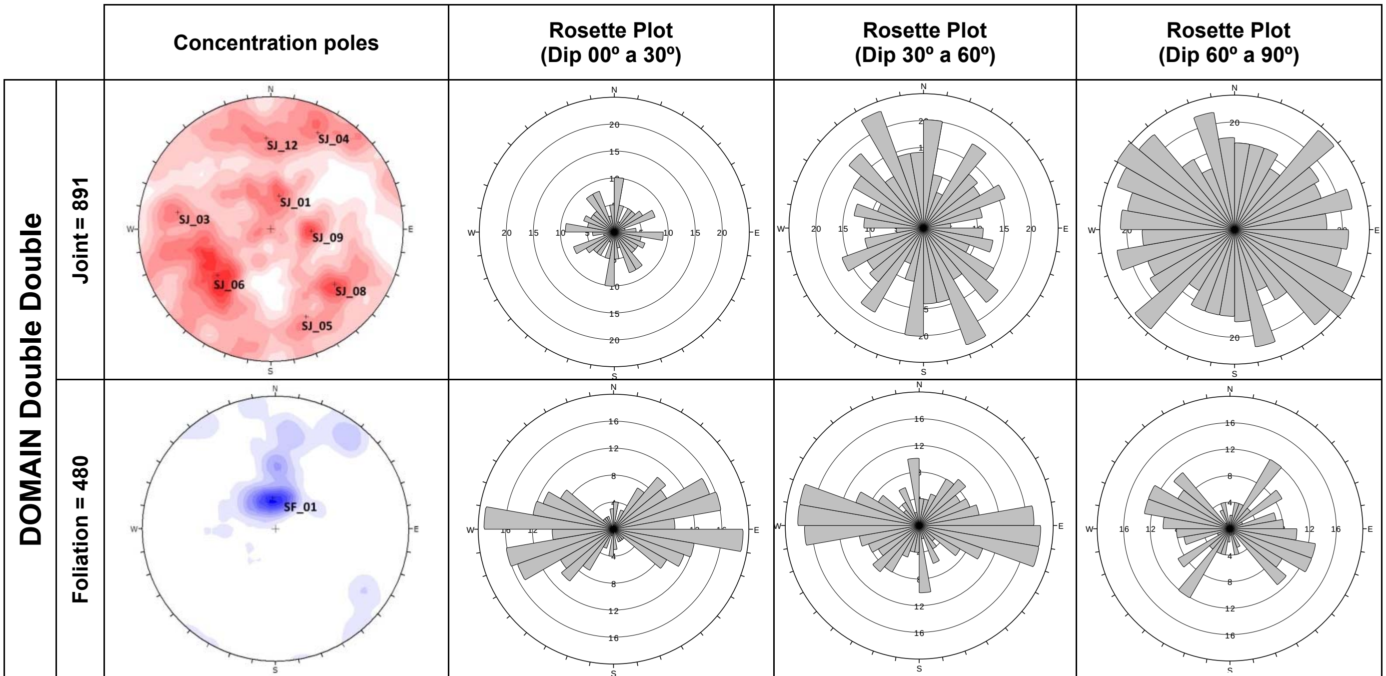


Notas : White represents concentrations poles <0.5%
The color intense represent concentration poles > 1.5%.

Set	Dip			Dip Dir			Clusters conc	N° Polos.	% Ocurrence		Total	
	Mean	Range		Mean	Range				Relative	Real	Entries	Poles
SJ_01	34	20	50	184	160	215	> 1.0 %	284	8	6	4958	4958
SJ_02a	78	60	90	99	80	120	> 2.0 %	1247	36	25		
SJ_02b	83	70	90	279	260	300	> 0.5 %	345	10	7		
SJ_03a	77	60	90	132	120	150	> 1.0 %	423	12	9		
SJ_03b	83	70	90	310	300	330	> 0.5 %	138	4	3		
SJ_04a	74	60	90	63	40	80	> 1.5 %	833	24	17		
SJ_04b	82	70	90	248	220	260	> 0.5 %	148	4	3		
SJ_05	76	62	90	347	7	330	---	55	2	1		
SF_01	29	15	45	190	160	225	> 15 %	1867	---	58	3242	3242

Figura -1: Iso-concentraciones de polos y rosetas de rumbo para el **Dominio I**, categorizadas de acuerdo a su dip.

Figure G-5: Structural Domain Supremo West



Notas : White represents concentrations poles <0.5%
The color intense represent concentration poles > 1.5%.

Set	Dip			Dip Dir			Clusters conc	N° Polos.	% Ocurrence		Total	
	Mean	Range		Mean	Range				Relative	Real	Entries	Poles
SJ_01	29	15	45	194	165	355	> 1.5 %	39	13	6	653	653
SJ_03	71	56	84	100	88	113	> 1.5 %	25	8	3.8		
SJ_04	78	62	90	206	191	221	> 1.5 %	31	10	4.7		
SJ_05	71	55	83	338	325	355	> 1.5 %	30	10	4.6		
SJ_06	56	40	70	49	26	72	> 1.5 %	75	25	11.5		
SJ_08	65	50	76	311	298	325	> 1.5 %	35	12	5.4		
SJ_09	34	22	46	273	255	295	> 1.5 %	29	10	4.4		
SJ_12	69	54	82	177	161	191	> 1.5 %	36	12	5.5		
SF_01	26	12	43	175	135	221	> 4.0 %	138	---	35.7	387	387

Figure G-6: Structural Domain Supremo West

Appendix H: Discontinuity Spacing Histograms

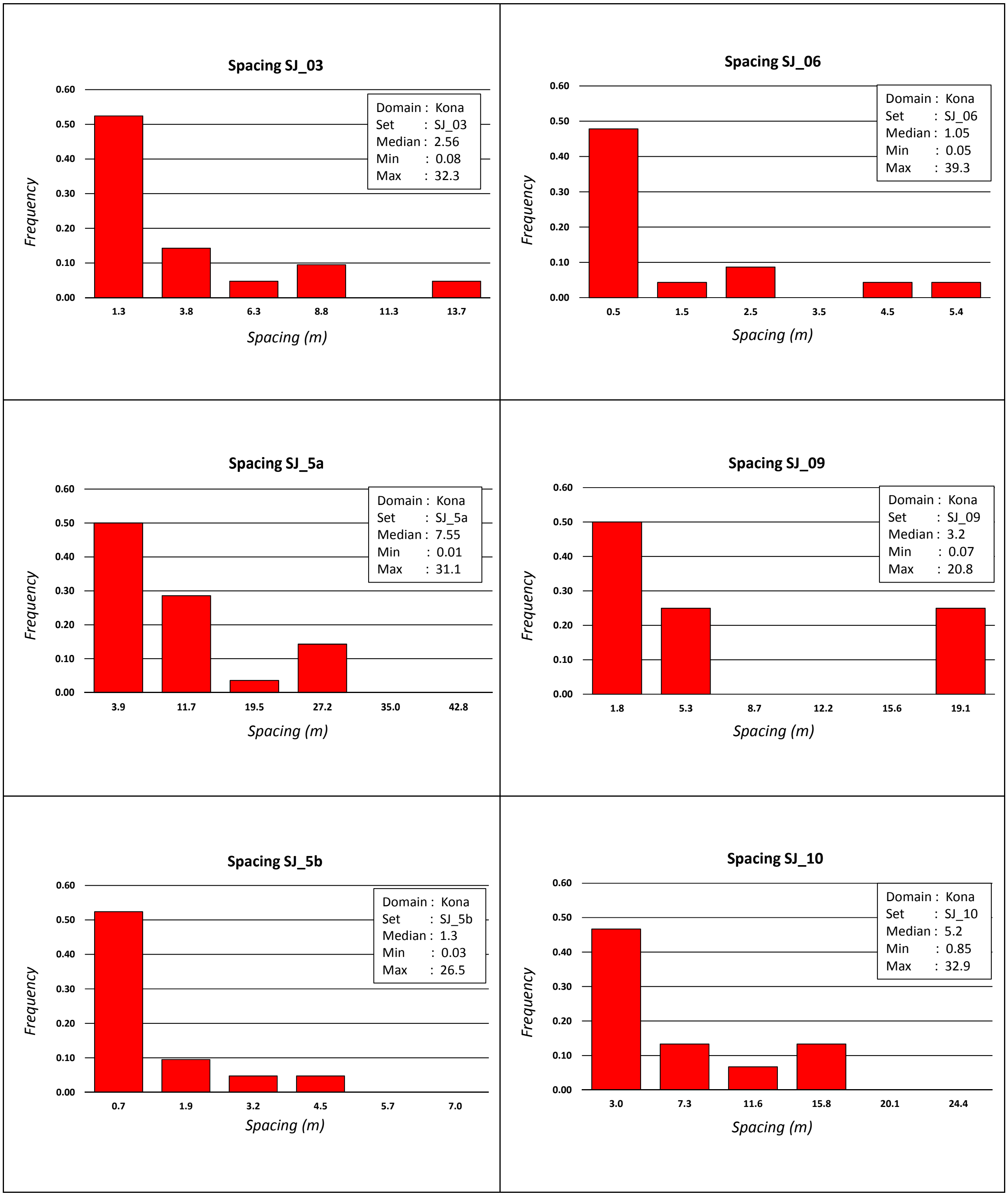


Figure H-1: Spacing Histogram Kona Domain at the Kaminak Project

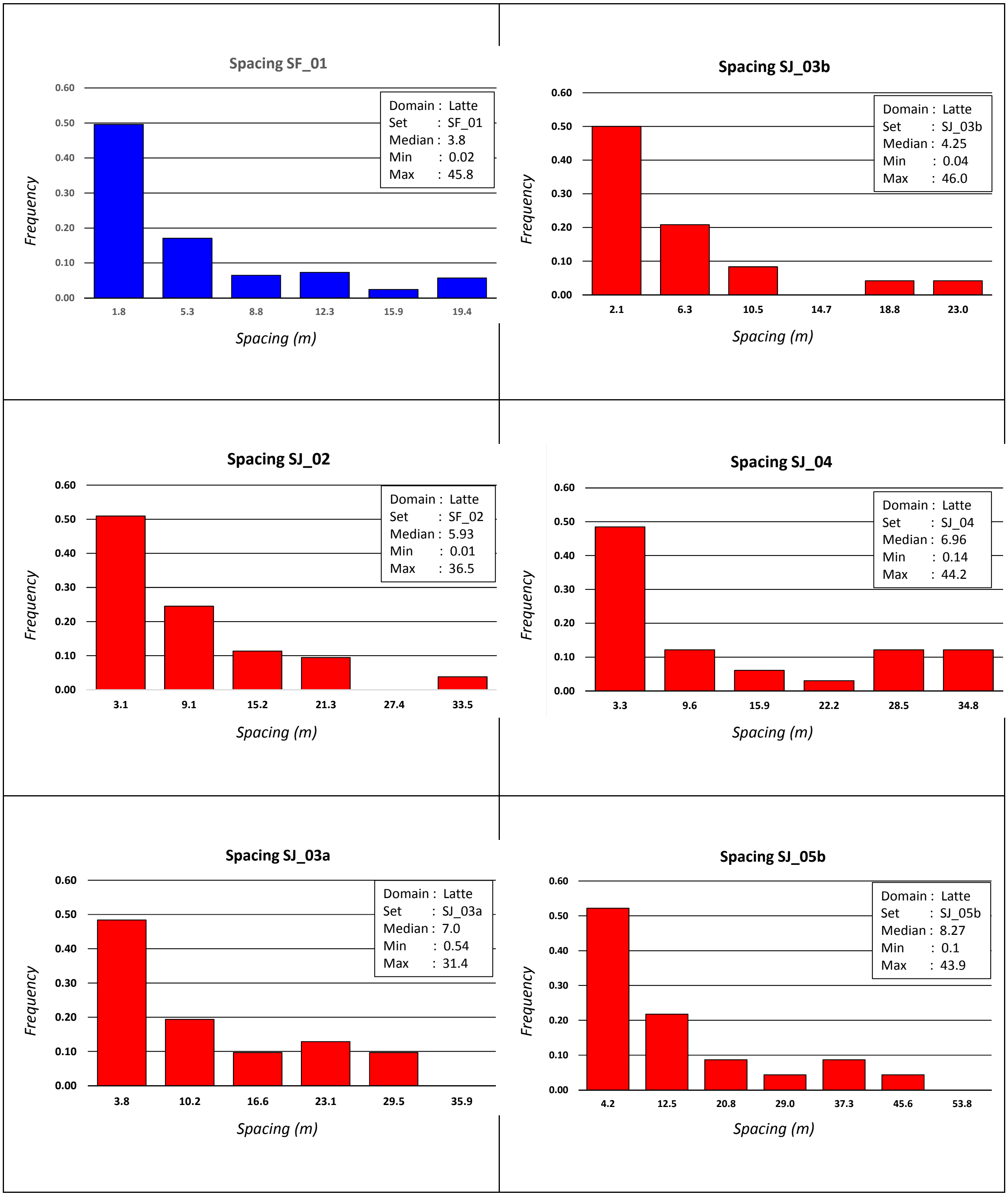


Figure H-2: Spacing Histogram Latte Domain at the Kaminak Project

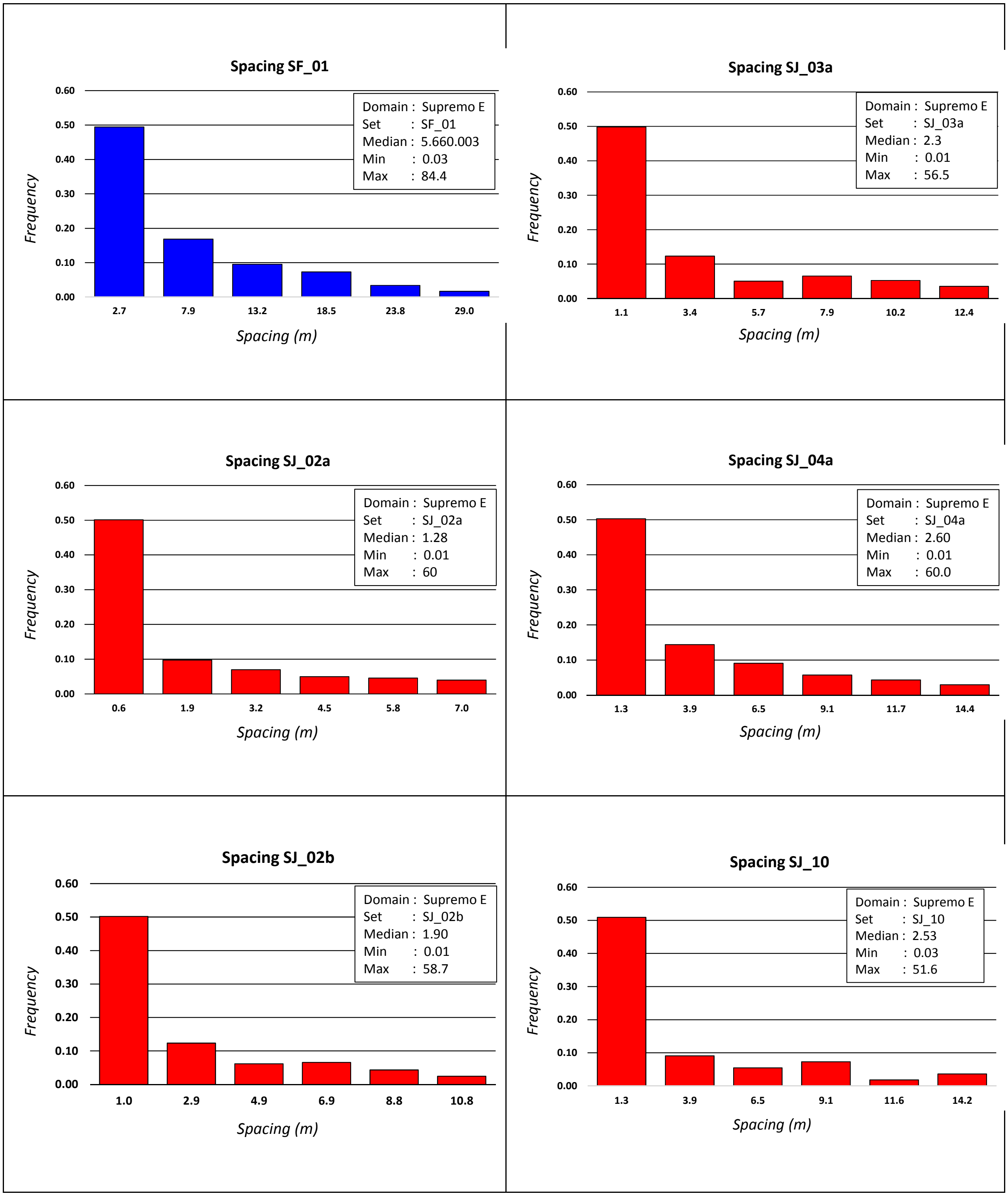


Figure H-3: Spacing Histogram Supremo East Domain at Kaminak Project

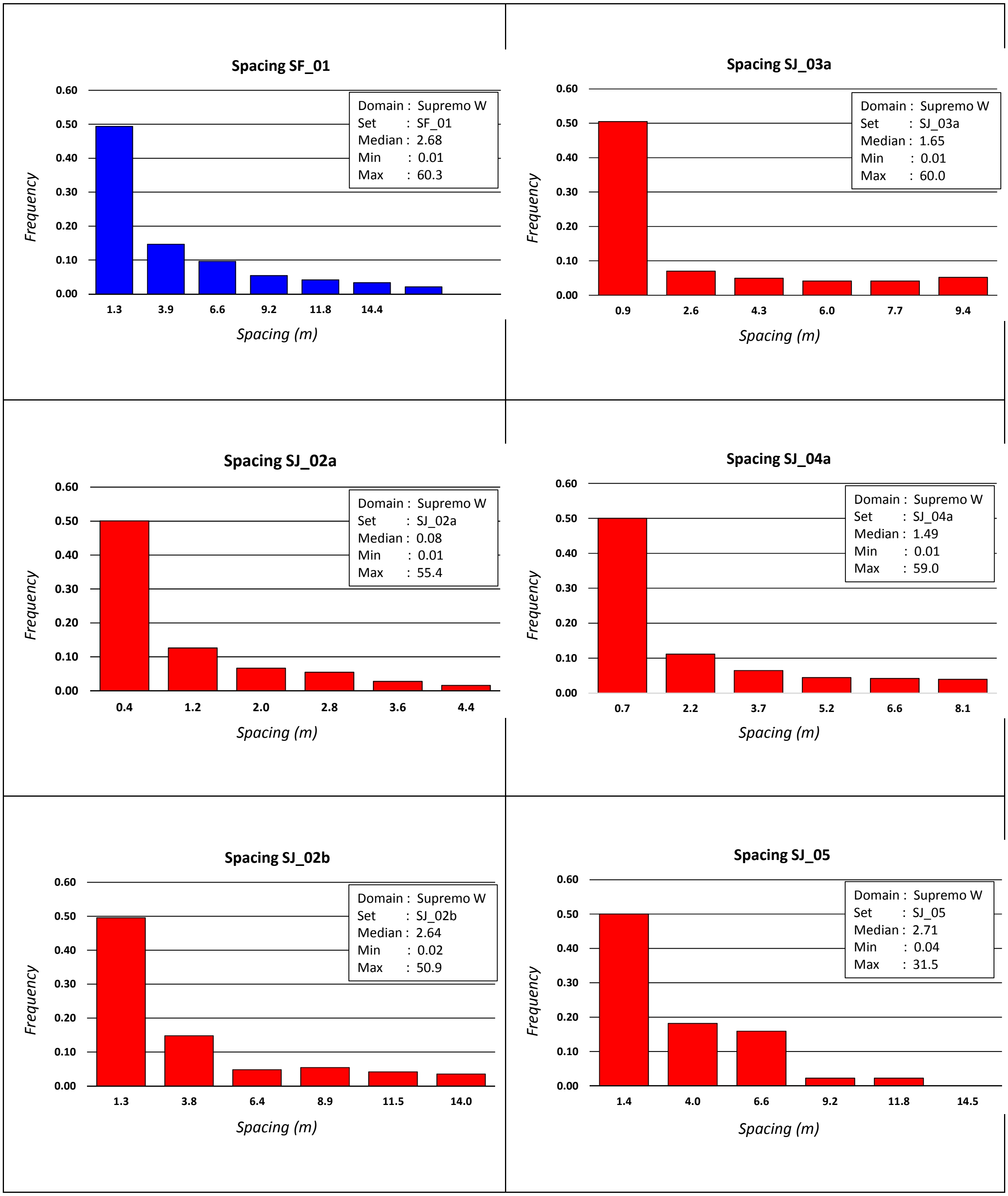


Figure H-4: Spacing Histogram Supremo West Domain at Kaminak Project

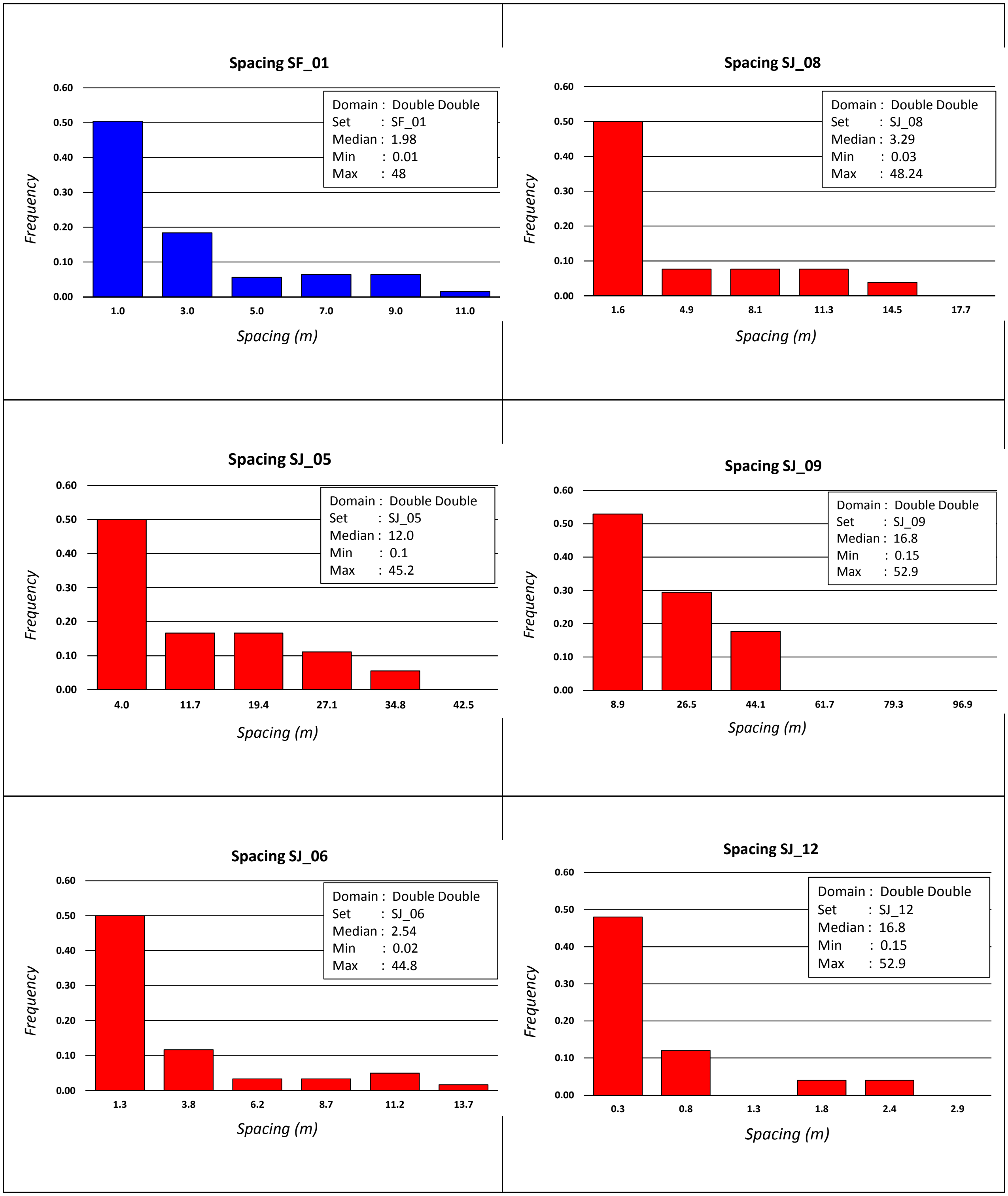


Figure H-5: Spacing Histogram Double Double Domain at Kaminak Project

Appendix I: Kinematic Analyses

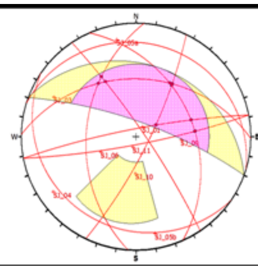
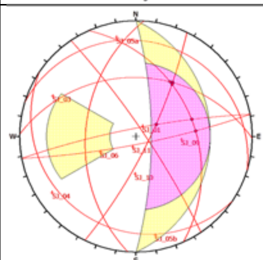
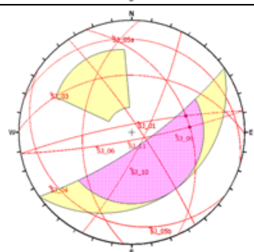
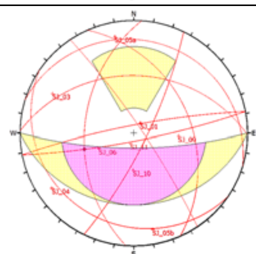
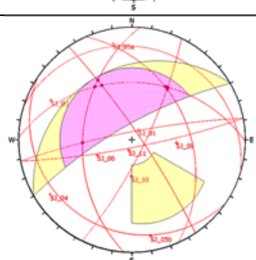
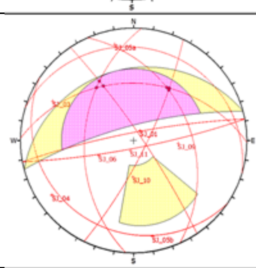
Pit	Slope	Structure										Type Block		
		Stereonet	SJ_1	SJ_3	SJ_4	SJ_5a	SJ_5b	SJ_6	SJ_9	SJ_10	SJ_11	DP	SW	T
Kona	20			X	X	X	X	X	X	X_{DP}		✓	✓	
	90			X_{DP}		X	X	X_{DP}		X		✓	✓	
	145					X	X_T	X					✓	✓
	180					X	X_T		X				✓	✓
	330			X	X	X_T	X	X	X	X_{DP}		✓	✓	✓
	345			X	X			X	X	X_{DP}		✓	✓	
		Joint Activity	0%	67%	33%	67%	50%	83%	67%	67%	0%			

Figure I-1: Kinematic Analysis Kona Domain

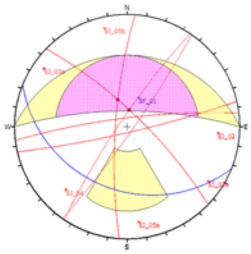
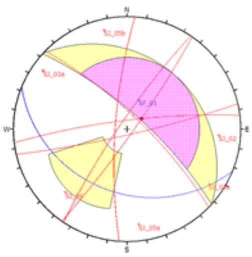
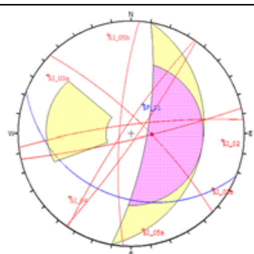
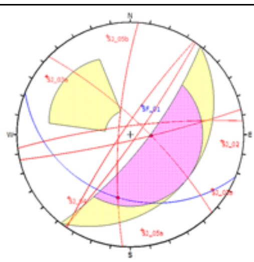
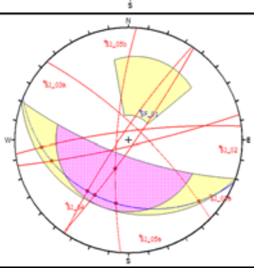
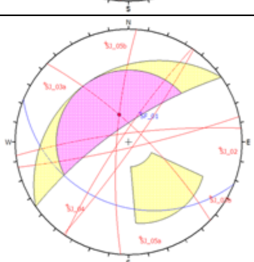
Pit	Slope	Structure								Type Block		
		Stereonet	SF_1	SJ_2	SJ_3a	SJ_3b	SJ_4	SJ_5a	SJ_5b	DP	SW	T
Latte	0			X		X	X		X_T		✓	✓
	15			X		X	X		X_T		✓	✓
	20			X		X	X				✓	
	40				X			X_T			✓	
	100			X_T		X_T	X		X		✓	
	130		X	X		X_T	X		X		✓	✓
	175		X_{SP}	X	X	X		X_T		✓	✓	✓
	190		X_{SP}	X	X	X		X_T		✓	✓	✓
	200		X_{SP}	X	X	X	X_T	X_T		✓	✓	✓
	210		X_{SP}	X	X	X	X_T		T	✓	✓	✓
	315			X	X_T		X				✓	✓
	325			X	X_T		X		X_T		✓	✓
		Joint Activity	42%	83%	42%	58%	58%	8%	25%			

Figure I-2: Kinematic Analysis Latte Domain

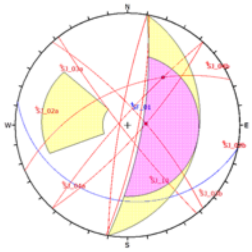
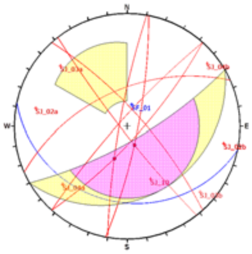
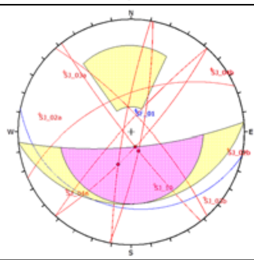
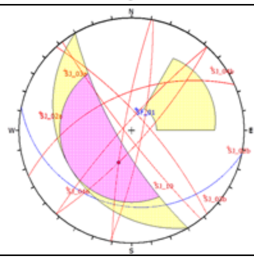
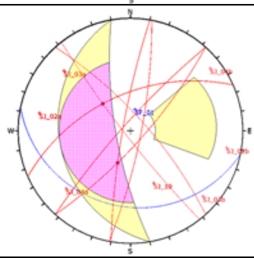
Pit	Slope	Structure									Type Block		
		Stereonet	SF_01	SJ_2a	SJ_2b	SJ_3a	SJ_3b	SJ_4a	SJ_4b	SJ_10	DP	SW	T
Supremo East	80			X_{SP}	X_T	X	X	X	X_T	X	✓	✓	✓
	100			X_{SP}	X_T	X_{SP}	X	X		X	✓	✓	✓
	150			X	X	X_{SP}	X_T		X		✓	✓	✓
	175		X_{SP}	X	X	X			X	X_T	✓	✓	✓
	240				X	X		X_T				✓	✓
	260			X_T	X	X			X	X		✓	✓

Figure I-3: Kinematic Analysis Supremo East Domain Part A

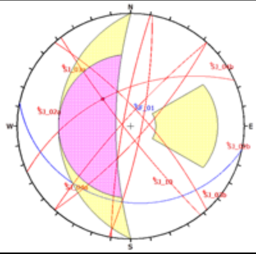
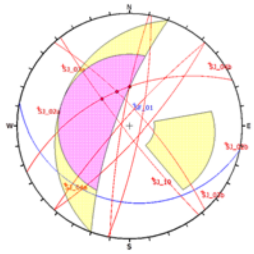
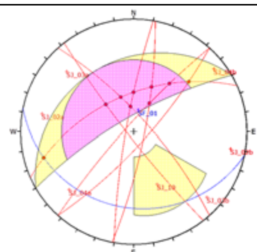
Pit	Slope	Structure									Type Block		
		Stereonet	SF_01	SJ_2a	SJ_2b	SJ_3a	SJ_3b	SJ_4a	SJ_4b	SJ_10	DP	SW	T
Supremo East	270			X_T					X	X		✓	✓
	290			X_T	X	X_T		X	X	X		✓	✓
	330			X	X	X_T	X	X	X	X_{SP}	✓		✓
		Joint Activity	11%	56%	67%	67%	33%	44%	67%	67%			

Figure I-4: Kinematic Analysis Supremo East Domain Part B

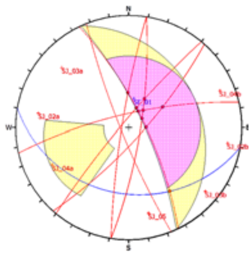
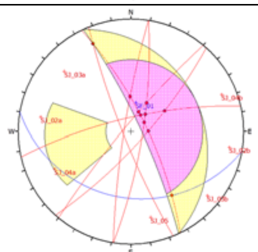
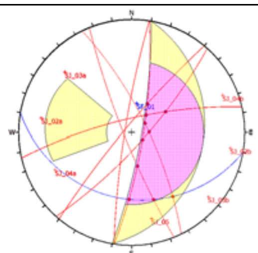
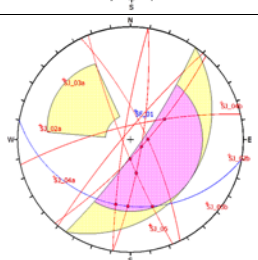
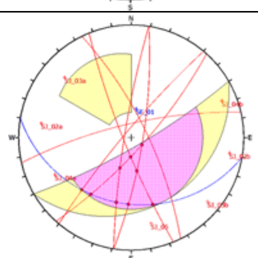
Pit	Slope	Structure									Type Block		
		Stereonet	SF_01	SJ_2a	SJ_2b	SJ_3a	SJ_3b	SJ_4a	SJ_4b	SJ_05	DP	SW	T
Supremo West	40			X	X	X	X	X_{SP}		X	✓	✓	
	65			X	X	X	X	X_{SP}	X_T	X	✓	✓	✓
	80			X_{SP}		X	X	X_{SP}	X_T	X	✓	✓	✓
	100			X_{SP}	X_T	X_{SP}		X_{SP}	X_T	X	✓	✓	✓
	125			X_{SP}	X_T	X_{SP}	X_T	X		X	✓	✓	✓
	150		X	X	X	X_{SP}	X_T		X	X_T	✓	✓	✓

Figure I-5: Kinematic Analysis Supremo West Domain Part A

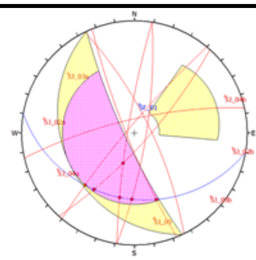
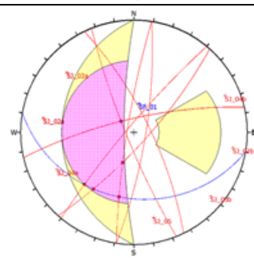
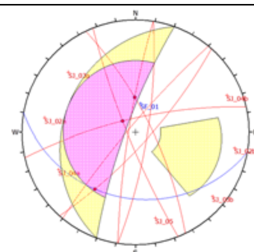
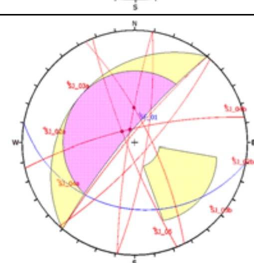
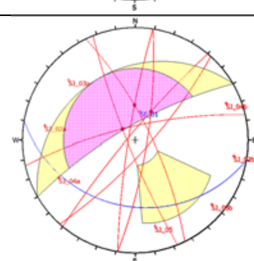
Pit	Slope	Structure									Type Block		
		Stereonet	SF_01	SJ_2a	SJ_2b	SJ_3a	SJ_3b	SJ_4a	SJ_4b	SJ_05	DP	SW	T
Supremo West	245		X	X	X	X		X_T	X			✓	✓
	270		X	X_T	X	X		X_T	X			✓	✓
	290		X	X_T	X	X_T		X	X	X		✓	✓
	310				X	X_T		X	X	X		✓	✓
	330			X	X	X_T	X	X	X	X_{SP}	✓	✓	✓
			36%	73%	73%	73%	36%	73%	55%	73%			

Figure I-6: Kinematic Analysis Supremo West Domain Part B

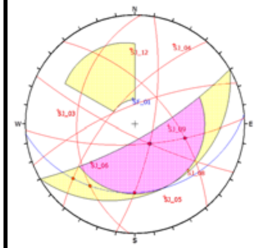
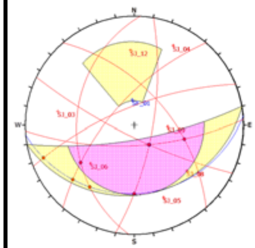
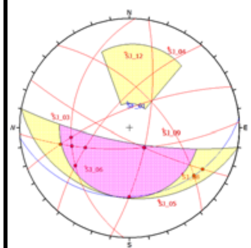
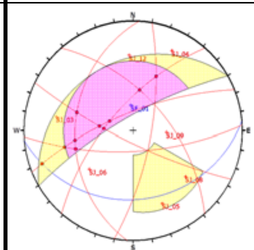
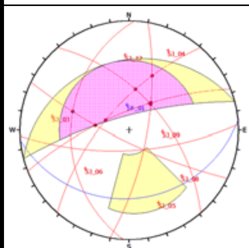
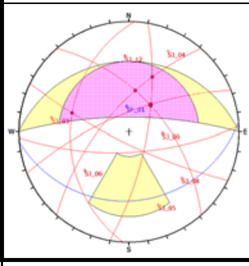
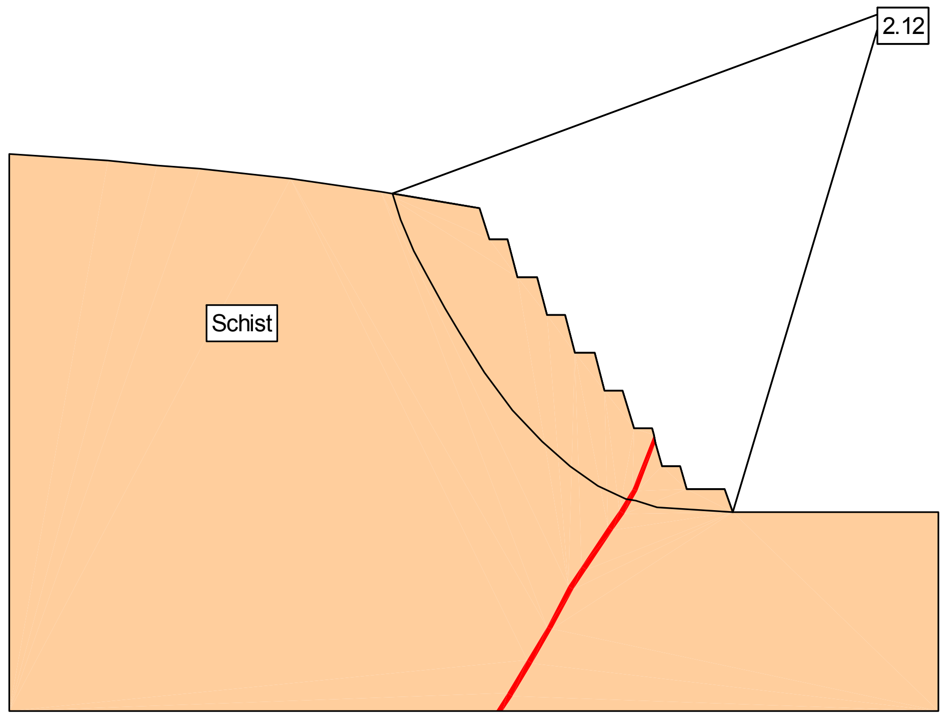
Pit	Slope	Structure									Type Block		
		Stereonet	SF_1	SJ_3	SJ_4	SJ_5	SJ_6	SJ_8	SJ_9	SJ_12	DP	SW	T
Double-Double	150		X_{DP}	X	X	X_T	X			X_{DP}	✓	✓	✓
	170		X_{DP}	X	X	X_T	X		X	X_{DP}	✓	✓	✓
	190		X_{DP}	X	X_{DP}	X		X	X	X_{DP}	✓	✓	
	330			X	X	X_{DP}	X	X_{DP}	X	X	✓	✓	
	345			X	X	X_{DP}	X	X_{DP}	X	X_T	✓	✓	✓
	360			X	X	X_{DP}	X_{DP}	X	X	X_T	✓	✓	✓
		Joint Activity	50%	100%	100%	67%	83%	67%	83%	67%			

Figure I-7: Kinematic Analysis Double Double Domain

Appendix J: Interramp/Overall Stability Analyses



Section L1 – Latte Pit

Overall

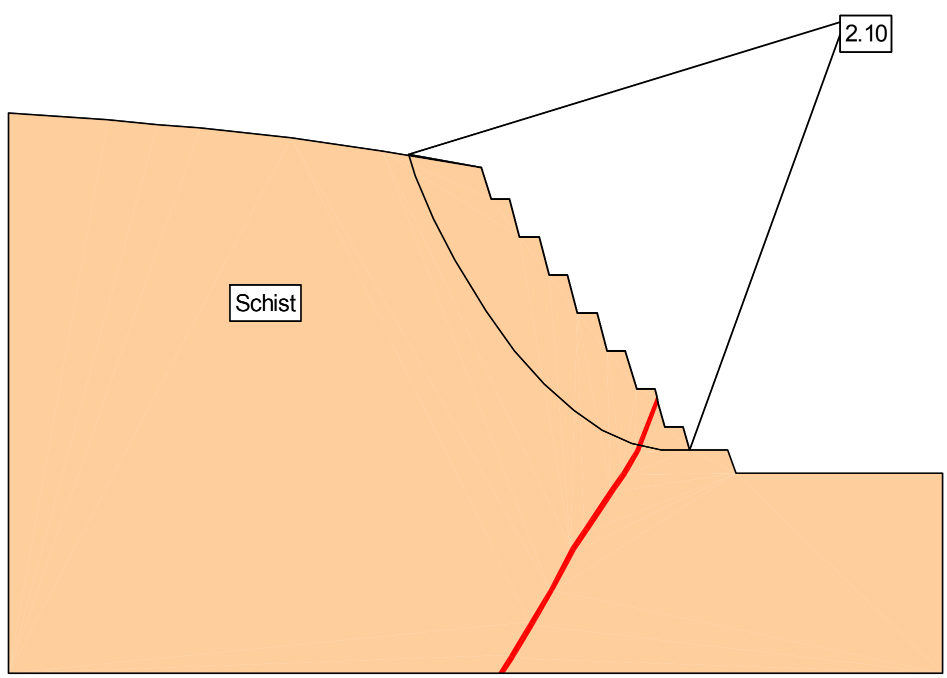
Schist

FS: 2.33

K: -

H: 162 m

α_G: 50°



Section L1 – Latte Pit

Interramp

Schist

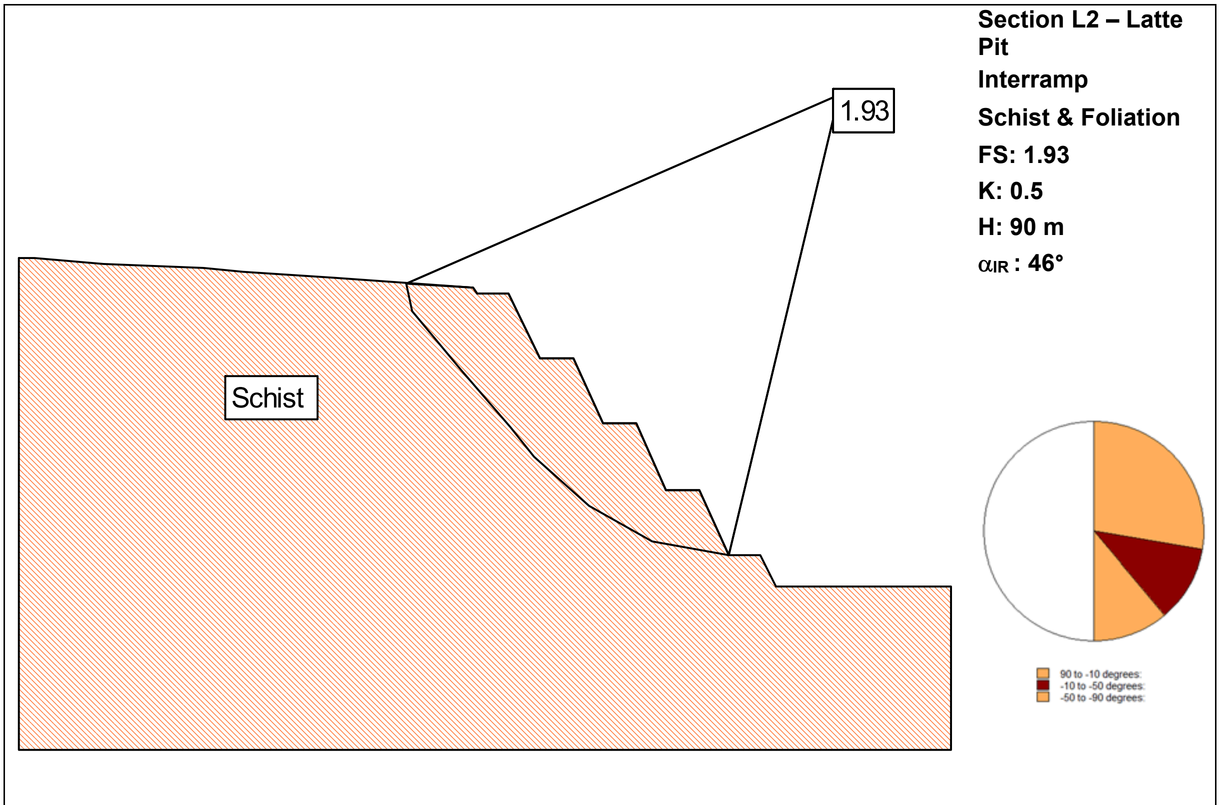
FS: 2.24

K:-

H : 150 m

α_{IR} : 53°

Figure J-1: Results of interramp/overall slope analyses – Section L1 – Latte Pit



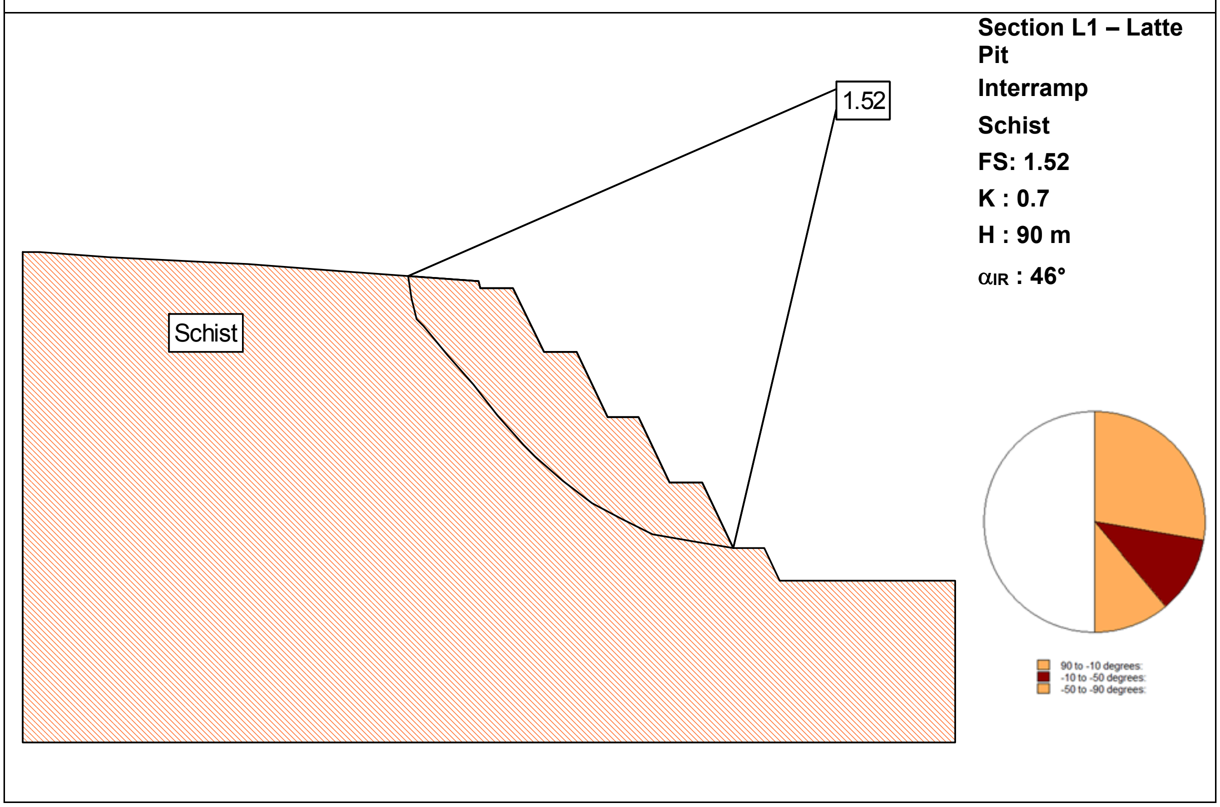


Figure J-2: Results of interramp/overall slope analyses – Section L1 – Latte Pit

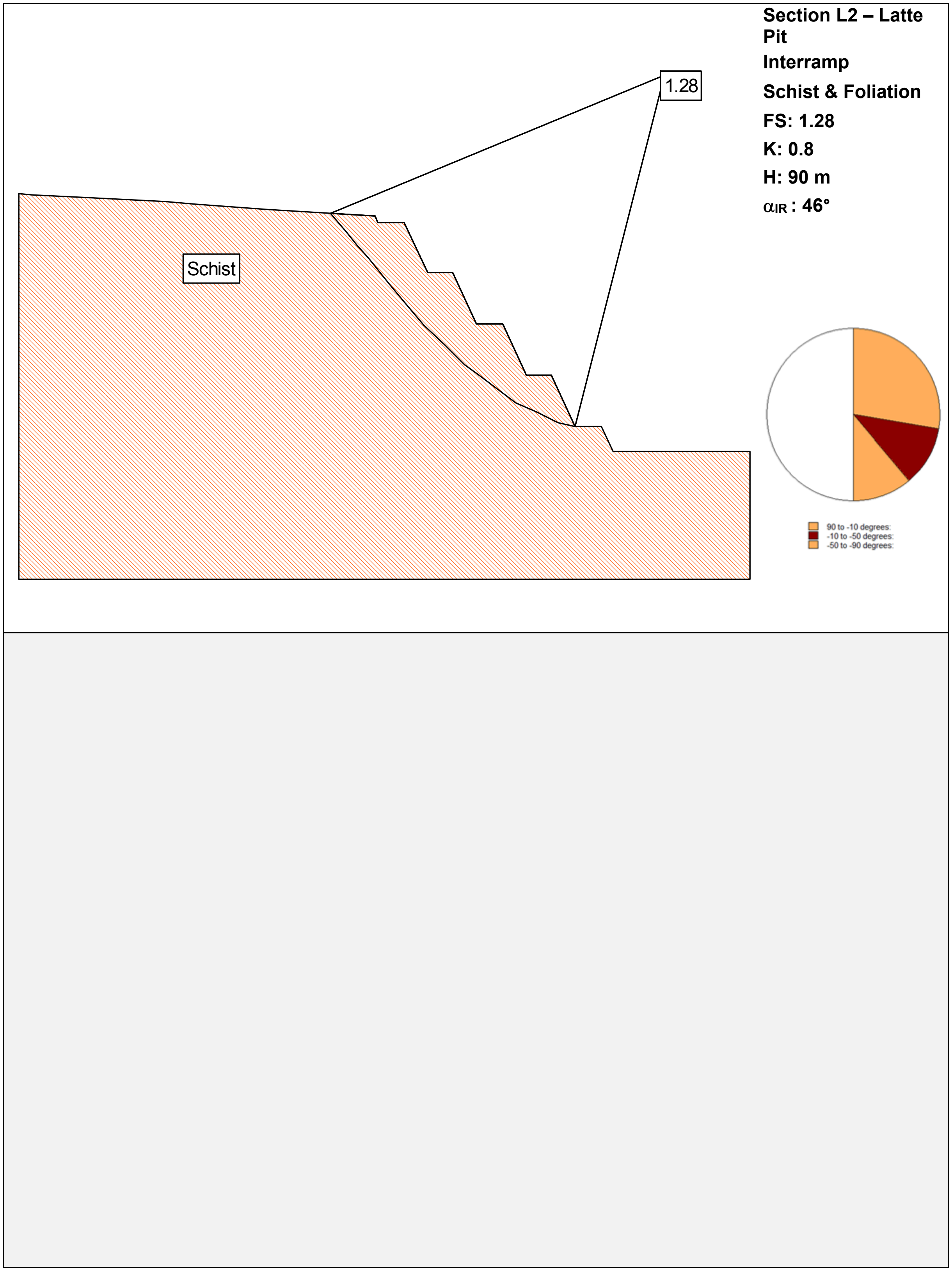


Figure J-3: Results of interramp/overall slope analyses – Section L2 – Latte Pit

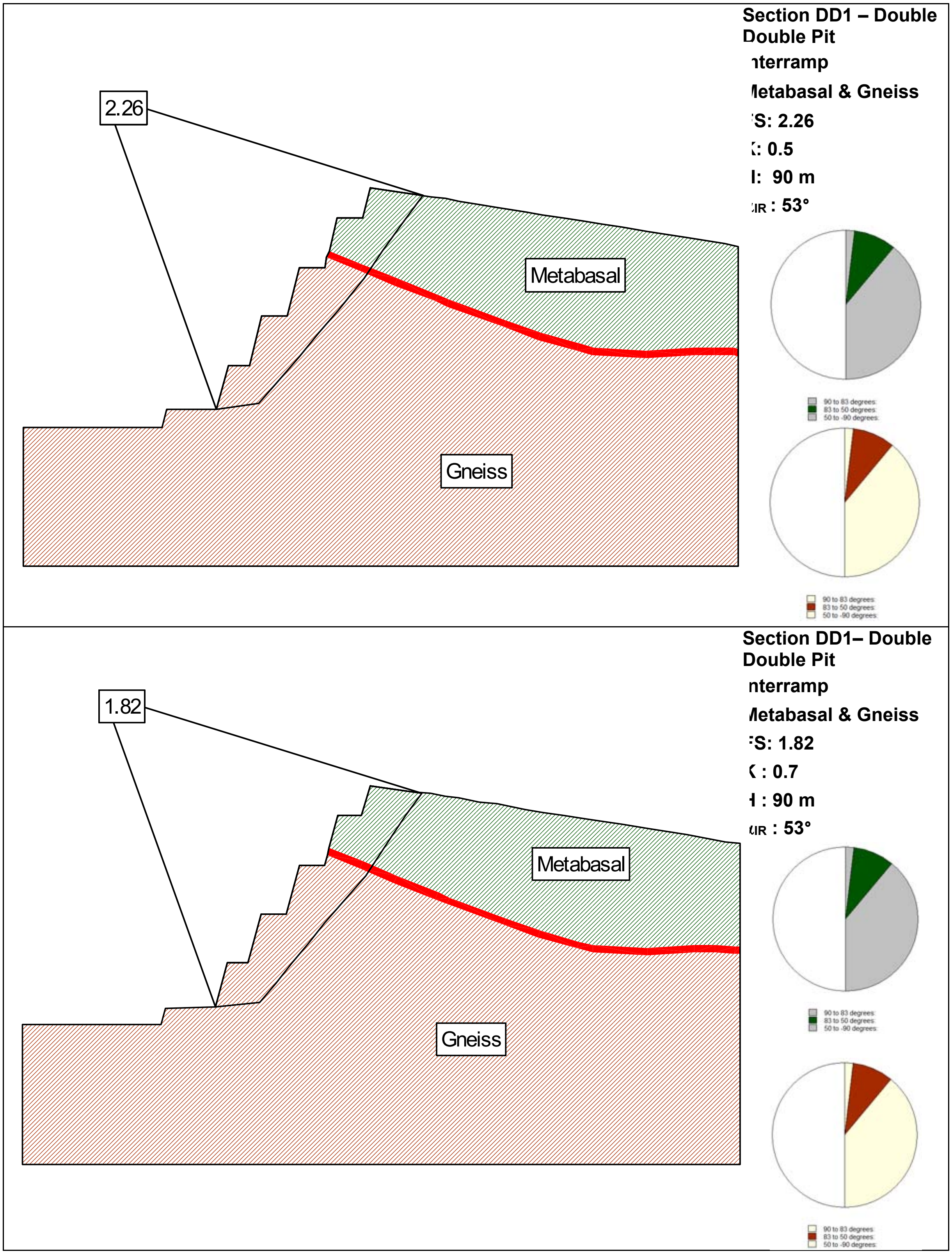


Figure J-4: Results of interramp/overall slope analyses – Section DD1 – DouDou Pit

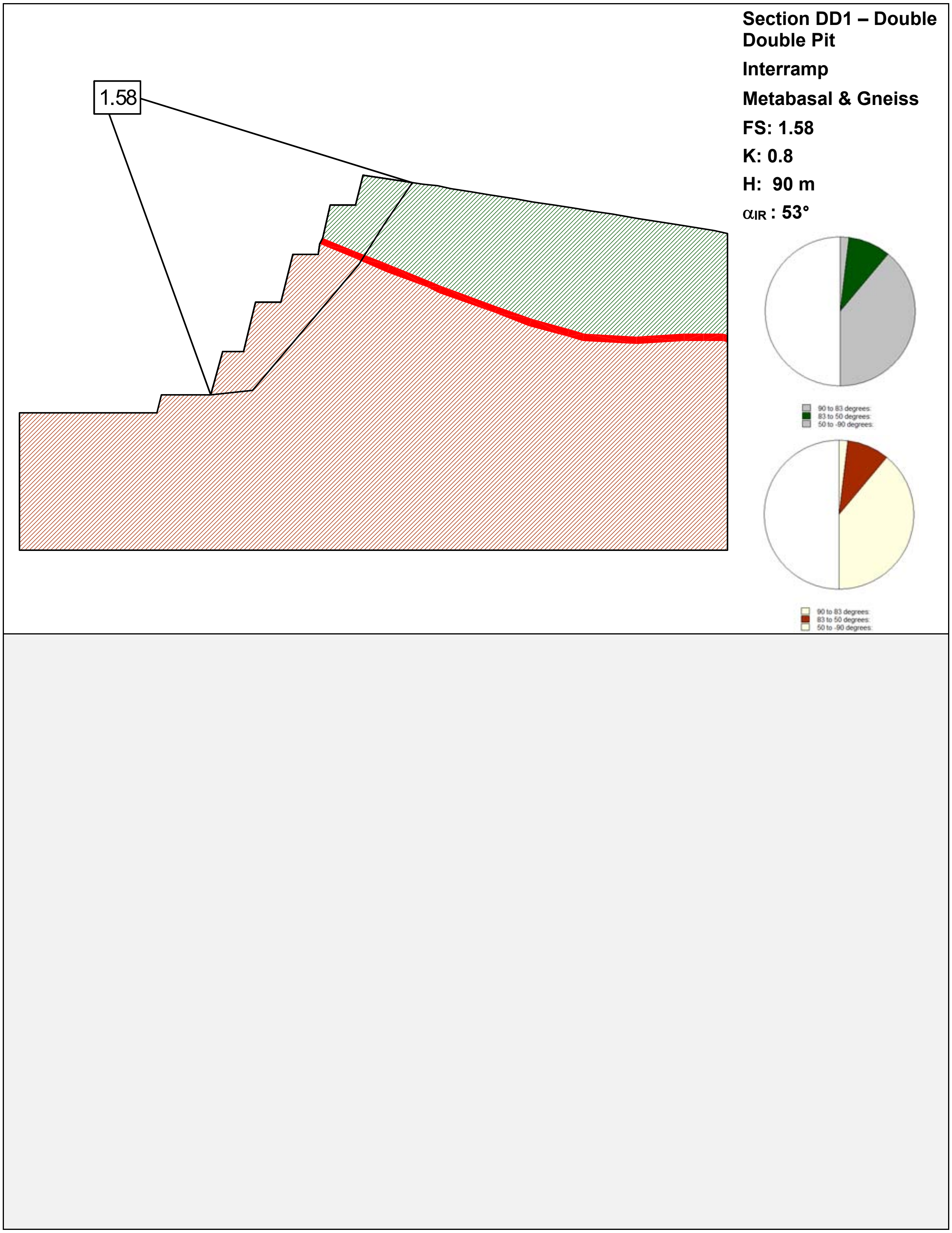
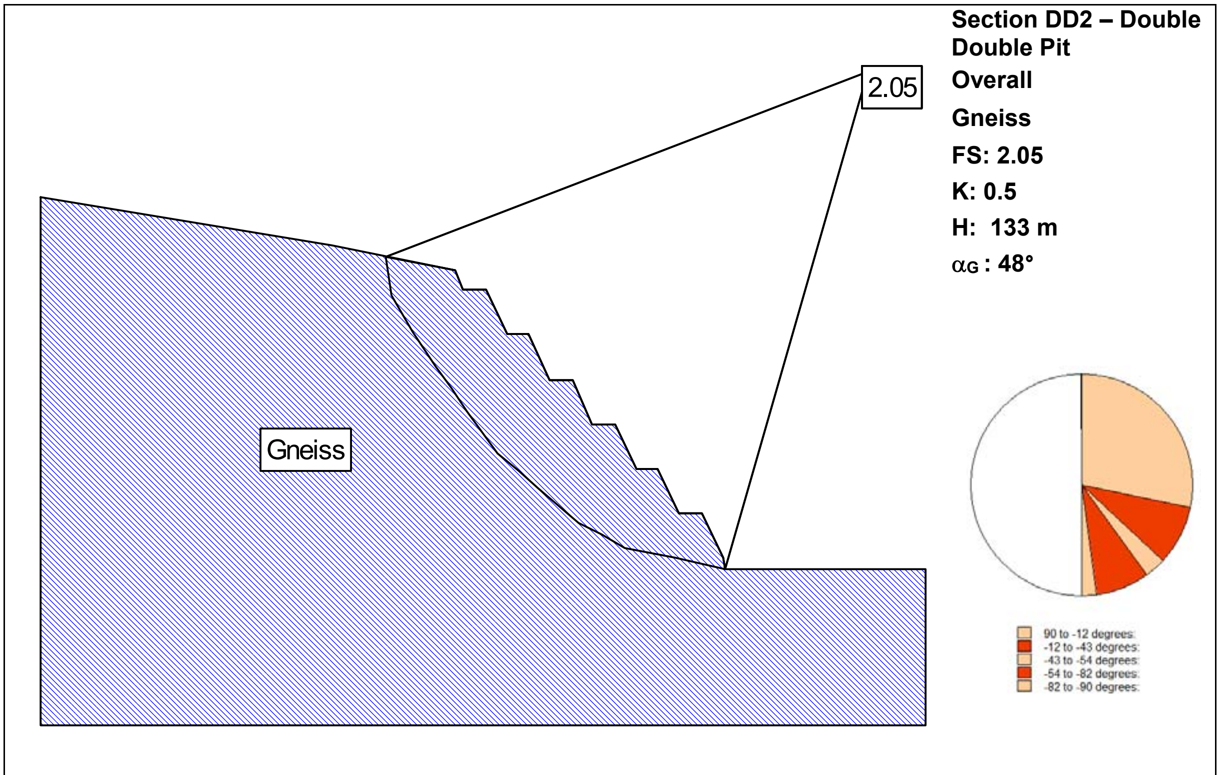


Figure J-5: Results of interramp/overall slope analyses – Section DD1 – DouDou Pit



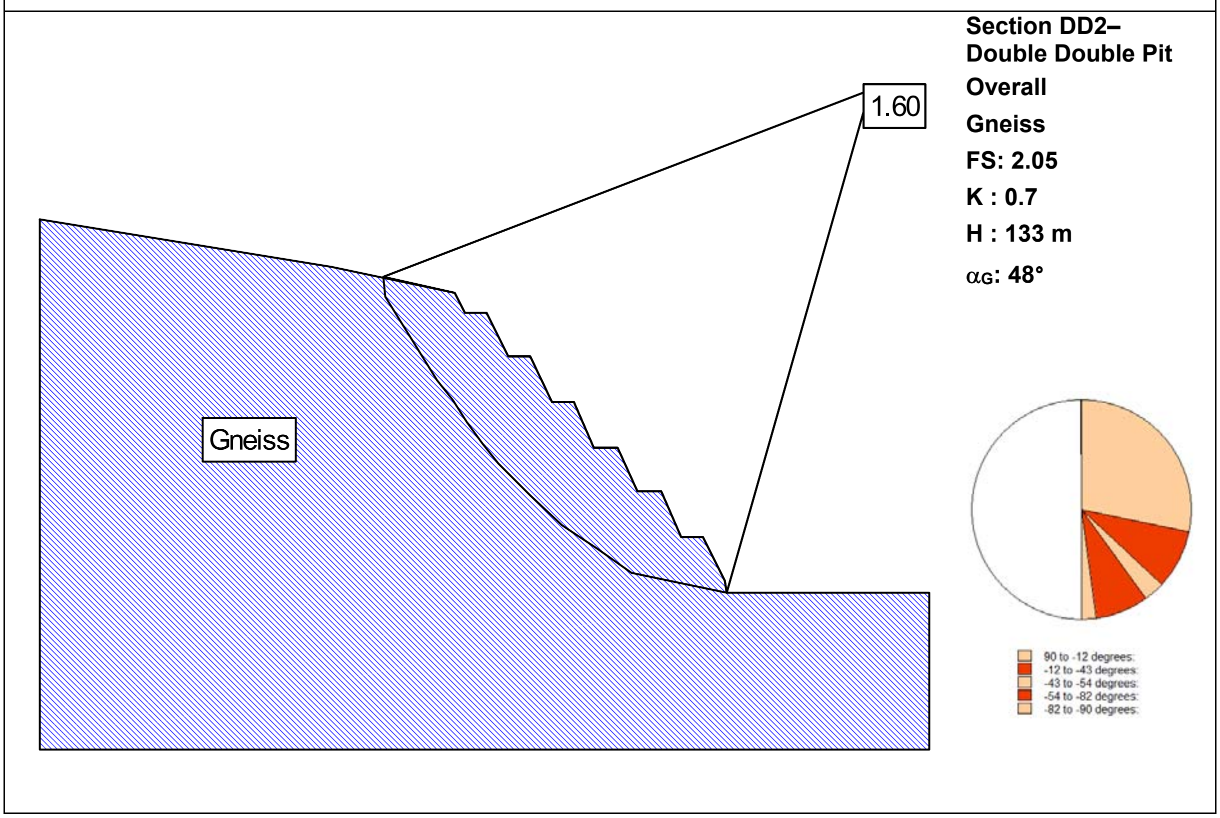


Figure J-6: Results of interramp/overall slope analyses – Section DD2 – DouDou Pit

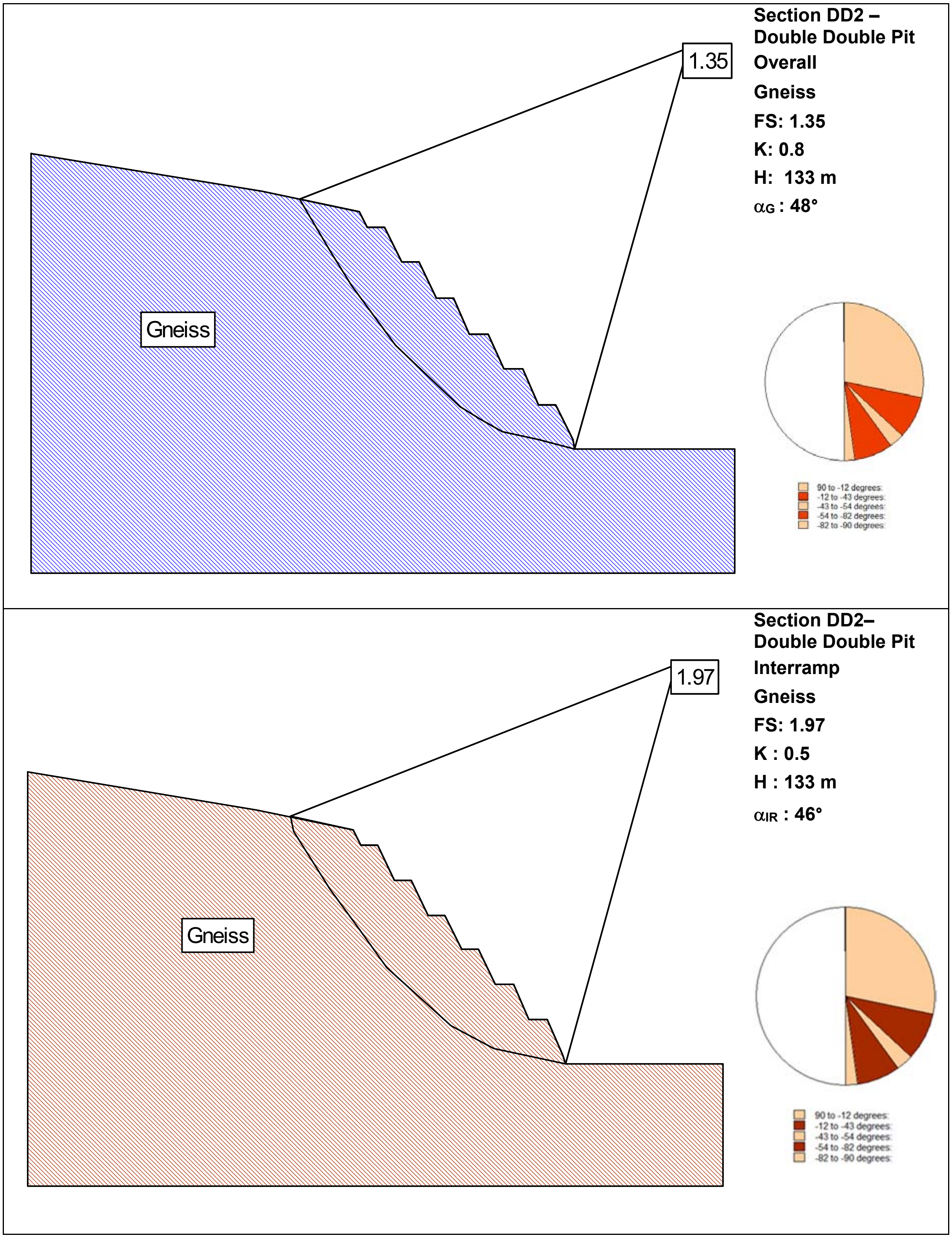
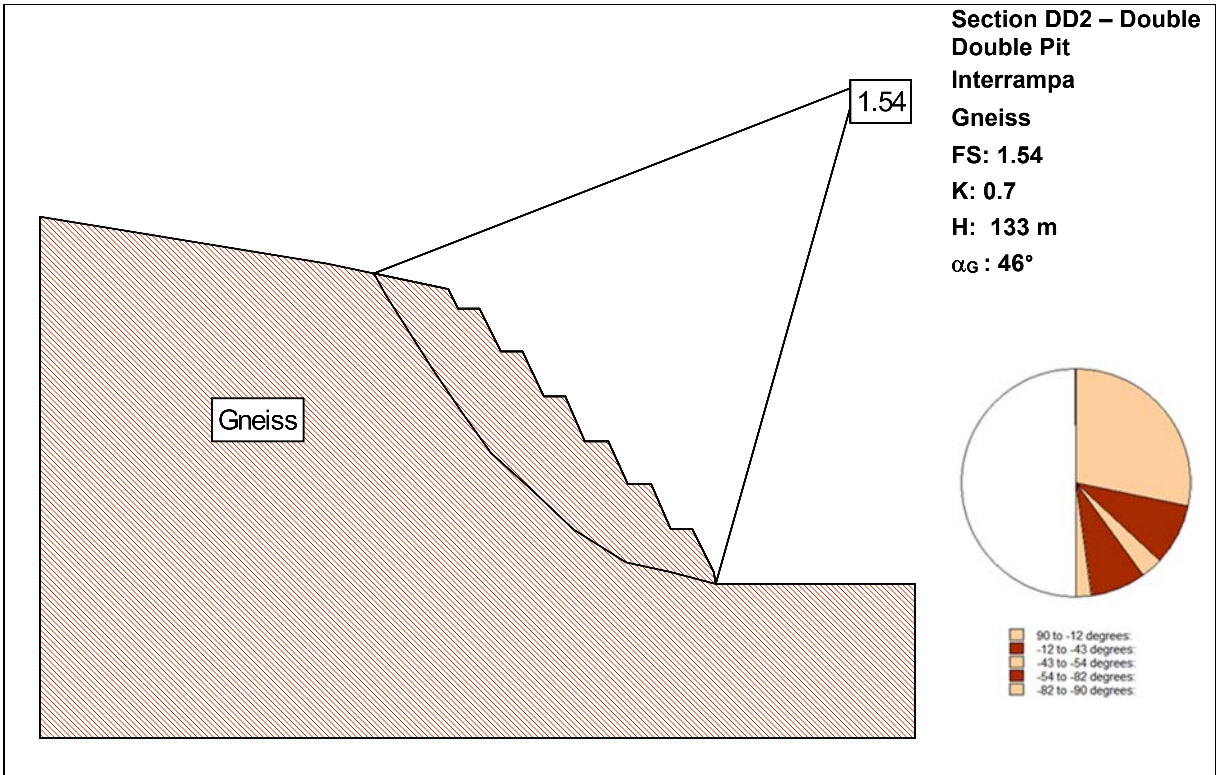


Figure J-7: Results of interramp/overall slope analyses – Section DD2 – DouDou Pit



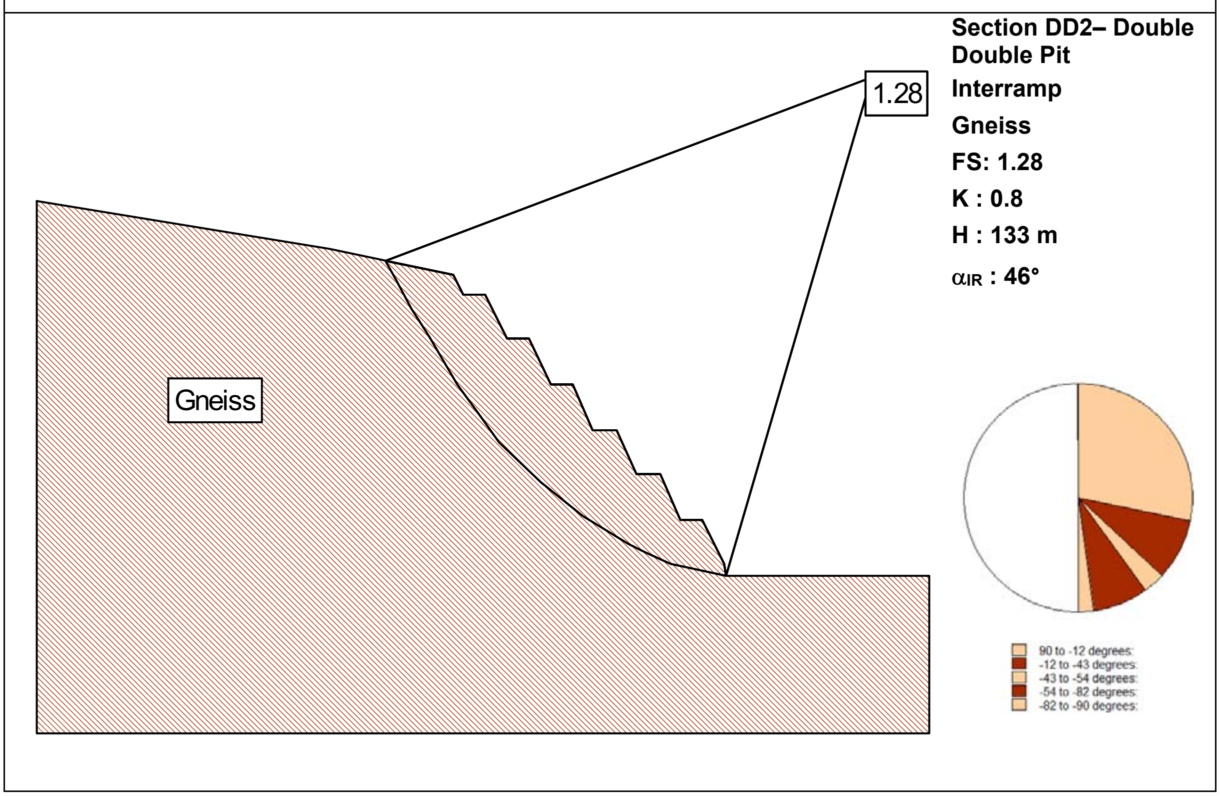


Figure J-8: Results of interramp/overall slope analyses – Section DD2 – DouDou Pit

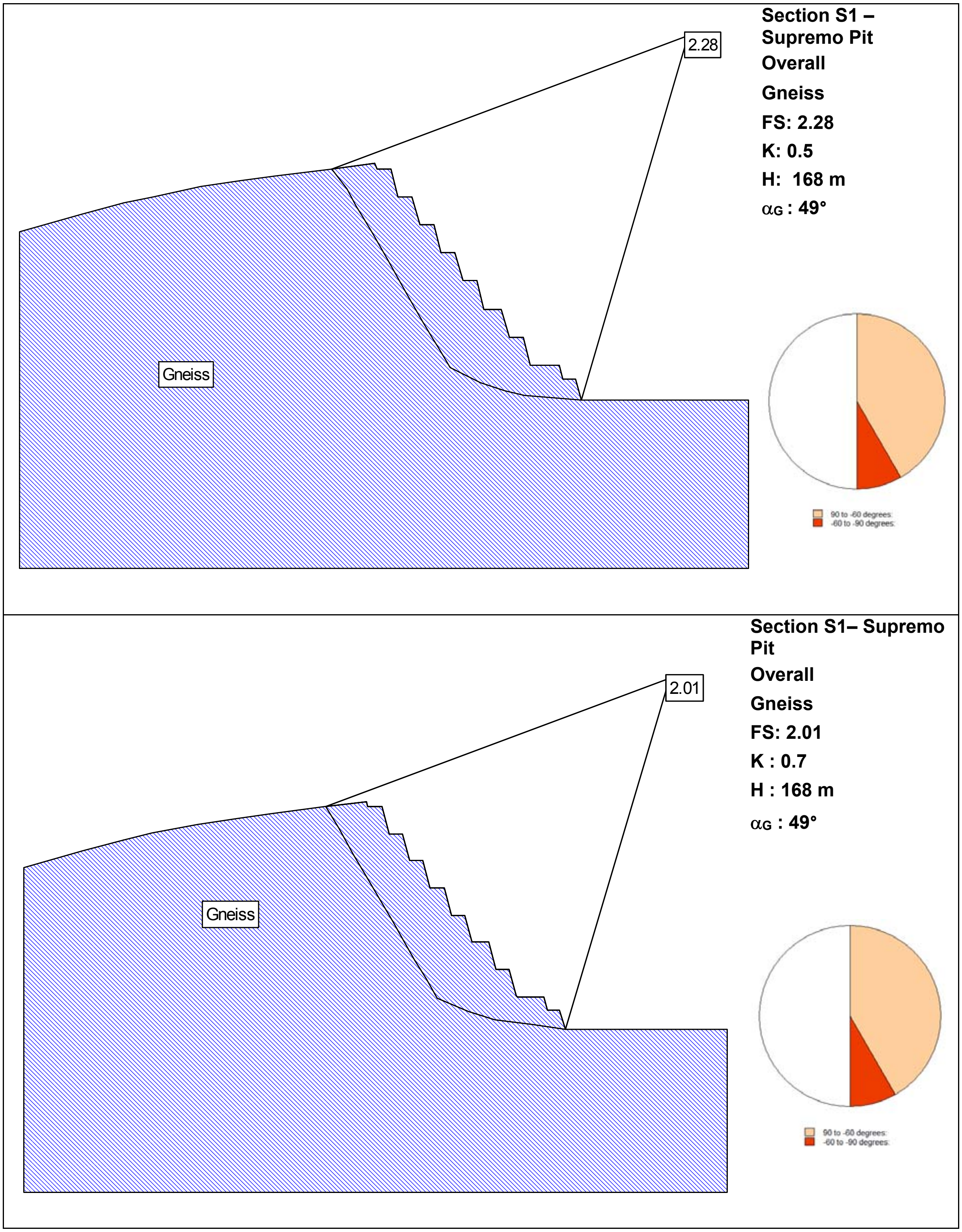


Figure J-9: Results of interramp/overall slope analyses – Section S1 – Supremo Pit

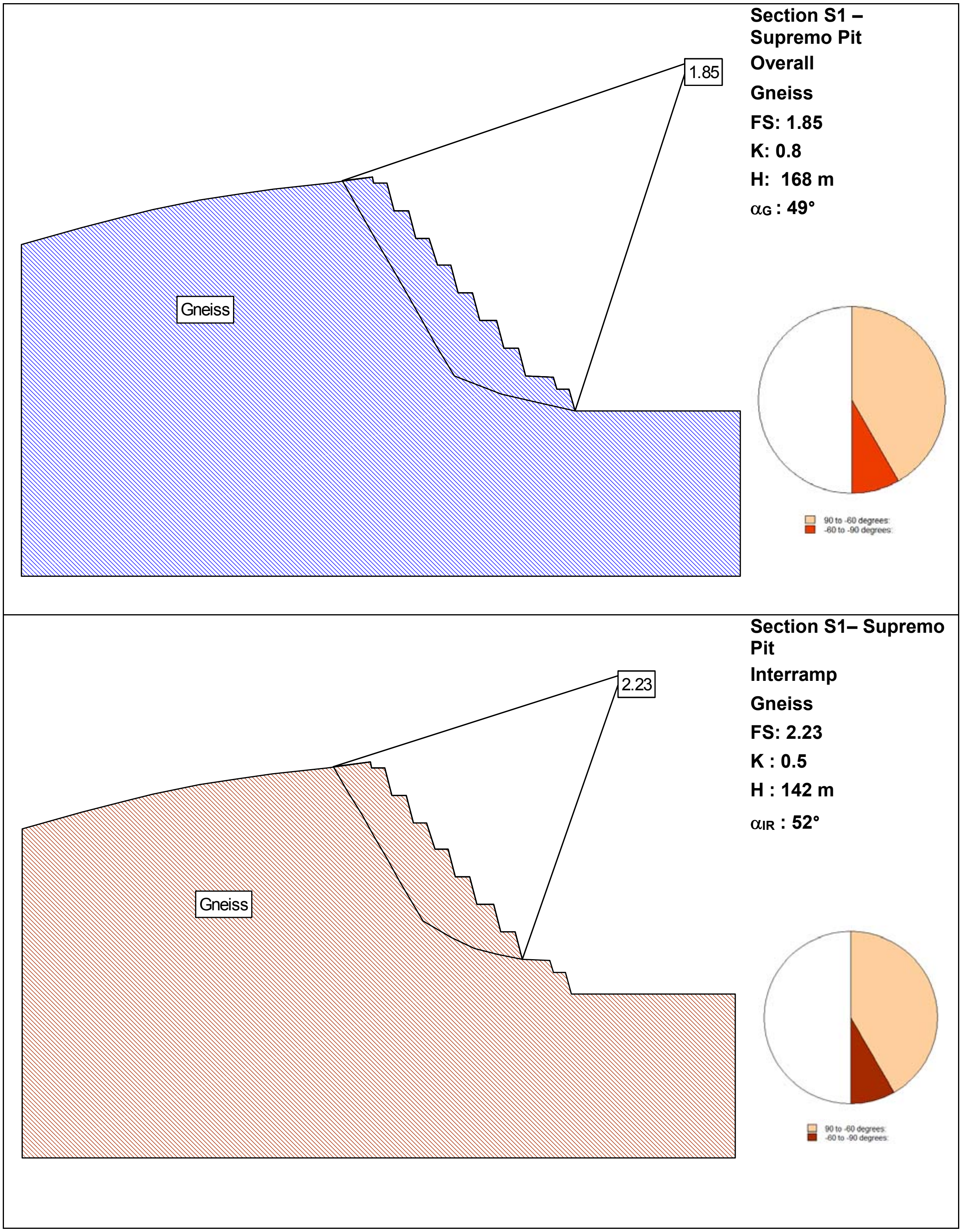
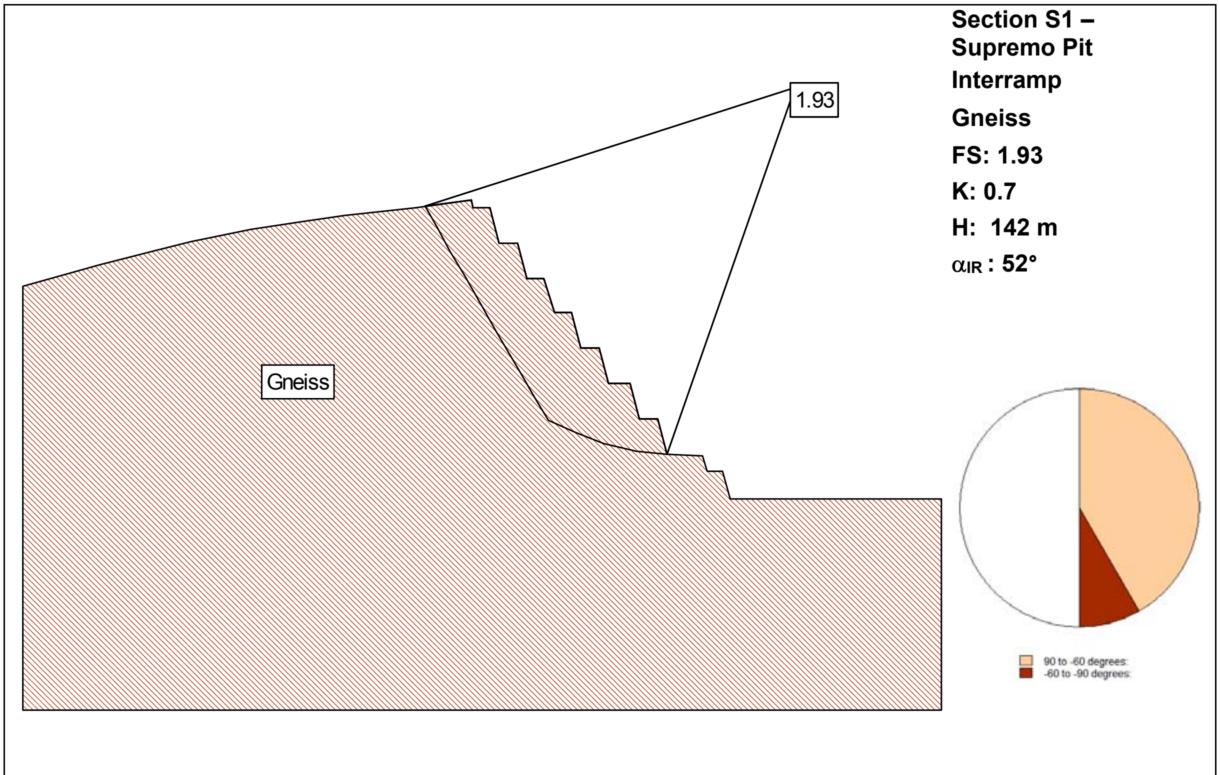


Figure J-10: Results of interramp/overall slope analyses – Section S1 – Supremo Pit



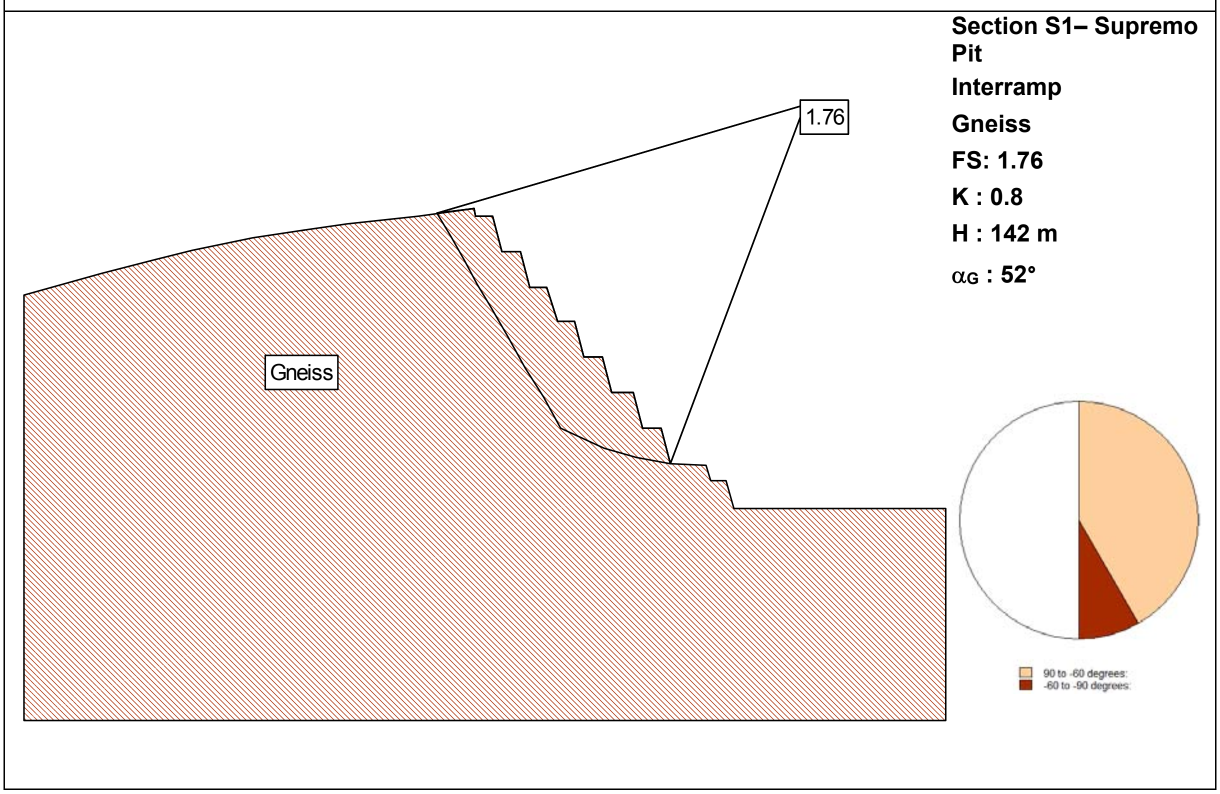
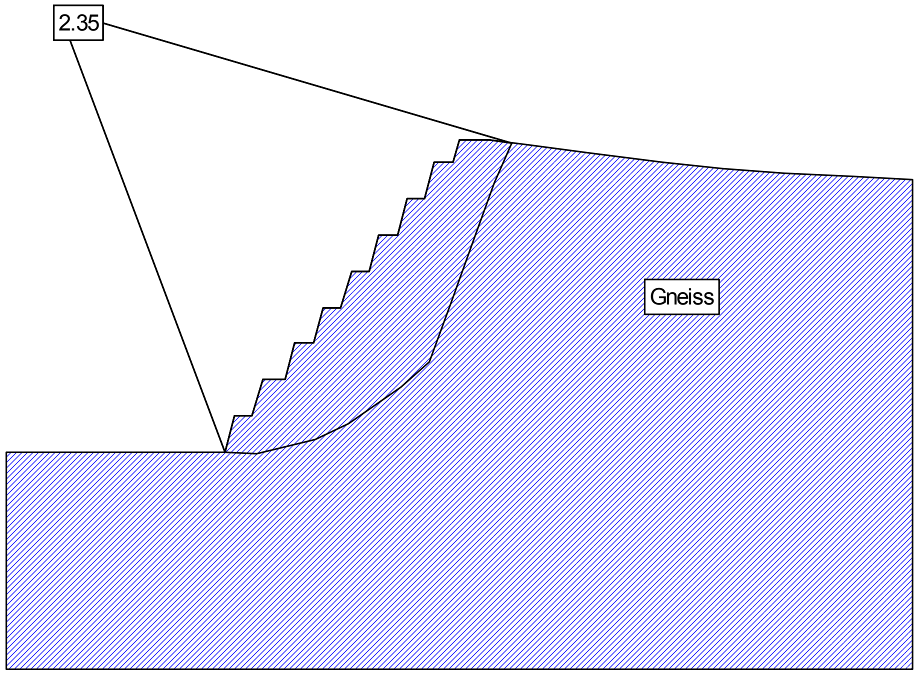


Figure J-11: Results of interramp/overall slope analyses – Section S1 – Supremo Pit



Section S2 – Supremo Pit

Overall

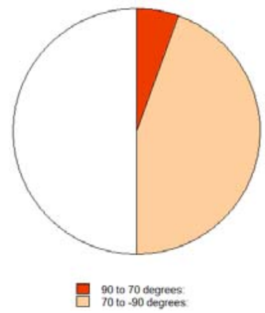
Gneiss

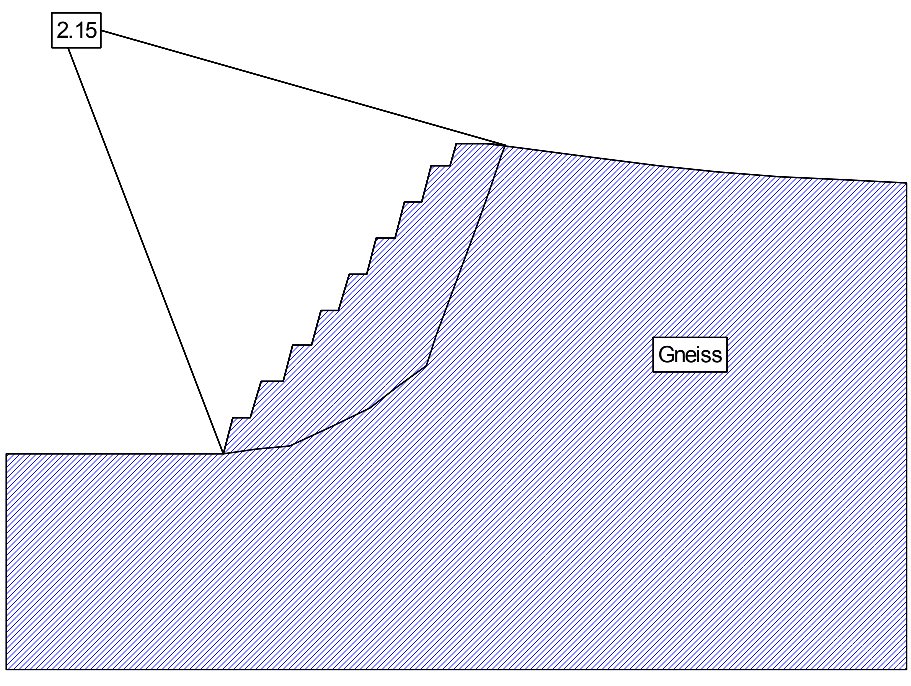
FS: 2.35

K: 0.5

H: 172 m

α_G : 53°





Section S2– Supremo Pit

Overall

Gneiss

FS: 2.15

K : 0.7

H : 172 m

α_G : 53°

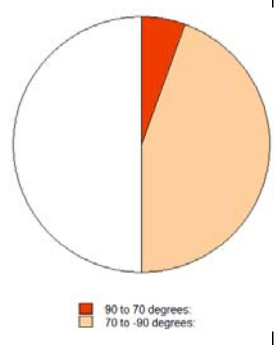


Figure J-12: Results of interramp/overall slope analyses – Section S2 – Supremo Pit

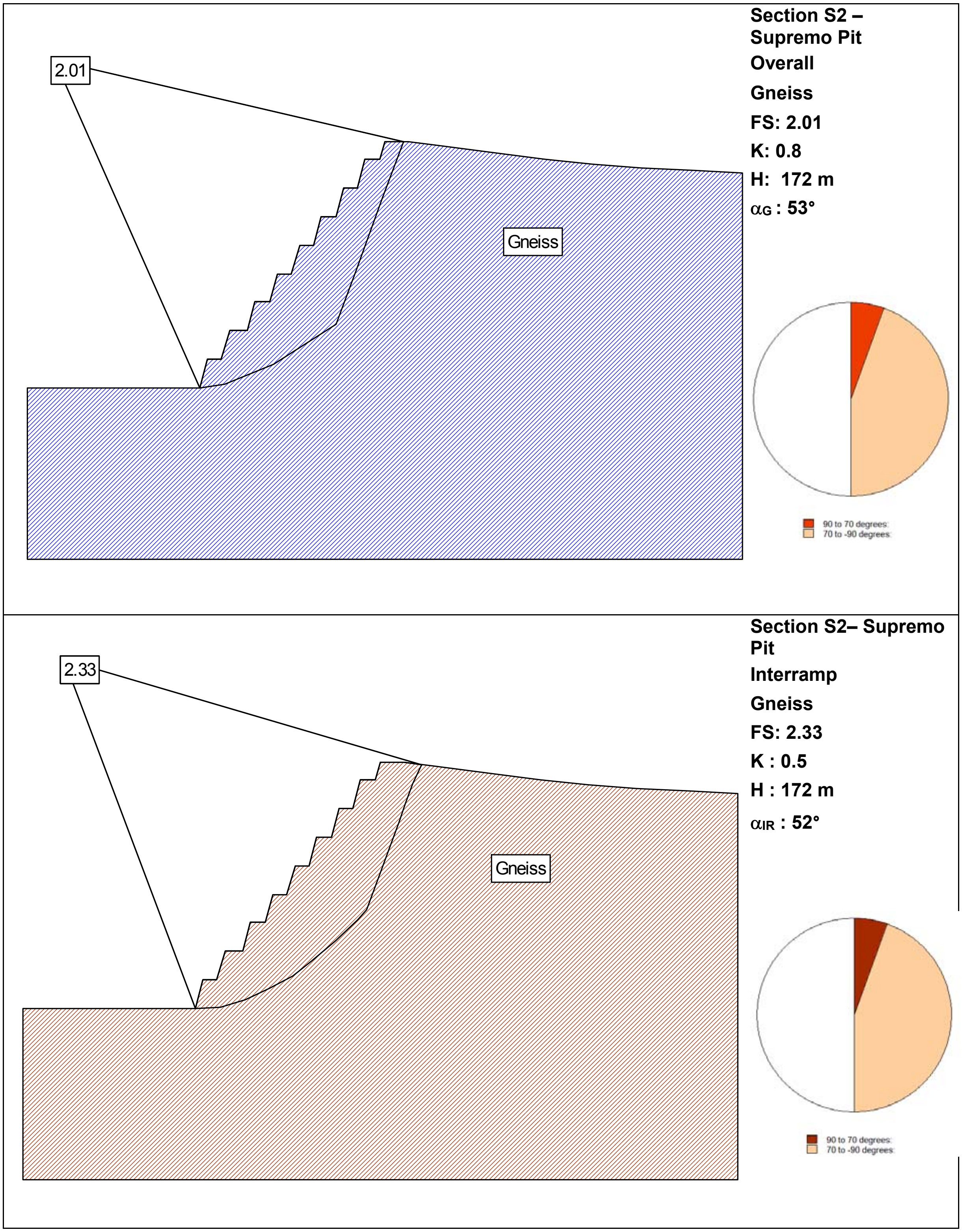


Figure J-13: Results of interramp/overall slope analyses – Section S2 – Supremo Pit

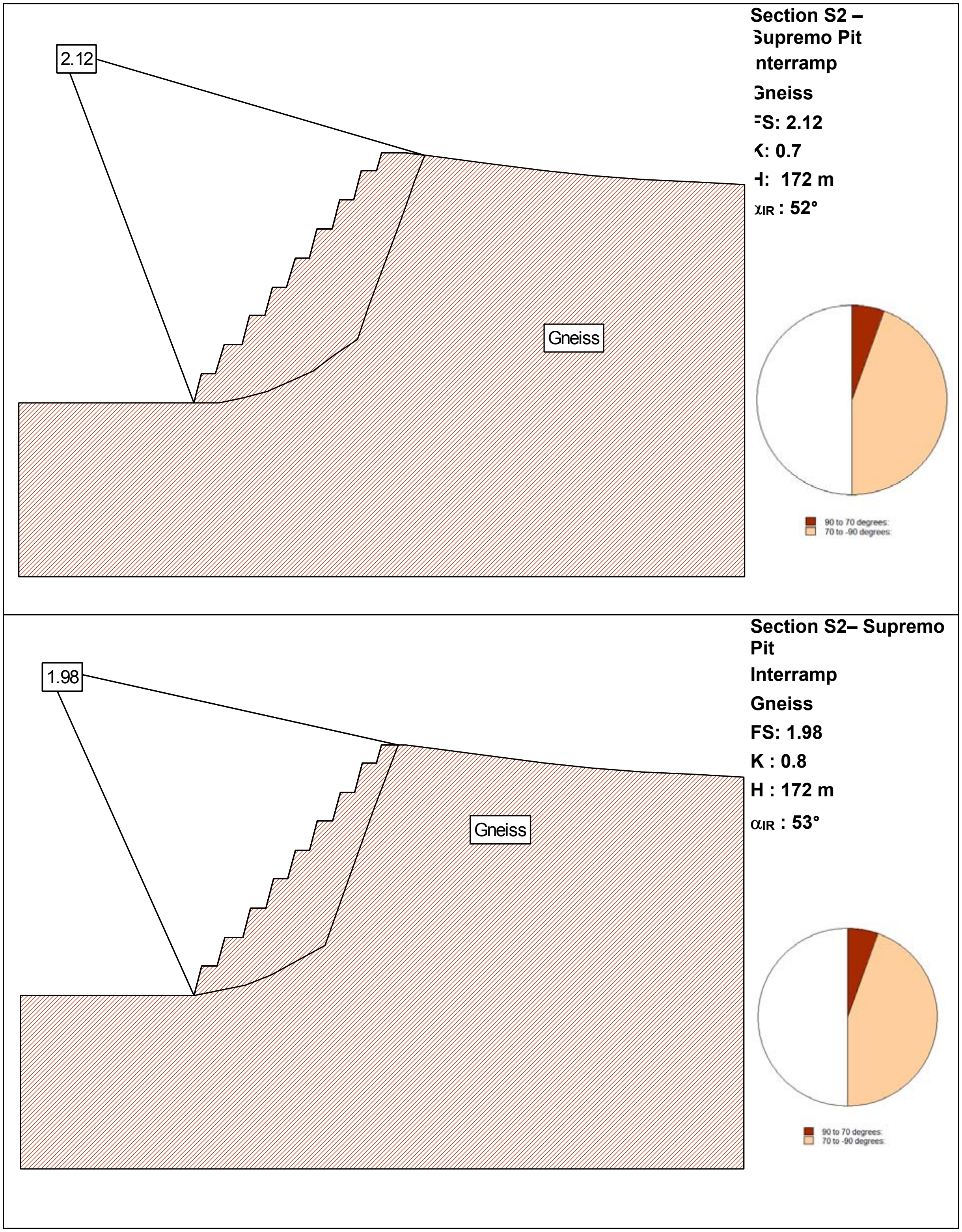


Figure J-14: Results of interramp/overall slope analyses – Section S2 – Supremo Pit

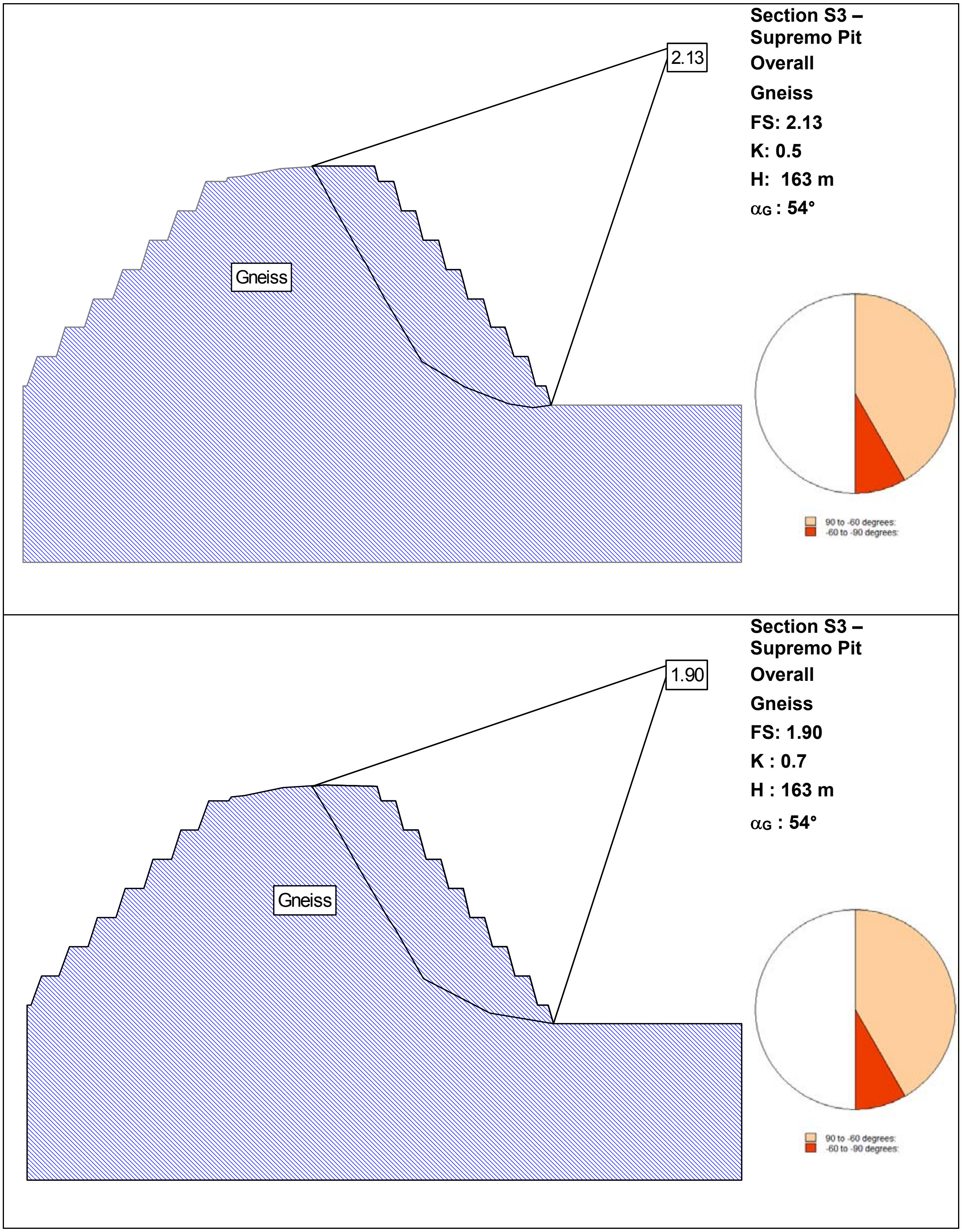
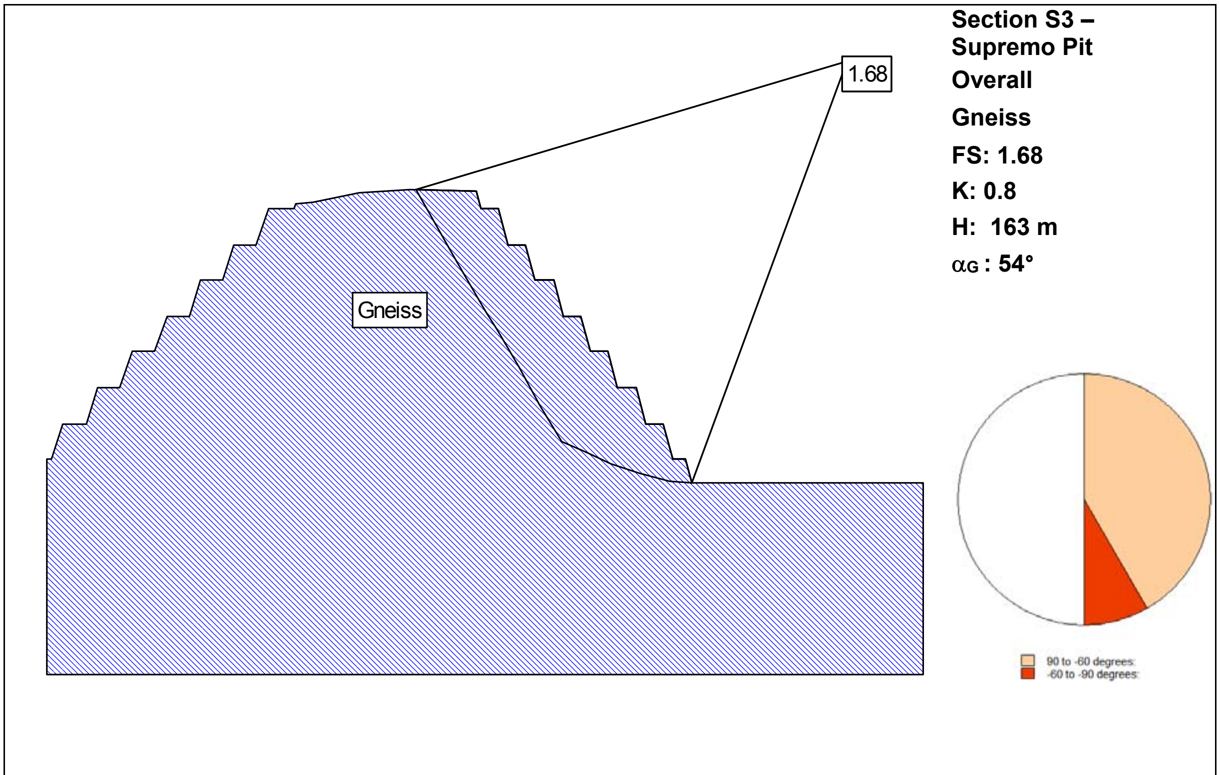


Figure J-15: Results of interramp/overall slope analyses – Section S3 – Supremo Pit



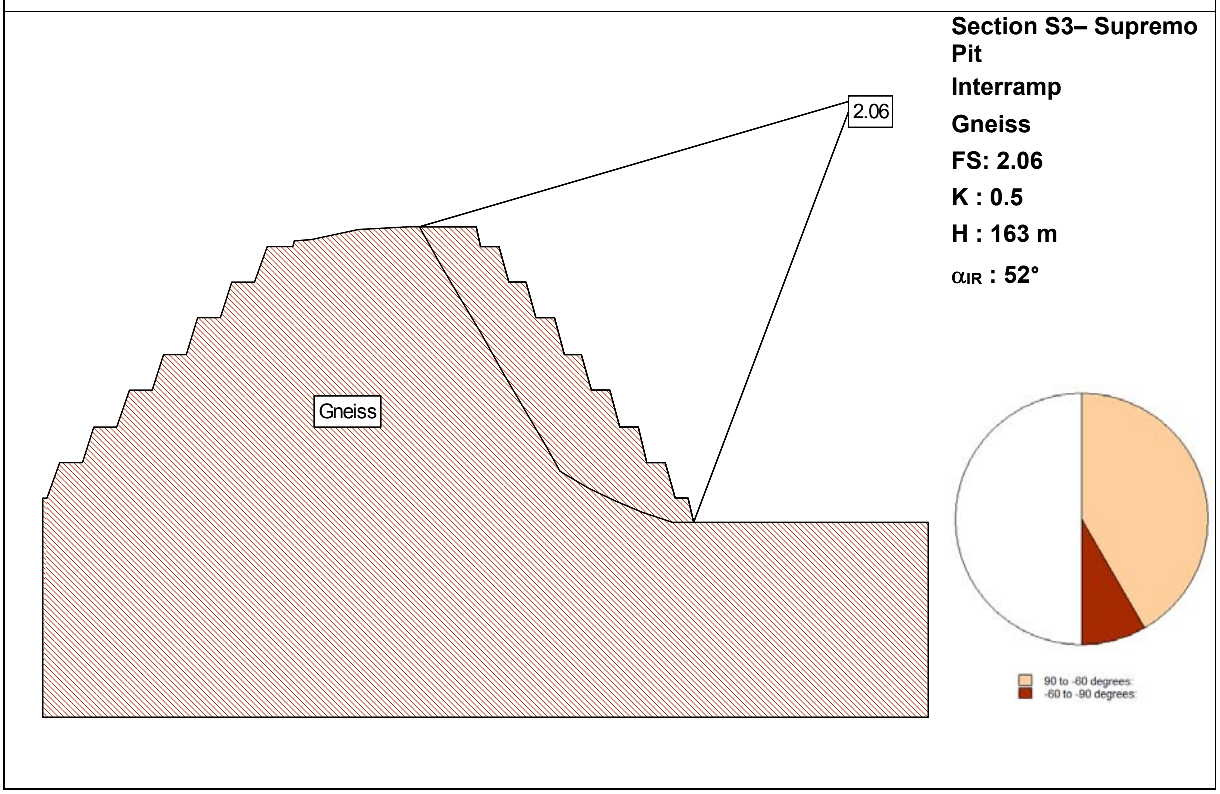


Figure J-16: Results of interramp/overall slope analyses – Section S3 – Supremo Pit

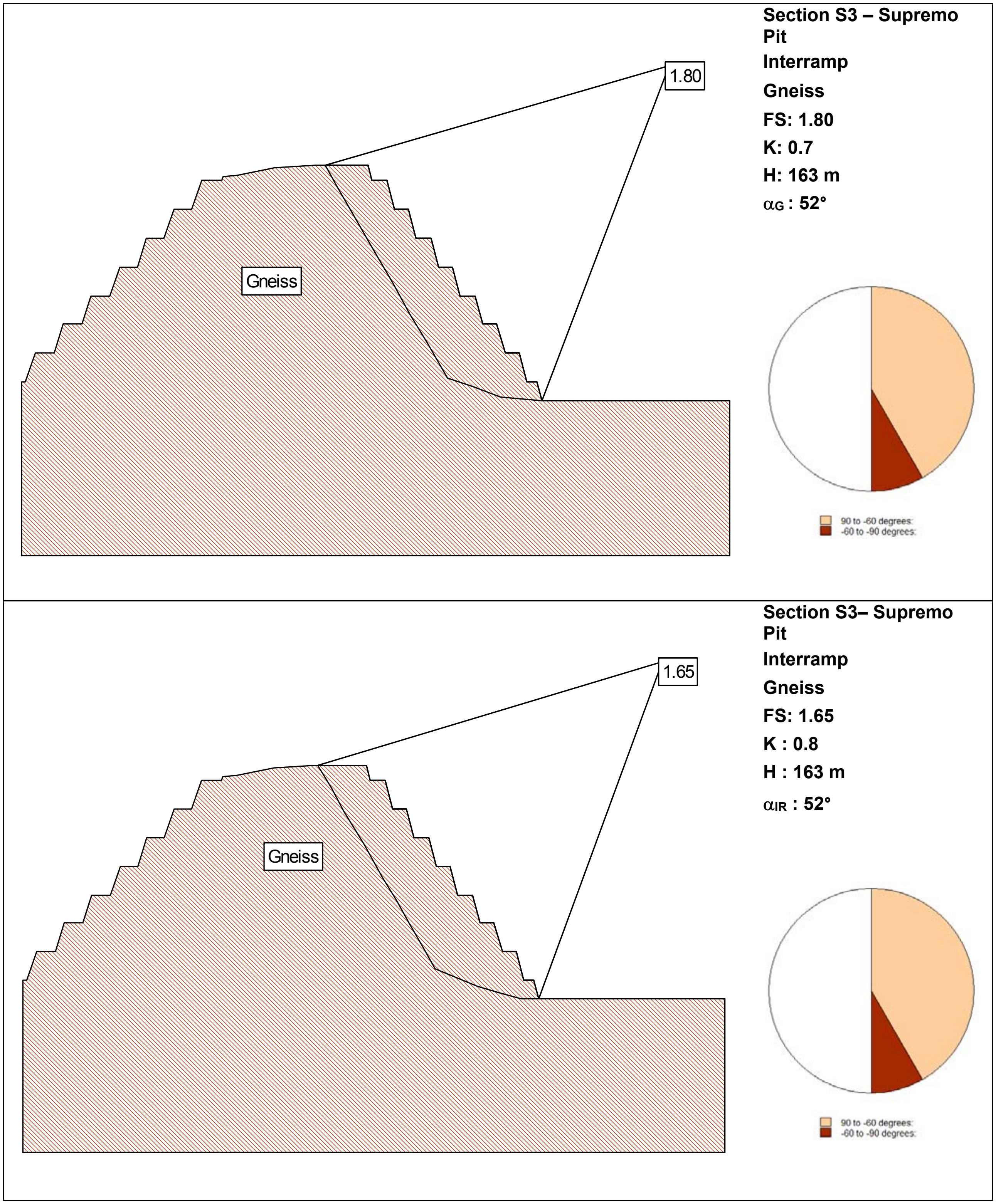


Figure J-17: Results of interramp/overall slope analyses – Section S3 – Supremo Pit

Appendix 31-D-III

2015 Geotechnical Field Investigation

2015 Geotechnical Field Investigation
Coffee Gold Project
Yukon Territory, Canada

Report Prepared for

Kaminak Gold Corporation

Report Prepared by

SRK Consulting (U.S.), Inc.
SRK Project Number 338600.020
January 4, 2016

Draft
2015 Geotechnical Field Investigation Report
Coffee Gold Project
Yukon Territory, Canada

Kaminak Gold Corporation

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SRK Project Number 338600.020

January 4, 2016

Authors:
Stuart McPhee, EIT, Consultant (Geotechnical)
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Reviewed by:
Michael Levy, P.E., P.G., Principal Consultant (Geotechnical)

Table of Contents

List of Tables

List of Figures

Appendices

1 Introduction

SRK Consulting (U.S.), Inc. (SRK) was retained by Kaminak Gold Corporation (Kaminak) to carry out a feasibility-level geotechnical investigation for Kaminak's wholly owned Coffee Gold Project located in west-central Yukon Territory, Canada (Figure 1). The project is located in the White Gold district of the Yukon and overall encloses several gold occurrences within an exploration concession covering an area of more than 600 square kilometers.

1.1 Scope of Work

The scope of the geotechnical investigation included field and laboratory characterization of the proposed footprints for the waste rock dumps, heap leach pad and the plant site. To meet the overall feasibility schedule, borehole and test pit locations were selected based on the facility locations as designed during the previous Preliminary Economic Assessment (JDS, 2014). Based on the initial results of the field program and changes to the PEA mine design made during the early feasibility study works, certain facilities were relocated. Consequently, test pits and borehole locations did not always prove to be optimal relative to the final feasibility mine design. However, given the overall consistency of the site geotechnical characteristics encountered, SRK believes that this factor does not adversely impact the characterization to an appreciable degree and that the data collected is sufficient for the feasibility level of design. Additional field characterization of the final facility footprints will be required at the detailed design level.

The overall investigation was completed in two phases consisting of a sonic drilling program completed between April 3 and 12, 2015, and a supplemental test pitting program completed between June 18 and July 2, 2015. The field programs were specifically designed to achieve the following objectives:

Phase 1 Sonic Drilling Program

- Obtain a broad characterization of geotechnical and permafrost conditions in the areas proposed for the subject facilities. This included characterizing the overburden thickness, depth to bedrock, the integrity of the bedrock, and identifying the presence of permafrost, including the extents and presence of excess ice;
- Obtain both disturbed and frozen relatively undisturbed samples of relevant stratigraphic units for laboratory testing and subsequent foundation design and slope stability analyses. Details of the subsequent analyses are presented under separate cover; and,
- Installation of two 25 m ground temperature cables to provide estimates of the depth of active layer where the ground seasonally thaws and freezes.

Phase 2 Supplemental Test Pit Program

- Confirm findings of Phase 1 drilling program and assess the lateral variability, extents and distribution of materials over the proposed facility footprints; and,
- Provide additional bulk samples for laboratory testing and analyses.

This report provides factual data from the combined field programs describing the methodologies used for drilling, test pit excavation, and sampling. Section 2 of this report provides details of the methodologies, sampling, and laboratory test programs. Section 3 describes the results of the laboratory test program. Appendices at the end of the report contain borehole and test pit logs, laboratory results, and additional data summary tables.

Interpretation and analyses of the data collected and the resulting recommendations and conclusions are presented under separate cover for each of the subject facilities. Site permafrost and geomorphology are discussed in a previous reports by AECOM (March, 2012) and Knight Piésold (2015).

This report contains the factual information collected from the overburden soils and very upper weathered bedrock zone. Additional data regarding bedrock conditions is contained within the pit slope evaluation report.

1.2 Roles and Responsibilities

The project was executed as a collaborative effort between SRK Consulting's Denver and Vancouver (SRK Consulting (Canada) Inc.) practices, collectively referred to herein as SRK.

The combined field investigation programs involved the following organizations:

- Drilling was conducted by Boart Longyear under contract with Kaminak;
- Field drill supervision and soil core logging was conducted by SRK Consultant, Stuart McPhee. Project management and senior review was provided by Peter Mikes PEng, Michael Levy, PE, PG and Cam Scott PEng.;
- Laboratory testing was completed by Tetra Tech EBA in their Whitehorse, Yukon and Edmonton, Alberta laboratories;
- Thermistor data subsequent to the initial installation was recorded and provided by Lorax Environmental Services Ltd. (Lorax);
- Borehole as-built collar locations were surveyed by Kaminak;
- As-built were surveyed by Kaminak for 23 test pits located within the proposed infrastructure area. As-built locations for the remaining test pits were recorded by SRK using a handheld GPS unit;
- Site logistical support and supplies were provided by Kaminak;
- Minconsult cleared and constructed drill pads under contract with Kaminak;
- Elbow River provided helicopter support, under contract with Kaminak; and
- JDS Energy and Mining operated the excavators under contract with Kaminak.

2 Field Program Methodologies

As-built borehole locations are provided on Figures 2 through 6, attached at the end of this report. The figures are organized based on proposed facility: the North, West, and South Waste Rock Dumps, heap leach pad/infrastructure areas. Tables obtained in Appendix A summarize the as-built coordinates for test pit and borehole samples selected for laboratory testing. The remaining as-built coordinates can be found on the individual borehole and test pit logs contained in Appendix B.

The location of test pits and boreholes were based on the facility locations and footprints as proposed at that time. In some instances foundation footprints were adjusted or relocated making the drillhole and test pit locations, relative to the final footprints, non-optimal. However, these differences are not believed to significantly impact the overall characterization of the foundation areas for the feasibility study. Additional field characterization of the final facility footprints will be required at the detailed design level of the project.

2.1 Phase 1 Sonic Drilling Program

Phase 1 sonic borehole locations were selected to provide the most effective and economic data coverage within the waste rock dumps, infrastructure, and heap leach pad foundation areas. The sonic drilling program was primarily focused on a broader characterization of the proposed underlying soil geotechnical characteristics and permafrost conditions. Penetration into competent bedrock was limited by drilling equipment and the lack of available water at the site due to weather conditions.

Drilling was completed using a heli-portable sonic drill rig (resonant rotary drill) equipped with 4.5 inch core barrels. Casing was not used due to the shallow drilling depths that typically ranged from 1.5 to 6 meters (m). The drilling method consisted of combining rotation of the drill head with vibrations to advance the core barrel into the soil and weathered rock profile without drilling fluids. Due to frozen ground conditions the core barrel could be extracted without casing, with only minimal slumping noticed. Wooden drill pads were constructed at each borehole location with access to each site provided by helicopter. An SRK representative was present at the drill rig at all times during active drilling to provide core logging and sampling, and observe drilling procedures.

The sonic drill rig was selected because the quality of fine grained frozen soil core is greater compared to a diamond drill rig, and it requires less water. Friction of the drill steel with the in-situ materials generates little heat when advancing through uniform, fine-grained frozen soils, therefore chilled brine was not required to recover intact frozen samples. However, when encountering coarse grained soils (gravel sized and larger), significant heat can be generated. During the drilling of coarse grained zones, extra care was taken to select samples that appeared unaffected by heat generation.

The drill program was completed during day shifts. Temperatures during the program ranged from -20°C to 5°C. Snow thickness at each site varied depending on slope aspect and elevation, and ranged from 0 to 1.5 m in depth. Two snow storms occurred during the field program that resulted in work stoppages for safety concerns which lasted one and three hours. Limited visibility during these events would have prevented a helicopter from accessing the location if a first aid situation was required.

Two major drill breakdowns occurred that required the replacement of the sonic drilling head unit. The first breakdown required eight hours to replace, and the second breakdown required five hours. Spare drilling heads were located onsite when breakdowns occurred and required minimal downtime to source and repair.

2.2 Phase 2 Test Pit Program

The Phase 2 supplemental test pit program was completed between June 18 and July 2, 2015. The majority of days were sunny and clear with mild winds and temperatures ranging between 5°C and 28°C. During the final week, weather was typically cooler with occasional rain.

A majority of the test pits were excavated using a Caterpillar 312 or 320 excavator. Where test pit locations were inaccessible with the track mounted excavators, a small Can-dig™ excavator was mobilized into locations using a helicopter. Each test pit location was ground-proofed and located by SRK with minor location adjustments made to avoid large boulders or steep surfaces. As-built location coordinates were obtained for most test pits using a handheld Garmin GPSMap 64s GPS device, with the plant and camp site test pits subsequently surveyed by Challenger Geomatics Ltd.

There were no major equipment breakdowns during the test pit program. A boom arm bushing broke on the Can-dig™ excavator and a spare was sourced from Dawson City, Yukon and shipped to site. The breakdown did not cause lost time due to the availability of other excavators.

All test pits were logged and sampled by SRK personnel. Upon completion of test pit excavation and logging, photographs were taken of the exposed soil and bedrock profile, representative samples were collected and then the test pits were backfilled.

Test pits were advanced to the maximum reach of the excavator, or to “effective refusal”. “Effective refusal” was defined as the depth where further excavation was deemed ineffective or unrealistic. This depth was determined as the point where the excavator bucket was scraping and grinding the underlying weathered bedrock or bedrock in most cases and effectively altering the makeup of the materials as opposed to effectively excavating. In some instances the excavator may have also intercepted large localized boulders that could not be removed.

2.3 Logging Method

Logging of borehole and test pit materials was completed according to the Unified Soil Classification System (USCS). As such, weathered-in-place bedrock was typically logged in the field as the respective soil type, based on estimates of particle size. Particular attention was also given to logging permafrost features according to the ASTM D4083 procedure. Complete borehole and test pit logs containing sample locations and laboratory test results are presented in Appendix B.

The bedrock contact was difficult to define at some locations due to its weathering characteristics and the subtle transition from colluvial soils, sometimes composed of weathered bedrock, to in-situ bedrock. These weathered/transition zones typically contained coarse grained quartz sands and weathered rock fragments. In other instances during, large competent boulders were encountered at shallow depths preventing further excavation at these locations and an accurate measurement of total soil overburden depth was not possible.

Borehole and test pit termination conditions are noted on each log provided in Appendix B. Boreholes and test pits were typically terminated when competent bedrock was reached or due to excavator “refusal”. Refusal was defined for the test pit program as occurring when either competent bedrock or well bonded frozen soils were no longer able to be excavated due to their hardness and cohesion.

“Bedrock was defined in the test pit and borehole logs as competent, in-situ bedrock with minimal signs of weathering. “Weathered Bedrock” was used to describe the zone of heavily fractured, cobble sized bedrock fragments typically surrounded by coarse grained sand sized particles.

2.4 Sampling Method

Representative disturbed samples were collected from major soil units during both logging programs. Samples were sealed in plastic bags for moisture preservation and transport to the laboratory. Several larger, bulk samples were also obtained for proctor compaction testing as described in Section 3.7. After the completion of each program, the samples were transported by Kaminak to the Tetra Tech EBA (EBA) laboratory in Whitehorse.

During sonic drilling, a select number of relatively undisturbed frozen samples were also collected where soils of higher ice content were observed. The frozen samples were sealed in plastic wrap and housed in a PVC enclosure to protect against potential deformation or disturbance during storage on-site and transport. The frozen samples placed into insulated coolers with ice packs during storage and transportation to maintain their frozen state.

2.5 Ground Temperature Cable Installations

Two ground temperature cables (thermistors) were installed in diamond core holes while the test pit program was being carried out. The as-built collar locations of the two diamond holes used for the thermistor installations are summarized in Table 1.

Table 1: Location of thermistor strings installed

Hole ID	Northing	Easting	Instrumentation
SRK-15D-10T	6973451	581749	25 m thermistor and PVC pipe
SRK-15D-13T	6972897	582826	25 m thermistor and PVC pipe

Thermistor installation required drilling a HQ diameter diamond drillhole supported by PQ drill casing near ground surface. The HQ drill rods were removed from the casing and a 2.5-inch diameter PVC pipe was inserted to a final depth of 15 m from surface. The PQ drill casing was then removed leaving the PVC behind. The thermistor cable was then inserted down the inside of the plastic pipe and grouted in place using a cement-bentonite grout mix. Approximately 1.5 m of PQ casing was permanently left in the hole with 1.5 of stick-up to provide a location where a monument could be later installed to protect the data logger at each location, The monuments were not available at site at the time of thermistor string installation and were subsequently installed by Kaminak after completion of the test pit program.

Initial readings of the thermistors were taken by SRK at the time of installation. The data loggers were downloaded on multiple occasions following their installation by Lorax and the data was provided to SRK for review. Temperature profiles from the two thermistor strings are contained on Figures 7 and 8 through October 2015.

3 Laboratory Testing

The lab testing program was developed to define and characterize major soil units in the existing materials beneath the proposed facilities. Both sonic drilling and test pit samples have been presented in summary tables located in Appendix A. Testing was performed by the geotechnical laboratories of TetraTech EBA in Whitehorse, YT and Edmonton, AB. The sample type, location, and descriptions are provided in Appendix A. The complete laboratory results are presented in Appendix D.

3.1 Natural Moisture Content

Gravimetric moisture contents were calculated on selected samples from both sonic drilling and test pit programs. A total of 123 samples were selected, 82 from the test pit program and 41 from the sonic drilling program. A complete set of laboratory test certificates are provided in Appendix D-1 along with a summary table. Selected samples represent different materials types from various depths and from various frozen states (i.e., well bonded or poorly bonded). The moisture contents typically ranged from 3 to 30 percent with 13 ice-rich samples having moisture contents between 50 and 100 % and another 13 ice-rich samples having moisture contents between 100 and 300%.

Figure 9 contains a histogram of all natural moisture contents combined. While several samples with high moisture contents are indicated in the histogram, many of these samples were obtained from areas that were initially investigated but are no longer being considered for potential mine design facilities due to the high ice content. Additional details regarding the location of the ice rich materials are presented in the Waste Rock Dump, Heap Leach and Infrastructure design reports.

3.2 Particle Size Distribution

Table 2 summarizes the particle size distribution results by test pit/drillhole as well as the original PEA facility location. Figure 10 contains a summary of the grain size distribution curves sorted by the original PEA facility location. Laboratory test certificates are included in Appendix D-2.

Table 2: Particle Size Distribution Results

Original Facility	Location ID	Sample Number	Sample Depth (m)	% Clay	% Silt	% Sand	% Gravel
North Waste Rock Dump	SRK-15S-01	17727	1.1	5	30	43	22
	SRK-15S-02	17730	0.6	33		37	30
	SRK-15S-03	17728	0.6	7	76	17	0
	SRK-15S-03	17729	6.7-7	9	23	47	20
	SRK-15S-04	17725	1.1	4	90	6	0
	SRK-15S-04	17726	3.7	14	29	43	15
	SRK-15TP-29	17591	0.75	3	21	27	50
	SRK-15TP-36	17586	0.6	4	31	47	18
	SRK-15TP-37	17585	0.45	8	67	22	2
	SRK-15TP-39	17583	0.9	5	27	52	16
	SRK-15TP-40	17582	0.65	9	41	43	7
West Waste Rock Dump	SRK-15S-05	17702	2.7	4	66	26	4
	SRK-15S-06	17704	0.8	6	23	36	35
	SRK-15S-07	17708	3.4	9	19	50	22
	SRK-15S-08	17706	0.9	6	26	46	22
	SRK-15S-08	17707	3.4	2	33	42	23
	SRK-15TP-51	17599	0.65	3	17	49	31
	SRK-15TP-61	17633	0.4	17		38	45

Original Facility	Location ID	Sample Number	Sample Depth (m)	% Clay	% Silt	% Sand	% Gravel
	SRK-15TP-61A	17633-61A	0.6-1.9	4	48	34	14
	SRK-15TP-64	17598	0.4	10	65	17	8
South Waste Rock Dump	SRK-15S-09	17709	1.8	2	80	17	1
	SRK-15S-09	17710	3.4	5	91	4	0
	SRK-15S-11	17711	2.3	3	19	34	44
	SRK-15S-12	17712	2.4	5	25	42	28
	SRK-15TP-26	17603	0.6-1.2	2	16	47	35
	SRK-15TP-27	17604	0.1-0.3	5	15	61	20
Heap Leach Pad (HLP)	SRK-15S-13A	17718	0.9	6	44	35	15
	SRK-15S-13A	17719	4.0	21		73	6
	SRK-15S-16	17715	0.6	14	32	39	15
	SRK-15S-17	17717	1.5-1.8	7	32	32	29
	SRK-15S-19	17713	2.7	13	37	43	7
	SRK-15S-20	17722	0.9	5	39	38	18
	SRK-15S-23	17721	0.6	40		36	24
	SRK-15S-25	17723	0.6	7	27	35	31
	SRK-15S-25	17724	1.8	7	18	37	39
	SRK-15TP-03	17565	0.5-1	3	14	37	46
	SRK-15TP-04	17563	0.6	4	24	31	40
	SRK-15TP-06	17559	0.7	3	9	48	40
	SRK-15TP-08	17581	0.85	4	13	37	47
	SRK-15TP-09	17579	0.75	4	31	36	29
	SRK-15TP-11	17575	0.7	6	28	40	27
	SRK-15TP-12	17574	0.6	1	23	40	36
	SRK-15TP-13A	17623	0.55	6	35	41	19
	SRK-15TP-14	17572	0.85	1	18	42	40
	SRK-15TP-16	17570	0.9	4	22	36	39
	SRK-15TP-17	17566	0.4	3	22	39	36
	SRK-15TP-18	17576	0.3-0.5	5	36	27	32
	SRK-15TP-20	17564	0.6	4	34	39	24
	SRK-15TP-21	17562	0.5	3	27	48	22
	SRK-15TP-43	17560	0.6	9	26	44	21
ROM Stockpile & Infrastructure Sites	SRK-15S-26	17736	0.6	12	44	31	14
	SRK-15S-29	17732	0.9	7	18	34	41
	SRK-15S-30	17734	0.9	9	51	33	7
	SRK-15S-30	17735	2.1	16		22	62
	SRK-15S-32	17737	0.6	33		39	28
	SRK-15S-33	17740	0.9	34		40	26
	SRK-15S-34	17739	1.1	8	46	32	14
	SRK-15S-35	17741	1.2	3	39	43	15
	SRK-15S-35	17743	5.2	6	18	31	46
	SRK-15TP-66	17620	0.85	10	38	31	21
	SRK-15TP-67	17621	0.5	4	22	36	39
	SRK-15TP-69	17617	0.75	0	6	40	54
	SRK-15TP-73	17615	1.75	6	32	32	31
	SRK-15TP-74	17614	0.75	5	33	36	26
	SRK-15TP-78	17610	1.5	4	22	44	31
	SRK-15TP-82	17606	0.8	9	38	33	20
	SRK-15TP-82A	17606-82A	1.3-3.5	16		38	46
	SRK-15TP-85	17626	0.75	6	27	29	38

3.3 Atterberg Limits

All Atterberg Limit test results are summarized in Table 3. Test results are plotted graphically on the Unified Plasticity Chart on Figure 11. Laboratory test certificates are provided in Appendix D-3.

Table 3: Atterberg Limit Results

Original Facility Location	Hole/Test Pit ID	Sample Number	Sample Depth (m)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Soil Plasticity *	Mod. USCS Class	Natural Moisture Content (%)
North Waste Rock Dump	SRK-15S-03	17728	0.6	99	62	37	High	OH	139.9
	SRK-15S-03	17729	6.7-7	0	0	0	NP	-	12.9
	SRK-15S-04	17725	1.1	129	85	44	High	OH	317.8
	SRK-15S-04	17726	3.7	0	19	0	NP	-	16.7
West Waste Rock Dump	SRK-15S-05	17702	2.7	33	27	6	Low	ML	50.3
	SRK-15S-06	17704	0.2	0	0	0	NP	-	6.8
	SRK-15S-07	17708	3.4	0	0	0	NP	-	12.4
	SRK-15S-08	17706	0.9	0	0	0	NP	-	28.3
	SRK-15S-08	17707	3.4	20	17	3	Low	ML	13.8
	SRK-15TP-50	17592	0.4	0	0	0	NP	-	63.0
	SRK-15TP-55	17628	0.3	0	0	0	NP	-	76.5
	SRK-15TP-56	17629	0.35	0	0	0	NP	-	68.4
South Waste Rock Dump	SRK-15S-09	17709	1.8	37	30	7	Low	ML	57.2
	SRK-15S-11	17711	2.3	0	0	0	NP	-	8.8
	SRK-15S-12	17712	2.4	0	0	0	NP	-	19.5
Heap Leach Pad (HLP)	SRK-15S-13A	17718	0.9	25	19	6	Low	CL-ML	16.2
	SRK-15S-20	17722	0.9	23	17	6	Low	CL-ML	73.1
	SRK-15S-25	17723	0.6	25	22	3	Low	ML	12.6
	SRK-15TP-03	17565	0.5-1	29	23	6	Low	ML	10.5
	SRK-15TP-20	17564	0.6	0	29	0	NP	-	20.7
	SRK-15TP-43	17560	0.6	0	21	0	NP	-	12.6
ROM Stockpile & Infrastructure Sites	SRK-15S-29	17732	0.9	0	0	0	NP	-	2.9
	SRK-15S-34	17739	1.1	20	16	4	Low	ML	14.9
	SRK-15S-35	17741	1.2	0	0	0	NP	-	44.9

* NP=Non-plastic.

3.4 Specific Gravity

The results of Specific Gravity tests are summarized in Table 4. Laboratory test certificates are provided in Appendix D-4.

Table 4: Specific Gravity Results

Original Facility Location	Hole ID	Sample Number, Sample Depth	Sample Description	Specific Gravity
North Waste Rock Dump	SRK-15S-03	17728, 0.6 m	ORGANIC SILT, some sand and clay, brown.	2.33
South Waste Rock Dump	SRK-15S-09	17709, 1.8 m	SILT, some sand, trace clay and gravel, brown.	2.64
Heap Leach Pad (HLP)	SRK-15S-20	17722, 0.9 m	SILT and SAND, some gravel, trace clay, brown.	2.63

3.5 Frozen Density

Six frozen bulk densities were completed on undisturbed samples from the Phase 1 sonic drilling program. The samples were selected to represent the ice-rich materials observed. The density results are summarized in Table 5 and the laboratory test certificates are provided in Appendix D-5.

Table 5: Frozen Density Measurements

Original Facility	Hole ID	Sample Number, Sample Depth	Sample Description	Moisture Content (%)	Frozen Density (kg/m^3)	Dry Density (kg/m^3)
North Waste Rock Dump	SRK-15S-03	17728, 0.6 m	ORGANIC SILT, some sand and clay, brown.	129	1,096	478
	SRK-15S-04	17725, 1.0 m	ORGANIC SILT, trace sand and clay	318	1,034	248
West Waste Rock Dump	SRK-15S-05	17702, 2.7 m	SILT, sandy, trace clay, trace gravel	50*	1,683	1,120
South Waste Rock Dump	SRK-15S-09	17709, 1.8 m	SILT, some sand, trace clay, trace gravel	95	1,383	711
Heap Leach Pad (HLP)	SRK-15S-13A	17718, 0.9 m	SILT and SAND, some gravel, trace clay	24	1,746	1,411
	SRK-15S-20	17722, 0.9 m	SILT and SAND, some gravel, trace clay	73*	1,405	812

* Samples obtained from sonic boreholes that are not drilled within the final facility footprints.

The natural moisture and densities in Table 5 indicate that ice-rich material are present in some areas of the site. Additional details regarding the location of the ice rich materials are presented in the Waste Rock Dump, Heap Leach and Infrastructure design reports.

3.6 Organic Matter

Two samples of near surface soils were tested to determine the organic content according to ASTM D2974 test method C. The results are summarized in Table 6 and the laboratory test certificates are provided in Appendix D-6.

Table 6: Organic Matter Test Results

Original Facility	Hole ID	Sample Number, Sample Depth	Sample Description	Organic Matter (%)
North Waste Rock Dump	SRK-15S-03	17728, 0.6 m	ORGANIC SILT, some sand and clay, brown.	5.8
	SRK-15S-04	17725, 1.0 m	ORGANIC SILT, trace sand and clay	31.2

3.7 Proctor Compaction Tests

Three standard proctor tests were completed on bulk samples collected from the test pit program. The results are summarized in Table 7 and the laboratory test certificates and compaction curves are provided in Appendix D-7.

Table 7: Compaction Test Results

Original Facility	Test Pit ID	Sample No.	Sample Depth (m)	Corrected Maximum Dry Density (kg/m3)	Corrected Optimum Moisture Content (%)
Heap Leach Pad	SRK-15TP-09	17579	0.75	2,094	10
Heap Leach Pad	SRK-15TP-04	17562	0.60	2,007	10
North Waste Rock Dump	SRK-15TP-34	17558	0.60	1,885	11

3.8 Consolidation Tests

One-dimensional consolidation tests were conducted on two preserved, ice-rich samples according to ASTM D2435. Samples were thawed during the consolidation testing process. The test samples are listed in Table 8 with the test results and certificates provided in Appendix D-8.

Table 8: Consolidation Test Samples

Original Facility	Hole ID	Sample No.	Sample Depth (m)
North Waste Rock Dump	SRK-15S-03	17728	0.7
South Waste Rock Dump	SRK-15S-09	17709	2.0

3.9 Direct Shear Tests

Three direct shear tests were completed. Two tests were completed on samples collected and preserved from the sonic drilling program (SRK-15S-05 and SRK-15S-13A). The third test was completed on a remolded sample re-compacted to 95% Standard Proctor based on the compaction result completed on sample 17579 at SRK-15TP-09 in the Heap Leach Pad area. The results are summarized in Table 9 with the laboratory certificates provided in Appendix D-9.

Table 9: Direct Shear Test Results

Original Facility	Hole/Test Pit ID	Sample No., Sample Depth	Sample Description	*Moisture Content (%)	*Wet Density kg/m^3	Coh. (kPa)	Friction Angle (deg)
West Waste Rock Dump	SRK-15S-05*	17702, 2.7 m	SILT, sandy, trace gravel and clay.	17.5	1,378	13	36
Heap Leach Pad	SRK-15S-13A*	17718, 0.9 m	SILT & SAND, some gravel, trace clay	16.2	1,686	12	35
Heap Leach Pad	SRK-15TP-17	17566, 0.4 m	SAND & GRAVEL, silty, trace clay, brown.	9.6	2,172	77	42

* Moisture content and density data shown represent the average of the three test points for each direct shear test.

4 References

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Knight Piésold Consulting, 2015. Coffee Gold Project, Report on Feasibility Study Level Geotechnical Investigations. Prepared for Kaminak Gold Corporation. KP Project No. DV101-00562/03. March 12, 2015.

5 Date and Signature Page

Signed on this 4th Day of January, 2016.

Prepared by

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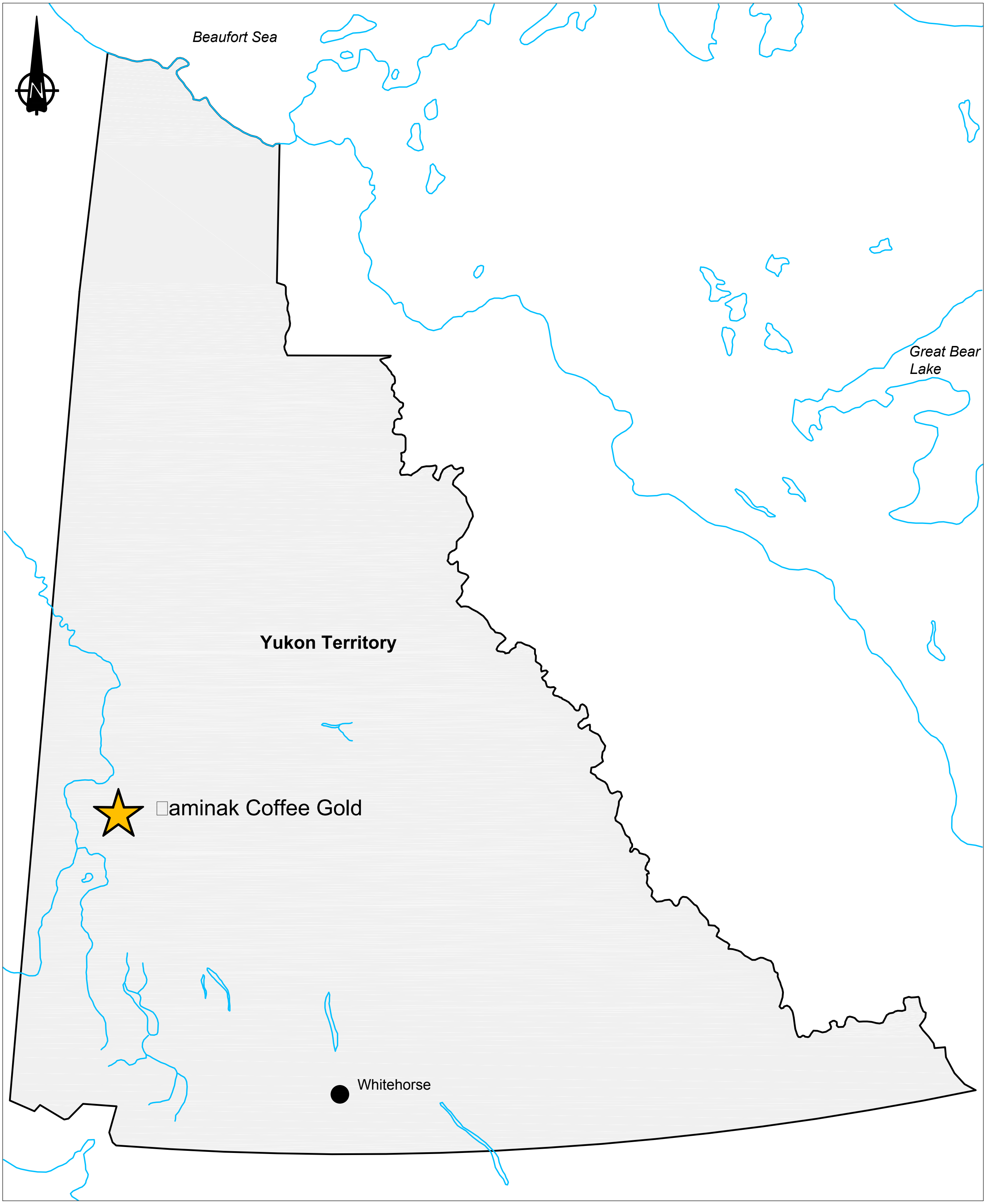
All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted industry practices.

Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (U.S.), Inc. (SRK) by Kaminak Gold Corporation (Kaminak). These opinions are provided in response to a specific request from Kaminka to do so, and are subject to the contractual terms between SRK and Kaminak. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report.

Figures



srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

Site Location

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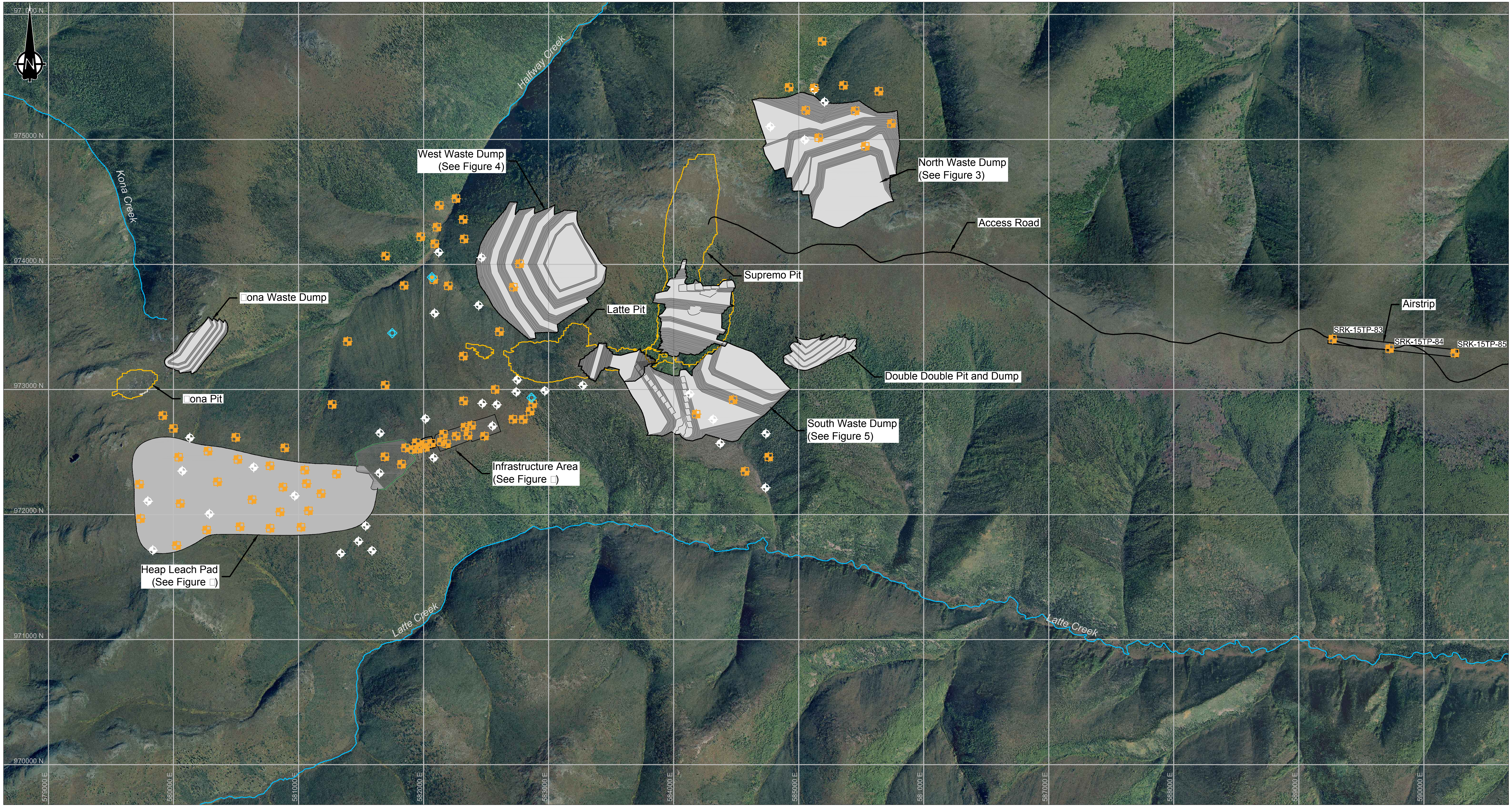

LEGEND

- Sonic Borehole Location
- Test Pit Location
- 25m Thermister Installation Location
- Creek Centerline (approximate)
- Plant Infrastructure
- Open Pits
- Heap leach and Waste Rock Dumps

NOTES

1. Orthophoto provided by □aminak, March 2015.
2. Pit, heap leach, and infrastructure locations provided by □aminak, □uly 2015.
3. Waste dump locations provided by □aminak on September 2□, 2015.

REFERENCE

NAD83 UTM Zone 7

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Inspection

General Arrangement

Coffee Gold

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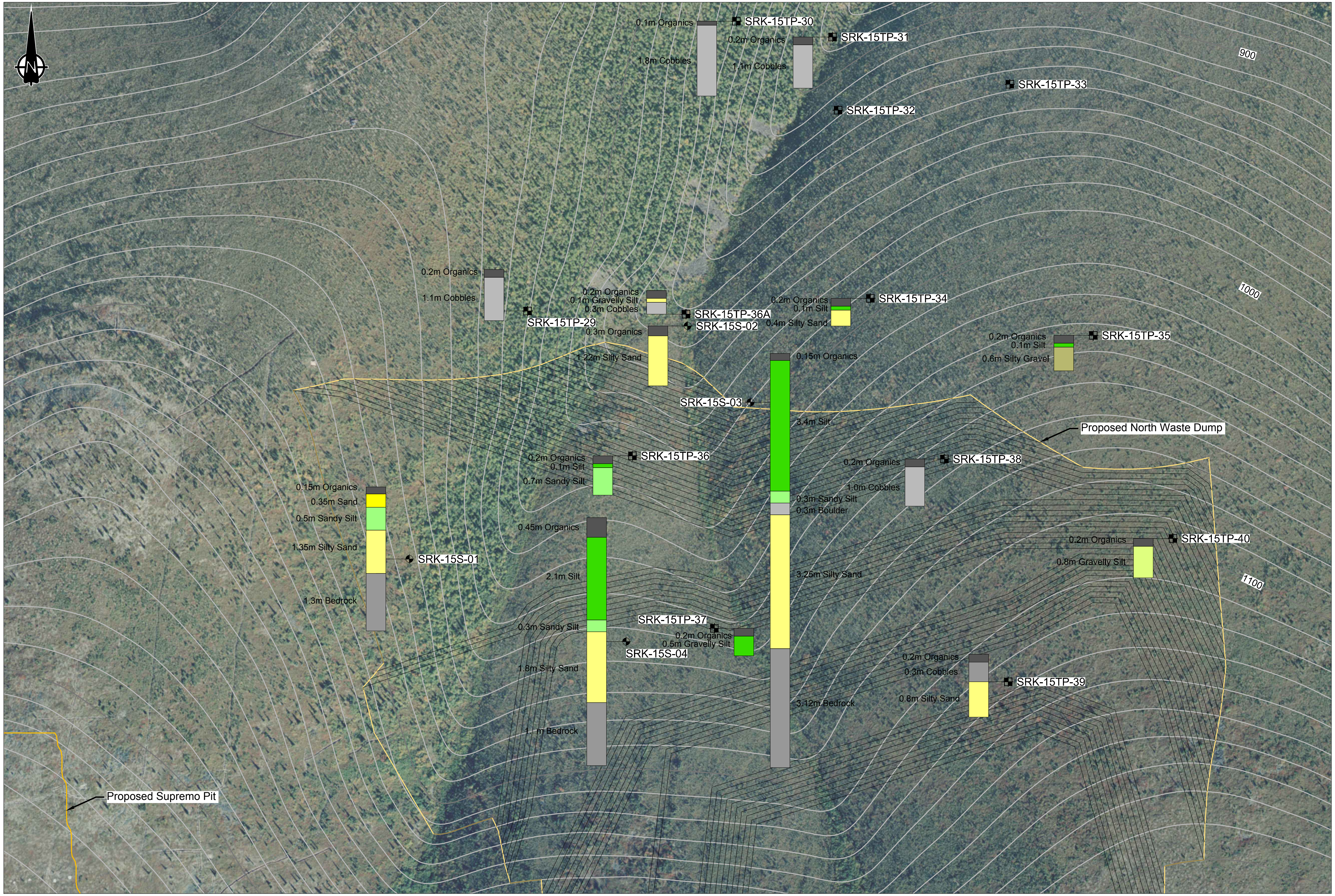


LEGEND

- Sonic Borehole Location
- Test Pit Location
- Proposed Pit Outline
- Proposed Waste Dump Outline

BOREHOLE STRATIGRAPHY LEGEND

- Organics
- Silts
- Sands
- Gravels□Cobbles
- Bedrock

NOTES

1. Contours shown at 2.0m interval.
2. Orthophoto provided by □aminak, March 2015.
3. Pit, heap leach and infrastructure locations provided by □aminak, □uly 2015.
4. Waste dump locations provided by □aminak, September 2□, 2015.
5. Stick log values indicate unit thickness.

REFERENCE

NAD83 UTM Zone 7

0m 50 100 150 200

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

North Waste Dump Area Boreholes and Test Pits

Coffee Gold

SR□ □OB NO.: 338□00.020

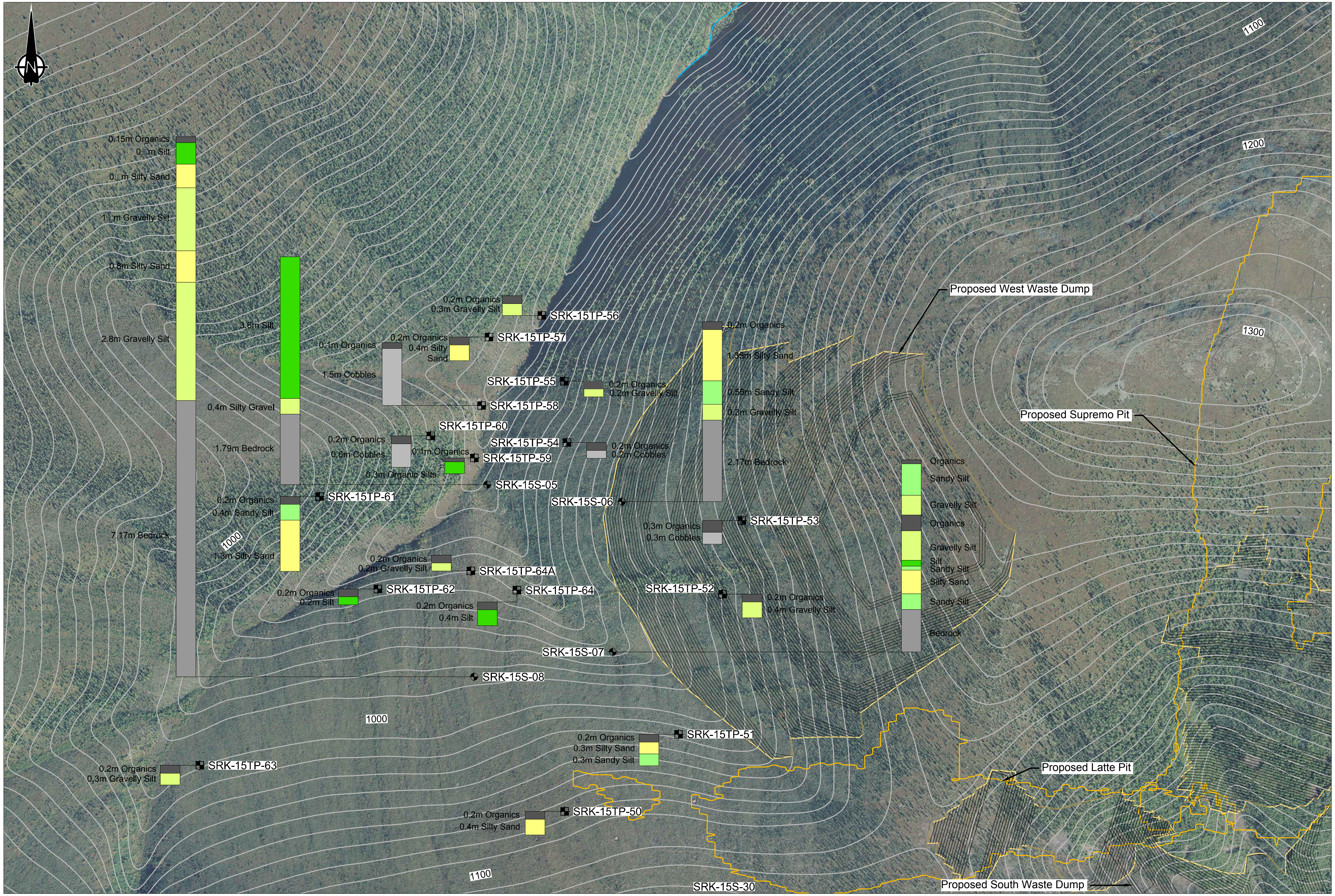
FILE NAME: 338□00.020 - Logs.dwg

DATE: 2015□10□2□

APPRO□ED: SM

FIGURE: 3

P:\01_SITES\Coffee Gold\040_AutoCAD\338□00.020 - Logs.dwg



LEGEND

- Sonic Borehole Location
- Test Pit Location
- Creek Centerline (approximate)
- Proposed Pit Outline
- Proposed Waste Dump Outline

BOREHOLE STRATIGRAPHY LEGEND

- Organics
- Silts
- Sands
- Gravels□Cobbles
- Bedrock

NOTES

1. Contours shown at 2.0m interval.
2. Orthophoto provided by □aminak, March 2015.
3. Pit, heap leach and infrastructure locations provided by □aminak, □uly 2015.
4. Waste dump locations provided by □aminak, September 2□, 2015.
5. Stick log values indicate unit thickness.

REFERENCE

NAD83 UTM Zone 7

0m 100 200 300 400

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

West Waste Dump Area
Boreholes and Test Pits

Coffee Gold

SR□ □OB NO.: 338□00.020

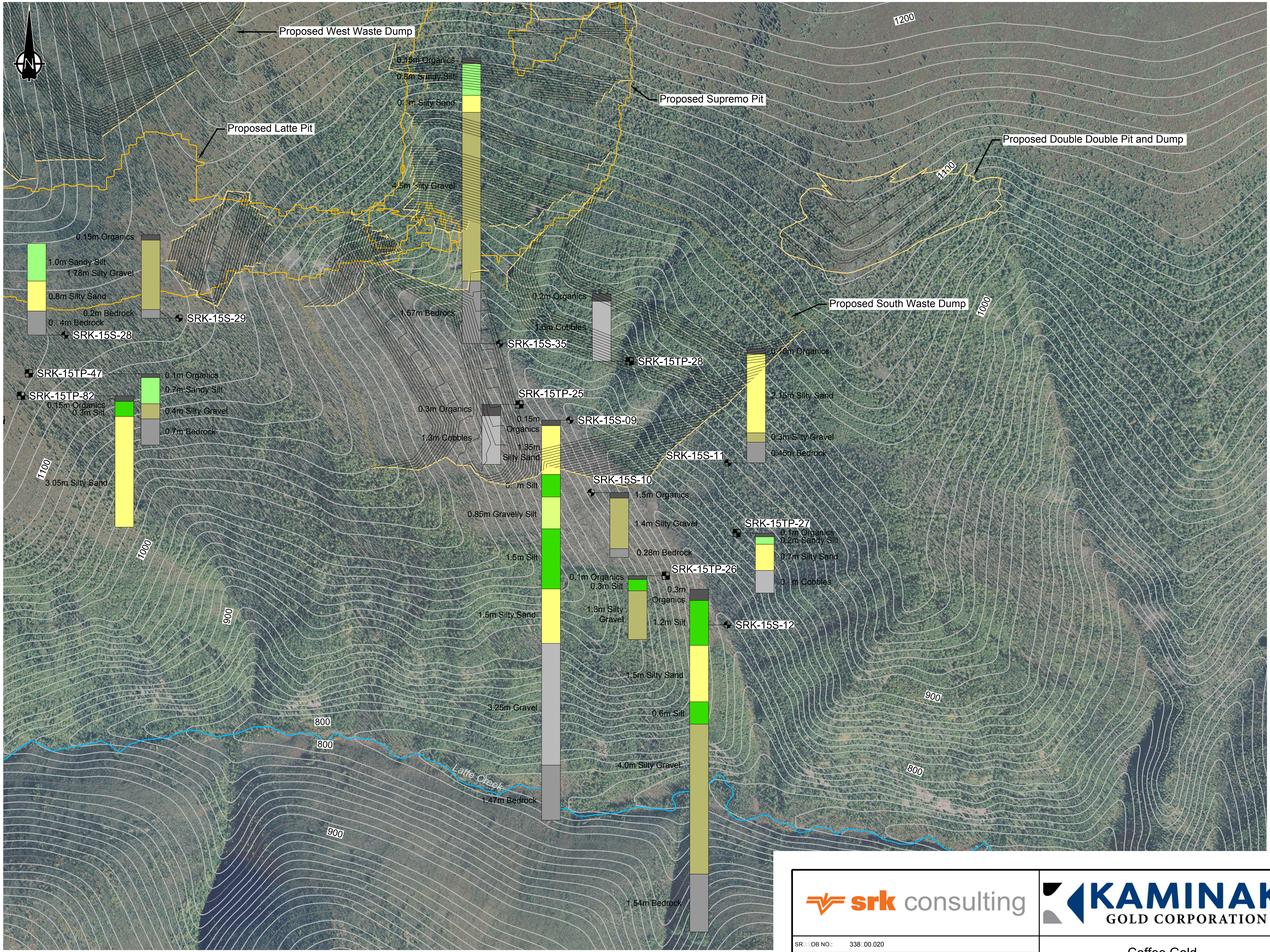
FILE NAME: 338□00.020 - Logs.dwg

DATE: 2015□10□2□

APPRO□ED: SM

FIGURE: 4

P:\01_SITES\Coffee Gold\340_AutoCAD\338□00.020 - Logs.dwg



LEGEND

- Sonic Borehole Location
- Test Pit Location
- Creek Centerline (approximate)
- Proposed Pit Outline
- Proposed Waste Dump Outline

BOREHOLE STRATIGRAPHY LEGEND

- Organics
- Silts
- Sands
- Gravels/Cobbles
- Bedrock

NOTES

1. Contours shown at 2.0m interval.
2. Orthophoto provided by □aminak, March 2015.
3. Pit, heap leach and infrastructure locations provided by □aminak, □uly 2015.
4. Waste dump locations provided by □aminak, September 2□, 2015.
5. Stick log values indicate unit thickness.

REFERENCE

NAD83 UTM Zone 7

0m 100 200 300 400

srk consulting

KAMINAK GOLD CORPORATION

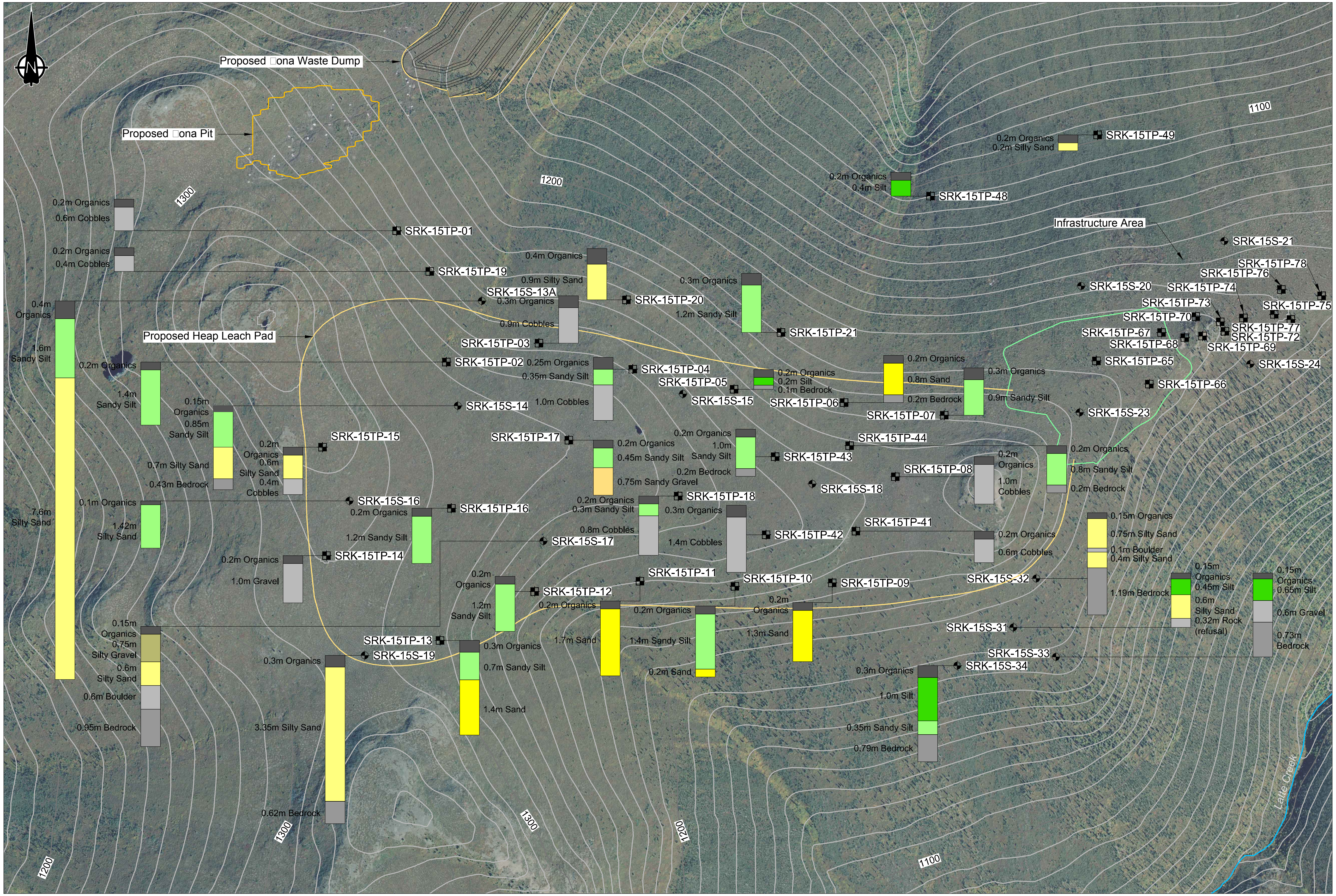
2015 Geotech Investigation

South Waste Dump Area
Boreholes and Test Pits

Coffee Gold

SR□ □OB NO.: 338□00.020		DATE: 2015□10□2□	APPRO□ED: SM	FIGURE: 5
FILE NAME: 338□00.020 - Logs.dwg				

P:\01_SITES\Coffee Gold\040_AutoCAD\338□00.020 - Logs.dwg



LEGEND

- Sonic Borehole Location
- Test Pit Location
- Creek Centerline (approximate)
- Proposed Pit Outline
- Proposed Heap Leach Outline
- Proposed Plant Infrastructure

BOREHOLE STRATIGRAPHY LEGEND

- Organics
- Silts
- Sands
- Gravels□Cobbles
- Bedrock

NOTES

1. Contours shown at 2.0m interval.
2. Orthophoto provided by □aminak, March 2015.
3. Pit, heap leach and infrastructure locations provided by □aminak, □uly 2015.
4. Waste dump locations provided by □aminak, September 2□, 2015.
5. Stick log values indicate unit thickness.

REFERENCE

NAD83 UTM Zone 7

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

Heap Leach Pad Area
Boreholes and Test Pits

SR□ □OB NO.: 338□00.020

FILE NAME: 338□00.020 - Logs.dwg

Coffee Gold

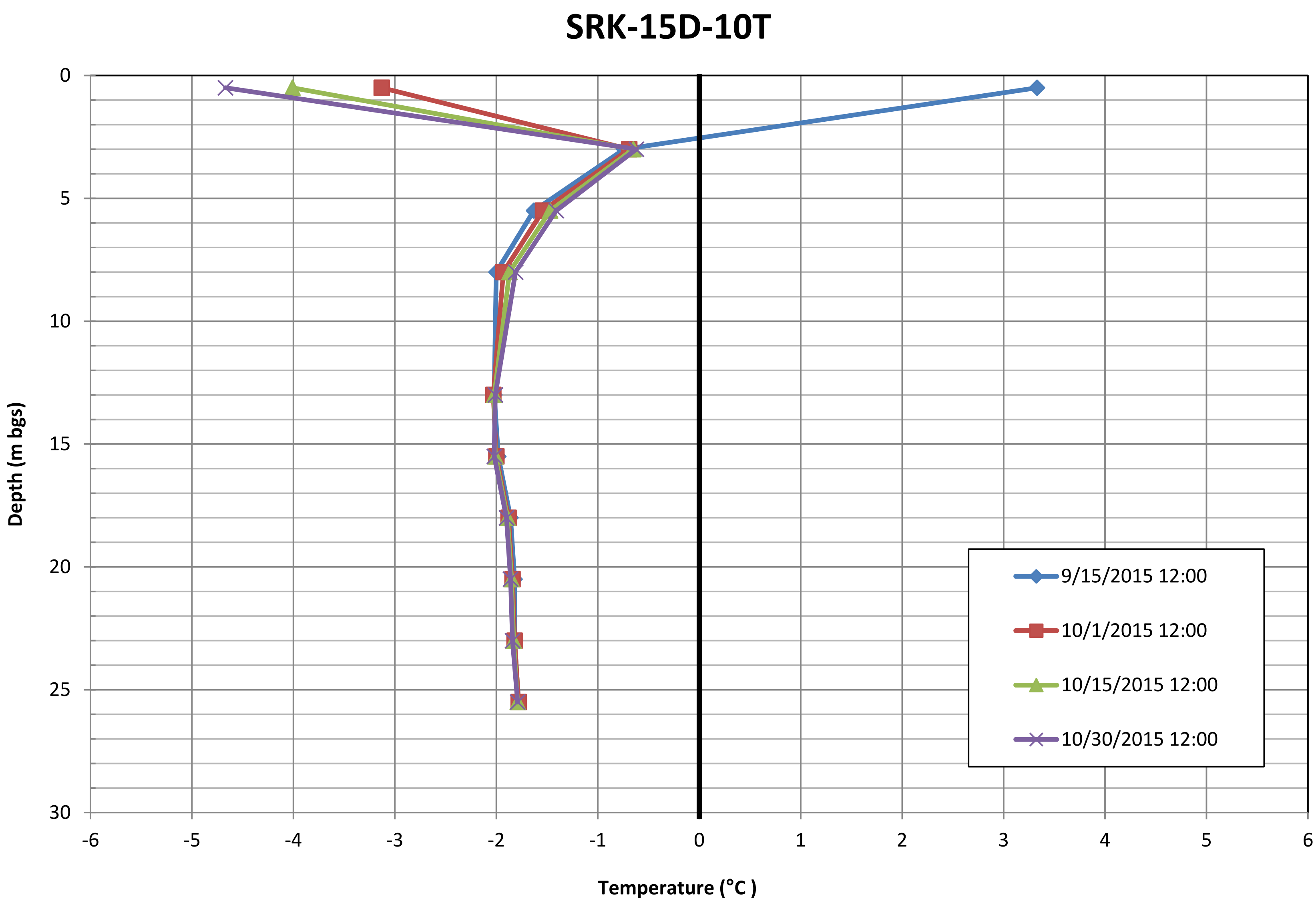
DATE: 2015□10□2□

APPRO□ED: SM

FIGURE: □

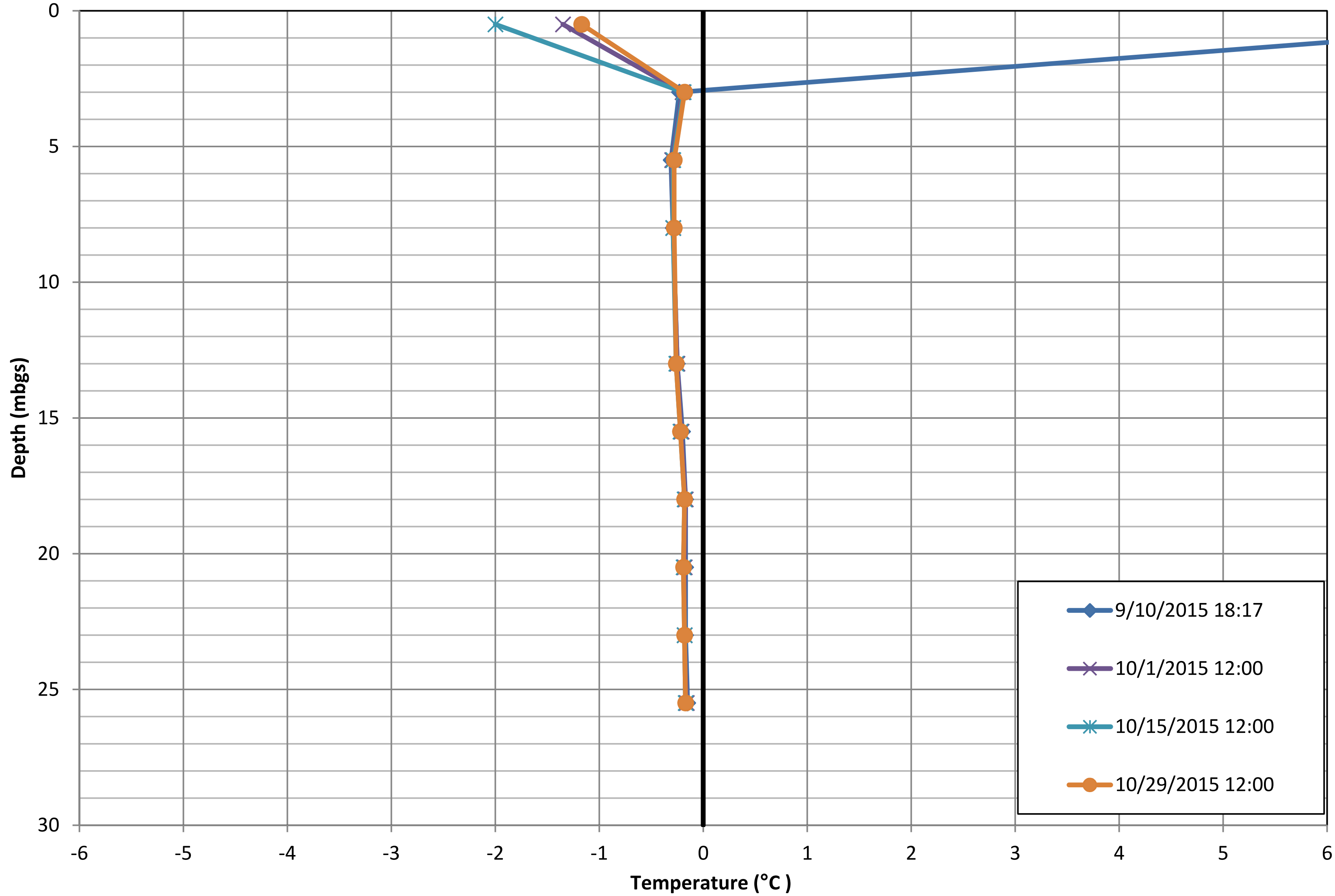
P:\01_SITES\Coffee Gold\040_AutoCAD\338_00.020 - Logs.dwg

SRK-15D-10T

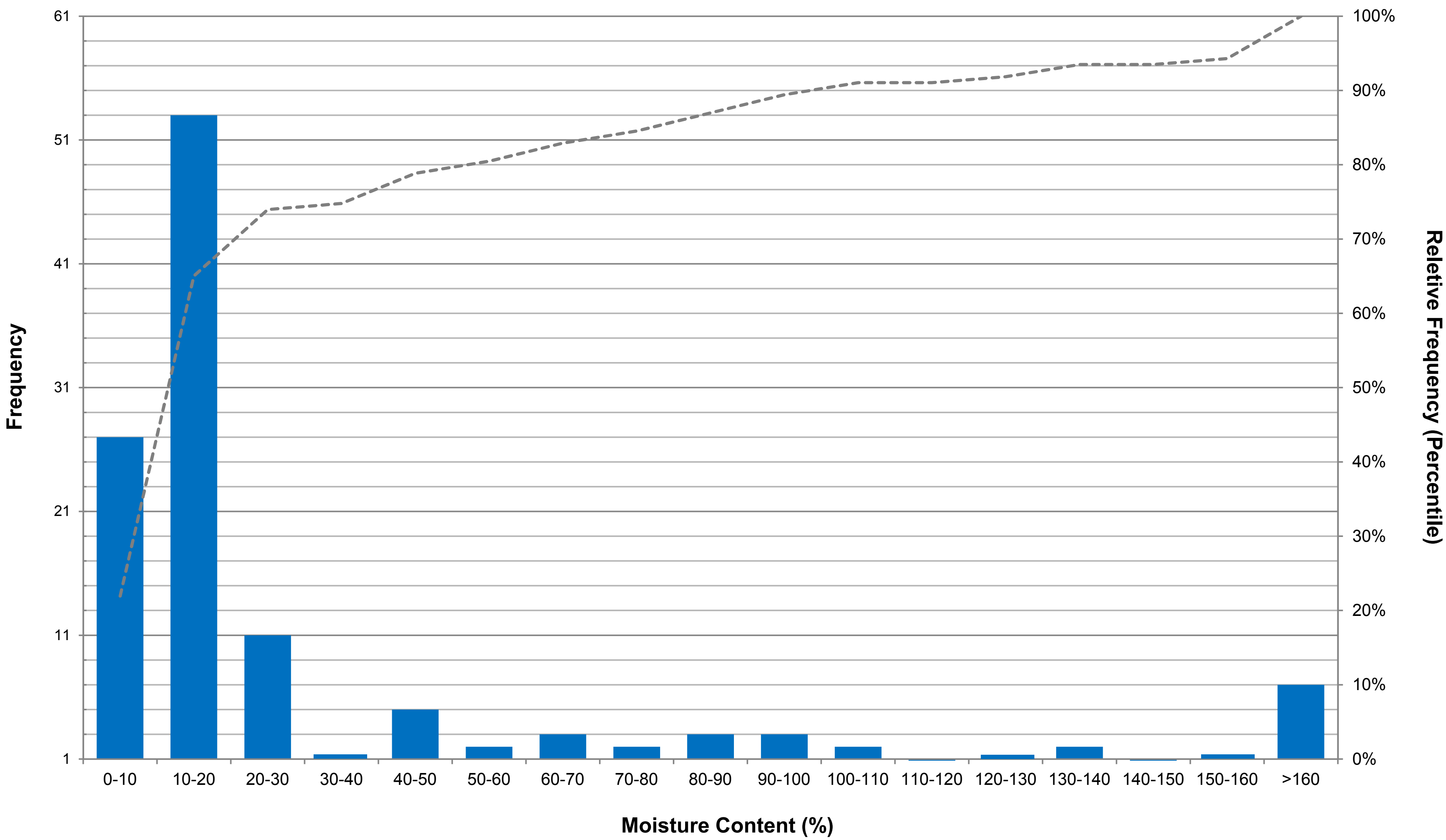


srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Ground Temperature Profile: SRK-15D-10T**
Job No: 338600.020 Filename: 7-Thermistor SRK-15D-10T.pptx	Coffee Gold Project	Date: December 2015 · Approved: SM · Figure: 7

SRK-15D-13T



srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Ground Temperature Profile: SRK-15D-13T**
Job No: 338600.020 Filename: 8-Thermistor SRK-15D-13T.pptx	Coffee Gold Project	Date: December 2015 / Approved: SM / Figure: 8



srk consulting

KAMINAK GOLD CORPORATION

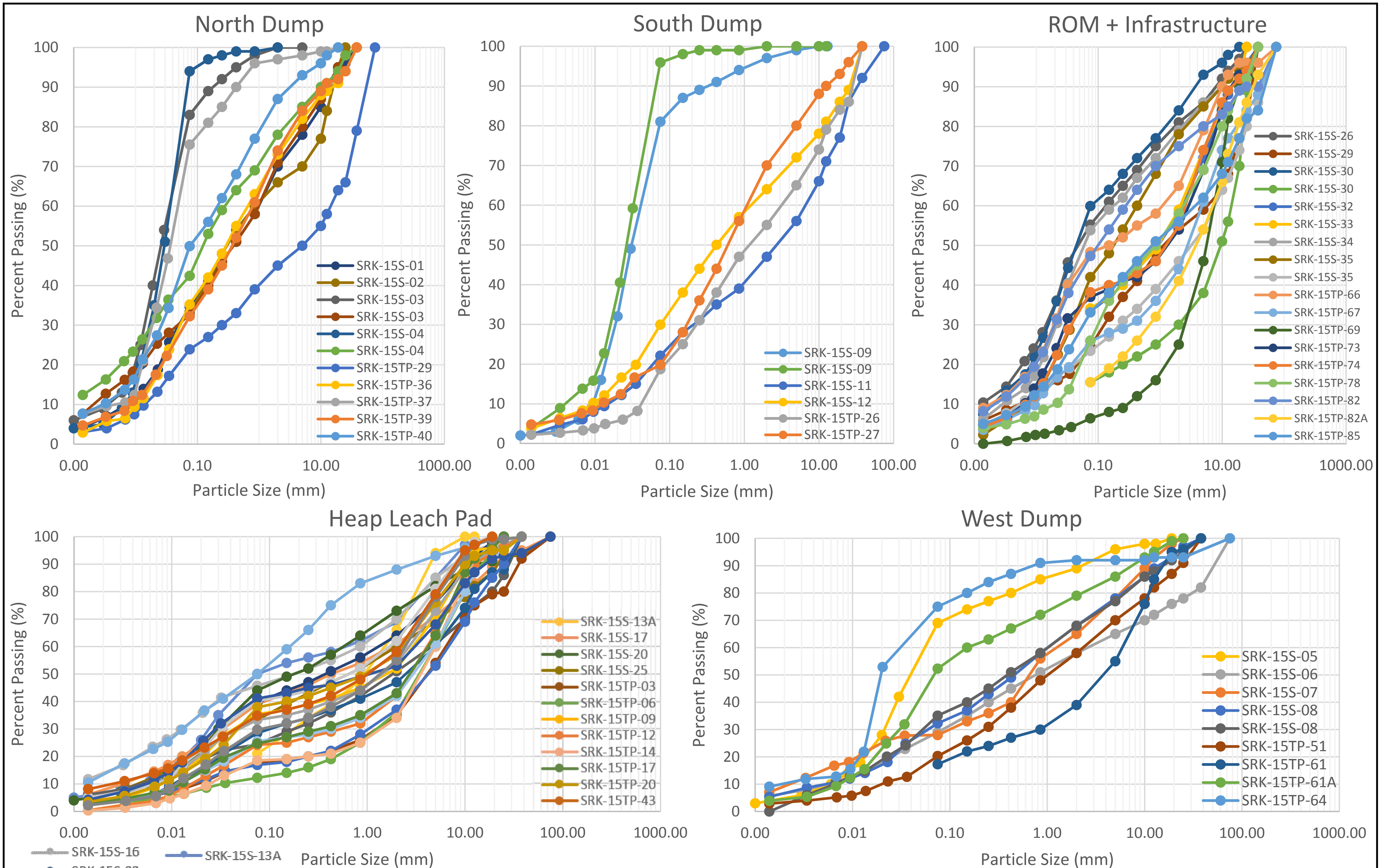
2015 Geotech Investigation

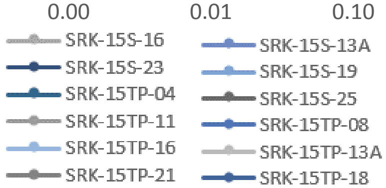
Histogram of Natural Moisture Content Measurements

Job No: 338600.020
Filename: 9 - Moisture Contents.pptx

Coffee Gold Project

Date:	Approved:	Figure:
December 2015	ML	9





srk consulting

KAMINAK GOLD CORPORATION

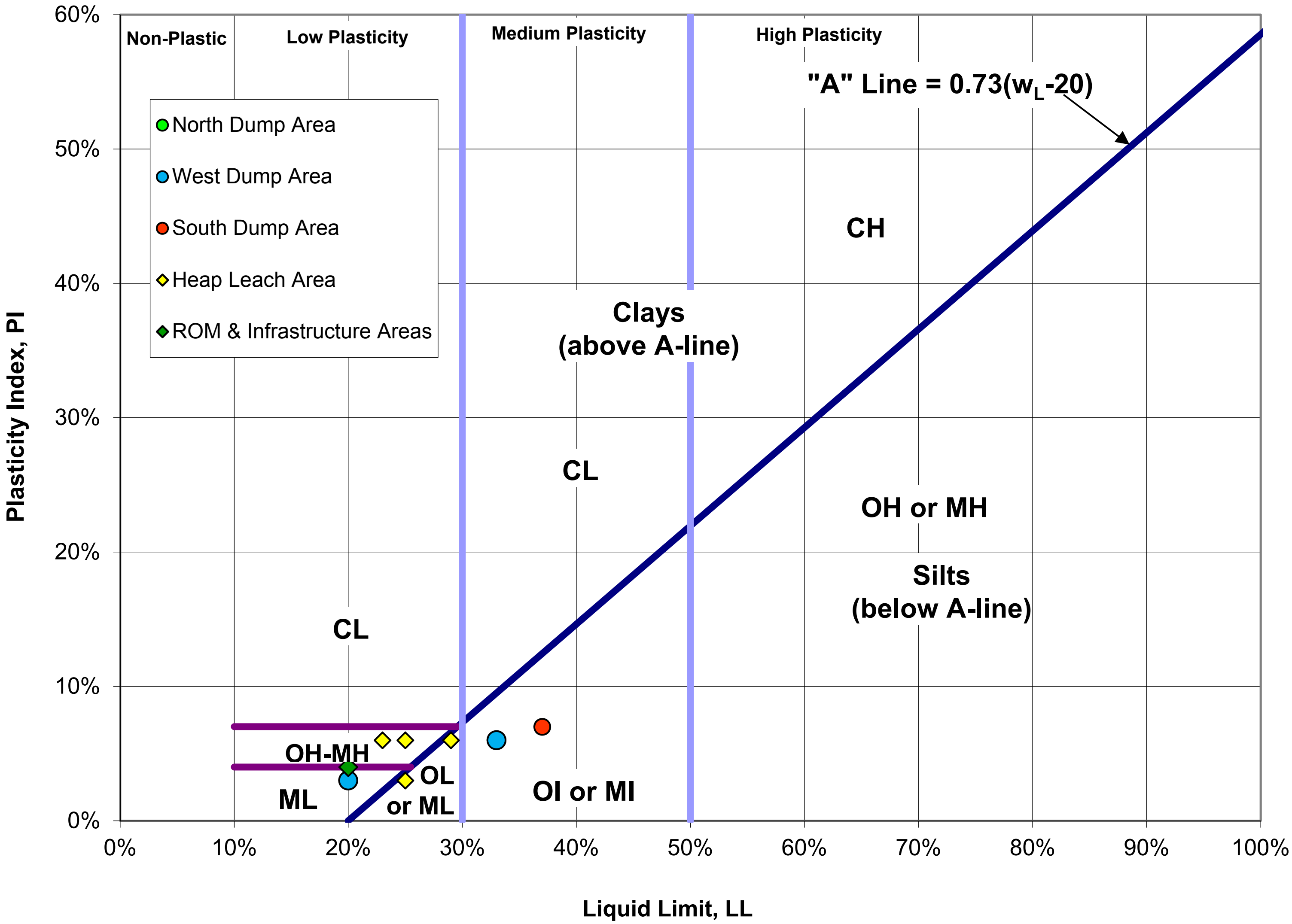
2015 Geotech Investigation

Particle Size Distributions by Original Facility Location

Job No: 338600.020
Filename: 10-PSD_Summary.pptx

Coffee Gold Project

Date: December 2015 | Approved: SM | Figure: **10**



Note:
Two North Dump Area Atterberg test results plotted off the charts:

1. Sample 17728 from SRK-15S-03 has a LL of 99% and a PI of 97% (OH);
2. Sample 17725 from SRK-15S-04 has a LL of 129% and a PI of 44% (OH).

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Atterberg Limit Result Summary
Job No: 338600.020 Filename: 11 – Atterberg Limit Summary.pptx	Coffee Gold Project	Date: December 2015 | Approved: SM | Figure: 11

Appendices

Appendix A: As-built Locations and Lab Test Program Summary

TABLE A-1: PHASE 1 SONIC DRILLING PROGRAM LABORATORY TEST PROGRAM

Borehole ID	Sample Number	Sample Depth (m)	As-built Location				Moisture Content	Atterberg Limits	Particle Size Distribution	Frozen Density	Organic Matter	Specific Gravity	Consolidation	Direct Shear
			Northing (m)	Easting (m)	Elevation (m)	Area								
SRK-15S-01	17727	1.1	6975101	584773	1077		✓		✓					
SRK-15S-02	17730	0.6	6975397	585126	946		✓		✓					
SRK-15S-03	17728	0.6	6975300	585206	986	North WRD		✓	✓	✓	✓	✓	✓	
SRK-15S-03	17729	6.7	6975300	585206	986		✓	✓	✓					
SRK-15S-04	17725	1.1	6974996	585048	1045			✓	✓	✓	✓			
SRK-15S-04	17726	3.7	6974996	585048	1045		✓	✓	✓					
SRK-15S-05	17701	1.1	6974097	582121	880		✓							
SRK-15S-05	17702	2.7	6974097	582121	880			✓		✓				
SRK-15S-05	17703	3.8	6974097	582121	880		✓							
SRK-15S-06	17704	0.2	6974054	582463	997	West WRD	✓	✓	✓					
SRK-15S-06	17705	1.2	6974054	582463	997		✓							
SRK-15S-07	17708	3.4	6973672	582440	956		✓	✓	✓					
SRK-15S-08	17706	0.9	6973609	582088	986		✓	✓	✓					
SRK-15S-08	17707	3.4	6973609	582088	986		✓	✓	✓					
SRK-15S-09	17709	1.8	6972761	584315	855			✓	✓	✓		✓	✓	
SRK-15S-09	17710	3.4	6972761	584315	855		✓		✓					
SRK-15S-10	-	-	6972568	584372	870	South WRD								
SRK-15S-11	17711	2.3	6972647	584737	915		✓	✓	✓					
SRK-15S-12	17712	2.4	6972215	584735	788		✓	✓	✓					
SRK-15S-13A	17718	0.9	6972614	580131	1259			✓	✓	✓				✓
SRK-15S-13A	17719	4.0	6972614	580131	1259		✓		✓					
SRK-15S-14	17714	1.2	6972348	580070	1305		✓							
SRK-15S-15	-	-	6972378	580641	1250									
SRK-15S-16	17715	0.6	6972107	579795	1313		✓		✓					
SRK-15S-17	17717	0.9	6972005	580287	1276		✓		✓					
SRK-15S-18	17720	1.2	6972150	580969	1264		✓							
SRK-15S-19	17713	2.7	6971715	579834	1311	HLP	✓		✓					
SRK-15S-20	17722	0.9	6972652	581651	1171			✓	✓	✓		✓		
SRK-15S-21	-	-	6972766	582014	1143									
SRK-15S-22	-	-	6972888	582469	1154									
SRK-15S-23	17721	0.6	6972331	581647	1199		✓		✓					
SRK-15S-24	-	-	6972454	582080	1170									
SRK-15S-25	17723	0.6	6972708	582551	1154		✓	✓	✓					
SRK-15S-25	17724	1.8	6972708	582551	1154		✓		✓					
SRK-15S-26	17736	0.6	6972878	582585	1143		✓		✓					
SRK-15S-27	-	-	6972980	582740	1144									
SRK-15S-28	-	-	6972988	582969	1119									
SRK-15S-29	17732	0.9	6973033	583273	1111		✓	✓	✓					
SRK-15S-30	17734	0.9	6973076	582748	1126		✓		✓					
SRK-15S-30	17735	2.1	6973076	582748	1126		✓		✓					
SRK-15S-31	-	-	6971786	581479	1205	ROM + Infrastructure								
SRK-15S-32	17737	0.6	6971910	581537	1202		✓		✓					
SRK-15S-33	17740	0.9	6971711	581587	1195		✓		✓					
SRK-15S-34	17739	1.1	6971689	581337	1181		✓	✓	✓					
SRK-15S-35	17741	1.2	6972965	584128	868		✓	✓	✓					
SRK-15S-35	17742	2.4	6972965	584128	868		✓							
SRK-15S-35	17743	5.2	6972965	584128	868		✓		✓					

\\VAN-SVR0\Projects\01_SITES\Coffee Gold\338600-020_Geotechnical Evaluation\Task202_Lab Testing\[!Sonic Summary Table_TS.xlsx]Sonic Summary

TABLE A-2: PHASE 2 TEST PIT PROGRAM LABORATORY TEST PROGRAM

Test Pit Hole ID	Sample Number	Sample Depth (m)	As-built Location				Moisture Content	Atterberg Limits	Particle Size Distribution	Compaction Test	Direct Shear
			Northing (m)	Easting (m)	Elevation (m)	Area					
SRK-15TP-01	-	-	6,972,792	579,915	1,257						
SRK-15TP-02	-	-	6,972,459	580,041	1,291						
SRK-15TP-03	17565	0.3	6,972,507	580,276	1,260		✓	✓	✓		
SRK-15TP-04	17563	0.6	6,972,441	580,514	1,249		✓		✓	✓	
SRK-15TP-05	17561	0.75	6,972,390	580,771	1,245		✓				
SRK-15TP-06	17559	0.7	6,972,356	581,050	1,218		✓		✓		
SRK-15TP-07	17557	0.85	6,972,324	581,304	1,233						
SRK-15TP-08	17581	0.85	6,972,168	581,180	1,246		✓		✓		
SRK-15TP-09	17579	0.75	6,971,899	581,020	1,238		✓		✓	✓	
SRK-15TP-10	17578	0.75	6,971,890	580,773	1,250		✓				
SRK-15TP-11	17575	0.7	6,971,903	580,532	1,254		✓		✓		
SRK-15TP-12	17574	0.6	6,971,877	580,265	1,274		✓		✓		
SRK-15TP-13	17573	0.65	6,971,753	580,025	1,295	HLP	✓				
SRK-15TP-13A	17623	0.55	6,972,614	580,131	1,259		✓		✓		
SRK-15TP-14	17572	0.85	6,971,968	579,737	1,324		✓		✓		
SRK-15TP-15	17571	0.45	6,972,243	579,727	1,343		✓				
SRK-15TP-16	17570	0.9	6,972,088	580,054	1,304		✓		✓		
SRK-15TP-17	17566	0.4	6,972,261	580,352	1,295		✓		✓		✓
SRK-15TP-18	17576	0.4	6,972,119	580,629	1,275		✓		✓		
SRK-15TP-19	-	-	6,972,689	579,999	1,264						
SRK-15TP-20	17564	0.6	6,972,617	580,498	1,239		✓	✓	✓		
SRK-15TP-21	17562	0.5	6,972,534	580,890	1,207		✓		✓		
SRK-15TP-41	17580	0.45	6,972,030	581,080	1,245		✓				
SRK-15TP-42	17577	0.85	6,972,021	580,852	1,278		✓				
SRK-15TP-43	17560	0.6	6,972,219	580,875	1,237		✓	✓	✓		
SRK-15TP-44	17558	0.6	6,972,247	581,064	1,236		✓				
SRK-15TP-25	17602	0.9	6,972,803	584,181	901		✓				
SRK-15TP-26	17603	0.75	6,972,346	584,571	836	South WRD	✓		✓		
SRK-15TP-27	17604	1	6,972,460	584,760	876		✓		✓		
SRK-15TP-28	17601	0.75	6,972,918	584,475	912		✓				
SRK-15TP-29	17591	0.75	6,975,416	584,923	1,021		✓		✓		
SRK-15TP-30	17590	1	6,975,784	585,188	953		✓				
SRK-15TP-31	31A	0.2	6,975,921	585,311	902		✓				
SRK-15TP-32	32A	0.1	6,975,651	585,328	937		✓				
SRK-15TP-32	32B	0.3	6,975,651	585,328	937		✓				
SRK-15TP-33	33A	0.1	6,975,114	585,537	946		✓				
SRK-15TP-33	33B	0.3	6,975,114	585,537	946		✓				
SRK-15TP-34	17588	0.45	6,975,432	585,358	988	North WRD	✓			✓	
SRK-15TP-35	17589	0.5	6,975,385	585,641	1,024		✓				
SRK-15TP-36	17586	0.6	6,975,232	585,056	1,007		✓		✓		
SRK-15TP-36A	17587	0.45	6,975,412	585,124	939		✓				
SRK-15TP-37	17585	0.45	6,975,013	585,160	1,046		✓		✓		
SRK-15TP-38	17584	0.6	6,975,228	585,452	1,063		✓				
SRK-15TP-39	17583	0.9	6,974,945	585,533	1,124		✓		✓		
SRK-15TP-40	17582	0.65	6,975,127	585,742	1,093		✓		✓		

SRK-15TP-48	17594	0.4	6,972,880	581,269	1,099		✓				
SRK-15TP-49	17593	0.3	6,973,035	581,693	1,084		✓				
SRK-15TP-50	17592	0.4	6,973,267	582,318	1,068		✓	✓			
SRK-15TP-51	17599	0.65	6,973,463	582,607	1,022		✓		✓		
SRK-15TP-52	17600	0.4	6,973,819	582,719	1,028		✓				
SRK-15TP-53	17605	0.45	6,974,006	582,768	1,066		✓				
SRK-15TP-54	17627	0.3	6,974,204	582,324	927		✓				
SRK-15TP-55	17628	0.3	6,974,360	582,317	923		✓	✓			
SRK-15TP-56	17629	0.35	6,974,527	582,260	853		✓	✓			
SRK-15TP-57	17630	0.4	6,974,472	582,126	868	West WRD	✓				
SRK-15TP-58	17631	0.6	6,974,298	582,107	898		✓				
SRK-15TP-59	17634	0.3	6,974,165	582,089	876		✓				
SRK-15TP-60	17632	0.45	6,974,221	581,978	910		✓				
SRK-15TP-61	17633	0.4	6,974,067	581,696	974		✓		✓		
SRK-15TP-61A	17633-61A	0.6-1.9	6,974,067	581,696	974		✓		✓		
SRK-15TP-62	17596	0.3	6,973,832	581,844	920		✓				
SRK-15TP-62	17596-62A	0.2	6,973,832	581,844	920		✓				
SRK-15TP-63	17595	0.35	6,973,384	581,392	1,005		✓				
SRK-15TP-64	17598	0.4	6,973,829	582,197	932		✓		✓		
SRK-15TP-64A	17597	0.3	6,973,878	582,080	928		✓				
SRK-15TP-22	17554	0.3-0.6	6,972,714	582,387	1,170						
SRK-15TP-23	17555	0.5-0.9	6,972,907	582,326	1,150						
SRK-15TP-24	17556	0.5-1.2	6,972,995	582,577	1,143						
SRK-15TP-45	17553	0.3-0.7	6,972,631	582,492	1,165						
SRK-15TP-46	17552	0.3-0.6	6,972,766	582,716	1,146						
SRK-15TP-47	17551	0.3-0.6	6,972,881	582,871	1,133						
SRK-15TP-65	-	-	6,972,461	581,698	1,205						
SRK-15TP-66	17620	0.85	6,972,400	581,830	1,204		✓		✓		
SRK-15TP-67	17621	0.5	6,972,538	581,851	1,198		✓		✓		
SRK-15TP-68	17618	0.75	6,972,516	581,916	1,203		✓				
SRK-15TP-69	17617	0.75	6,972,526	581,968	1,199		✓		✓		
SRK-15TP-70	17619	0.75	6,972,579	581,943	1,188		✓				
SRK-15TP-72	17616	0.75	6,972,545	582,017	1,189		✓				
SRK-15TP-73	17615	1.75	6,972,562	582,011	1,188	ROM and Infrastructure	✓		✓		
SRK-15TP-74	17614	0.75	6,972,576	582,068	1,182		✓		✓		
SRK-15TP-75	17613	0.75	6,972,572	582,143	1,181		✓				
SRK-15TP-75A	17613-75A	0.5-1.0	6,972,580	582,141	1,179		✓				
SRK-15TP-76	17611	0.6	6,972,644	582,165	1,179		✓				
SRK-15TP-77	17612	0.75	6,972,573	582,178	1,181		✓				
SRK-15TP-78	17610	1.5	6,972,624	582,265	1,176		✓		✓		
SRK-15TP-79	17609	0.75	6,972,692	582,328	1,172		✓				
SRK-15TP-80	17608	0.75	6,972,629	582,359	1,171		✓				
SRK-15TP-81	17607	0.75	6,972,765	582,806	1,135		✓				
SRK-15TP-82	17606	0.8	6,972,824	582,849	1,131		✓		✓		
SRK-15TP-82A	17606-82A	1.3-3.5	6,972,826	582,852	1,133		✓		✓		
SRK-15TP-83	17624	0.75	6,973,403	589,270	1,183		✓				
SRK-15TP-84	17625	0.75	6,973,327	589,726	1,172		✓				
SRK-15TP-85	17626	0.75	6,973,291	590,248	1,165		✓		✓		

Appendix B: Borehole and Test Pit Logs

Appendix B-1: Borehole Logs

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15S-01**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 584773 E 6975101 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1077
DIP: -90
TOTAL DEPTH (m): 3.66
BORING DATE: 14-Apr-15 To 14-Apr-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Moisture Content	Grain Size Analysis
0	1077		OL/OH	ORGANIC soils, dark brown					
			SW-SM	Well graded SAND with silt and gravel, greyish brown, low plasticity		Nf	no visible ice		
			ML	Sandy SILT, grey, wet.	Poor recovery (30%). Coarse fragments are angular.	Nbe	The large amount of water present indicates the soil likely contains significant excess ice, with the melt water induced by drilling. No visible ice segregation observed in frozen sample.		
1	1076	17727 (GRAB)	SM	Silty SAND with gravel, grey, wet. Coarse gravel fragments are angular		Nbe	Same as above, no visible excess ice observed.	●	22/43/35 *30/5*
2	1075								
				BEDROCK, light grey	R5.				
3	1074				EOH at 3.66m.				

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-02**
SITE:	Coffee Gold
LOCATION:	North Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	585126 E 6975397 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	946
DIP:	-90
TOTAL DEPTH (m):	1.52
BORING DATE:	14-Apr-15 To 14-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size
0	946		OL/OH	ORGANICS, dark grey	Moss and fibrous lichens found.		Most of the core was thawed due to heat induced by drilling as a result of cobbles in the hole. Of the remaining frozen core, no visible ice was observed.	
		17730	SM	Silty SAND with gravel, brownish grey, non plastic. Coarse gravel/cobbles are subangular.	Slow drilling, portions of core is warm/dry due to drilling. Core is wet from 1.2 to 1.5m (bottom of run). Nearby ground surface consists of boulder zones Moisture content test result is lower than expected insitu value as sample was collected from a portion of the core that was dry due to heat caused by the drill.	N		30/37/33
1	945							
				Refusal	EOH at 1.52m on boulder.			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-03**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 585206 E 6975300 N
DATUM: UTM Zone 7
GROUND ELEV (m): 986
DIP: -90
TOTAL DEPTH (m): 10.52
BORING DATE: 14-Apr-15 To 14-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size (Gravel/Sand/Fines)	Silt/Clay (%)
0	986		OL/OH	Organic silts, dark brown.	Moss and fibrous lichens found.				
0.15			MH	SILT with sand, trace organics, dark brown, moist, medium to high plasticity.		Nbe	No visible ice segregation observed.		
0.6–0.9		17728 (UNDISTURBED)			Moisture content: 129.4%; frozen density: 1096kg/m3; dry density: 478 kg/m3; Organic matter: 5.8%; SG: 2.33			0/17/83	76/7
1	985								
1.35			ML	SILT with sand and gravel, dark brown, wet, low to medium plasticity. Approximately 10% gravel with gravel content increasing with depth.		Vc / Vx	Ice coatings and individual ice inclusions were observed over approximately 10% of the run. The large amount of melt water indicates the soil likely contains significant excess ice.		
2	984								
3	983								
3.5			ML	Sandy SILT with gravel, grey, wet, non-plastic	Coarse fragments 40% of recovery. Slower drilling.		Core is unfrozen likely due to heat generated by drilling through boulder.		
3.8				BOULDER					
4	982								
4.1			SM	Silty SAND with gravel, grey, non-plastic, wet. Approx. 20% gravel, with sub-angular fragments.	Boulder at 5.2m; Boulder at 5.9m	Vc / Vx	No significant ice segregation observed. Small Ice inclusions and ice coated particles observed on coarse faction with estimated (~5% visible ice). The large amount of water present indicates the soil likely contains significant excess ice.		
5	981								
6	980								

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-03**
SITE:	Coffee Gold
LOCATION:	North Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[name redacted]

COORDINATES:	585206 E 6975300 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	986
DIP:	-90
TOTAL DEPTH (m):	10.52
BORING DATE:	14-Apr-15 To 14-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Moisture/Limits	Grain Size Analysis
~6.8–7.0		GRAB 17729	Sand				NP	20/47/32 *23/9*
7	979							
~7.5–10.52			Bedrock	BEDROCK	Drill had difficulties recovering core due to fall out.			
8	978							
9	977							
10	976							
10.52					EOH at 10.52m on hard rock bottom.			
11	975							

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KAMINAK GOLD CORPORATION

Kaminak - Coffee Gold
FS Geotechnical Evaluation
Kaminak Gold Corporation

HOLE ID:	**SRK-15S-04**		
SITE:	Coffee Gold		585048 E
LOCATION:	North Dump		UTM Zone 7
PROJECT NO:	338600.020		
DRILLING CONTRACTOR:	Boart Longyear		-90
DRILLING TYPE:	Sonic Drill Rig		6.25
LOGGED BY			13-Apr-15 To 13-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%) — *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Moisture / Limits	Grain Size (Gravel/Sand/Fines)	Silt/Clay (%)
0	1045		OL/OH	Organic SILT with sand, dark brown	Moss and fibrous lichens found.	Nf	poorly bonded			
			ML	SILT, trace sand, grey, medium to high plasticity, wet		Vx	No significant ice segregation visible. Approximate 5% ice inclusions visible by volume.			
1	1044	17725 (UNDISTURBED)			Moisture content: 317.8%; frozen density: 1034kg/m3; dry density: 248 kg/m3; Organic matter: 31%				0/6/94	90/4
				SILT with sand, some gravel, grey, low plasticity, wet. Approximately 10% gravel	Angular cobbles from 1.22 to 1.37m.	Nbn	Approximately 50% of drill run is unfrozen due to heat generated during drilling. Soil likely contains significant excess ice due to the large amount of water present in sample.			
2	1043				Rock layer at 1.83m.					
				Sandy SILT with gravel (10-20%), brownish grey, moist to wet, low to medium plasticity	150mm uniform orange sand layer at 2.74m.	Nf	poorly bonded			
3	1042		SM	Silty SAND with gravel (20%), orange to grey, moist, non-plastic Gravel fragments are sub-angular						
						Vx	Small ice inclusions typically 2-4 mm in diameter. Ice volume makes up 5 to 15% of soil			
4	1041	17726 (GRAB)						NP	15/43/43	29/14
				BEDROCK		ICE	Large ice inclusion, 50mm thick. Ice volume makes up approximately 75% of total			
5	1040									
6	1039				EOH at 6.25m.					

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15S-05**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 582121 E 6974097 N
DATUM: UTM Zone 7
GROUND ELEV (m): 880
DIP: -90
TOTAL DEPTH (m): 5.79
BORING DATE: 3-Apr-15 To 3-Apr-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); Silt/Clay (%)

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Lab Data
0.0–0.3	880		ML	SILT with sand, trace gravel (1 to 5%), brownish grey, non-plastic, moist	No organics. Surface disturbed during rig pad construction.	Nf		
0.3–1.5	879	17701 (GRAB, ~1.1 m)	ML			Nbn	No significant ice segregation visible. Small portions of the run (5%) contain small individual ice inclusions (<1mm diameter) with an estimated <5% excess ice content by volume.	Moisture Content: 256%
1.5–2.7	878		ML	SILT with sand, trace gravel (1 to 5%), non-plastic to low plasticity. Some mixing of organics present: silt is grey and organics are dark brown.	50mm thick layer of coarse sand/gravels; 50mm thick layer silt	Nbn	No significant ice segregation visible. Approximately 10% of the drill run contains small individual ice inclusions (<1mm diameter) with an ice content estimated to be 3% of total my volume.	
2.7–3.65	877	17702 (UNDISTURBED, ~2.8 m)	ML	SILT with sand, trace of clay and gravels (1-5% gravel), grey, non-plastic to low plasticity. Some interbedded layers of organics and uniform silts/clays present.	Moisture content: 50.3%; frozen density: 1683kg/m3; dry density: 1120kg/m3	Nbn		Gravel/Sand/Fines: 4/26/70; Silt/Clay: 66/4
3.65–4.1	876	17703 (GRAB, ~3.8–4.1 m)	GM	Silty GRAVEL with sand, grey, wet, noncohesive	5% to 20% angular to sub angular cobbles.	Nf	No significant amount of ice visible.	
4.1–4.88				BEDROCK, light grey	Slow drilling, bedrock pulverised due to drilling		Sample was hot 56.7 °C and dry due to drilling.	
4.88–5.79	875			BEDROCK, dark grey	Multiple angular jointed pieces 50 - 100 mm in length with the largest being 150 mm. Starting to drill with water at 4.88m. Fewer fines due to washing with water. R3. EOH at 5.79m.			
6	874							

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KAMINAK GOLD CORPORATION

Kaminak - Coffee Gold
FS Geotechnical Evaluation
Kaminak Gold Corporation

HOLE ID: **SRK-15S-06**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY

582463 E
UTM Zone 7

-90
4.57
3-Apr-15 To 3-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Moisture/Limits	Grain Size Analysis
0	997		OL/OH	Organics, dark brown, wet	LFH recovered in core is approximately 220 mm. Fibrous, little to no roots penetrating into mineral soil.				
		17704	SM	Silty SAND with gravel, brown, poorly-graded, noncohesive, non-plastic, angular, moist.		Nf		NP	35/36/29 *23/6*
1	996	17705	SM	Silty SAND, dark grey, wet. Interbedded layers of sands (50 mm thick) and silts (2 to 3 mm thick). Sands are poorly-graded, non-plastic. Silts have low plasticity.		Nb	No visible ice segregation, negligible ice film on gravel sizes and in sand voids.		
2	995		ML	Sandy SILT, some gravel (10 to 15%), grey, noncohesive, non-plastic, moist. Gravel is angular to sub-angular.	Recovered core was warm due to heat generated by drilling.		No significant visible ice segregation observed.		
			ML	Gravelly SILT with sand, grey, noncohesive, non-plastic, moist. Gravel (20 to 30%) consisted of angular to sub-angular fragments.		Nf	Poorly bonded, no visible ice segregation observed.		
3	994			BEDROCK, dark grey	R3, multiples angular jointed pieces 50 - 100 mm in length with the largest being 150 mm. Coarse fragments make up 40% of recovery, few gravel, both angular, sub rounded, few fines in dry drilling section. Starting to drill with water at 3.05m.				
4	993				EOH at 4.57m.				

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-07**

SITE: Coffee Gold

LOCATION: West Dump

PROJECT NO: 338600.020

DRILLING CONTRACTOR: Boart Longyear

DRILLING TYPE: Sonic Drill Rig

LOGGED BY: [[name redacted]]

COORDINATES: 582440 E 6973672 N

DATUM: UTM Zone 7

GROUND ELEV (m): 956

DIP: -90

TOTAL DEPTH (m): 4.88

BORING DATE: 5-Apr-15 To 5-Apr-15

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Moisture / Limits (%)	Grain Size Analysis
0	956		OL/OH	Organics, dark brown, moist	Moss and fibrous lichens found.			
			ML	Sandy SILT, trace gravel, grey, low to medium plasticity, moist. Contains organic intermixed layers. Gravel is medium sized (5-10mm) with angular shape.		Nbn		
1	955		ML	Gravelly SILT, grey, low plasticity. Gravel (~20%) is angular to sub-angular.		Nbn		
			OL	Organic, gravelly SILT, dark brown, low plasticity. Angular coarse fragments 20%.	At 1.52m large woody chunks recovered in core.	Nbn		
2	954		ML	Gravelly SILT with sand, grey, moist., non-plastic to low plasticity. Gravel (10 to 40%) is angular, poorly graded.		Nbn		
3	953		ML	SILT with sand, trace gravel (5%), dark grey, wet. Gravel is angular and poorly graded.		Nbn		
			SM	Sandy SILT, some gravel, light grey, low plasticity, moist.		Nbn		
		17708 (GRAB)	SM	Silty SAND with gravel, light grey, wet, Gravel (approx.5 to 20%) is angular to sub-angular	150mm thick layer uniform angular gravel at 3.35m.	Nbn	NP	22/50/28; *19/9*
4	952		ML	Sandy SILT, some gravel, light grey, wet.		Nbn		
				BEDROCK, light grey	Difficult to determine exact bedrock contact due to drilling pulverizing rock.	UF		
					Slow drilling. quartz rich content. R5.	UF		
					EOH at 4.88m.			
5	951							

Ice Description comment: No significant visible ice observed.

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-08**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 582088 E 6973609 N
DATUM: UTM Zone 7
GROUND ELEV (m): 986
DIP: -90
TOTAL DEPTH (m): 13.72
BORING DATE: 4-Apr-15 To 4-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Lab	Grain Size
0	986		OL/OH	Organics, dark brown, moist.	Moss and fibrous lichens found.				
			ML	SILT with sand, greyish brown, moist, low plasticity to non-plastic.		Nbe	1-5% of run includes ice inclusions that are 5mm in length and 1-2mm thick.		
1	985	17706	SM	Silty SAND with gravel (20 to 25%), grey, non-plastic, wet. Gravel is angular to sub-angular.		Nbn	No significant visible ice segregation. Scattered through the run are visible ice coated particles. (estimated <5% of total volume	NP	22/46/32 *26/6*
			ML	Gravelly SILT with sand, grey, low plasticity to non-plastic, wet		Vr	20-30 mm wide randomly oriented ice formation. Ice is grey-white, porous.		
2	984		ML	Gravelly SILT with sand, grey, low plasticity to non-plastic. 10 to 25% gravel content		Vx	Clear ice inclusions up to 20mm in diameter. Excess ice content estimated 10 to 30%.		
			ML	Gravelly SILT, with sand, greyish brown, low plasticity, wet, cohesive. 20% gravel content	100mm wide band of uniform sand at 2.44m.	Nbn	No significant amount of ice segregation visible		
3	983	17707	SM	Silty SAND with gravel, greyish brown, low plasticity, moist.	1.5m of wash in hole.				23/42/35 *33/2*
4	982		ML	Gravelly SILT with sand, greyish brown, low plasticity, moist					
5	981								
6	980								

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15S-08**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 582088 E 6973609 N
DATUM: UTM Zone 7
GROUND ELEV (m): 986
DIP: -90
TOTAL DEPTH (m): 13.72
BORING DATE: 4-Apr-15 To 4-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Depth (m)
				WEATHERED BEDROCK	Coarse angular fragments 20-30% of run, weathered bedrock appears as sand and silt. R0		
7	979						7
						Nf — No significant amount of ice visible	
8	978						8
9	977						9
				BEDROCK	Coarse angular fragments 20-30 % of run, pulverized rock.		
10	976						10
				WEATHERED BEDROCK	Coarse angular fragments 20-30 % of run, pulverized rock. Highly weathered bedrock appears as sand and silt.		
11	975						11
				BEDROCK	R4.		
12	974						12
13	973						13

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-08**
SITE:	Coffee Gold
LOCATION:	West Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[name redacted]
COORDINATES:	582088 E 6973609 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	986
DIP:	-90
TOTAL DEPTH (m):	13.72
BORING DATE:	4-Apr-15 To 4-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	(%)	Grain Size Analysis	Depth (m)
			Bedrock		EOH at 13.72m.				
14	972								14

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID:	**SRK-15S-09**
SITE:	Coffee Gold
LOCATION:	South Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]

COORDINATES:	584315 E 6972761 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	855
DIP:	-90
TOTAL DEPTH (m):	10.67
BORING DATE:	5-Apr-15 To 5-Apr-15

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size (Gravel/Sand/Fines)	Silt/Clay (%)
0	855		OL/OH	Organics, dark brown, moist.	Moss and fibrous lichens found	Nbn			
			SM	Silty SAND with gravel, greyish brown, low plasticity, moist.		Nbn	No significant amount of ice segregation visible. Scattered through the run are visible ice coated particles. (estimated <3% of total volume)		
			SM	Silty SAND with gravel, greyish brown, low plasticity, wet	200 mm piece of woody. 50 mm thick organic layer at 1.22m.	Nbn			
1	854								
			ML	SILT with sand, dark brown, medium plasticity, wet	Moisture content: 94.6%; frozen density: 1383kg/m3; dry density: 711kg/m3; SG: 2.64	Nbn	No significant amount of ice visible		
2	853	17709 (UNDISTURBED)						2/17/80	80/2
			ML	Gravelly SILT, grey, low to medium plasticity, moist		Nbn			
3	852								
			ML	SILT, trace sand, grey, low plasticity, moist		Nbe	Small, clear, random ice inclusions visible: 5mm long and thin 1-2mm. total volume of ice includions estimated to be <3% of total volume		
		17710 (GRAB)						0/4/96	91/5
4	851		ML	SILT, some sand, grey, low plasticity, moist	Intermixed organic layer 300 mm thick at 3.96m.	Nbn	No significant amount of ice visible		
			SM	Silty SAND with gravel, grey, noncohesive, low plasticity, moist. Gravel (25%) is angular to sub angular		Nf	No significant amount of ice segregation visible. Scattered through the run are visible ice coated particles. (estimated <3% of total volume),		
5	850						Slow drilling due to coarse soils, resulted in melting of core.		
6	849								
				Well graded GRAVEL with silt and sand, reddish brown, non-plastic	Transitional bedrock gravels and coarse fragments, with weak weathered sands				

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-09**
SITE:	Coffee Gold
LOCATION:	South Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	584315 E 6972761 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	855
DIP:	-90
TOTAL DEPTH (m):	10.67
BORING DATE:	5-Apr-15 To 5-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments
7	848	GW-GM		
8	847			
9	846		BEDROCK	R5.
10	845			EOH at 10.67m.
11	844			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-10**
SITE: Coffee Gold
LOCATION: South Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]

COORDINATES: 584372 E 6972568 N
DATUM: UTM Zone 7
GROUND ELEV (m): 870
DIP: -90
TOTAL DEPTH (m): 1.83
BORING DATE: 7-Apr-15 To 8-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Depth (m)
0	870		OL/OH	Organics, dark brown, moist.	Moss and fibrous lichens found			0
			GM	Silty GRAVEL with sand, dark grey, non-plastic, moist. Gravel (~40%) is angular to sub-angular.		Nbn	No significant amount of ice visible	
1	869				The drill is having difficulties gripping onto the bedrock surface below the 40-50% slope. The drillhead was damaged and required replacement at 1.22m.	UF	Sample affected by heat generated during drilling. Core temperature: 57°C.	1
				BEDROCK	R5. EOH at 1.83m.			

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KAMINAK GOLD CORPORATION

PROJECT:	Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT:	Kaminak Gold Corporation
HOLE ID:	**SRK-15S-11**
SITE:	Coffee Gold
LOCATION:	South Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	584737 E 6972647 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	915
DIP:	-90
TOTAL DEPTH (m):	3.05
BORING DATE:	6-Apr-15 To 6-Apr-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Moisture / Limits	Grain Size	Silt/Clay (%)
0	915		OL/OH	Organics, dark brown, moist.	Moss and fibrous lichens found					
			SM	Silty SAND with gravel, grey, low plasticity, moist. Gravel (~40%) is angular to sub-angular.		Nbn	No ice visible.			
1	914									
2	913									
		17711	GM	Silty GRAVEL with sand, dark grey, non-plastic, wet. Gravel (~50%) is angular to sub-angular.	Difficulty drilling in coarser material.	UF	Core unfrozen due to heat generated by drilling.	NP	44/34/22	19/3
				BEDROCK						
3	912				EOH at 3.05m.					

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HOLE ID:	**SRK-15S-12**	COORDINATES:	584735 E 6972215 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	South Dump	GROUND ELEV (m):	788
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	9.14
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	7-Apr-15 To 7-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Moisture / Limits (%)	Grain Size Analysis
0–0.3	788		OL/OH	Organics, dark brown, moist.	Moss and fibrous lichens found			
0.3–1.5			ML	SILT with sand, trace gravel, dark greyish brown, low plasticity. Gravel (~5 to 10%) are ancular to sub-angular.		Nbn	No ice visible.	
1.5–3.05		17712 (GRAB)	SM	Silty SAND with gravel, dark greyish-brown, moist, non-plastic. Gravel (~5 to 20%) is sub-angular.		UF	NP	28/42/30 *25/5*
3.05–3.65			ML	SILT with sand, dark greyish brown, wet, low plasticity		UF		
3.65–6.6+			GM	Silty GRAVEL with sand, brown to reddish brown, low plasticity, wet	Boulder at 4.57m. Water table between 6.1 and 7.62m, lots of slough entering hole	UF		

Depth scale (m): 0, 1, 2, 3, 4, 5, 6; Elev (m): 788, 787, 786, 785, 784, 783, 782

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-12**
SITE: Coffee Gold
LOCATION: South Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 584735 E 6972215 N
DATUM: UTM Zone 7
GROUND ELEV (m): 788
DIP: -90
TOTAL DEPTH (m): 9.14
BORING DATE: 7-Apr-15 To 7-Apr-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Depth (m)
7	781		Gravel				7
~7.6			Bedrock	BEDROCK	R5.		
8	780		Bedrock				8
9	779		Bedrock		EOH at 9.14m.		9

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-13A**	COORDINATES:	580131 E 6972614 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach B	GROUND ELEV (m):	1259
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	9.6
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	10-Apr-15 To 10-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Grain Size Analysis
0	1259		OL/OH	Organics, dark brown, moist.	Moss and fibrous lichens found			
0.45–2.0		17718 (UNDISTURBED, ~1.0 m)		Sandy SILT with gravel, greyish-brown, low plasticity, moist	Moisture content: 23.7%; frozen density: 1,746kg/m3; dry density: 1,411kg/m3	Nbn	No significant ice segregation visible. 1-3% of run has small ice inclusions that are 2-3 mm dia..	15/35/50 *44/6*
2.0–2.6	1257		SM	Silty SAND with gravel, reddish brown, non-plastic, poorly graded		Nf		
2.6–		17719 (GRAB, ~4.0 m)	SM	Silty SAND, trace gravel, greyish brown, non-plastic. Weathered rock.	Coarse fragments are small weathered rock and break apart easily in your hands. Uniform sand.	Nf		6/73/21
					Uniform sand with 0.3m coarse weathered rock bands at 5.33m.			
					Uniform sand with 0.3m coarse weathered rock bands at 6.1m.			

Depth/Elev scale: 0 1259, 1 1258, 2 1257, 3 1256, 4 1255, 5 1254, 6 1253

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15S-13A**
SITE: Coffee Gold
LOCATION: Heap Leach B
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 580131 E 6972614 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1259
DIP: -90
TOTAL DEPTH (m): 9.6
BORING DATE: 10-Apr-15 To 10-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Depth (m)
7	1252				7
8	1251			Uniform sand with 0.3m coarse weathered rock bands at 7.92m.	8
9	1250			EOH at 9.60m (refusal). Sand and rocks in contact with drill steel causing difficulty to advance drilling.	9
10	1249				10

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-14**
SITE: Coffee Gold
LOCATION: Heap Leach B
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 580070 E 6972348 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1305
DIP: -90
TOTAL DEPTH (m): 2.13
BORING DATE: 9-Apr-15 To 9-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1305		OL/OH	Organics, dark brown, moist	Moss and fibrous lichens found		
			ML	Sandy SILT with gravel, dark greyish brown, non-plastic, moist. Gravel (10-20%) is sub-angular	10% of recovery is coarse fragments, sub angular to angular	Nbn	No visible ice observed
1	1304	17714 (GRAB)	SM	Silty SAND, reddish grey, dry, non-plastic.		UF	Core unfrozen due to heat generated by drill (core temperature: 51°C).
2	1303			BEDROCK	R5. EOH at 2.13m.		

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KAMINAK GOLD CORPORATION

PROJECT:	Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT:	Kaminak Gold Corporation
HOLE ID:	SRK-15S-15
SITE:	Coffee Gold
LOCATION:	Heap Leach B
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	580641 E 6972378 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1250
DIP:	-90
TOTAL DEPTH (m):	2.59
BORING DATE:	10-Apr-15 To 10-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1250	OL/OH	Organics, dark brown	Moss and fibrous lichens found		
			BOULDER			
		ML	Gravelly SILT with, grey, low plasticity	Hard granite boulder at 0.46m, drill having difficulties gripping onto rock at the shallow depth. Dry with moist areas. Coarse angular and sub angular fragments 10-15% of recovery.	UF	Core unfrozen due to heat generated by drill.
1	1249					
2	1248					
			BEDROCK	EOH at 2.59m.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-16**		
SITE:	Coffee Gold	COORDINATES:	579795 E 6972107 N
LOCATION:	Heap Leach B	DATUM:	UTM Zone 7
PROJECT NO:	338600.020	GROUND ELEV (m):	1313
DRILLING CONTRACTOR:	Boart Longyear	DIP:	-90
DRILLING TYPE:	Sonic Drill Rig	TOTAL DEPTH (m):	1.37
LOGGED BY:	[[name redacted]]	BORING DATE:	9-Apr-15 To 9-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Moisture	Grain Size Analysis
0	1313		OL/OH	Organics, dark brown, moist	Moss and fibrous lichens			
			SM	Silty SAND, trace gravel, greyish brown, low plasticity, moist. Gravel (5%) is sub-angular.		Nbn		
		17715	SM	Silty SAND with gravel, grey, non-plastic to low plasticity.	Starting to drill with water at 0.91m.	Nbn: No visible ice observed	●	15/39/46 *32/14*
1	1312			Refusal	150mm of granite rock recovered. Drilled wet with marginal success, Sonic rig is at its limitation when contacting rock at shallow depths when there is no string weight. EOH at 1.52m (refusal and limitations of drill).			

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15S-17**
SITE: Coffee Gold
LOCATION: Heap Leach B
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 580287 E 6972005 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1276
DIP: -90
TOTAL DEPTH (m): 2.44
BORING DATE: 9-Apr-15 To 9-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size Analysis
0	1276		OL/OH	Organics, dark brown, moist	Moss and fibrous lichens found			
			GM	Silty GRAVEL with sand, greyish brown, moist. 40-50% gravel.		Nbn	No visible ice observed	
1	1275	17717	SM	Silty SAND with gravel, greyish, non-plastic, dry to moist. Gravel (~20%) is sub-angular to sub-rounded.		UF	Sample affected by heat generated during drilling. Core temperature: 58°C.	29/32/39 *32/7*
				BOULDER, grey	Coarse rock fragments recovered			
2	1274			BEDROCK, grey				
3	1273				EOH at 3.05m.			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-18**
SITE: Coffee Gold
LOCATION: Heap Leach B
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 580969 E 6972150 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1264
DIP: -90
TOTAL DEPTH (m): 2.59
BORING DATE: 11-Apr-15 To 11-Apr-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1264		OL/OH	Organics, dark brown	Moss and fibrous lichens found.		
			ML	Sandy SILT, dark brown, low to medium plasticity, moist	Woody roots intermixed with silty sand.	Nbn	No visible ice observed
			ML	Silty SAND, some sand and gravel, greyish brown, moist, low plasticity		UF	Sample affected by heat generated during drilling. Core temperature: 50°C.
				BOULDER	Coarse rock boulder fragments.		
1	1263	17720 (GRAB)	ML	Sandy SILT with gravel, greyish, moist, low plasticity			
				BOULDER, grey			
2	1262			BEDROCK	EOH at 2.59m.		

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HOLE ID:	**SRK-15S-19**	COORDINATES:	579834 E 6971715 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach B	GROUND ELEV (m):	1311
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	4.27
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	8-Apr-15 To 8-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Sample Type: GRAB, UNDISTURBED

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Grain Size Analysis
0	*1311*		OL/OH	Organics, dark brown	Moss and fibrous lichens found.			
			SM	Silty SAND, medium brown, dry, poorly graded, moist	Roots developed into sample to 0.6m.	Nbn	No visible ice observed	
1	*1310*		SM	Silty SAND with gravel,brownish grey, low plasticity, moist.		Nbn		
2	*1309*		SM	Silty SAND, trace gravel, greyish, non-plastic, noncohesive, dry to moist, poorly graded	Bound soil particles are easily broken with fingers	Nf		
3	*1308*	17713 (GRAB)	SM			Nf		7/43/50 *37/13*
4	*1307*			BEDROCK, greyish	30% of recovery is coarse bedrock fragments. EOH at 4.27m (refusal).	Nf		

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HOLE ID: **SRK-15S-20**
SITE: Coffee Gold
LOCATION: Heap Leach A
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 581651 E 6972652 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1171
DIP: -90
TOTAL DEPTH (m): 2.74
BORING DATE: 8-Apr-15 To 8-Apr-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size Analysis
0	1171		OL/OH	Organics, dark brown, wet	Moss and fibrous lichens found			
			SM	Sandy SILT with gravel, dark grey, wet		Nbe	Small ice inclusions and ice coated particles (~1mm thick), Excess ice content estimated to be ~15-25% of total volume.	
1	1170	17722 (Undisturbed)			Moisture content: 73.1%; frozen density: 1,405kg/m3; dry density: 812kg/m3	Nbn	No visible ice observed	18/38/44 *39/5*
2	1169		ML			UF	Sample affected by heat generated during drilling. Core temperature: 65°C.	
				BEDROCK	EOH at 2.74m.			

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HOLE ID: **SRK-15S-21**
SITE: Coffee Gold
LOCATION: Heap Leach A
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 582014 E 6972766 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1143
DIP: -90
TOTAL DEPTH (m): 1.98
BORING DATE: 12-Apr-15 To 12-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1143	OL/OH	Organics, dark brown	Moss and fibrous lichens found		
		ML	Sandy SILT, greyish brown, low plasticity, moist		Nbn	No visible ice observed
		ML	Sandy SILT with gravel, grey, wet. Gravel (30%) is angular to sub-angular.		Nbn	No visible ice segregation observed. Frost like ice inclusions visible in pore spaces of the granular materials.
1	1142	ML	Sandy SILT with gravel, grey, wet, low to medium plasticity. Gravel (20% is angular to sub-angular.		UF	Sample affected by heat generated during drilling (core temperature: 55°C).
2	1141		BEDROCK	EOH at 2.44m.	UF	

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PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-22**
SITE: Coffee Gold
LOCATION: Heap Leach A
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 582469 E 6972888 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1154
DIP: -90
TOTAL DEPTH (m): 3.81
BORING DATE: 13-Apr-15 To 13-Apr-15

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1154	OL/OH	Organics, dark brown, moist	Moss and fibrous lichens found		
		ML	Sandy SILT gravel, greyish brown, wet		N	No ice visible; ice conditions difficult to interpret due to high disturbance of the core.
1	1153	GM	Well graded GRAVEL with sand and cobbles, greyish brown. Gravel (50%) is sub-angular	Slow drilling and due to high gravel/cobble content resulted in heat generation and melting and drying of the core		Sample affected by heat generated during drilling due to high gravel/cobble content. Core temperature: 86°C,
2	1152		WEATHERED BEDROCK, greyish brown			
3	1151		BEDROCK	EOH at 3.81m.		
4	1150					

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HOLE ID:	**SRK-15S-23**		
SITE:	Coffee Gold	COORDINATES:	581647 E 6972331 N
LOCATION:	Heap Leach A	DATUM:	UTM Zone 7
PROJECT NO:	338600.020	GROUND ELEV (m):	1199
DRILLING CONTRACTOR:	Boart Longyear	DIP:	-90
DRILLING TYPE:	Sonic Drill Rig	TOTAL DEPTH (m):	2.44
LOGGED BY:	[[name redacted]]	BORING DATE:	11-Apr-15 To 11-Apr-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size Analysis
0	1199		OL/OH	Organics, dark brown	Moss and fibrous lichens found			
			ML	Sandy SILT, some gravel, greyish brown, moist, low plasticity		Nbn	No visible ice segregation observed. Frost like ice inclusions visible in pore spaces in coarser areas of the soil.	
1	1198	17721	SM	Silty SAND with gravel, greyish brown, moist, non plastic to low plasticity			No ice visible; Sample affected by heat generation during drilling.	24/36/40
2	1197			Bedrock	EOH at 2.44m.	UF		

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PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-24**
SITE: Coffee Gold
LOCATION: Heap Leach A
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 582080 E 6972454 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1170
DIP: -90
TOTAL DEPTH (m): 2.74
BORING DATE: 12-Apr-15 To 12-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1170	OL/OH	Organics, dark brown	Moss and fibrous lichens found		
		ML	SANDY SILT, trace of gravel clay, grey, low plasticity		Nf	No ice visible
		SM	Silty SAND with gravel, grey, non plastic to low plasticity. Gravel (~10-20%) is angular to sub-angular		UF	No ice visible. Sample affected by heat generated during drilling (temperature at the bottom core is 70°C).
1	1169		BOULDER, grey			
		GM	Silty GRAVEL with sand, grey, dry. Gravel (>50%) is angular to sub rounded.			Sample affected by heat generated during drilling. Core temperature: 75°C
2	1168		BEDROCK, grey	R5. EOH at 2.74m.		

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PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-25**

SITE: Coffee Gold

LOCATION: Heap Leach A

PROJECT NO: 338600.020

DRILLING CONTRACTOR: Boart Longyear

DRILLING TYPE: Sonic Drill Rig

LOGGED BY: [[name redacted]]

COORDINATES: 582551 E 6972708 N

DATUM: UTM Zone 7

GROUND ELEV (m): 1154

DIP: -90

TOTAL DEPTH (m): 3.2

BORING DATE: 12-Apr-15 To 12-Apr-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size (Gravel/Sand/Fines)	Silt/Clay (%)
0	1154		OL/OH	Organics, dark brown	Moss and fibrous lichens found				
		17723	SM	Silty SAND with gravel, trace cobbles, brown, wet, non plastic to low plasticity		Nbn	No ice visible	31/35/34	27/7
1	1153								
		17724	GM	WEATHERED BEDROCK: Silty gravel and sand	Soft and hard rock fragments that are weathered into sands, easily broken in hands, trace of clay present.	UF	No ice visible. Sample affected by heat generated during drilling.	39/37/25	18/7
2	1152								
				BEDROCK, grey	R5. EOH at 3.20m.				
3	1151								

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HOLE ID:	**SRK-15S-26**	COORDINATES:	582585 E 6972878 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Plant Area	GROUND ELEV (m):	1143
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	3.05
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	16-Apr-15 To 16-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Grain Size Analysis	Silt/Clay (%)
0	1143	17736 (GRAB)	ML	Sandy SILT with gravel, greyish brown, moist, non-plastic. Gravel (10 - 25%) is angular to sub-angular.	Pad constructed by Dozer. All organics stripped off. Perimeter to the Pad on undisturbed ground organic layer is shallow 200 mm thick.	Nf	No ice visible	14/31/56	44/12
1	1142		GM	Silty GRAVEL with sand, some cobbles, greyish brown, moist, non-plastic.	Boulder at 0.91m approximately 100 mm thick.		No ice visible. Sample affected by heat generated during drilling.		
2	1141			BEDROCK	EOH at 2.44m.				

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HOLE ID:	**SRK-15S-27**
SITE:	Coffee Gold
LOCATION:	Plant Area
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	582740 E 6972980 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1144
DIP:	-90
TOTAL DEPTH (m):	6.1
BORING DATE:	15-Apr-15 To 15-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Sample Type: GRAB, UNDISTURBED

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1144	ML	Organic SILT with sand, some gravel (10-15%), dark brown, wet, non plastic	Pad constructed by Dozer. All organics stripped off. Perimeter to the Pad on undisturbed ground organic layer is shallow 200 mm thick	Vx	Small individual ice inclusions, estimated 1-3% of total volume.
			Silty SAND with gravel, grey, non plastic to low plasticity, moist. ~25% gravel		Nbn	No ice visible
1	1143	SM	Silty GRAVEL with sand, greyish yellow, non-plastic			
2	1142					
3	1141					
4	1140					
		GM	GRAVEL, some silt and sand, greyish yellow, moist		UF	No ice visible. Sample affected by heat generated during drilling.
5	1139		BEDROCK	R4.		
6	1138			EOH at 6.10m.		

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PROJECT:	Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT:	Kaminak Gold Corporation
HOLE ID:	**SRK-15S-28**
SITE:	Coffee Gold
LOCATION:	Plant Area
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	582969 E 6972988 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1119
DIP:	-90
TOTAL DEPTH (m):	2.44
BORING DATE:	15-Apr-15 To 15-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	1119		ML	Sandy SILT, some gravel (10%), orangey brown, low plasticity, moist.		Nbn	No ice visible	0
1	1118		SM	Silty SAND with gravel, greyish brown, moist, non plastic. Gravel (~30%) is angular to sub-rounded.	150 mm diameter boulder at 1.22m.	UF	No ice visible. Sample affected by heat generated during drilling.	1
2	1117			BEDROCK	Pulverized rock with very little recovery. EOH at 2.44m.			2

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HOLE ID:	**SRK-15S-29**	COORDINATES:	583273 E 6973033 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Plant Area	GROUND ELEV (m):	1111
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	2.13
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	15-Apr-15 To 15-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Moisture / Limits	Gravel/Sand/Fines (%)	Silt/Clay (%)
0	1111		OL/OH	Organic, dark brown, moss and fibrous lichens	Organics stripped off during pad construction with dozer. Pad constructed by Dozer. All organics stripped off. Perimeter to the Pad on undisturbed ground. Organic layer is shallow 100 mm thick.					
			GM	Silty GRAVEL with sand, reddish brown, dry, non-plastic. Gravel (25 to 60%) is angular to sub-rounded.		Nf	No ice visible			
						UF	Sample affected by heat generated during drilling (core temperature >60°C).			
1	1110	17732 (GRAB)	GM			UF		NP	41/34/25	18/7
		17733 (GRAB)								
2	1109			BEDROCK	EOH at 2.13m (refusal and limitations of drill).					

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HOLE ID:	**SRK-15S-30**	COORDINATES:	582748 E 6973076 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Plant Area	GROUND ELEV (m):	1126
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	4.57
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	16-Apr-15 To 16-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Lab Data	Grain Size Analysis
0	1126		OL/OH	Organics, dark brown	Moss and fibrous lichens found				
			ML	Organic Sandy SILT,some gravel, brown, moist, non plastic. Gravel (5%) is angular.		Nbn	No visible ice segregation, negligible ice film on gravel sizes and in voids.		
1	1125	17734	ML	Sandy SILT, some angular gravel (5-10%), brown, wet, non plastic.				Moisture Content: 107%	7/33/60 *51/9*
			GM	Silty GRAVEL with sand, greyish yellow, moist, non-plastic. Gravel (60%) is angular to sub-angular.					
2	1124	17735	GM	Silty GRAVEL with sand, greyish yellow, moist, non-plastic. Gravel (70%) is angular to sub-angular.		Nf	No visible ice		62/22/16
3	1123								
4	1122			BEDROCK	R4. EOH at 4.42m.				

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-31**	COORDINATES:	581479 E 6971786 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Plant Area	GROUND ELEV (m):	1205
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Boart Longyear	TOTAL DEPTH (m):	1.52
DRILLING TYPE:	Sonic Drill Rig	BORING DATE:	17-Apr-15 To 17-Apr-15
LOGGED BY:	[[name redacted]]		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Sample Type: GRAB, UNDISTURBED

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1205		OL/OH	Organics, dark brown	Moss and fibrous lichens found		
			ML	SILT with sand, some gravel (10%), greyish brown, low plasticity, moist.		Nf	No visible ice
1	1204		SM	Silty SAND with gravel, greyish brown, noncohesive, non-plastic, moist.			
				Refusal on rock	Possibly a boulder or bedrock. EOH at 1.52m.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-32**
SITE:	Coffee Gold
LOCATION:	Plant Area
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	581537 E 6971910 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1202
DIP:	-90
TOTAL DEPTH (m):	2.59
BORING DATE:	16-Apr-15 To 17-Apr-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic · Sand · Boulder · Clay · Gravel · Weathered Bedrock · Silt · Cobble · Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content · Plastic Limit · Liquid Limit · NP: Non-Plastic · (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB · UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Moisture Content	Grain Size Analysis
0–0.15	1202		OL/OH	Organic, dark brown	Moss and fibrous lichens found.				
0.15–0.91		17737 (GRAB, 0.61–0.91)	SM	Silty SAND with gravel, brownish grey, moist. Gravel (~20 to 30%) is sub-angular to sub-rounded.		Nf	No visible ice segregation, negligible ice film on gravel sizes and in voids.	●	28/39/33
0.91–1.06	1201			BOULDER					
1.06–1.52			SM	Silty SAND with gravel, some cobbles (5 to 10%), brownish grey, moist. Gravel (~20 to 30%) is sub-angular to sub-rounded.		Nf	No visible ice segregation, negligible ice film on gravel sizes and in voids.		
1.52–2.59	1200			BEDROCK	R5. Difficulty recovering core that is falling out of barrel. EOH at 2.59m.				

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KAMINAK GOLD CORPORATION

Kaminak - Coffee Gold
FS Geotechnical Evaluation
Kaminak Gold Corporation

HOLE ID: **SRK-15S-33**
SITE: Coffee Gold
LOCATION: Plant Area
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY [[name redacted]]

581587 E
UTM Zone 7

-90
2.13
18-Apr-15 To 18-Apr-15

Lithological Symbol

Organic, Sand, Boulder
Clay, Gravel, Weathered Bedrock
Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content
Plastic Limit
Liquid Limit
NP: Non-Plastic
(%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size
0	1195		OL/OH	Organics, dark brown	Moss and fibrous lichens found.			
			ML	SILT with sand, some gravel (10 to 20%), reddish brown, moist, low plasticity. Gravel is angular to sub-angular.		Nf	No visible ice	
1	1194	17740	SM	Well graded GRAVEL with silt and sand, greyish brown, moist, non-plastic.	Fines/sand content of sample collected likely overestimated due to slow drilling and pulverization of the core.	UF	Sample affected by heat generated during drilling. Core temperature: 100+°C	26/40/34
				BEDROCK	Difficulty recovering core that is falling out of barrel.			
2	1193				EOH at 2.13m (refusal)			

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-34**
SITE:	Coffee Gold
LOCATION:	Plant Area
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Boart Longyear
DRILLING TYPE:	Sonic Drill Rig
LOGGED BY:	[[name redacted]]
COORDINATES:	581337 E 6971689 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1181
DIP:	-90
TOTAL DEPTH (m):	2.44
BORING DATE:	18-Apr-15 To 18-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
- UF: Unfrozen
- Nf: No visible ice, Poorly Bonded
- Nbn: No visible ice, Well Bonded - No Excess Ice
- Nbe: No visible ice, Well Bonded - Excess Ice
- Vx: Individual Ice Inclusions
- Vc: Ice Coatings on Particles
- Vr: Random or Irregularly Oriented Ice Formations
- Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size
0	1181		OL/OH	Organics, dark brown	Moss and fibrous lichens found. 1 - 6 m boulders on surface around drilling location.	UF		
		17738	ML	SILT with sand, some gravel (5-10%), dark brown, wet, low to medium plasticity.	Moisture content reduces with depth.	Nbe	No visible ice segregation, excess ice expected due to wetness of core.	
1	1180	17739						14/32/54 *46/8*
				Sandy SILT with gravel, greyish brown, moist to wet, low to medium plasticity. Gravel (10-20%) is angular to sub-angular.		Nbn	No visible ice.	
			Bedrock	BEDROCK	R5.			
2	1179				EOH at 2.44m.			

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15S-35**		
SITE:	Coffee Gold	COORDINATES:	584128 E 6972965 N
LOCATION:	Plant Area	DATUM:	UTM Zone 7
PROJECT NO:	338600.020	GROUND ELEV (m):	868
DRILLING CONTRACTOR:	Boart Longyear	DIP:	-90
DRILLING TYPE:	Sonic Drill Rig	TOTAL DEPTH (m):	7.62
LOGGED BY:	[[name redacted]]	BORING DATE:	18-Apr-15 To 18-Apr-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0 – 0.15	868	OL/OH	Organics, dark brown, moist	Moss and fibrous lichens found		
0.15 – 1.0		ML	Sandy SILT with gravel, dark brown, moist, low plasticity. Gravel (10-20%) is angular.		Nbn	No visible ice.
1.0 – 1.52	867		Silty SAND with gravel, dark reddish brown, low plasticity. Gravel (10-20%) is angular.		Nbn	No visible ice.
1.52 – 4.57	866–864	SM	Silty GRAVEL with sand, brown, non-plastic, moist. Gravel (40-50%) is sub-angular.	Boulder at 2.44m. Boulder at 3.96m.	Nf	No ice visible. Sample affected by heat generated during drilling.
4.57 – 6.1	863–862	GM	Silty GRAVEL with sand, grey/yellow, moist, non plastic. Gravel (50-70%) is angular to sub-angular.	Water table at 6.1m	Nf	
6.1 –			BEDROCK			

Sample (GRAB)	Depth (m)	Moisture / Plasticity	Gravel/Sand/Fines (%)	Silt/Clay (%)
17741	~1.2–1.4	NP	15/43/42	39/3
17742	~2.4–2.6			
17743	~5.2–5.5		46/31/24	18/6

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15S-35**
SITE: Coffee Gold
LOCATION: Plant Area
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic Drill Rig
LOGGED BY: [[name redacted]]

COORDINATES: 584128 E 6972965 N
DATUM: UTM Zone 7
GROUND ELEV (m): 868
DIP: -90
TOTAL DEPTH (m): 7.62
BORING DATE: 18-Apr-15 To 18-Apr-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	(%)	Grain Size Analysis	Depth (m)
7	861		Bedrock						7
					EOH at 7.62m.				
8	860								8

Appendix B-2: Test Pit Logs

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-01**	COORDINATES:	579915 E 6972792 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1257
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	0.8
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	20-Jun-15 To 20-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Depth (m)
0	1257		OL/OH	Organics, dark brown	Moss and fibrous lichens found	Unfrozen	0
0.5		17569 (GRAB)	Cobble	COBBLES (~40%). Soils around angular cobbles are silty sands with gravel, greyish brown, moist, non-plastic	Adjacent to the excavated test pit are large 1-2m diameter boulders covering the surface. Coarse fragments show signs of weathering, resulting sand grains in the soil matrix are large and coarse quartz grains from weathering granite.	UF	
				EOH at 0.8 m	(Cobble/weathered bedrock) Coarse rock appears to be weathered bedrock due to infill material. Further excavation is limited due to excavator's ability		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-02**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 580041 E 6972459 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1291
DIP: -90
TOTAL DEPTH (m): 1.6
BORING DATE: 20-Jun-15 To 20-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1291		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17567 (GRAB)	ML	Sandy SILT with Gravel, greyish-brown, moist, non-plastic, scattered gravel zones present (0.2m x 0.3m) at various depths.		Nf	poorly bonded, no excess ice
0.5						UF	Not frozen below 0.5 m
1	1290						
1.5				EOH at 1.6 m	(Boulder/bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-03**	COORDINATES:	580276 E 6972507 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1260
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	19-Jun-15 To 19-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Sample Type: GRAB, UNDISTURBED

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size Analysis
0 – 0.3	1260		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF		
0.3 – 1.2	1259 (at 1 m)	GRAB 17565 (0.3–0.5)	GM	COBBLES (~40%). Soil around angular cobbles is Silty GRAVEL with sand, grey-brown, moist, low plasticity.	Coarse fragments show signs of weathering, resulting sand grains in the soil matrix are large and coarse quartz grains from weathering granite.	Nbn	Well bonded, minor amounts of ice visible in the interstitial space between coarse fragments.	46/37/17 *14/3*
1.2				EOH at 1.2 m	(Boulder/bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit			

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KAMINAK GOLD CORPORATION

PROJECT:	Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT:	Kaminak Gold Corporation
HOLE ID:	**SRK-15TP-04**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580514 E 6972441 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1249
DIP:	-90
TOTAL DEPTH (m):	1.6
BORING DATE:	19-Jun-15 To 19-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.3	1249		OL/OH	Organics, dark brown	Moss and fibrous lichens found	
0.2 – 1.0		17563 (GRAB)				
0.3 – 0.7				Sandy SILT, greyish brown, moist, non-plastic. Cobble content ranges from 10 to 30 %		
0.7 – 1.6	1248 (at 1 m)		GM	COBBLES (60-70%). Soil is well graded gravel with sand, grey, dry, non plastic	Adjacent to the excavated test pit are large 1-2m diameter boulders covering the surface. Coarse fragments show signs of weathering, resulting sand grains in the soil matrix are large and coarse quartz grains from weathering granite.	UF
1.6				EOH at 1.6 m	(Cobble/weathered bedrock) Coarse rock appears to be weathered bedrock due to infill material. Further excavation is limited due to excavator's ability	

Depth scale: 0, 0.5, 1, 1.5

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-05**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 580771 E 6972390 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1245
DIP: -90
TOTAL DEPTH (m): 0.5
BORING DATE: 19-Jun-15 To 19-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	1245		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF		0
		GRAB 17561	ML	SILT with Gravel, grey brown, moist, non-plastic. Cobbles (30%) are angular to sub-angular.		Nf	poorly bonded, no excess ice	
				BEDROCK				
0.5				EOH at 0.5 m	(Boulder/bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-06**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581050 E 6972356 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1218
DIP: -90
TOTAL DEPTH (m): 1.2
BORING DATE: 19-Jun-15 To 19-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1218		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17559 (GRAB)	SM	Poorly graded SAND, greyish brown, coarse uniform sand, non plastic, Cobbles (~10%) are highly weathered, sub-angular.		Nf	Poorly bonded, no excess ice visible.
0.5							
1	1217			BEDROCK			
1.2				EOH at 1.2 m	(Boulder/bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-07**	COORDINATES:	581304 E 6972324 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1233
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	19-Jun-15 To 19-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	1233		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF		0
0.5		17557 (GRAB, 0.5–1.2 m)	GM	Silty GRAVEL, with sand brownish grey, moist. Cobbles (10-20%) are angular to sub-angular.		Nf	Poorly bonded. minor amounts of ice visible in the coarse rock void space	
1	1232							1
1.2			ML	Frozen at 1.2 m	Excavator cannot advance through frozen material			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-08**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581180 E 6972168 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1246
DIP: -90
TOTAL DEPTH (m): 1.2
BORING DATE: 19-Jun-15 To 19-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1246		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.2			GM	COBBLES (~40%). Soil around angular cobbles are sandy SILT with gravel. Brownish grey, moist, low plasticity.		Nbn	Well-bonded, no excess ice visible.
0.5		17581 (GRAB)					
1	1245						
1.2				EOH at 1.2 m	(Cobble/weathered bedrock). Coarse rock appears to be weathered bedrock. Excavator had difficulty advancing excavation.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-09**	COORDINATES:	581020 E 6971899 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1238
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.5
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	21-Jun-15 To 21-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Sample Type: GRAB, UNDISTURBED

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0 – 0.2	1238		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.2 – 0.6		17579 (0.3–0.5)	SM	Well graded sand with silt and gravel/cobbles. Brownish grey, moist, non plastic, uniform distribution, Cobbles (~20%) are angular to sub-angular,	Coarse fragments show signs of weathering, resulting sand grains in the soil matrix are large and coarse quartz grains from weathering granite.	Nf	Poorly bonded, minor amount of ice visible in a discontinuous pattern, no visible ice segregation.
0.6 – 1.5	1237 (at 1.0)	17579 (0.8–1.0)	SM	Same as above, but dry		Nf	
1.5				EOH at 1.5 m	(Boulder/bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-10**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 580773 E 6971890 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1250
DIP: -90
TOTAL DEPTH (m): 1.8
BORING DATE: 21-Jun-15 To 21-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.2	1250		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
0.2 – 1.0		GRAB 17578 (0.3 – 1.2)	ML	Sandy SILT with gravel, greyish brown, moist, non plastic. Approximately 30% cobbles.		UF
1.0 – 1.6	1249		ML	Same as above except dry.		UF
1.6 – 1.8			SP	Poorly graded SAND, greyish brown, dry, non plastic.		UF
1.8				EOH at 1.8 m	(Boulder/weathered bedrock) Coarse rock appears to be weathered bedrock due to infill material and the excavator's difficulty to advance the excavation.	

Depth markers: 0, 0.5, 1, 1.5

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-11**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580532 E 6971903 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1254
DIP:	-90
TOTAL DEPTH (m):	1.9
BORING DATE:	20-Jun-15 To 20-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1254		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
0.3–0.6		GRAB 17575	SM	Well graded SAND with gravel, some silt and cobbles, brownish grey, moist, non plastic. Approximately 10% cobbles		UF
0.8–1.9			SP	Poorly graded SAND and gravel. (weathered bedrock), non plastic, moist		UF
1	1253					
1.5						
1.9				EOH at 1.9 m	(Cobble/weathered bedrock) Coarse rock appears to be weathered bedrock due to infill material. Further excavation is limited due to excavator's ability	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-12**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 580265 E 6971877 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1274
DIP: -90
TOTAL DEPTH (m): 1.4
BORING DATE: 20-Jun-15 To 20-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
- UF: Unfrozen
- Nf: No visible ice, Poorly Bonded
- Nbn: No visible ice, Well Bonded - No Excess Ice
- Nbe: No visible ice, Well Bonded - Excess Ice
- Vx: Individual Ice Inclusions
- Vc: Ice Coatings on Particles
- Vr: Random or Irregularly Oriented Ice Formations
- Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1274		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
		17574 (GRAB)	SM	Silty SAND with gravel, grey, moist, non-plastic. Cobbles (~10%) are angular to sub angular.		UF
0.5						
1	1273					
1.4				EOH at 1.4 m	(Boulder/bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-13**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580025 E 6971753 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1295
DIP:	-90
TOTAL DEPTH (m):	2.4
BORING DATE:	20-Jun-15 To 20-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.3	1295		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
0.3 – 1.0		GRAB 17573	ML	Sandy SILT, brown, moist, non plastic, Cobbles (~20%) are subangular.		UF
1.0 – 2.0+	1294		SP	Poorly graded SAND with gravel, light brownish grey, dry. Sand is coarse, angular typically 3mm in diameter).		UF

Depth scale: 0, 0.5, 1, 1.5, 2; Elev: 1295, 1294, 1293

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-13**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580025 E 6971753 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1295
DIP:	-90
TOTAL DEPTH (m):	2.4
BORING DATE:	20-Jun-15 To 20-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m) | Elev (m) | Sample Type (GRAB, UNDISTURBED) | USCS | Soil Description | Drilling Notes and Additional Comments | Depth (m)

EOH at 2.4 m

(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit

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HOLE ID:	**SRK-15TP-13A**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM

COORDINATES:	E N
DATUM:	UTM Zone 7
GROUND ELEV (m):	
DIP:	-90
TOTAL DEPTH (m):	1
BORING DATE:	30-Jun-15 To 30-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0 – 0.2			OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	Moist
0.2 – 1		GRAB 17623 (0.3 – 0.8)	SM	Sandy SILT, greyish brown, low plasticity, moist.		Nbn	Well bonded, no excess ice visible.
1				EOH at 1 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond the frozen rock and soil at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-14**	COORDINATES:	579737 E 6971968 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1324
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	20-Jun-15 To 20-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m) / Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0		OL/OH	Organic, dark brown	Moss and fibrous lichens found		
		SM	Well graded GRAVEL with sand and silt, brown, moist, non-plastic. Cobbles (~10%) are angular to sub-angular. ,	Water entering hole at 1.1m and ponding on frozen surface	UF	Frozen (well bonded) at 1.2m
0.5	17572 (GRAB)					
1						
			EOH at 1.2 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond the frozen rock and soil at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-15**	COORDINATES:	579727 E 6972243 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1343
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	20-Jun-15 To 20-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0 – 0.2			OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.2 – 0.8		GRAB 17571 (0.3 – 0.6)	ML	Sandy SILT with gravel, Brownish grey, moist, non-plastic, Cobbles (~20%) are angular.		Nf	
0.8 – 1.2				COBBLES (50 to 60%). Weathered bedrock		Nbn	Well bonded, minor occurrence of ice formed in the interstitial space between coarse fragments. Otherwise no free ice in soil matrix
1.2				EOH at 1.2 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-16**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580054 E 6972088 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1304
DIP:	-90
TOTAL DEPTH (m):	1.4
BORING DATE:	20-Jun-15 To 20-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1304		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17570 (GRAB)	GM	Sandy GRAVEL with silt and cobbles, greyish brown, moist, non plastic. Cobles (up to 30%) are angular to sub angular.		Nf	No excess ice visible
0.5							
1	1303						
1.4				EOH at 1.4 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the frozen rock and soil at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-17**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 580352 E 6972261 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1295
DIP: -90
TOTAL DEPTH (m): 1.4
BORING DATE: 20-Jun-15 To 20-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1295		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
		17566 (GRAB)	SM	Sandy SILT, brown, moist, non plastic		UF
0.5		17566 (UNDISTURBED)				
1	1294		GP	Sandy GRAVEL, greyish brown, moist, non-plastic, uniform. Weathered bedrock - rock fragments are weak and breaks apart in your hands.		UF
1.4				EOH at 1.4 m on coarse fractured bedrock.	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond the rock and soil at the bottom of the test pit	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-18**	COORDINATES:	580629 E 6972119 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1275
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.3
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	20-Jun-15 To 20-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Grain Size Analysis
0 – 0.2	1275		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF		
0.2 – 0.5		17576 (GRAB)		Sandy SILT with gravel, brownish grey, non-plastic, moist. Cobbles (~10%) are angular to sub angular.		Nf	Poorly bonded, frozen no ice segregation visible.	32/27/41; *36/5*
0.5 – 1.3	1274 (at 1 m)		GM	Cobbles (50 to 60%). Soil is sandy SILT with gravel, brownish grey, dry, non plastic.		UF		
1.3				EOH at 1.3 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond the rock and soil at the bottom of the test pit			

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-19**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 579999 E 6972689 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1264
DIP: -90
TOTAL DEPTH (m): 0.6
BORING DATE: 20-Jun-15 To 20-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1264		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17568 (GRAB)	GM	COBBLES (50 to 70%), angular. Soil is SAND with gravel, greyish brown, moist, non plastic.	Coarse fragments show signs of weathering.	Nf	Poorly bonded, no excess ice visible.
0.5							
				EOH at 0.6 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the frozen rock and soil at the bottom of the test pit		

srk consulting

KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-20**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580498 E 6972617 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1239
DIP:	-90
TOTAL DEPTH (m):	1.3
BORING DATE:	19-Jun-15 To 19-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0 – 0.4	1239		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.4 – 1.3		17564 (GRAB, 0.5 – 0.8)	SM	Silty SAND with gravel, brownish grey, low plasticity, moist		Vx	Well bonded, small ice inclusions scattered on excavation surfaces and scattered ice coated particles throughout. Approximately 1-3% excess ice.
1.2 – 1.3							Well bonded, as above with more frequent ice inclusions. Approximately 20% ice content by volume.
1.3				EOH at 1.3 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond the frozen rock and soil at the bottom of the test pit		

Depth markers: 0, 0.5, 1 (Elev 1239, 1238)

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-21**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 580890 E 6972534 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1207
DIP: -90
TOTAL DEPTH (m): 1.5
BORING DATE: 19-Jun-15 To 19-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1207		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.3		17562 (GRAB)	SM	Sandy SILT, dark brownish grey, non plastic		Nf	Poorly bonded
0.9			SM	Sandy SILT with gravel, grey brown, Cobbles (10%) are angular.	Difficult, slow digging	Nbn	Well bonded, no excess ice visible
1	1206						
1.5				EOH at 1.5 m	Excavator cannot advance the test pit in the frozen rock and soil.		

Moisture content plotted at 0.5 m depth.

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-22**
SITE:	Coffee Gold
LOCATION:	Run of Mine
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582387.04 E6972714.4 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1170.06
DIP:	-90
TOTAL DEPTH (m):	1.3
BORING DATE:	18-Jun-15 To 18-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1170		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF	
0.5		17554	ML	Sandy SILT, orangey brown, moist, low plasticity		Nbe	Well bonded with thin ice coated particles visible along with irregularly oriented ice formations. Excess ice estimated to be 5%. Ice is clear and opaque "frost like "ice.
1	1169			Cobbles (~50%). Soil is sandy SILT with gravel, greyish brown, non plastic			
				EOH at 1.3 m	Excavator cannot advance the test pit in the frozen rock and soil.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-23**	COORDINATES:	582325.56 E6972907.47 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Run of Mine	GROUND ELEV (m):	1150.47
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	18-Jun-15 To 18-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF	
0.5	1150	17555 (GRAB)	ML	SILT with sand, some cobbles (~10%), greyish-brown, moist, low plasticity. Cobbles are angular.		Vr	Well bonded; 50mm thick ice layer present at a depth of 0.7 m, cloudy; random ice inclusions and ice coated particles scattered throughout the soil with an overall excess ice content of approximately 10-20%
1				EOH at 1.0 m	Excavator cannot advance the test pit in the frozen rock and soil.		

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-24**
SITE: Coffee Gold
LOCATION: Run of Mine
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582577.09 E6972995.12 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1142.56
DIP: -90
TOTAL DEPTH (m): 0.45
BORING DATE: 18-Jun-15 To 18-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0 – 0.4			OL/OH	Organic SILTS, dark brown, moist.	Moss and fibrous lichens found	UF	
0.4 – 1.6	1142, 1141	17556 (GRAB, 0.5 – 1.2)	ML	Sandy SILT, some gravel and cobbles, dark grey brown, low plasticity, wet. Cobbles (20%) are angular to sub-angular.		Vr	Well bonded, estimated 20% excess ice overall, Contains ice inclusions, ice coated particles, and random irregular ice formations.
				EOH at 1.6 m	Excavator cannot advance the test pit in the frozen ice rich rock and soil.		

Depth scale: 0, 0.5, 1, 1.5

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KAMINAK GOLD CORPORATION

PROJECT:	Kaminak - Coffee Gold FS Geotechnical Evaluation	HOLE ID:	**SRK-15TP-25**
CLIENT:	Kaminak Gold Corporation	SITE:	Coffee Gold
		LOCATION:	South Dump
		PROJECT NO:	338600.020
		DRILLING CONTRACTOR:	Kaminak
		DRILLING TYPE:	Can-dig
		LOGGED BY:	SM

COORDINATES:	584181 E 6972803 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	901
DIP:	-90
TOTAL DEPTH (m):	1.6
BORING DATE:	26-Jun-15 To 26-Jun-15

Lithological Symbol

Organic | Sand | Boulder | Clay | Gravel | Weathered Bedrock | Silt | Cobble | Bedrock

Sample Type: GRAB; UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	901		OL/OH	Organic SILT with cobbles, dark brown, moist, low plasticity. Approximately 20% cobbles.		UF
0.3			GM	Silty GRAVEL with sand, some cobbles, dark brownish grey, non plastic, wet.		UF
0.6–1.2		17602 (GRAB)	GM			UF
1	900					
1.5						
1.6				EOH at 1.6 m	Potentially approaching bedrock / Limited by excavator reach due to increasing coarse rock content.	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-26**	COORDINATES:	584571 E 6972346 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	South Dump	GROUND ELEV (m):	836
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Kaminak	TOTAL DEPTH (m):	1.7
DRILLING TYPE:	Can-dig	BORING DATE:	26-Jun-15 To 26-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Grain Size Analysis (Gravel/Sand/Fines %)	Silt/Clay (%)
0 – 0.1	836		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF		
0.1 – 0.4			ML	SILT with cobbles (~20%), dark brown, organic rich, moist, low plasticity.		UF		
0.4 – 1.7	835 (at 1 m)	17603 (GRAB, 0.6 – 0.9 m)	SM	Silty SAND with gravel and cobbles, brownish grey, non plastic. Cobbles (~20%) and angular.	Water entering pit at 0.4 m	UF	35/47/18	16/2
1.7				EOH at 1.7 m	Potentially approaching bedrock / Ended by excava[illegible] due to increasing coarse rock content.			

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-27
SITE:	Coffee Gold
LOCATION:	South Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Kaminak
DRILLING TYPE:	Can-dig
LOGGED BY:	SM
COORDINATES:	584760 E 6972460 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	876
DIP:	-90
TOTAL DEPTH (m):	1.6
BORING DATE:	26-Jun-15 To 26-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

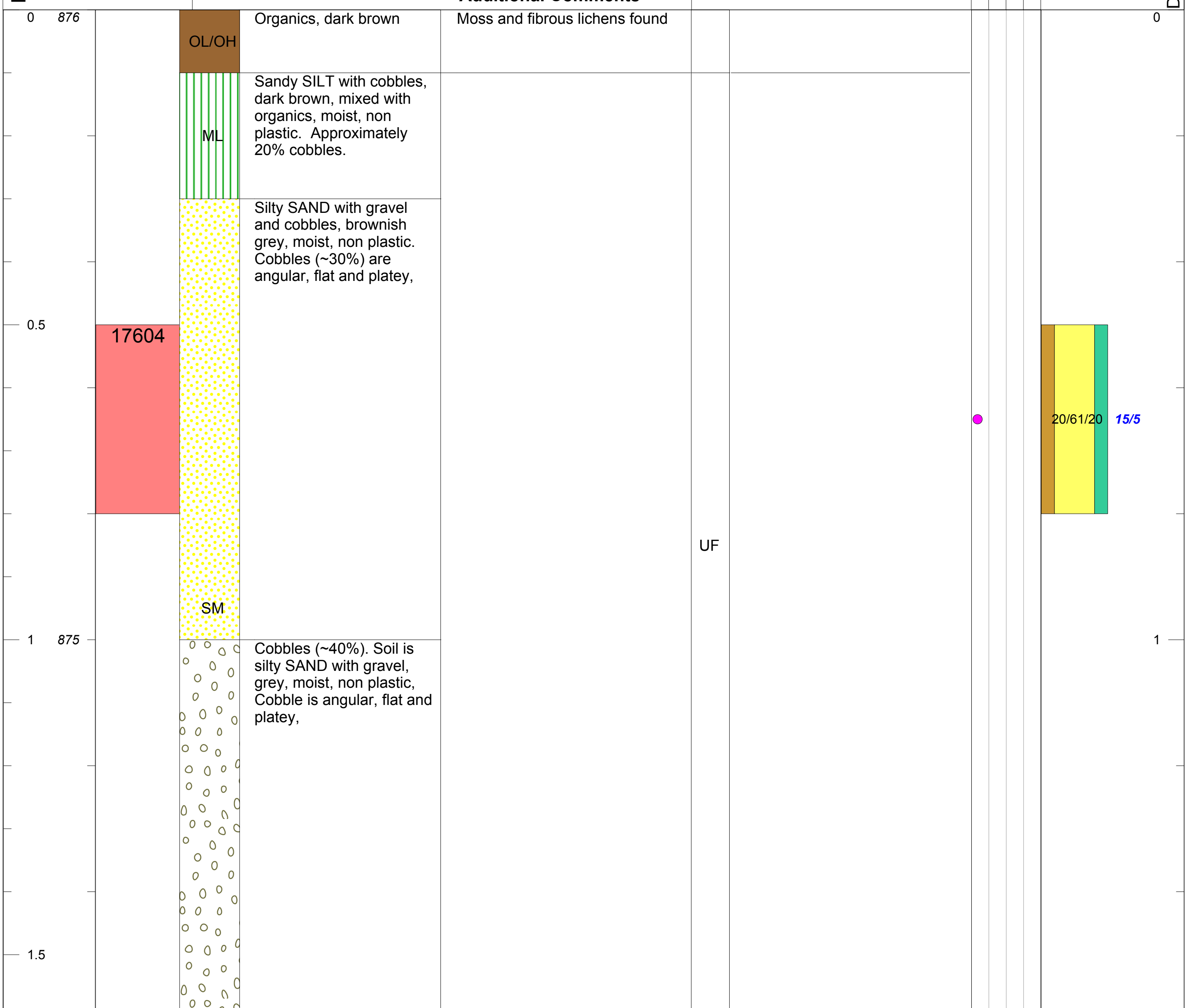
Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED



Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Grain Size Analysis
0	876		OL/OH	Organics, dark brown	Moss and fibrous lichens found		
			ML	Sandy SILT with cobbles, dark brown, mixed with organics, moist, non plastic. Approximately 20% cobbles.			
0.5		17604 (GRAB)	SM	Silty SAND with gravel and cobbles, brownish grey, moist, non plastic. Cobbles (~30%) are angular, flat and platey,		UF	20/61/20 *15/5*
1	875			Cobbles (~40%). Soil is silty SAND with gravel, grey, moist, non plastic, Cobble is angular, flat and platey,			
1.5				EOH at 1.6 m	Limited by the excavator's reach.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-28**	COORDINATES:	584475 E 6972918 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	South Dump	GROUND ELEV (m):	912
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Kaminak	TOTAL DEPTH (m):	1.8
DRILLING TYPE:	Can-dig	BORING DATE:	26-Jun-15 To 26-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	912		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
0.2				Cobbles (60 to 70%). Soil is silty SAND with gravel, brown, moist.		UF
0.6–0.9		GRAB 17601				UF
1	911					UF
1.8				EOH at 1.8 m	Potentially approaching bedrock. Limited by the excavator's reach due to increasing coarse rock content.	

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HOLE ID:	**SRK-15TP-29**	COORDINATES:	584923 E 6975416 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	North Dump	GROUND ELEV (m):	1021
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.3
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	24-Jun-15 To 24-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description

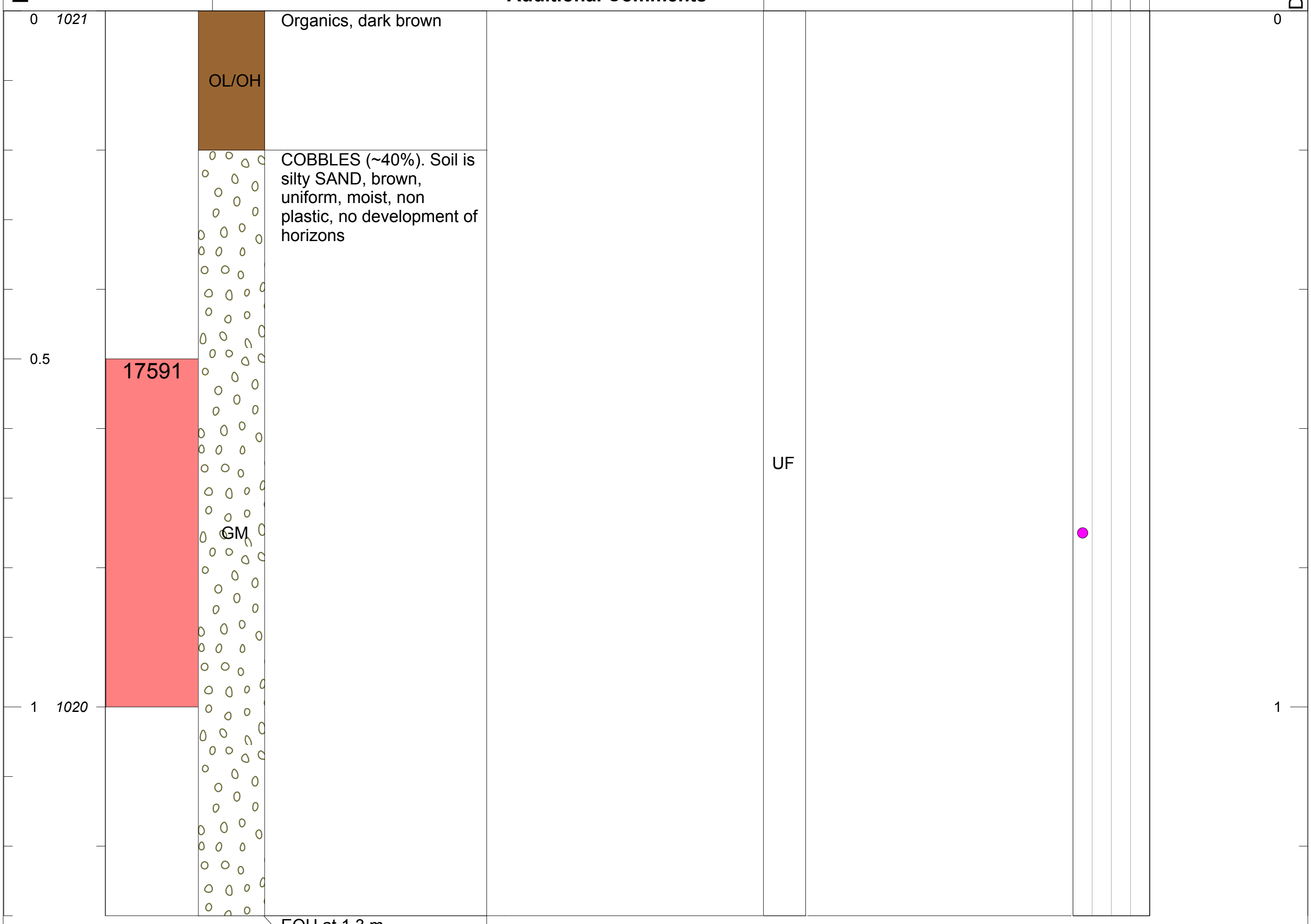
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED



Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.2	1021		OL/OH	Organics, dark brown		UF
0.2 – 1.3		17591 (GRAB, 0.5 – 1.0)	GM	COBBLES (~40%). Soil is silty SAND, brown, uniform, moist, non plastic, no development of horizons		UF

EOH at 1.3 m

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-30**		
SITE:	Coffee Gold	COORDINATES:	585188 E 6975784 N
LOCATION:	North Dump	DATUM:	UTM Zone 7
PROJECT NO:	338600.020	GROUND ELEV (m):	953
DRILLING CONTRACTOR:	JDS	DIP:	-90
DRILLING TYPE:	CAT 312 Excavator	TOTAL DEPTH (m):	1.9
LOGGED BY:	SM	BORING DATE:	24-Jun-15 To 24-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	953		OL/OH	Organics, dark brown	Moss and fibrous lichens found	
0.1–1.9		17590 (GRAB, 0.5–1.5)		COBBLES (~50%). Soil is silty SAND, greyish-brown, dry, well drained, uniform - no horizon development.		UF
1.9				EOH at 1.9 m on bedrock	(Fractured/ weathered bedrock) Coarse rock appears to be fractured bedrock due to the excavator's difficulty to advance the excavation.	

Depth axis: 0, 0.5, 1, 1.5 (Elev 953, 952). Moisture content point plotted at 1 m.

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-31**		
SITE:	Coffee Gold	COORDINATES:	585311 E 6957921 N
LOCATION:	North Dump	DATUM:	UTM Zone 7
PROJECT NO:	338600.020	GROUND ELEV (m):	902
DRILLING CONTRACTOR:		DIP:	-90
DRILLING TYPE:		TOTAL DEPTH (m):	0.4
LOGGED BY:	CGB	BORING DATE:	To

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

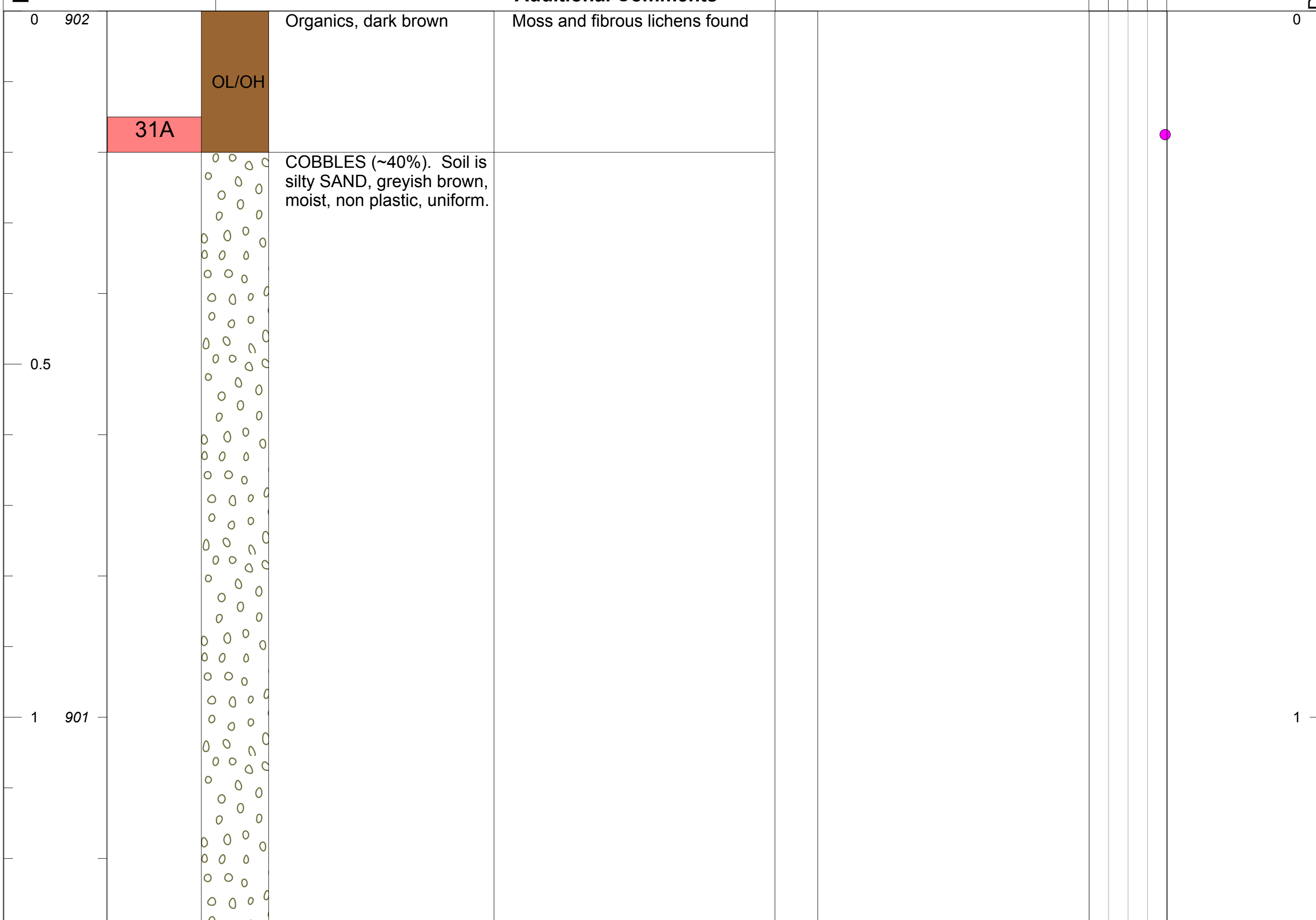
Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%)

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments
0	902	31A	OL/OH	Organics, dark brown	Moss and fibrous lichens found
				COBBLES (~40%). Soil is silty SAND, greyish brown, moist, non plastic, uniform.	
0.5					
1	901				
				EOH at 1.3 m at Bedrock	(Cobble/weathered bedrock) Excavator cannot advance the test pit.



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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-32**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR:
DRILLING TYPE:
LOGGED BY: CGB

COORDINATES: 585328 E 6975651 N
DATUM: UTM Zone 7
GROUND ELEV (m): 937
DIP: -90
TOTAL DEPTH (m): 0.5
BORING DATE: To

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	937	32A (GRAB)	OL/OH	Green moss, dry	Moisture content = 200%	UF		0
		32B (GRAB)		SILT with a trace of sand, dark brown to black, damp to wet, loam.	Moisture content = 104%	Nf	Weakly bonded, frozen with some ice visible in voids.	
0.5				Sandy SILT with interbedded organic materials, light brown, damp, fine sand.	Very hard digging, unable to advance further			

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-33**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR:
DRILLING TYPE:
LOGGED BY: CGB

COORDINATES: 585537 E 6975114 N
DATUM: UTM Zone 7
GROUND ELEV (m): 946
DIP: -90
TOTAL DEPTH (m): 0.5
BORING DATE: To

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Depth (m)
0	946	33A	OL/OH	Green moss, dry	Moisture content = 154%	UF		0
		33B		SILT with a trace of sand, dark brown to black, damp to wet, loam.		Nf	Weakly bonded, frozen with some ice visible in voids.	
				Sandy SILT with interbedded organic materials, light brown, damp, fine sand.	Very hard digging, unable to advance further			
0.5								

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-34**

SITE: Coffee Gold

LOCATION: North Dump

PROJECT NO: 338600.020

DRILLING CONTRACTOR: JDS

DRILLING TYPE: CAT 312 Excavator

LOGGED BY: SM

COORDINATES: 585358 E 6975432 N

DATUM: UTM Zone 7

GROUND ELEV (m): 988

DIP: -90

TOTAL DEPTH (m): 0.7

BORING DATE: 23-Jun-15 To 23-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	988		OL/OH	Organic SILT, dark brown	Moss and fibrous lichens found	UF	
			ML	SILT, brown, uniform, frozen, low plasticity		Nbn	Well bonded, no excess ice visible.
0.5		17588 (GRAB)	SM	Silty SAND with gravel and cobbles, brownish grey, low plasticity. Cobbles (~20%) are angular.		Nbe	Well bonded, frost like ice inclusions in-between coarse fragments and ice coated particles. Total ice content estimated at 3-5%.
				EOH at 0.7 m	Difficult to continue excavating in hard well bonded frozen soil.		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-35**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 585641 E 6975385 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1024
DIP: -90
TOTAL DEPTH (m): 0.9
BORING DATE: 23-Jun-15 To 23-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1024		OL/OH	Organic SILT, dark brown, wet	Moss and fibrous lichens found	UF	
			ML	SILT, brownish grey, low plasticity, no coarse fragments, wet		Nf	Poorly bonded
0.5		17589 (GRAB)	GM	Silty GRAVEL with sand and cobbles, greyish brown, wet, non plastic. Approximately 30% cobbles.		Vx	Well bonded, approximately 5% excess ice with frost like ice inclusions and interbedded ice pockets between coarse fragments and ice coated particles.
				EOH at 0.9 m	Difficult to continue excavating in hard well bonded frozen soil and rock		

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-36
SITE:	Coffee Gold
LOCATION:	North Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	585056 E 6975232 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1007
DIP:	-90
TOTAL DEPTH (m):	1
BORING DATE:	23-Jun-15 To 23-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1007		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
			ML	Sandy SILT, brown, moist low plasticity		Nbn	Well bonded, no segregated ice visible.
0.5		17586 (GRAB)	SM	Sandy SILT with gravel and cobbles, grey brown, low plasticity, Approximately 20% cobbles.		Vx	Well bonded with frost like ice inclusions and small free ice lenses measuring approximately 100mm x 200mm in size. Estimated 3-5% excess ice.
1	1006			EOH at 1 m	Difficult to continue excavating in hard well bonded frozen soil and rock		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-36A**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 585124 E 6975412 N
DATUM: UTM Zone 7
GROUND ELEV (m): 939
DIP: -90
TOTAL DEPTH (m): 0.6
BORING DATE: 23-Jun-15 To 23-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	939		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
			ML	Gravelly Silt with cobbles, brown, moist, low plasticity. Approximately 30% cobbles.		UF
0.5		17587		COBBLES (60%). Soil is a sandy SILT, brownish Grey, non plastic.		Vx: Well bonded with frost like ice inclusions representing 3-5% of excavated material.
				EOH at 0.6 m	Difficult to continue excavating in hard well bonded frozen soil and rock	

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HOLE ID:	**SRK-15TP-37**	COORDINATES:	585160 E 6975013 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	North Dump	GROUND ELEV (m):	1046
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	0.7
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	23-Jun-15 To 23-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1046		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.5		17585 (GRAB)	ML	Gravelly SILT with cobbles and sand, brownish-grey, low plasticity, wet. Approximately 20% cobbles.		Vx	Well bonded with predominate ice lenses ranging in size from 50-100mm thick and 200-300mm long, white and clear ice. Estimated 10% excess ice.
				EOH at 0.7 m	Difficult to continue excavating in hard well bonded frozen soil and rock		

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-38**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 585452 E 6975228 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1063
DIP: -90
TOTAL DEPTH (m): 1.2
BORING DATE: 22-Jun-15 To 22-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1063		OL/OH	Organic SILT, dark brown, wet	Moss and fibrous lichens found	UF	
		17584 (GRAB)		COBBLES (60%). Soil is a silty SAND, moist, low plasticity, organic woody material intermixed with silty sand through the excavation.		Nbe	Well bonded, ice visible between coarse rock fragment voids
0.5							
1	1062						
				EOH at 1.2 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit.		

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-39**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 585533 E 6974945 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1124
DIP: -90
TOTAL DEPTH (m): 1.3
BORING DATE: 22-Jun-15 To 22-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1124		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
				COBBLES (60%) Soil is silty SAND, brownish-grey, moist, low plasticity.	Adjacent to the excavated test pit are large 5m diameter boulders covering the surface. Some cannot be excavated due to size	Nf
0.5		17583 (GRAB)	SM	Silty SAND with gravel and cobbles, grey, dry, non plastic, sand is fine grained.		Nf
1	1123					
				EOH at 1.3 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond coarse cobbles and boulders.	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-40**
SITE: Coffee Gold
LOCATION: North Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 585742 E 6975127 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1093
DIP: -90
TOTAL DEPTH (m): 1
BORING DATE: 22-Jun-15 To 22-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1093		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
			SM	Gravelly SILT with sand and cobbles, brownish-grey, low plasticity, wet. Cobbles (~20%) are angular.		Nbe	Well bonded, no excess ice visible
0.5		17582 (GRAB)	SM			Vx	Well bonded, with ice inclusions (~ 10-30mm in size) and ice coated particles on coarse rock with ice filling the interstitial space between coarse rock. Approximate 5% total excess ice content
1	1092			EOH at 1.0 m	(Cobble/fractured Bedrock) Excavator cannot advance the test pit in frozen soil and rock		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-41**
SITE: Coffee Gold
LOCATION: Heap Leach Pad
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581080 E 6972030 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1245
DIP: -90
TOTAL DEPTH (m): 0.8
BORING DATE: 21-Jun-15 To 21-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1245		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17580 (GRAB)		COBBLES (60%) Soil is sandy SILT, brown-grey, moist, non plastic.		Nbn	Well bonded, no excess ice visible
0.5							
0.8				EOH at 0.8 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the frozen rock and soil at the bottom of the test pit		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-42**
SITE:	Coffee Gold
LOCATION:	Heap Leach Pad
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	580852 E 6972021 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1278
DIP:	-90
TOTAL DEPTH (m):	1.7
BORING DATE:	20-Jun-15 To 20-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0–0.3	1278		OL/OH	Organic, dark brown	Moss and fibrous lichens found	
0.3–1.7		GRAB 17577 (0.5–1.2)		COBBLES (40%). Soil is a silty GRAVEL with sand greyish-brown, moist, non plastic,		UF
1.7				EOH at 1.7 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit in coarse fractured rock	

Depth scale: 0, 0.5, 1, 1.5; Elev: 1278, 1277

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HOLE ID:	**SRK-15TP-43**	COORDINATES:	580875 E 6972219 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1237
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	19-Jun-15 To 19-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0 – ~0.2	1237		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
~0.2 – 1.2		GRAB 17560 (~0.3–0.9)	SM	Sandy SILT with cobbles (30%), some gravel, low plasticity, dry.	Water entering pit at base of organic layer	Nbn	Well bonded, no excess ice visible
1.2	1236 (at 1 m)			BEDROCK, coarse fractured rock fragments, granitic EOH at 1.2 m	(Cobble/weathered bedrock). Coarse rock appears to be weathered bedrock. Excavator had difficulty advancing test pit in frozen soil and rock		

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HOLE ID:	**SRK-15TP-44**	COORDINATES:	581064 E 6972247 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Heap Leach Pad	GROUND ELEV (m):	1236
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	19-Jun-15 To 19-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1236		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
0.2			ML	Sandy SILT with cobbles, some gravel, greyish brown, moist, non plastic. Approximately 20% cobbles		Nf	Poorly bonded
0.3–0.9		GRAB 17558					
0.4						Nbn	Well bonded, no excess ice visible
1	1235			BEDROCK, heavily fractured granite.			
1.1						Nbn	Well bonded soil, rock and ice.
1.2				EOH at 1.2 m	(Cobble/weathered bedrock). Coarse rock appears to be weathered bedrock. Excavator had difficulty advancing test pit in frozen soil and rock		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-45**	COORDINATES:	582491.88 E6972630.6 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Run of Mine	GROUND ELEV (m):	1164.74
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.1
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	18-Jun-15 To 18-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF
0.3		17553 (GRAB)	GM	Silty GRAVEL with sand and cobbles, brown, moist, non plastic. Approximately 15% cobbles.		UF
0.5	1164					
0.8			Weathered Bedrock	BEDROCK, heavily fractured.		UF
1.1				EOH at 1.1 m	(Cobble/weathered bedrock). Coarse rock appears to be weathered bedrock. Excavator had difficulty advancing test pit	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-46**
SITE: Coffee Gold
LOCATION: Run of Mine
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582716.04 E6972766.21 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1146.31
DIP: -90
TOTAL DEPTH (m): 1
BORING DATE: 18-Jun-15 To 18-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0			OL/OH	Organic SILTS with gravel, dark brown, wet.	Moss and fibrous lichens found		
	1146	17552	GM	Silty GRAVEL with sand, brownish, wet, low plasticity. Approximately 50% gravel/cobble content.		Nf	Poorly bonded, negligible thin ice coatings on rocks and gravels.
0.5							
				BEDROCK, heavily fractured angular rock			
1				EOH at 1.0 m	Coarse rock appears to be weathered fractured bedrock. Excavator had difficulty advancing test pit in frozen soil and rock.		

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-47**
SITE: Coffee Gold
LOCATION: Run of Mine
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582870.51 E6972880.63 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1132.53
DIP: -90
TOTAL DEPTH (m): 1.9
BORING DATE: 18-Jun-15 To 18-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0–0.2			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
0.2–0.7		17551 (GRAB, 0.3–0.6)	ML	Sandy SILT with gravel, rich in organics, brown, low plasticity, moist.	Rooting depth to 0.6m	UF
0.7–1.1	1132		ML	Sandy SILT with gravel, brown, low plasticity, moist.		UF
1.1–1.5			GM	Silty GRAVEL with sand, greyish brown, low plasticity, moist. Approximate 20% cobbles.		UF
1.5–1.9	1131			BEDROCK, heavily fractured		UF

EOH at 1.9 m

Coarse rock appears to be weathered fractured bedrock. Excavator had difficulty advancing test pit in rock

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-48**

SITE: Coffee Gold

LOCATION: West Dump

PROJECT NO: 338600.020

DRILLING CONTRACTOR: JDS

DRILLING TYPE: CAT 312 Excavator

LOGGED BY: SM

COORDINATES: 581269 E 6972880 N

DATUM: UTM Zone 7

GROUND ELEV (m): 1099

DIP: -90

TOTAL DEPTH (m): 0.6

BORING DATE: 25-Jun-15 To 25-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1099		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17594	ML	Organic SILT, grey, low plasticity, moist. Approximately 5-10% cobbles.	Organics intermixed in silt to 0.6m. This ice accumulation present between moss and silt layer	Nbe	Well bonded, negligible thin ice coatings on rocks and gravels.
0.5							
				EOH at 0.6 m	Difficult to advance excavation in frozen soil and rock.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-49**	COORDINATES:	581693 E 6973035 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	West Dump	GROUND ELEV (m):	1084
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	0.4
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	25-Jun-15 To 25-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Depth (m)
0	*1084*		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF		0
		17593 (GRAB)	SM	Silty sand with gravel and cobbles, greyish brown, non plastic, moist. Approximate 30% gravel/cobble content.		Vx	Well bonded, some large ice inclusions (200mm x 400mm). Estimated 5-10% excess ice.	
				EOH at 0.4 m	Difficult to advance excavation in frozen soil and rock.			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-50**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582318 E 6973267 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1068
DIP: -90
TOTAL DEPTH (m): 0.6
BORING DATE: 25-Jun-15 To 25-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1068		OL/OH	Organic, dark brown	Moss and fibrous lichens found	
		17592 (GRAB)	SM	Silty SAND with gravel, some cobbles (10%), greyish brown, low plasticity, moist.		Nbn
0.5						
				EOH at 0.6 m	Difficult to advance excavation in frozen soil and rock.	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-51**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582607 E 6973463 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1022
DIP: -90
TOTAL DEPTH (m): 0.8
BORING DATE: 25-Jun-15 To 25-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Sample Type: GRAB, UNDISTURBED

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1022		OL/OH	Organics, dark brown	Moss and fibrous lichens found		
			SM	Silty SAND, brownish grey, uniform, coarse sand layer, dry, non plastic.		UF	
0.5		17599				Nbn	Well bonded, no excess ice visible
0.8				EOH at 0.8 m	Difficult to advance excavation in frozen soil and rock.		

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-52
SITE:	Coffee Gold
LOCATION:	West Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582719 E 6973819 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1028
DIP:	-90
TOTAL DEPTH (m):	0.6
BORING DATE:	27-Jun-15 To 27-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1028		OL/OH	Organics SILT with grave/cobbles, dark brown, wet. Approximately 30% cobbles.	Moss and fibrous lichens found	UF	
0.5		17600 (GRAB)	ML	Gravelly SILT with sand, greyish-brown, wet. Approximately 20% gravel.	Coarse fragments show signs of weathering, resulting sand grains in the soil matrix are large and coarse quartz grains from weathering granite.	Vx	Well bonded, small ice inclusions Estimated 1-3% excess ice.
				EOH at 0.6 m	Difficult to advance excavation in frozen soil and rock.		

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-53**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582768 E 6974006 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1066
DIP: -90
TOTAL DEPTH (m): 0.6
BORING DATE: 27-Jun-15 To 27-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	1066		OL/OH	Organic, SILT, dark brown, moist	Moss and fibrous lichens found	UF	
0.5		17605 (GRAB)	Cobble	COBBLES (60%). Soil is sand and silts, brownish grey, non plastic,.		Nf	Poorly bonded
				EOH at 0.6 m	Difficult to advance excavation in frozen soil and rock.		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-54**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Kaminak
DRILLING TYPE: Can-dig
LOGGED BY: SM

COORDINATES: 582324 E 6974204 N
DATUM: UTM Zone 7
GROUND ELEV (m): 927
DIP: -90
TOTAL DEPTH (m): 0.4
BORING DATE: 1-Jul-15 To 1-Jul-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	927		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF		0
		17627 (GRAB)	Cobble	COBBLES (50%). Soil is silt, grey, low plasticity, wet		Nbn	Well bonded, no excess ice visible	
				EOH at 0.4 m	Difficult to advance excavation in frozen soil and rock.			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-55**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Kaminak
DRILLING TYPE: Can-dig
LOGGED BY: SM

COORDINATES: 582317 E 6974360 N
DATUM: UTM Zone 7
GROUND ELEV (m): 923
DIP: -90
TOTAL DEPTH (m): 0.4
BORING DATE: 1-Jul-15 To 1-Jul-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Depth (m)
0	923		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	Moist	0
		17628	ML	Gravelly SILT, grey, frozen, low plasticity, wet. Approximately 30% gravel/cobble content.		Vx	Well bonded, small ice inclusions. Estimated 1-3% excess ice.	
				EOH at 0.4 m	Difficult to advance excavation in frozen soil and rock.			

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-56**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: Kaminak
DRILLING TYPE: Can-dig
LOGGED BY: SM

COORDINATES: 582260 E 6974527 N
DATUM: UTM Zone 7
GROUND ELEV (m): 853
DIP: -90
TOTAL DEPTH (m): 0.5
BORING DATE: 1-Jul-15 To 1-Jul-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Depth (m)
0	853		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	Moist	0
		17629	ML	Gravelly SILT with cobbles, grey, low plasticity, wet. Approximately 30% cobbles.		Nbn	Well bonded, no excess ice visible	
0.5				EOH at 0.5 m	Difficult to advance excavation in frozen soil and rock.			

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-57
SITE:	Coffee Gold
LOCATION:	West Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Kaminak
DRILLING TYPE:	Can-dig
LOGGED BY:	SM
COORDINATES:	582126 E 6974472 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	868
DIP:	-90
TOTAL DEPTH (m):	0.6
BORING DATE:	1-Jul-15 To 1-Jul-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description
0	868		OL/OH	Organic SILT, dark brown, moist.	Moss and fibrous lichens found	UF	
		17630 (GRAB)	SM	Silty SAND with gravel and cobbles, greyish brown, non plastic, wet. Approximately 30% cobbles.		Nf	Poorly bonded
0.5							
				EOH at 0.6 m	Boom arm on the Can-dig excavator broke attempting to excavate into the hard frozen soil and ice		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-58**	COORDINATES:	582107 E 6974298 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	West Dump	GROUND ELEV (m):	898
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Kaminak	TOTAL DEPTH (m):	1.6
DRILLING TYPE:	Can-dig	BORING DATE:	2-Jul-15 To 2-Jul-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	898		OL/OH	Organics, dark brown, moist	Moss and fibrous lichens found	UF
			Cobble	COBBLES (70%). Soil is a silty gravel with sand, grey, non plastic, moist.	Coarse materials are angular and platy in appearance and break apart easily with hands.	UF
0.5		17631 (GRAB, ~0.3–0.9 m)				Nf: Poorly bonded, no excess ice visible
1	897					
1.5						
1.6				EOH at 1.6 m	Further excavation limited by excavator's reach.	

Moisture content point plotted at approx. 0.6 m depth.

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HOLE ID:	**SRK-15TP-59**
SITE:	Coffee Gold
LOCATION:	West Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Kaminak
DRILLING TYPE:	Can-dig
LOGGED BY:	SM
COORDINATES:	582089 E 6974165 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	876
DIP:	-90
TOTAL DEPTH (m):	0.4
BORING DATE:	2-Jul-15 To 2-Jul-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	876		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF		0
		17634	ML	Organic SILTS, dark greyish brown, low plasticity, wet.	Organics intermixed in silt to 0.6m. This ice accumulation present between moss and silt layer	Nbn	Well bonded, no excess ice visible	
				EOH at 0.4 m	Difficult to advance excavation in frozen soil and ice			

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-60**	COORDINATES:	581978 E 6974221 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	West Dump	GROUND ELEV (m):	910
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	Kaminak	TOTAL DEPTH (m):	0.8
DRILLING TYPE:	Can-dig	BORING DATE:	2-Jul-15 To 2-Jul-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	910		OL/OH	Organics, dark brown	Moss and fibrous lichens found	UF	
		17632 (GRAB)		COBBLES (50%) Soil is Gravelly silt with sand, grey, moist, non plastic.		Nf	Poorly bonded soil and ice transitioning to well bonded soil and ice at refusal
0.5							
0.8				EOH at 0.8 m	Difficult to advance excavation in frozen soil and rock.		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-61**
SITE:	Coffee Gold
LOCATION:	West Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	Kaminak
DRILLING TYPE:	Can-dig
LOGGED BY:	SM
COORDINATES:	581696 E 6974067 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	974
DIP:	-90
TOTAL DEPTH (m):	1.9
BORING DATE:	2-Jul-15 To 2-Jul-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample (Grab)	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Grain Size Analysis
0 – 0.2	974		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF	
0.2 – 0.6		17633	GM	Sandy SILT, some gravel (5%), grey brown, moist, low plasticity.		UF	
0.6 – 1.9	973 (at 1 m)	17633-61A	ML	Silty SAND with gravel and cobbles, grey, moist, non plastic. Approximately 30% gravel/cobbles.		UF	14/34/52 *48/4*

EOH at 1.9 m

Excavator could not advance test pit due to depth limitations of the machine

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-62**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581844 E 6973832 N
DATUM: UTM Zone 7
GROUND ELEV (m): 920
DIP: -90
TOTAL DEPTH (m): 0.4
BORING DATE: 25-Jun-15 To 25-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	920		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF		0
		17596	ML	SILT, grey, low plasticity, moist.		Vx	Well bonded with approximately 10% by volume ice inclusions	
				EOH at 0.4 m	Difficult to advance excavation in hard frozen soil			

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-63**

SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581392 E 6973384 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1005
DIP: -90
TOTAL DEPTH (m): 0.5
BORING DATE: 25-Jun-15 To 25-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice	Ice Description	Depth (m)
0	1005		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF		0
		17595	ML	Gravelly SILT, grey, low plasticity. Approximately 5-10% gravel content.	Organics intermixed in silt to 0.6m. This ice accumulation present between moss and silt layer	Vx	Well bonded with approximately 5-10% by volume ice inclusions	
0.5				EOH at 0.5 m	Difficult to advance excavation in hard frozen soil			

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-64**
SITE:	Coffee Gold
LOCATION:	West Dump
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582197 E 6973829 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	932
DIP:	-90
TOTAL DEPTH (m):	0.6
BORING DATE:	25-Jun-15 To 25-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	932		OL/OH	Organics, dark brown, wet	Moss and fibrous lichens found	UF	
0.5		17598 (GRAB)	ML	SILT with sand, grey brown transitioning to grey at refusal, low plasticity, wet.		Nbe	Well bonded, negligible thin ice coatings on coarser sediments.
				EOH at 0.6 m	Difficult to advance excavation in hard frozen soil and rock		

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-64A**
SITE: Coffee Gold
LOCATION: West Dump
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582080 E 6973878 N
DATUM: UTM Zone 7
GROUND ELEV (m): 928
DIP: -90
TOTAL DEPTH (m): 0.4
BORING DATE: 26-Jun-15 To 26-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0	928		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF		0
		17597	ML	Gravelly SILT, brownish grey, low plasticity, uniform fines. Approximate 30% gravel content.		Nbn	Well bonded, no excess ice visible	
				EOH at 0.4 m	Difficult to advance excavation in hard frozen soil and rock			

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-65
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	581698.34 E6972460.91 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1205.14
DIP:	-90
TOTAL DEPTH (m):	0.8
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0	1205		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF	
0.5		17622	ML	SILT with sand, some gravel, greyish brown, low plasticity, moist.		Nf	Poorly bonded
				EOH at 0.8 m	Difficult to advance excavation in hard frozen soil and rock		

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-66**
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM

COORDINATES:	581829.63 E6972400.43 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1204.02
DIP:	-90
TOTAL DEPTH (m):	1.8
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.2	1204		OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
0.2 – 1.8	1203	17620 (GRAB, 0.5 – 1.2)	SM	Poorly graded SAND with silt and gravel, greyish brown, non plastic, moist. Gravel/cobbles are subangular, weathered, and represent 10% of excavated material		UF

Depth scale: 0, 0.5, 1, 1.5

EOH at 1.8 m

(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit.

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-67**
SITE: Coffee Gold
LOCATION: Infrastructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581850.76 E6972537.74 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1198.23
DIP: -90
TOTAL DEPTH (m): 0.8
BORING DATE: 29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description		Depth (m)
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF		0
0.5	1198	17621 (GRAB)	GM	Silty SAND with gravel, some cobbles, greyish-brown, non plastic, moist. Cobbles (20%) are granitic, and subangular	Weathered granite contributes to the large coarse quartz sand particles. Remaining rock breaks apart in your hands.	UF	Unfrozen, Nbn at base of excavation.	
				EOH at 0.8m on hard frozen soil and ice.	Difficult to advance excavation in hard frozen soil and rock			

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-68**
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	581915.93 E6972516.48 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1203.28
DIP:	-90
TOTAL DEPTH (m):	1.7
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 1.7	1203.28 – 1201.58	17618 (GRAB, 0.5 – 1.0 m)	Cobble	COBBLES (80%). Soil is well graded sand with gravel, greyish brown, moist, non plastic.	No organics, natural opening without vegetation	UF
1.7				EOH at 1.7m on coarse fractured rock	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit.	

Depth axis: 0, 0.5, 1, 1.5. Elev axis: 1203, 1202.

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-69**
SITE: Coffee Gold
LOCATION: Infrustructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 581968.31 E6972525.61 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1199.02
DIP: -90
TOTAL DEPTH (m): 1.6
BORING DATE: 29-Jun-15 To 29-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 1.6	1199 – 1198	GRAB 17617 (0.5 – 1.0)	GP	Poorly graded SAND with gravel, brownish grey, moist, non plastic (weathered granitic bedrock).	No organics, natural opening without vegetation	UF
1.6				EOH at 1.6 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit.	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-70**
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	581942.67 E6972578.76 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1188.3
DIP:	-90
TOTAL DEPTH (m):	1.3
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
	1188		Cobble	COBBLES (70%). Cobbles are coarse granitic rocks, subangular and weathered. Soil is poorly graded SAND with gravel, greyish-brown, non plastic, moist.	Weathered granite contributes to the large coarse quartz sand particles. Remaining rock breaks apart in your hands.	UF
0.5 – 1		17619 (GRAB)				
1.3	1187			EOH at 1.3 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit.	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-72**
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582017.09 E6972544.71 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1188.52
DIP:	-90
TOTAL DEPTH (m):	1.2
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
- UF: Unfrozen
- Nf: No visible ice, Poorly Bonded
- Nbn: No visible ice, Well Bonded - No Excess Ice
- Nbe: No visible ice, Well Bonded - Excess Ice
- Vx: Individual Ice Inclusions
- Vc: Ice Coatings on Particles
- Vr: Random or Irregularly Oriented Ice Formations
- Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.2			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
0.2 – 1.2	1188	17616 (GRAB, 0.5 – 1.0)		Sandy GRAVEL with cobbles, greyish brown, moist, non plastic. Cobbles/Boulders represent 30% of excavated material		UF
1.2				EOH at 1.2 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit.	

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-73
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582011.02 E6972562.22 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1187.81
DIP:	-90
TOTAL DEPTH (m):	3.5
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.3			OL/OH	Organic SILTs, dark brown, moist	Moss and fibrous lichens found	
0.3 – 1.3	1187		ML	SILT with sand, some gravel and cobbles, grey, moist, non plastic. Cobbles (5%) are angular and break with hands.		
1.3 – 2.0+	1186	GRAB 17615 (1.5 – 2.0)		Poorly graded SAND with gravel, light grey with yellowish-orange regions, Coarse fragments (5%) are angular and break with hands	Coarse weathered granite, sand and gravel sized particles and colouration are not in distinct layers.	UF

Depth scale: 0, 0.5, 1, 1.5, 2

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-73**
SITE:	Coffee Gold
LOCATION:	Infrastructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582011.02 E6972562.22 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1187.81
DIP:	-90
TOTAL DEPTH (m):	3.5
BORING DATE:	29-Jun-15 To 29-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	USCS	Soil Description	Drilling Notes and Additional Comments
2.5	1185	SM		
3				
3.5			EOH at 3.5 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond frozen rock and soil at the bottom of the test pit.

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-74**
SITE: Coffee Gold
LOCATION: Infrastructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582067.81 E6972575.7 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1182.42
DIP: -90
TOTAL DEPTH (m): 1.1
BORING DATE: 29-Jun-15 To 29-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
	1182		SM	Sandy SILT, some gravel and cobbles, brownish grey, moist, non plastic	Large surface boulders and rock present	UF
0.5 – 1		17614 (GRAB)	SM			UF
1.1				EOH at 1.1 m	(Boulder/weathered bedrock) Excavator cannot advance the test pit beyond rock at the bottom of the test pit.	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-75**	COORDINATES:	582143.18 E6972571.81 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Infrustructure	GROUND ELEV (m):	1181.19
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.2
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	27-Jun-15 To 27-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	
	1181		Cobble	COBBLES (50%). Soil is a gravelly SAND with silt, grey brown, moist, low plasticity.		UF
0.5 – 1		17613 (GRAB)				
1.2	1180			EOH at 1.2 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the coarse fractured rock at the bottom of the test pit.	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-76**
SITE: Coffee Gold
LOCATION: Infrustructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582165.34 E6972643.69 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1178.87
DIP: -90
TOTAL DEPTH (m): 1
BORING DATE: 27-Jun-15 To 27-Jun-15

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	
		GRAB 17611	Cobble	COBBLES (40%). Soil is gravelly SAND with silt, greyish brown, wet, low plasticity.	Large +2m diameter boulders exist on the surface adjacent to test pit location	UF
0.5						
	1178					
1				EOH at 1.0 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the coarse fractured rock at the bottom of the test pit.	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-77**	COORDINATES:	582177.58 E6972573.39 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Infrustructure	GROUND ELEV (m):	1180.7
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	1.5
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	27-Jun-15 To 27-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.2			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF
0.2 – 1.5	1180	17612 (GRAB, 0.5 – 1.0)	Cobble	COBBLES (50%). Soil is silty SAND, greyish brown, moist, low plasticity.		UF
1.5				EOH at 1.5 m	Excavator cannot advance test pit into coarse fractured rock.	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-78**
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582264.64 E6972623.8 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1175.52
DIP:	-90
TOTAL DEPTH (m):	2.5
BORING DATE:	27-Jun-15 To 27-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	
0.2			SM	Sandy SILT with gravel, greyish brown, moist, low plasticity. Approximately 10% gravel.	Weathered granite contributes to the large coarse quartz sand particles. Remaining rock breaks apart in your hands.	UF
0.5	1175					
1		GRAB 17610 (1.0–2.0)				
1.5	1174					
2						

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-78**
SITE: Coffee Gold
LOCATION: Infrustructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582264.64 E6972623.8 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1175.52
DIP: -90
TOTAL DEPTH (m): 2.5
BORING DATE: 27-Jun-15 To 27-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content
Plastic Limit
Liquid Limit
NP: Non-Plastic
(%)
0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m) | Elev (m) | Sample Type (GRAB, UNDISTURBED) | USCS | Soil Description | Drilling Notes and Additional Comments | Depth (m)

Depth (m)	Elev (m)	Soil Description	Drilling Notes and Additional Comments
2.5	1173	EOH at 2.5m on fractured bedrock	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the coarse weathered rock at the bottom of the test pit.

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-79
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582327.99 E6972692.33 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1172.27
DIP:	-90
TOTAL DEPTH (m):	1.5
BORING DATE:	27-Jun-15 To 27-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	UF	
	1172			COBBLES (40%). Soil is sandy SILT, grey brown, moist, non plastic.		UF	
0.5		17609 (GRAB)				UF	
		17609 (GRAB)		COBBLES (40%). Soil is sandy SILT, grey brown, wet, non plastic.		Nbn	Well bonded, no excess ice visible
1						Nbn	
	1171					Nbn	
1.5				EOH at 1.5 m	(Cobble/weathered bedrock) Excavator cannot advance the test pit beyond the coarse weathered rock at the bottom of the test pit.		

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KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-80
SITE:	Coffee Gold
LOCATION:	Infrastructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 312 Excavator
LOGGED BY:	SM
COORDINATES:	582359.2 E 6972629.25 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1170.98
DIP:	-90
TOTAL DEPTH (m):	1.6
BORING DATE:	27-Jun-15 To 27-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis: Gravel/Sand/Fines(%); *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0			OL/OH	Organic, dark brown	Moss and fibrous lichens found	
0.2–1.6		17608 (GRAB, 0.5–1.0)		COBBLES (70%); Soil is SILT, some sand and gravel, brownish grey, moist, low plasticity.		UF
1	1170					
1.6				EOH at 1.6 m	(Fractured/ weathered bedrock) Coarse rock appears to be fractured bedrock. Difficulty to advance the excavation due to the excavator's ability	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-81**
SITE: Coffee Gold
LOCATION: Infrustructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582806.31 E6972764.7 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1135.09
DIP: -90
TOTAL DEPTH (m): 1.5
BORING DATE: 27-Jun-15 To 27-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.2	1135		OL/OH	Organic, dark brown	Moss and fibrous lichens found	
0.2 – 1.5	1134	17607 (GRAB, 0.5 – 1.0)		COBBLES (60%) Soil is SILT, grey, wet, low plasticity.	Excessive seepage due to heavy precipitation event during the prior evening.	UF
1.5				EOH at 1.5 m	(Fractured/ weathered bedrock) Coarse rock appears to be fractured bedrock. Difficulty to advance the excavation due to the excavator's ability	

Depth (m): 0, 0.5, 1, 1.5

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-82**
SITE: Coffee Gold
LOCATION: Infrustructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 312 Excavator
LOGGED BY: SM

COORDINATES: 582849.37 E6972824.34 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1131.32
DIP: -90
TOTAL DEPTH (m): 3.5
BORING DATE: 27-Jun-15 To 27-Jun-15

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0 – 0.15			OL/OH	Organic, dark brown	Moss and fibrous lichens found	
0.15 – 0.5	1131		ML	Organic SILT, dark brown, moist, low plasticity.		
0.5 – 1.3		17606 (GRAB, 0.6 – 1.0)	SM	Silty SAND with gravel, greyish-brown, moist, non plastic. Approximate 20% gravel.		
1.3 –	1130	17606- (GRAB, from 2.0)		Silty SAND, Yellowish brown, dry, non plastic. Approximate 20% gravel/cobbles.	Coarse fragments show signs of weathering, resulting sand grains in the soil matrix are large and coarse quartz grains from weathering rock that is easily broken with hands.	UF

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HOLE ID:	SRK-15TP-82	COORDINATES:	582849.37 E6972824.34 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Infrustructure	GROUND ELEV (m):	1131.32
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	3.5
DRILLING TYPE:	CAT 312 Excavator	BORING DATE:	27-Jun-15 To 27-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis — Gravel/Sand/Fines(%); *Silt/Clay (%)*

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Grain Size (Gravel/Sand/Fines %)
2.0–2.5	1129	82A (GRAB)	GM			46/38/16
3.5	1128			EOH at 3.5 m	(Fractured/ weathered bedrock) Coarse rock appears to be fractured bedrock. Difficulty to advance the excavation due to the excavator's ability	

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KAMINAK GOLD CORPORATION

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

HOLE ID: **SRK-15TP-83**

SITE: Coffee Gold

LOCATION: Infrustructure

PROJECT NO: 338600.020

DRILLING CONTRACTOR: JDS

DRILLING TYPE: CAT 320 Excavator

LOGGED BY: SM

COORDINATES: 589270 E 6973403 N

DATUM: UTM Zone 7

GROUND ELEV (m): 1183

DIP: -90

TOTAL DEPTH (m): 1.6

BORING DATE: 30-Jun-15 To 30-Jun-15

Lithological Symbol

Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis

Gravel/Sand/Fines(%)

Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1183		OL/OH	Organic, dark brown	Moss and fibrous lichens found	
				COBBLES (40%) angular; soil is gravelly SAND, brownish grey, moist.		
0.5		17624 (GRAB, 0.5–1.0)				UF
1	1182					
1.5						
1.6				EOH at 1.6 m	(Fractured/ weathered bedrock) Coarse rock appears to be fractured bedrock. Difficulty to advance the excavation due to the excavator's ability	

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-84**
SITE:	Coffee Gold
LOCATION:	Infrustructure
PROJECT NO:	338600.020
DRILLING CONTRACTOR:	JDS
DRILLING TYPE:	CAT 320 Excavator
LOGGED BY:	SM
COORDINATES:	589726 E 6973327 N
DATUM:	UTM Zone 7
GROUND ELEV (m):	1172
DIP:	-90
TOTAL DEPTH (m):	1.9
BORING DATE:	30-Jun-15 To 30-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Clay, Silt, Sand, Gravel, Cobble, Boulder, Weathered Bedrock, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description
0	1172		OL/OH	Organic, dark brown	Moss and fibrous lichens found	
0.2–1.9		17625 (GRAB, 0.5–1.0)		COBBLES/BOULDERS (70%). Soil is sandy GRAVEL, brownish grey, moist, non plastic.		UF
1.9				EOH at 1.9 m	(Fractured/ weathered bedrock) Coarse rock appears to be fractured bedrock. Difficulty to advance the excavation due to the excavator's ability	

Depth markers: 0, 0.5, 1 (Elev 1171), 1.5

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KAMINAK GOLD CORPORATION

HOLE ID: **SRK-15TP-85**
SITE: Coffee Gold
LOCATION: Infrustructure
PROJECT NO: 338600.020
DRILLING CONTRACTOR: JDS
DRILLING TYPE: CAT 320 Excavator
LOGGED BY: SM

COORDINATES: 590248 E 6973291 N
DATUM: UTM Zone 7
GROUND ELEV (m): 1165
DIP: -90
TOTAL DEPTH (m): 4.3
BORING DATE: 30-Jun-15 To 30-Jun-15

PROJECT: Kaminak - Coffee Gold
FS Geotechnical Evaluation
CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic; (%) 0 25 50 75 100

Grain Size Analysis
Gravel/Sand/Fines(%)
Silt/Clay (%)

Sample Type: GRAB; UNDISTURBED

Depth (m)	Elev (m)	Sample	USCS	Soil Description	Drilling Notes and Additional Comments
0	1165		OL/OH	Organic, dark brown	Moss and fibrous lichens found
				Silty SAND with gravel, some cobbles, grey brown, well graded, non plastic. Cobbles (~10%) are weathered, and subangular to rounded.	Fractured rock is discontinuous at approximately 2.0m
0.5		17626 (GRAB, 0.5–1.0)			
1	1164				
1.5					
2	1163				

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KAMINAK GOLD CORPORATION

HOLE ID:	**SRK-15TP-85**		
SITE:	Coffee Gold	COORDINATES:	590248 E 6973291 N
LOCATION:	Infrustructure	DATUM:	UTM Zone 7
PROJECT NO:	338600.020	GROUND ELEV (m):	1165
DRILLING CONTRACTOR:	JDS	DIP:	-90
DRILLING TYPE:	CAT 320 Excavator	TOTAL DEPTH (m):	4.3
LOGGED BY:	SM	BORING DATE:	30-Jun-15 To 30-Jun-15

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Sample Type: GRAB, UNDISTURBED

Ice Description

UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice

Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content, Plastic Limit, Liquid Limit, NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	Depth (m)
			GM			UF	
2.5							
3	1162						3
3.5							
4	1161						4

srk consulting

KAMINAK GOLD CORPORATION

HOLE ID:	SRK-15TP-85	COORDINATES:	590248 E 6973291 N
SITE:	Coffee Gold	DATUM:	UTM Zone 7
LOCATION:	Infrustructure	GROUND ELEV (m):	1165
PROJECT NO:	338600.020	DIP:	-90
DRILLING CONTRACTOR:	JDS	TOTAL DEPTH (m):	4.3
DRILLING TYPE:	CAT 320 Excavator	BORING DATE:	30-Jun-15 To 30-Jun-15
LOGGED BY:	SM		

PROJECT: Kaminak - Coffee Gold FS Geotechnical Evaluation

CLIENT: Kaminak Gold Corporation

Lithological Symbol: Organic, Sand, Boulder, Clay, Gravel, Weathered Bedrock, Silt, Cobble, Bedrock

Ice Description
UF: Unfrozen
Nf: No visible ice, Poorly Bonded
Nbn: No visible ice, Well Bonded - No Excess Ice
Nbe: No visible ice, Well Bonded - Excess Ice
Vx: Individual Ice Inclusions
Vc: Ice Coatings on Particles
Vr: Random or Irregularly Oriented Ice Formations
Vs: Stratified / Distinctly Oriented Ice Formations

Moisture Content; Plastic Limit; Liquid Limit; NP: Non-Plastic (%) 0 25 50 75 100

Grain Size Analysis Gravel/Sand/Fines(%) *Silt/Clay (%)*

Sample Type: GRAB, UNDISTURBED

Depth (m)	Elev (m)	Sample Type	USCS	Soil Description	Drilling Notes and Additional Comments	Ice Description	(%)	Grain Size Analysis	Depth (m)
				EOH at 4.3 m	Difficulty advancing excavation due to reach limitations of equipment.				

Appendix C: Photograph Logs

Appendix C-1: Phase 1 Sonic Drill Core Photographs

Bore Hole ID: SRK-15S-01

Location: North Dump

Elevation: 1077 masl

Aspect: East Facing Mid Slope

0 to 1.5 feet

1.5 to 3.5 feet

3.5 to 4.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-01		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-01-01

Bore Hole ID: SRK-15S-01

Location: North Dump

Elevation: 1077 masl

Aspect: East Facing Mid Slope

4.5 to **7 feet**

7 to **10 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-01		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-01-02

Bore Hole ID: SRK-15S-02

Location: North Dump

Elevation: 946 masl

Aspect: North East Facing Slope Toe

0 to 1 feet

1 to 2 feet

2 to 3 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-02
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: 15S-02-01

Bore Hole ID: SRK-15S-02

Location: North Dump

Elevation: 946 masl

Aspect: East Facing Mid Slope

3 to **4.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **SRK-15S-02**
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15S-02-02**

Bore Hole ID: SRK-15S-03

Location: North Dump

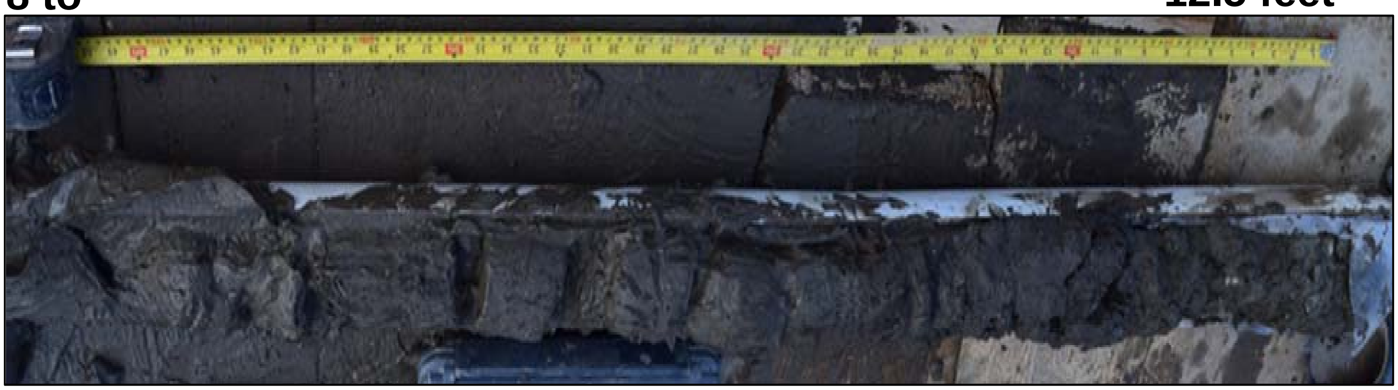
Elevation: 986 masl

Aspect: West Facing Mid Slope

0 to 3.5 feet

3.5 to 8 feet

8 to 12.5 feet



srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-03		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-03-01

Bore Hole ID: SRK-15S-03

Location: North Dump

Elevation: 986 masl

Aspect: West Facing Mid Slope

12.5 to 16.5 feet

16.5 to 19 feet

19 to 21 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-03		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-03-02

Bore Hole ID: SRK-15S-03

Location: North Dump

Elevation: 986 masl

Aspect: West Facing Mid Slope

21 to **24.5 feet**

24.5 to **34.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-03		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-03-03

Bore Hole ID: SRK-15S-04

Location: North Dump

Elevation: 1045 masl

Aspect: North Facing Mid Slope

0 to 5 feet

5 to 8.5 feet

8.5 to 11 feet

Bore Hole ID: SRK-15S-04

Location: North Dump

Elevation: 1045 masl

Aspect: North Facing Mid Slope

11 to 15 feet

15.5 to 20.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-04
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 · Approved: SM · Figure: 15S-04-02

Bore Hole ID: SRK-15S-05

Location: West Dump

Elevation: 880 masl

Aspect: West Facing Slope Toe

0 to **5 feet**

5 to **10 feet**

10 to **12.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-05
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: 15S-05-01

Bore Hole ID: SRK-15S-05

Location: West Dump

Elevation: 880 masl

Aspect: West Facing Mid Slope

12.5 to 13.5 feet

13.5 to 16 feet

Note: Drilled dry

16 to 19 feet

Note: Drilled with water

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-05		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-05-02

Bore Hole ID: SRK-15S-06

Location: West Dump

Elevation: 997 masl

Aspect: West Facing Mid Slope

0 to **1 feet**

1 to **5 feet**

5 to **8 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-06		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-06-01

Bore Hole ID: SRK-15S-05

Location: West Dump

Elevation: 997 masl

Aspect: West Facing Mid Slope

8 to 10 feet

10 to 15 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-06		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-06-02

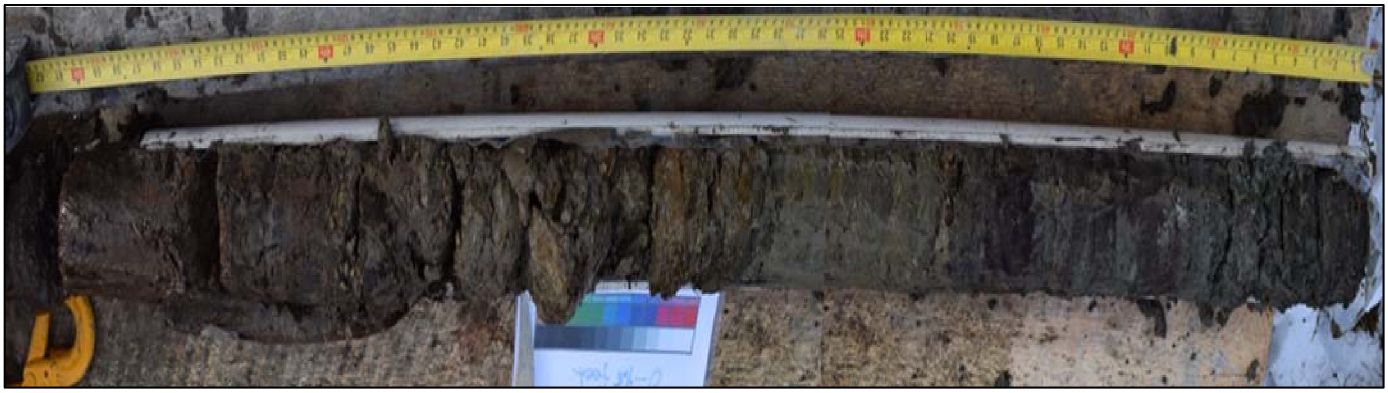
Bore Hole ID: SRK-15S-07

Location: West Dump

Elevation: 956 masl

Aspect: West Facing Mid Slope

0 to **4.5 feet**



4.5 to **9 feet**

9 to **10 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-07
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: 15S-07-01

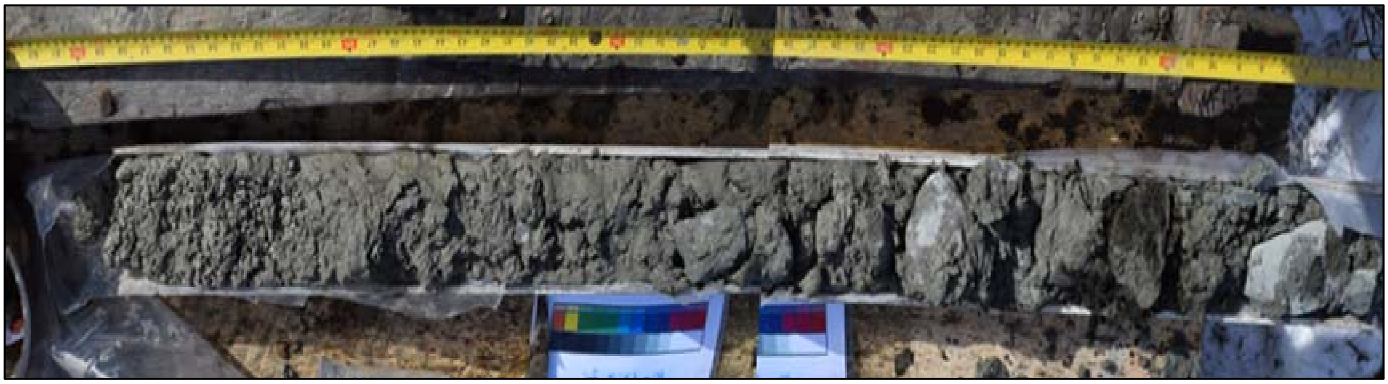
Bore Hole ID: SRK-15S-07

Location: West Dump

Elevation: 956 masl

Aspect: West Facing Mid Slope

10 to 13.5 feet



13.5 to 14.5 feet

14.5 to 16 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-07		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-07-02

Bore Hole ID: SRK-15S-07

Location: West Dump

Elevation: 956 masl

Aspect: West Facing Mid Slope

16 to **18 feet**

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Job No: 338600-020	Coffee Gold	2015 Geotech Investigation
Filename: C-1_Sonic Drill Photos.pptx		SRK-15S-07
		Date: September 18,2015 / Approved: SM / Figure: 15S-07-03

Bore Hole ID: SRK-15S-08

Location: West Dump

Elevation: 986 masl

Aspect: North Facing Mid Slope

0 to **5 feet**

5 to **7 feet**

7 to **10 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-08		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-08-01

Bore Hole ID: SRK-15S-08

Location: West Dump

Elevation: 986 masl

Aspect: North Facing Mid Slope

10 to 12.5 feet

12.5 to 15.5 feet

15.5 to 20 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-08		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-08-02

Bore Hole ID: SRK-15S-08

Location: West Dump

Elevation: 986 masl

Aspect: North Facing Mid Slope

20 to **25 feet**

25 to **30 feet**

30 to **35 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-08		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15S-08-03**

Bore Hole ID: SRK-15S-08

Location: West Dump

Elevation: 986 masl

Aspect: North Facing Mid Slope

35 to **40 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-08		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-08-04

Bore Hole ID: SRK-15S-09

Location: South Dump

Elevation: 855 masl

Aspect: North Facing Mid Slope

0 to **5 feet**

5 to **10 feet**

10 to **15 feet**

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2015 Geotech Investigation

SRK-15S-09

Job No: 338600-020

Filename: C-1_Sonic Drill Photos.pptx

Coffee Gold

Date: September 18,2015

Approved: SM

Figure: **15S-09-01**

Bore Hole ID: SRK-15S-09

Location: South Dump

Elevation: 855 masl

Aspect: North Facing Mid Slope

15 to **20 feet**

20 to **25 feet**

25 to **30 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-09
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 · Approved: SM · Figure: **15S-09-02**

Bore Hole ID: SRK-15S-09

Location: South Dump

Elevation: 855 masl

Aspect: North Facing Mid Slope

30 to **35 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-09
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: 15S-09-03

Bore Hole ID: SRK-15S-10

Location: South Dump

Elevation: 870 masl

Aspect: North East Facing Mid Slope

0 to **3 feet**

3 to **4 feet**

4 to **5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-10		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-10-01

Bore Hole ID: SRK-15S-10

Location: South Dump

Elevation: 870 masl

Aspect: North East Facing Mid Slope

5 to **6 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-10		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-10-02

Bore Hole ID: SRK-15S-11

Location: South Dump

Elevation: 915 masl

Aspect: South West Facing Mid Slope

0 to 5 feet

5 to 8.5 feet

8.5 to 10 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-11		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-11-01

Bore Hole ID: SRK-15S-12

Location: South Dump

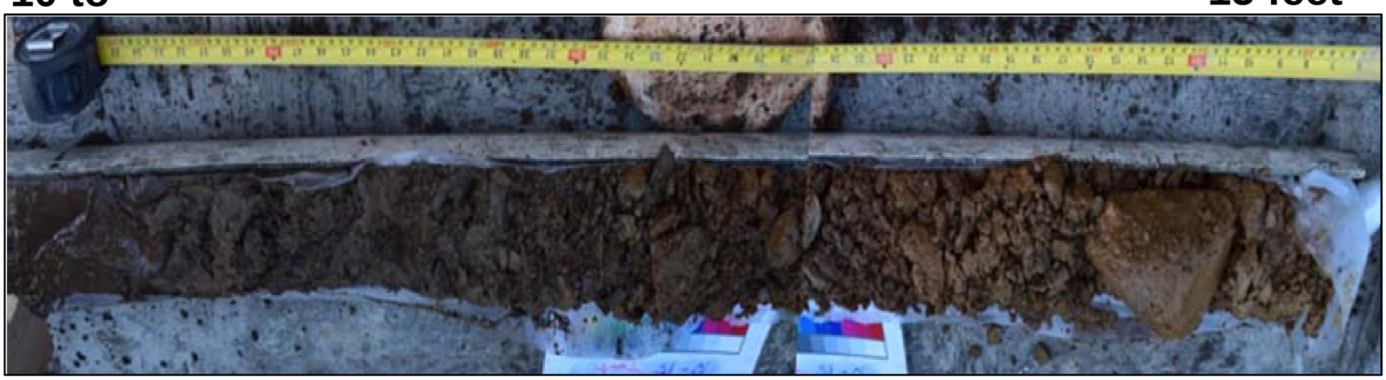
Elevation: 788 masl

Aspect: South Facing Slope Toe

0 to 5 feet

5 to 10 feet

10 to 15 feet



srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-12		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-12-01

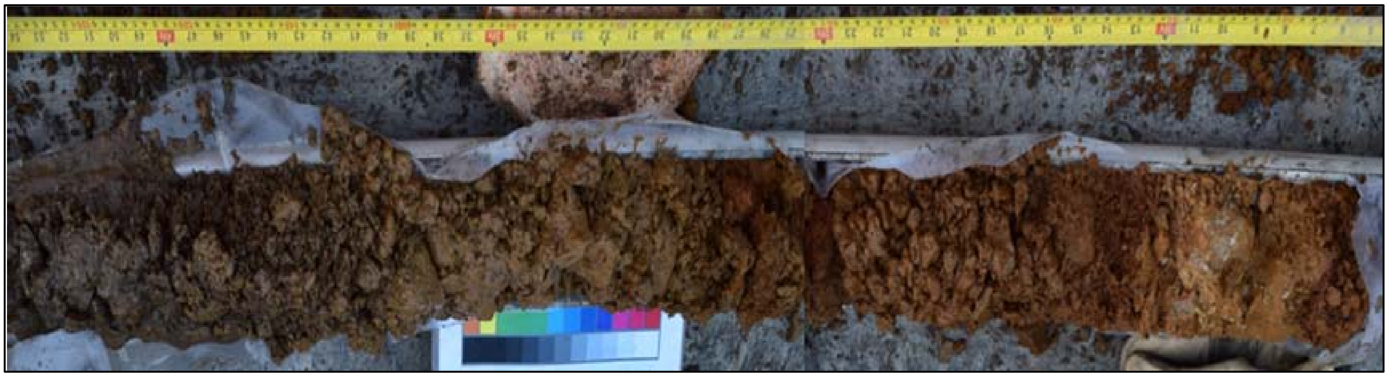
Bore Hole ID: SRK-15S-12

Location: South Dump

Elevation: 788 masl

Aspect: South Facing Slope Toe

15 to 20 feet



20 to 25 feet

25 to 30 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-12		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-12-02

Bore Hole ID: SRK-15S-13A

Location: Heap Leach Area

Elevation: 1259 masl

Aspect: North Facing Mid to Upper Slope

0 to 1.5 feet

1.5 to 6.5 feet

6.5 to 8.5 feet

8.5 to 11.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-13A		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-13A-01

Bore Hole ID: SRK-15S-13A

Location: Heap Leach Area

Elevation: 1259 masl

Aspect: North Facing Mid to Upper Slope

11.5 to 14.5 feet

14.5 to 15.5 feet

15.5 to 20.5 feet

20.5 to 26.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-13A		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15S-13A-02**

Bore Hole ID: SRK-15S-13A

Location: Heap Leach Area

Elevation: 1259 masl

Aspect: North Facing Mid to Upper Slope

26.5 to **31.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-13A
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: 15S-13A-03

Bore Hole ID: SRK-15S-14

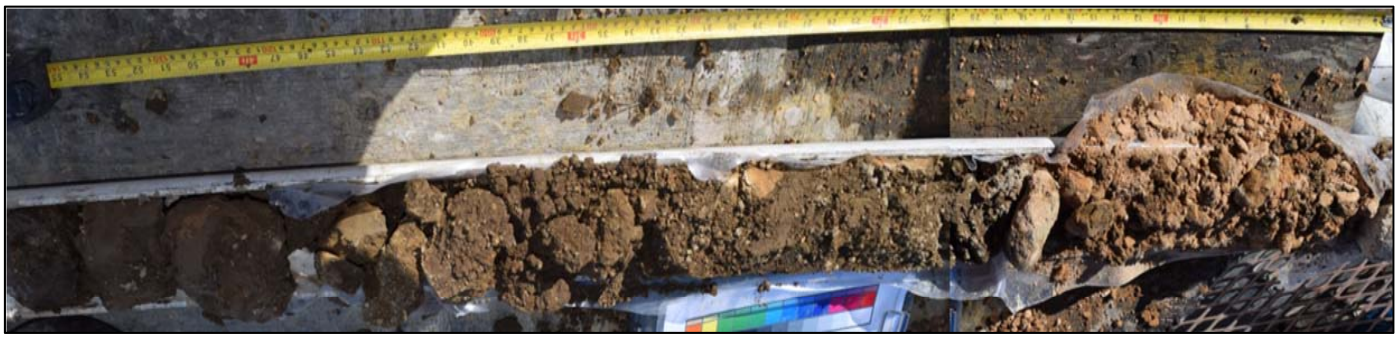
Location: Heap Leach Area

Elevation: 1305 masl

Aspect: North Facing Upper Slope

0 to **1 feet**

1 to **5 feet**



5 to **7 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-14		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-14-01

Bore Hole ID: SRK-15S-15

Location: Heap Leach Area

Elevation: 1250 masl

Aspect: Slope Crest

0 to 6 feet

6 to 8 feet

8 to 8.5 feet

Bore Hole ID: SRK-15S-16

Location: Heap Leach Area

Elevation: 1313 masl

Aspect: Slope Crest

0 to 1 feet

1 feet 4 feet

4 feet 5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **SRK-15S-16**		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15S-16-01**

Bore Hole ID: SRK-15S-17

Location: Heap Leach Area

Elevation: 1276 masl

Aspect: Slope Crest

0 to **2 feet**

2 to **5 feet**

5 to **10 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-17		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-17-01

Bore Hole ID: SRK-15S-18

Location: Heap Leach Area

Elevation: 1264 masl

Aspect: Slope Crest

0 to **1 feet**

1 to **3.5 feet**

3.5 to **6 feet**

6 to **7 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-18		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-18-01

Bore Hole ID: SRK-15S-19

Location: Heap Leach Area

Elevation: 1311 masl

Aspect: South Facing Upper Slope

0 to 2 feet

2 to 7 feet

7 to 11 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-19		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-19-01

Bore Hole ID: SRK-15S-19

Location: Heap Leach Area

Elevation: 1311 masl

Aspect: South Facing Upper Slope

11 to 15 feet

15 to 17 feet

Bore Hole ID: SRK-15S-20

Location: Heap Leach Area

Elevation: 1171 masl

Aspect: South Facing Upper Slope

0 to **5 feet**

5 to **8 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **SRK-15S-20**
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15S-20-01**

Bore Hole ID: SRK-15S-21

Location: Heap Leach Area

Elevation: 1143 masl

Aspect: North Facing Upper Slope

0 to **1.5 feet**

1.5 to **4 feet**

4 to **6 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **SRK-15S-21**
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15S-21-01**

Bore Hole ID: SRK-15S-22

Location: Heap Leach Area

Elevation: 1154 masl

Aspect: Crest

0 to **1 feet**

1 to **2 feet**

2 to **5.5 feet**

5.5 to **10 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-22		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-22-01

Bore Hole ID: SRK-15S-22

Location: Heap Leach Area

Elevation: 1154 masl

Aspect: Crest

0 to **1 feet**

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KAMINAK GOLD CORPORATION

2015 Geotech Investigation

SRK-15S-22

Job No: 338600-020

Filename: C-1_Sonic Drill Photos.pptx

Coffee Gold

Date: September 18,2015

Approved: SM

Figure: **15S-22-02**

Bore Hole ID: SRK-15S-23

Location: Heap Leach Area

Elevation: 1199 masl

Aspect: Crest

0 to 1.5 feet

1.5 to 3 feet

3.5 to 5.5 feet

5.5 to 7.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-23
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15S-23-01**

Bore Hole ID: SRK-15S-24

Location: Heap Leach Area

Elevation: 1170 masl

Aspect: South East Facing Upper Slope

0 to **1 feet**

1 to **4 feet**

4 to **5.5 feet**

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2015 Geotech Investigation

SRK-15S-24

Job No: 338600-020

Filename: C-1_Sonic Drill Photos.pptx

Coffee Gold

Date: September 18,2015

Approved: SM

Figure: **15S-24-01**

Bore Hole ID: SRK-15S-24

Location: Heap Leach Area

Elevation: 1170 masl

Aspect: South East Facing Upper Slope

5.5 to 7.5 feet

7.5 to 8.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-24		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-24-02

Bore Hole ID: SRK-15S-25

Location: Heap Leach Area

Elevation: 1154 masl

Aspect: East Facing Mid Slope

0 to 1 feet

1.5 to 6 feet

6 to 8 feet

Bore Hole ID: SRK-15S-25

Location: Heap Leach Area

Elevation: 1154 masl

Aspect: East Facing Mid Slope

8 to **10.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-25
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: 15S-25-02

Bore Hole ID: SRK-15S-26

Location: Foundation Area for Infrastructure

Elevation: 1143 masl

Aspect: Slope Crest

0 to 3 feet

3 to 6 feet

6 to 8 feet

Bore Hole ID: SRK-15S-27

Location: Foundation Area for Infrastructure

Elevation: 1144 masl

Aspect: Slope Crest

0 to 3 feet

3 to 6.5 feet

6.5 to 9 feet

9 to 14.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-27		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15S-27-01**

Bore Hole ID: SRK-15S-27

Location: Foundation Area for Infrastructure

Elevation: 1144 masl

Aspect: Slope Crest

14.5 to **18 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-27
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: 15S-27-02

Bore Hole ID: SRK-15S-28

Location: Foundation Area for Infrastructure

Elevation: 1119 masl

Aspect: South Facing Mid to Upper Slope

0 to 3.5 feet

3.5 to 6 feet

6 to 7 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-28
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: 15S-28-01

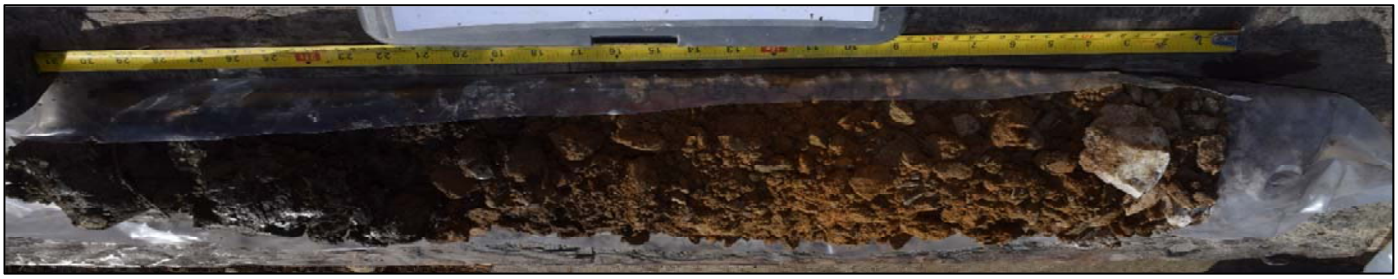
Bore Hole ID: SRK-15S-29

Location: Foundation Area for Infrastructure

Elevation: 1111 masl

Aspect: South Facing Mid to Upper Slope

0 to 2 feet



2 to 3 feet

3 to 4.5 feet

4.5 to 5.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-29
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: 15S-29-01

Bore Hole ID: SRK-15S-30

Location: Foundation Area for Infrastructure

Elevation: 1126 masl

Aspect: Slope Crest

0 to 2 feet

2 to 4.5 feet

4.5 to 6 feet

6 to 11 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-30		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-30-01

Bore Hole ID: SRK-15S-30

Location: Foundation Area for Infrastructure

Elevation: 1126 masl

Aspect: Slope Crest

9 to **11 feet**

11 to **12 feet**

12 to **14.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		SRK-15S-30		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-30-02

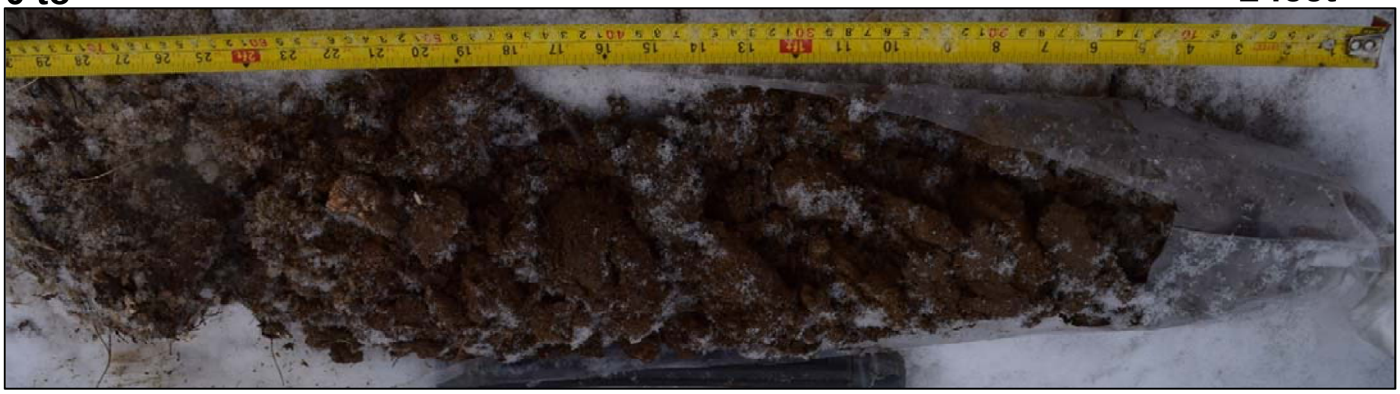
Bore Hole ID: SRK-15S-31

Location: Foundation Area for Infrastructure

Elevation: 1205 masl

Aspect: South East Facing Mid to Upper Slope

0 to **2 feet**



2 to **4 feet**

4 to **4.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **SRK-15S-31**		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15S-31-01**

Bore Hole ID: SRK-15S-32

Location: Foundation Area for Infrastructure

Elevation: 1202 masl

Aspect: South East Facing Mid to Upper Slope

0 to 1.5 feet

1.5 to 3 feet

3 to 3.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-32		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-32-01

Bore Hole ID: SRK-15S-32

Location: Foundation Area for Infrastructure

Elevation: 1202 masl

Aspect: South East Facing Mid to Upper Slope

3.5 to **4.5 feet**

4.5 to **6 feet**

6 to **8.5 feet**

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2015 Geotech Investigation

SRK-15S-32

Job No: 338600-020

Filename: C-1_Sonic Drill Photos.pptx

Coffee Gold

Date: September 18,2015

Approved: SM

Figure: **15S-32-02**

Bore Hole ID: SRK-15S-33

Location: Foundation Area for Infrastructure

Elevation: 1195 masl

Aspect: South East Facing Mid to Upper Slope

0 to **2 feet**

2 to **4.5 feet**

4.5 to **5.5 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-33		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-33-01

Bore Hole ID: SRK-15S-33

Location: Foundation Area for Infrastructure

Elevation: 1195 masl

Aspect: South East Facing Mid to Upper Slope

5.5 to **7 feet**

srk consulting

KAMINAK GOLD CORPORATION

Job No: 338600-020	Coffee Gold	2015 Geotech Investigation		
Filename: C-1_Sonic Drill Photos.pptx		SRK-15S-33		
		Date: September 18,2015	Approved: SM	Figure: **15S-33-02**

Bore Hole ID: SRK-15S-34

Location: Foundation Area for Infrastructure

Elevation: 1181 masl

Aspect: South East Facing Mid to Upper Slope

0 to 1 feet

1 to 2 feet

2 to 5.5 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-34
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: 15S-34-01

Bore Hole ID: SRK-15S-34

Location: Foundation Area for Infrastructure

Elevation: 1181 masl

Aspect: South East Facing Mid to Upper Slope

5.5 to **6 feet**

6 to **8 feet**

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation SRK-15S-34		
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: 15S-34-02

Bore Hole ID: SRK-15S-35

Location: Foundation Area for Infrastructure / South WRD

Elevation: 868 masl

Aspect: South East Facing Slope Toe

0 to 5 feet

5 to 10 feet

10 to 15 feet

15 to 20 feet

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		SRK-15S-35
Job No: 338600-020 Filename: C-1_Sonic Drill Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: 15S-35-01

Bore Hole ID: SRK-15S-35

Location: Foundation Area for Infrastructure / South WRD

Elevation: 868 masl

Aspect: South East Facing Slope Toe

20 to **25 feet**

Appendix C-2: Phase 2 Test Pit Photographs

Test Pit ID: SRK-15TP-01 **Elevation:** 1257 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Mid Slope

Test Pit ID: SRK-15TP-02 **Elevation:** 1291 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Heap Leach Pad **SRK-15TP-01 and SRK-15TP-02**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-01/02**

Test Pit ID: SRK-15TP-03 **Elevation:** 1260 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

Test Pit ID: SRK-15TP-04 **Elevation:** 1249 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Heap Leach Pad
		SRK-15TP-03 and SRK-15TP-04
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-03/04**

Test Pit ID: SRK-15TP-05 **Elevation:** 1245 masl

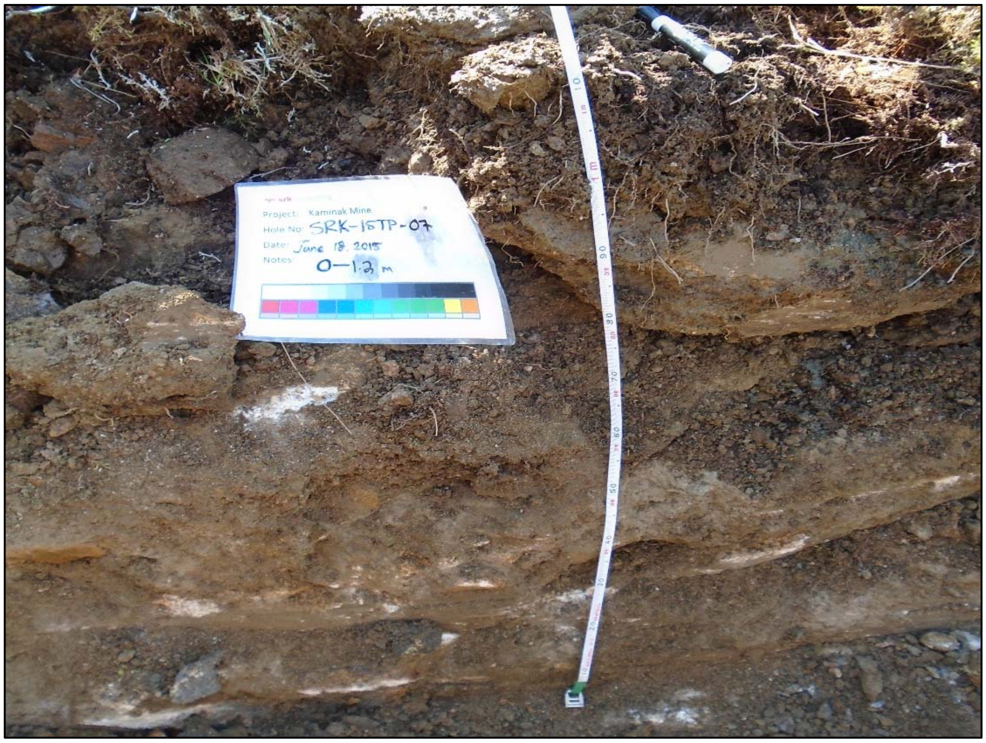
Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

Test Pit ID: SRK-15TP-06 **Elevation:** 1218 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		Heap Leach Pad **SRK-15TP-05 and SRK-15TP-06**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-05/06**

Test Pit ID:	SRK-15TP-07	**Elevation:**	1233 masl
Location:	Heap Leach Pad Area	**Aspect:**	North Facing Upper Slope



Test Pit ID:	SRK-15TP-08	**Elevation:**	1246 masl
Location:	Heap Leach Pad Area	**Aspect:**	North Facing Upper Slope

Test Pit ID:	SRK-15TP-09	**Elevation:**	1238 masl
Location:	Heap Leach Pad Area	**Aspect:**	South Facing Upper Slope

Test Pit ID:	SRK-15TP-10	**Elevation:**	1250 masl
Location:	Heap Leach Pad Area	**Aspect:**	South Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		Heap Leach Pad SRK-15TP-09 and SRK-15TP-10		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-09/10**

Test Pit ID: SRK-15TP-11 **Elevation:** 1254 masl

Location: Heap Leach Pad Area **Aspect:** South Facing Upper Slope

Test Pit ID: SRK-15TP-12 **Elevation:** 1274 masl

Location: Heap Leach Pad Area **Aspect:** East Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Heap Leach Pad** **SRK-15TP-11 and SRK-15TP-12**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-11/12**

Test Pit ID:	SRK-15TP-13	**Elevation:**	1295 masl
Location:	Heap Leach Pad Area	**Aspect:**	Slope Crest

Test Pit ID:	SRK-15TP-13A	**Elevation:**	1259 masl
Location:	Heap Leach Pad Area	**Aspect:**	North Facing Upper Slope

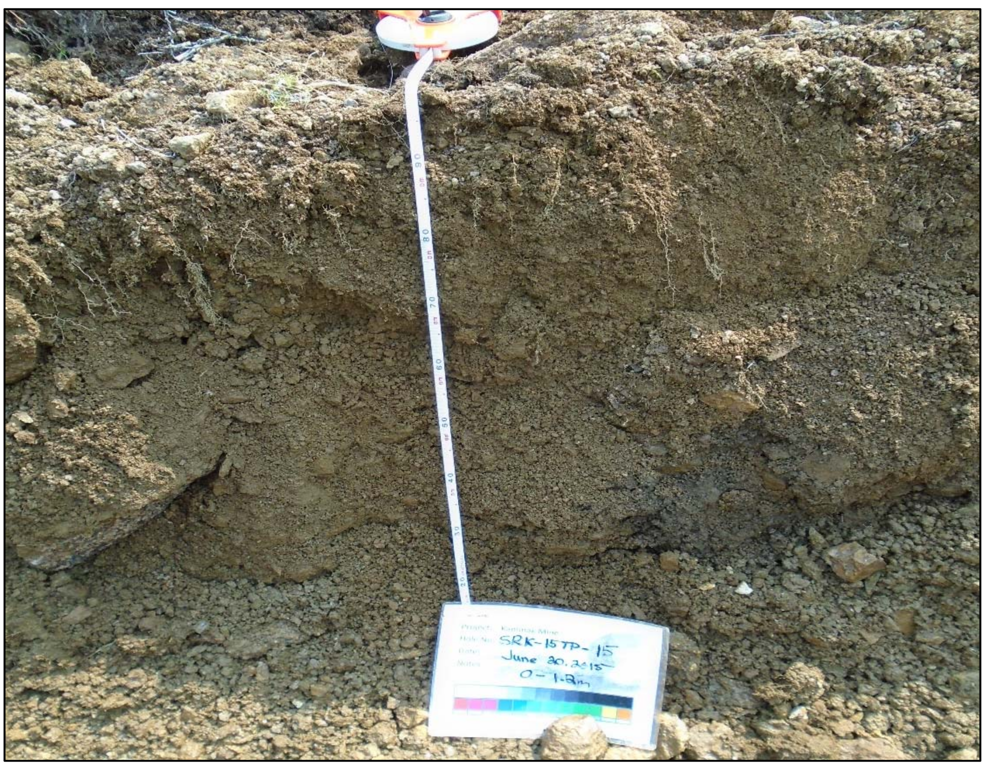
srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Heap Leach Pad** **SRK-15TP-13 and SRK-15TP-13A**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-13/13A**

Test Pit ID: SRK-15TP-14 **Elevation:** 1324 masl

Location: Heap Leach Pad Area **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-15 **Elevation:** 1343 masl

Location: Heap Leach Pad Area **Aspect:** Slope Crest



srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Heap Leach Pad** **SRK-15TP-14 and SRK-15TP-15**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-14/15**

Test Pit ID: SRK-15TP-16 **Elevation:** 1304 masl

Location: Heap Leach Pad Area **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-17 **Elevation:** 1295 masl

Location: Heap Leach Pad Area **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Heap Leach Pad** **SRK-15TP-16 and SRK-15TP-17**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-16/17**

Test Pit ID:	SRK-15TP-18	**Elevation:**	1275 masl
Location:	Heap Leach Pad Area	**Aspect:**	Slope Crest

Test Pit ID:	SRK-15TP-19	**Elevation:**	1264 masl
Location:	Heap Leach Pad Area	**Aspect:**	North Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Heap Leach Pad** **SRK-15TP-18 and SRK-15TP-19**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-18/19**

Test Pit ID: SRK-15TP-20 **Elevation:** 1239 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

Test Pit ID: SRK-15TP-21 **Elevation:** 1207 masl

Location: Heap Leach Pad Area **Aspect:** North Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Heap Leach Pad **SRK-15TP-20 and SRK-15TP-21**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-20/21**

Test Pit ID: SRK-15TP-22 **Elevation:** 1165 masl

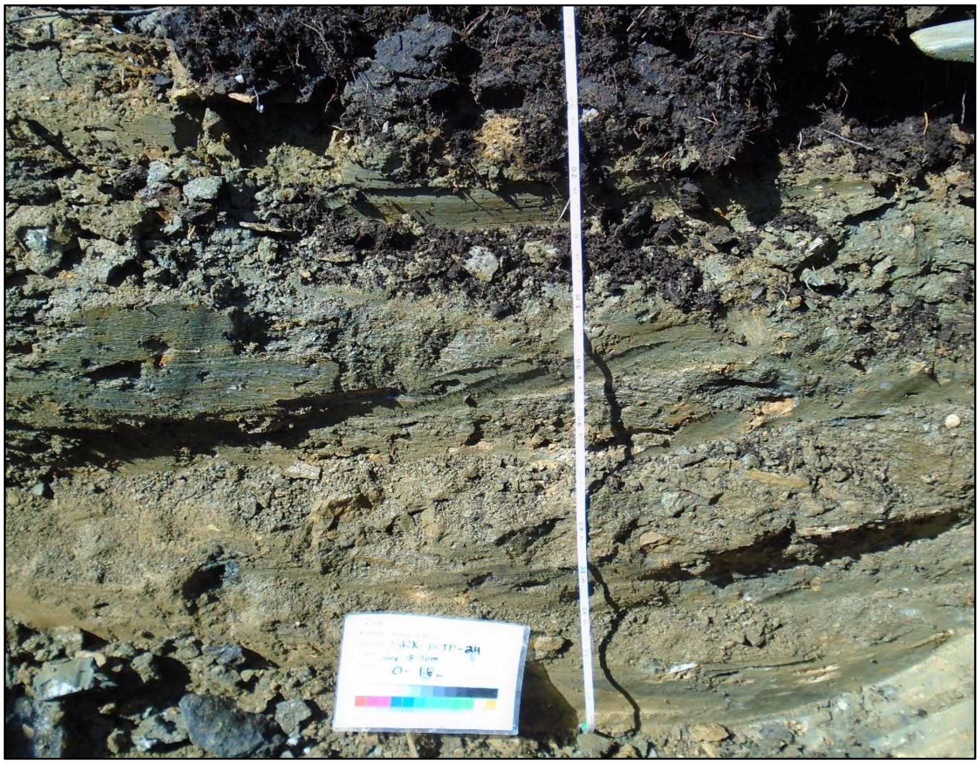
Location: Run of Mine Stockpile Area **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-23 **Elevation:** 1147 masl

Location: Run of Mine Stockpile Area **Aspect:** North Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Run of Mine Area** **SRK-15TP-22 and SRK-15TP-23**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-22/23**

Test Pit ID:	SRK-15TP-24	**Elevation:**	1140 masl
Location:	Run of Mine Stockpile Area	**Aspect:**	North Facing Upper Slope



srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Run of Mine Area** **SRK-15TP-24**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-24**

Test Pit ID: SRK-15TP-25 **Elevation:** 901 masl

Location: South Dump **Aspect:** East Facing Mid Slope

Test Pit ID: SRK-15TP-26 **Elevation:** 836 masl

Location: South Dump **Aspect:** East Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **South Dump** **SRK-15TP-25 and SRK-15TP-26**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-25/26**

Test Pit ID: SRK-15TP-27 **Elevation:** 876 masl

Location: South Dump **Aspect:** South West Facing Mid Slope

Test Pit ID: SRK-15TP-28 **Elevation:** 912 masl

Location: South Dump **Aspect:** South West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		South Dump
		SRK-15TP-27 and SRK-15TP-28
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-27/28**

Test Pit ID: SRK-15TP-29 **Elevation:** 1021 masl

Location: North Dump **Aspect:** West Facing Mid Slope

Test Pit ID: SRK-15TP-30 **Elevation:** 953 masl

Location: North Dump **Aspect:** West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **North Dump** **SRK-15TP-29 and SRK-15TP-30**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-29/30**

Test Pit ID: SRK-15TP-31 **Elevation:** 902 masl

Location: North Dump **Aspect:** West Facing Mid Slope

Test Pit ID: SRK-15TP-32 **Elevation:** 937 masl

Location: North Dump **Aspect:** West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **North Dump** **SRK-15TP-31 and SRK-15TP-32**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-31/32**

Test Pit ID:	SRK-15TP-33	**Elevation:**	1021 masl
Location:	North Dump	**Aspect:**	West Facing Mid Slope

Test Pit ID:	SRK-15TP-34	**Elevation:**	988 masl
Location:	North Dump	**Aspect:**	East Facing Mid Slope

Test Pit ID: SRK-15TP-35 **Elevation:** 1042 masl

Location: North Dump **Aspect:** North West Facing Mid Slope

Test Pit ID: SRK-15TP-36 **Elevation:** 1007 masl

Location: North Dump **Aspect:** North Facing Slope Toe

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

North Dump

SRK-15TP-35 and SRK-15TP-36

Job No: 338600-020

Filename: C-2_Test Pit Photos.pptx

Coffee Gold

Date:	Approved:	Figure:
September 18,2015	SM	**15-TP-35/36**

Test Pit ID:	SRK-15TP-36A	**Elevation:**	939 masl
Location:	North Dump	**Aspect:**	North West Facing Slope Toe

Test Pit ID:	SRK-15TP-37	**Elevation:**	1046 masl
Location:	North Dump	**Aspect:**	North East Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **North Dump** **SRK-15TP-36A and SRK-15TP-37**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-36A/37**

Test Pit ID: SRK-15TP-40 **Elevation:** 1093 masl

Location: North Dump **Aspect:** West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **North Dump** **SRK-15TP-40**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-40**

Test Pit ID:	SRK-15TP-41	**Elevation:**	1245 masl
Location:	Heap Leach Pad Area	**Aspect:**	South Facing Upper Slope

Test Pit ID:	SRK-15TP-42	**Elevation:**	1278 masl
Location:	Heap Leach Pad Area	**Aspect:**	South Facing Upper Slope

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KAMINAK GOLD CORPORATION

2015 Geotech Investigation

Heap Leach Pad

SRK-15TP-41 and SRK-15TP-42

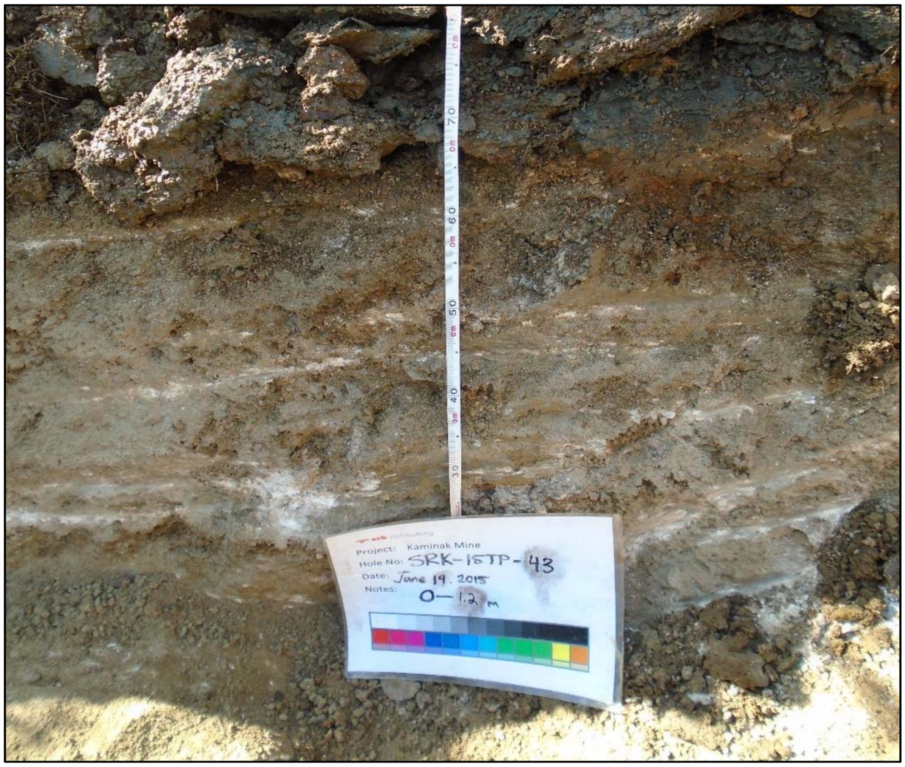
Job No: 338600-020

Filename: C-2_Test Pit Photos.pptx

Coffee Gold

Date: September 18,2015 | Approved: SM | Figure: **15-TP-41/42**

Test Pit ID:	SRK-15TP-43	**Elevation:**	1237 masl
Location:	Heap Leach Pad Area	**Aspect:**	South Facing Upper Slope



Test Pit ID:	SRK-15TP-44	**Elevation:**	1236 masl
Location:	Heap Leach Pad Area	**Aspect:**	South Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Heap Leach Pad **SRK-15TP-43 and SRK-15TP-44**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-43/44**

Test Pit ID: SRK-15TP-41 **Elevation:** 1245 masl

Location: Heap Leach Pad Area **Aspect:** South Facing Upper Slope

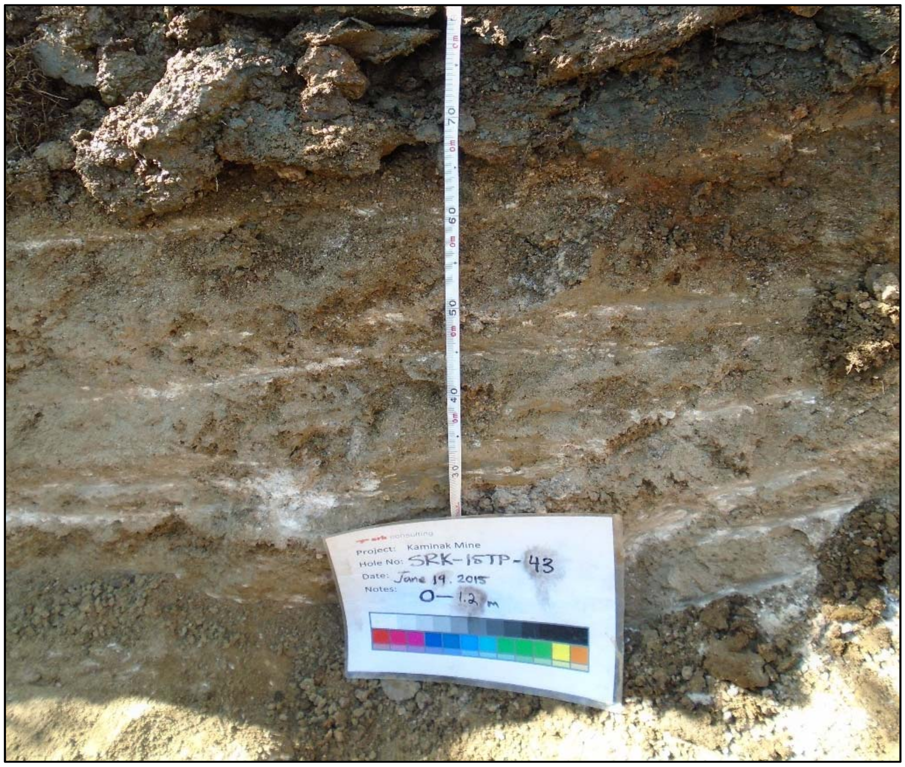
Test Pit ID: SRK-15TP-42 **Elevation:** 1278 masl

Location: Heap Leach Pad Area **Aspect:** South Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		Heap Leach Pad **SRK-15TP-41 and SRK-15TP-42**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-41/42**

Test Pit ID: SRK-15TP-43 **Elevation:** 1237 masl

Location: Heap Leach Pad Area **Aspect:** South Facing Upper Slope



Test Pit ID: SRK-15TP-44 **Elevation:** 1236 masl

Location: Heap Leach Pad Area **Aspect:** South Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Heap Leach Pad** **SRK-15TP-43 and SRK-15TP-44**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-43/44**

Test Pit ID:	SRK-15TP-45	**Elevation:**	1163 masl
Location:	Run of Mine Stockpile Area	**Aspect:**	South Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Run of Mine Area** **SRK-15TP-45**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-45**

Test Pit ID: SRK-15TP-46 **Elevation:** 1148 masl

Location: Run of Mine Stockpile Area **Aspect:** South East Facing Upper Slope

Test Pit ID: SRK-15TP-47 **Elevation:** 1137 masl

Location: Run of Mine Stockpile Area **Aspect:** South East Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Run of Mine Area** **SRK-15TP-46 and SRK-15TP-47**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-46/47**

Test Pit ID: SRK-15TP-48 **Elevation:** 1099 masl

Location: West Dump **Aspect:** North West Facing Mid Slope

Test Pit ID: SRK-15TP-49 **Elevation:** 1084 masl

Location: West Dump **Aspect:** North West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **West Dump** **SRK-15TP-48 and SRK-15TP-49**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-48/49**

Test Pit ID: SRK-15TP-50 **Elevation:** 1068 masl

Location: West Dump **Aspect:** North West Facing Mid Slope

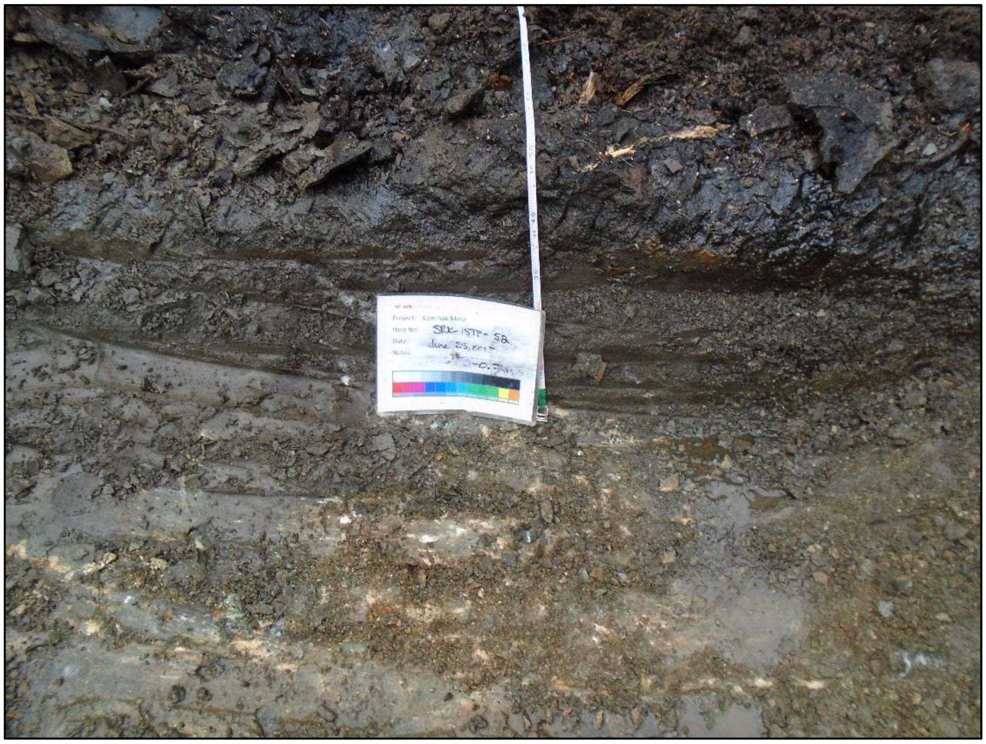
Test Pit ID: SRK-15TP-51 **Elevation:** 1022 masl

Location: West Dump **Aspect:** North West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		West Dump SRK-15TP-50 and SRK-15TP-51		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-50/51**

Test Pit ID: SRK-15TP-52 **Elevation:** 1028 masl

Location: West Dump **Aspect:** West Facing Mid Slope



Test Pit ID: SRK-15TP-53 **Elevation:** 1066 masl

Location: West Dump **Aspect:** West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **West Dump** **SRK-15TP-52 and SRK-15TP-53**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-52/53**

Test Pit ID: SRK-15TP-54 **Elevation:** 927 masl

Location: West Dump **Aspect:** East Facing Slope Toe

Test Pit ID: SRK-15TP-55 **Elevation:** 923 masl

Location: West Dump **Aspect:** East Facing Slope Toe

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **West Dump** **SRK-15TP-54 and SRK-15TP-55**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-54/55**

Test Pit ID: SRK-15TP-56 **Elevation:** 853 masl

Location: West Dump **Aspect:** East Facing Slope Toe

Test Pit ID: SRK-15TP-57 **Elevation:** 868 masl

Location: West Dump **Aspect:** East Facing Slope Toe

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

West Dump

SRK-15TP-56 and SRK-15TP-57

Job No: 338600-020

Filename: C-2_Test Pit Photos.pptx

Coffee Gold

Date: September 18,2015

Approved: SM

Figure: **15-TP-56/57**

Test Pit ID:	SRK-15TP-58	**Elevation:**	898 masl
Location:	West Dump	**Aspect:**	East Facing Slope Toe

Test Pit ID:	SRK-15TP-59	**Elevation:**	876 masl
Location:	West Dump	**Aspect:**	East Facing Slope Toe

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

West Dump

SRK-15TP-58 and SRK-15TP-59

Job No: 338600-020

Filename: C-2_Test Pit Photos.pptx

Coffee Gold

Date: September 18,2015

Approved: SM

Figure: **15-TP-58/59**

Test Pit ID: SRK-15TP-60 **Elevation:** 910 masl

Location: West Dump **Aspect:** East Facing Mid Slope

Test Pit ID: SRK-15TP-61 **Elevation:** 974 masl

Location: West Dump **Aspect:** East Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		West Dump
		SRK-15TP-60 and SRK-15TP-61
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-60/61**

Test Pit ID: SRK-15TP-62 **Elevation:** 920 masl

Location: West Dump **Aspect:** North Facing Slope Toe

Test Pit ID: SRK-15TP-63 **Elevation:** 1005 masl

Location: West Dump **Aspect:** West Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		West Dump
		SRK-15TP-62 and SRK-15TP-63
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-62/63**

Test Pit ID: SRK-15TP-64 **Elevation:** 932 masl

Location: West Dump **Aspect:** North Facing Mid Slope

Test Pit ID: SRK-15TP-64A **Elevation:** 928 masl

Location: West Dump **Aspect:** North Facing Mid Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		West Dump **SRK-15TP-64 and SRK-15TP-64A**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-64/64A**

Test Pit ID: SRK-15TP-65 **Elevation:** 1206 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-66 **Elevation:** 1201 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Infrastructure** **SRK-15TP-65 and SRK-15TP-66**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-65/66**

Test Pit ID: SRK-15TP-67 **Elevation:** 1199 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-68 **Elevation:** 1209 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Infrastructure
		SRK-15TP-67 and SRK-15TP-68
Job No: 338600-020	Coffee Gold	Date: September 18,2015
Filename: C-2_Test Pit Photos.pptx		Approved: SM
		Figure: **15-TP-67/68**

Test Pit ID: SRK-15TP-69 **Elevation:** 1200 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-70 **Elevation:** 1186 masl

Location: Infrastructure **Aspect:** Slope Crest

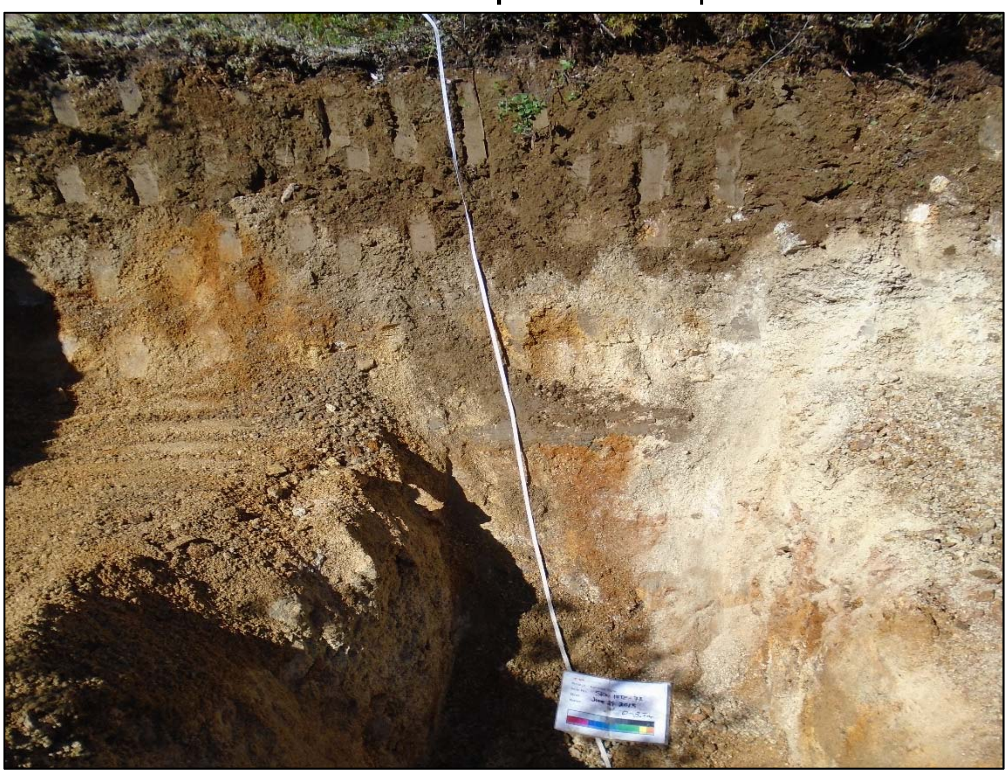
srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Infrastructure** **SRK-15TP-69 and SRK-15TP-70**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-69/70**

Test Pit ID: SRK-15TP-72 **Elevation:** 1187 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-73 **Elevation:** 1193 masl

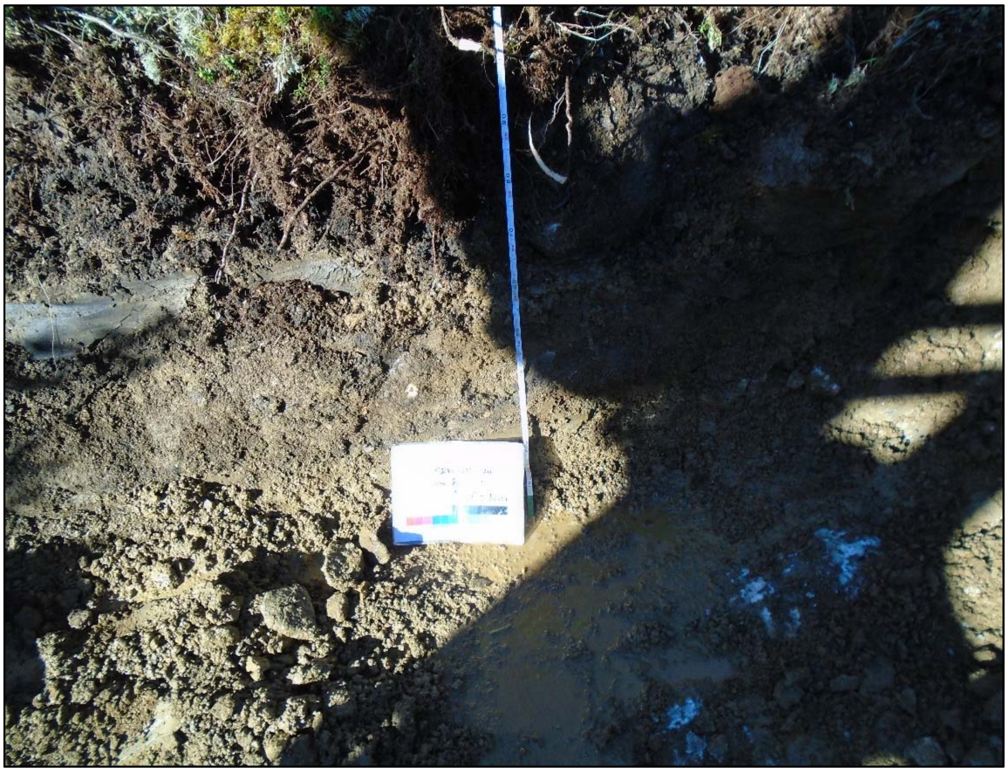
Location: Infrastructure **Aspect:** Slope Crest



srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Infrastructure** **SRK-15TP-72 and SRK-15TP-73**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-72/73**

Test Pit ID: SRK-15TP-74 **Elevation:** 1179 masl

Location: Infrastructure **Aspect:** Slope Crest



Test Pit ID: SRK-15TP-75 **Elevation:** 1179 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		Infrastructure		
		SRK-15TP-74 and SRK-15TP-75		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-74/75**

Test Pit ID: SRK-15TP-76 **Elevation:** 1181 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-77 **Elevation:** 1174 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation
		Infrastructure
		SRK-15TP-76 and SRK-15TP-77
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 / Approved: SM / Figure: **15-TP-76/77**

Test Pit ID: SRK-15TP-78 **Elevation:** 1173 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-79 **Elevation:** 1170 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting

KAMINAK GOLD CORPORATION

2015 Geotech Investigation

Infrastructure

SRK-15TP-78 and SRK-15TP-79

Job No: 338600-020

Filename: C-2_Test Pit Photos.pptx

Coffee Gold

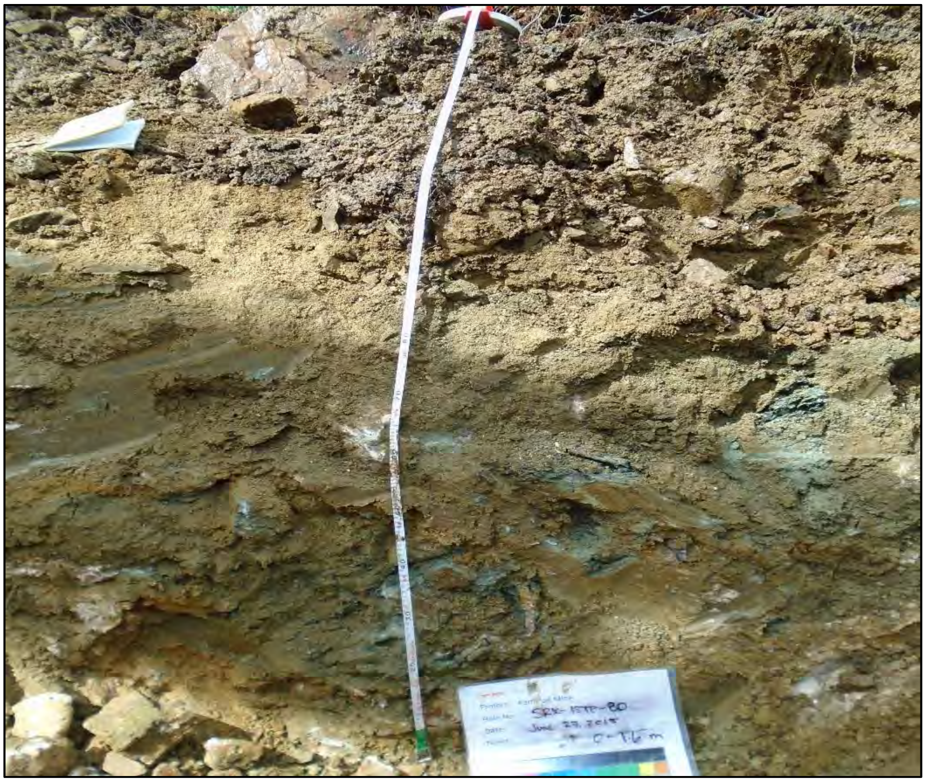
Date: September 18,2015

Approved: SM

Figure: **15-TP-78/79**

Test Pit ID: SRK-15TP-80 **Elevation:** 1160 masl

Location: Infrastructure **Aspect:** Slope Crest



Test Pit ID: SRK-15TP-81 **Elevation:** 1143 masl

Location: Infrastructure **Aspect:** East Facing Upper Slope

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		Infrastructure **SRK-15TP-80 and SRK-15TP-81**		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-80/81**

Test Pit ID: SRK-15TP-82 **Elevation:** 1133 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-83 **Elevation:** 1183 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation		
		Infrastructure		
		SRK-15TP-82 and SRK-15TP-83		
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015	Approved: SM	Figure: **15-TP-82/83**

Test Pit ID: SRK-15TP-84 **Elevation:** 1172 masl

Location: Infrastructure **Aspect:** Slope Crest

Test Pit ID: SRK-15TP-85 **Elevation:** 1165 masl

Location: Infrastructure **Aspect:** Slope Crest

srk consulting	KAMINAK GOLD CORPORATION	2015 Geotech Investigation **Infrastructure** **SRK-15TP-84 and SRK-15TP-85**
Job No: 338600-020 Filename: C-2_Test Pit Photos.pptx	Coffee Gold	Date: September 18,2015 | Approved: SM | Figure: **15-TP-84/85**

Appendix D: Laboratory Test Data

Appendix D-1: Moisture Contents

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	SRK Testing - May 2015	Sample No.:	see below
Project No.:	W14103592-01	Date Tested:	May 12, 2015
Client:	SRK Consulting Inc.	Tested By:	AMT
Address:	Coffee Gold Project	Page:	1 of 2

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
SRK-15S-01	17727	16.4	
SRK-15S-02	17730	4.9	
SRK-15S-03	17729	12.9	
SRK-15S-04	17726	16.7	
SRK-15S-05	17701	255.7	
SRK-15S-05	17703	12.6	
SRK-15S-06	17704	6.8	
SRK-15S-06	17705	22.7	
SRK-15S-07	17708	12.4	
SRK-15S-08	17706	28.3	
SRK-15S-08	17707	13.8	
SRK-15S-09	17710	45.8	
SRK-15S-11	17711	8.8	
SRK-15S-12	17712	19.5	
SRK-15S-13a	17719	8.0	
SRK-15S-14	17714	12.0	
SRK-15S-16	17715	12.4	
SRK-15S-17	17717	5.6	
SRK-15S-18	17720	9.8	
SRK-15S-19	17713	12.3	
SRK-15S-23	17721	5.9	
SRK-15S-25	17723	12.6	
SRK-15S-25	17724	6.9	
SRK-15S-26	17736	15.7	
SRK-15S-29	17732	2.9	

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Reviewed By:

TETRA TECH

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	SRK Testing - May 2015	Sample No.:	see below
Project No.:	W14103592-01	Date Tested:	May 12, 2015
Client:	SRK Consulting Inc.	Tested By:	AMT
Address:	Coffee Gold Project	Page:	2 of 2

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
SRK-15S-30	17734	107.3	
SRK-15S-30	17735	11.6	
SRK-15S-32	17737	12.3	
SRK-15S-33	17740	7.9	
SRK-15S-34	17739	14.9	
SRK-15S-35	17741	44.9	
SRK-15S-35	17742	5.9	
SRK-15S-35	17743	8.5	

Reviewed By: [signature redacted] C.E.T.

TETRA TECH

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Phase 2 Test Pit Program	Sample No.:	See Below
Project No.:	W14103592-02	Date Tested:	September 1, 2015
Client:	SRK Consulting Ltd.	Tested By:	AMT/KF
Address:	Coffee Gold Project	Page:	1 of 4

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
SRK-15TP-03	17565	10.5	
SRK-15TP-04	17563	10.9	
SRK-15TP-05	17561	14.4	
SRK-15TP-06	17559	7.8	
SRK-15TP-08	17581	6.8	
SRK-15TP-09	17579	10.9	
SRK-15TP-10	17578	10.2	
SRK-15TP-11	17575	11.7	
SRK-15TP-12	17574	14.6	
SRK-15TP-13	17573	6.2	
SRK-15TP-13a	17623	18.8	
SRK-15TP-14	17572	11.3	
SRK-15TP-15	17571	8.5	
SRK-15TP-16	17570	9.2	
SRK-15TP-17	17566	9.0	
SRK-15TP-18	17576	9.5	
SRK-15TP-20	17564	20.7	
SRK-15TP-21	17562	17.1	
SRK-15TP-25	17602	23.6	
SRK-15TP-26	17603	16.8	
SRK-15TP-27	17604	8.8	
SRK-15TP-28	17601	6.3	
SRK-15TP-29	17591	12.6	
SRK-15TP-30	17590	20.1	
SRK-15TP-34	17588	85.5	

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MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Phase 2 Test Pit Program	Sample No.:	See Below
Project No.:	W14103592-02	Date Tested:	September 1, 2015
Client:	SRK Consulting Ltd.	Tested By:	AMT/KF
Address:	Coffee Gold Project	Page:	2 of 4

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
SRK-15TP-35	17589	49.7	
SRK-15TP-36	17586	46.6	
SRK-15TP-36a	17587	29.3	
SRK-15TP-37	17585	133.1	
SRK-15TP-38	17584	12.3	
SRK-15TP-39	17583	10.7	
SRK-15TP-40	17582	44.4	
SRK-15TP-41	17580	10.9	
SRK-15TP-42	17577	10.4	
SRK-15TP-43	17560	12.6	
SRK-15TP-44	17558	10.8	
SRK-15TP-48	17594	85.4	
SRK-15TP-49	17593	28.2	
SRK-15TP-50	17592	63.0	
SRK-15TP-51	17599	15.5	
SRK-15TP-52	17600	88.1	
SRK-15TP-53	17605	17.2	
SRK-15TP-54	17627	20.5	
SRK-15TP-55	17628	76.5	
SRK-15TP-56	17629	68.4	
SRK-15TP-57	17630	12.4	
SRK-15TP-58	17631	5.5	
SRK-15TP-59	17634	367.8	
SRK-15TP-60	17632	21.0	
SRK-15TP-61	17633	10.0	

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TETRA TECH

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Phase 2 Test Pit Program	Sample No.:	See Below
Project No.:	W14103592-02	Date Tested:	September 1, 2015
Client:	SRK Consulting Ltd.	Tested By:	AMT/KF
Address:	Coffee Gold Project	Page:	3 of 4

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
SRK-15TP-62	17596	12.3	
SRK-15TP-63	17595	228.4	
SRK-15TP-64	17598	201.0	
SRK-15TP-64a	17597	98.7	
SRK-15TP-66	17620	12.6	
SRK-15TP-67	17621	13.6	
SRK-15TP-68	17618	8.2	
SRK-15TP-69	17617	9.8	
SRK-15TP-70	17619	6.7	
SRK-15TP-72	17616	16.4	
SRK-15TP-73	17615	14.6	
SRK-15TP-74	17614	13.4	
SRK-15TP-75	17613	13.4	
SRK-15TP-76	17611	15.3	
SRK-15TP-77	17612	12.6	
SRK-15TP-78	17610	15.2	
SRK-15TP-79	17609	12.7	
SRK-15TP-80	17608	11.2	
SRK-15TP-81	17607	12.8	
SRK-15TP-82	17606	20.7	
SRK-15TP-83	17624	35.5	
SRK-15TP-84	17625	9.5	
SRK-15TP-85	17626	11.8	

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Reviewed By: ____ / ________ C.E.T.

TETRA TECH

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Phase 2 Test Pit Program	Sample No.:	See Below
Project No.:	W14103592-02	Date Tested:	September 1, 2015
Client:	SRK Consulting Ltd.	Tested By:	AMT/KF
Address:	Coffee Gold Project	Page:	4 of 4

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
SRK-15TP-82a	82a	10.3	
SRK-15TP-61a	61a	20.0	
SRK-15TP-62a	62a (17596)	179.4	
SRK-15TP-75a	17613	18.9	
SRK-15TP-31a	31a	97.6	
SRK-15TP-32a	32a	200.3	
SRK-15TP-32b	32b	104.4	
SRK-15TP-33a	33a	154.2	
SRK-15TP-33b	33b	66.9	

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Reviewed By: ______ ______ C.E.T.

TETRA TECH

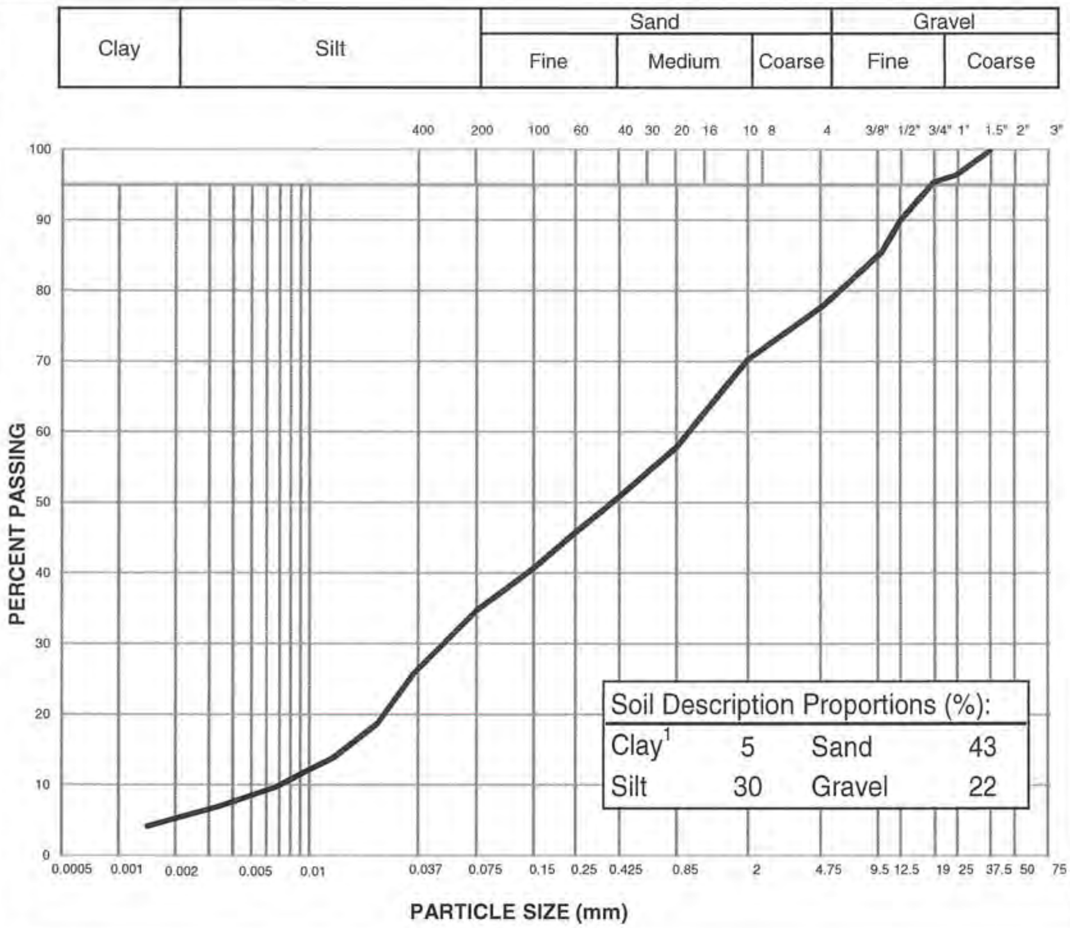
Appendix D-2: Particle Size Distributions

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17727
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-01
Client:	SRK Consulting Ltd.	Sample Depth:	1.1 - 1.4 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 14, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client
		USC Classification:	Cu: 147.3
Moisture Content:	16.4%		Cc: 0.4

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	96
19	95
12.5	90
10	85
5	78
2	70
0.85	58
0.425	51
0.25	46
0.15	41
0.075	34.7
0.0350	25.7
0.0229	18.8
0.0135	13.9
0.0095	11.8
0.0068	9.7
0.0034	7.0
0.0014	4.2



Soil Description Proportions (%):			
Clay[1]	5	Sand	43
Silt	30	Gravel	22

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

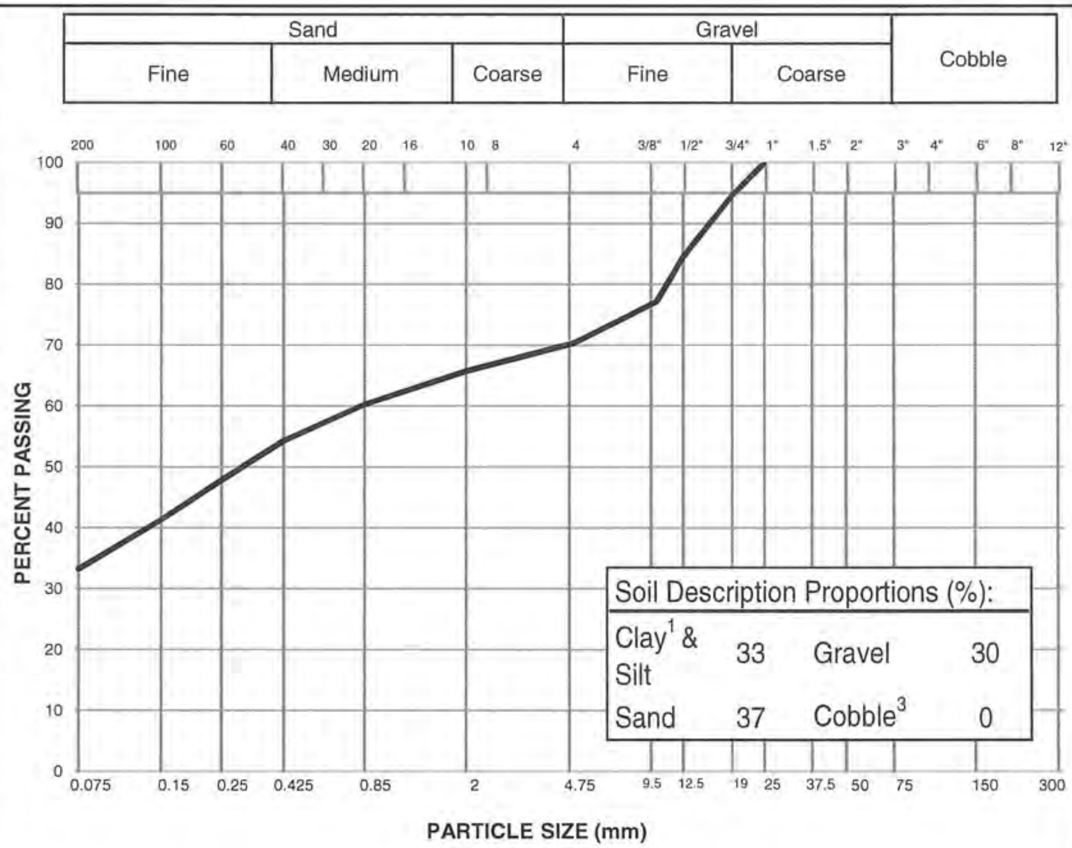
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17730
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-02
Client:	SRK Consulting Ltd.	Sample Depth:	0.6 - 0.9 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 31, 2015 By: IB	Date sampled:	April 15, 2015
Soil Description[2]:	SAND - silty, gravelly	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	4.9%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	
25	100
19	95
12.5	84
10	77
5	70
2	66
0.85	60
0.425	54
0.25	48
0.15	41
0.075	33.3



Soil Description Proportions (%):			
Clay[1] & Silt	33	Gravel	30
Sand	37	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

[signature redacted]

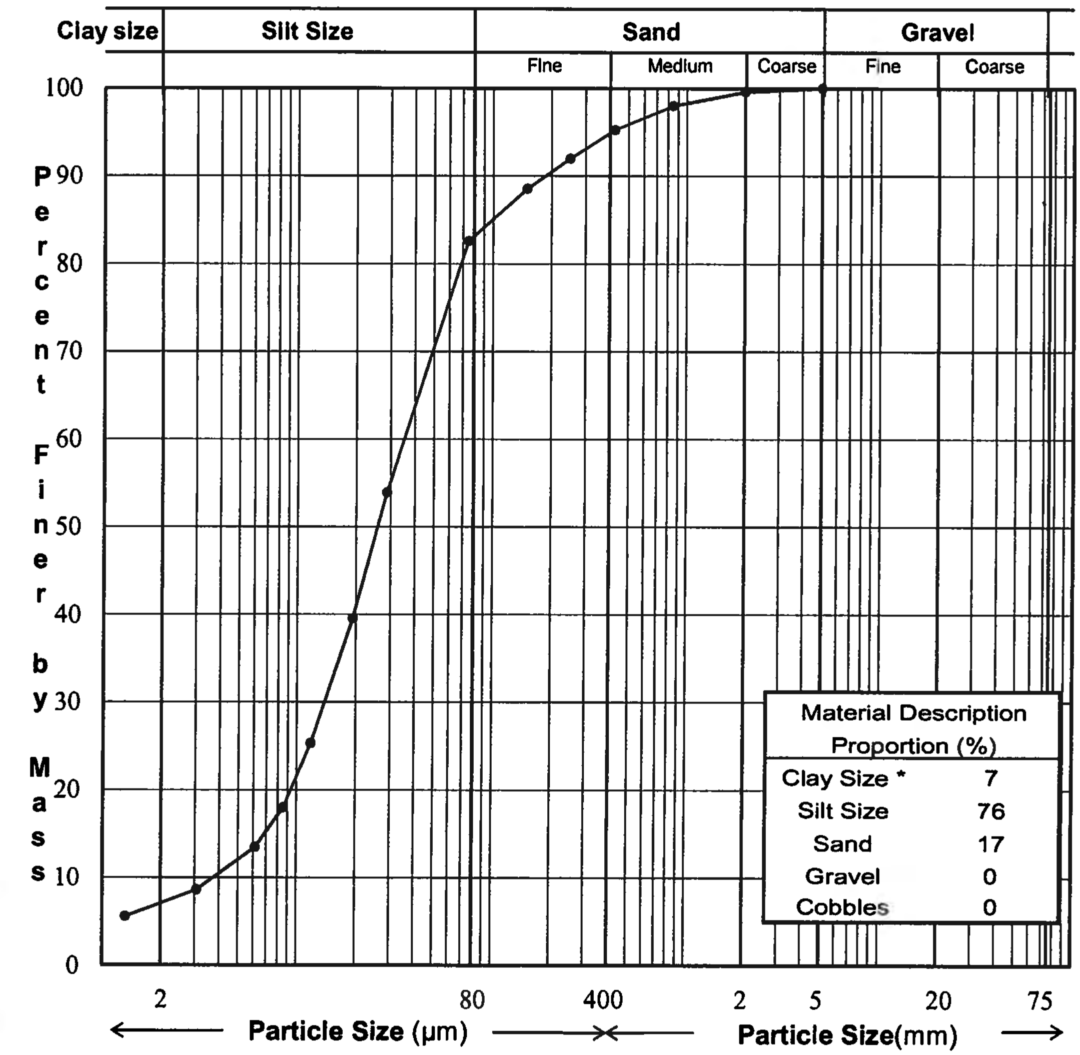
Reviewed By: _ ______________ C.E.T.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample No.:	17728
Client:	SRK Consulting (Canada) Inc.	Borehole/ TP:	SRK-15S-03
Project No.:	W14103592-01	Depth:	2.5 '
Location:		Date Tested	June 23, 2015
Description **:	ORGANIC SILT, some sand and clay, brown.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	100
2 mm	100
850 µm	98
425 µm	95
250 µm	92
150 µm	89
75 µm	83
29 µm	54
19 µm	40
12 µm	25
9 µm	18
6 µm	13
3 µm	9
1 µm	6



Material Description	Proportion (%)
Clay Size *	7
Silt Size	76
Sand	17
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols.

Reviewed By: [signature redacted] P.Eng.

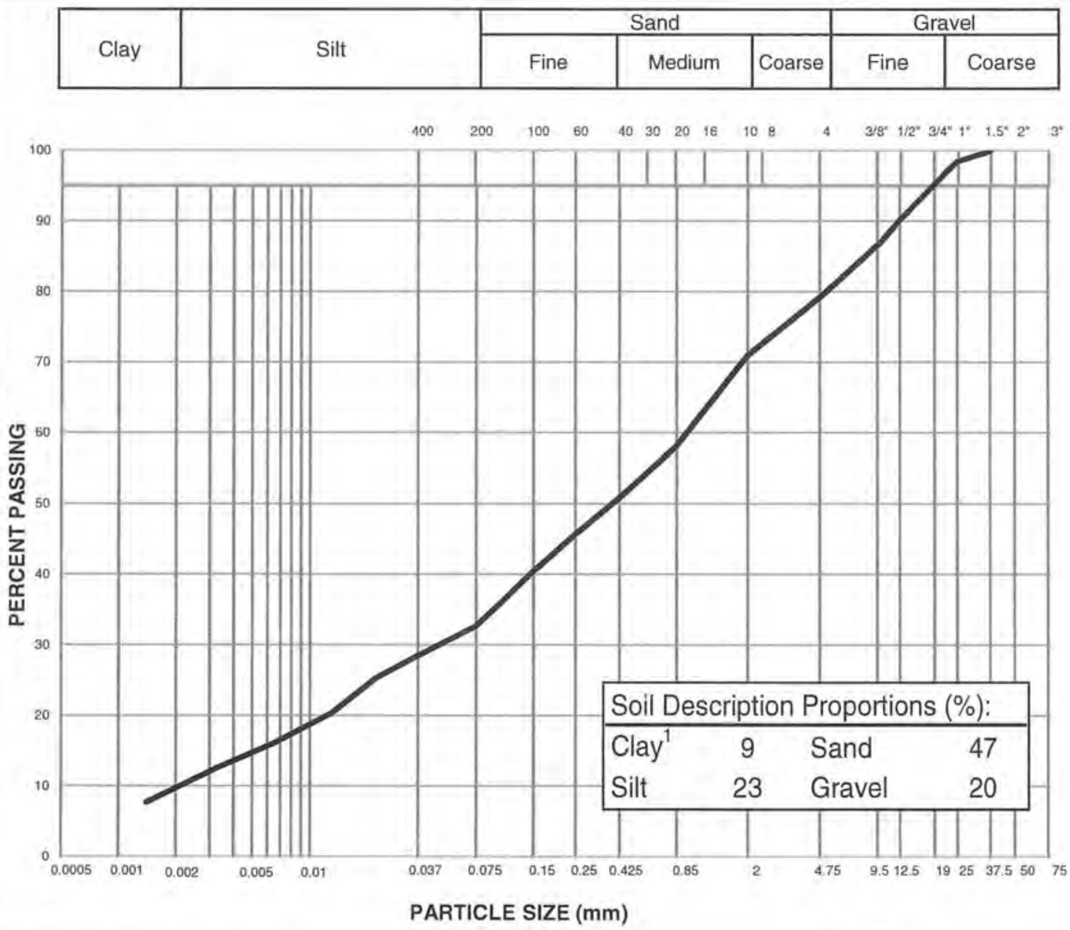
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17729
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-03
Client:	SRK Consulting Ltd.	Sample Depth:	6.7 - 7.0 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 14, 2015
Soil Description[2]:	SAND - silty, some gravel, trace clay	Sampled By:	Client
		USC Classification:	Cu: 442.1
Moisture Content:	12.9%		Cc: 1.1

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	98
19	95
12.5	90
10	87
5	80
2	71
0.85	58
0.425	51
0.25	46
0.15	40
0.075	32.7
0.0347	28.1
0.0222	25.3
0.0131	20.4
0.0092	18.3
0.0066	16.2
0.0033	12.7
0.0014	7.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

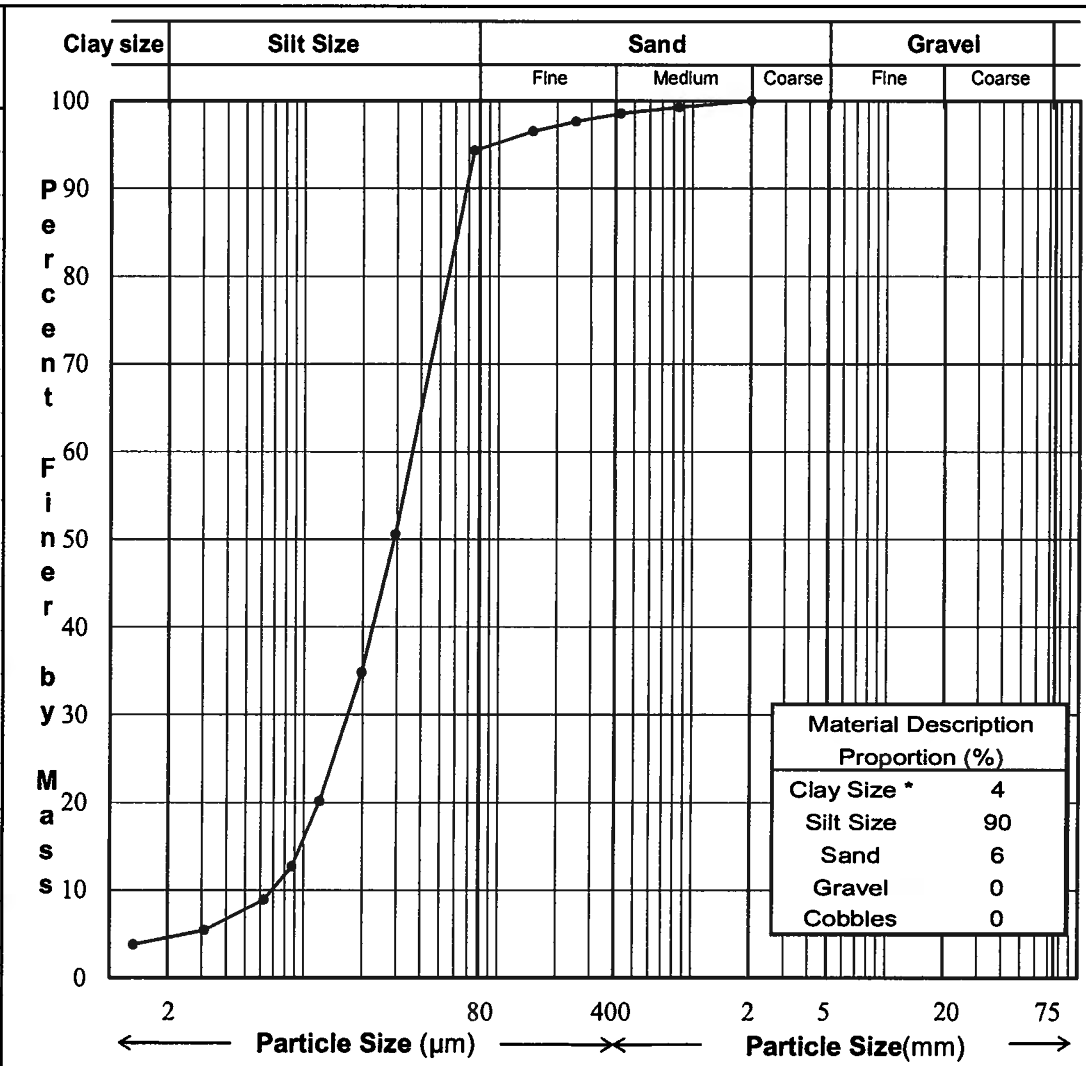
Reviewed By: [signature redacted] C.E.T.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample No.:	17725
Client:	SRK Consulting (Canada) Inc.	Borehole/ TP:	SRK-15S-04
Project No.:	W14103592-01	Depth:	3.5 '
Location:		Date Tested	June 23, 2015
Description **:	ORGANIC SILT, trace clay & sand, brown.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	99
425 µm	99
250 µm	98
150 µm	97
75 µm	94
30 µm	51
20 µm	35
12 µm	20
9 µm	13
6 µm	9
3 µm	5
1 µm	4



Material Description	Proportion (%)
Clay Size *	4
Silt Size	90
Sand	6
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols.

[signature redacted]

Reviewed By: ______________ P.Eng.

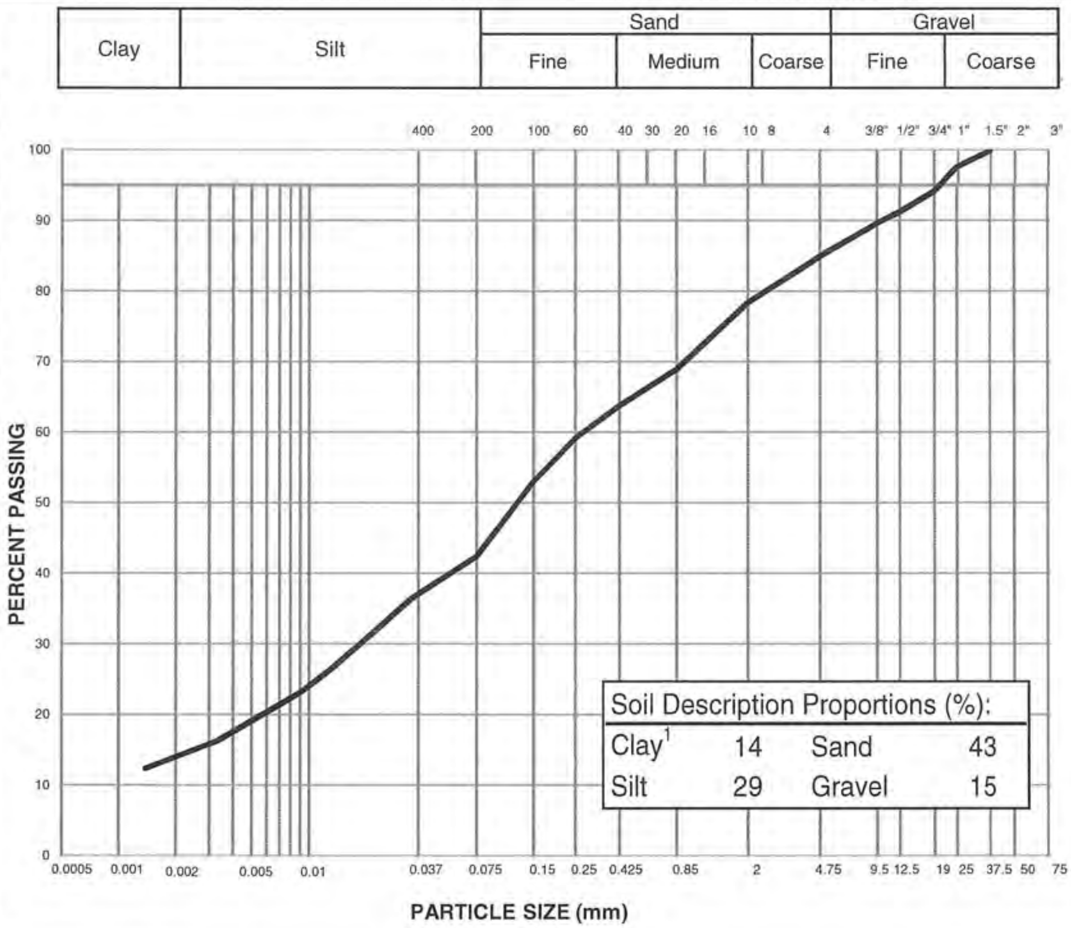
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17726
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-04
Client:	SRK Consulting Ltd.	Sample Depth:	3.7 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 13, 2015
Soil Description[2]:	SAND - silty, some gravel, some clay	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	16.7%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	98
19	94
12.5	91
10	90
5	85
2	78
0.85	69
0.425	64
0.25	59
0.15	53
0.075	42.4
0.0340	36.4
0.0219	31.8
0.0129	26.4
0.0091	23.3
0.0065	20.9
0.0033	16.3
0.0014	12.4



Soil Description Proportions (%):			
Clay[1]	14	Sand	43
Silt	29	Gravel	15

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

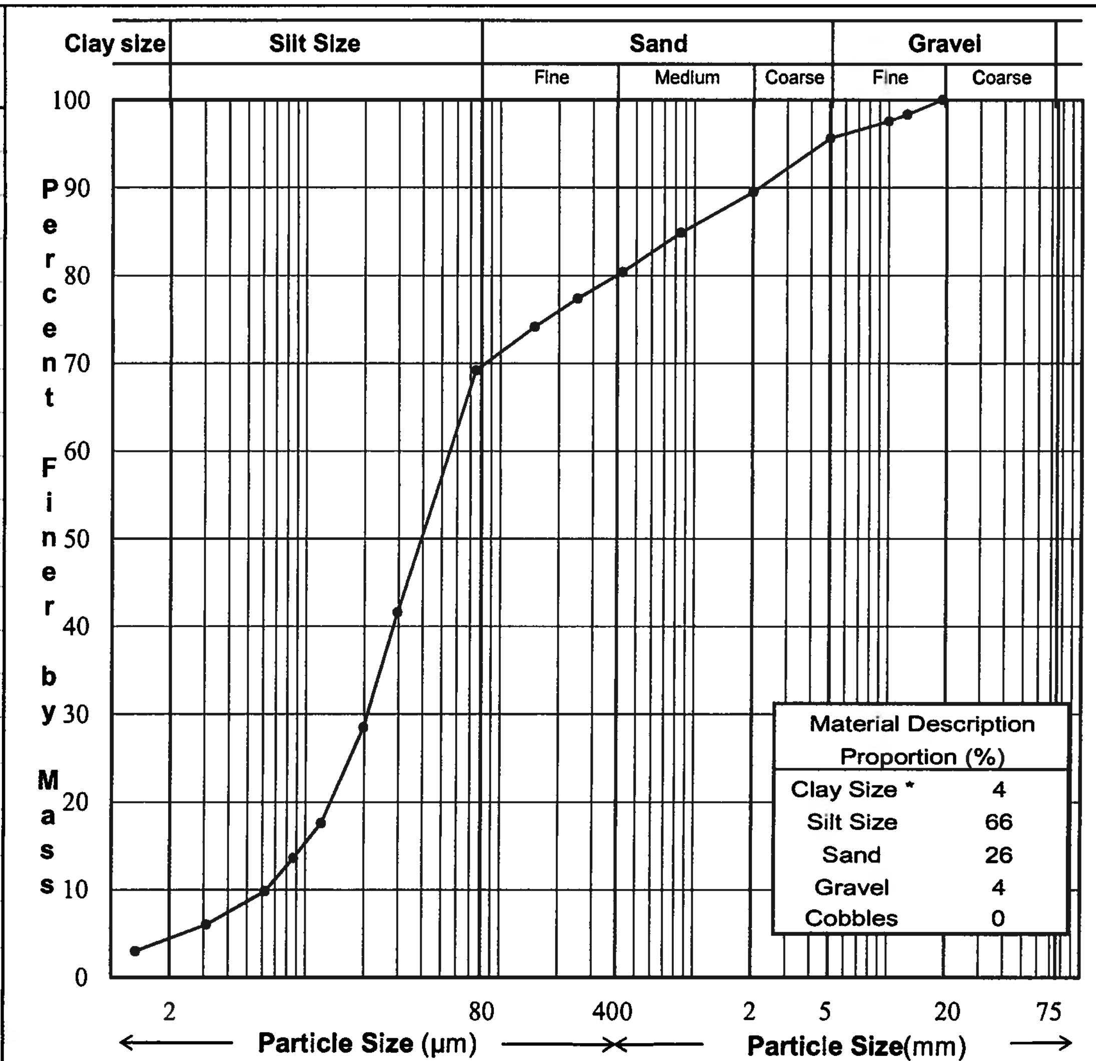
TETRA TECH

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample No.:	17702
Client:	SRK Consulting (Canada) Inc.	Borehole/ TP:	SRK-15S-05
Project No.:	W14103592-01	Depth:	9.25 '
Location:		Date Tested	June 23, 2015
Description **:	SILT, sandy, trace clay & gravel, brown.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	100
13 mm	98
10 mm	98
5 mm	96
2 mm	89
850 µm	85
425 µm	80
250 µm	77
150 µm	74
75 µm	69
30 µm	42
20 µm	28
12 µm	18
9 µm	14
6 µm	10
3 µm	6
1 µm	3



Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols.

[signature redacted]

Reviewed By: ______________________ P.Eng.

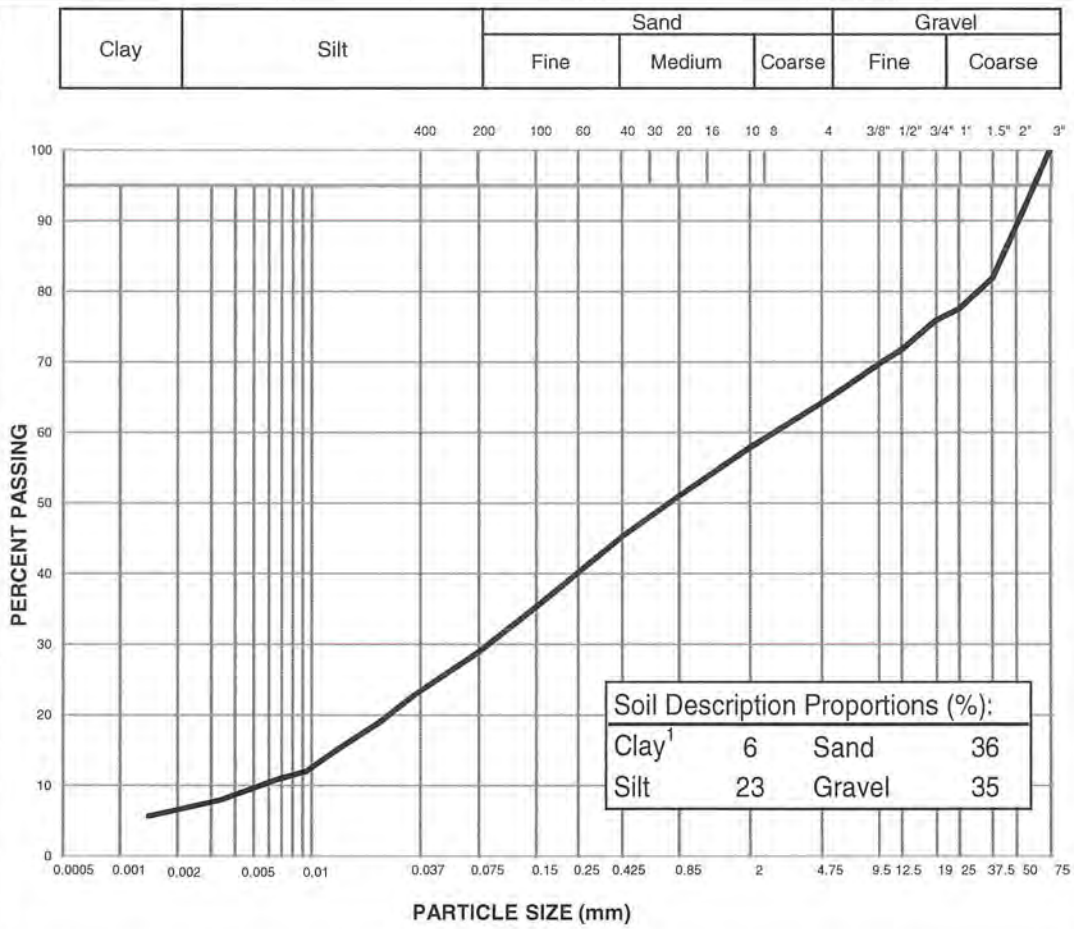
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17704
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-06
Client:	SRK Consulting Ltd.	Sample Depth:	0.8 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 3, 2015
Soil Description[2]:	SAND - gravelly, silty, trace clay	Sampled By:	Client
		USC Classification:	Cu: 520.3
Moisture Content:	6.8%		Cc: 0.5

Particle Size (mm)	Percent Passing
75	100
50	
38	82
25	78
19	76
12.5	72
10	70
5	65
2	58
0.85	51
0.425	45
0.25	40
0.15	35
0.075	29.0
0.0347	22.9
0.0224	18.9
0.0132	14.9
0.0094	12.0
0.0067	10.9
0.0034	8.0
0.0014	5.7



Soil Description Proportions (%):

Clay[1]	6	Sand	36
Silt	23	Gravel	35

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

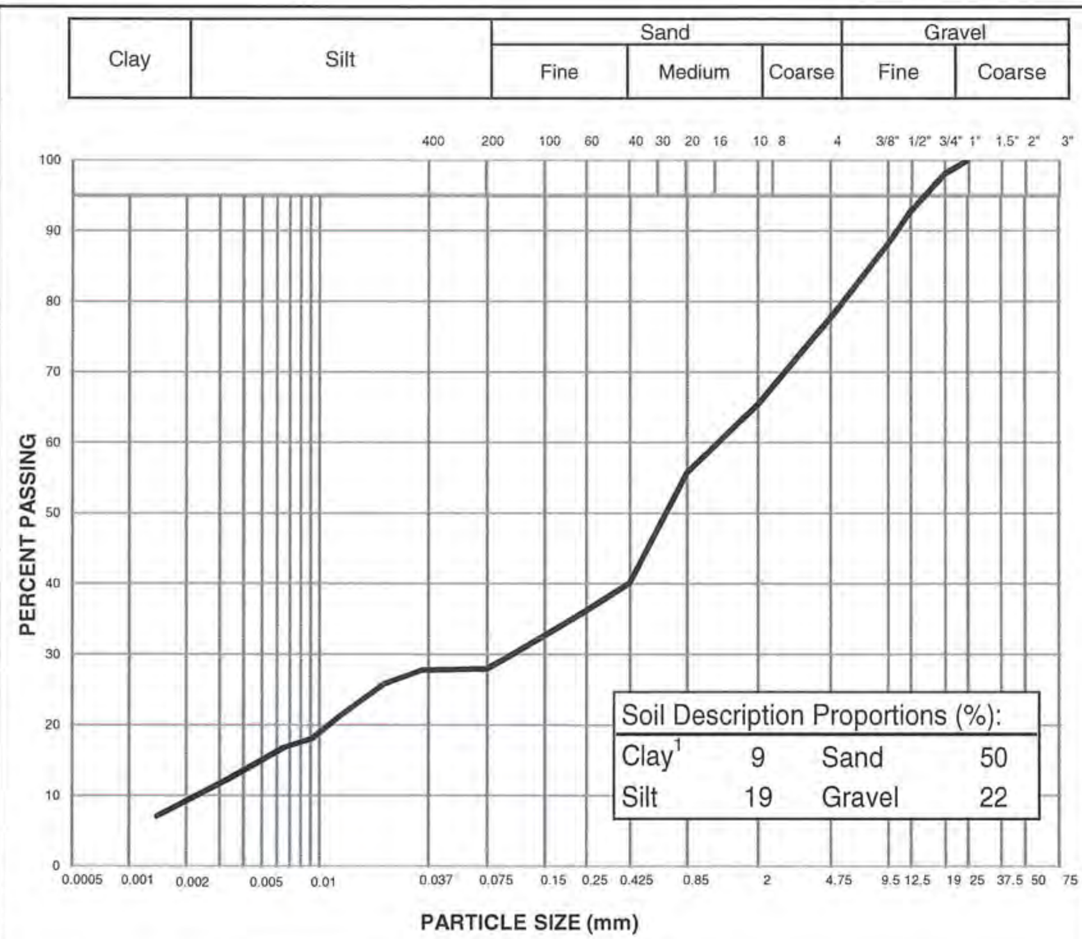
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17708
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-07
Client:	SRK Consulting Ltd.	Sample Depth:	3.4 - 3.7 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 5, 2015
Soil Description[2]:	SAND - gravelly, some silt, trace clay	Sampled By:	Client
		USC Classification:	Cu: 551.3
Moisture Content:	12.4%		Cc: 3.4

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	98
12.5	93
10	89
5	78
2	65
0.85	56
0.425	40
0.25	36
0.15	33
0.075	28.0
0.0344	27.8
0.0219	25.9
0.0130	21.4
0.0092	18.1
0.0065	16.8
0.0033	12.3
0.0014	7.1



Soil Description Proportions (%):			
Clay[1]	9	Sand	50
Silt	19	Gravel	22

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ________

Remarks: ________

[signature redacted]

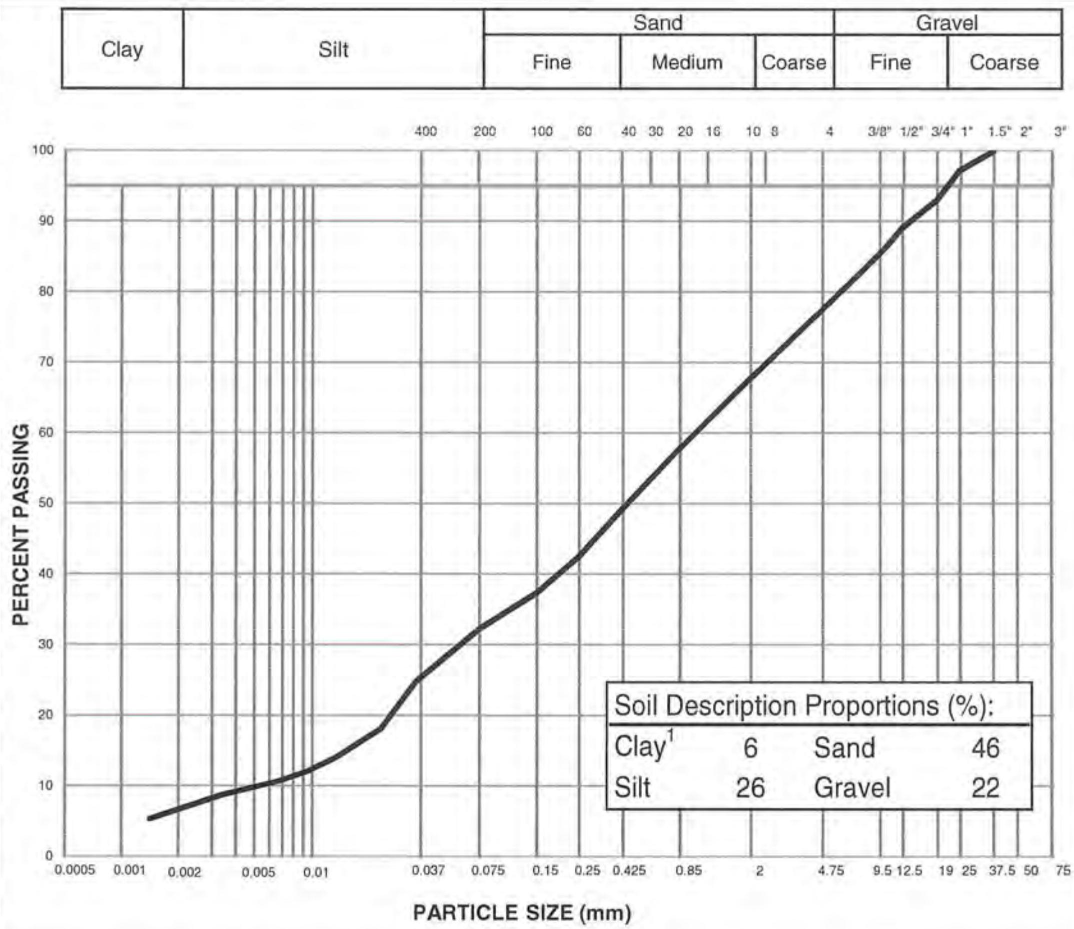
Reviewed By: ___ C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17706
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-08
Client:	SRK Consulting Ltd.	Sample Depth:	0.9 - 1.2 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 4, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client
		USC Classification:	Cu: 199.7
Moisture Content:	27.2%		Cc: 0.7

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	97
19	93
12.5	89
10	86
5	78
2	68
0.85	58
0.425	49
0.25	43
0.15	37
0.075	32.3
0.0350	24.8
0.0229	18.1
0.0134	14.1
0.0094	12.1
0.0067	10.7
0.0034	8.7
0.0014	5.4



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: __________

Remarks: __________

[signature redacted]

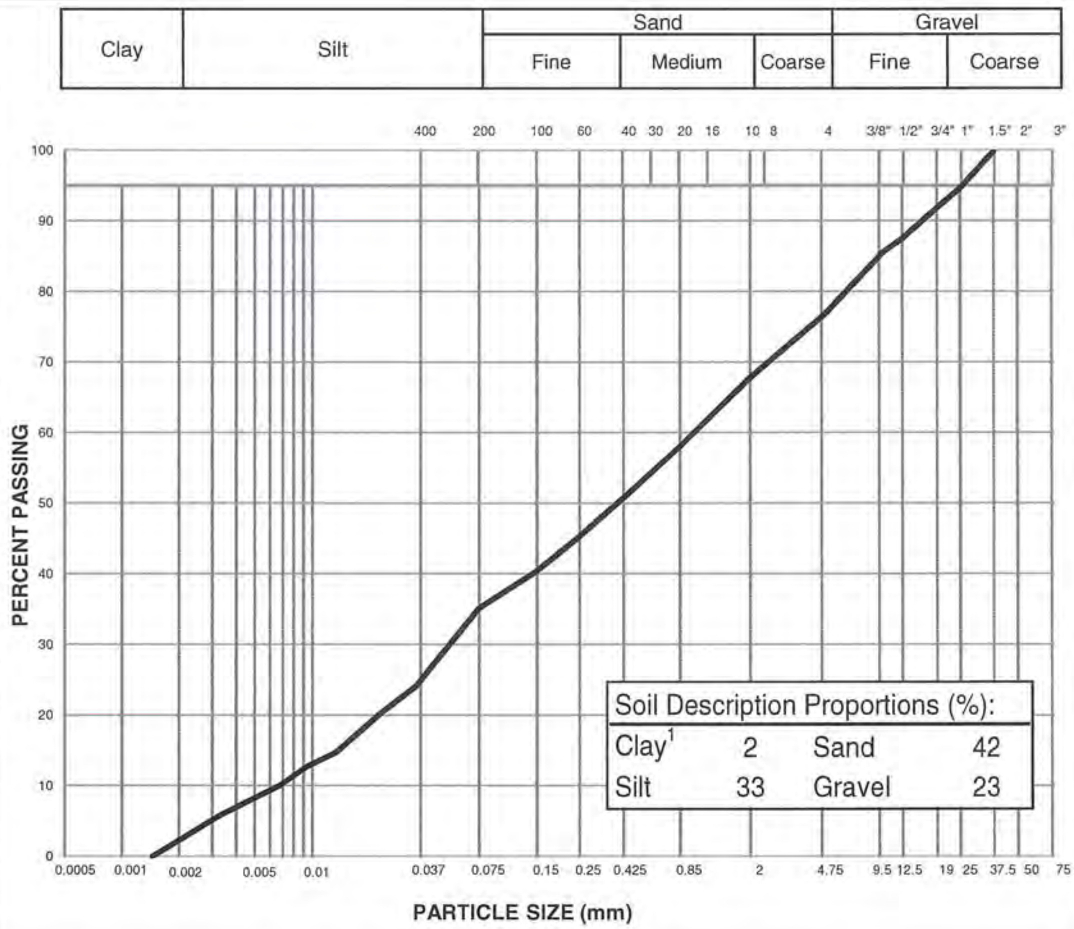
Reviewed By: ________ C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17707
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-08
Client:	SRK Consulting Ltd.	Sample Depth:	3.4 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 18, 2015 By: AMT	Date sampled:	April 4, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client
		USC Classification:	Cu: 161.5
Moisture Content:	13.8%		Cc: 0.4

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	95
19	92
12.5	88
10	86
5	77
2	68
0.85	58
0.425	51
0.25	45
0.15	40
0.075	35.1
0.0351	24.2
0.0226	20.1
0.0134	14.8
0.0094	12.8
0.0067	10.1
0.0034	6.0
0.0014	0.0



Soil Description Proportions (%):			
Clay[1]	2	Sand	42
Silt	33	Gravel	23

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______

Remarks: ______

[signature redacted]

Reviewed By: ______ C.E.T.

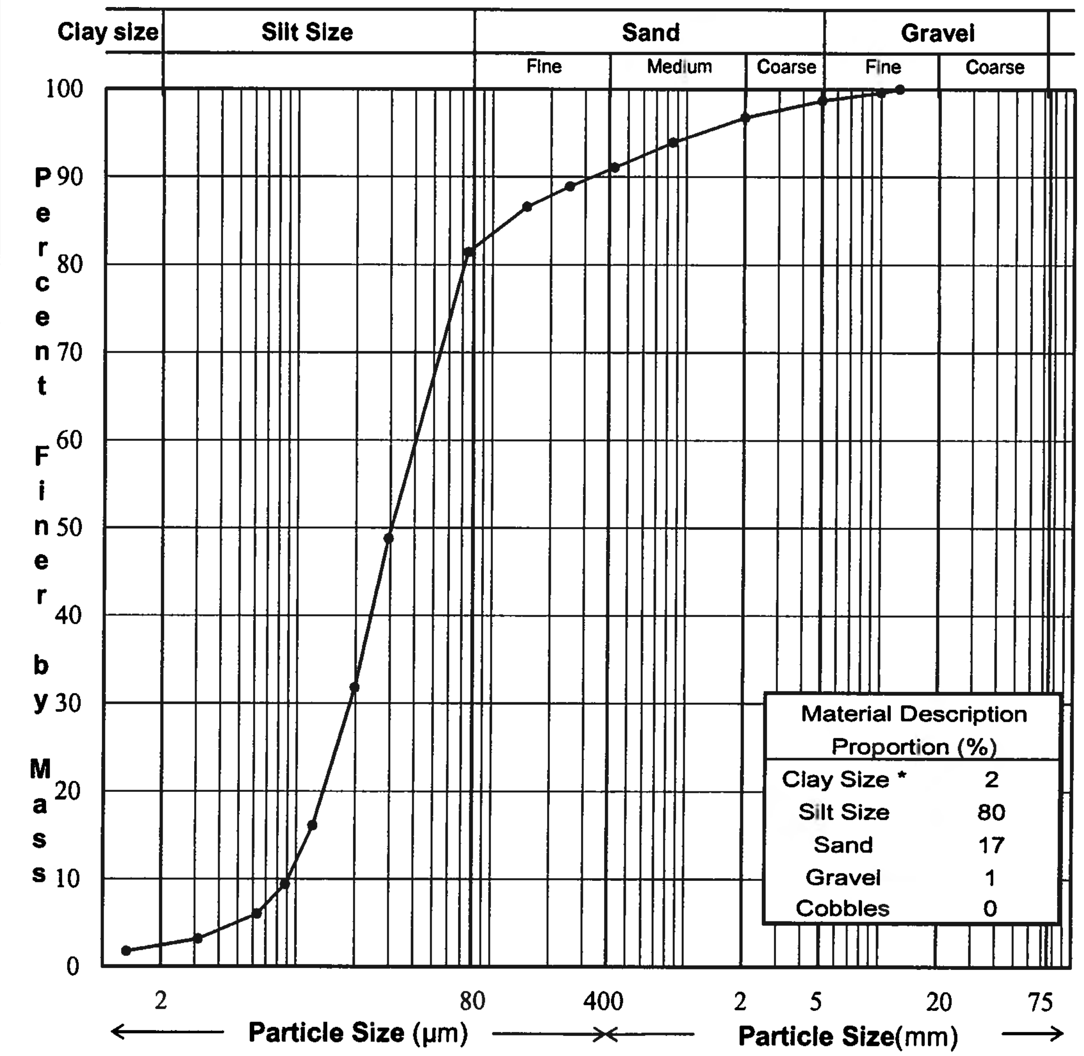
TETRA TECH

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample No.:	17709
Client:	SRK Consulting (Canada) Inc.	Borehole/ TP:	SRK-15S-09
Project No.:	W14103592-01	Depth:	6.5 '
Location:		Date Tested	June 23, 2015
Description **:	SILT, some sand, trace clay & gravel, brown.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	100
10 mm	100
5 mm	99
2 mm	97
850 μm	94
425 μm	91
250 μm	89
150 μm	87
75 μm	81
30 μm	49
20 μm	32
12 μm	16
9 μm	9
6 μm	6
3 μm	3
1 μm	2



Material Description	Proportion (%)
Clay Size *	2
Silt Size	80
Sand	17
Gravel	1
Cobbles	0

Remarks: * The upper clay size of 2 μm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols.

[signature redacted]

Reviewed By: ______ ____P.Eng.

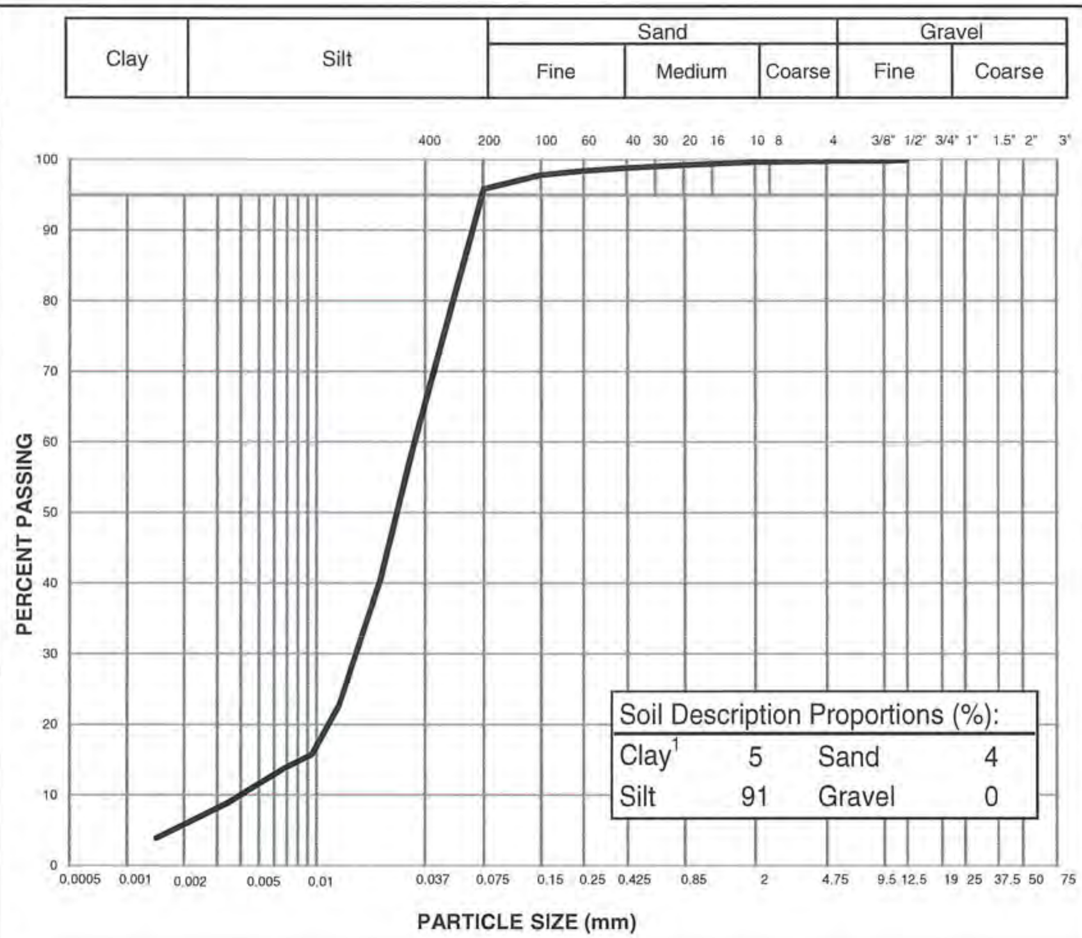
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17710
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-09
Client:	SRK Consulting Ltd.	Sample Depth:	3.4 - 3.7 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 5, 2015
Soil Description[2]:	SILT - trace clay, trace sand	Sampled By:	Client
		USC Classification:	Cu: 7.9
Moisture Content:	45.8%		Cc: 2.0

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	
12.5	100
10	100
5	100
2	100
0.85	99
0.425	99
0.25	99
0.15	98
0.075	95.9
0.0321	59.2
0.0216	40.5
0.0132	22.7
0.0095	15.8
0.0068	13.8
0.0034	8.9
0.0014	3.9



Soil Description Proportions (%):			
Clay[1]	5	Sand	4
Silt	91	Gravel	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By ______________ C.E.T.

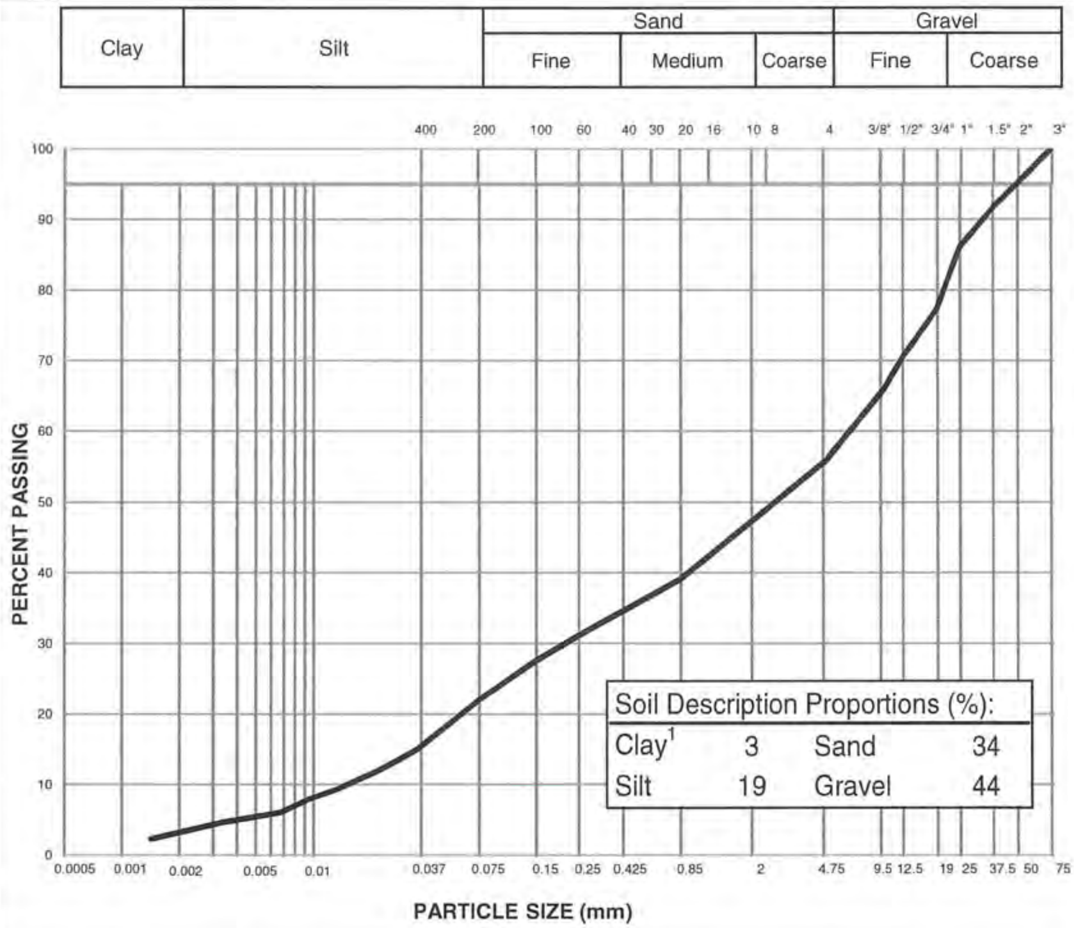
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17711
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-11
Client:	SRK Consulting Ltd.	Sample Depth:	2.3 - 2.6 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 6, 2015
Soil Description[2]:	GRAVEL - sandy, some silt, trace clay	Sampled By:	Client
		USC Classification:	Cu: 452.3
Moisture Content:	8.8%		Cc: 0.4

Particle Size (mm)	Percent Passing
75	100
50	
38	92
25	86
19	77
12.5	71
10	66
5	56
2	47
0.85	39
0.425	35
0.25	31
0.15	28
0.075	22.1
0.0352	15.0
0.0226	12.2
0.0133	9.4
0.0095	8.0
0.0068	6.1
0.0034	4.7
0.0014	2.3



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ____________________

Remarks: ____________________

[signature redacted]

Reviewed By: ______ ____________ C.E.T.

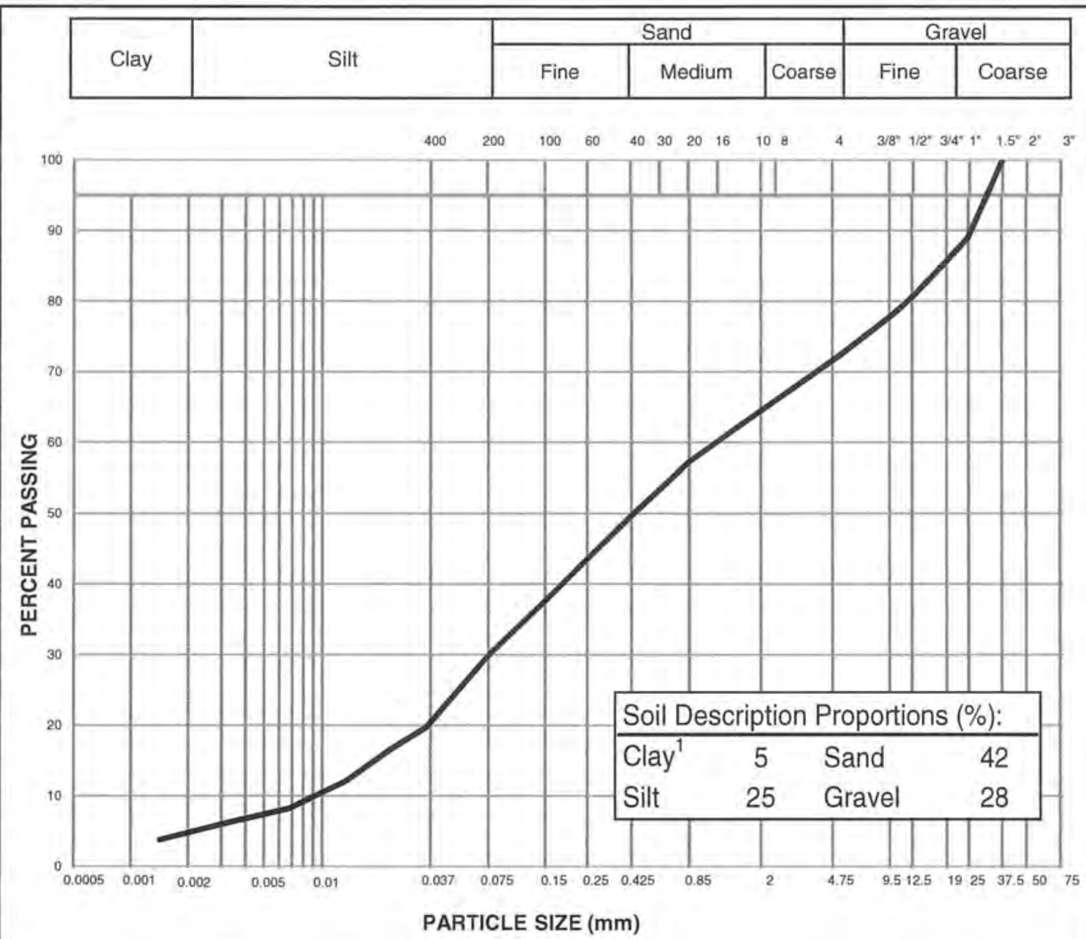
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17712
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-12
Client:	SRK Consulting Ltd.	Sample Depth:	2.4 - 2.7 m
Name REDACTED		Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 7, 2015
Soil Description[2]:	SAND - gravelly, silty, trace clay	Sampled By:	Client
		USC Classification:	Cu: 139.7
Moisture Content:	19.5%		Cc: 0.5

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	89
19	86
12.5	81
10	78
5	72
2	64
0.85	57
0.425	50
0.25	44
0.15	38
0.075	29.9
0.0352	19.8
0.0226	16.6
0.0133	12.1
0.0095	10.2
0.0068	8.3
0.0034	6.4
0.0014	3.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed C.E.T.

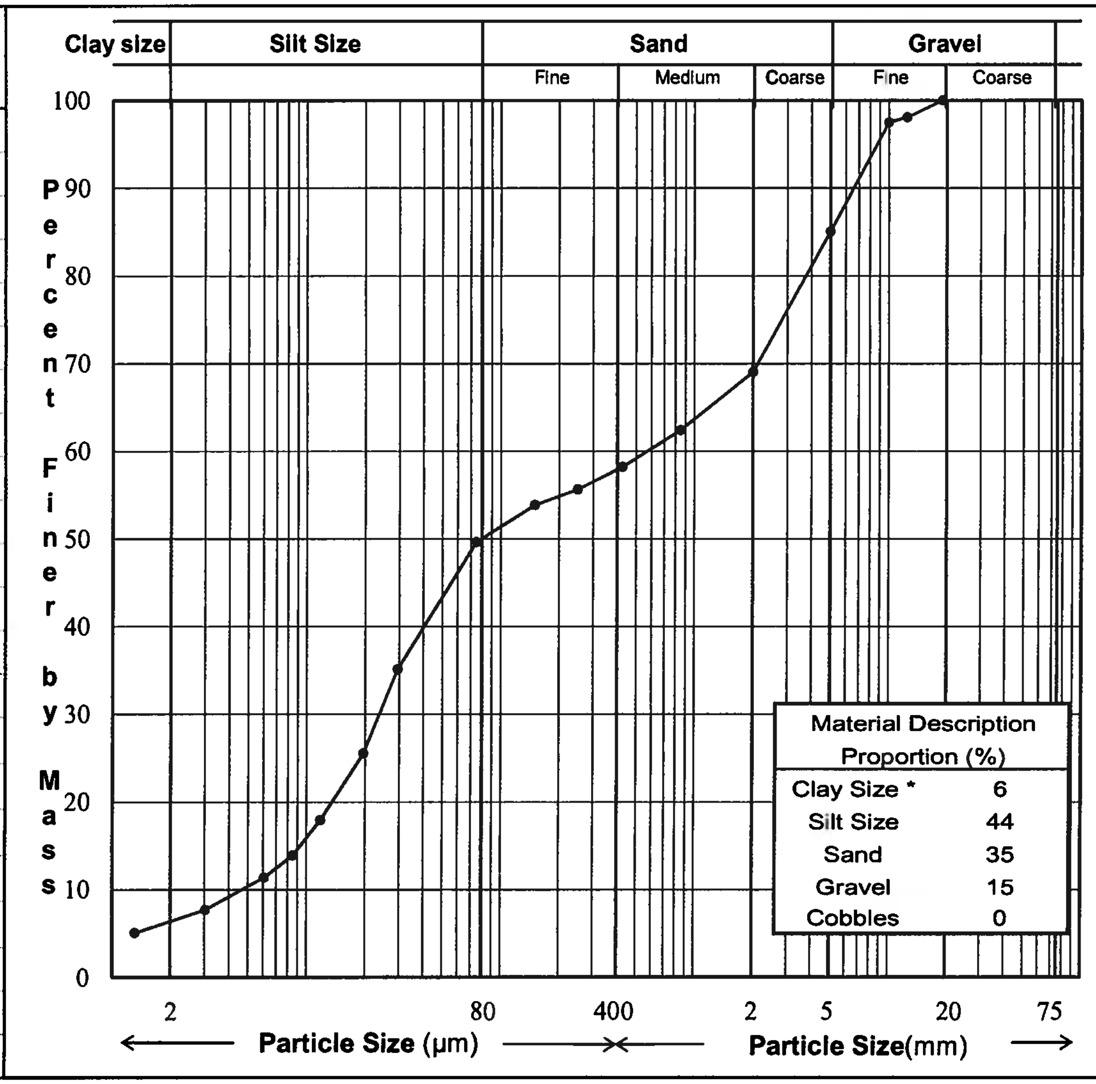
TETRA TECH

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample No.:	17718
Client:	SRK Consulting (Canada) Inc.	Borehole/ TP:	SRK-15S-13A
Project No.:	W14103592-01	Depth:	3.5 '
Location:		Date Tested	June 23, 2015
Description **:	SILT and SAND, some gravel, trace clay, brown.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	100
13 mm	98
10 mm	97
5 mm	85
2 mm	69
850 µm	62
425 µm	58
250 µm	56
150 µm	54
75 µm	50
30 µm	35
20 µm	26
12 µm	18
9 µm	14
6 µm	11
3 µm	8
1 µm	5



Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols.

[signature redacted]

Reviewed By: ______________________ P.Eng.

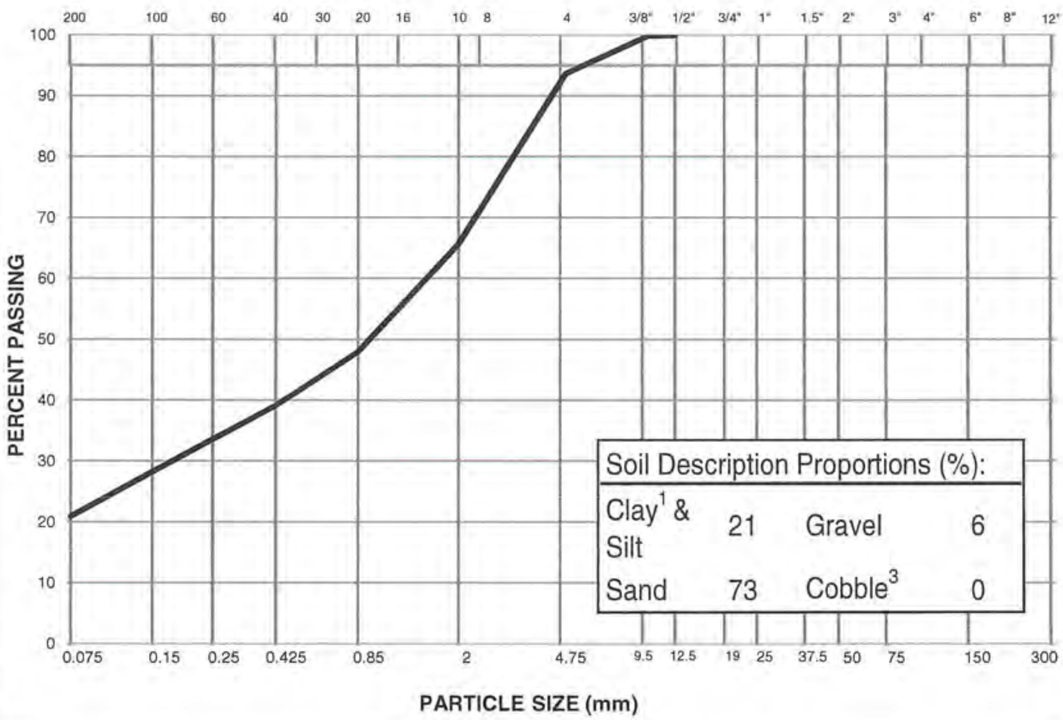
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17719
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-13a
Client:	SRK Consulting Ltd.	Sample Depth:	4.0 - 4.3 m
Client Rep.:	[name redacted]		
	By: IB	Date sampled:	April 10, 2015
Soil Description[2]:	SAND - some silt, trace gravel	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	8.0%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	
25	
19	
12.5	100
10	100
5	94
2	66
0.85	48
0.425	39
0.25	34
0.15	28
0.075	21.0



Soil Description Proportions (%):			
Clay[1] & Silt	21	Gravel	6
Sand	73	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

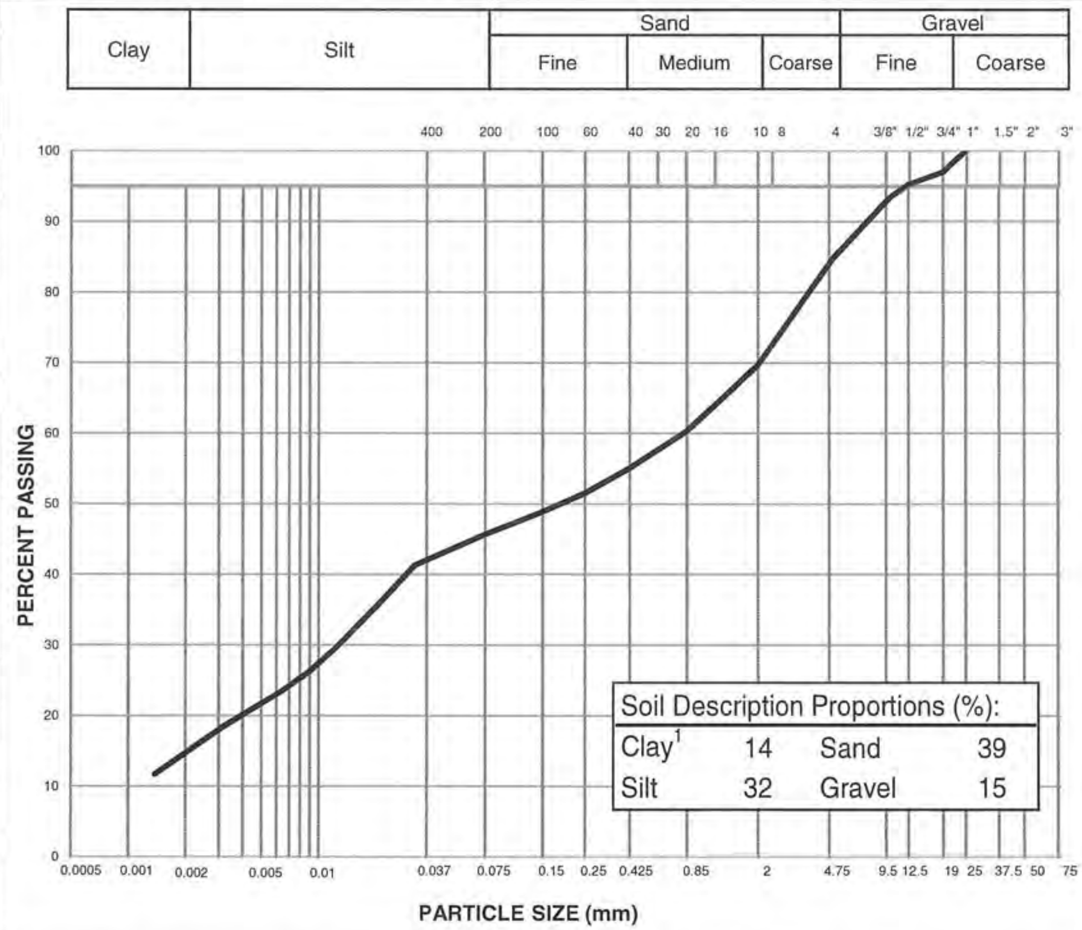
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17715
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-16
Client:	SRK Consulting Ltd.	Sample Depth:	0.6 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 9, 2015
Soil Description[2]:	SAND - silty, some gravel, some clay	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	12.4%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	97
12.5	95
10	93
5	85
2	70
0.85	60
0.425	55
0.25	52
0.15	49
0.075	45.7
0.0321	41.4
0.0208	35.9
0.0124	29.7
0.0089	26.2
0.0064	23.5
0.0032	18.6
0.0014	11.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

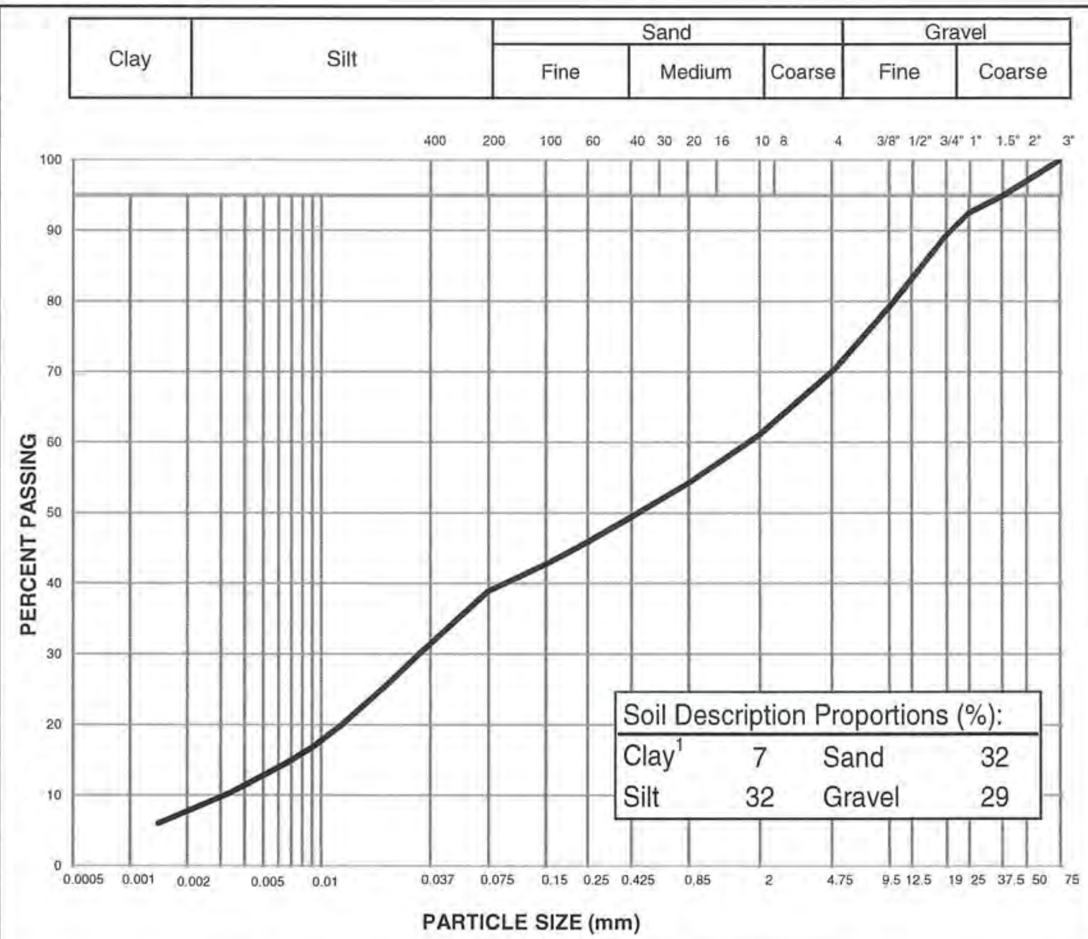
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17717
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-17
Client:	SRK Consulting Ltd.	Sample Depth:	1.5 - 1.8 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 10, 2015
Soil Description[2]:	sandy, silty, gravelly, trace clay	Sampled By:	Client
		USC Classification:	Cu: 567.2
Moisture Content:	5.6%		Cc: 0.2

Particle Size (mm)	Percent Passing
75	100
50	
38	95
25	93
19	89
12.5	83
10	80
5	71
2	61
0.85	54
0.425	50
0.25	46
0.15	43
0.075	39.0
0.0332	30.3
0.0216	25.4
0.0128	20.0
0.0092	16.9
0.0066	14.5
0.0033	10.3
0.0014	6.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

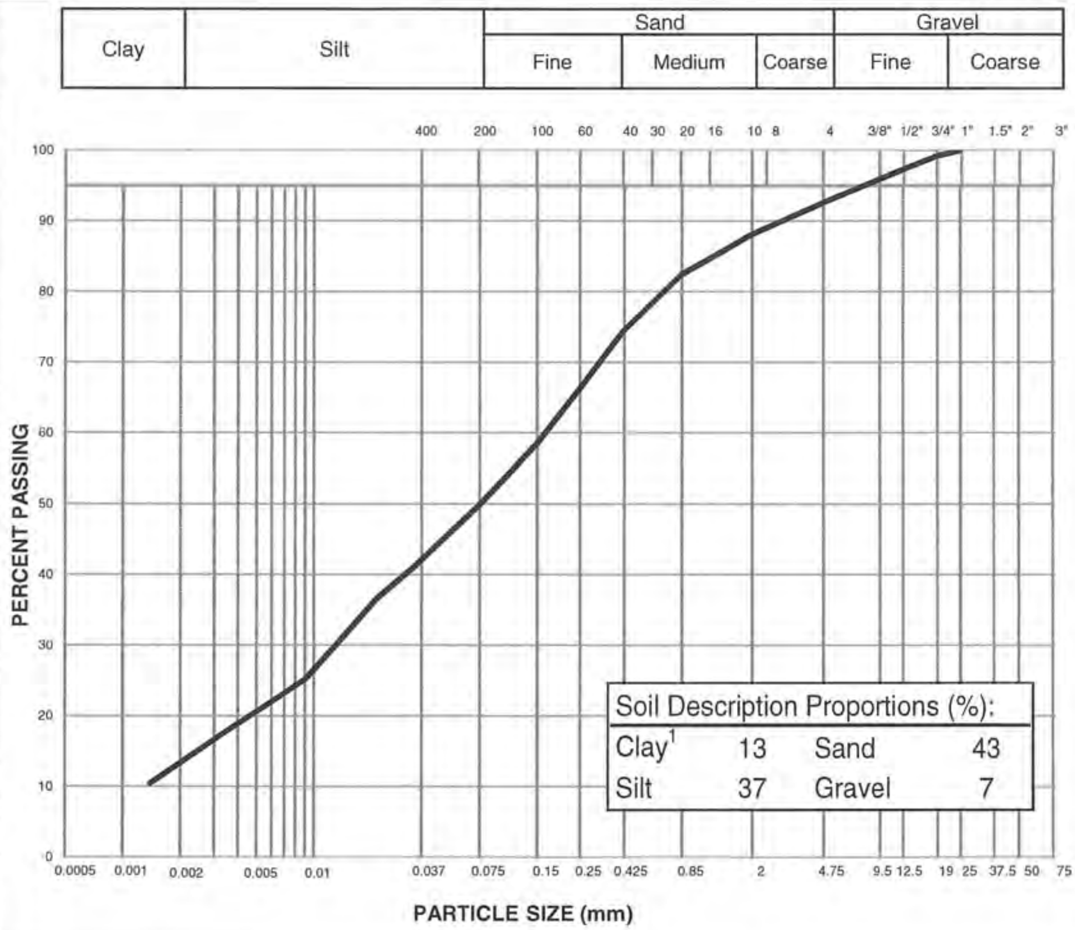
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17713
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-19
Client:	SRK Consulting Ltd.	Sample Depth:	2.7 - 3.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 8, 2015
Soil Description[2]:	SAND and SILT - some clay, trace gravel	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	12.3%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	99
12.5	97
10	96
5	93
2	88
0.85	83
0.425	75
0.25	66
0.15	59
0.075	49.9
0.0335	41.0
0.0216	36.7
0.0128	29.7
0.0091	25.3
0.0065	22.7
0.0033	17.5
0.0014	10.5



Soil Description Proportions (%):			
Clay[1]	13	Sand	43
Silt	37	Gravel	7

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

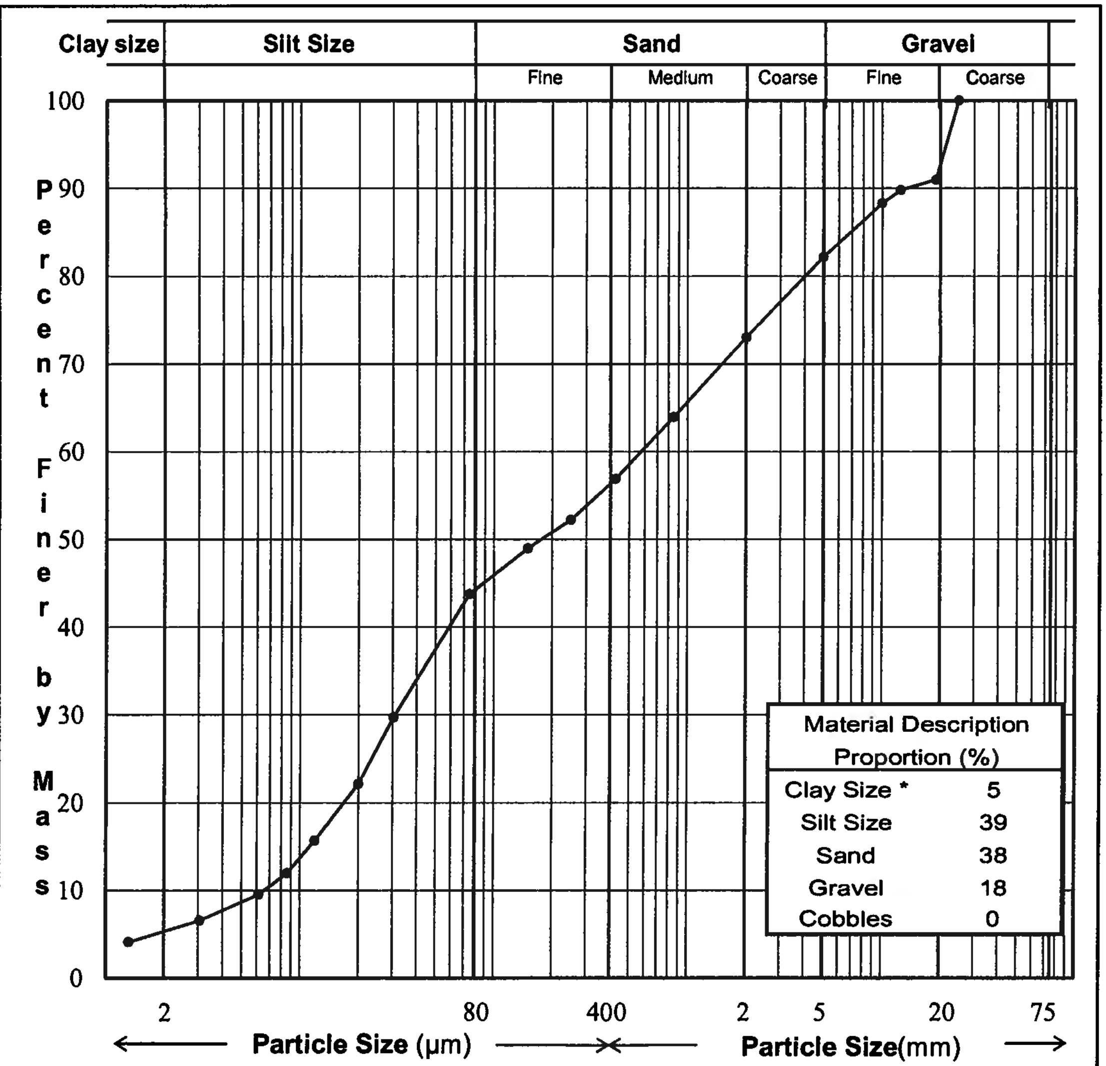
Reviewed By: ______ ______________ C.E.T.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample No.:	17722
Client:	SRK Consulting (Canada) Inc.	Borehole/ TP:	SRK-15S-20
Project No.:	W14103592-01	Depth:	3.5 '
Location:		Date Tested	June 23, 2015
Description **:	SILT and SAND, some gravel, trace clay, brown.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	100
19 mm	91
13 mm	90
10 mm	88
5 mm	82
2 mm	73
850 µm	64
425 µm	57
250 µm	52
150 µm	49
75 µm	44
30 µm	30
20 µm	22
12 µm	16
9 µm	12
6 µm	10
3 µm	7
1 µm	4



Material Description	Proportion (%)
Clay Size *	5
Silt Size	39
Sand	38
Gravel	18
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols.

[signature redacted]

Reviewed By: ______________________ P.Eng.

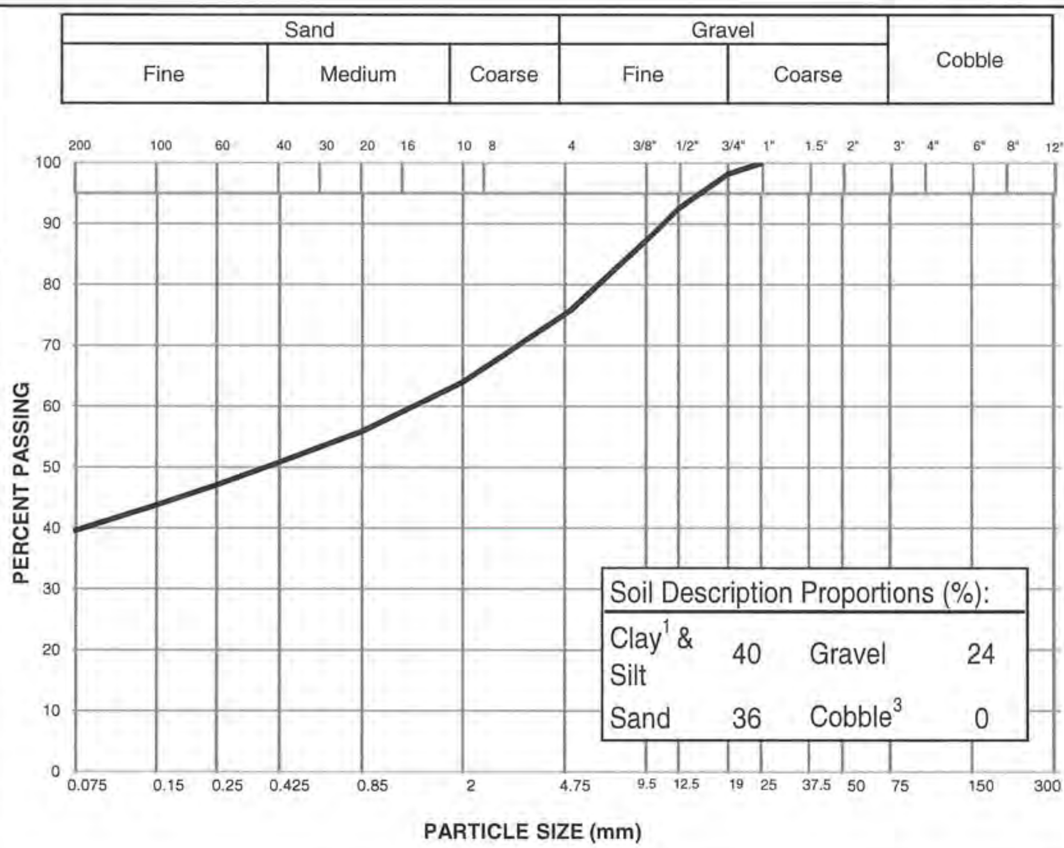
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17721
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-23
Client:	SRK Consulting Ltd.	Sample Depth:	0.6 - 0.9 m
Client Rep.:	[name redacted]		
	By: IB	Date sampled:	April 11, 2015
Soil Description[2]:	SILT and SAND - some gravel	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	5.9%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	
25	100
19	98
12.5	93
10	88
5	76
2	64
0.85	56
0.425	51
0.25	47
0.15	44
0.075	39.6



Soil Description Proportions (%):

Clay[1] & Silt	40	Gravel	24
Sand	36	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

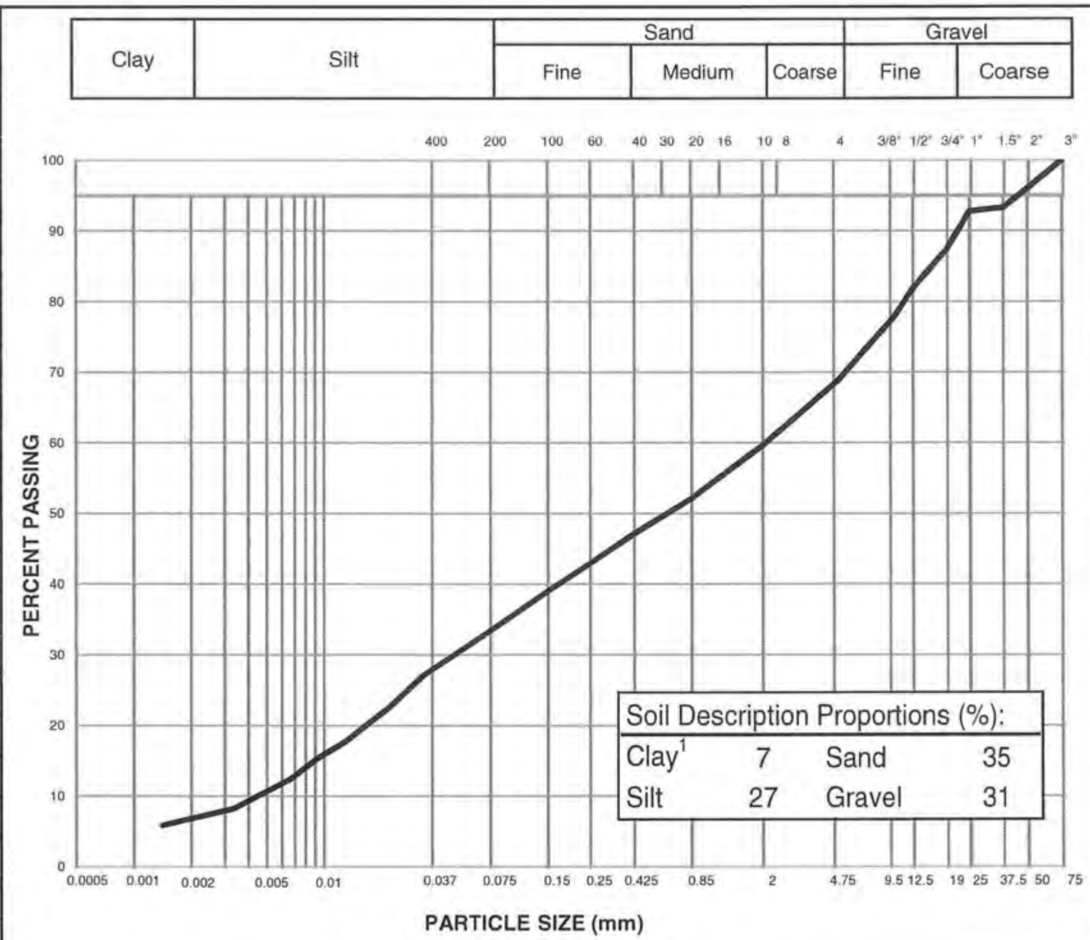
Reviewed By: [signature redacted] C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015		Sample No.:	17723
Project No.:	W14103592-01		Material Type:	
Site:	Coffee Gold Project		Sample Loc.:	SRK-15S-25
Client:	SRK Consulting Ltd.		Sample Depth:	0.6 - 1.2 m
Client Rep.:	[name redacted]		Sampling Method:	Grab
Date Tested:	May 27, 2015	By: AMT	Date sampled:	April 12, 2015
Soil Description[2]:	sandy, gravelly, silty, trace clay		Sampled By:	Client
			USC Classification:	Cu: 443.7
Moisture Content:	12.6%			Cc: 0.3

Particle Size (mm)	Percent Passing
75	100
50	
38	93
25	93
19	87
12.5	82
10	78
5	69
2	60
0.85	52
0.425	47
0.25	43
0.15	39
0.075	33.4
0.0336	27.2
0.0218	22.5
0.0129	17.7
0.0092	15.4
0.0066	12.4
0.0034	8.3
0.0014	5.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

[signature redacted]

Reviewed By: ______________ C.E.T.

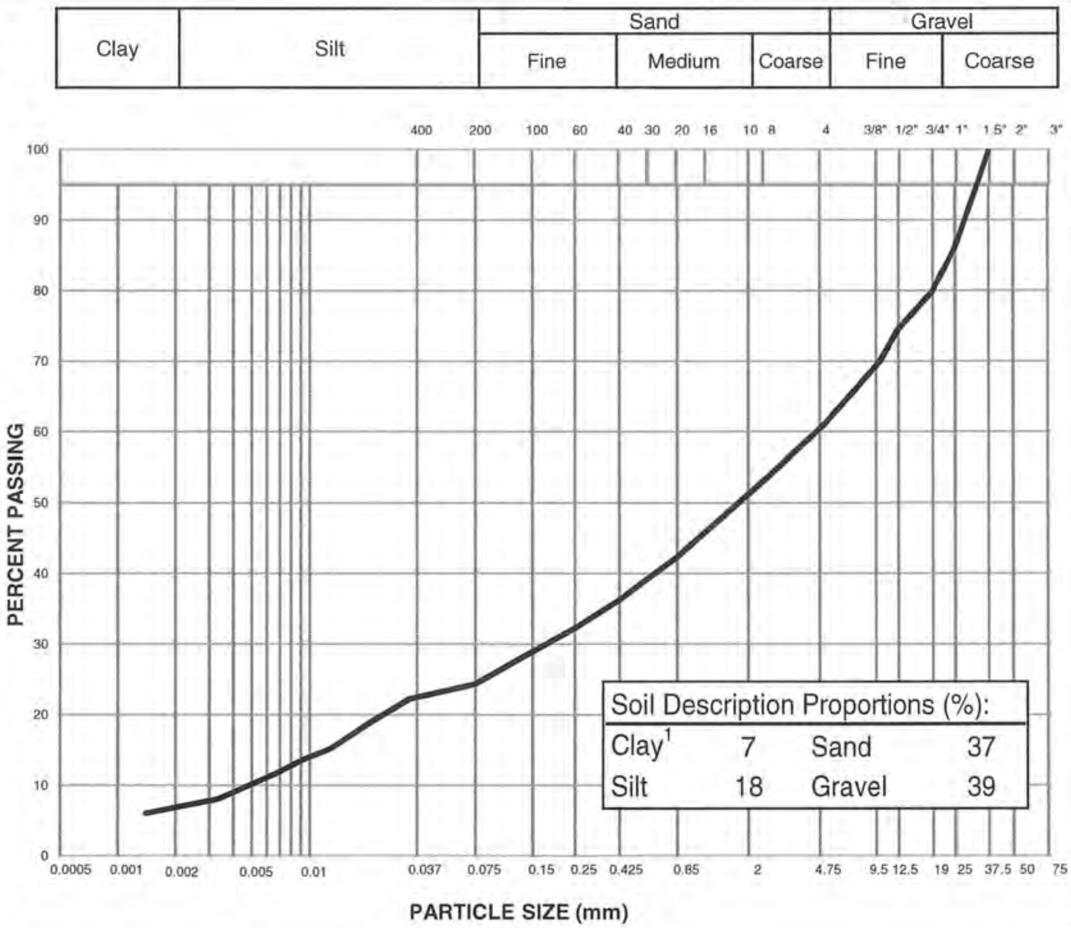
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17724
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-25
Client:	SRK Consulting Ltd.	Sample Depth:	1.8 - 2.1 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 12, 2015
Soil Description[2]:	GRAVEL and SAND - some silt, trace clay	Sampled By:	Client
		USC Classification:	Cu: 927.9
Moisture Content:	6.9%		Cc: 1.4

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	86
19	80
12.5	75
10	70
5	61
2	51
0.85	42
0.425	36
0.25	32
0.15	29
0.075	24.4
0.0339	22.3
0.0218	19.3
0.0129	15.2
0.0092	13.7
0.0066	11.7
0.0033	8.1
0.0014	6.1



Soil Description Proportions (%):			
Clay[1]	7	Sand	37
Silt	18	Gravel	39

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

Reviewed By: [signature redacted] C.E.T.

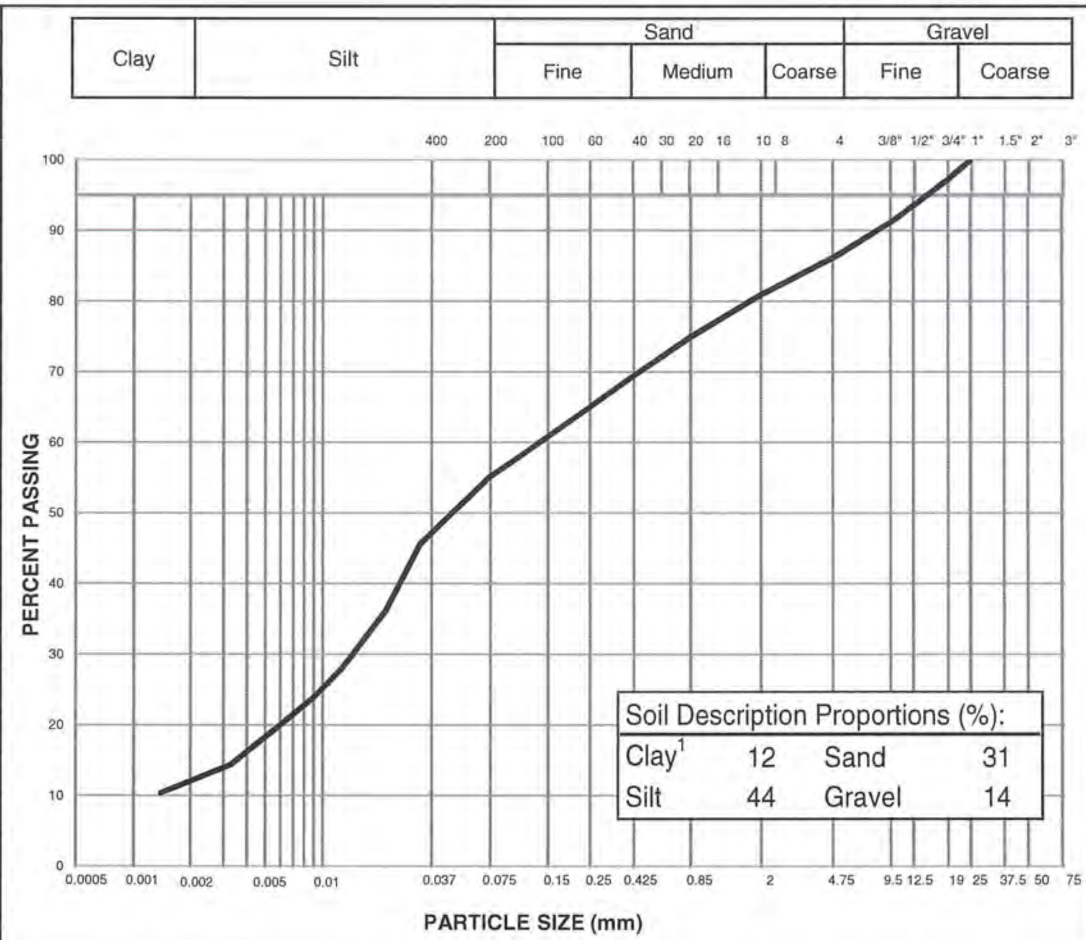
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17736
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-26
Client:	SRK Consulting Ltd.	Sample Depth:	0.6 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 16, 2015
Soil Description[2]:	SILT - sandy, some gravel, some clay	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	15.7%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	97
12.5	94
10	92
5	86
2	81
0.85	75
0.425	69
0.25	65
0.15	61
0.075	55.2
0.0324	45.7
0.0213	36.1
0.0127	28.1
0.0091	24.0
0.0065	20.8
0.0033	14.4
0.0014	10.4



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

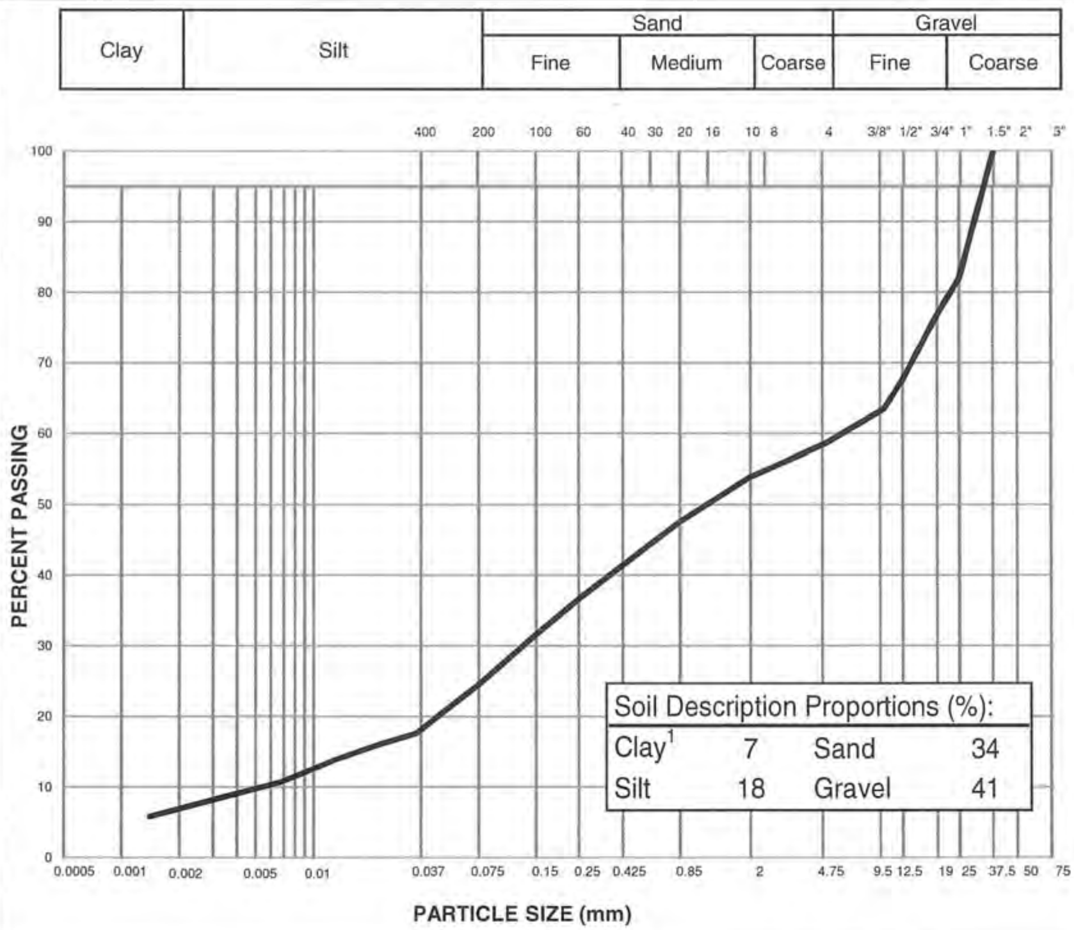
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17732
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-29
Client:	SRK Consulting Ltd.	Sample Depth:	0.9 - 1.4 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 27, 2015 By: AMT	Date sampled:	April 15, 2015
Soil Description[2]:	GRAVEL - sandy, some silt, trace clay	Sampled By:	Client
		USC Classification:	Cu: 1133.2
Moisture Content:	2.9%		Cc: 0.5

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	82
19	77
12.5	68
10	64
5	59
2	54
0.85	48
0.425	41
0.25	37
0.15	32
0.075	24.5
0.0350	17.6
0.0223	16.0
0.0131	13.9
0.0093	12.3
0.0067	10.7
0.0033	8.5
0.0014	5.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

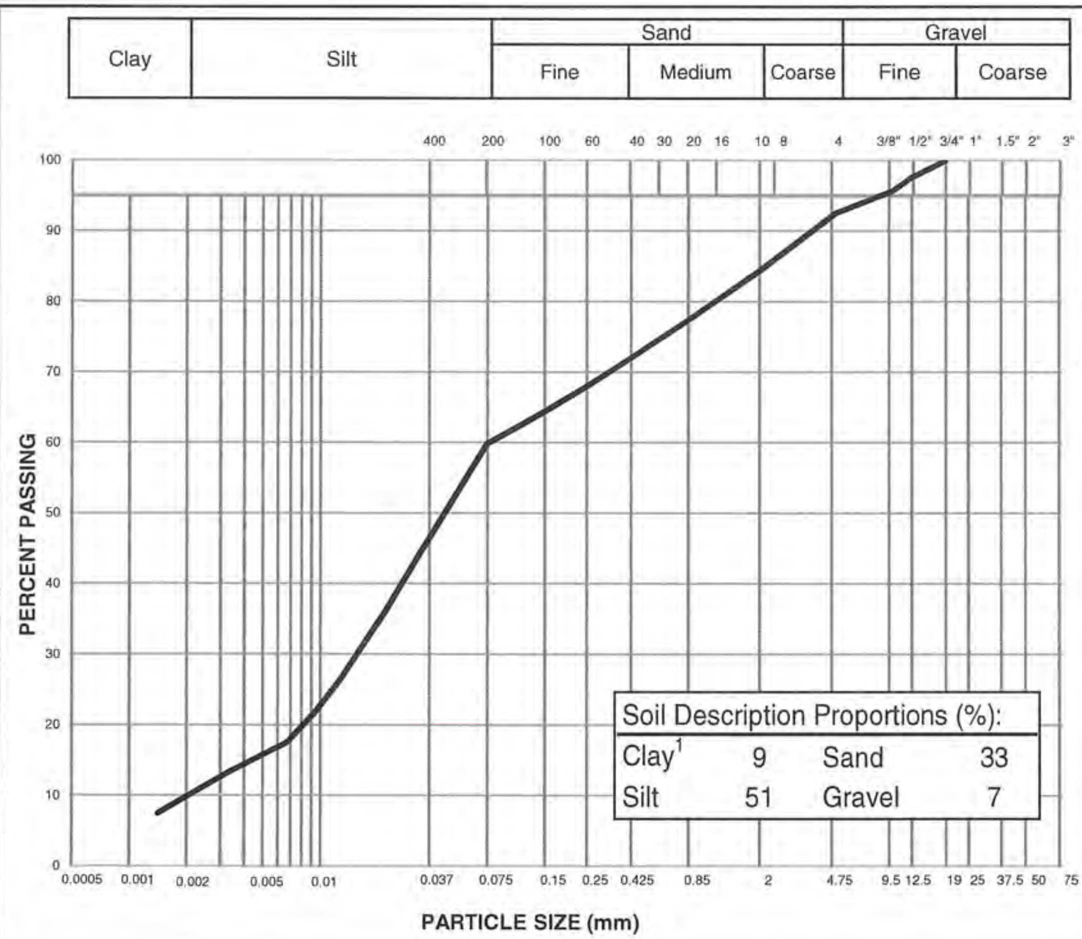
Reviewed By: [signature redacted] C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17734
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-30
Client:	SRK Consulting Ltd.	Sample Depth:	0.9 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 29, 2015 By: AMT	Date sampled:	April 16, 2015
Soil Description[2]:	SILT - sandy, trace clay, trace gravel	Sampled By:	Client
		USC Classification:	Cu: 34.5
Moisture Content:	107.3%		Cc: 1.5

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	100
12.5	98
10	96
5	93
2	84
0.85	77
0.425	72
0.25	68
0.15	64
0.075	59.9
0.0329	44.3
0.0215	35.9
0.0130	26.7
0.0094	21.7
0.0067	17.5
0.0033	13.4
0.0014	7.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

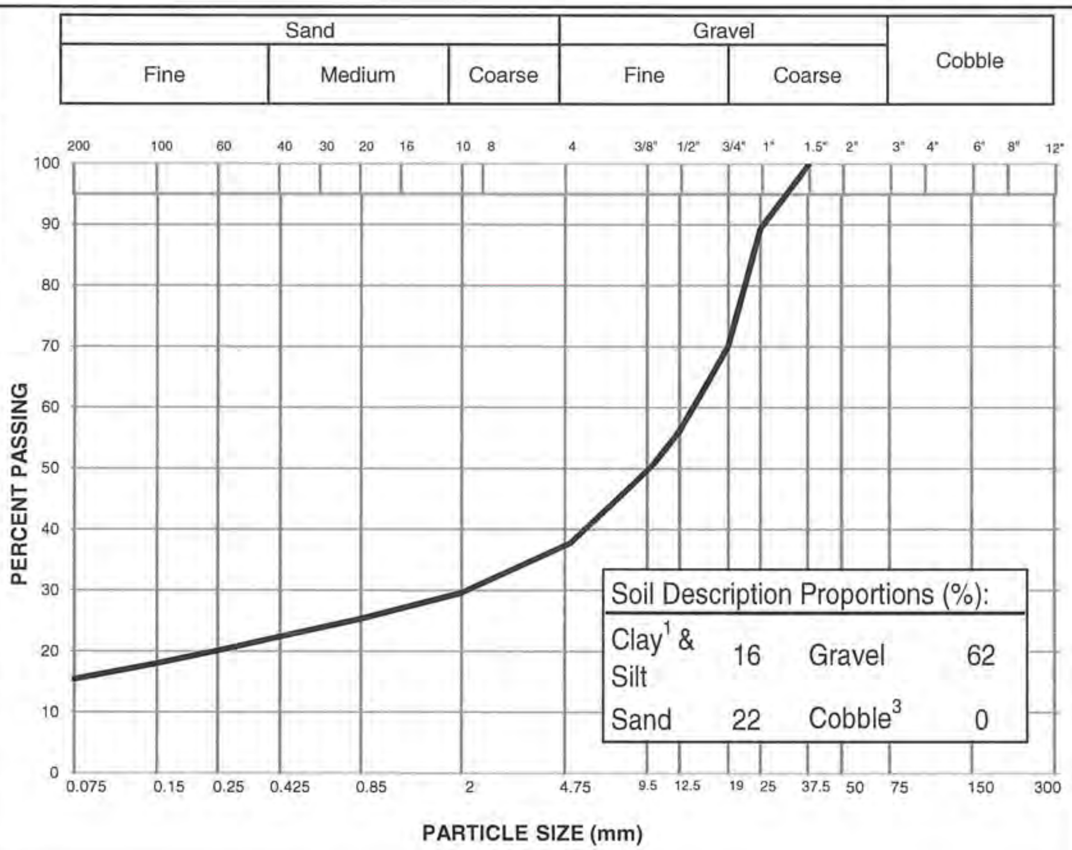
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17735
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-30
Client:	SRK Consulting Ltd.	Sample Depth:	2.1 - 2.7 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 31, 2015 By: IB	Date sampled:	April 16, 2015
Soil Description[2]:	GRAVEL - sandy, some silt	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	11.6%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	89
19	70
12.5	56
10	51
5	38
2	30
0.85	25
0.425	22
0.25	20
0.15	18
0.075	15.5



Soil Description Proportions (%):			
Clay[1] & Silt	16	Gravel	62
Sand	22	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

[signature redacted]

Reviewed By: ____ ________ C.E.T.

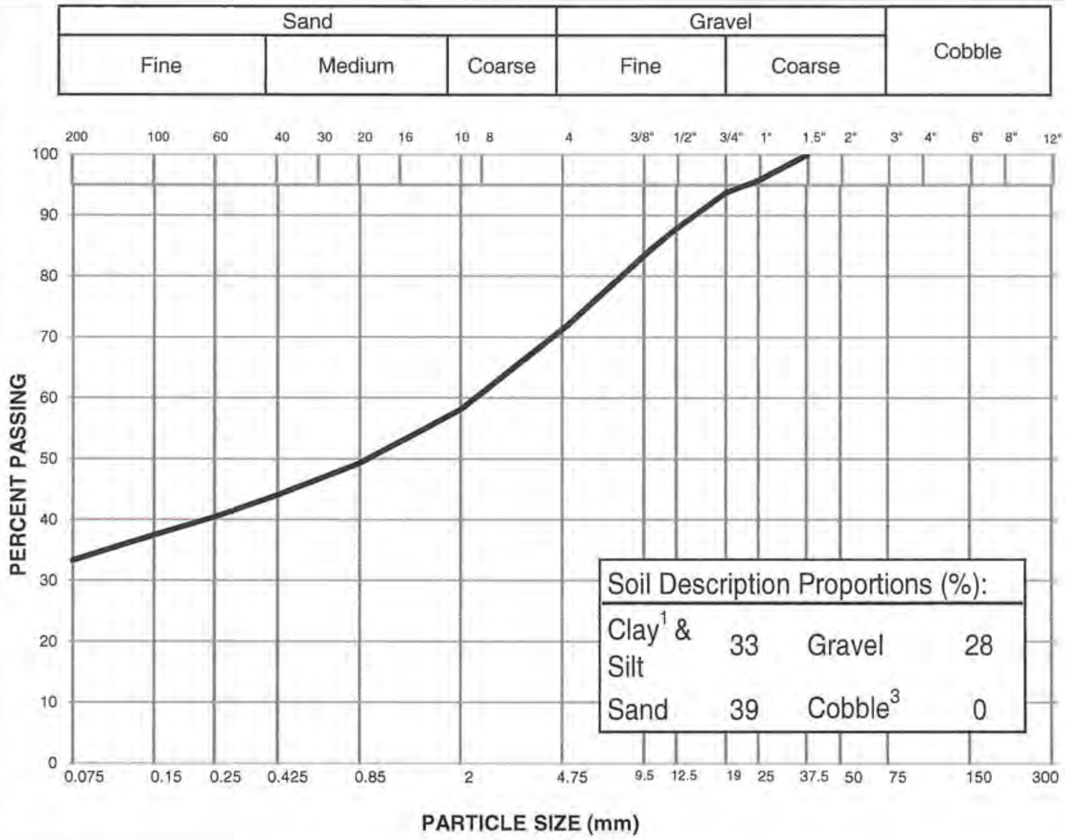
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015		Sample No.:	17737
Project No.:	W14103592-01		Material Type:	
Site:	Coffee Gold Project		Sample Loc.:	SRK-15S-32
Client:	SRK Consulting Ltd.		Sample Depth:	0.6 - 0.9 m
Client Rep.:	[name redacted]		Sampling Method:	Grab
Date Tested:	May 31, 2015	By: IB	Date sampled:	April 16, 2015
Soil Description[2]:	SAND - silty, gravelly		Sampled By:	Client
			USC Classification:	Cu: #N/A
Moisture Content:	12.4%			Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	96
19	94
12.5	88
10	84
5	72
2	58
0.85	49
0.425	44
0.25	40
0.15	37
0.075	33.4



Soil Description Proportions (%):			
Clay[1] & Silt	33	Gravel	28
Sand	39	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

[signature redacted]

Reviewed By: ____ __________ C.E.T.

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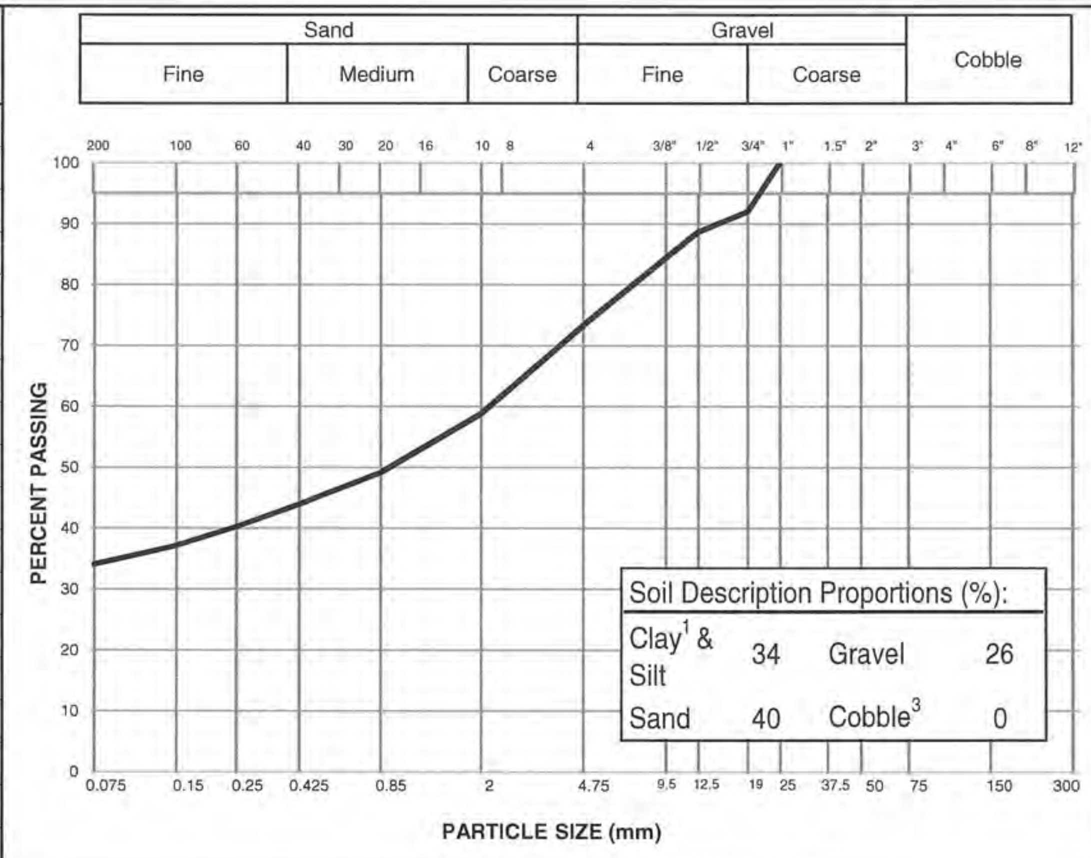
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17740
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-33
Client:	SRK Consulting Ltd.	Sample Depth:	0.9 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 31, 2015 By: IB	Date sampled:	April 18, 2015
Soil Description[2]:	SAND - silty, gravelly	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	7.9%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	
25	100
19	92
12.5	89
10	85
5	74
2	59
0.85	49
0.425	44
0.25	40
0.15	37
0.075	34.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

[signature redacted]

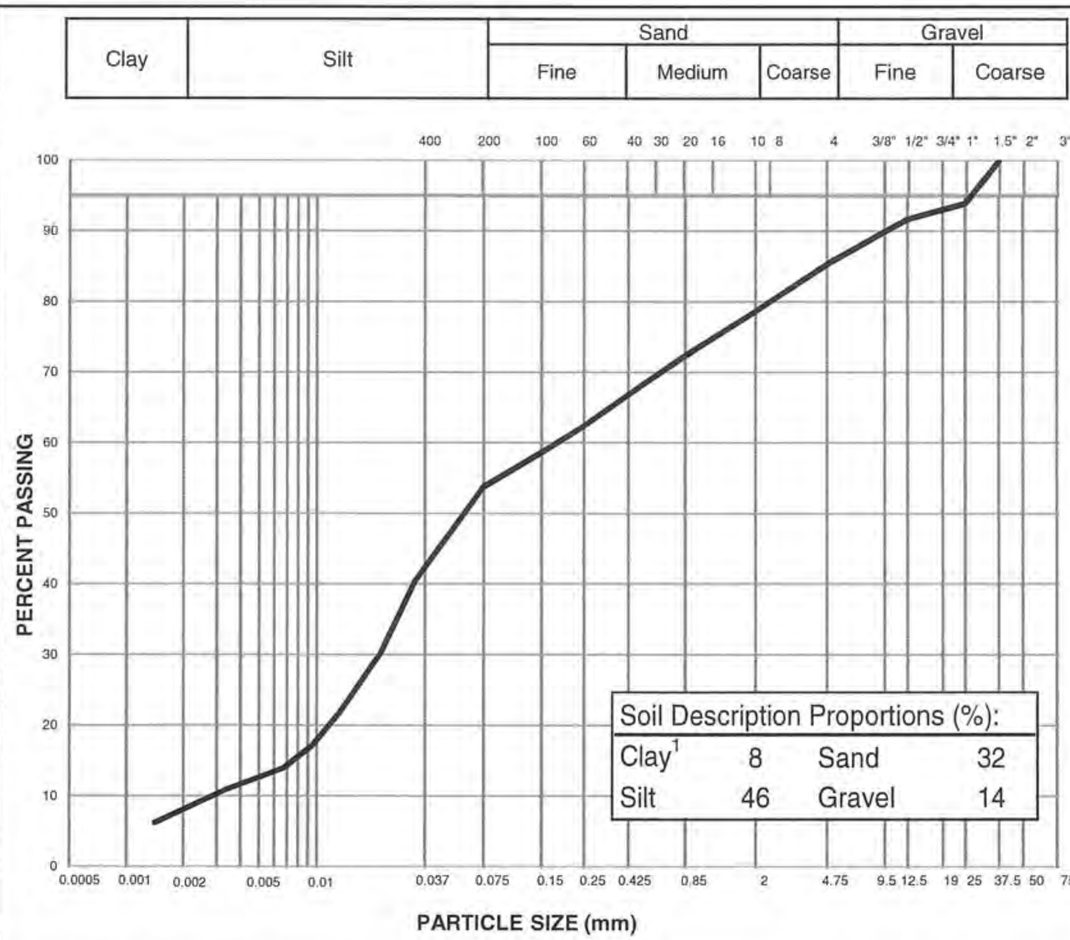
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17739
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-34
Client:	SRK Consulting Ltd.	Sample Depth:	1.1 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 29, 2015 By: AMT	Date sampled:	April 18, 2015
Soil Description[2]:	SILT - sandy, some gravel, trace clay	Sampled By:	Client
		USC Classification:	Cu: 62.1
Moisture Content:	14.9%		Cc: 0.8

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	94
19	93
12.5	92
10	90
5	86
2	79
0.85	72
0.425	67
0.25	62
0.15	59
0.075	53.8
0.0329	40.5
0.0218	30.4
0.0131	21.8
0.0095	17.1
0.0068	14.0
0.0034	10.9
0.0014	6.2



Soil Description Proportions (%):			
Clay[1]	8	Sand	32
Silt	46	Gravel	14

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification: ______

Remarks: ______

Reviewed By: ______ ______ C.E.T.

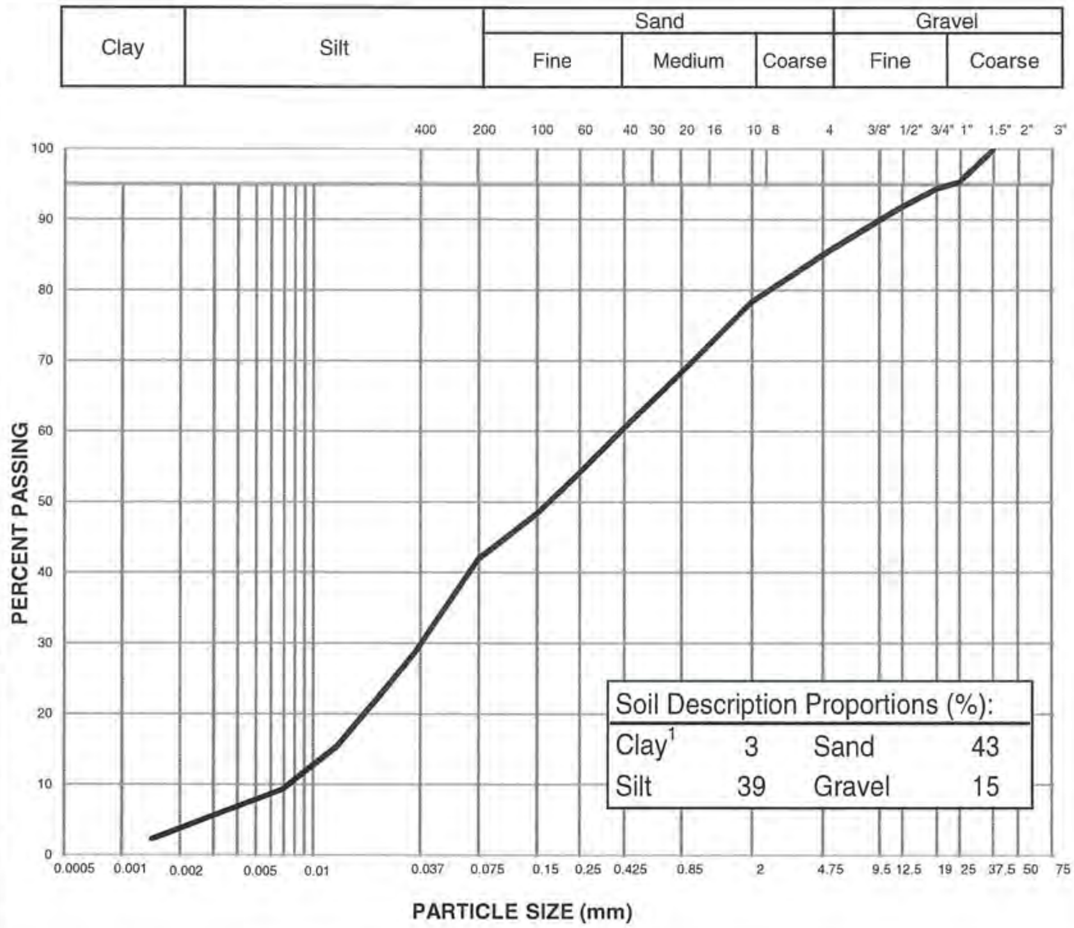
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17741
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-35
Client:	SRK Consulting Ltd.	Sample Depth:	1.2 - 1.4 m
Client Rep.:	[name redacted]		
	By: AMT	Date sampled:	April 18, 2015
Soil Description[2]:	SAND and SILT - some gravel, trace clay	Sampled By:	Client
		USC Classification:	Cu: 54.9
Moisture Content:	44.9%		Cc: 0.5

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	95
19	94
12.5	92
10	90
5	85
2	78
0.85	68
0.425	60
0.25	54
0.15	48
0.075	42.0
0.0346	28.7
0.0224	22.5
0.0135	15.5
0.0096	12.4
0.0069	9.3
0.0034	6.2
0.0014	2.3



Soil Description Proportions (%):			
Clay[1]	3	Sand	43
Silt	39	Gravel	15

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______

Remarks: ______

[signature redacted]

Reviewed By: ______ ______ C.E.T.

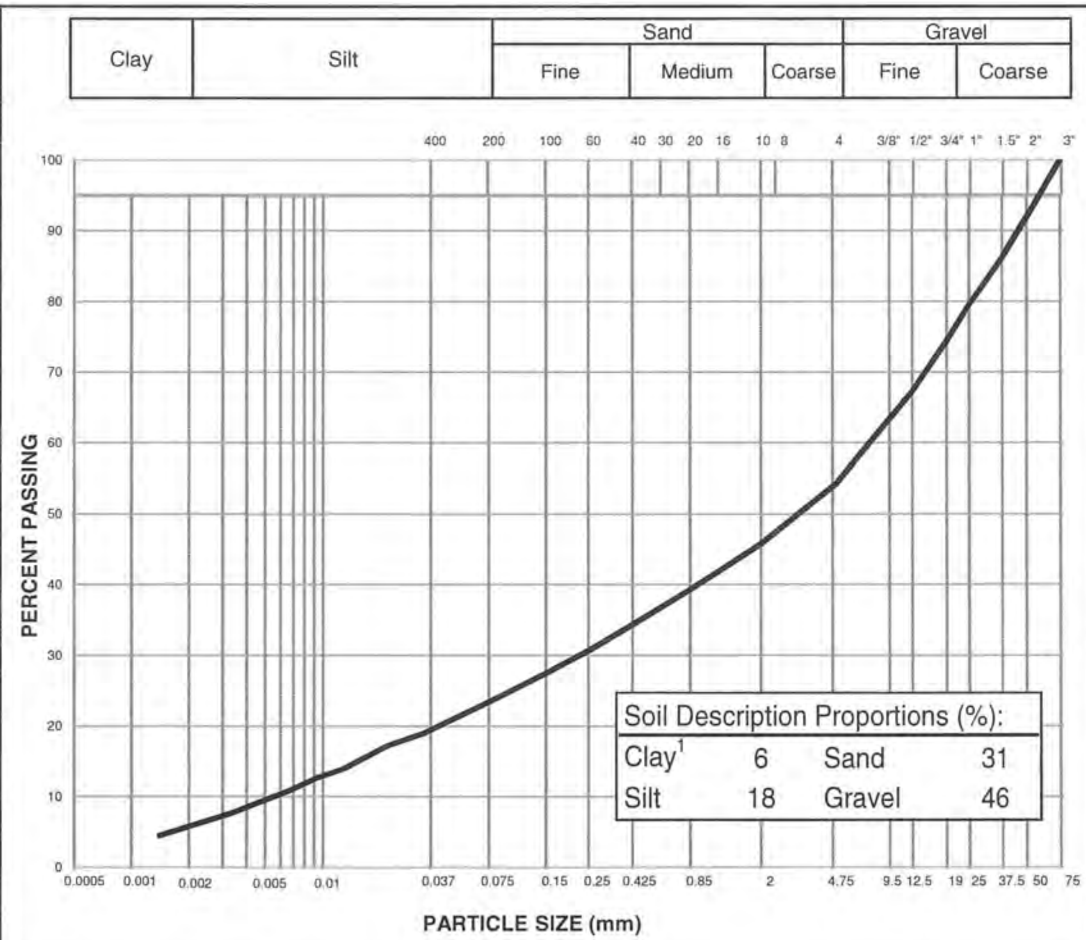
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	SRK Testing - 2015	Sample No.:	17743
Project No.:	W14103592-01	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15S-35
Client:	SRK Consulting Ltd.	Sample Depth:	5.3 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	May 29, 2015 By: AMT	Date sampled:	April 18, 2015
Soil Description[2]:	GRAVEL - sandy, some silt, trace clay	Sampled By:	Client
		USC Classification:	Cu: 1380.0
Moisture Content:	8.5%		Cc: 1.2

Particle Size (mm)	Percent Passing
75	100
50	
38	86
25	80
19	74
12.5	67
10	64
5	54
2	46
0.85	39
0.425	34
0.25	31
0.15	27
0.075	23.4
0.0341	19.0
0.0218	17.2
0.0130	14.1
0.0093	12.7
0.0066	10.9
0.0033	7.7
0.0014	4.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ____________________

Remarks:

Reviewed [signature redacted] C.E.T.

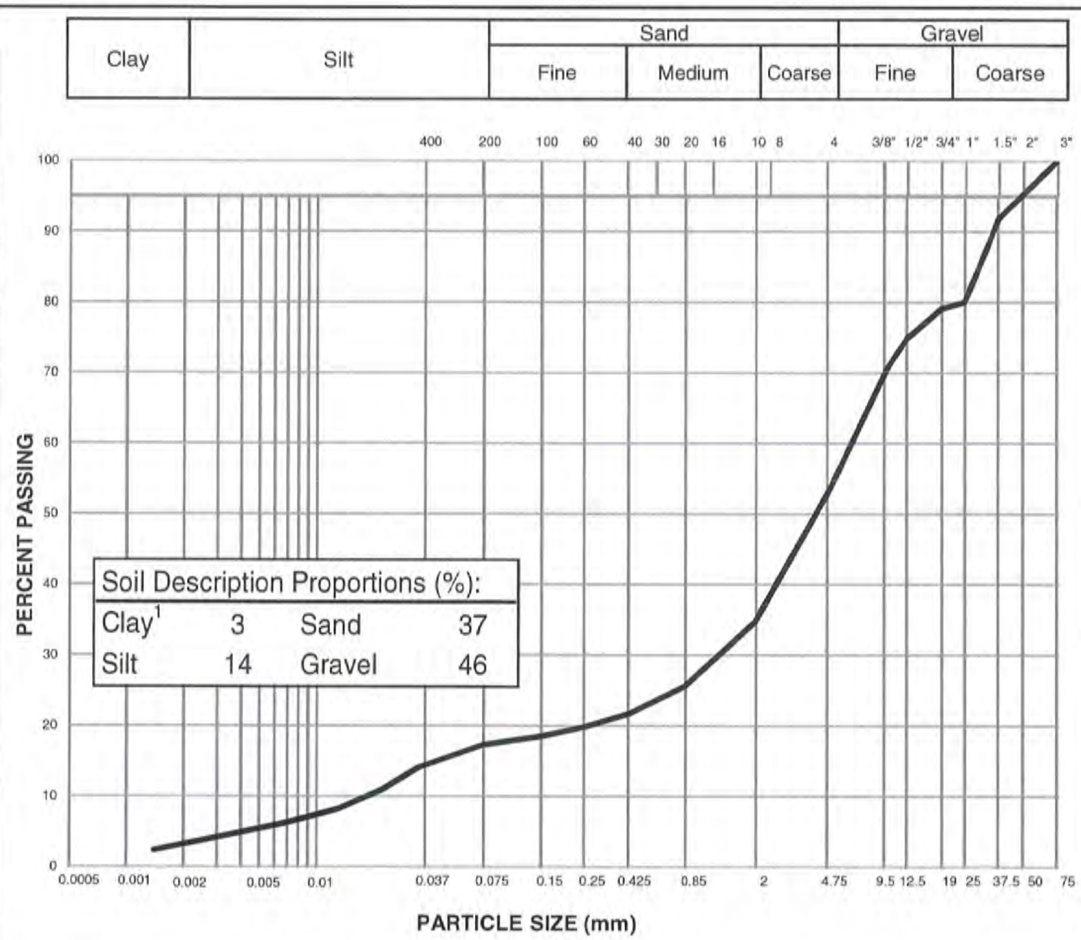
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17565
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-03
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	August 31, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	GRAVEL and SAND - some silt, trace clay	Sampled By:	Client Name REDACTED
		USC Classification:	Cu: 361.2
Moisture Content:	10.5%		Cc: 15.1

Particle Size (mm)	Percent Passing
75	100
50	
38	92
25	80
19	79
12.5	75
10	71
5	54
2	35
0.85	26
0.425	22
0.25	20
0.15	19
0.075	17.3
0.0342	14.1
0.0222	11.0
0.0131	8.3
0.0094	7.2
0.0067	6.2
0.0033	4.5
0.0014	2.4



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

[signature redacted]

Reviewed By: ______________________ C.E.T.

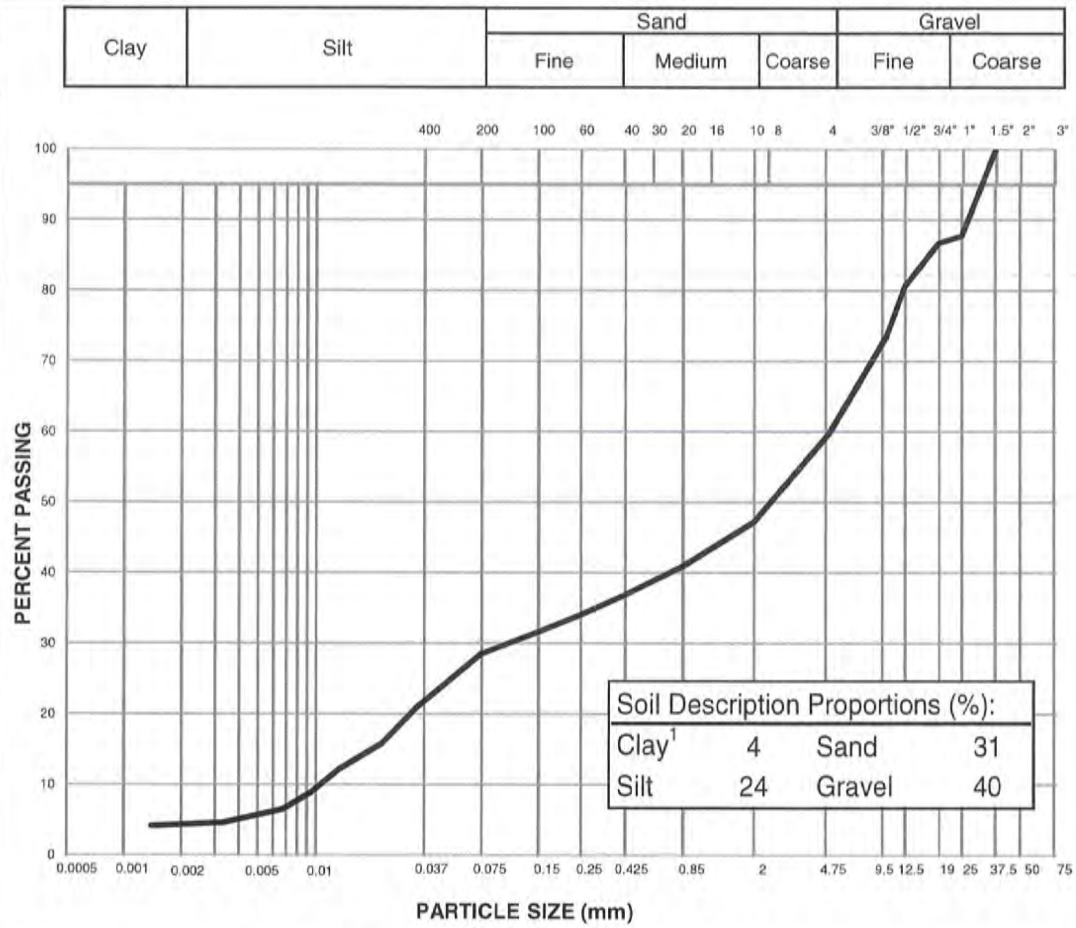
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17563
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-04
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.7 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 3, 2015 By: AMT	Date sampled:	June 19, 2015 Name REDACTED
Soil Description[2]:	GRAVEL - sandy, silty, trace clay	Sampled By:	Client
		USC Classification:	Cu: 470.3
Moisture Content:	10.9%		Cc: 0.2

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	88
19	87
12.5	81
10	74
5	60
2	47
0.85	41
0.425	37
0.25	34
0.15	32
0.075	28.5
0.0342	21.1
0.0224	15.9
0.0132	12.2
0.0094	8.9
0.0068	6.5
0.0033	4.7
0.0014	4.2



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

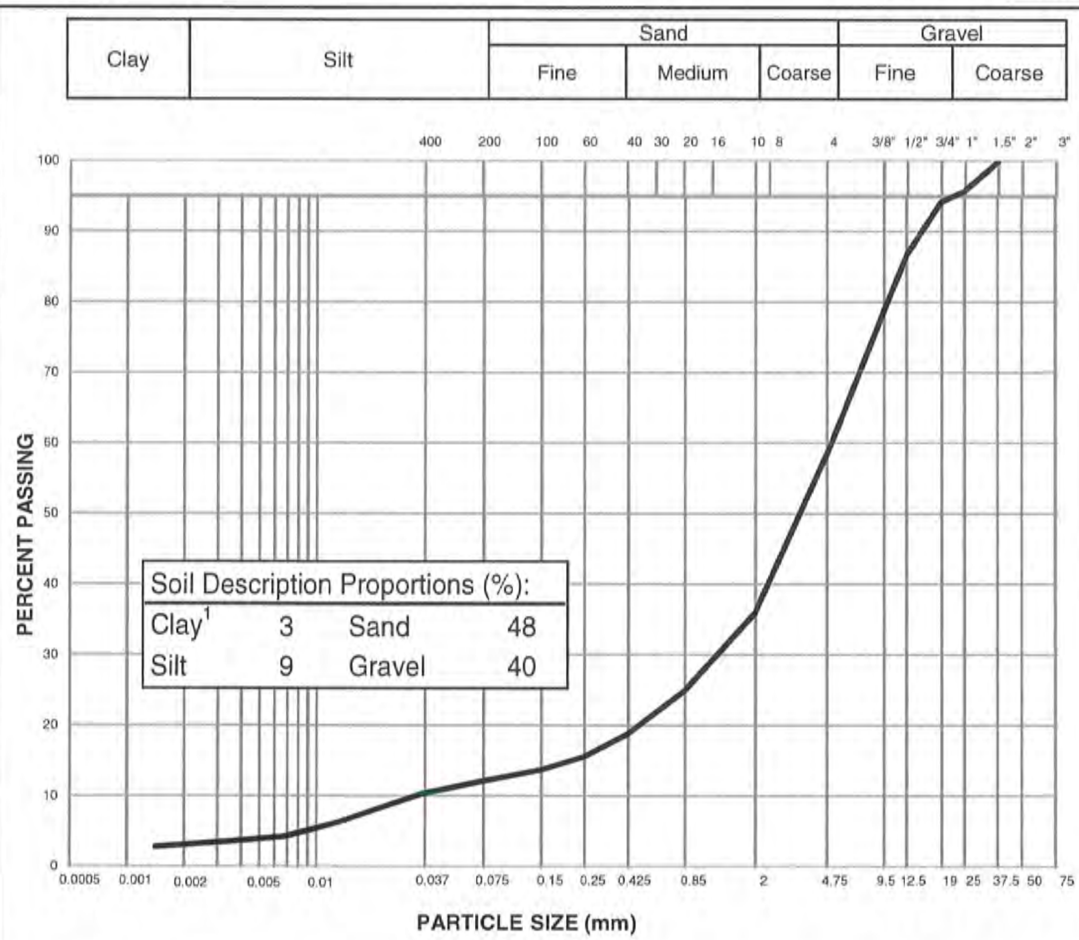
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17559
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-06
Client:	SRK Consulting Inc.	Sample Depth:	0.2 - 1.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	SAND and GRAVEL - trace silt, trace clay	Sampled By:	CliName REDACTED
		USC Classification:	Cu: 153.4
Moisture Content:	7.8%		Cc: 11.3

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	96
19	94
12.5	87
10	80
5	60
2	36
0.85	25
0.425	19
0.25	16
0.15	14
0.075	12.2
0.0354	10.3
0.0227	8.6
0.0134	6.4
0.0095	5.3
0.0068	4.3
0.0033	3.6
0.0014	2.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

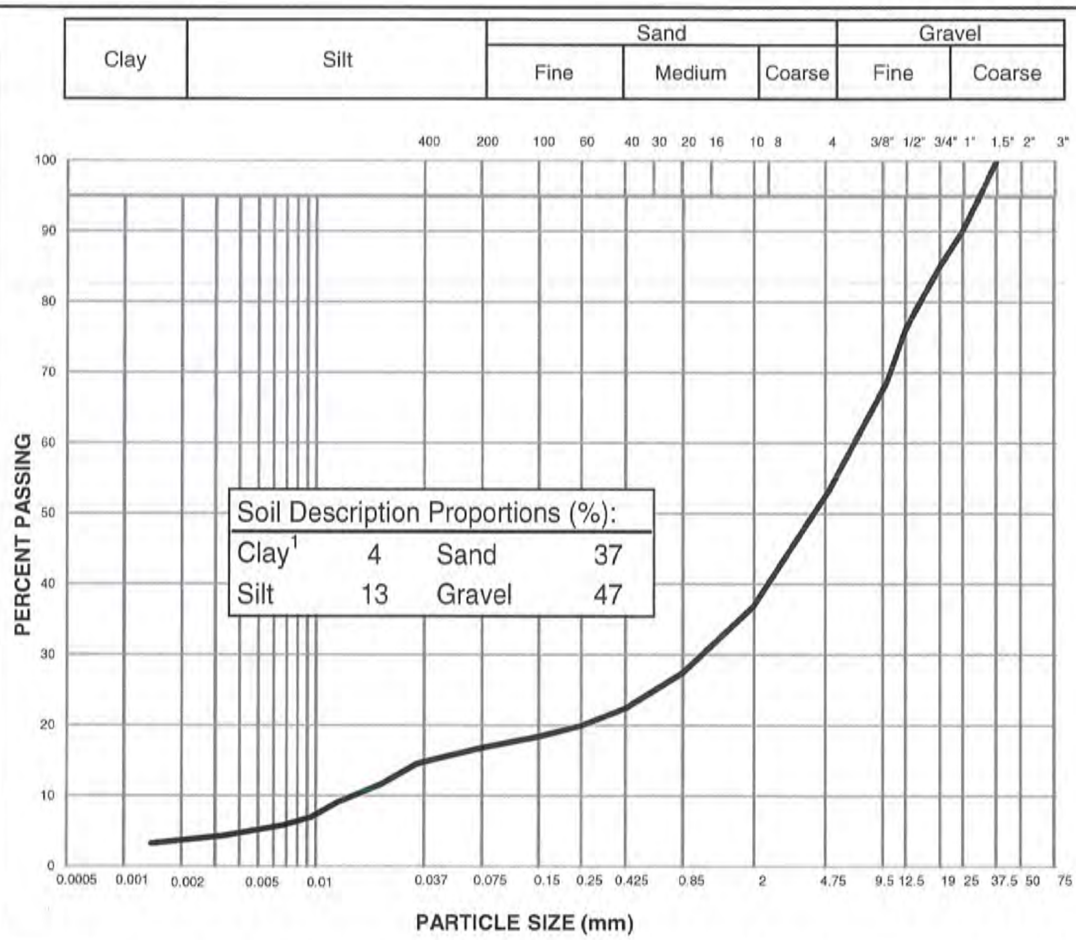
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17581
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-08
Client:	SRK Consulting Inc.	Sample Depth:	0.2 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June 21, 2015
Soil Description[2]:	GRAVEL and SAND - some silt, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 444.8
Moisture Content:	6.8%		Cc: 11.5

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	90
19	85
12.5	76
10	69
5	53
2	37
0.85	28
0.425	22
0.25	20
0.15	18
0.075	16.9
0.0343	14.6
0.0222	11.7
0.0131	9.2
0.0094	7.0
0.0067	5.9
0.0033	4.4
0.0014	3.3



Soil Description Proportions (%):

Clay[1]	4	Sand	37
Silt	13	Gravel	47

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content.

[signature redacted]

Reviewed By: ______ C.E.T.

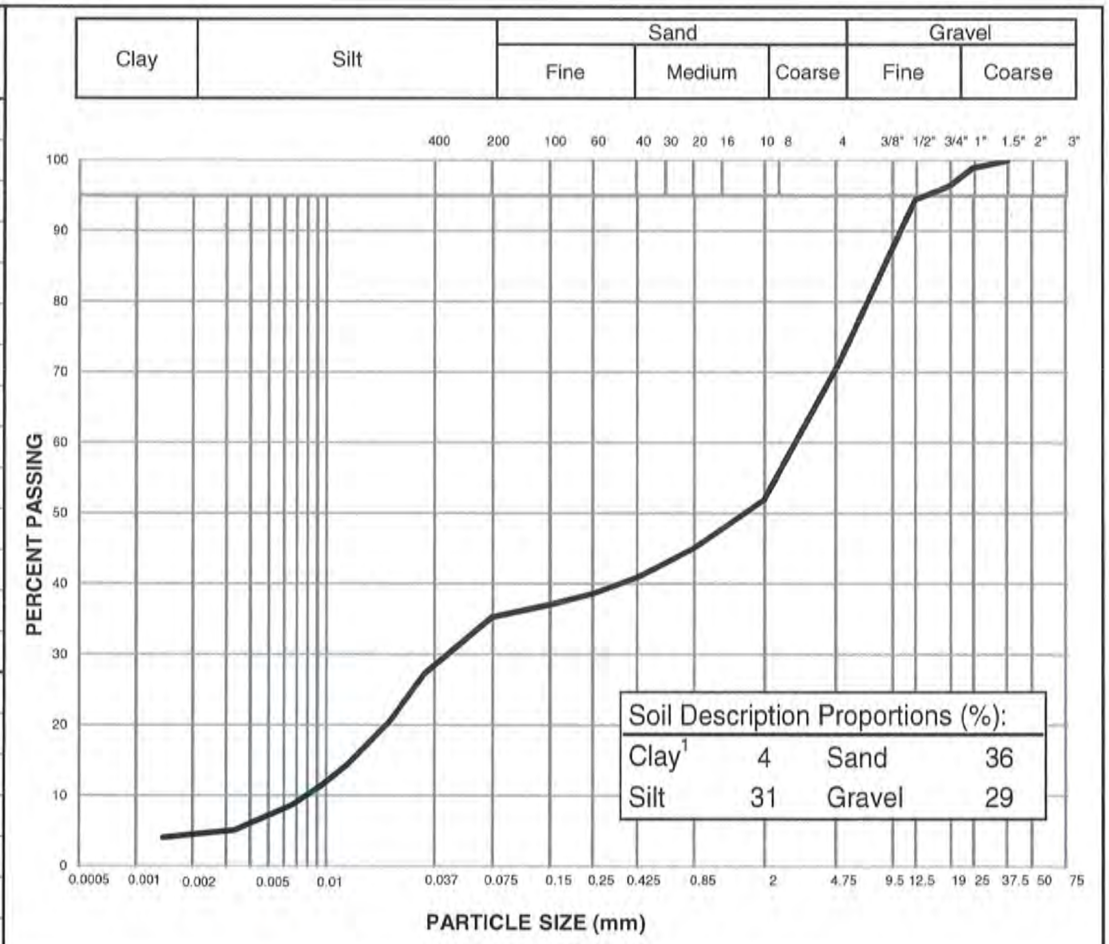
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17579
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-09
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	August 31, 2015 By: AMT	Date sampled:	June 21, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Clier Name REDACTED
		USC Classification:	Cu: 404.9
Moisture Content:	10.9%		Cc: 0.1

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	99
19	96
12.5	95
10	89
5	71
2	52
0.85	45
0.425	41
0.25	39
0.15	37
0.075	35.4
0.0329	27.3
0.0217	20.6
0.0130	14.4
0.0093	11.3
0.0067	8.7
0.0033	5.1
0.0014	4.1



Soil Description Proportions (%):			
Clay[1]	4	Sand	36
Silt	31	Gravel	29

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: ____________ C.E.T.

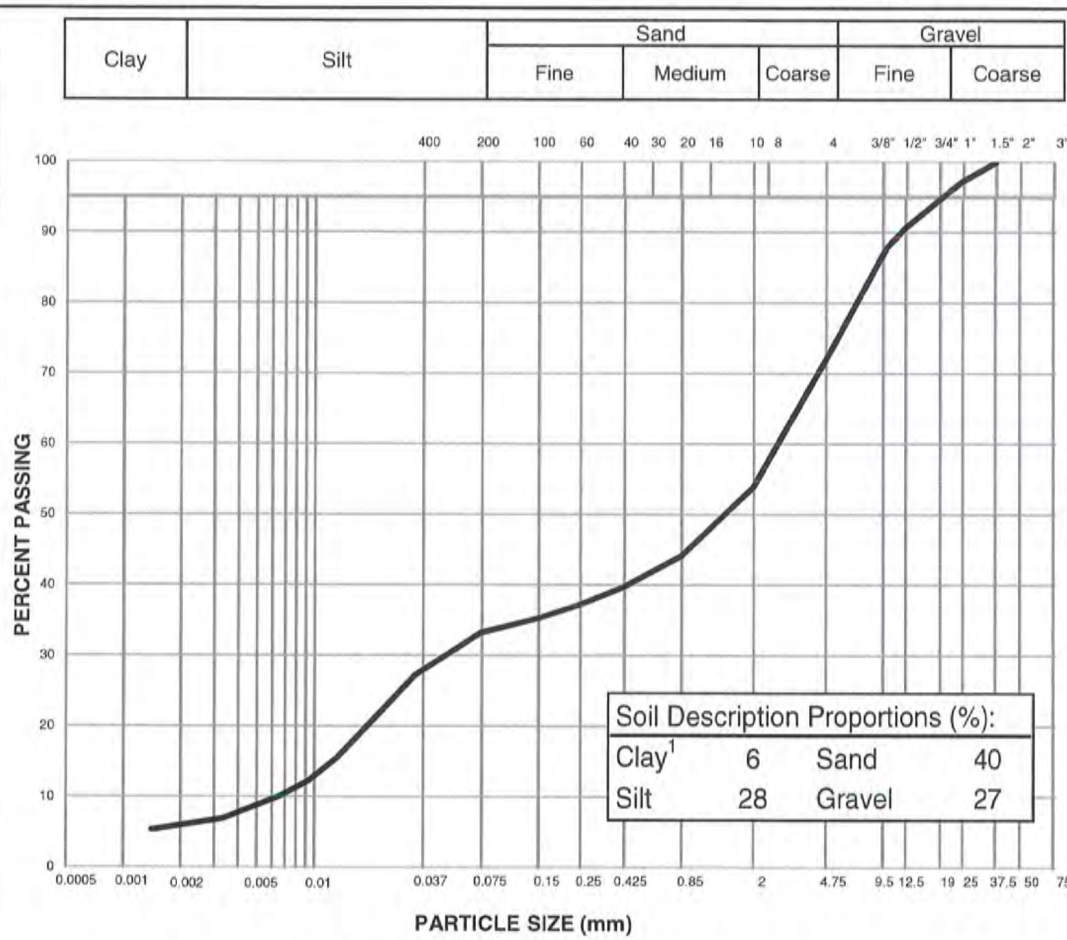
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17575
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-11
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.8 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 3, 2015 By: AMT	Date sampled:	June 20, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	CName REDACTED
		USC Classification:	Cu: 454.0
Moisture Content:	11.7%		Cc: 0.1

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	97
19	95
12.5	91
10	88
5	73
2	54
0.85	44
0.425	40
0.25	37
0.15	35
0.075	33.3
0.0335	27.2
0.0219	21.9
0.0131	15.5
0.0093	12.3
0.0067	10.1
0.0033	6.9
0.0014	5.3



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

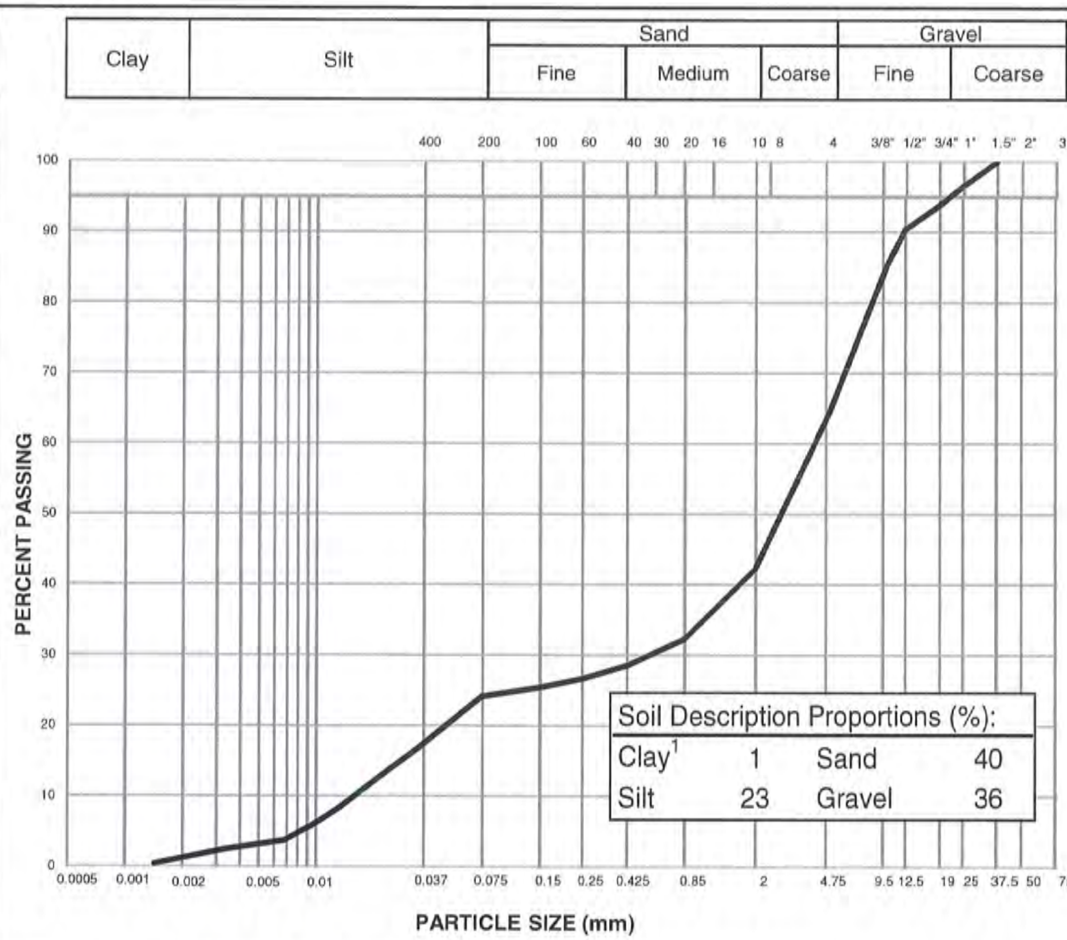
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17574
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-12
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	August 31, 2015 By: AMT	Date sampled:	June 20, 2015 Name REDACTED
Soil Description[2]:	SAND and GRAVEL - silty, trace clay	Sampled By:	Client
		USC Classification:	Cu: 266.7
Moisture Content:	14.6%		Cc: 4.8

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	96
19	94
12.5	90
10	85
5	65
2	42
0.85	32
0.425	29
0.25	27
0.15	25
0.075	24.2
0.0343	16.8
0.0223	13.0
0.0133	8.4
0.0096	5.9
0.0068	3.8
0.0034	2.5
0.0014	0.4



Soil Description Proportions (%):

Clay[1]	1	Sand	40
Silt	23	Gravel	36

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

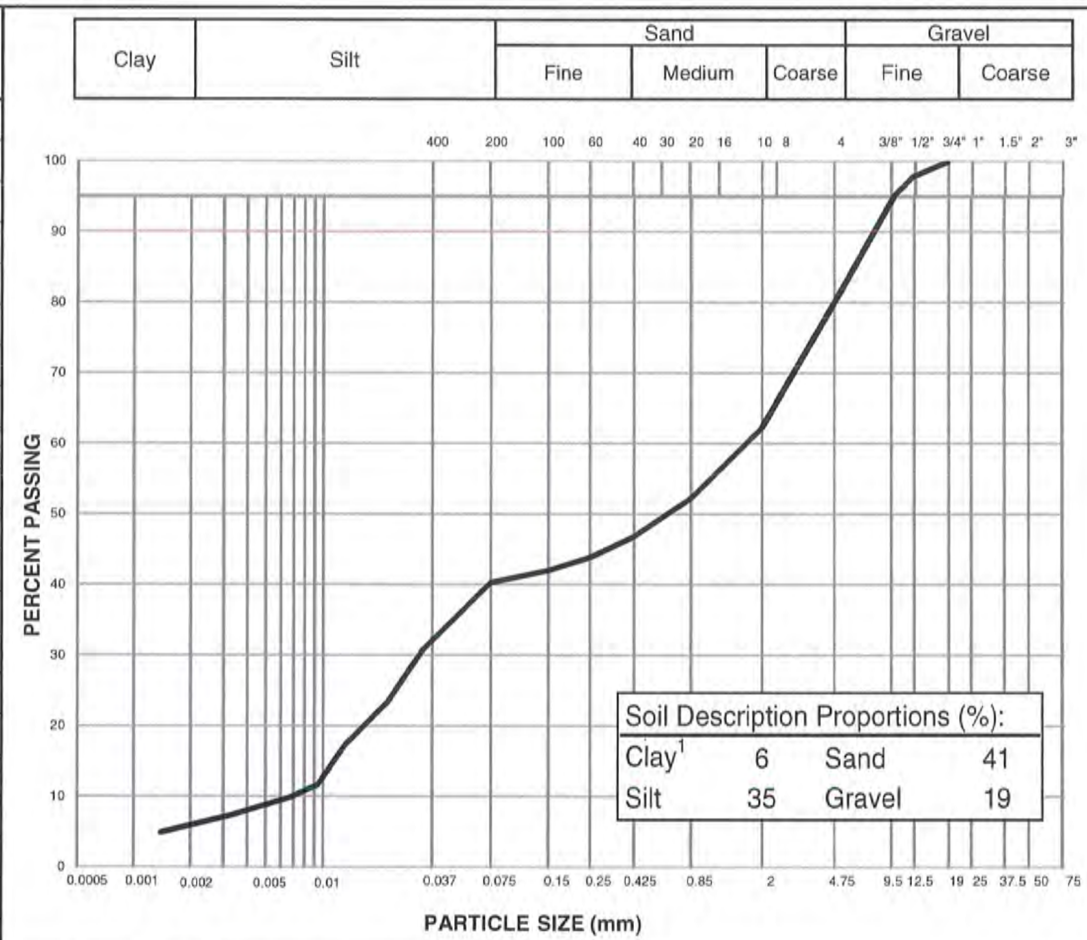
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17623
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-13A
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 5, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	SAND - silty, some gravel, trace clay	Sampled By:	Clien Name REDACTED
		USC Classification:	
		Cu:	251.5
Moisture Content:	18.8%	Cc:	0.1

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	100
12.5	98
10	95
5	81
2	62
0.85	52
0.425	47
0.25	44
0.15	42
0.075	40.3
0.0332	30.8
0.0218	23.4
0.0130	17.2
0.0094	11.7
0.0067	9.9
0.0033	7.4
0.0014	4.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content.

[signature redacted]

Reviewed By: ______ ______ C.E.T.

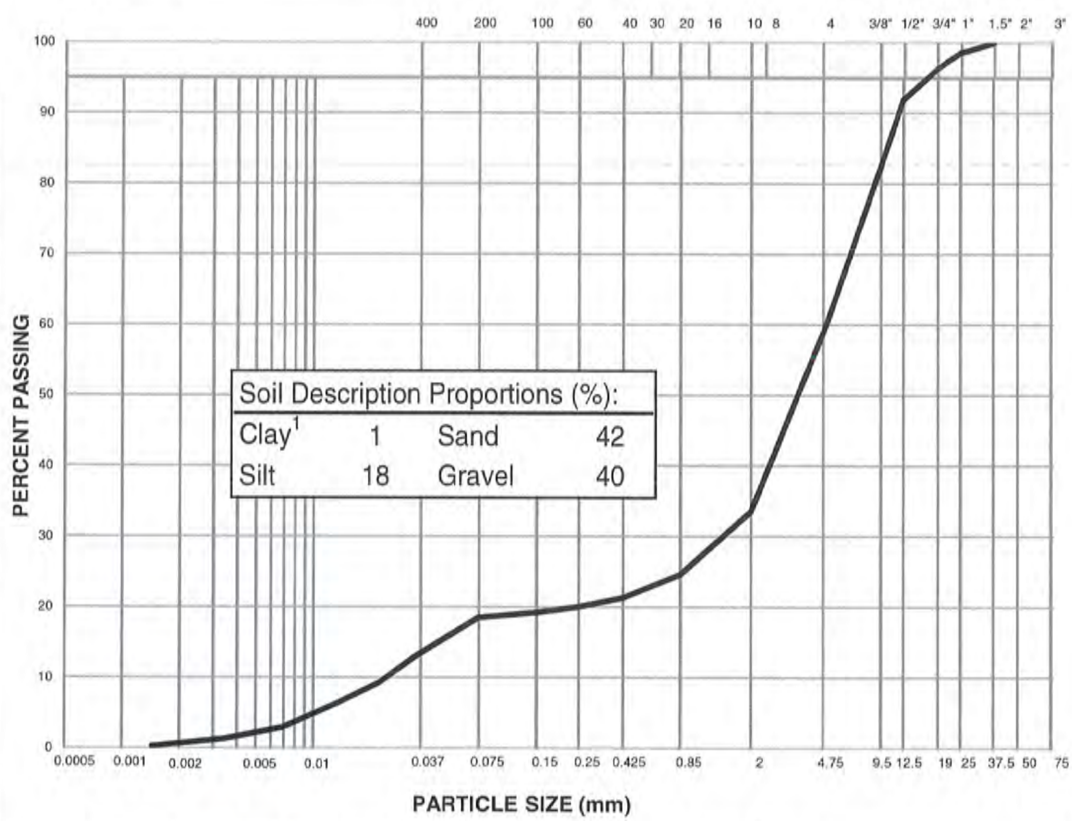
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17572
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-14
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 1.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 20, 2015
Soil Description[2]:	SAND and GRAVEL - silty, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 200.7
Moisture Content:	11.3%		Cc: 19.3

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	99
19	96
12.5	92
10	84
5	60
2	34
0.85	25
0.425	21
0.25	20
0.15	19
0.075	18.5
0.0344	13.0
0.0225	9.3
0.0133	6.3
0.0096	4.7
0.0069	3.0
0.0034	1.3
0.0014	0.3



Soil Description Proportions (%):			
Clay[1]	1	Sand	42
Silt	18	Gravel	40

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

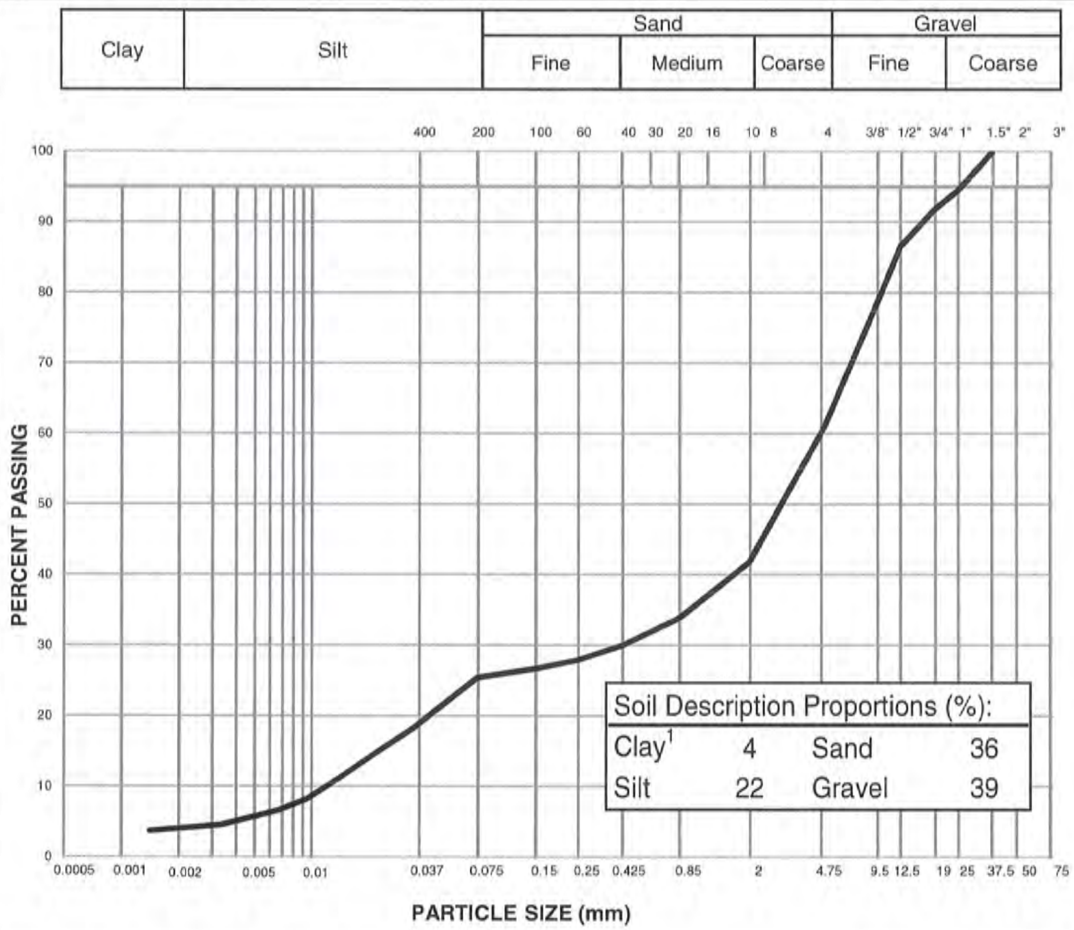
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17570
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-16
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 3, 2015 By: AMT	Date sampled:	June 20, 2015
Soil Description[2]:	GRAVEL and SAND - silty, trace clay	Sampled By:	Client Name REDACTED
		USC Classification:	Cu: 399.7
Moisture Content:	9.2%		Cc: 3.1

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	95
19	92
12.5	87
10	80
5	61
2	42
0.85	34
0.425	30
0.25	28
0.15	27
0.075	25.5
0.0343	18.2
0.0222	14.9
0.0132	10.8
0.0095	8.3
0.0067	6.6
0.0033	4.6
0.0014	3.7



Soil Description Proportions (%):			
Clay[1]	4	Sand	36
Silt	22	Gravel	39

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

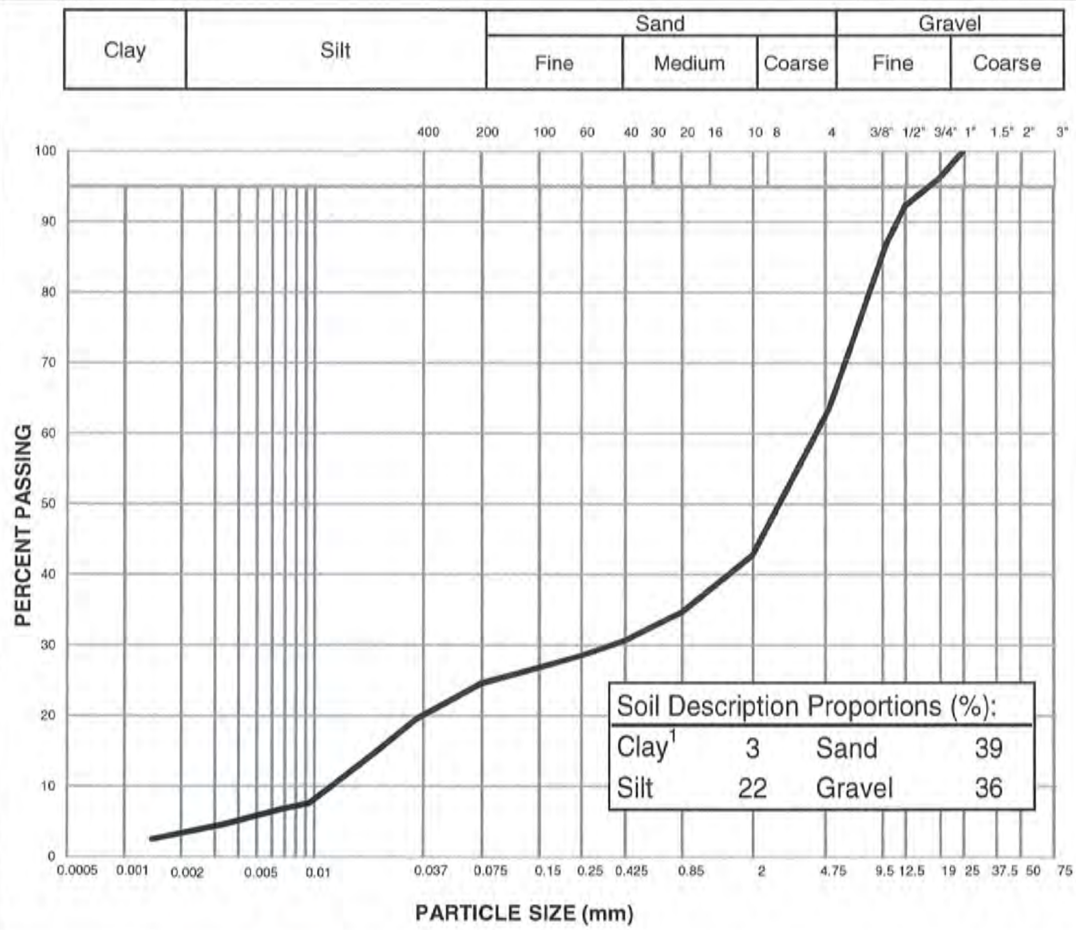
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17566
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-17
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.6 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	August 31, 2015 By: AMT	Date sampled:	June 20, 2015
Soil Description[2]:	SAND and GRAVEL - silty, trace clay	Sampled By:	Clien Name REDACTED
		USC Classification:	Cu: 362.8
Moisture Content:	9.0%		Cc: 2.4

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	96
12.5	92
10	87
5	64
2	43
0.85	35
0.425	31
0.25	29
0.15	27
0.075	24.7
0.0336	19.5
0.0219	15.3
0.0131	10.6
0.0094	7.6
0.0067	6.8
0.0034	4.7
0.0014	2.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

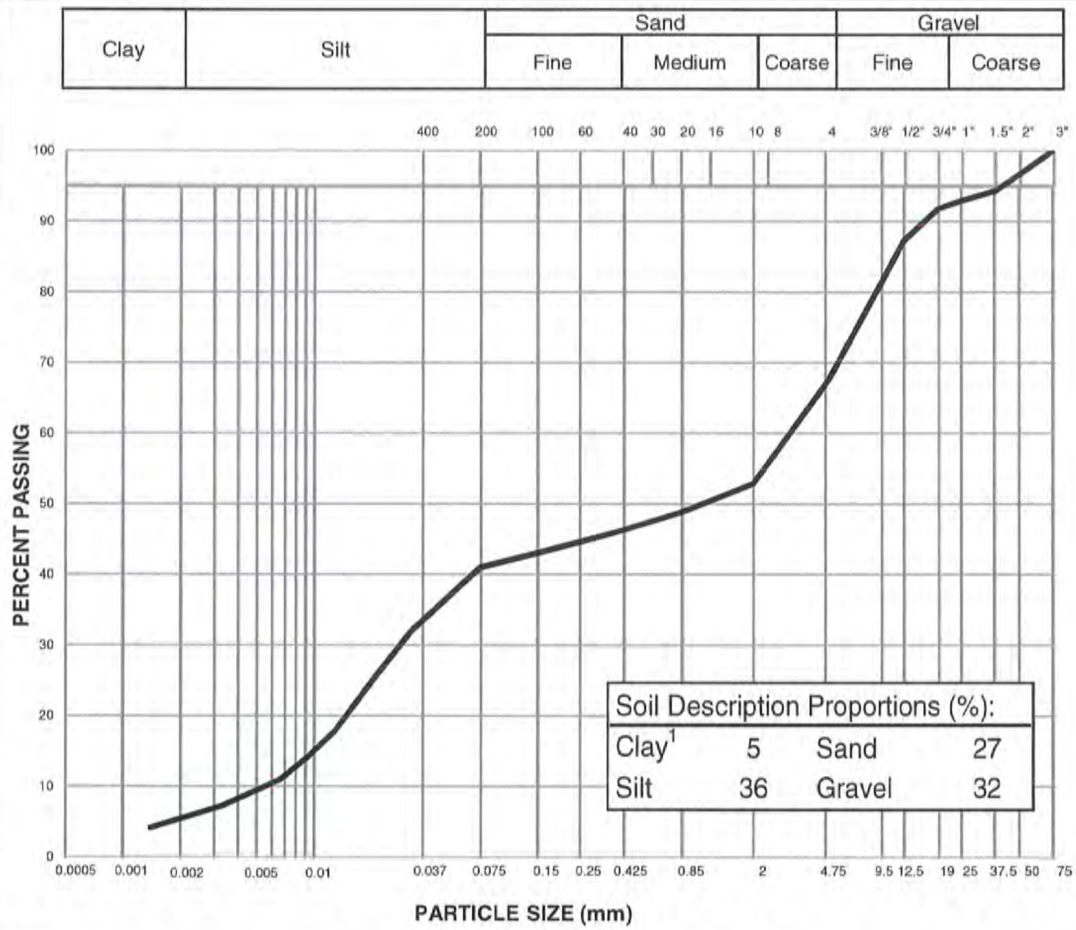
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17576
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-18
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.5 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	August 31, 2015 By: AMT	Date sampled:	June 20, 2015
Soil Description[2]:	SILT - gravelly, sandy, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 599.9
Moisture Content:	9.5%		Cc: 0.0

Particle Size (mm)	Percent Passing
75	100
50	
38	94
25	93
19	92
12.5	87
10	83
5	68
2	53
0.85	49
0.425	46
0.25	45
0.15	43
0.075	41.1
0.0319	32.0
0.0211	25.7
0.0128	17.8
0.0092	14.1
0.0066	11.0
0.0033	7.3
0.0014	4.2



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

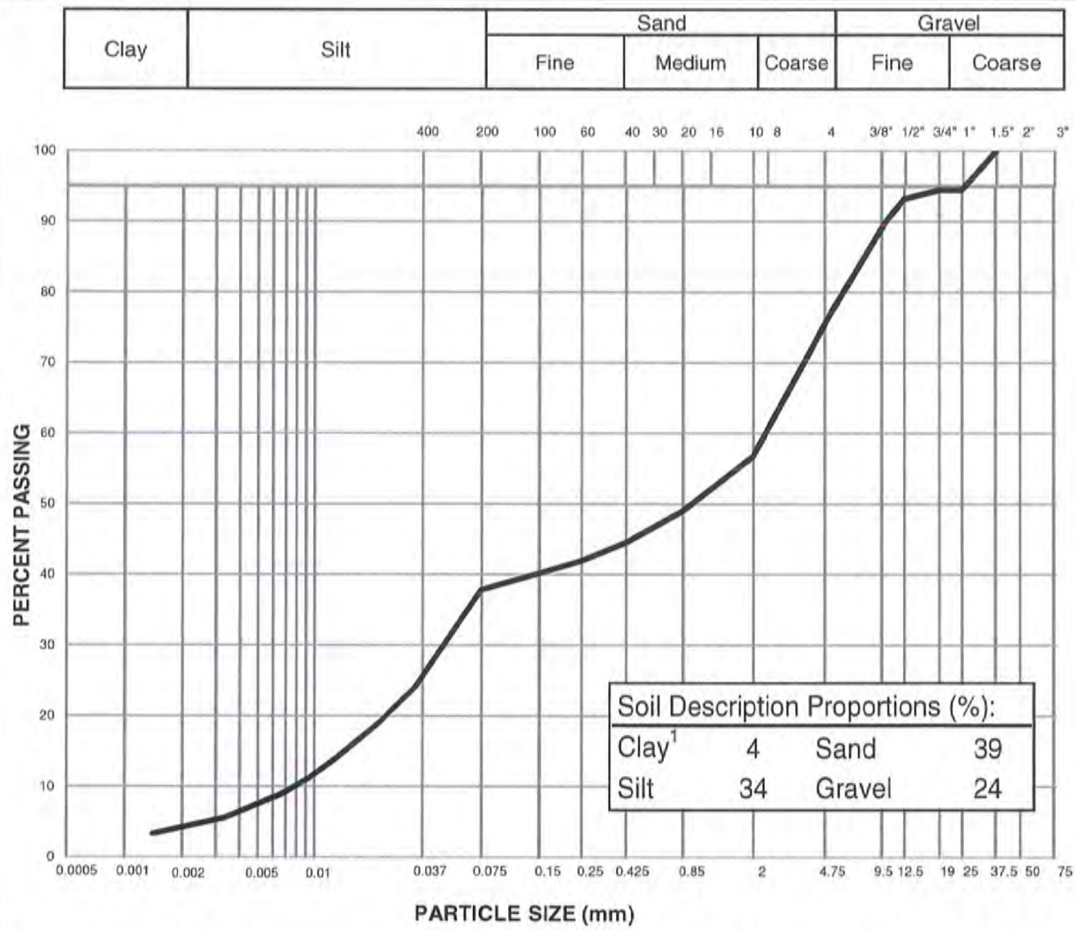
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17564
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-20
Client:	SRK Consulting Inc.	Sample Depth:	-
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	August 31, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client Name REDACTED
		USC Classification:	Cu: 313.7
Moisture Content:	20.7%		Cc: 0.1

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	95
19	95
12.5	93
10	90
5	76
2	57
0.85	49
0.425	45
0.25	42
0.15	40
0.075	37.9
0.0340	24.2
0.0221	19.1
0.0131	14.1
0.0094	11.3
0.0067	9.0
0.0033	5.6
0.0014	3.4



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

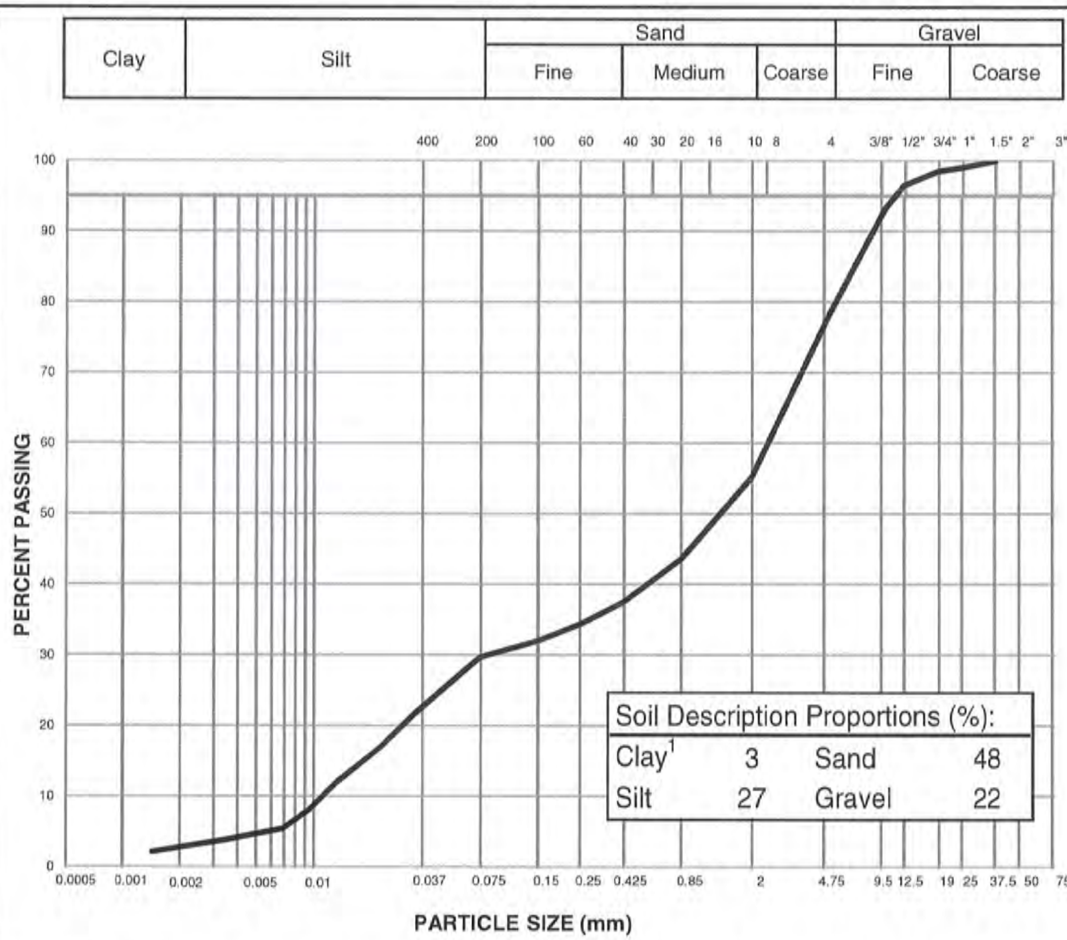
Reviewed By: C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17562
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-21
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	
		Cu:	233.5
Moisture Content:	17.1%	Cc:	0.2

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	99
19	99
12.5	97
10	93
5	78
2	55
0.85	44
0.425	38
0.25	34
0.15	32
0.075	29.7
0.0343	21.9
0.0223	17.0
0.0132	12.0
0.0095	8.2
0.0069	5.5
0.0034	3.8
0.0014	2.2



Soil Description Proportions (%):			
Clay[1]	3	Sand	48
Silt	27	Gravel	22

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

TETRA TECH

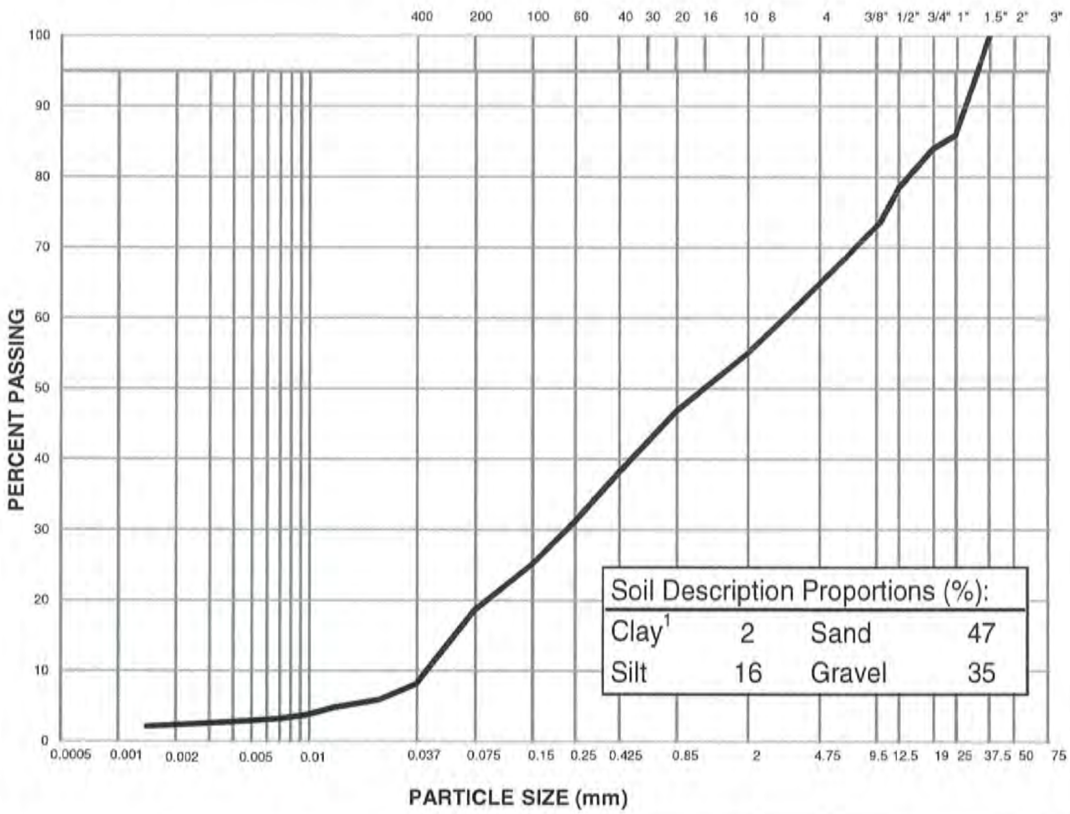
PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17603
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-26
Client:	SRK Consulting Inc.	Sample Depth:	0.6 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 7, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	SAND - gravelly, some silt, trace clay	Sampled By:	Name REDACTED Client
		USC Classification:	Cu: 78.6
Moisture Content:	16.8%		Cc: 0.4

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	86
19	84
12.5	79
10	74
5	65
2	55
0.85	47
0.425	38
0.25	31
0.15	25
0.075	18.7
0.0369	8.2
0.0236	6.0
0.0137	4.9
0.0097	3.8
0.0069	3.3
0.0034	2.7
0.0014	2.2

Clay	Silt	Sand			Gravel	
		Fine	Medium	Coarse	Fine	Coarse



Soil Description Proportions (%):			
Clay[1]	2	Sand	47
Silt	16	Gravel	35

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: ______________________ C.E.T.

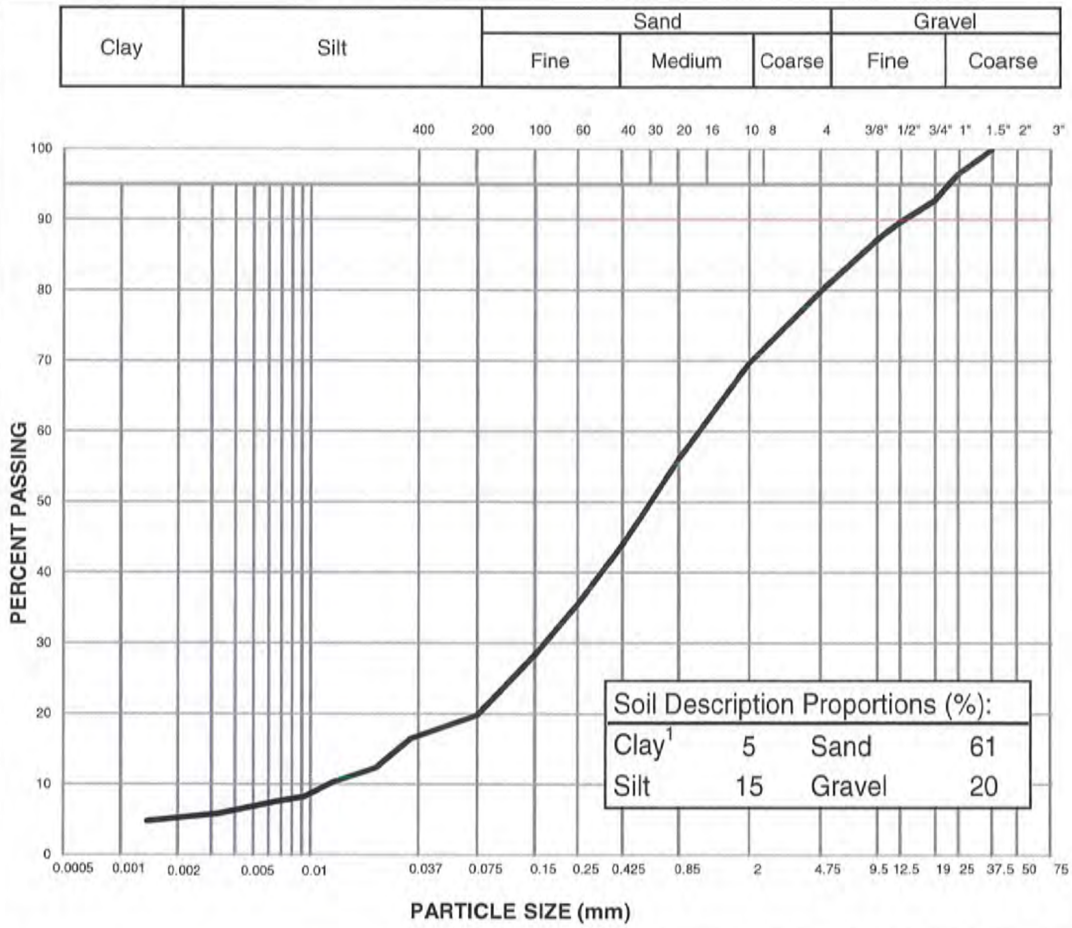
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17604
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-27
Client:	SRK Consulting Inc.	Sample Depth:	0.1 - 0.3 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 7, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	SAND - some gravel, some silt, trace clay	Sampled By:	Client Name REDACTED
		USC Classification:	Cu: 95.1
Moisture Content:	8.8%		Cc: 2.0

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	96
19	93
12.5	90
10	88
5	80
2	70
0.85	56
0.425	44
0.25	36
0.15	28
0.075	19.8
0.0339	16.6
0.0222	12.4
0.0131	10.3
0.0093	8.3
0.0066	7.6
0.0033	5.9
0.0014	4.8



Soil Description Proportions (%):			
Clay[1]	5	Sand	61
Silt	15	Gravel	20

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: ____________________ C.E.T.

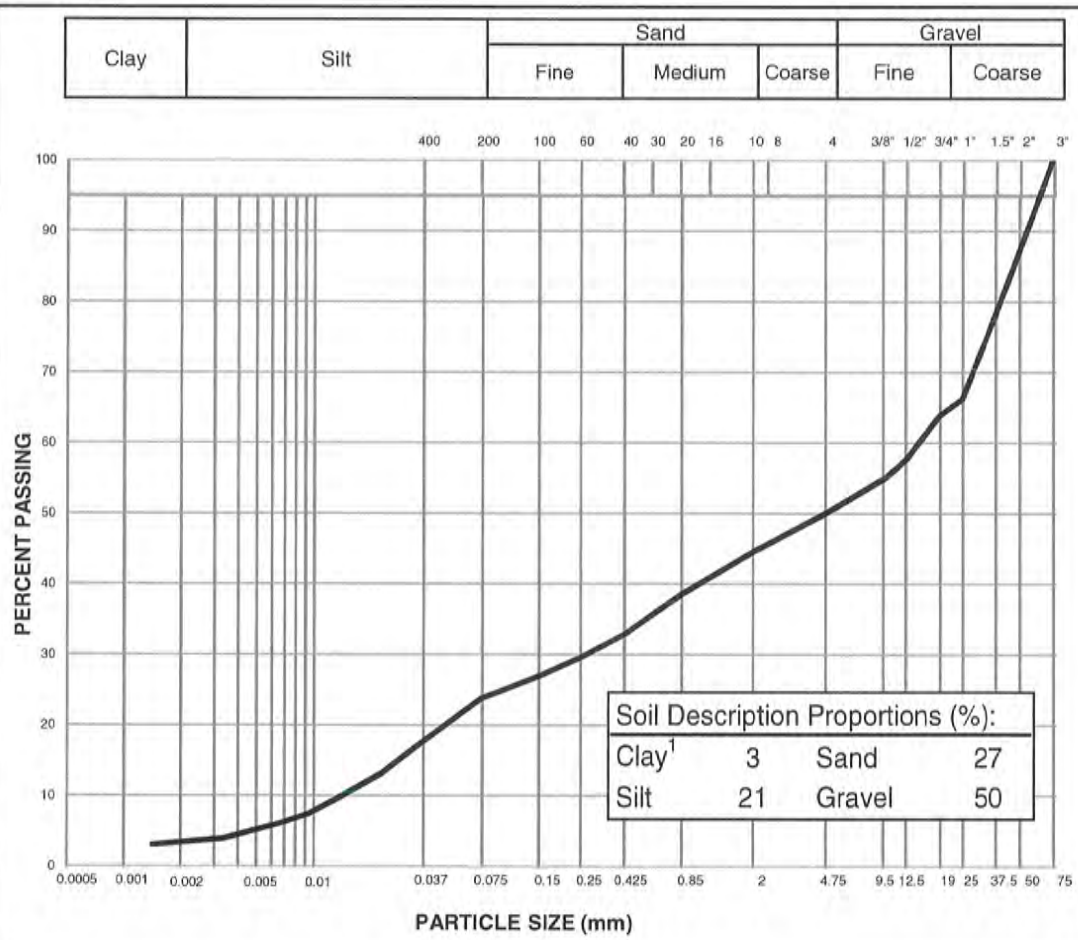
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17591
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-29
Client:	SRK Consulting Inc.	Sample Depth:	-
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 3, 2015 By: AMT	Date sampled:	June 24, 2015
Soil Description[2]:	GRAVEL - sandy, silty, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 1059.1
Moisture Content:	12.6%		Cc: 0.3

Particle Size (mm)	Percent Passing
75	100
50	
38	79
25	66
19	64
12.5	58
10	55
5	50
2	45
0.85	39
0.425	33
0.25	30
0.15	27
0.075	23.9
0.0348	17.2
0.0226	13.2
0.0134	9.7
0.0095	7.5
0.0068	6.2
0.0034	4.0
0.0014	3.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: __________

Remarks: __________

[signature redacted]

Reviewed By: __________ C.E.T.

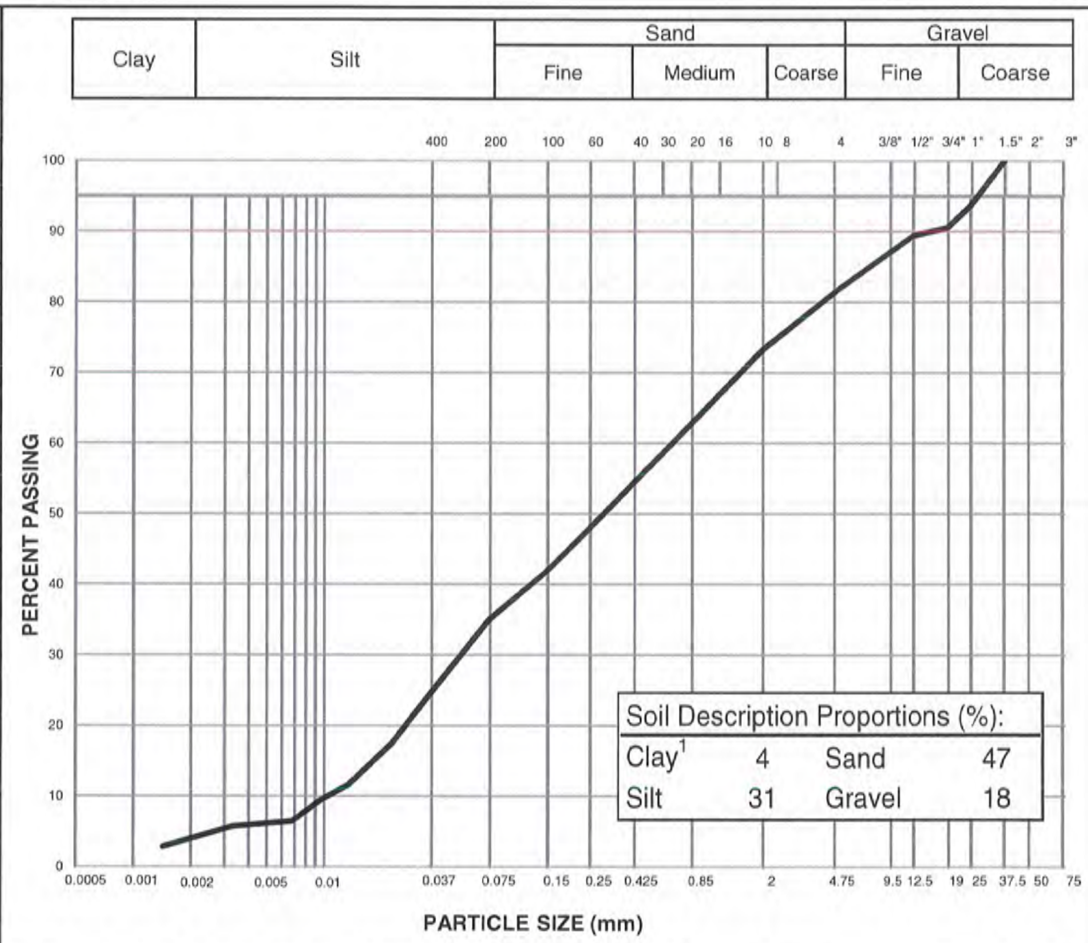
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17586
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-36
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 5, 2015 By: AMT	Date sampled:	June 23, 2015
Soil Description[2]:	SAND - silty, some gravel, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 66.4
Moisture Content:	46.6%		Cc: 0.4

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	94
19	91
12.5	89
10	88
5	82
2	73
0.85	63
0.425	55
0.25	48
0.15	42
0.075	35.2
0.0350	23.9
0.0227	17.4
0.0134	11.6
0.0096	9.4
0.0068	6.5
0.0034	5.8
0.0014	2.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content.

[signature redacted]

Reviewed By: _______ C.E.T.

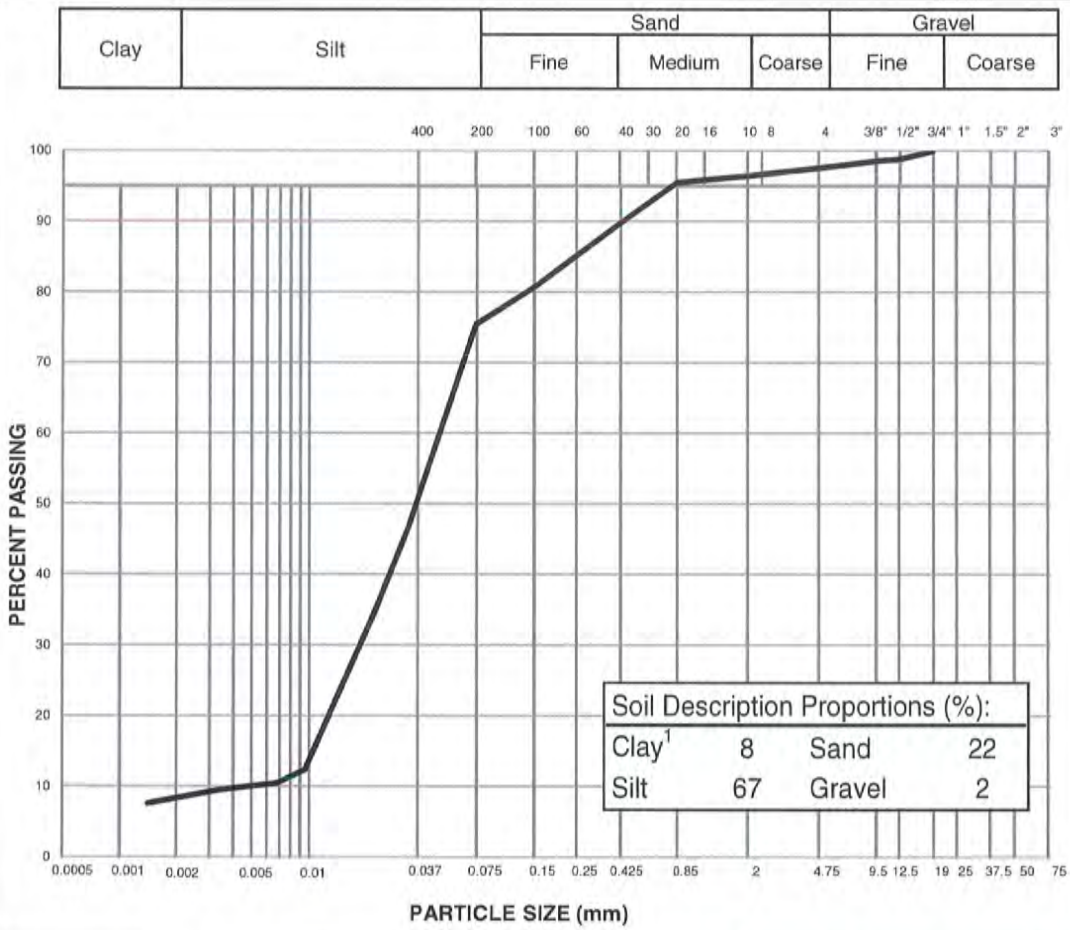
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17585
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-37
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.6 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June 23, 2015
Soil Description[2]:	SILT - some sand, trace clay, trace gravel	Sampled By:	Clien Name REDACTED
Moisture Content:	133.1%	USC Classification:	Cu: 10.5
			Cc: 1.4

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	100
12.5	99
10	99
5	98
2	97
0.85	96
0.425	90
0.25	85
0.15	81
0.075	75.5
0.0333	46.8
0.0219	34.4
0.0132	21.0
0.0096	12.4
0.0068	10.5
0.0034	9.6
0.0014	7.6



Soil Description Proportions (%):			
Clay[1]	8	Sand	22
Silt	67	Gravel	2

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content and high organic content.

[signature redacted]

Reviewed By: ______ ____________ C.E.T.

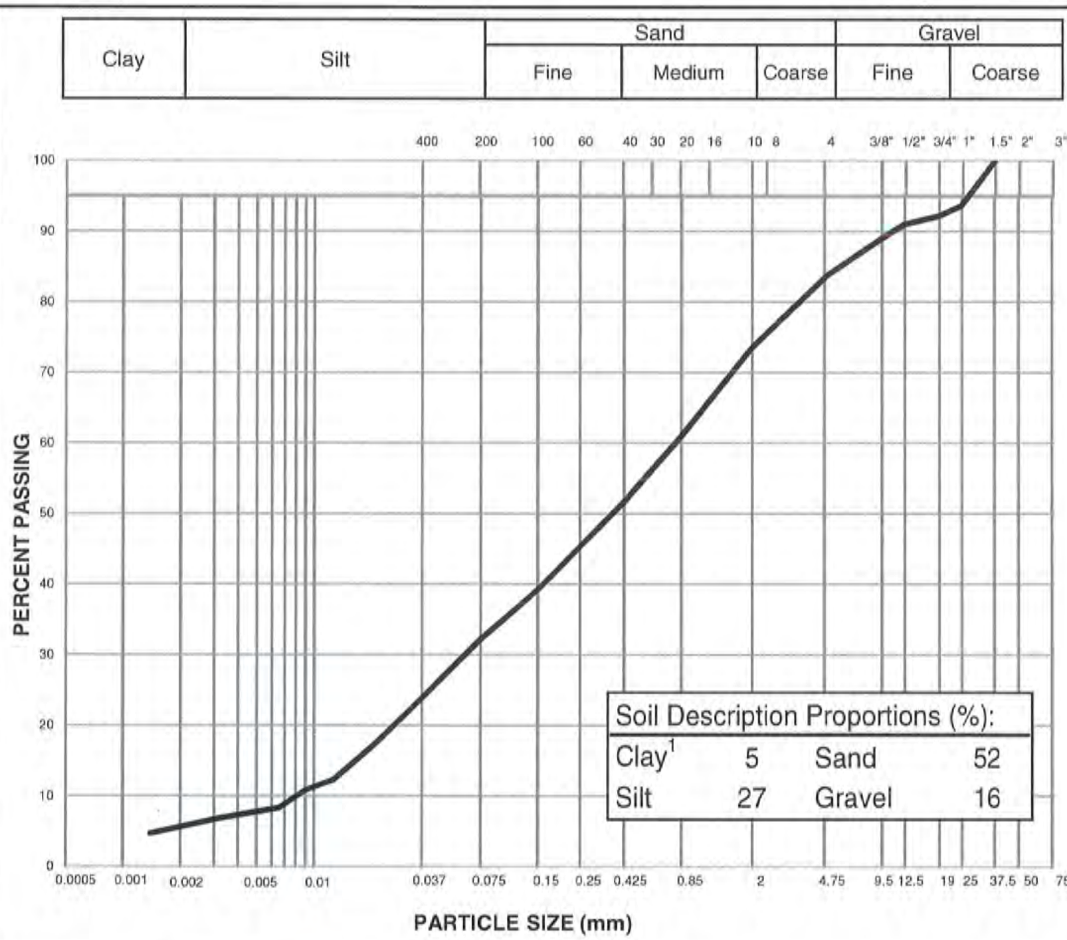
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17583
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-39
Client:	SRK Consulting Inc.	Sample Depth:	0.6 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 5, 2015 By: AMT	Date sampled:	June Name REDACTED
Soil Description[2]:	SAND - silty, some gravel, trace clay	Sampled By:	Client
		USC Classification:	Cu: 97.9
Moisture Content:	10.7%		Cc: 0.7

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	94
19	92
12.5	91
10	89
5	84
2	74
0.85	61
0.425	52
0.25	45
0.15	39
0.075	32.2
0.0319	22.2
0.0212	17.5
0.0128	12.4
0.0091	10.9
0.0066	8.4
0.0033	6.9
0.0014	4.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: __________

Remarks: __________

[signature redacted]

Reviewed By: __________ C.E.T.

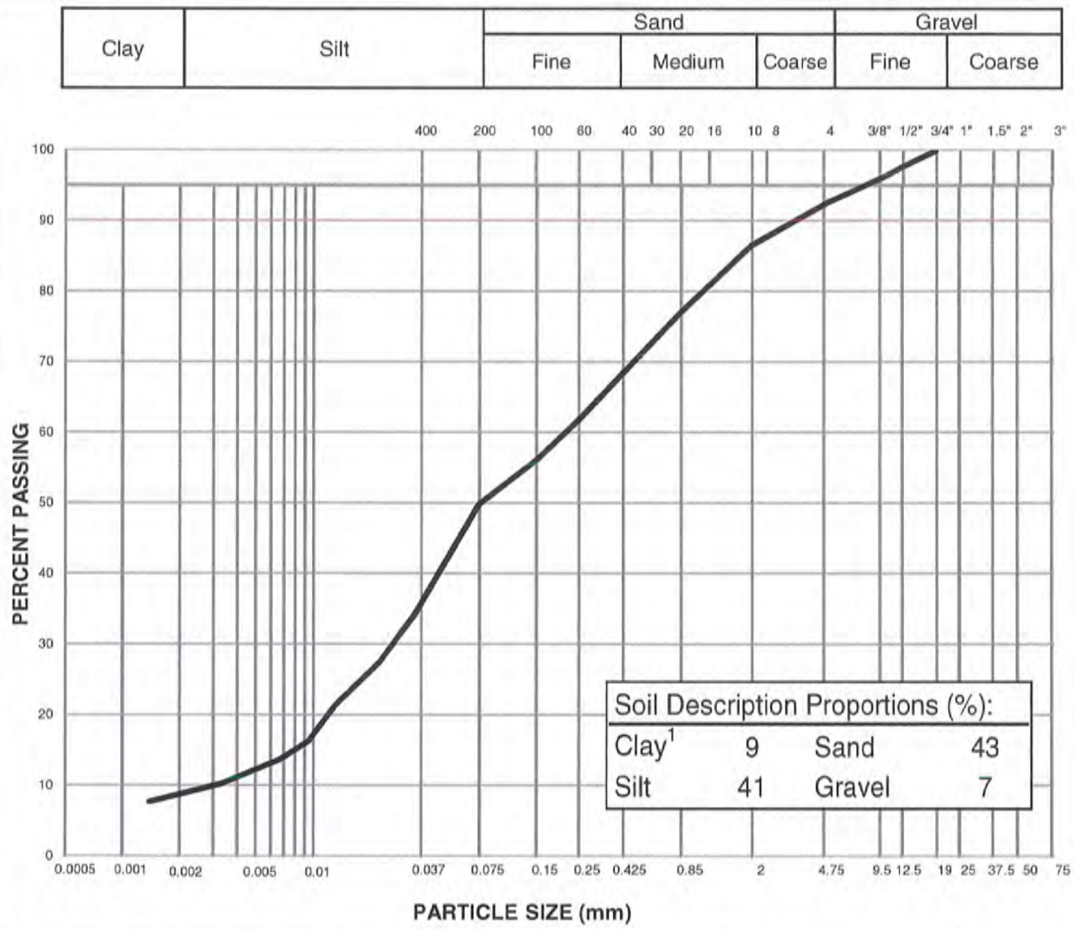
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17582
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-40
Client:	SRK Consulting Inc.	Sample Depth:	0.4 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June 21, 2015
Soil Description[2]:	SAND and SILT - trace clay, trace gravel	Sampled By:	Client · Name REDACTED
Moisture Content:	44.4%	USC Classification:	Cu: 70.2 / Cc: 1.1

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	100
12.5	98
10	96
5	93
2	87
0.85	77
0.425	68
0.25	62
0.15	56
0.075	49.9
0.0343	34.3
0.0222	27.4
0.0131	21.4
0.0094	16.3
0.0067	13.7
0.0033	10.3
0.0014	7.7



Soil Description Proportions (%):			
Clay[1]	9	Sand	43
Silt	41	Gravel	7

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content.

[signature redacted]

Reviewed By: ____________________ C.E.T.

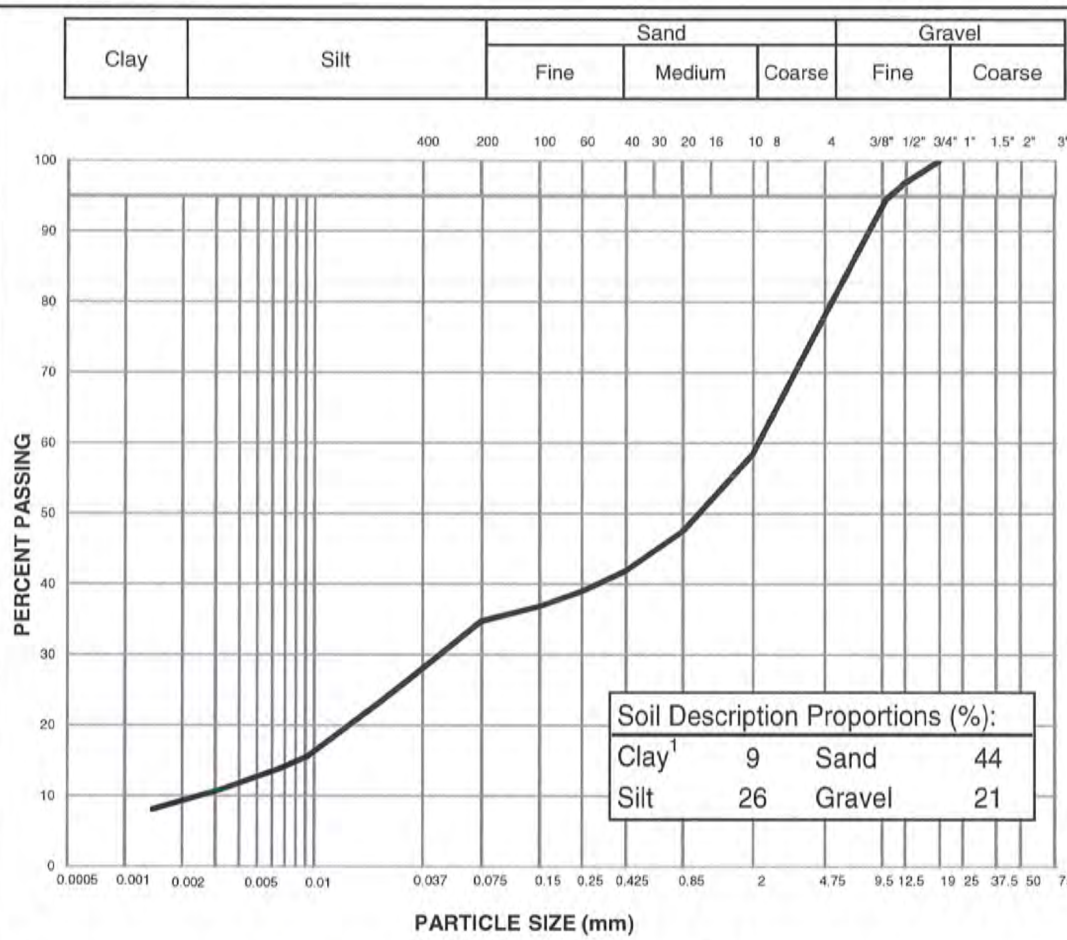
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17560
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-43
Client:	SRK Consulting Inc.	Sample Depth:	0.3 - 0.9 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client Name REDACTED
		USC Classification:	Cu: 848.1
Moisture Content:	12.6%		Cc: 0.4

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	100
12.5	97
10	95
5	79
2	58
0.85	48
0.425	42
0.25	39
0.15	37
0.075	34.8
0.0335	27.2
0.0217	23.2
0.0128	18.5
0.0092	15.6
0.0066	13.9
0.0033	11.0
0.0014	8.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

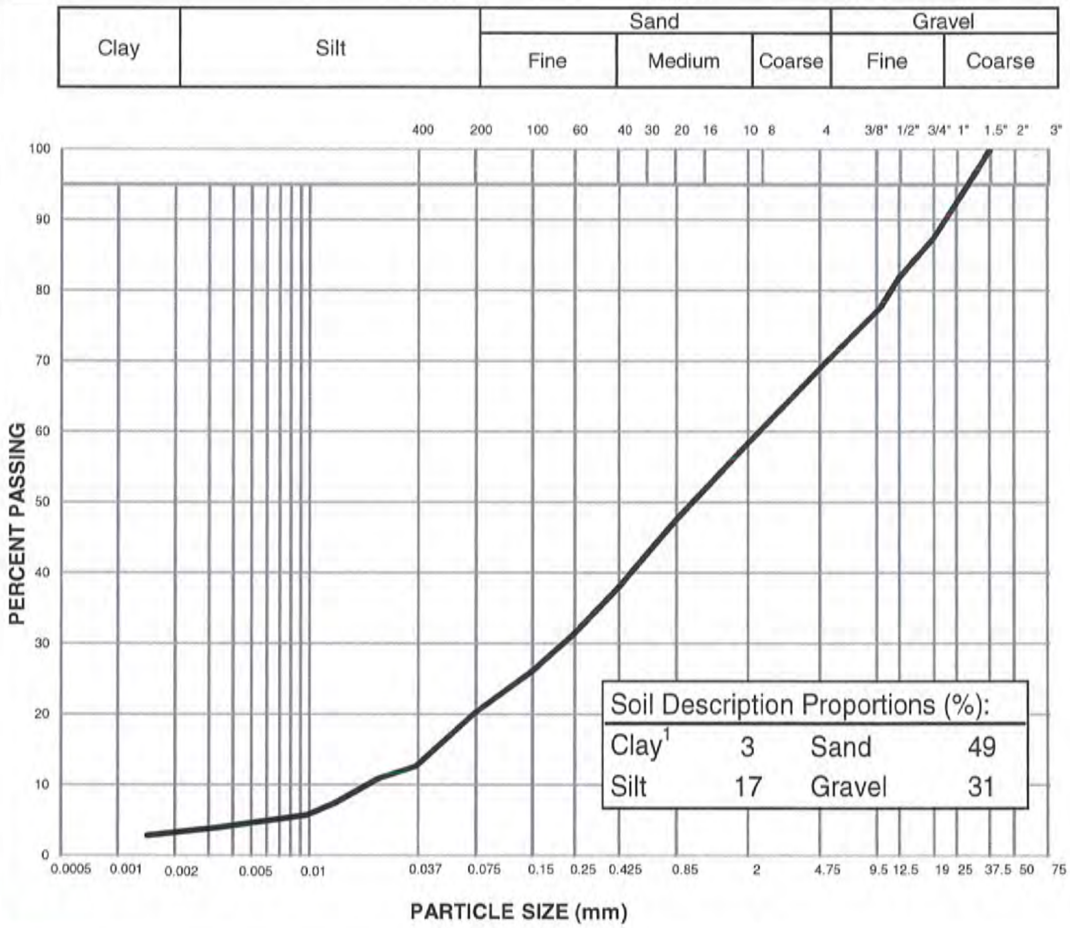
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17599
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-51
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 0.8 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 7, 2015 By: AMT	Date sampled:	June 25, 2015 Name REDACTED
Soil Description[2]:	SAND - gravelly, some silt, trace clay	Sampled By:	Client
		USC Classification:	Cu: 119.6
Moisture Content:	15.5%		Cc: 1.0

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	92
19	87
12.5	82
10	78
5	70
2	58
0.85	48
0.425	38
0.25	31
0.15	26
0.075	20.3
0.0362	12.7
0.0231	11.0
0.0137	7.5
0.0098	5.8
0.0069	5.2
0.0034	4.0
0.0014	2.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

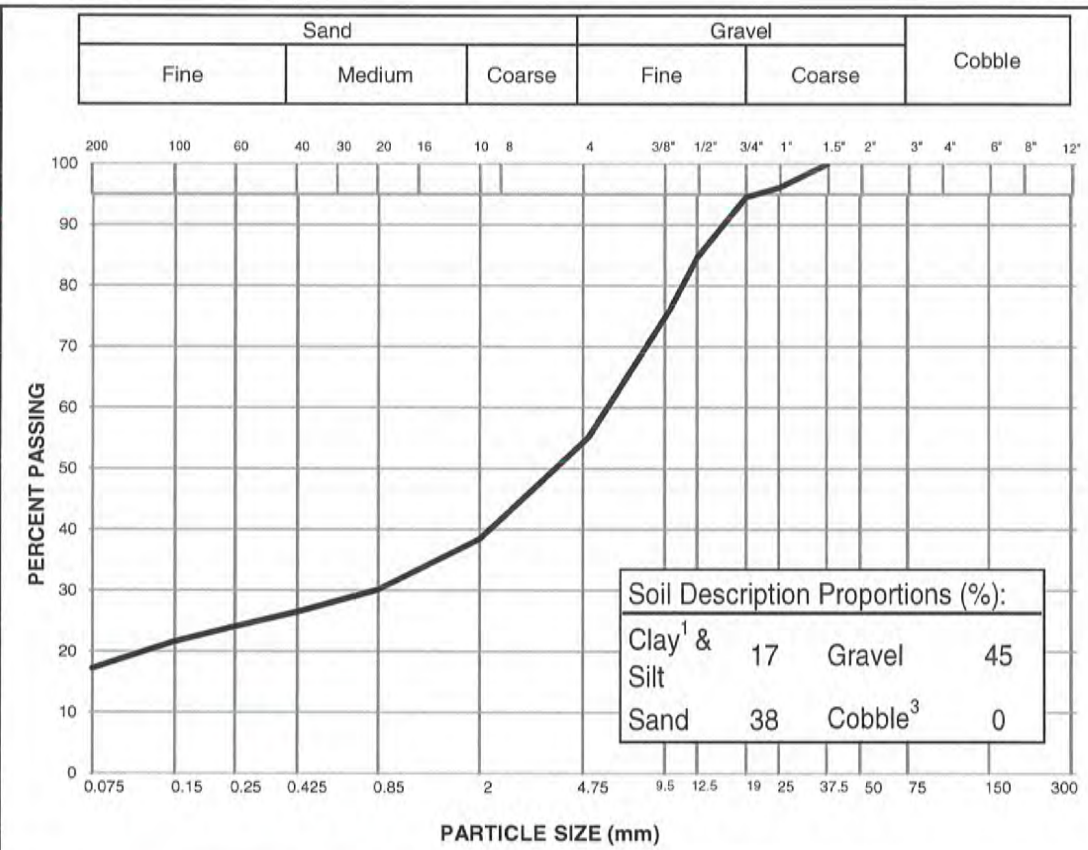
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17633
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-61
Client:	SRK Consulting Inc.	Sample Depth:	0.2 - 0.6 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 9, 2015 By: AMT	Date sampled:	June 19, 2015 Name REDACTED
Soil Description[2]:	GRAVEL & SAND - some silt	Sampled By:	Client
		USC Classification:	Cu: #N/A
Moisture Content:	10.0%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	96
19	95
12.5	85
10	76
5	55
2	39
0.85	30
0.425	27
0.25	24
0.15	22
0.075	17.3



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ______________________

Remarks: ______________________

[signature redacted]

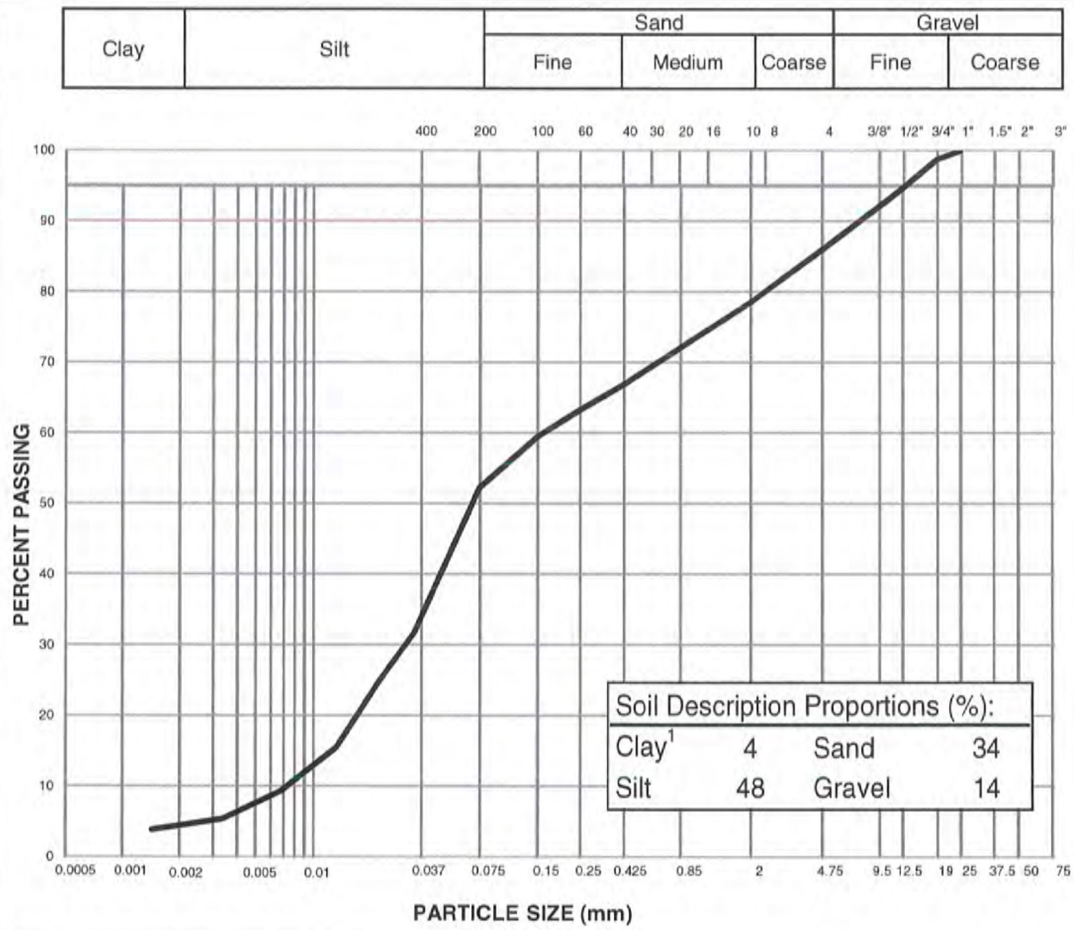
Reviewed By: __ ________ C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	61A
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-61A
Client:	SRK Consulting Inc.	Sample Depth:	0 - 1.6 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	SILT - sandy, some gravel, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 22.0
Moisture Content:	20.0%		Cc: 0.8

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	99
12.5	95
10	93
5	86
2	79
0.85	72
0.425	67
0.25	63
0.15	60
0.075	52.3
0.0342	31.9
0.0222	24.9
0.0133	15.5
0.0095	12.4
0.0068	9.3
0.0034	5.4
0.0014	3.9



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

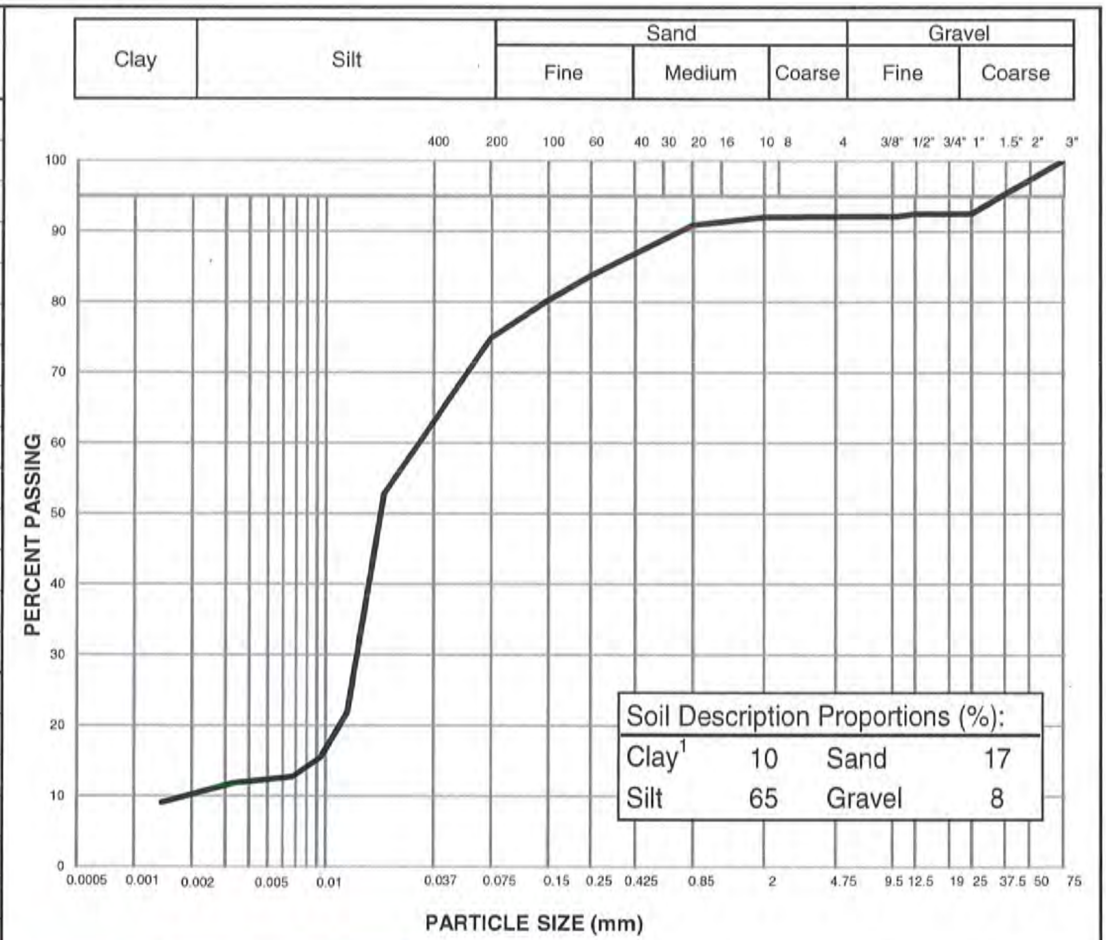
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17598
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-64
Client:	SRK Consulting Inc.	Sample Depth:	0.2 - 0.6 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 5, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	SILT - some sand, trace clay, trace gravel	Sampled By:	Client - Name REDACTED
Moisture Content:	201.1%	USC Classification:	Cu: #N/A Cc: #N/A

Particle Size (mm)	Percent Passing
75	100
50	
38	
25	93
19	93
12.5	93
10	92
5	92
2	92
0.85	91
0.425	87
0.25	84
0.15	80
0.075	75.0
#N/A	50.0
0.0204	52.9
0.0131	21.9
0.0095	15.5
0.0068	12.8
0.0033	11.9
0.0014	9.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content and high organic content.

[signature redacted]

Reviewed By: __ ______ C.E.T.

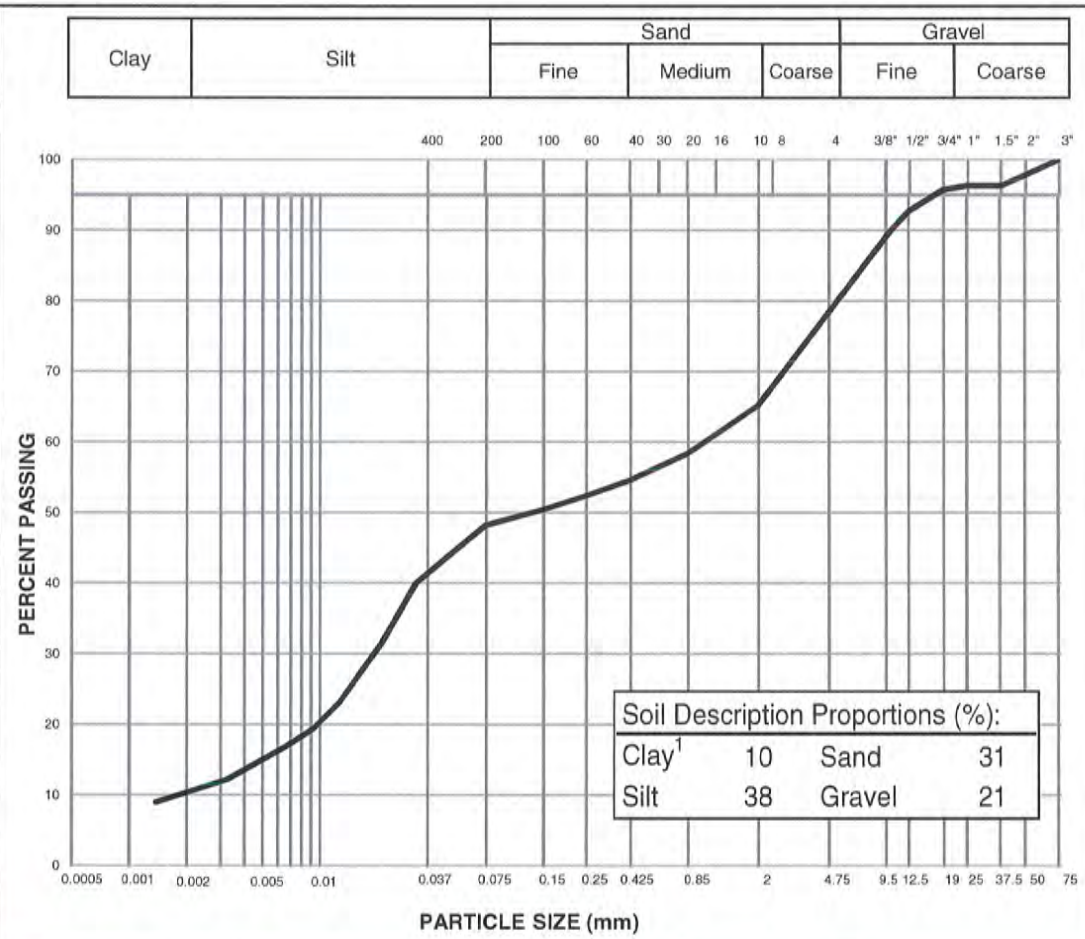
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17620
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-66
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.2 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 3, 2015 By: AMT	Date sampled:	June 25, 2015 Name REDACTED
Soil Description[2]:	SILT - sandy, gravelly, trace clay	Sampled By:	Client
		USC Classification:	Cu: 573.3
Moisture Content:	12.6%		Cc: 0.2

Particle Size (mm)	Percent Passing
75	100
50	
38	96
25	96
19	96
12.5	93
10	90
5	79
2	65
0.85	58
0.425	55
0.25	52
0.15	50
0.075	48.3
0.0322	40.0
0.0213	31.6
0.0128	23.3
0.0092	19.4
0.0065	16.8
0.0033	12.3
0.0014	9.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: ______________________ C.E.T.

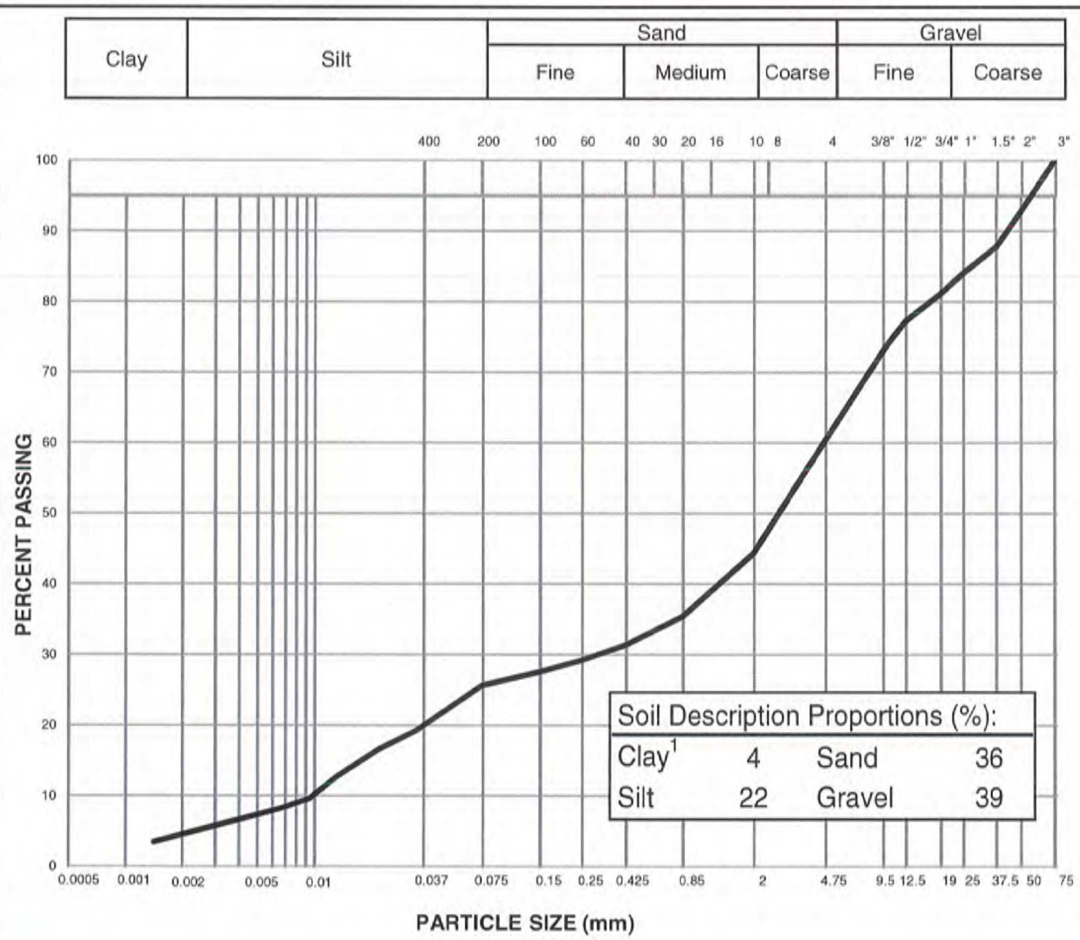
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17621
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-67
Client:	SRK Consulting Inc.	Sample Depth:	0.2 - 0.8 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	GRAVEL and SAND - some silt, trace clay	Sampled By:	Client Name REDACTED
		USC Classification:	Cu: 484.5
Moisture Content:	13.6%		Cc: 2.0

Particle Size (mm)	Percent Passing
75	100
50	
38	88
25	84
19	81
12.5	77
10	74
5	61
2	44
0.85	36
0.425	31
0.25	29
0.15	28
0.075	25.8
0.0339	19.3
0.0218	16.7
0.0129	12.7
0.0095	9.7
0.0067	8.4
0.0034	6.2
0.0014	3.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: ______ C.E.T.

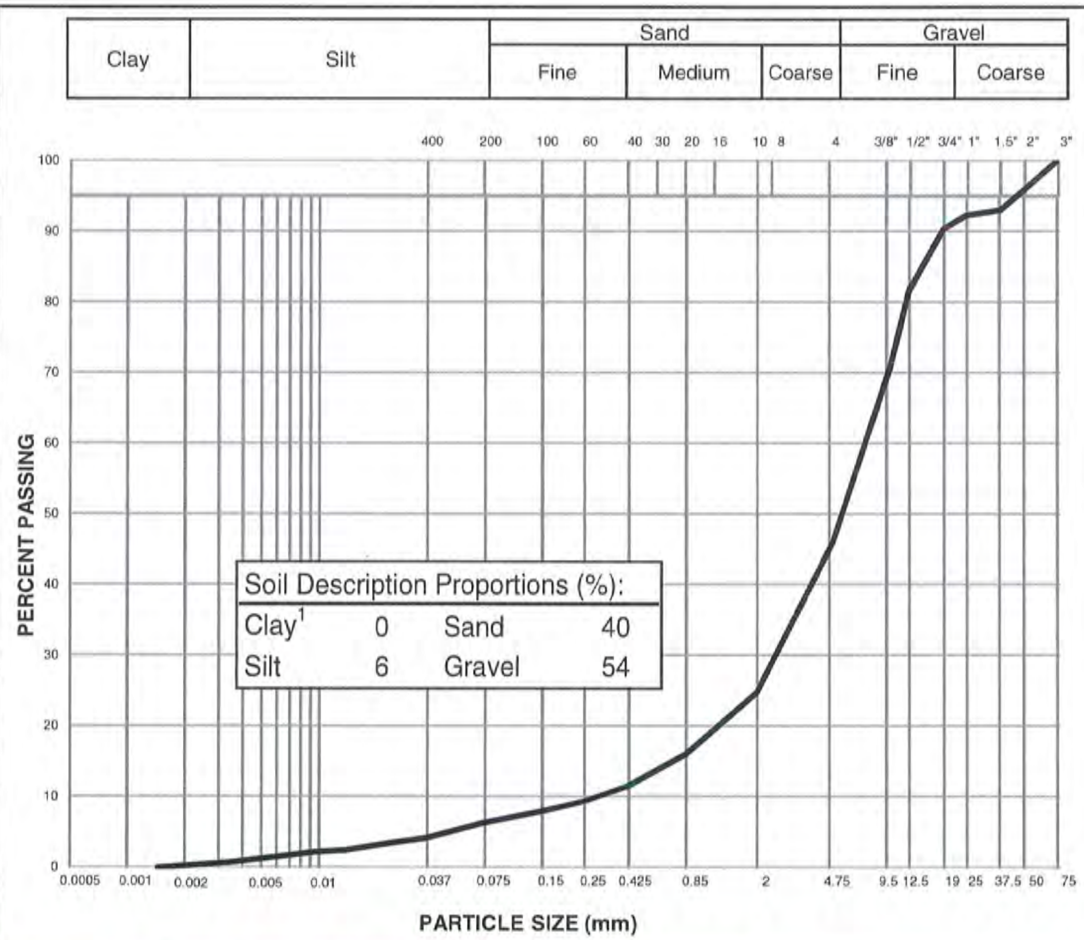
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17617
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-69
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 25, 2015 Name REDACTED
Soil Description[2]:	GRAVEL and SAND - trace silt	Sampled By:	Client
		USC Classification:	Cu: 26.1
Moisture Content:	9.8%		Cc: 3.2

Particle Size (mm)	Percent Passing
75	100
50	
38	93
25	92
19	90
12.5	82
10	71
5	46
2	25
0.85	16
0.425	12
0.25	9
0.15	8
0.075	6.4
0.0367	4.2
0.0234	3.4
0.0137	2.5
0.0097	2.2
0.0069	1.7
0.0034	0.7
0.0014	0.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______

Remarks: ______

[signature redacted]

Reviewed By: ______ C.E.T.

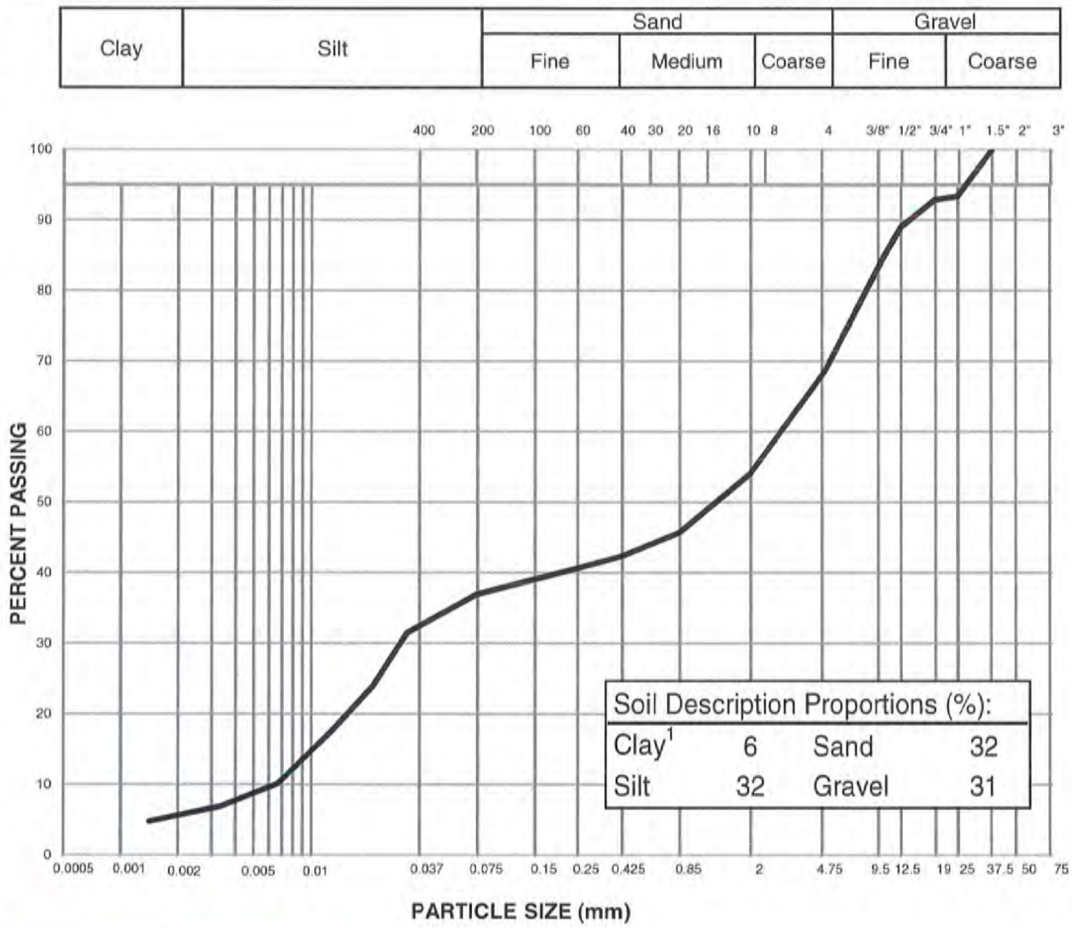
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17615
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-73
Client:	SRK Consulting Inc.	Sample Depth:	1.5 - 2.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 2, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	Sandy, silty, gravelly, trace clay	Sampled By:	Clien Name REDACTED
		USC Classification:	Cu: 494.3
Moisture Content:	14.6%		Cc: 0.0

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	93
19	93
12.5	89
10	84
5	69
2	54
0.85	46
0.425	42
0.25	41
0.15	39
0.075	37.0
0.0322	31.6
0.0213	24.1
0.0128	17.7
0.0092	13.9
0.0067	10.2
0.0034	7.0
0.0014	4.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

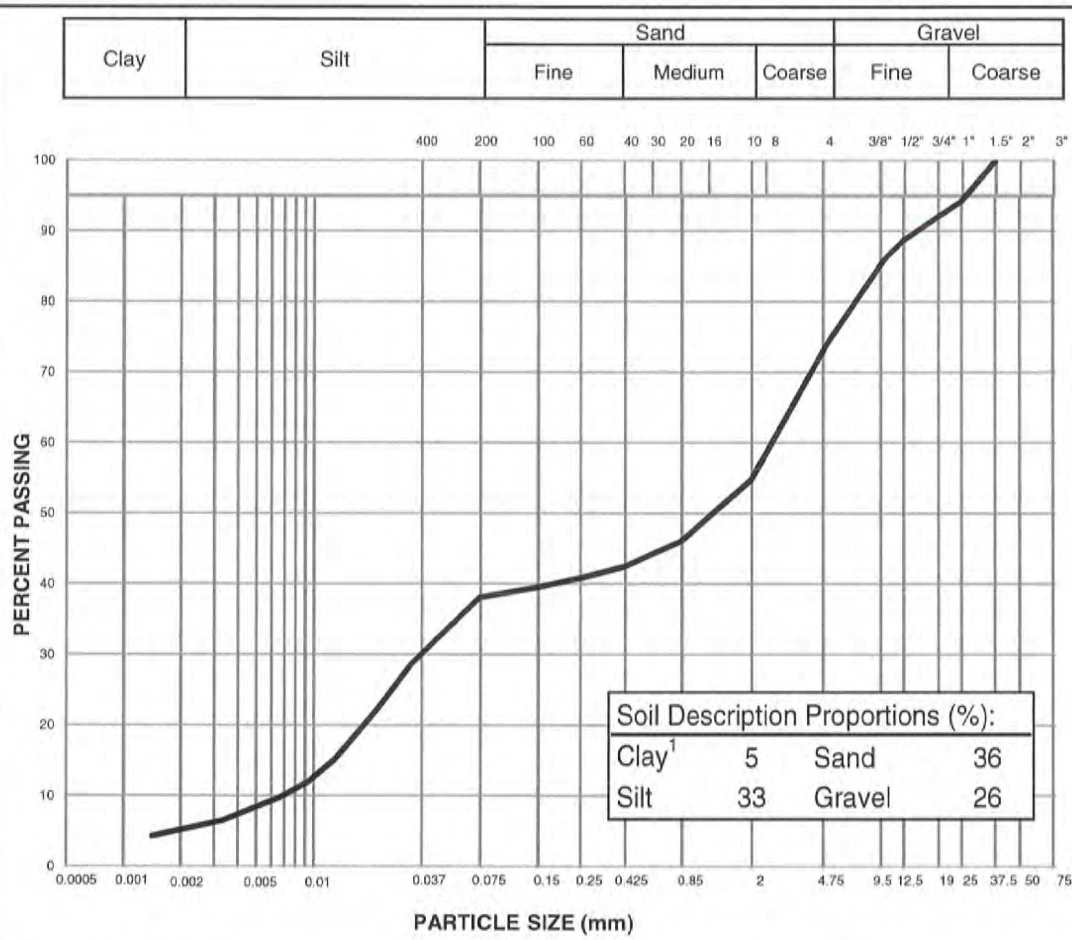
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17614
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-74
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June 25, 2015 Name REDACTED
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	Client
		USC Classification:	Cu: 403.7
Moisture Content:	13.4%		Cc: 0.1

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	94
19	92
12.5	89
10	86
5	74
2	55
0.85	46
0.425	43
0.25	41
0.15	40
0.075	38.2
0.0329	28.8
0.0216	22.3
0.0130	15.2
0.0093	11.9
0.0067	9.8
0.0033	6.5
0.0014	4.3



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested, but not performed due to low clay content.

[signature redacted]

Reviewed By: ______________________ C.E.T.

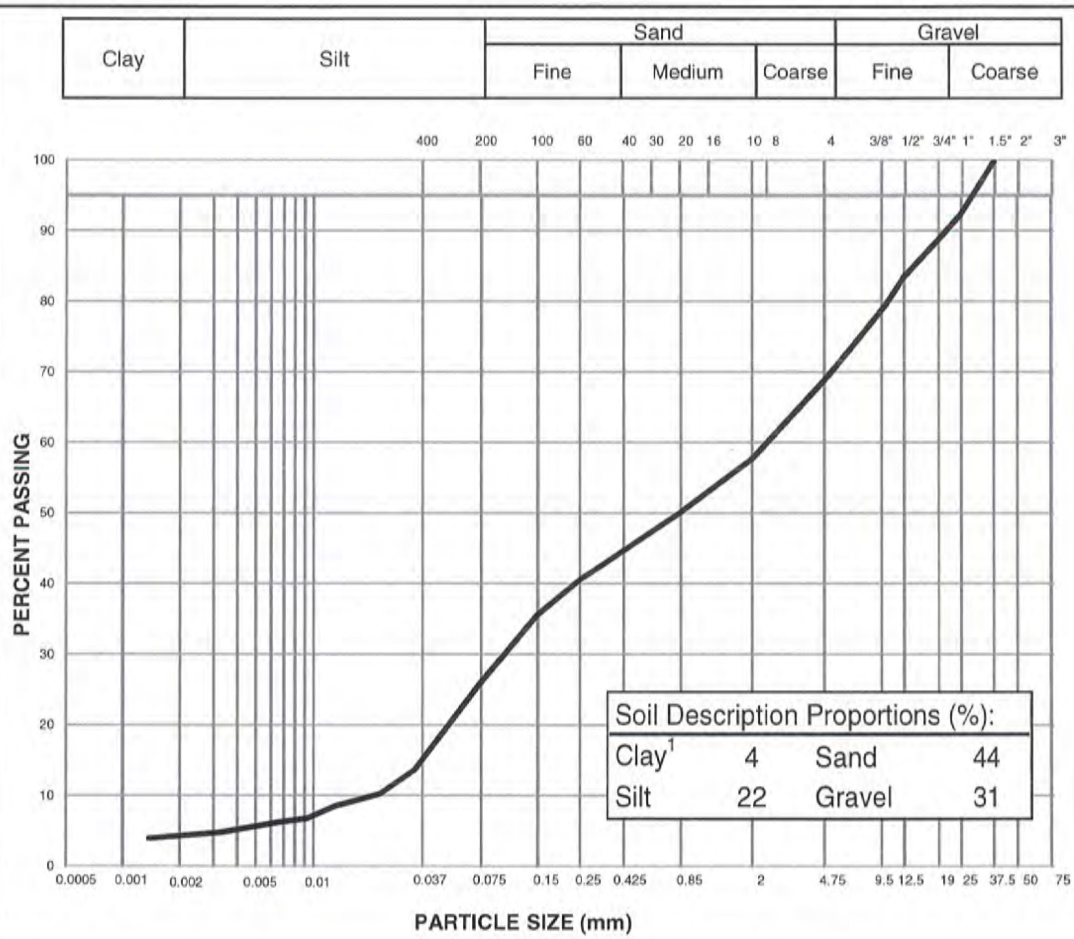
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17610
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-78
Client:	SRK Consulting Inc.	Sample Depth:	1.0 - 2.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 5, 2015 By: AMT	Date sampled:	June 25, 2015 Name REDACTED
Soil Description[2]:	SAND - gravelly, silty, trace clay	Sampled By:	Client
		USC Classification:	Cu: 125.1
Moisture Content:	15.2%		Cc: 0.2

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	92
19	89
12.5	84
10	80
5	69
2	58
0.85	50
0.425	45
0.25	41
0.15	36
0.075	26.0
0.0339	13.7
0.0222	10.3
0.0131	8.6
0.0093	6.9
0.0066	6.3
0.0033	4.9
0.0014	4.0



Soil Description Proportions (%):			
Clay[1]	4	Sand	44
Silt	22	Gravel	31

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks: Atterberg Limit test requested but not performed due to low clay content.

[signature redacted]

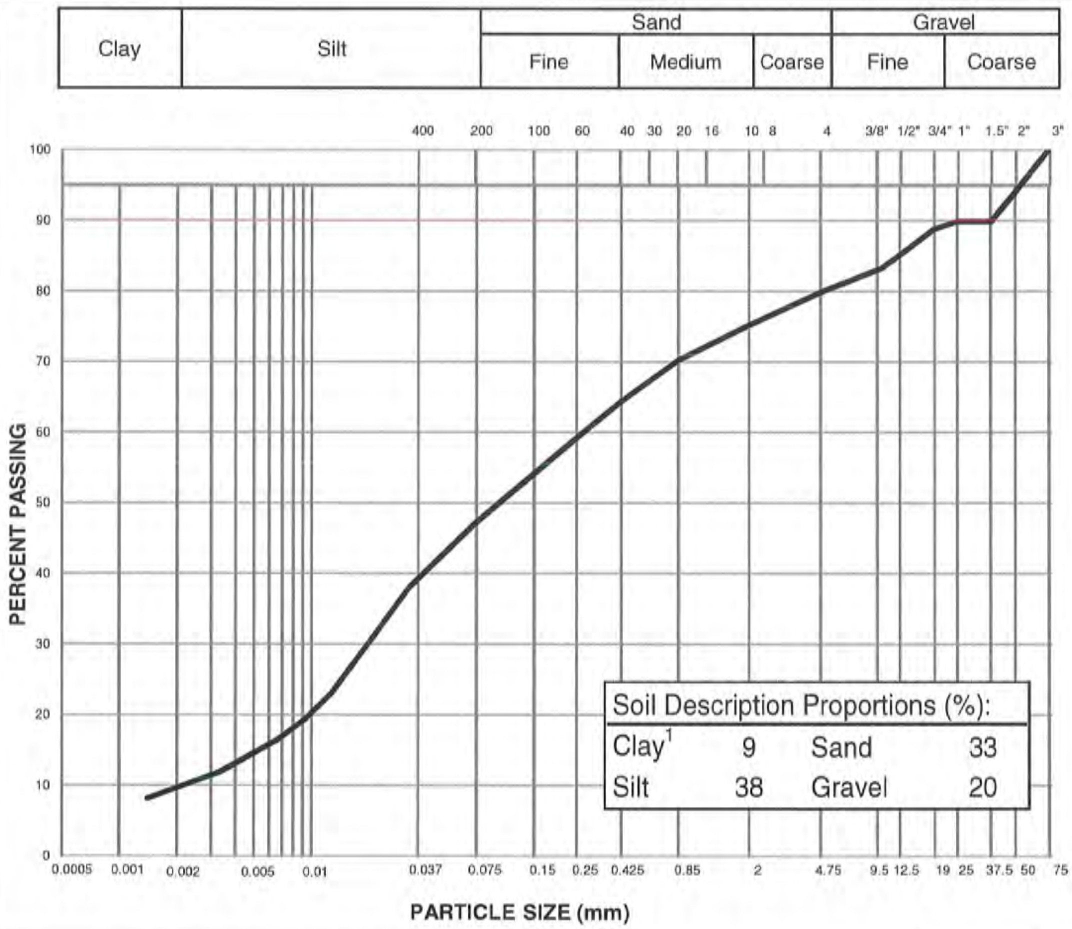
Reviewed By: ______ C.E.T.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17606
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-82
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.3 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June Name REDACTED
Soil Description[2]:	SILT - sandy, some gravel, trace clay	Sampled By:	Clien
		USC Classification:	Cu: 117.1
Moisture Content:	20.7%		Cc: 0.6

Particle Size (mm)	Percent Passing
75	100
50	
38	90
25	90
19	89
12.5	85
10	83
5	80
2	75
0.85	70
0.425	64
0.25	59
0.15	54
0.075	47.3
0.0331	38.0
0.0216	31.3
0.0129	23.1
0.0092	19.4
0.0066	16.4
0.0033	11.9
0.0014	8.2



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

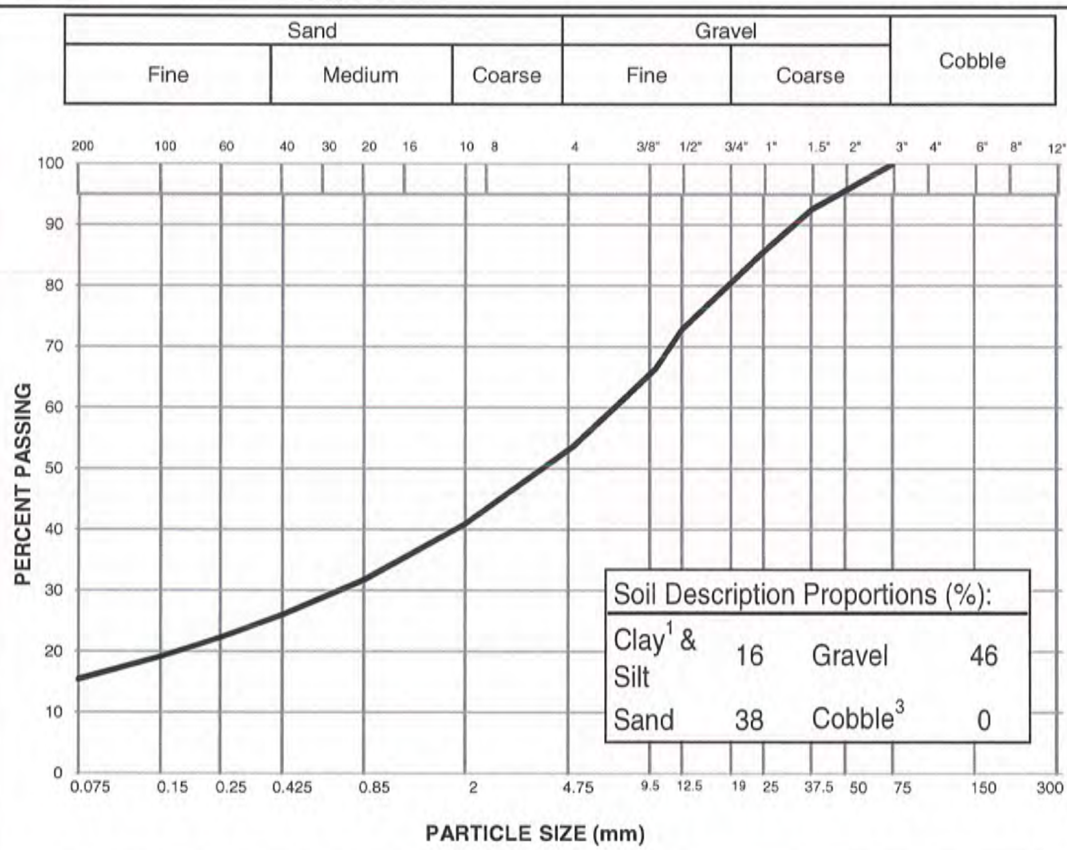
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	82A
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-82A
Client:	SRK Consulting Inc.	Sample Depth:	1.3 - 3.5 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 9, 2015 By: AMT	Date sampled:	June 19, 2015
Soil Description[2]:	GRAVEL & SAND - some silt	Sampled By:	Clie Name REDACTED
		USC Classification:	Cu: #N/A
Moisture Content:	10.3%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	100
50	
38	93
25	86
19	81
12.5	73
10	66
5	54
2	41
0.85	32
0.425	26
0.25	22
0.15	19
0.075	15.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

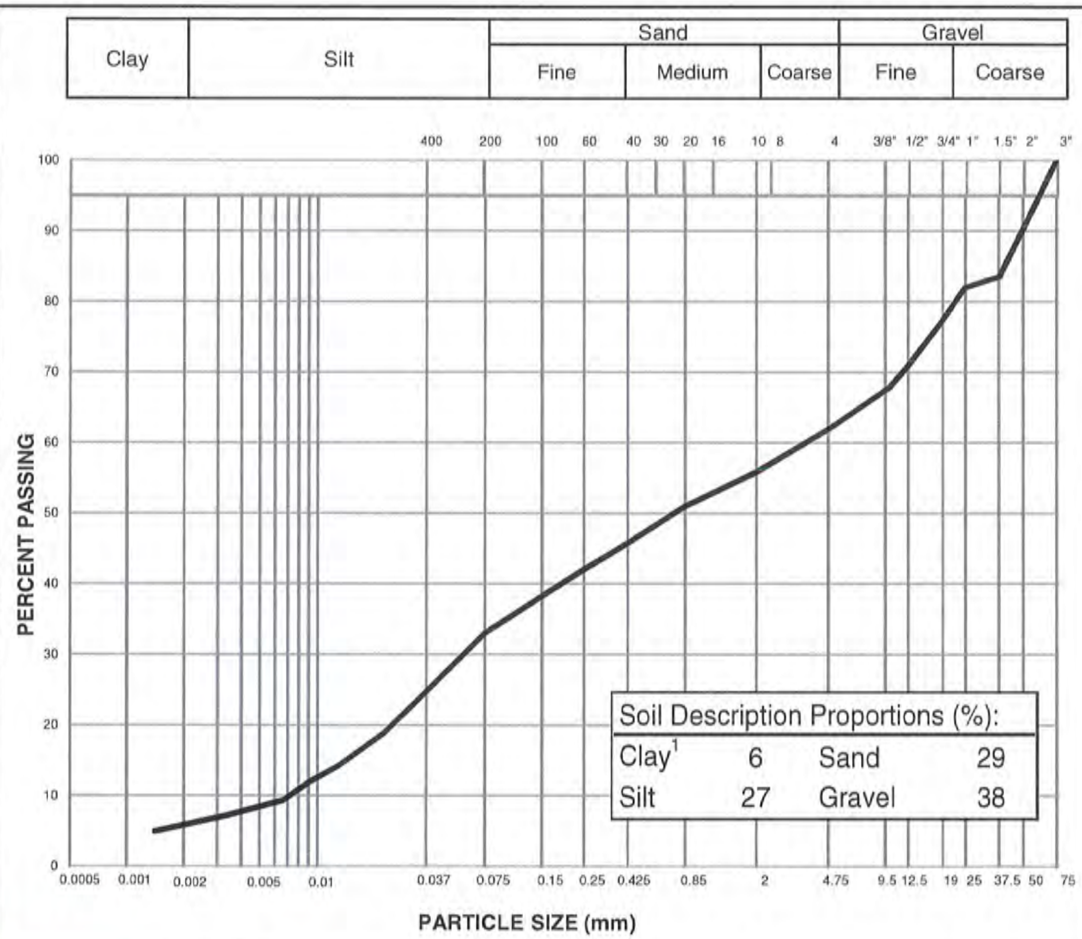
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Phase 2 Test Pit Program	Sample No.:	17626
Project No.:	W14103592-02	Material Type:	
Site:	Coffee Gold Project	Sample Loc.:	SRK-15TP-85
Client:	SRK Consulting Inc.	Sample Depth:	0.5 - 1.0 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	September 6, 2015 By: AMT	Date sampled:	June 25, 2015
Soil Description[2]:	GRAVEL - sandy, silty, trace clay	Sampled By:	Client - Name REDACTED
		USC Classification:	Cu: 540.7
Moisture Content:	11.8%		Cc: 0.1

Particle Size (mm)	Percent Passing
75	100
50	
38	84
25	82
19	77
12.5	71
10	68
5	62
2	56
0.85	51
0.425	46
0.25	42
0.15	38
0.075	33.1
0.0340	23.8
0.0221	18.8
0.0131	14.4
0.0093	12.2
0.0067	9.4
0.0033	7.2
0.0014	5.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

[signature redacted]

Reviewed By: C.E.T.

TETRA TECH

Appendix D-3: Atterberg Limits

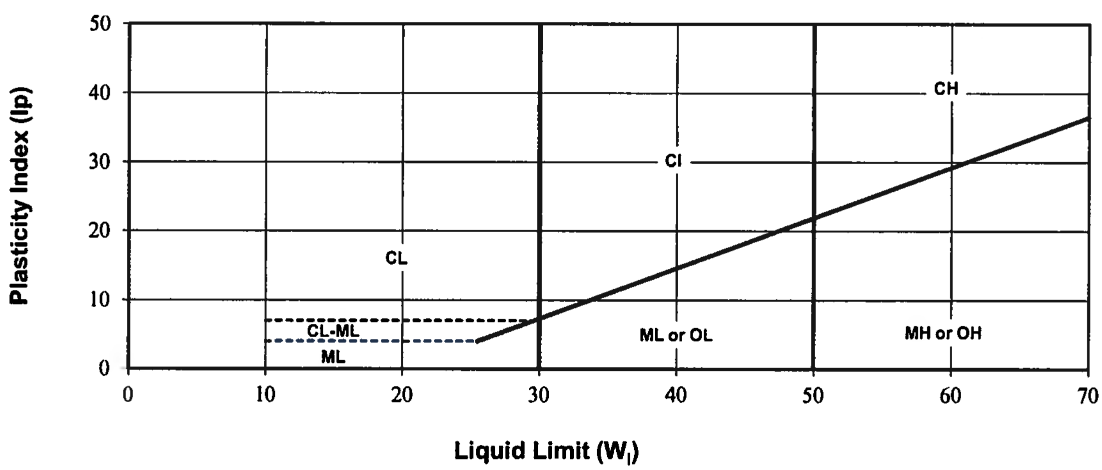
ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample Number:	17728
		Borehole Number:	SRK-15S-03
Project No:	W14103592-01	Depth:	2.5 '
Client:	SRK Consulting (Canada) Inc.	Sampled By:	Tested By: KTP
Attention:	[name redacted]	Date Sampled:	
Email:	[email redacted]	Date Tested:	June 25, 2015

Sample Description: ORGANIC SILT, some sand & clay, brown.

Plasticity Chart



Liquid Limit (W_1) :	99	Natural Moisture (%)	
Plastic Limit :	62	Soil Plasticity:	High
Plasticity Index (Ip) :	37	Mod.USCS Symbol:	OH

Remarks:

[signature redacted]

Reviewed By: ______________ P.Eng.

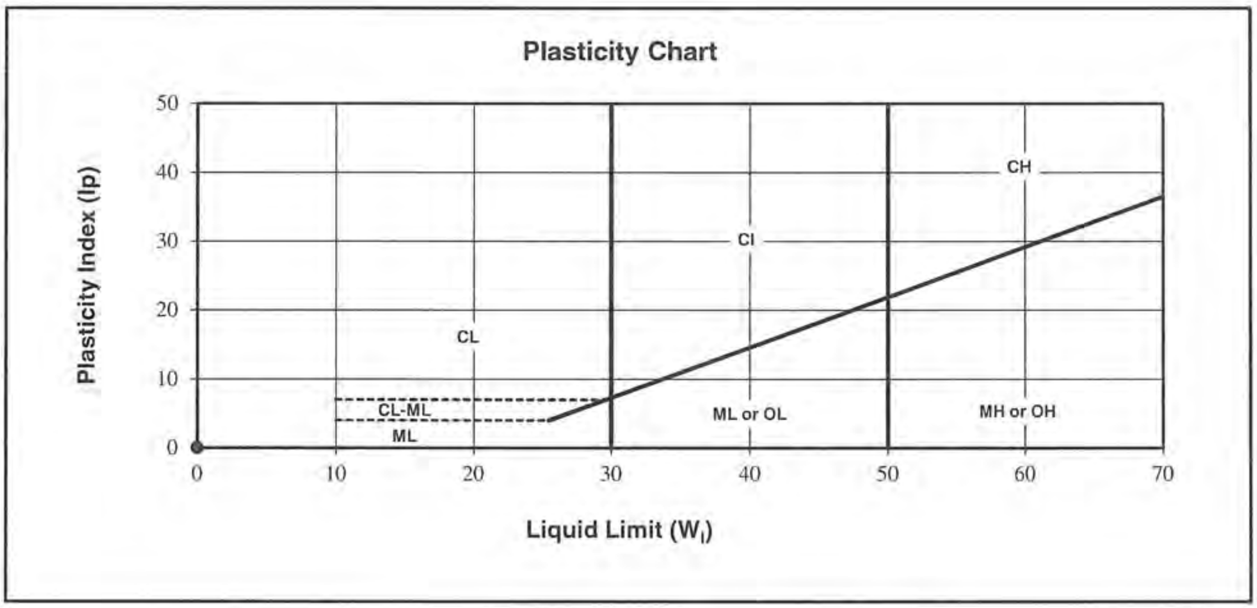
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015 Coffee Gold Project	Sample Number:	17729
		Borehole Number:	SRK-15S-03
Project No:	W14103592-01	Depth:	6.7 - 7.0 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 14, 2015
Email:	[email redacted] [email reda	Date Tested:	May 30, 2015

Sample Description: SAND - silty, some gravel, trace clay



Liquid Limit (W_1) :	0	Natural Moisture (%)	10.7
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

[signature redacted]

Reviewed By: ______________________ C.E.T.

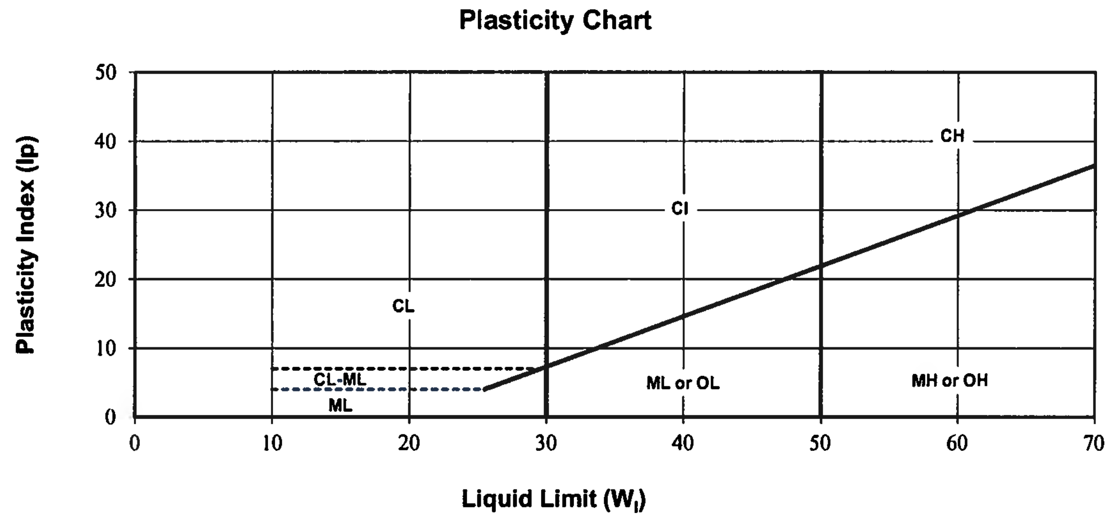
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample Number:	17725
		Borehole Number:	SRK-15S-04
Project No:	W14103592-01	Depth:	3.5 '
Client:	SRK Consulting (Canada) Inc.	Sampled By:	Tested By: KTP
Attention:	[name redacted]	Date Sampled:	
Email:	[email redacted]	Date Tested:	June 25, 2015

Sample Description: ORGANIC SILT, trace clay & sand, brown.



Liquid Limit (W_1) :	129	Natural Moisture (%)	
Plastic Limit :	85	Soil Plasticity:	High
Plasticity Index (Ip) :	**44**	Mod.USCS Symbol:	OH

Remarks:

[email redacted]

Reviewed By: ____________________ P.Eng.

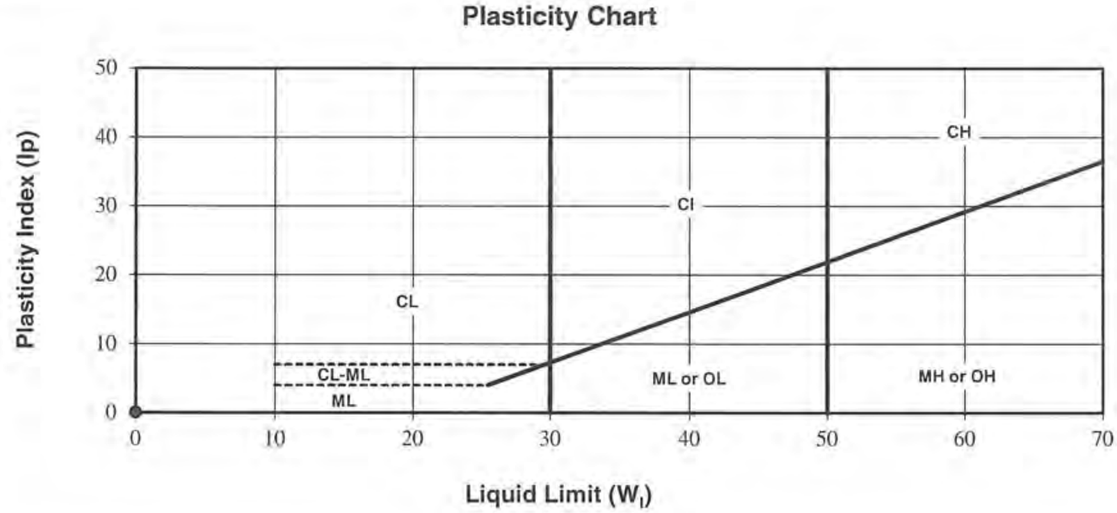
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17726
	Coffee Gold Project	Borehole Number:	SRK-15S-04
Project No:	W14103592-01	Depth:	3.7 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]		
		Date Tested:	May 30, 2015

Sample Description: SAND - silty, some gravel, some clay



Liquid Limit ($W_{1)}$:	0	Natural Moisture (%)	16.7
Plastic Limit :	19	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

Reviewed By: [signature redacted] C.E.T.

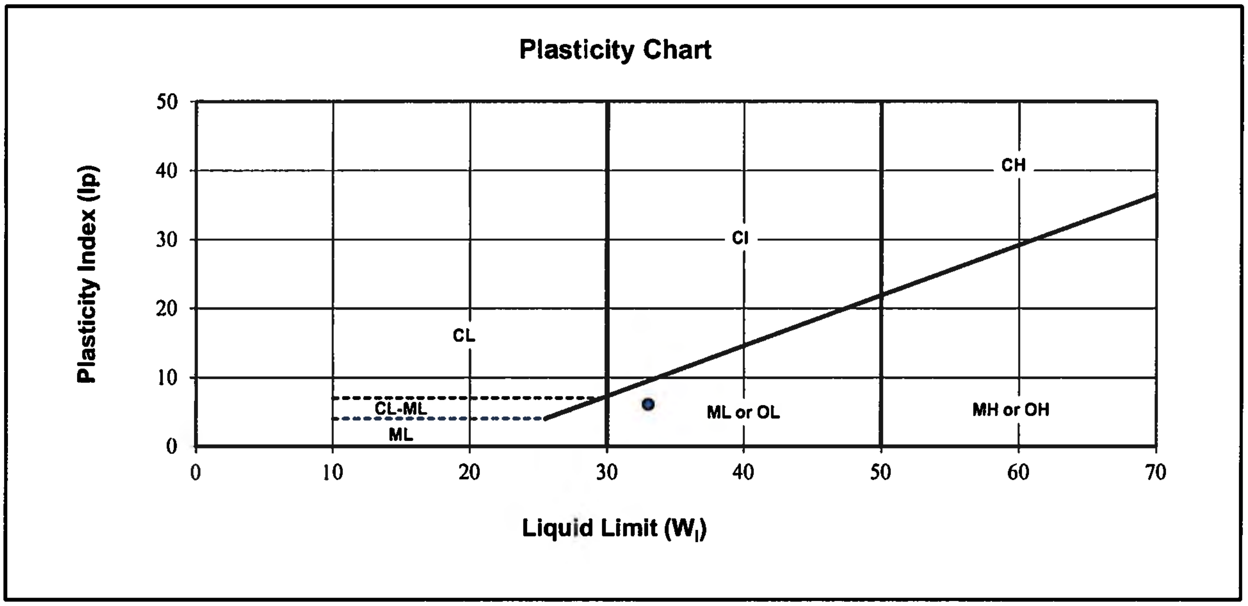
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample Number:	17702
Project No:	W14103592-01	Borehole Number:	SRK-15S-05
Client:	SRK Consulting (Canada) Inc.	Depth:	9.25 '
Attention:	[name redacted]	Sampled By:	Tested By: KTP
Email:	p[email redacted]	Date Sampled:	
		Date Tested:	June 24, 2015

Sample Description: SILT, sandy, trace clay & gravel, brown



Liquid Limit (W_1):	33	Natural Moisture (%)	
Plastic Limit :	27	Soil Plasticity:	Low
Plasticity Index (Ip) :	6	Mod.USCS Symbol:	ML

Remarks:

[signature redacted]

Reviewed By: ______________________ P.Eng.

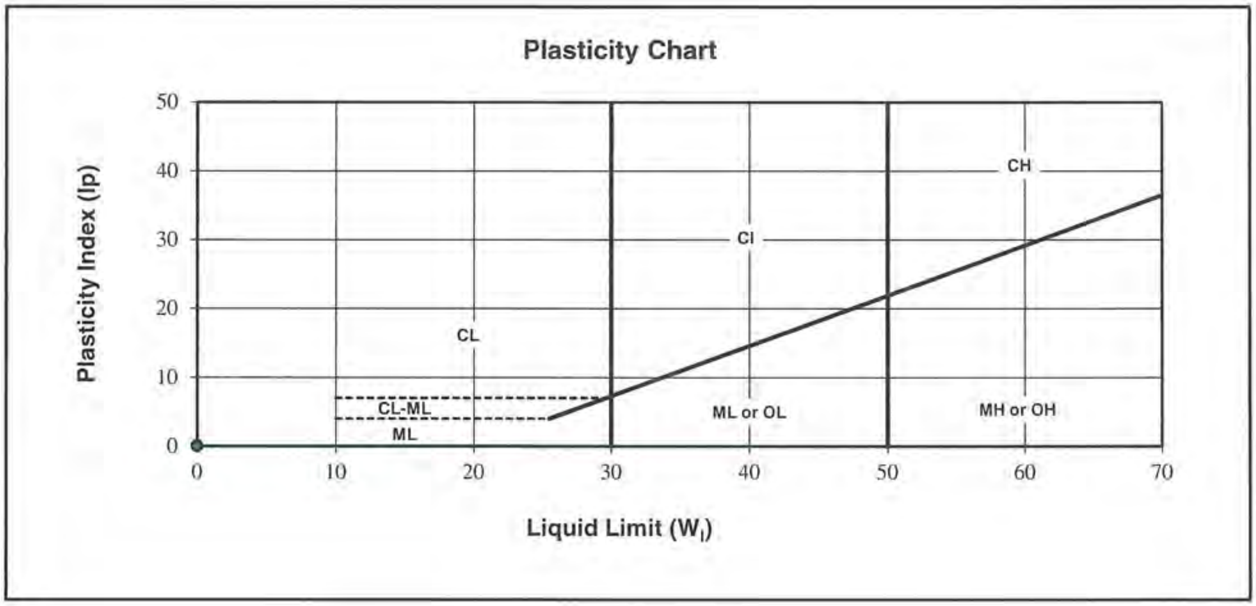
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17704
	Coffee Gold Project	Borehole Number:	SRK-15S-06
Project No:	W14103592-01	Depth:	0.8 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 3, 2015
Email:	[email redacted]	Date Tested:	May 30, 2015

Sample Description: SAND - gravelly, silty, trace clay



Liquid Limit ($W_{1)}$):	0	Natural Moisture (%)	6.8
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

Reviewed By: [signature redacted] C.E.T.

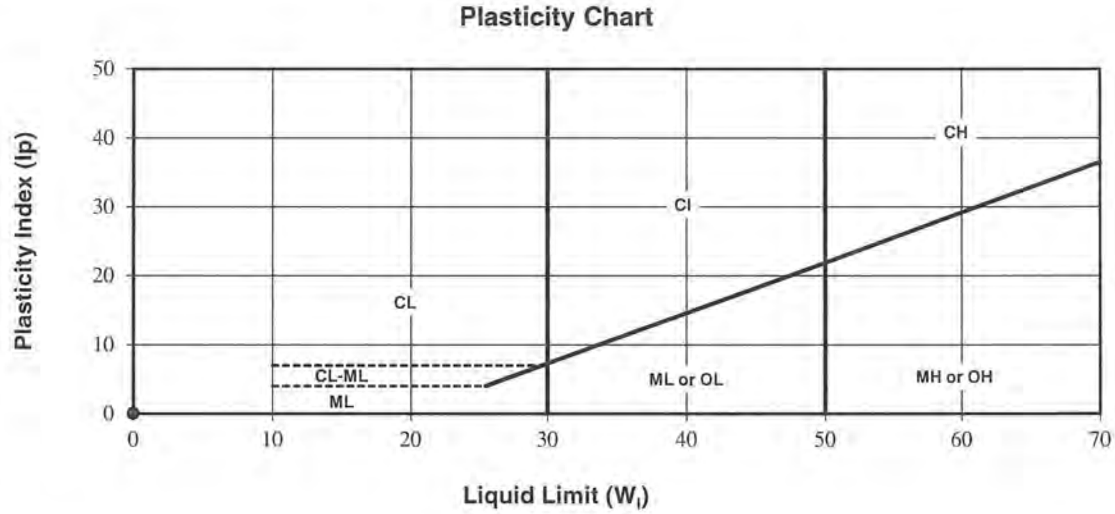
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17708
	Coffee Gold Project	Borehole Number:	SRK-15S-07
Project No:	W14103592-01	Depth:	3.4 - 3.7 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 5, 2015
Email:	pmikes@srk.com[email redacted]		

velly, some silt, trace clay



Liquid Limit (W_1) :	0	Natural Moisture (%)	12.4
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

Reviewed By: [signature redacted] C.E.T.

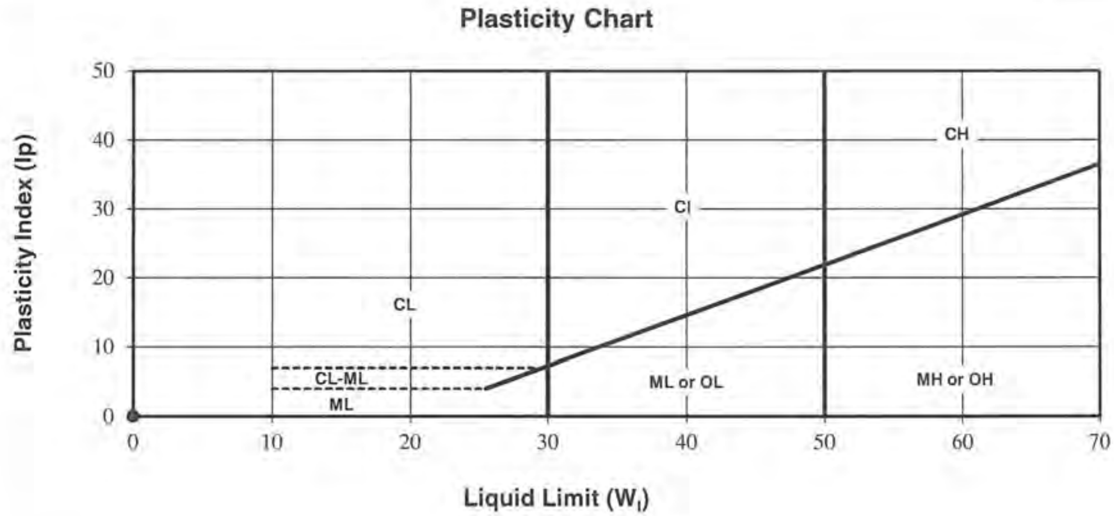
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17706
	Coffee Gold Project	Borehole Number:	SRK-15S-08
Project No:	W14103592-01	Depth:	0.9 - 1.2 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 4, 2015
Email:	[email redacted]	Date Tested:	May 30, 2015

Sample Description: SAND - silty, gravelly, trace clay



Liquid Limit (W_1) :	0	Natural Moisture (%)	27.2
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

[signature redacted]

Reviewed By: ____ ____________ C.E.T.

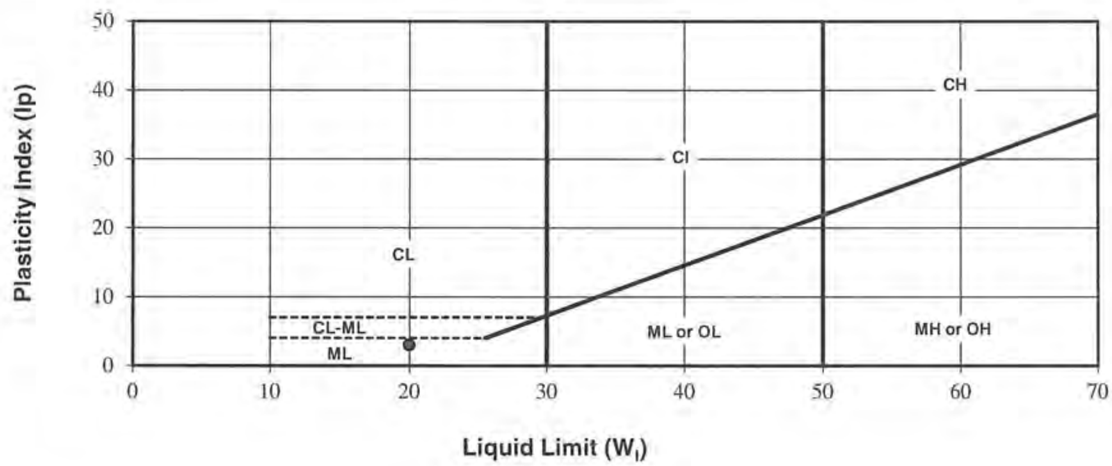
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17707
	Coffee Gold Project	Borehole Number:	SRK-15S-08
Project No:	W14103592-01	Depth:	3.4 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 4, 2015
Email:	[email redacted]	Date Tested:	May 30, 2015

Sample Description: SAND - silty, gravelly, trace clay



Liquid Limit (W_l) :	20	Natural Moisture (%)	13.8
Plastic Limit :	17	Soil Plasticity:	Low
Plasticity Index (Ip) :	**3**	Mod.USCS Symbol:	ML

Remarks: Material is Low to Non-Plastic

[signature redacted]

Reviewed By: ________ C.E.T.

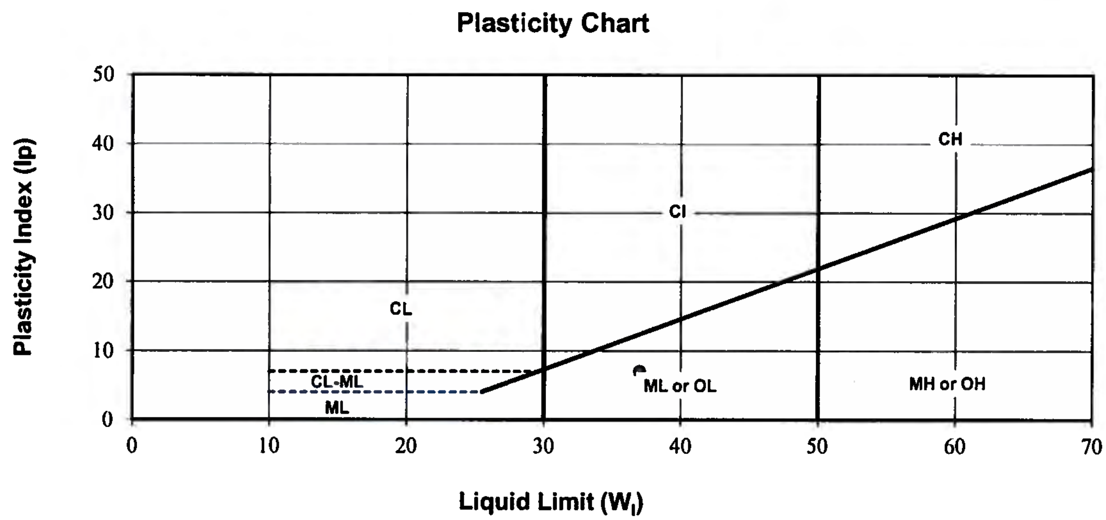
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample Number:	17709
		Borehole Number:	SRK-15S-09
Project No:	W14103592-01	Depth:	6.5 '
Client:	SRK Consulting (Canada) Inc.	Sampled By:	Tested By: KTP
Attention:	[email redacted] name redacted]	Date Sampled:	
Email:	[email redacted],	Date Tested:	June 24, 2015

Sample Description: SILT, some sand, trace clay & gravel, brown



Liquid Limit (W_1) :	37	Natural Moisture (%)	
Plastic Limit :	30	Soil Plasticity:	Low
Plasticity Index (Ip) :	7	Mod.USCS Symbol:	ML

Remarks:

Reviewed By: ________________ P.Eng.

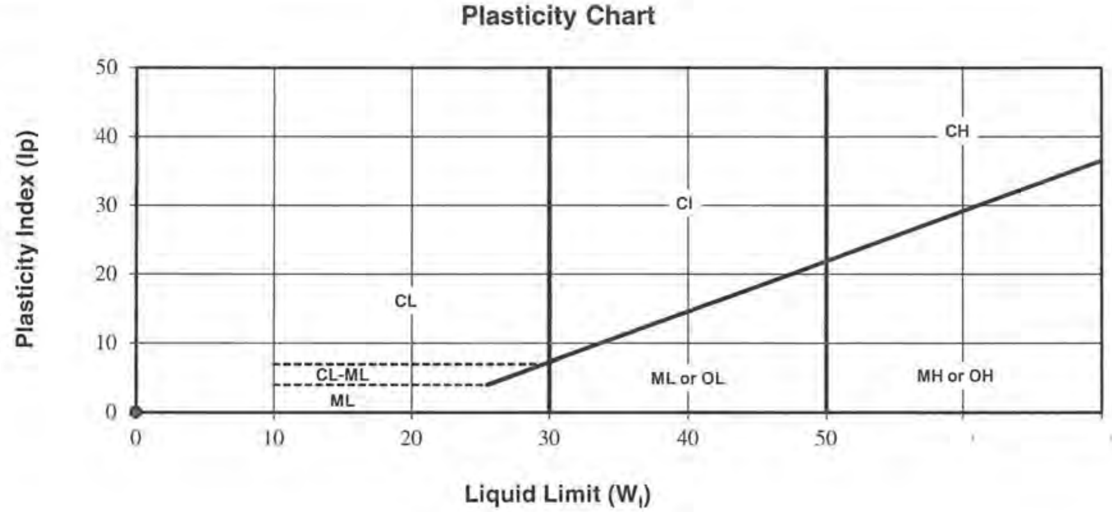
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17711
	Coffee Gold Project	Borehole Number:	SRK-15S-11
Project No:	W14103592-01	Depth:	2.3 - 2.6 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: [signature re
Attention:	[name redacted]	Date Sampled:	April 6, 2015
Email:	[email redacted]	Date Tested:	May 30, 2015

Sample Description: GRAVEL - sandy, some silt, trace clay



Liquid Limit ($W_{1)}$:	0	Natural Moisture (%)	
Plastic Limit :	0	Soil Plasticity:	
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

[signature redacted]

Reviewed By: ____________ C.E.T.

TETRA TECH

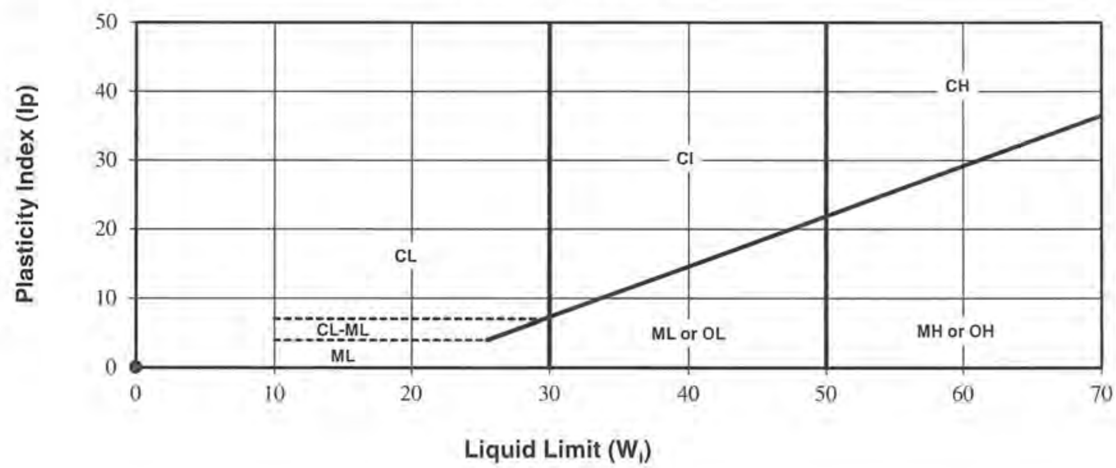
ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17712
	Coffee Gold Project	Borehole Number:	SRK-15S-12
Project No:	W14103592-01	Depth:	2.4 - 2.7 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 7, 2015
Email:	[email redaccted]	Date Tested:	May 30, 2015

Sample Description: SAND - gravelly, silty, trace clay

Plasticity Chart



Liquid Limit ($W_{1)}$:	0	Natural Moisture (%)	19.5
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

Reviewed By: [signature redacted] C.E.T.

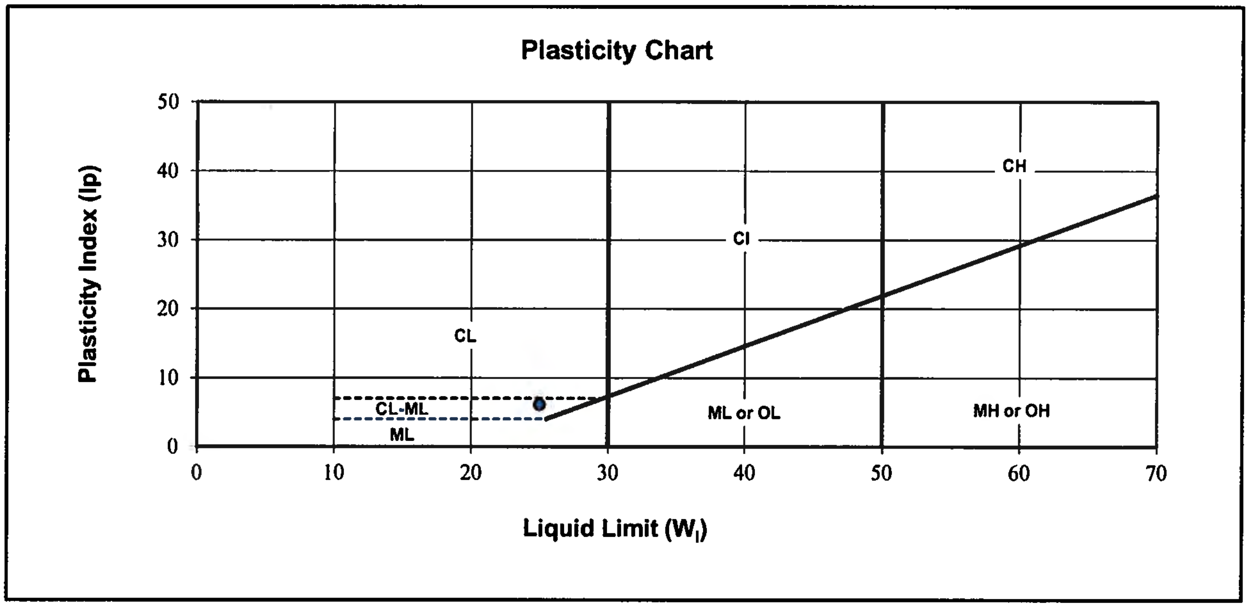
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample Number:	17718
		Borehole Number:	SRK-15S-13A
Project No:	W14103592-01	Depth:	3.5 '
Client:	SRK Consulting (Canada) Inc.	Sampled By:	Tested By: KTP
Attention:	[name redacted]	Date Sampled:	
Email:	[email redaccted]	Date Tested:	June 24, 2015

Sample Description: SILT and SAND, some gravel, trace clay, brown



Liquid Limit (W_1):	25	Natural Moisture (%)	
Plastic Limit :	19	Soil Plasticity:	Low
Plasticity Index (Ip) :	6	Mod.USCS Symbol:	CL-ML

Remarks:

[signature redacted]

Reviewed By: ____________ P.Eng.

TETRA TECH

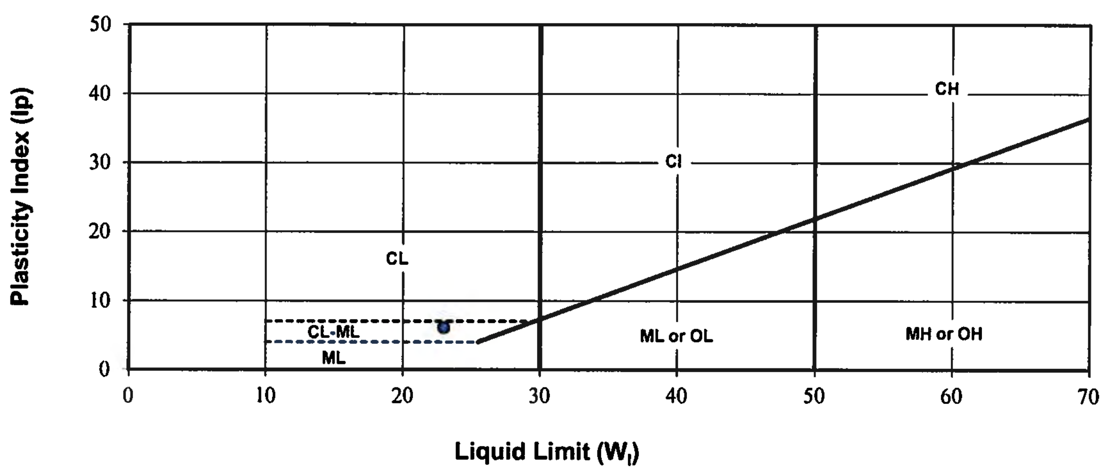
ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - Coffee Gold Project - May 2015	Sample Number:	17722
		Borehole Number:	SRK-15S-20
Project No:	W14103592-01	Depth:	3.5 '
Client:	SRK Consulting (Canada) Inc.	Sampled By:	Tested By: KTP
Attention:	[name redacted]	Date Sampled:	
Email:	[email redaccted]	Date Tested:	June 24, 2015

Sample Description: SILT and SAND, some gravel, trace clay, brown

Plasticity Chart



Liquid Limit (W_1) :	23	Natural Moisture (%)	
Plastic Limit :	17	Soil Plasticity:	Low
Plasticity Index (Ip) :	6	Mod.USCS Symbol:	CL-ML

Remarks:

[signature redacted]

Reviewed By: ____________________ P.Eng.

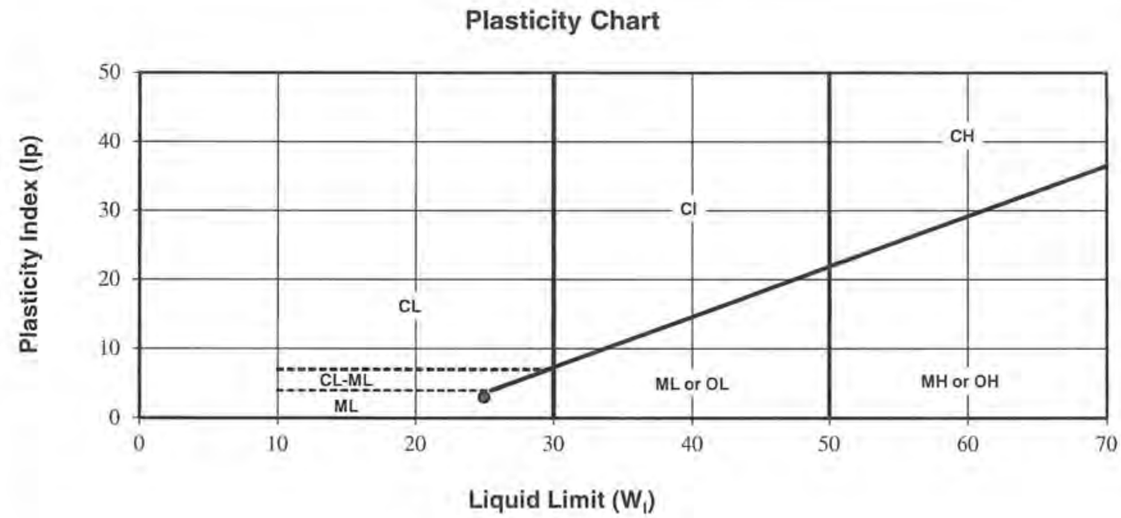
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17723
	Coffee Gold Project	Borehole Number:	SRK-15S-25
Project No:	W14103592-01	Depth:	0.6 - 1.2 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]		
		Date Tested:	May 30, 2015

Sample Description: sandy, gravelly, silty, trace clay



Liquid Limit (W_1):	25	Natural Moisture (%)	12.6
Plastic Limit :	22	Soil Plasticity:	Low
Plasticity Index (Ip) :	**3**	Mod.USCS Symbol:	ML

Remarks: Material is Low to Non-Plastic

[signature redacted]

Reviewed By: ______________ C.E.T.

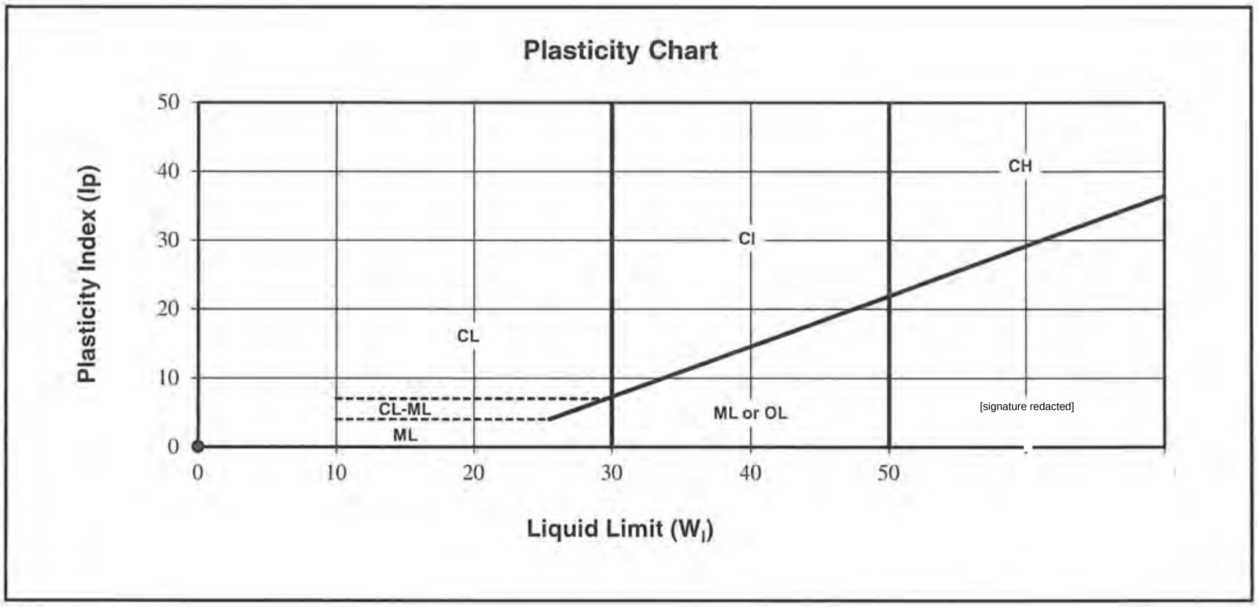
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17732
	Coffee Gold Project	Borehole Number:	SRK-15S-29
Project No:	W14103592-01	Depth:	0.9 - 1.4 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]		
		Date Tested:	May 30, 2015

Sample Description: GRAVEL - sandy, some silt, trace clay



Liquid Limit (W_1) :	0	Natural Moisture (%)	
Plastic Limit :	0	Soil Plasticity:	
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

[signature redacted]

Reviewed By: ______________ .E.T.

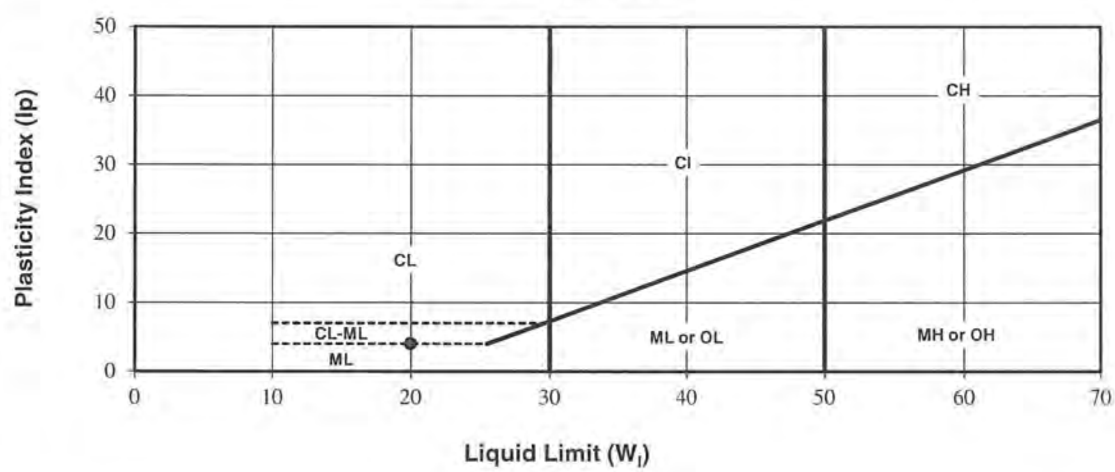
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17739
	Coffee Gold Project	Borehole Number:	SRK-15S-34
Project No:	W14103592-01	Depth:	1.1 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 18, 2015
Email:	[email redaccted]	Date Tested:	May 30, 2015

Sample Description: SILT - sandy, some gravel, trace clay



Liquid Limit ($W_{1)}$:	20	Natural Moisture (%)	14.9
Plastic Limit :	16	Soil Plasticity:	Low
Plasticity Index (Ip) :	**4**	Mod.USCS Symbol:	ML

Remarks: Material is Low to Non-Plastic

[signature redacted]

Reviewed By: ______ C.E.T.

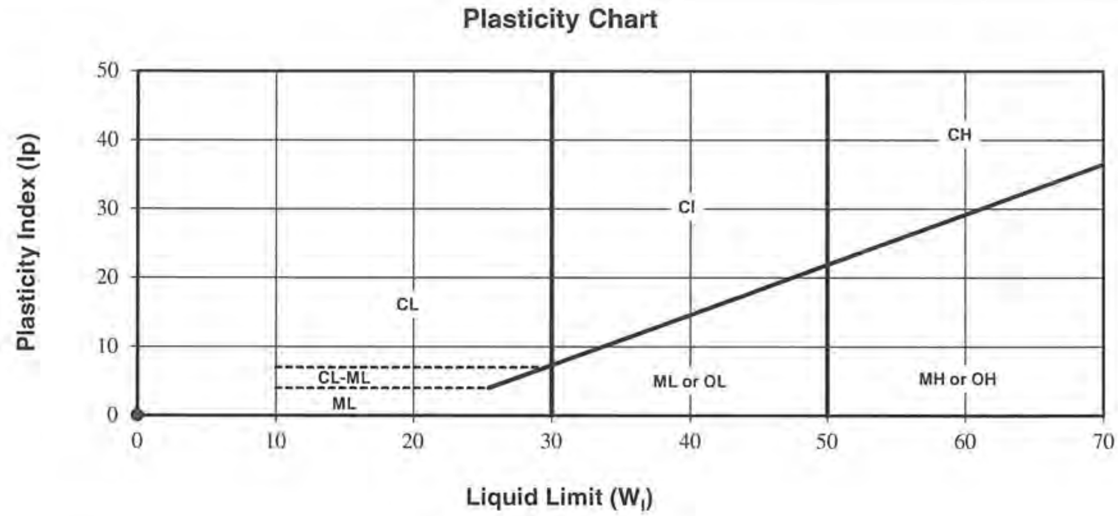
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	SRK Testing - May 2015	Sample Number:	17741
	Coffee Gold Project	Borehole Number:	SRK-15S-35
Project No:	W14103592-01	Depth:	1.2 - 1.4 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	April 18, 2015
Email:	[email redaccted]	Date Tested:	May 30, 2015

Sample Description: SAND and SILT - some gravel, trace clay



Liquid Limit (W_1) :	0	Natural Moisture (%)	44.9
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg was attempted but material was found to be too silty, therefore material was judged to be non-plastic.

[signature redacted]

Reviewed By: ______ C.E.T.

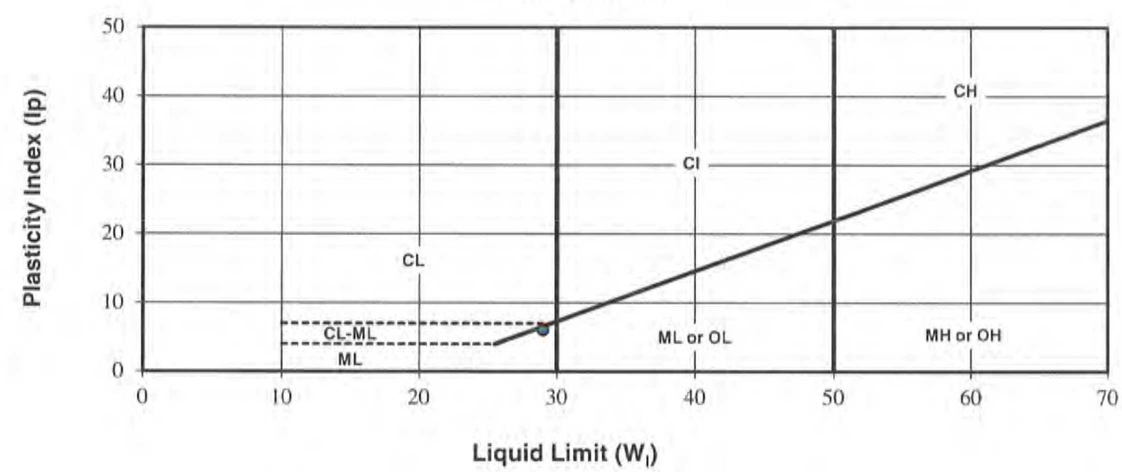
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Phase 2 Test Pit Program	Sample Number:	17565
		Borehole Number:	SRK-15TP-03
Project No:	W14103592-02	Depth:	0.5 - 1.0 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	June 19, 2015
Email:	[email redaccted]	Date Tested:	September 4, 2015

Sample Description: GRAVEL and SAND - some silt, trace clay



Liquid Limit (W_1) :	29	Natural Moisture (%)	10.5
Plastic Limit :	23	Soil Plasticity:	Low
Plasticity Index (Ip) :	**6**	Mod.USCS Symbol:	ML

Remarks:

[signature redacted]

Reviewed By: _______________ C.E.T.

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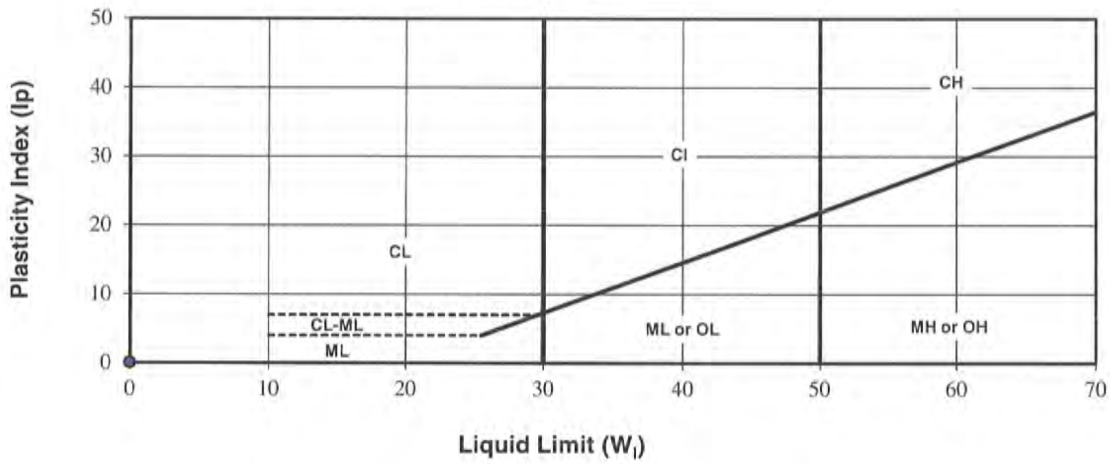
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Phase 2 Test Pit Program	Sample Number:	17564
		Borehole Number:	SRK-15TP-20
Project No:	W14103592-02	Depth:	-
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	June 19, 2015
Email:	[email redaccted]	Date Tested:	September 4, 2015

Sample Description: SAND - silty, gravelly, trace clay



Liquid Limit (W_1):	0	Natural Moisture (%)	13.0
Plastic Limit :	29	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg tests were attemped with little success.

Material was determined to be non-plastic; too silty.

[signature redacted]

Reviewed By: ____________ C.E.T.

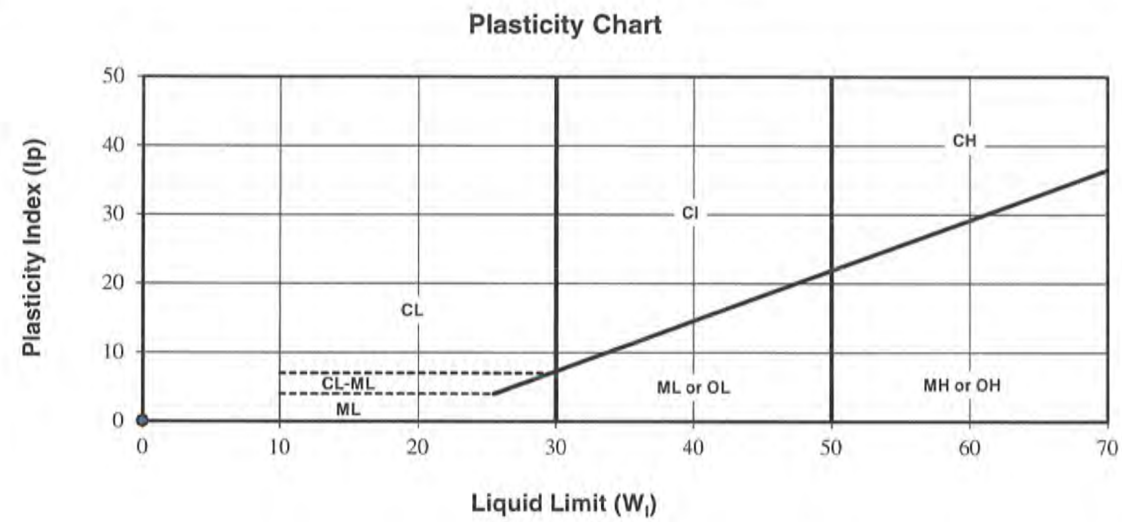
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Phase 2 Test Pit Program	Sample Number:	17560
		Borehole Number:	SRK-15TP-43
Project No:	W14103592-02	Depth:	0.3 - 0.9 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	June 19, 2015
Email:	[email redaccted]	Date Tested:	September 4, 2015

Sample Description: SAND - silty, gravelly, trace clay



Liquid Limit (W_1):	0	Natural Moisture (%)	12.6
Plastic Limit :	21	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Atterberg tests were attemped with little success.
Material was determined to be non-plastic; too silty.

[signature redacted]

Reviewed By: ______ ________ C.E.T.

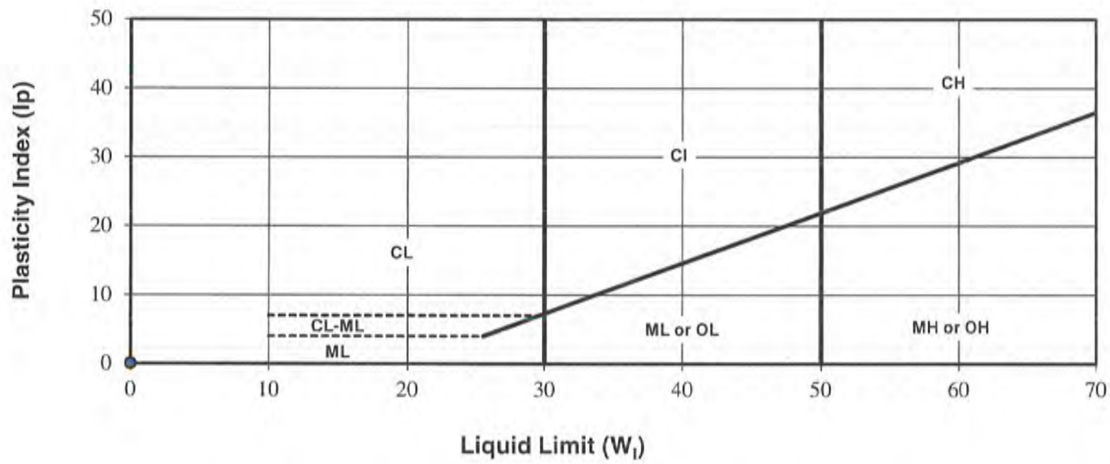
ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Phase 2 Test Pit Program	Sample Number:	17592
		Borehole Number:	SRK-15TP-50
Project No:	W14103592-02	Depth:	0.2 - 0.6 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	June 25, 2015
Email:	[email redaccted]	Date Tested:	September 4, 2015

Sample Description:

Plasticity Chart



Liquid Limit (W_1) :	0	Natural Moisture (%)	63.0
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: No hydrometer test completed. Atterberg tests were attemped with no success.
Material was determined to be non-plastic; too much silt/organics.

[signature redacted]

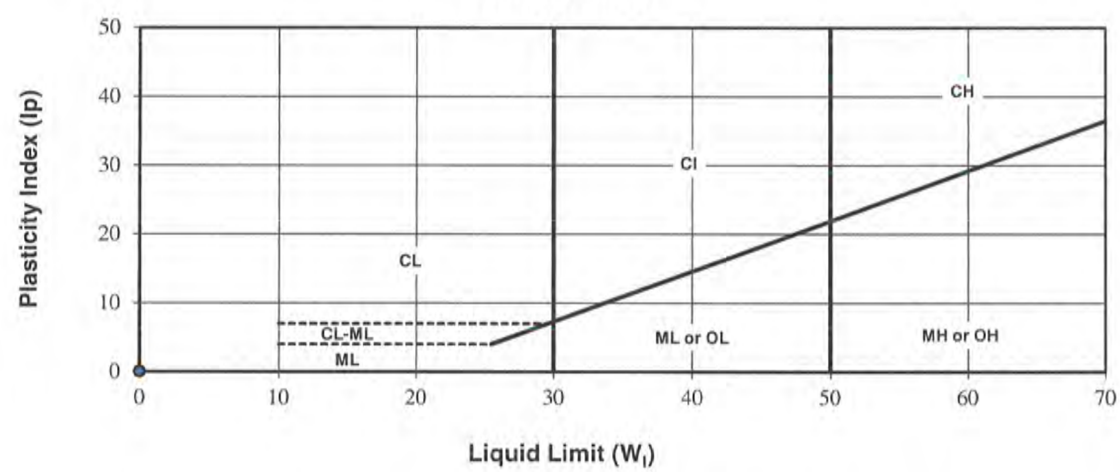
Reviewed By: ______________________ C.E.T.

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Phase 2 Test Pit Program	Sample Number:	17628
		Borehole Number:	SRK-15TP-55
Project No:	W14103592-02	Depth:	0.2 - 0.4 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	June 20, 2015
Email:	[email redaccted]	Date Tested:	September 4, 2015

Sample Description:



Liquid Limit (W_1) :	0	Natural Moisture (%)	76.5
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: No hydrometer test completed. Atterberg tests were attemped with no success.
Material was determined to be non-plastic; too much silt/organics.

[signature redacted]

Reviewed By: ______ C.E.T.

TETRA TECH

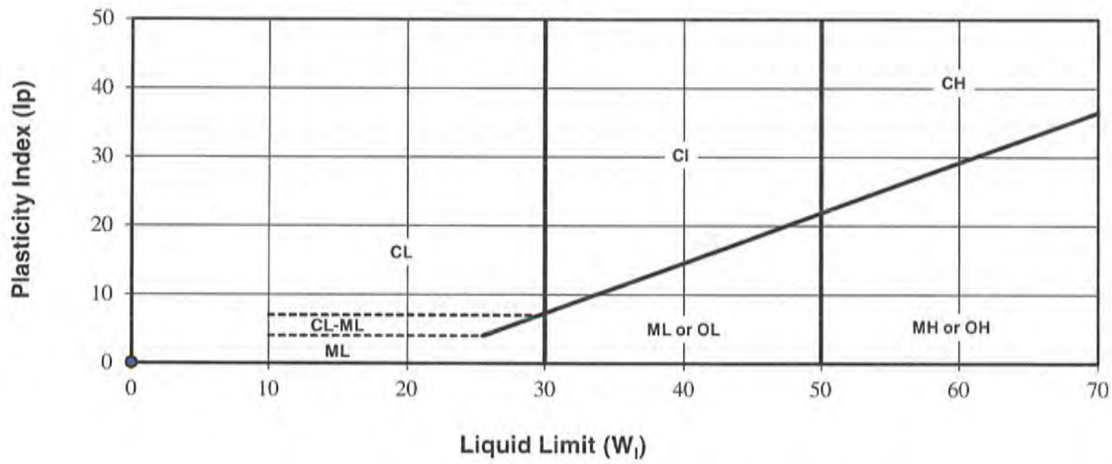
ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Phase 2 Test Pit Program	Sample Number:	17629
		Borehole Number:	SRK-15TP-56
Project No:	W14103592-02	Depth:	0.2 - 0.5 m
Client:	SRK Consulting Ltd.	Sampled By:	Client Tested By: AMT
Attention:	[name redacted]	Date Sampled:	June 20, 2015
Email:	[email redaccted]	Date Tested:	September 4, 2015

Sample Description:

Plasticity Chart



Liquid Limit (W_1) :	0	Natural Moisture (%)	68.4
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: No hydrometer test completed. Atterberg tests were attemped with no success.
Material was determined to be non-plastic; too much silt/organics.

[signature redacted]

Reviewed By: ___ ________ C.E.T.

TETRA TECH

Appendix D-4: Specific Gravity

Specific Gravity of Soil

ASTM D854

Project:	SRK Testing-Coffee Gold-May 2015	Test Hole No.:	SRK-15S-03 Sa 17728
Project No.:	W14103592-01	Depth:	2.5 '
Client:	SRK Consulting (Canada) Inc.	Sample Description:	ORGANIC SILT, some sand & clay, brown.
Date Tested:	24-Jun-15 Tested By: KTP		

TRIAL	1	2	3
Pycnometer No.	D	B	
Wt. of Soil, Pycnometer & Water (g)	174.03	174.33	
Wt. of Pycnometer (g)	59.90	60.25	
Wt. of Dry Soil (g)	25.24	25.09	
Temp. of Soil & Water (T_x °C)	22.40	22.40	
Wt. of Pycnometer & Water @ T_x °C (g)			
Specific Gravity	2.334	2.325	
Avg. Specific Gravity		**2.330**	

$$G_s = \frac{W_o}{W_o + W_a - W_b}$$

Where:
W_o = Dry wt. of soil
W_a = Wt. of Pycnometer & Water @ Tx °C
W_b = Wt. of Soil, Pycnometer & Water
G_s = Specific gravity of sample

Remarks:

[signature redacted]

Reviewed By:

TETRA TECH

Specific Gravity of Soil

ASTM D854

Project: SRK Testing-Coffee Gold-May 2015
Project No.: W14103592-01
Client: SRK Consulting (Canada) Inc.
Date Tested: 24-Jun-15 Tested By: KTP

Test Hole No.: SRK-15S-09 Sa 17709
Depth: 6.5 '
Sample Description: SILT, some sand, trace clay & gravel, brown.

TRIAL	1	2	3
Pycnometer No.	C	G	
Wt. of Soil, Pycnometer & Water (g)	177.96	177.72	
Wt. of Pycnometer (g)	61.78	62.40	
Wt. of Dry Soil (g)	26.51	25.03	
Temp. of Soil & Water (T_x °C)	22.20	22.20	
Wt. of Pycnometer & Water @ T_x °C (g)			
Specific Gravity	2.644	2.636	
Avg. Specific Gravity	**2.640**		

$$G_s = \frac{W_o}{W_o + W_a - W_b}$$

Where:
W_o = Dry wt. of soil
W_a = Wt. of Pycnometer & Water @ Tx °C
W_b = Wt. of Soil, Pycnometer & Water
G_s = Specific gravity of sample

Remarks:

[signature redacted]

Reviewed By:

TETRA TECH

Specific Gravity of Soil

ASTM D854

Project:	SRK Testing-Coffee Gold-May 2015	Test Hole No.:	SRK-15S-20 Sa 17722
Project No.:	W14103592-01	Depth:	3.5 '
Client:	SRK Consulting (Canada) Inc.	Sample Description:	SILT and SAND, some gravel, trace clay, brown.
Date Tested:	24-Jun-15 Tested By: KTP		

TRIAL	1	2	3
Pycnometer No.	K	I	
Wt. of Soil, Pycnometer & Water (g)	174.93	169.68	
Wt. of Pycnometer (g)	58.60	54.09	
Wt. of Dry Soil (g)	26.73	25.70	
Temp. of Soil & Water (T_x °C)	22.40	22.20	
Wt. of Pycnometer & Water @ T_x °C (g)			
Specific Gravity	2.634	2.629	
Avg. Specific Gravity		**2.632**	

$$G_s = \frac{W_o}{W_o + W_a - W_b}$$

Where:

W_o = Dry wt. of soil
W_a = Wt. of Pycnometer & Water @ Tx °C
W_b = Wt. of Soil, Pycnometer & Water
G_s = Specific gravity of sample

Remarks:

[signature redacted]

Reviewed By:

TETRA TECH

Appendix D-5: Frozen Density

Project: SRK Coffee Gold Project
Project Number: W14103592-01
Date Tested: June 23, 2015 Tested By: SK

Test Hole No.	Depth (ft)	Initial Wet Wt. (g)	Volume (cm^3)	M.C. (%)	Wet Density (kg/m^3)	Dry Density (kg/m^3)	Soil Description
17728	2.5	2418.5	2207.19	129.4	1096	478	ORGANIC SILT, some sand, trace clay
17725	3.5	626.52	605.80	317.8	1034	248	ORGANIC SILT, trace sand, trace clay
17702	9.25	930.53	552.91	50.3	1683	1120	SILT, sandy, trace clay, trace gravel
17709	6.5	1606.3	1161.05	94.6	1383	711	SILT, some sand, trace clay, trace gravel
17718	3.5	1046.8	599.67	23.7	1746	1411	SILT and SAND, some gravel, trace clay
17722	3.5	961.1	683.96	73.1	1405	812	SILT and SAND, some gravel, trace clay

Appendix D-6: Organic Content

Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

ASTM D2974 Test Method C

Project No:	W14103592-01	**Sample No.:**	17728
Project:	SRK Testing - Coffee Gold Project - May 2015	**Date Sampled:**	
Client:	SRK Consulting (Canada) Inc.	**Sampled By:**	
		Date Tested:	25-Jun-15
Attention:	[name redacted] **Fax:**	**Tested By:**	KTP
Email:	[email redaccted]	**Office:**	Edmonton

Description: ORGANIC SILT, some sand & clay, brown.
Source:
Sample Location: BH: SRK-15S-03 @ 2.5 '
Supplier:

Moisture Content		*Trial 1*	*Trial 2*
Mass of As-Received Test Specimen & Tare, g			
Mass of Oven Dried Specimen & tare, g			
Mass of Tare, g			
Mass of As-Received Test Specimen, g	**A**	--	--
Mass of Oven Dried Specimen, g	**B**	79.6	75.8
Ash Content			
Mass of Dish plus Oven Dried Sample, g		153.95	153.83
Mass of Dish, g		74.31	78.03
Mass of Dish plus Oven Dried Sample, g (After Ignition in Furnace*)		149.41	149.40
Mass of Ash, g	**C**	75.1	71.4
Ash Content, % (C*100/B)	**D**	94.3	94.2
Organic Matter			
Organic Matter, % (100-D)		5.7	5.8
	Average	5.8	

* Furnace Temperature: **440 °C**

Remarks: Sample oven dried prior to sieving through 2.0 mm sieve
Fraction of Aggregate Sample Tested: 100% passing 2.0 mm sieve
Organic Content, Total Sample: 5.8% by dry mass of aggregate

[signature redacted]

Reviewed By: ______ P. Eng.

TETRA TECH

NY

Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

ASTM D2974 Test Method C

Project No: W14103592-01
Project: SRK Testing - Coffee Gold Project - May 2015
Client: SRK Consulting (Canada) Inc.
Attention: [name redacted] **Fax:**
Email: [email redaccted]

Sample No.: 17725
Date Sampled:
Sampled By:
Date Tested: 25-Jun-15
Tested By: KTP
Office: Edmonton

Description: ORGANIC SILT, trace clay & sand, brown.
Source:
Sample Location: BH: SRK-15S-04 @ 3.5 '
Supplier:

Moisture Content		***Trial 1***	***Trial 2***
Mass of As-Received Test Specimen & Tare, g			
Mass of Oven Dried Specimen & tare, g			
Mass of Tare, g			
Mass of As-Received Test Specimen, g	A	--	--
Mass of Oven Dried Specimen, g	B	58.0	50.5
Ash Content			
Mass of Dish plus Oven Dried Sample, g		132.32	128.52
Mass of Dish, g		74.31	78.02
Mass of Dish plus Oven Dried Sample, g (After Ignition in Furnace*)		114.27	112.75
Mass of Ash, g	C	40.0	34.7
Ash Content, % (C*100/B)	D	68.9	68.8
Organic Matter			
Organic Matter, % (100-D)		31.1	31.2
Average		31.2	

* Furnace Temperature: **440 °C**

Remarks: Sample oven dried prior to sieving through 2.0 mm sieve
Fraction of Aggregate Sample Tested: 100% passing 2.0 mm sieve
Organic Content, Total Sample: 31.2% by dry mass of aggregate

[signature redacted]
Reviewed By: P. Eng.

TETRA TECH

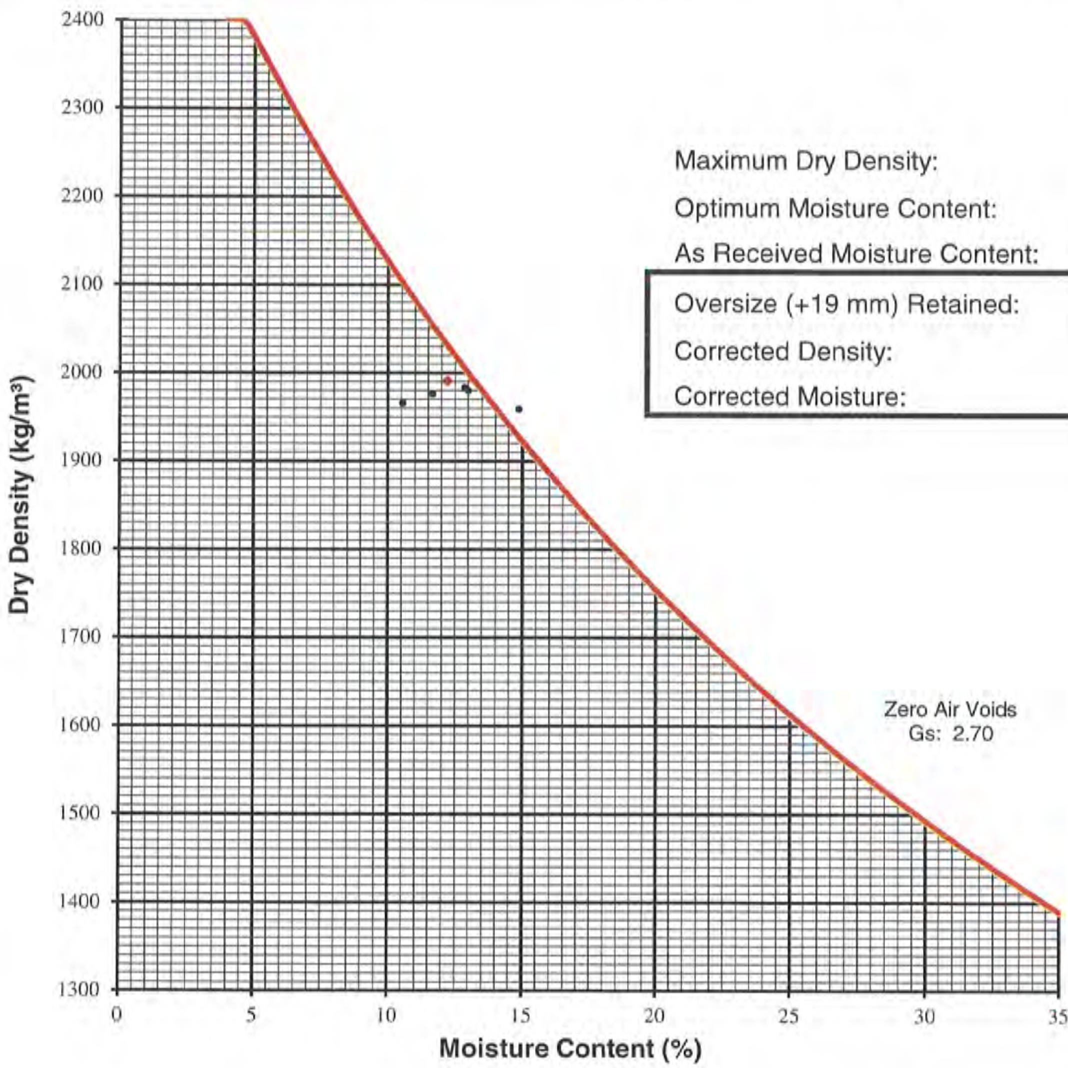
NY

Appendix D-7: Compaction Tests

MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	Phase 2 Test Pit Program	Sample No.:	17579
Client:	SRK Consulting Ltd.	Sampled By:	Client
Attention:	[name redacted]	Sample Date:	June 21, 2015
Project No.:	W14103592-02	Test Date:	September 8, 2015
Description:	SAND - silty, gravelly, trace clay	Preparation:	Moist
Source:	Coffee Gold Project	Compaction:	Manual



Maximum Dry Density:	**1990**	kg/m³
Optimum Moisture Content:	**12.2**	%
As Received Moisture Content:	**10.9**	%
Oversize (+19 mm) Retained:	**20**	%
Corrected Density:	**2094**	%
Corrected Moisture:	**10.0**	%

Remarks:

[signature redacted]

Reviewed By: C.E.T.

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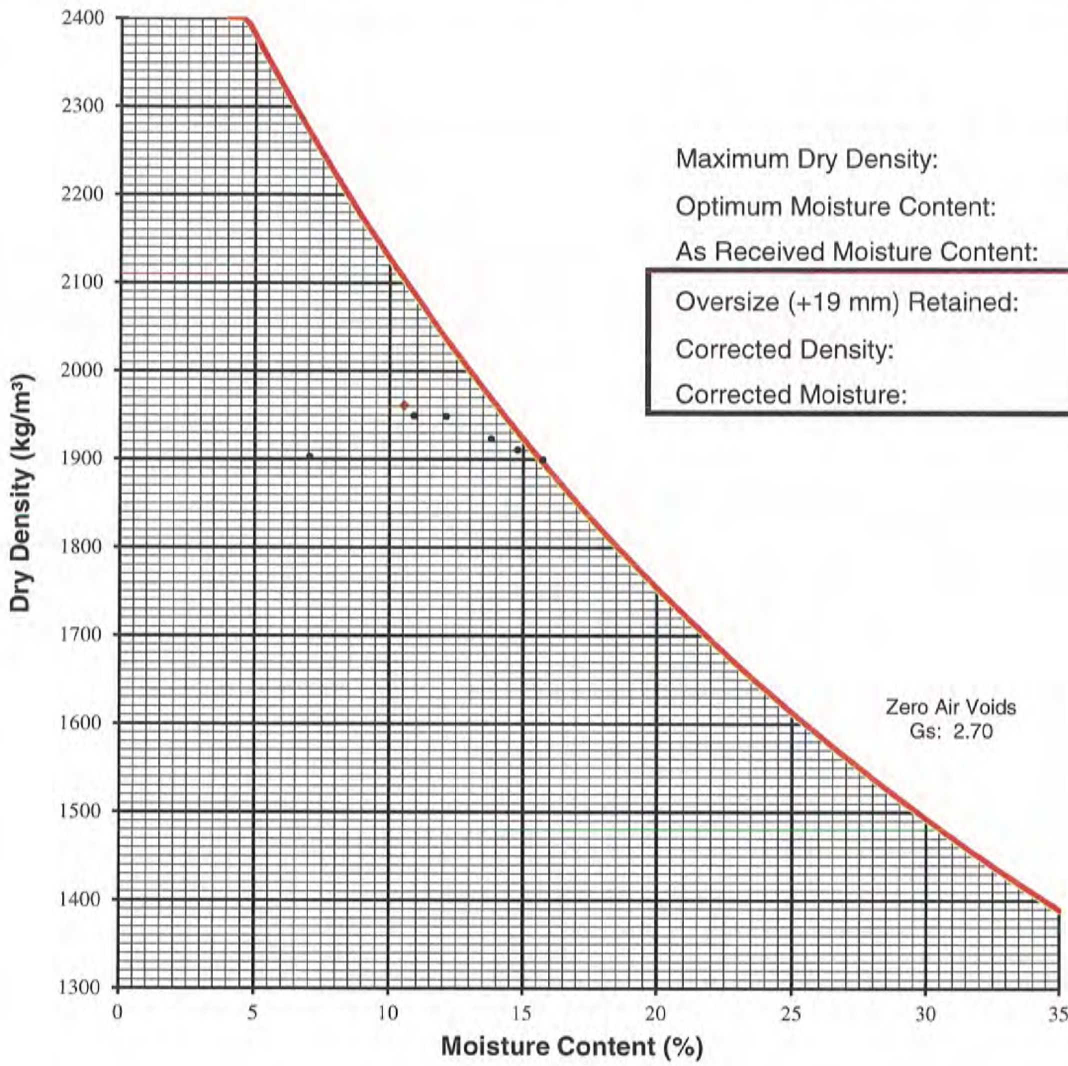
MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	Phase 2 Test Pit Program	Sample No.:	17562
Client:	SRK Consulting Ltd.	Sampled By:	Client
Attention:	[name redacted]	Sample Date:	June 19, 2015
Project No.:	W14103592-02	Test Date:	September 8, 2015
Description:	SAND - silty, gravelly, trace clay	Preparation:	Moist
Source:	Coffee Gold Project	Compaction:	Manual



Maximum Dry Density:	**1960**	kg/m³
Optimum Moisture Content:	**10.5**	%
As Received Moisture Content:	**10.9**	%
Oversize (+19 mm) Retained:	**9**	%
Corrected Density:	**2007**	%
Corrected Moisture:	**9.6**	%

Remarks:

[signature redacted]

Reviewed By: — C.E.T.

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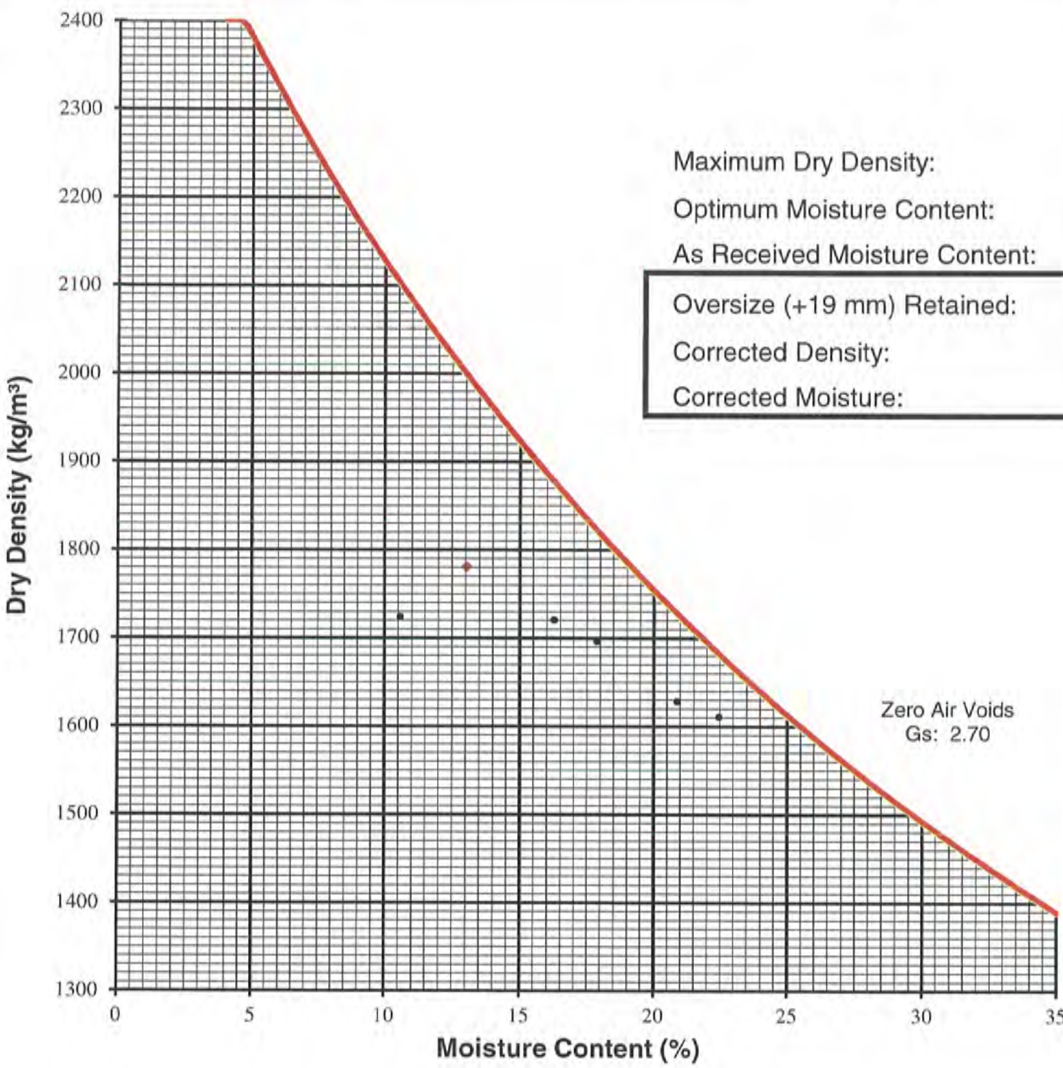
MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

Project:	Phase 2 Test Pit Program	Sample No.:	North Dump
Client:	SRK Consulting Ltd.	Sampled By:	Client
Attention:	[name redacted]	Sample Date:	June 19, 2015
Project No.:	W14103592-02	Test Date:	September 8, 2015
Description:		Preparation:	Moist
Source:	Coffee Gold Project	Compaction:	Manual



Maximum Dry Density:	**1780**	kg/m³
Optimum Moisture Content:	**13.0**	%
As Received Moisture Content:	**16.3**	%
Oversize (+19 mm) Retained:	**17**	%
Corrected Density:	**1885**	%
Corrected Moisture:	**11.0**	%

Remarks:

[signature redacted]

Reviewed By: — C.E.T.

TETRA TECH

Appendix D-8: Consolidation Tests

CONSOLIDATION TEST REPORT

ASTM D2435 (1 of 2)

Project:	SRK Coffee Gold Project	Test No.:	C-1
Project No.:	W14103592-01	Borehole No.:	SRK-15S-03
Client:	SRK Consulting	Sample Depth:	0.7 m
Attention:		Date Tested:	May 22, 2015

Soil Description: Organic Frozen Core

	Height (mm)	Moisture (%)	Wet Density (Mg/m^3)	Dry Density (Mg/m^3)	Void Ratio	Saturation
Initial	25.50	139.9	1.223	0.510	2.49	100
Final	17.66	99.7	1.470	0.736	1.47	100

Assumed Specific Gravity = 1.78 Swelling Pressure (kPa) = 0

Method to Compute Coefficient of Consolidation: Casagrande or Taylor

Pressure (kPa)	Void Ratio	Cv (m^2/yr)	Mv (m^2/MN)	K (m/s)
0	2.49			
1	2.4308	32.48	19.6465	2.0E-07
3	2.2136	10.18	42.2042	1.3E-07
5	1.9644	6.06	31.0205	5.8E-08
10	1.7525	1.31	14.2973	5.8E-09
20	1.5407	0.94	7.6955	2.2E-09
40	1.3438	0.87	3.8738	1.0E-09
5	1.4187		0.9132	
1	1.4718		5.4839	

Remarks: Test specimen was thawed during the test and dried at 60°C after testing to reduce decompostion.

Reviewed By: ______________________ P.Eng.

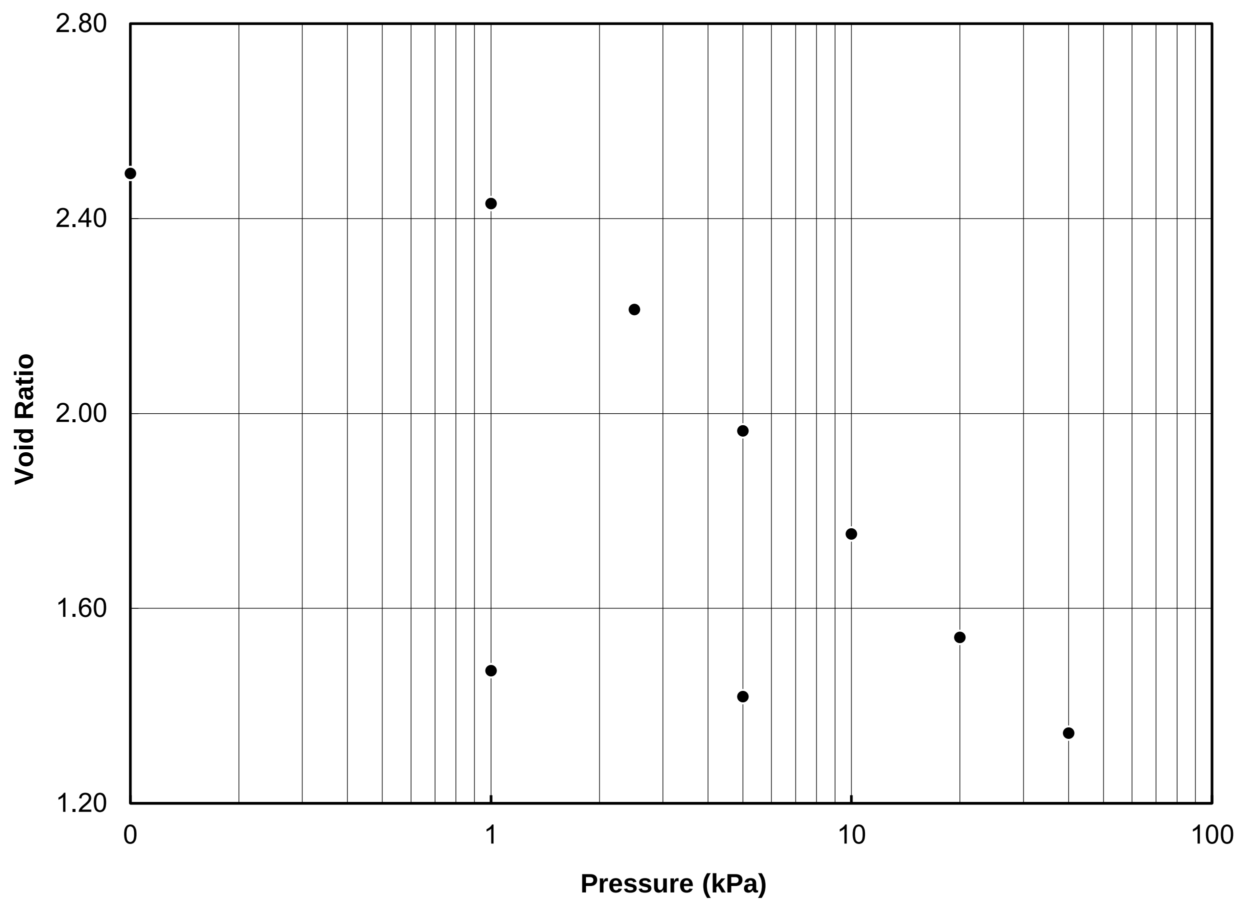
TETRA TECH

CONSOLIDATION TEST SUMMARY PLOT

ASTM D2435 (2 of 2)

Project:	SRK Coffee Gold Project	Test No.:	C-1
Project No.:	W14103592-01	Borehole No.:	SRK-15S-03
Client:	SRK Consulting	Sample Depth :	0.7 m
Attention:		Date Tested:	May 22, 2015

Soil Description: Organic Frozen Core



Remarks: Test specimen was thawed during the test and dried at 60°C after testing to reduce decompostion.

Reviewed By: ______________________ P.Eng.

CONSOLIDATION TEST REPORT

ASTM D2435 (1 of 2)

Project:	SRK Coffee Gold Project	Test No.:	C-2
Project No.:	W14103592-01	Borehole No.:	SRK-15S-09
Client:	SRK Consulting	Sample Depth:	2.0 m
Attention:		Date Tested:	May 22, 2015

Soil Description: Organic Frozen Core

	Height (mm)	Moisture (%)	Wet Density (Mg/m^3)	Dry Density (Mg/m^3)	Void Ratio	Saturation
Initial	25.28	57.2	1.501	0.955	1.20	100
Final	20.48	32.8	1.565	1.178	0.80	100

Assumed Specific Gravity = 2.10 Swelling Pressure (kPa) = 0

Method to Compute Coefficient of Consolidation: Casagrande or Taylor

Pressure (kPa)	Void Ratio	Cv (m^2/yr)	Mv (m^2/MN)	K (m/s)
0	1.20			
1	1.0382	14.20	81.7021	3.6E-07
2.5	0.9768	6.68	20.0892	4.2E-08
5	0.9210	5.73	11.2983	2.0E-08
10	0.8685	4.26	5.4657	7.2E-09
20	0.8126	0.62	2.9926	5.8E-10
40	0.7613	0.53	1.4144	2.3E-10
5	0.7824		0.3430	
1	0.7998		2.4336	

Remarks: Test specimen was thawed during the test and dried at 60°C after testing to reduce decompostion.

Reviewed By: ______________________ P.Eng.

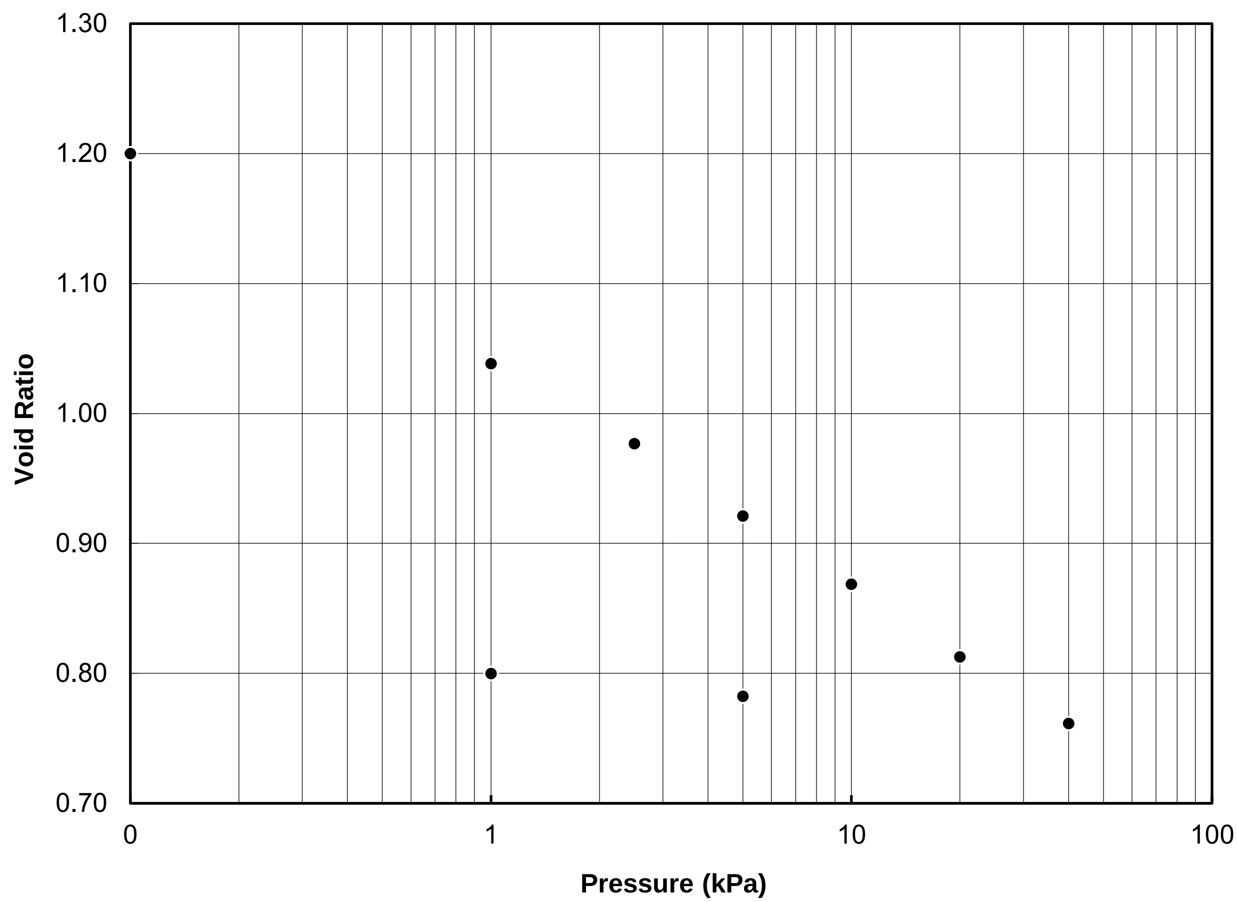
TETRA TECH

CONSOLIDATION TEST SUMMARY PLOT

ASTM D2435 (2 of 2)

Project:	SRK Coffee Gold Project	Test No.:	C-2
Project No.:	W14103592-01	Borehole No.:	SRK-15S-09
Client:	SRK Consulting	Sample Depth :	2.0 m
Attention:		Date Tested:	May 22, 2015

Soil Description: Organic Frozen Core



Remarks: Test specimen was thawed during the test and dried at 60°C after testing to reduce decompostion.

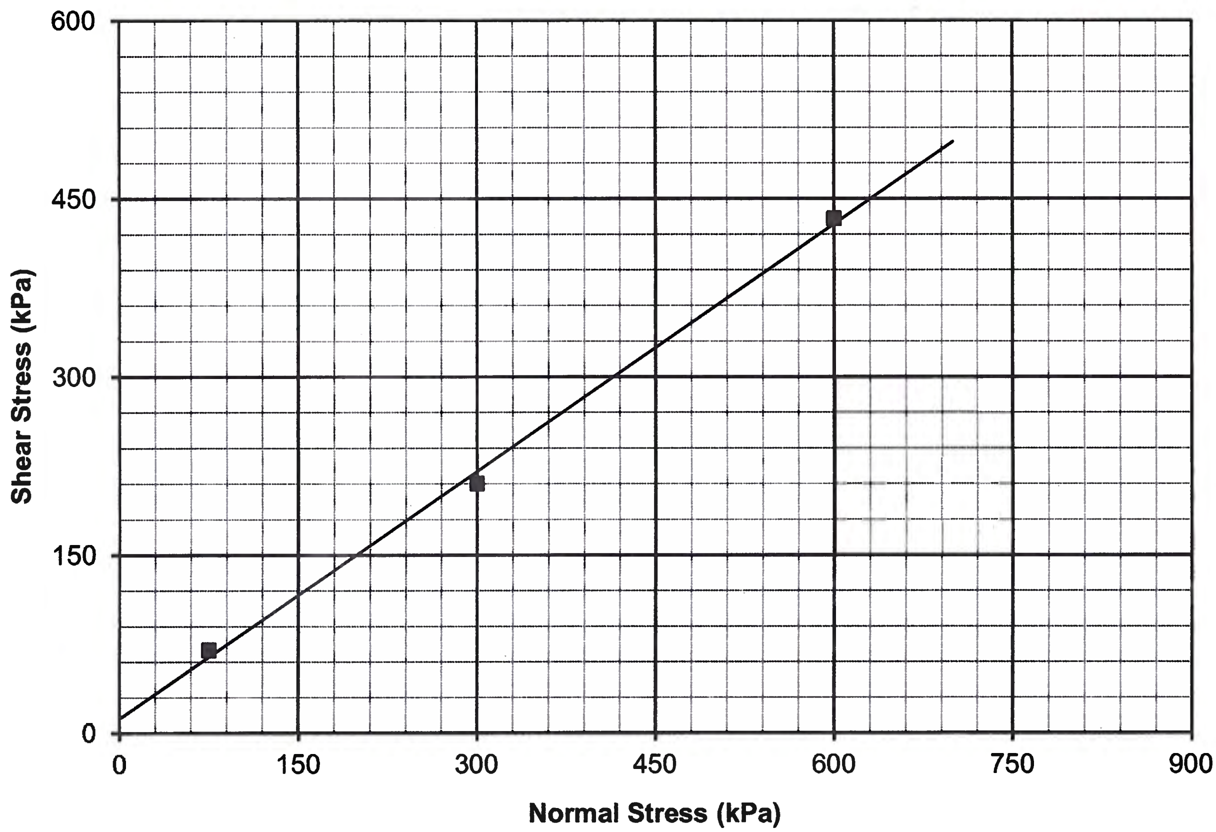
Reviewed By: ______________________ P.Eng.

Appendix D-9: Direct Shear Tests

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	SRK Gold Coffee Project	Test Hole:	SRK-15S-13A
Project No.:	**W14103592-01**	Depth:	1.1 m
Client:	**SRK Consulting Ltd.**	Date:	July 22, 2015
Attention:		Tested By:	SK
Email:		Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**12**	**34.8**
Residual Strength:	**NA**	**NA**

[signature redacted]

Reviewed By: ______________________ P.Eng.

TETRA TECH

DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15S-13A
Project No.:	W14103592-01	Depth:	1.1 m
Client:	SRK Consulting Ltd.	Test No.:	DS-1
Date Tested:	July 15, 2015	Machine:	1
Description:	SILT & SAND, some gravel, trace clay	Preparation:	Remolded

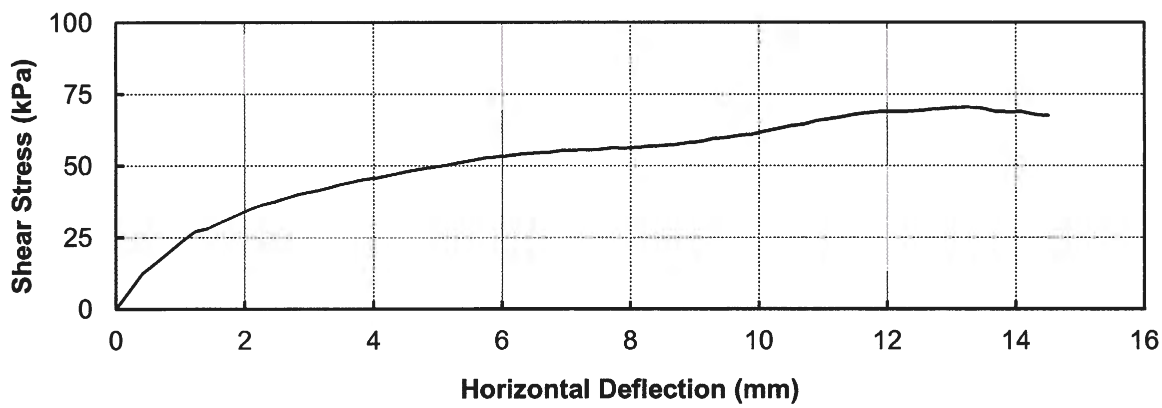
Normal Stress (kPa) = 75

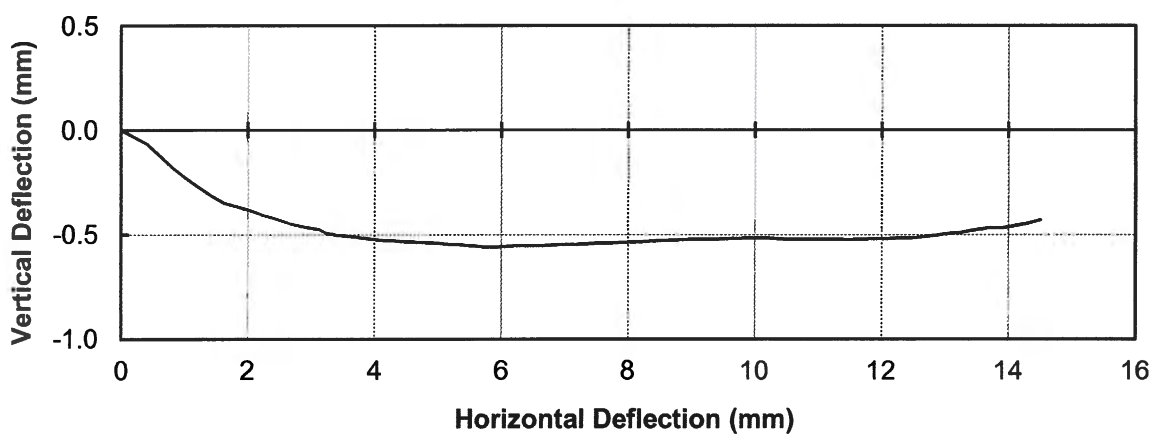
Peak Stress (kPa) = 70

Moisture Content (%) = 16.2

Wet Density (Mg/m^3) = 1.676

Dry Density (Mg/m^3) = 1.443





Remarks:

[signature redacted]

Reviewed By: ______ __________ P.Eng.

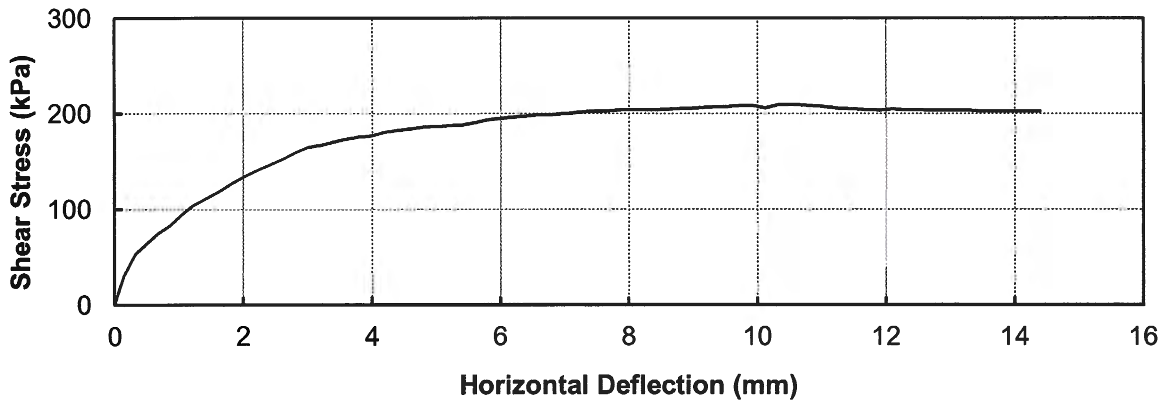
TETRA TECH

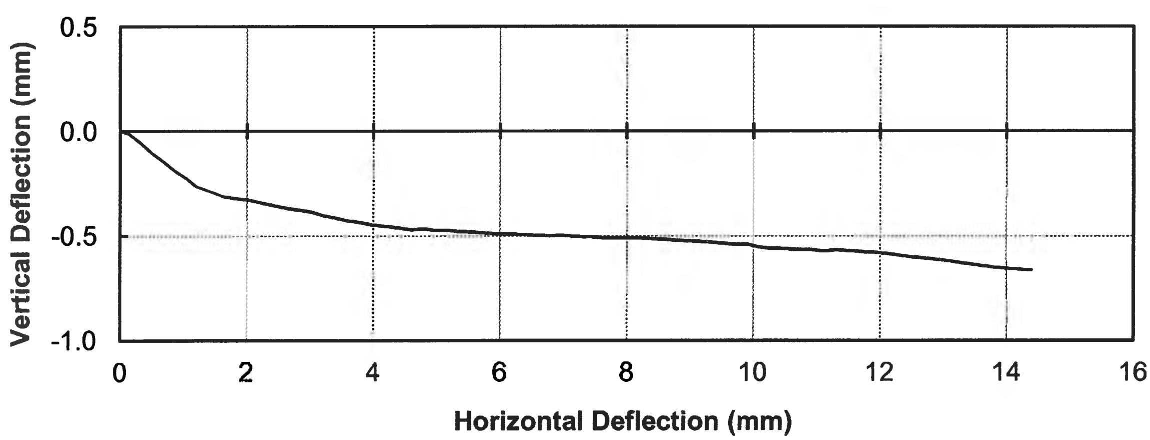
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15S-13A
Project No.:	W14103592-01	Depth:	1.1 m
Client:	SRK Consulting Ltd.	Test No.:	DS-2
Date Tested:	July 15, 2015	Machine:	3
Description:	SILT & SAND, some gravel, trace clay	Preparation:	Remolded

Normal Stress (kPa) =	300	Moisture Content (%) =	16.3
Peak Stress (kPa) =	210	Wet Density (Mg/m^3) =	1.692
		Dry Density (Mg/m^3) =	1.455





Remarks:

Reviewed By: [signature redacted] P.Eng.

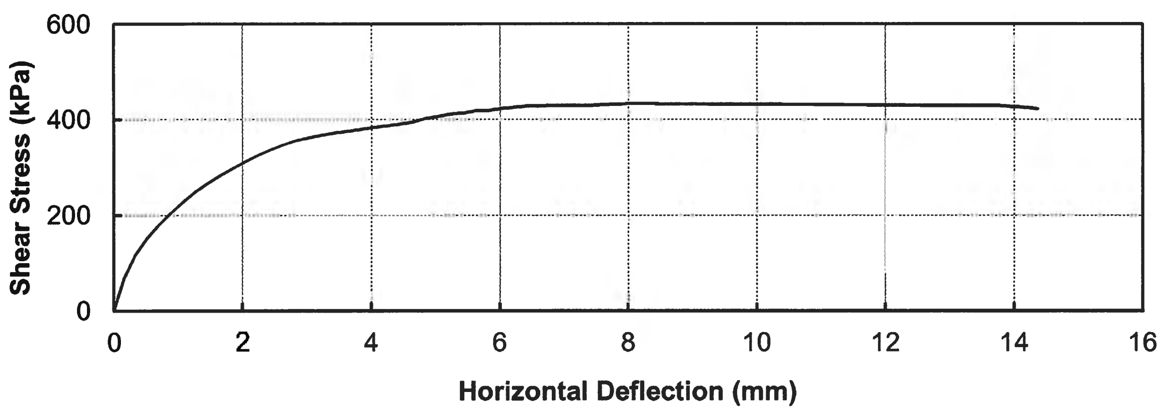
TETRA TECH

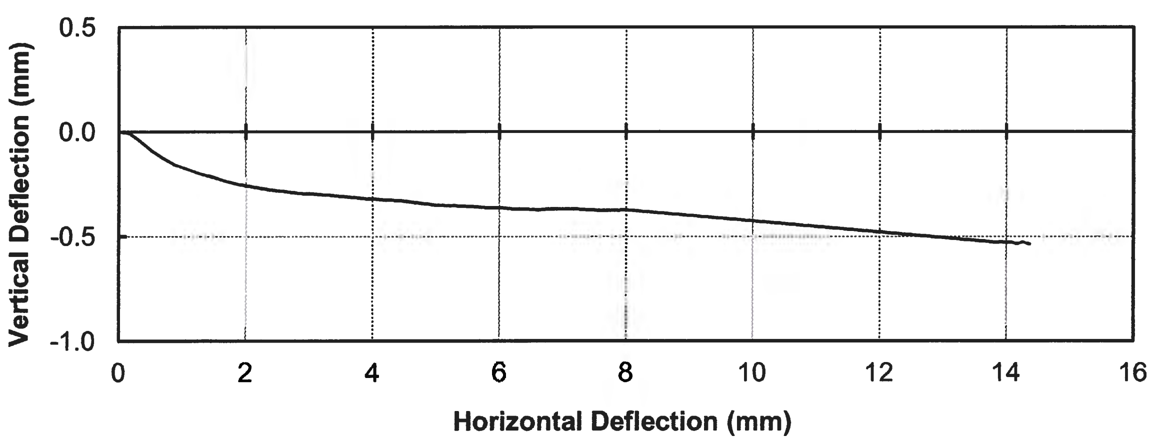
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15S-13A
Project No.:	W14103592-01	Depth:	1.1 m
Client:	SRK Consulting Ltd.	Test No.:	DS-3
Date Tested:	July 17, 2015	Machine:	3
Description:	SILT & SAND, some gravel, trace clay	Preparation:	Remolded

Normal Stress (kPa) =	600	Moisture Content (%) =	16.0
Peak Stress (kPa) =	433	Wet Density (Mg/m^3) =	1.691
		Dry Density (Mg/m^3) =	1.458





Remarks: ______

[signature redacted]

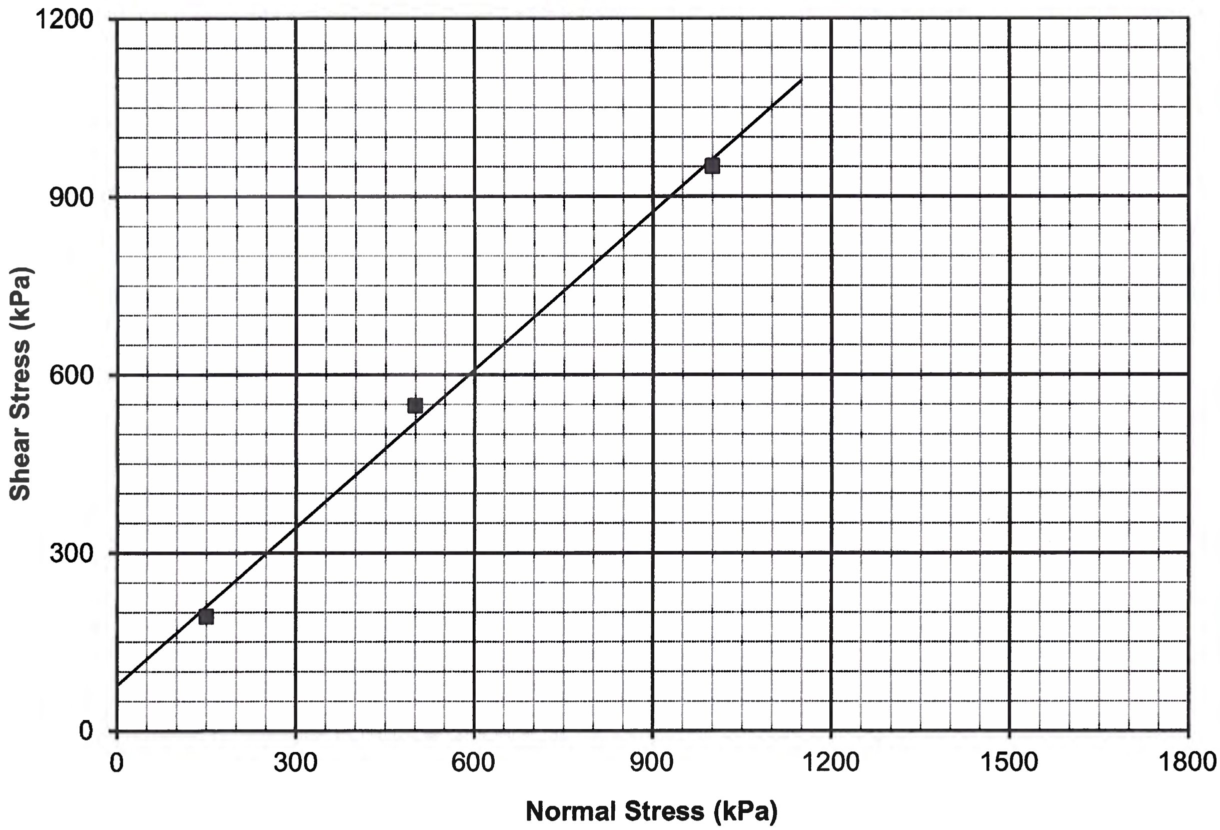
Reviewed By: ______ ______ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	SRK Gold Coffee Project	Test Hole:	SRK-15TP-17
Project No.:	**W14103592-02**	Sample No.:	17566
Client:	**SRK Consulting Ltd.**	Date:	September 24, 2015
Attention:		Tested By:	SK
Email:		Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**77**	**41.5**
Residual Strength:	**NA**	**NA**

[signature redacted]

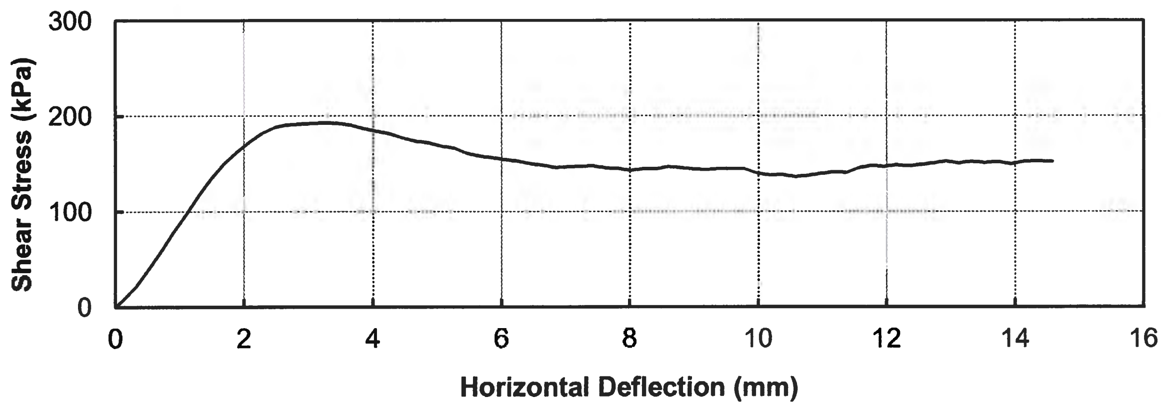
Reviewed By: ________ ________ P.Eng.

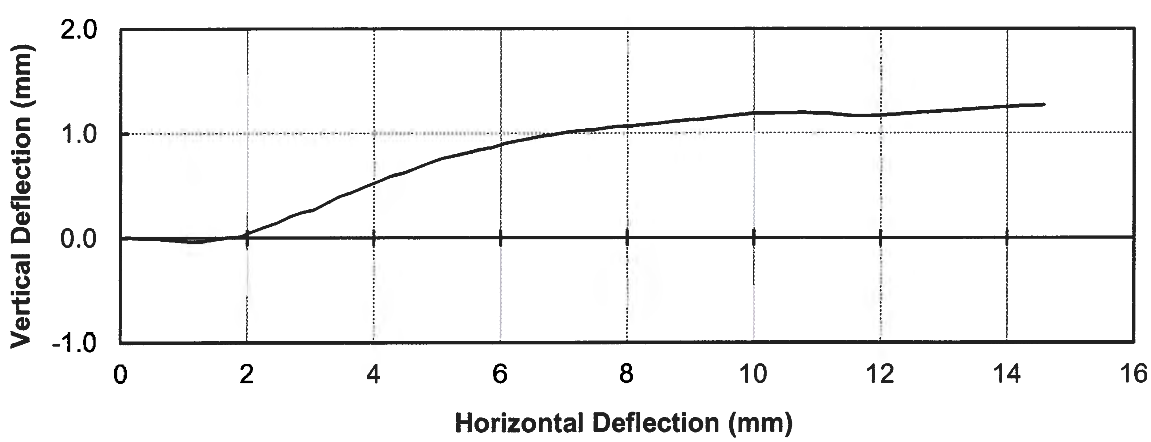
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15TP-17
Project No.:	W14103592-02	Sample No.:	17566
Client:	SRK Consulting Ltd.	Test No.:	DS-1
Date Tested:	September 16, 2015	Machine:	1
Description:	SAND & GRAVEL, silty, trace clay, brown	Preparation:	Remolded

Normal Stress (kPa) =	150	Moisture Content (%) =	9.6
Peak Stress (kPa) =	193	Wet Density (Mg/m^3) =	2.171
		Dry Density (Mg/m^3) =	1.982





Remarks: Remolded sample tested at 94.8% SPD and 9.6% M.C.

[signature redacted]

Reviewed By: ____ ________ P.Eng.

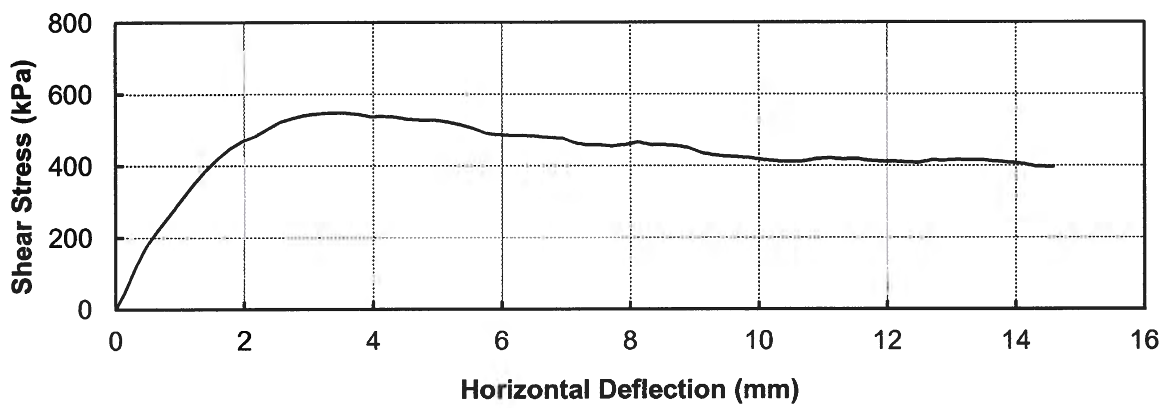
TETRA TECH

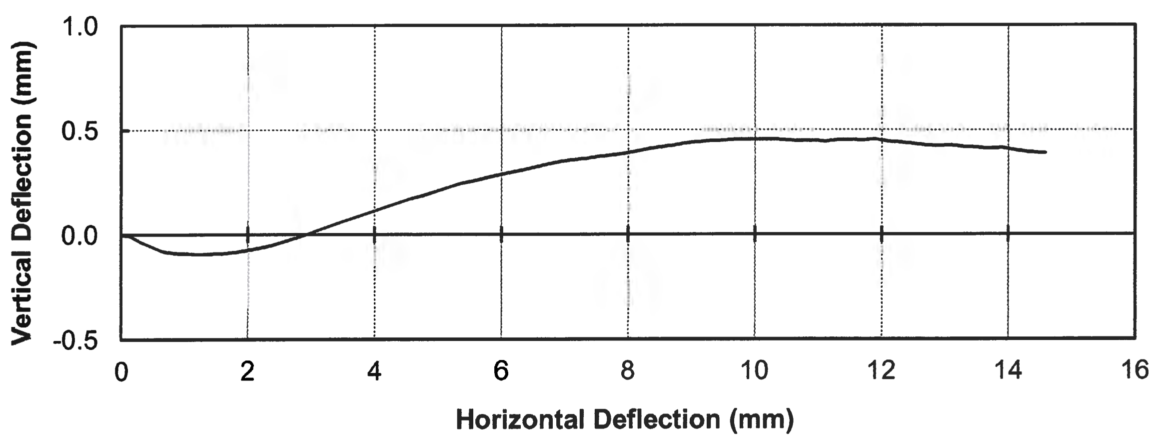
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15TP-17
Project No.:	W14103592-02	Sample No.:	17566
Client:	SRK Consulting Ltd.	Test No.:	DS-2
Date Tested:	September 16, 2015	Machine:	3
Description:	SAND & GRAVEL, silty, trace clay, brown	Preparation:	Remolded

Normal Stress (kPa) =	500	Moisture Content (%) =	9.6
Peak Stress (kPa) =	548	Wet Density (Mg/m^3) =	2.171
		Dry Density (Mg/m^3) =	1.981





Remarks: Remolded sample tested at 94.8% SPD and 9.6% M.C.

[signature redacted]

Reviewed By: ______________________ P.Eng.

DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15TP-17
Project No.:	W14103592-02	Sample No.:	17566
Client:	SRK Consulting Ltd.	Test No.:	DS-3
Date Tested:	September 18, 2015	Machine:	3
Description:	SAND & GRAVEL, silty, trace clay, brown	Preparation:	Remolded

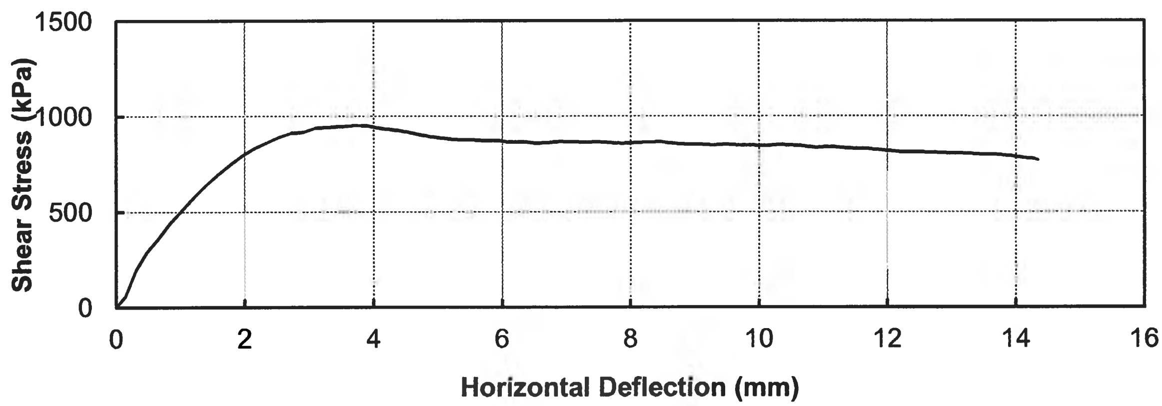
Normal Stress (kPa) = 1000

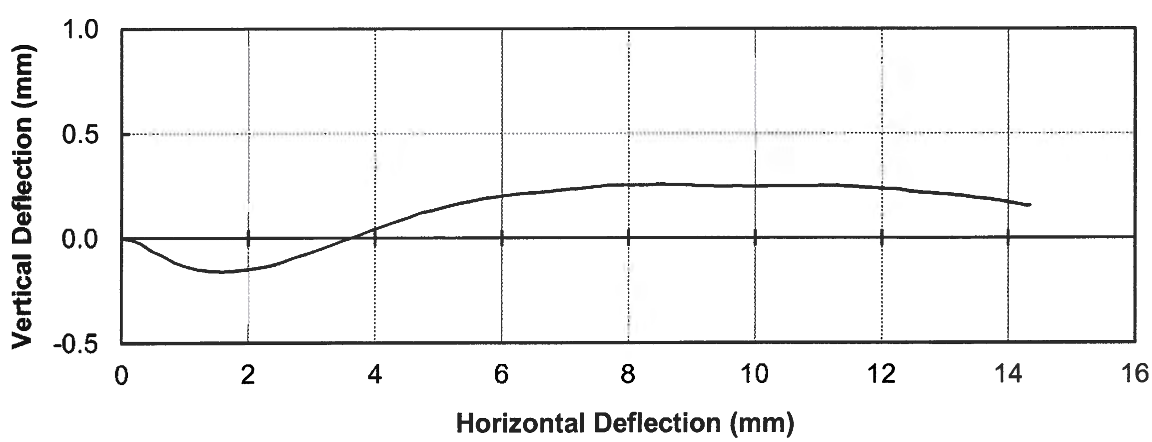
Peak Stress (kPa) = 951

Moisture Content (%) = 9.7

Wet Density (Mg/m^3) = 2.175

Dry Density (Mg/m^3) = 1.982





Remarks: Remolded sample tested at 94.8% SPD and 9.7% M.C.

[signature redacted]

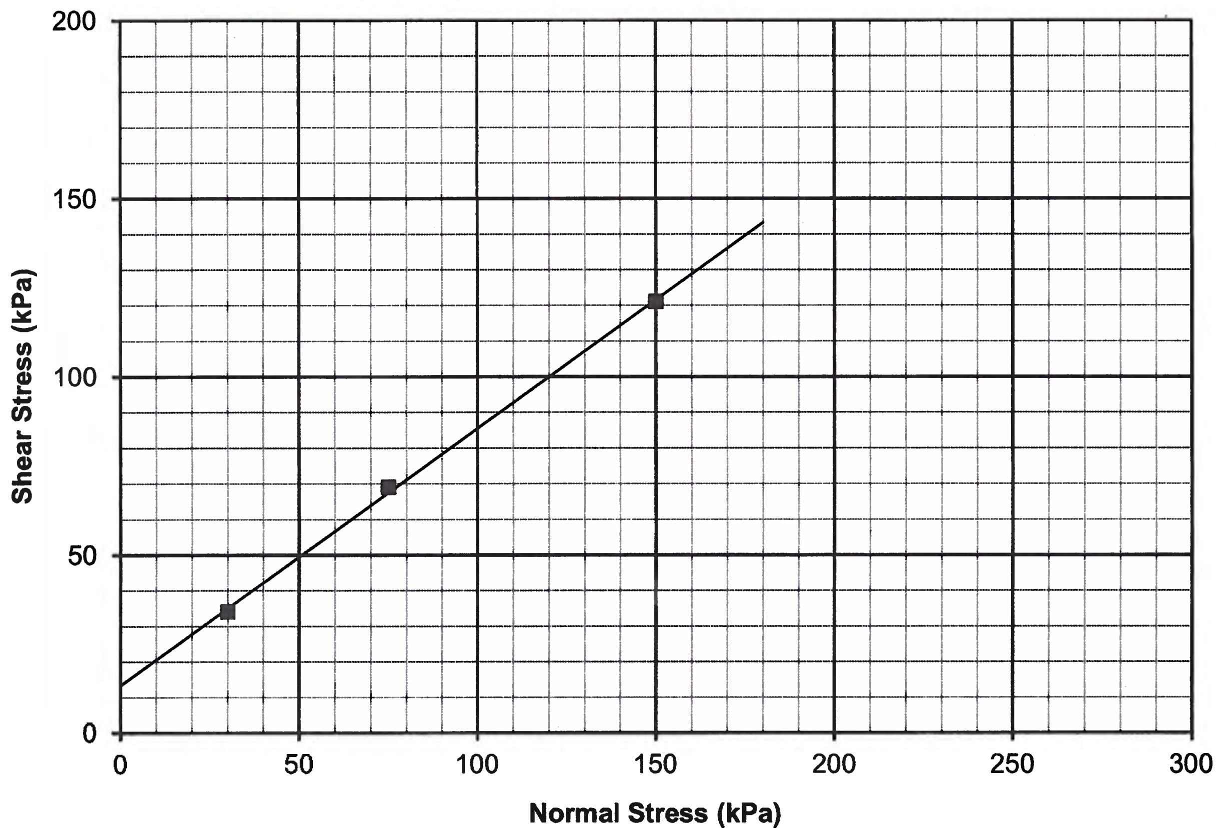
Reviewed By: ______________________ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	SRK Gold Coffee Project	Test Hole:	SRK-15S-05
Project No.:	**W14103592-01**	Depth:	2.8 m
Client:	**SRK Consulting Ltd.**	Date:	July 24, 2015
Attention:		Tested By:	SK
Email:		Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**13**	**35.8**
Residual Strength:	**NA**	**NA**

[signature redacted]

Reviewed By: ______________________ P.Eng.

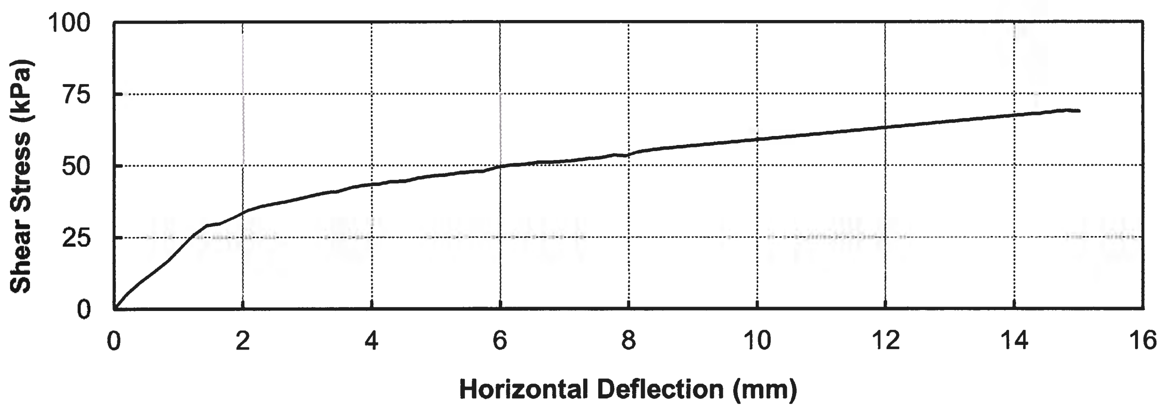
TETRA TECH

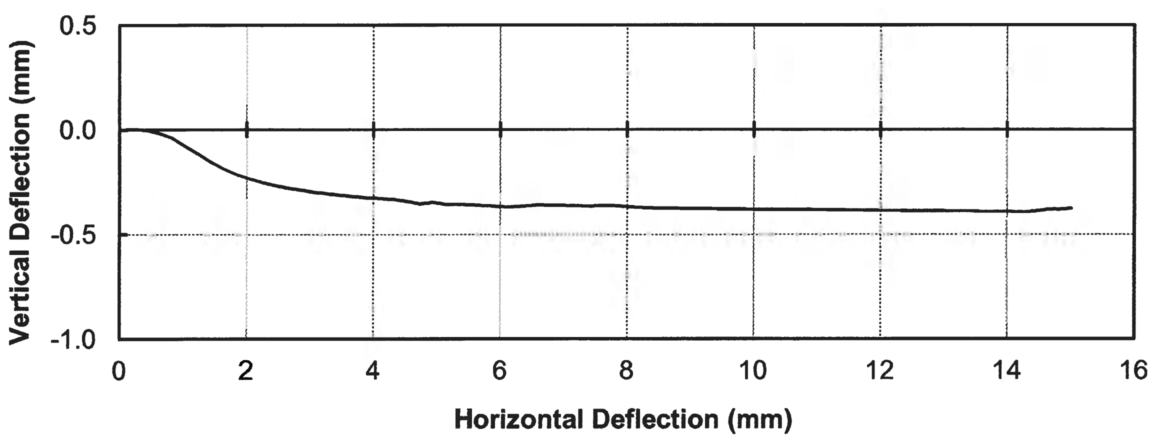
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15S-05
Project No.:	W14103592-01	Depth:	2.8 m
Client:	SRK Consulting Ltd.	Test No.:	DS-4
Date Tested:	July 17, 2015	Machine:	1
Description:	SILT, sandy, trace gravel, trace clay	Preparation:	Remolded

Normal Stress (kPa) =	75	Moisture Content (%) =	17.8
Peak Stress (kPa) =	69	Wet Density (Mg/m^3) =	1.363
		Dry Density (Mg/m^3) =	1.157





Remarks: __________

[signature redacted]

Reviewed By: ____ __________ P.Eng.

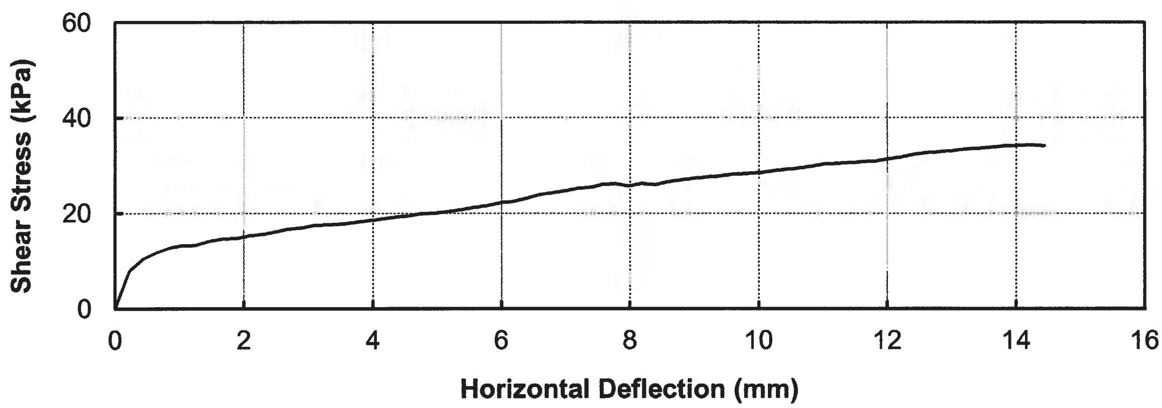
TETRA TECH

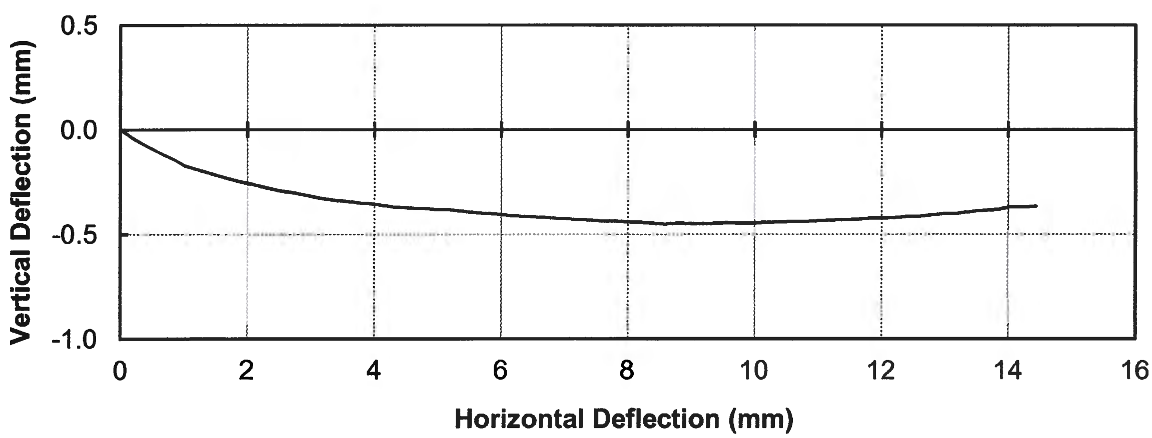
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15S-05
Project No.:	W14103592-01	Depth:	2.8 m
Client:	SRK Consulting Ltd.	Test No.:	DS-5
Date Tested:	July 21, 2015	Machine:	1
Description:	SILT, sandy, trace gravel, trace clay	Preparation:	Remolded

Normal Stress (kPa) =	30	Moisture Content (%) =	17.3
Peak Stress (kPa) =	34	Wet Density (Mg/m^3) =	1.387
		Dry Density (Mg/m^3) =	1.183





Remarks: ______

[signature redacted]

Reviewed By: ______ __________ P.Eng.

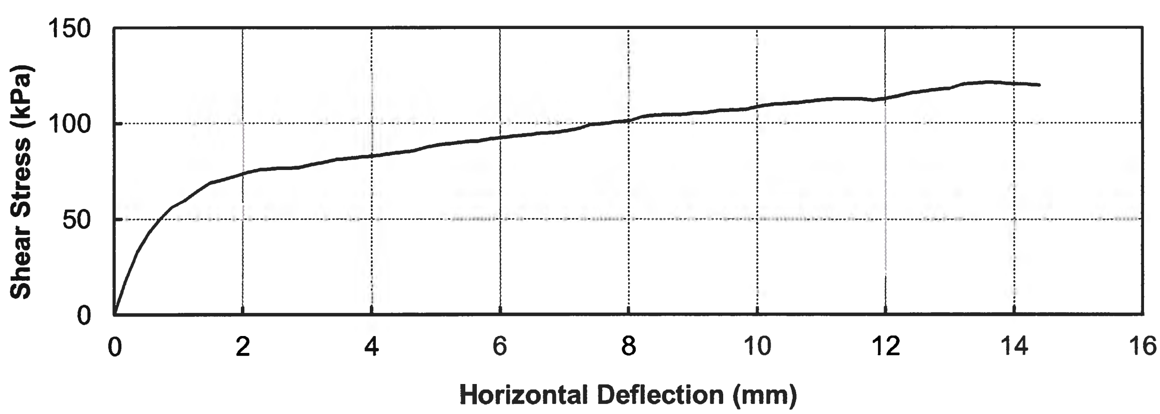
TETRA TECH

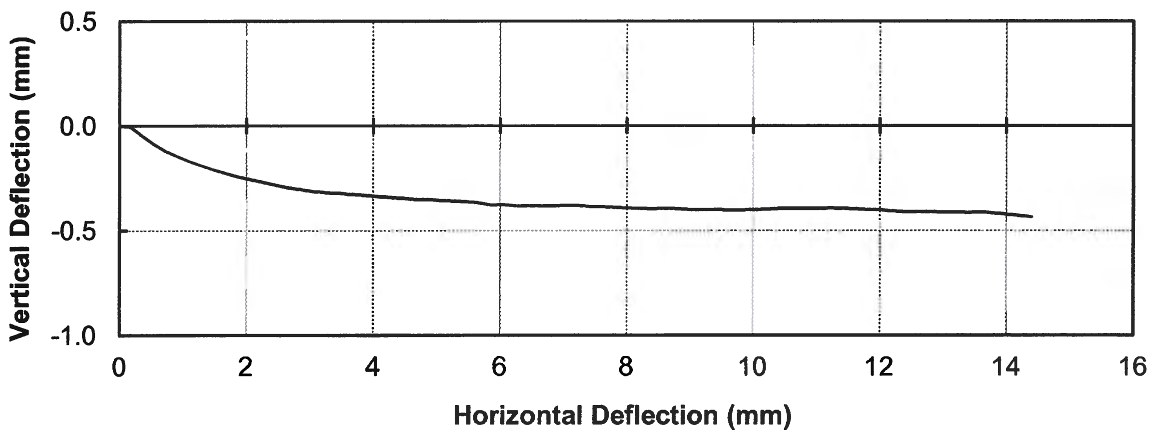
DIRECT SHEAR TEST

ASTM D3080

Project:	SRK Coffee Gold Project	Test Hole No.:	SRK-15S-05
Project No.:	W14103592-01	Depth:	2.8 m
Client:	SRK Consulting Ltd.	Test No.:	DS-6
Date Tested:	July 21, 2015	Machine:	3
Description:	SILT, sandy, trace gravel, trace clay	Preparation:	Remolded

Normal Stress (kPa) =	150	Moisture Content (%) =	17.5
Peak Stress (kPa) =	121	Wet Density (Mg/m^3) =	1.385
		Dry Density (Mg/m^3) =	1.179





Remarks: ______________________

Reviewed By: [signature redacted] P.Eng.

TETRA TECH

Appendix 31-D-IV

Fall 2016 Geotechnical Site Investigation

Data Report

TETRA TECH

srk consulting

FALL 2016 GEOTECHNICAL INVESTIGATION DATA REPORT, COFFEE MINE SITE COFFEE GOLD PROJECT

PRESENTED TO

GOLDCORP INC.

MARCH 20, 2017

ISSUED FOR USE

FILE: ENG.EARC03004-02

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
Tel 780.451.2121 Fax 780.454.5688

EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) and SRK Consulting (U.S. and Canada), Inc. (SRK) were retained by Goldcorp Inc. (Goldcorp) to conduct a geotechnical site investigation at the Coffee Mine Site, which is part of the Coffee Gold Project (the Project). The objective of the investigation was to acquire geotechnical and permafrost data to support the design of the mine WRSFs and respective sedimentation dams. Additional data was collected during the program to supplement the characterization of the WRSF foundation materials which were initially investigated during the 2015 geotechnical program (SRK, 2016) and to characterize foundation materials at the respective sedimentation dam locations.

The primary focus of the fall 2016 program was to provide an accurate as possible characterization of permafrost conditions and ice contents. As such chilled drilling fluids were used, minimizing thermal disturbance and providing high quality undisturbed frozen core samples. Cores were logged according to appropriate geotechnical and permafrost standards. Where soils were not frozen, poor recovery of soils occurred in some instances due to the lack of cohesion within the soils and the drilling fluid circulation. It is anticipated that these materials can be sampled with test pits at a later date if necessary.

Based on mine plans at that time, a total of seventy six drillhole locations were initially selected for the program to further characterize the WRSF foundation materials and provide initial foundation material information for the respective sedimentation dams. A total of thirty five of the seventy six drillholes were able to be completed during the fall 2016 program, before the program was suspended for the winter season. The program is currently anticipated to reconvene in late spring 2017 to complete the remaining forty one drillholes, pending the outcome of ongoing mine optimization and trade-off studies. It is possible that a portion of the forty one remaining holes may be eliminated or relocated if the ongoing studies significantly change the mine WRSF layout. This report summarizes results of the first thirty five holes.

The geotechnical investigation program was carried out from August 24, 2016 to October 5, 2016 and consisted of coring and testing frozen and unfrozen overburden and bedrock. A total of thirty five vertical boreholes with depths ranging from 4.0 m to 21.2 m were diamond-drilled and logged at the Kona Waste Rock Storage Facility (WRSF), Kona Pond, Halfway Pond, West WRSF area, West Pond, South Pond, North WRSF, and North Pond locations. Two multi-bead ground temperature cables (GTCs) were installed: one in Borehole GT-14 in the North WRSF area and another in Borehole GT-63, at the Halfway Pond site. A single bead thermistor was installed at GT-66 at the Halfway Pond site. Access to the drill sites and mobilization/demobilization of drill rigs was provided by helicopter. Selected core samples were tested for geotechnical properties in both onsite and offsite laboratories. One hundred ninety six soil samples were sent to Tetra Tech's Whitehorse geotechnical laboratory for soil index testing.

This report presents the results of the fall 2016 geotechnical site investigation, including observations of site terrain and subsurface conditions together with supporting borehole logs, geotechnical laboratory testing results, and initial ground temperature data collected from two newly installed ground temperature cables (GTCs). Subsurface and surface conditions are discussed in this report by summarizing the data acquired via drilling, logging, and laboratory testing, and by including observations of terrain conditions made in the field at each drill site.

The mine site area is characterized by a rolling plateau cut by tributary valleys – an ancient unglaciated landscape that forms gently rounded hills between the valleys. Valley side slopes generally range from 3° to 20°, but are locally 25° to 42°. Small creeks drain the valleys.

Vegetation consists of spruce and aspen trees on valley sides and low shrubs (dwarf birch, willow, blueberry, and Labrador tea). Sphagnum moss covers the forest floor on valley slopes and along creek channels. Plant cover varies with slope aspect. North-facing slopes host low shrubs and sparse to non-existent stunted black spruce ("drunken forest"), while south-facing slopes are characterized by mixed white and black spruce and trembling aspen. Differences are also noted between slopes of northeast and northwest aspect. Frost hummocks are common on north-facing slopes.

Slopes underlain by shallow permafrost are imperfectly to poorly-drained. Seepage of suprapermafrost groundwater was observed at several locations across the project site.

Surficial materials encountered in the boreholes show that the surficial deposits generally comprise well graded coarse colluvium generally from 1.6 to 7 m thick (although locally colluvium can be up to 15 m thick). The colluvial material consists mainly of layers of sand and gravel, with some cobbles and boulders, and minor silt and clay. It is covered either with a thin layer of moss or a veneer of "black muck" (wind-blown silt mixed with organic material). Moisture content in the colluvium ranges from 5% to 68%, but was up to 387% in the black muck that was sampled.

Occasionally, black muck is interbedded with colluvium near the ground surface, indicating past mass movement activity. This was noted in various holes at Kona Pond (GT-45), West Pond (GT-66) and Halfway Pond. At one borehole, frost shattered bedrock was encountered at the base of the colluvium unit where it overlies bedrock.

Bedrock mainly comprises either weathered granite or weathered gneiss. The granite, ranging from very weak to very strong, is jointed and fractured and of very poor to excellent quality. The gneiss is weak to extremely strong, foliated, banded, or includes quartz veins, is heavily fractured and jointed, near the ground surface. Rock Quality Designation (RQD) values range from very poor to good. Joints in both types of bedrock may be infilled with oxides, calcite, sand, silt, clay, weathered bedrock, or ice.

Biotite schist was encountered in a few locations. It is weathered and weak to very strong. Quartz veins may be present and joints may be oxidized and/or may contain silt, sand, calcite, oxide or ice infill. Rock quality is very poor to good based on the RQD values.

The mine site area is located within the zone of extensive discontinuous permafrost. Ice-rich permafrost is most common on north-facing slopes, while steep, well drained, south-facing slopes are generally permafrost-free. Active layer thickness ranges from 0.5 m to 2 m. Permafrost conditions were encountered in twenty seven of the thirty five boreholes completed in the fall of 2016.

Permafrost temperatures at the two new GTC installation locations (North WRSF, Borehole GT-14 and Halfway Pond, Borehole GT-63) range from -1.1ºC to -1.4ºC at the depth of zero annual amplitude. A temperature of -0.5ºC was recorded at the single-bead thermistor string location (Halfway Pond, GT-66). The depth of zero annual amplitude was estimated from the ground temperature data collected with two multi-bead GTCs installed in GT-14 and GT-63. It ranges from approximately 7 m depth below ground level (BGL) at the GT-14 site to approximately 8 m depth BGL at the GT-63 site.

Excess ground ice was observed in all twenty seven boreholes that encountered permafrost. It manifests in the frozen overburden in various forms, such as ice lenses (Vs, Vr); ice inclusions (Vx); or ice coatings (Vc) on gravel or cobbles. The excess ice content (percent by volume of visible ice) exceeds 50% in several locations.

Ground ice was also observed infilling some of the fractures and joints in bedrock as described in the appended borehole logs and illustrated in the report photographs.

TABLE OF CONTENTS

LIST OF TABLES IN TEXT

APPENDIX SECTIONS

FIGURES

PHOTOGRAPHS

APPENDICES

ACRONYMS AND ABBREVIATIONS

BGL	Below Ground Level
CYR	Cyr Drilling International Ltd.
FF	Fracture Frequency
GTC	Ground Temperature Cable
JSN	Joint Set Number
KP	Knight Piesold
Nbe	Well bonded perennially frozen soil with excess ice
Nbn	Well bonded perennially frozen soil, no excess ice
PECG	Palmer Environmental Consulting Group, Inc.
PLT	Point Load Testing
RQD	Rock Quality Designation
SRK	SRK Consulting (Canada), Inc.
Vc	Perennially frozen soil with excess ice visible as ice coatings on particles
Vr	Perennially frozen soil with excess ice visible as random or irregularly oriented ice formations
Vs	Perennially frozen soil with excess ice visible as stratified or distinctly oriented ice formations
Vx	Perennially frozen soil with excess ice visible as individual ice inclusions
WRSF	Waste Rock Storage Facility

GLOSSARY OF TERMS

ACTIVE LAYER – the top layer of ground that is subject to annual thawing and freezing in areas underlain by permafrost. The thickness of the active layer varies from year to year, depending on such factors as the ambient air temperature, vegetation, drainage, soil and rock type, water content, snow cover, and degree and orientation of slope (NRCC 1988).

CRYOSTRUCTURE – the structural characteristics of frozen earth materials determined by the amount and distribution of pore ice and lenses of segregated ice. Can be described as massive, layered, reticulate etc.

DEPTH OF ZERO ANNUAL AMPLITUDE (*depth of zero seasonal temperature variations*) – the distance from the ground surface downward to the level beneath which there is practically no annual fluctuation in ground temperature (NRCC 1988).

EXCESS ICE – the volume of ice in the ground that exceeds the total pore volume that the ground would have under natural unfrozen conditions (NRCC 1988).

GROUND ICE – a general term referring to all types of ice (segregated, intrusive, vein etc.) formed in freezing and frozen ground. Occurs in pores, cavities, voids, cracks, fractures, and other openings in soil or rock.

ICE AND SOIL TYPE (ICE and SILT etc.) – discrete visible ice formations in frozen soils that are greater than 50% by volume. Frozen core interval that contains more ice (>50% by volume of visible ice) than soil particles.

ICE COATINGS – discernible layers of ice found on or below the larger soil particles in a frozen soil mass.

ICE CONTENT – the amount of ice contained in frozen or partially frozen soil or rock. Ice content is normally expressed in one of two ways:

- On a dry-weight basis (gravimetric), as the ratio of the mass of the ice in a sample to the mass of the dry sample, expressed as a percentage; or
- On a volume basis (volumetric), as the ratio of the volume of ice in a sample to the volume of the whole sample, expressed as a percentage.

ICE LENS – a dominantly horizontal, lens-shaped body of ice ranging in thickness from hairline to 0.3 m. Ice layers more than 0.3 m in thickness are better termed massive ice beds.

ICE WEDGE – a massive, generally wedge-shaped body of foliated or vertically banded, commonly white, ground ice with its apex pointing downward.

PERMAFROST – ground (soil and/or rock) that remains at or below 0ºC for at least two consecutive years. Permafrost is defined exclusively on the basis of temperature. It is not necessarily frozen, i.e., it does not necessarily contain ground ice.

PERMAFROST, ICE-RICH – permafrost containing excess ice.

PERMAFROST TABLE – the upper boundary of permafrost.

SUPRAPERMAFROST WATER – water occurring in the active layer above the permafrost table.

TALIK – a layer or body of unfrozen ground in a permafrost area. Several types of taliks can be distinguished on the basis of their relationship to the permafrost: closed, open, lateral, isolated etc. (NRCC 1988).

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Goldcorp Inc. (Goldcorp) and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Goldcorp or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement. Tetra Tech's General Conditions are provided in Appendix A of this report.

1.0 INTRODUCTION

Tetra Tech Canada Inc. formally known as Tetra Tech EBA Inc. (Tetra Tech) and SRK Consulting (U.S. and Canada), Inc. (SRK) were retained by Goldcorp Inc. (Goldcorp) to conduct a geotechnical site investigation at the Coffee Mine Site, which is part of the Coffee Gold Project (the Project). The Project is located in west-central Yukon Territory and is approximately 400 km northwest of Whitehorse (Figure 1).

The objective of the investigation was to acquire geotechnical and permafrost data to support the design of the mine WRSFs and respective sedimentation dams. Additional data was collected during the program to supplement the characterization of the WRSF foundation materials which were initially investigated during the 2015 geotechnical program (SRK, 2016) and to characterize foundation materials at the respective sedimentation dam locations.

The geotechnical investigation program consisted of coring and testing frozen and unfrozen overburden and bedrock. For the purpose of this report, overburden is defined as all soils above bedrock consisting of organic soils and inorganic soils in both frozen and unfrozen states.

The primary focus of the fall 2016 program was to provide an accurate as possible characterization of permafrost conditions and ice contents. As such chilled drilling fluids were used minimizing thermal disturbance and providing high quality undisturbed frozen core samples. Cores were logged according to appropriate geotechnical and permafrost standards. Where soils were not frozen, poor recovery of soils occurred in some instances due to the lack of cohesion within the soils and the drilling fluid circulation. It is anticipated that these materials can be sampled with test pits at a later date if necessary.

Based on mine plans at that time, a total of seventy six drillhole locations were initially selected for the program to further characterize the WRSF foundation materials and provide initial foundation material information for the respective sedimentation dams. A total of thirty five of the seventy six drillholes were able to be completed during the fall 2016 program, before the program was suspended for the winter season. The program is currently anticipated to reconvene in late spring 2017 to complete the remaining forty one drillholes, pending the outcome of ongoing mine optimization and trade-off studies. It is possible that a portion of the forty one remaining holes may be eliminated or relocated if the ongoing studies significantly change the mine WRSF layout. This report summarizes results of the first thirty five holes.

The program used drilling and coring techniques designed specifically to minimize thermal disturbance to frozen core. Ground ice content of overburden materials (percent by volume of visible ice) and other subsurface geotechnical data was collected. This additional data augments the geotechnical information acquired prior to this investigation program. The entirety of the new and old data is needed to support ongoing engineering design work for the Project.

The fall 2016 geotechnical site investigation program was carried out jointly by Tetra Tech and SRK during the period from August 24, 2016 to October 5, 2016. This report presents the data collected during the investigation, including borehole logs, geotechnical laboratory test results, and initial ground temperature cable (GTC) readings collected from newly installed GTCs. Terrain and subsurface conditions at most of the waste rock storage facilities (WRSFs) and various sedimentation ponds within the mine site are summarized from the new data.

This report incorporates and is subject to Tetra Tech's General Conditions which are included in Appendix A.

2.0 GEOTECHNICAL INVESTIGATION

2.1 General

The fall 2016 geotechnical site investigation program was managed in the field by Dr. Vladislav E. Roujanski, a senior project geologist-geocryologist from Tetra Tech's Edmonton office. Field core logging, sampling, and onsite geotechnical soil and rock core testing was conducted by Dr. Vladislav Roujanski, P.Geol., Mr. Ernest Palczewski, P.Geo., Mr. Ryan Garritsen, E.I.T. (all from Tetra Tech's Edmonton Office), and Mr. Jonathon Dixon, P.Eng. (Tetra Tech's Whitehorse Office). Mr. Sam Amiralaei, Mr. Kendall Cator, and Mr. Stuart McPhee of SRK performed field core logging focusing on the non-permafrost related geotechnical characteristics of the materials. Technical support for the field program was provided by Mr. Kevin Jones, Tetra Tech Vice President for Arctic Development and Mr. Michael Levy, SRK Principal Consultant.

Mr. James Scott, M.Sc., P.Geo, Engineering Manager and Mr. Ryan Fetterley, Coffee Camp Manager, were Goldcorp's technical representatives on site, coordinating the drilling program on behalf of Goldcorp, and providing technical and logistical support. Ms. Jasmin Dobson was Goldcorp's site environmental superintendent.

Cyr Drilling International Ltd. (CYR) was the drilling contractor. Mr. Fred Crivea was CYR's driller.

Chilled drilling fluid was used to prevent permafrost from thawing during drilling. Mr. Bill McQuain of CT Control Temp visited the site intermittently to maintain the chiller (refrigeration) unit and oversee chiller operation.

Support for drill pad construction, moving the drill rig between the drill pads and access to the borehole locations was provided by helicopter (Photo 1).

**Photo 1: A-Star helicopter in the Kona Pond area.
Photo taken on September 15, 2016.**

A total of thirty five vertical boreholes with depths ranging from 4.0 m to 21.2 m were drilled and logged at the following eight proposed infrastructure locations: Kona WRSF area, Kona Pond, Halfway Pond, West WRSF area, West Pond, South Pond, North WRSF, and North Pond, as shown in Figures 2 to 5. Nine shallow test pits with depths ranging from 0.4 m to 0.7 m were hand-dug to refusal either on the permafrost table or on coarse colluvium at selected drill pad locations as shown in Figures 2 to 5.

The boreholes and testpits provide data regarding depth to bedrock, bedrock lithology, overburden sediment types, ground ice content, and conditions of the overburden and bedrock. One hundred ninety six representative soil samples were collected and sent to Tetra Tech's Whitehorse geotechnical laboratory for further testing. All boreholes but one (GT-10) were drilled through the overburden to a minimum depth of 2.3 m (GT-46) into competent bedrock. Borehole GT-10 did not reach bedrock.

Two multi-bead GTCs were installed: one in Borehole GT-14 in the North WRSF area and another in Borehole GT-63 at the Halfway Pond site. A single bead thermistor was installed in Borehole GT-66 at the Halfway Pond site.

2.2 Borehole Locations

The project area is located within Zone 7 of the Universal Transverse Mercator (UTM) Grid. The horizontal datum for this project is the North American Datum 1983 (NAD83).

Survey control for the geotechnical site investigation was provided jointly by Tetra Tech and SRK. Tetra Tech personnel used a handheld GPS unit (Garmin GPSMAP 60CSx) to locate and verify the borehole locations that were staked by Goldcorp prior to the investigation. An as-built RTK GPS survey, including borehole collar elevations, was carried out by Goldcorp (Challenger Geomatics Ltd.) following the completion of the site investigation. The coordinates, depth to bedrock, and completion depth for each of the boreholes are presented on borehole logs in Appendix B and are summarized in Table 1 below. Borehole locations are also presented on Figures 2 to 5.

Table 1: Borehole Information Summary

Site Infrastructure	Borehole	UTM ZONE 7			Depth to Bedrock (m)	Completion Depth (m)	Drilling Fluid
		Northing (m)	Easting (m)	Elevation (m)			
Kona WRSF	GT-01	6,973,518	580,350	1,209	1.6	4.0	Perma-Drill ES
	GT-02	6,973,353	580,246	1,202	2.0	5.0	Perma-Drill ES
	GT-09	6,973,144	580,132	1,196	15.0	19.0	Perma-Drill ES
North WRSF	GT-10	6,975,327	585,072	972	-	7.5	Perma-Drill ES
	GT-11	6,975,298	585,382	1,027	2.4	6.4	Perma-Drill ES
	GT-12	6,975,220	585,730	1,072	3.0	6.0	Perma-Drill ES
	GT-13	6,975,116	585,041	1,026	5.8	10.0	Perma-Drill ES
	GT-14 (1)	6,975,088	585,457	1,082	1.9	20.5	Perma-Drill ES
	GT-15	6,974,887	585,044	1,081	6.0	10.0	Perma-Drill ES

Table 1: Borehole Information Summary

Site Infrastructure	Borehole	UTM ZONE 7 Northing (m)	UTM ZONE 7 Easting (m)	UTM ZONE 7 Elevation (m)	Depth to Bedrock (m)	Completion Depth (m)	Drilling Fluid
West WRSF	GT-16	6,974,297	582,601	1,006	2.7	6.0	Glycol
	GT-17	6,973,945	582,500	985	2.0	5.2	Glycol
	GT-18	6,973,630	582,637	988	3.7	7.0	Glycol
	GT-19	6,974,146	582,819	1,075	2.6	6.0	Glycol
	GT-20	6,973,768	582,947	1,079	3.2	7.0	Glycol
Kona Pond	GT-43	6,973,188	580,418	1,152	11.0	18.0	Glycol
	GT-44	6,973,159	580,436	1,151	2.0	6.0	Glycol
	GT-45	6,973,178	580,399	1,155	13.6	21.0	Glycol
	GT-46	6,973,201	580,444	1,148	8.7	11.0	Glycol
	GT-47	6,973,208	580,413	1,154	13.0	18.0	Glycol
North Pond	GT-48	6,975,725	585,236	916	1.6	9.0	Perma-Drill ES
	GT-50	6,975,666	585,289	906	3.4	10.0	Perma-Drill ES
	GT-51 (2)	6,975,679	585,313	909	2.4	21.0	Perma-Drill ES
South Pond	GT-53	6,972,356	584,674	799	6.5	10.0	Glycol
	GT-55	6,972,333	584,686	796	6.3	9.0	Glycol
	GT-56	6,972,376	584,655	802	6.2	10.0	Glycol
West Pond	GT-57	6,973,904	582,158	918	10.2	14.0	Glycol
	GT-58	6,973,942	582,205	901	4.6	8.0	Glycol
	GT-59	6,973,971	582,239	913	1.0	5.0	Glycol
	GT-60	6,973,977	582,181	895	4.9	8.0	Glycol
	GT-61	6,973,921	582,216	905	4.0	8.0	Glycol
Halfway Pond	GT-62	6,973,182	581,258	1,020	3.9	8.0	Glycol
	GT-63 (1)	6,973,176	581,283	1,028	3.1	21.2	Glycol
	GT-64	6,973,182	581,213	1,029	3.5	7.0	Glycol
	GT-65	6,973,211	581,245	1,018	5.4	9.0	Glycol
	GT-66	6,973,166	581,235	1,023	7.7	11.0	Glycol

Notes: (1) GTC installed
(2) PVC pipe installed for potential GTC

2.3 Drilling and Coring Methodology

The boreholes were drilled using a Helicopter portable D-10 Duralite 500 diamond drill rig (Photo 2) with a triple tube coring system operated by CYR. The maximum depth of drilling was 21.2 m. All overburden and bedrock core samples were recovered using an NQ3 core barrel (45.1 mm inner diameter) and conventional diamond drilling techniques.

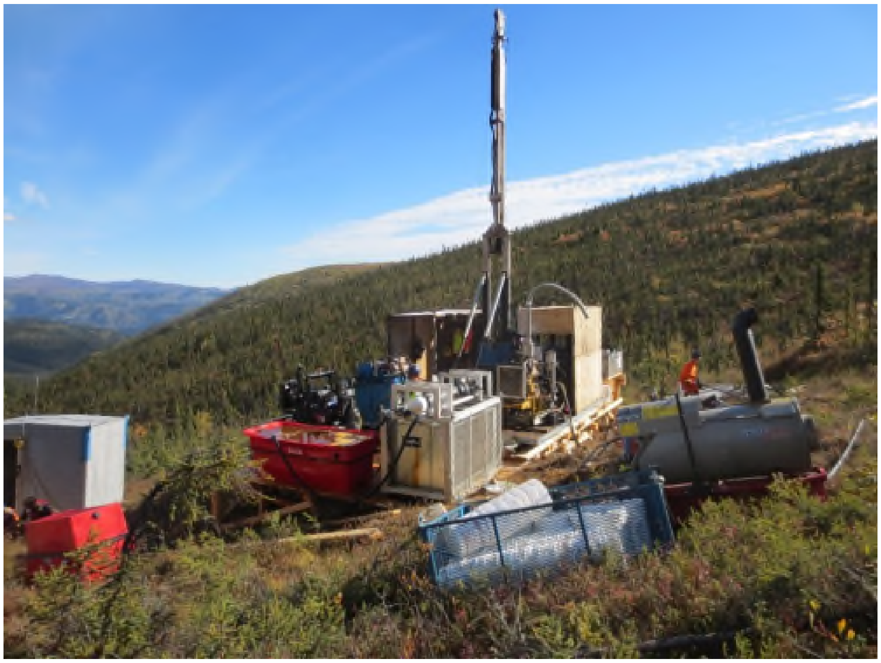


**Photo 2: Heli portable D-10 Duralite 500 Diamond Drill rig setup, North WRSF area. Chiller unit with a mixing tank filled with drilling fluid (Perma-Drill SE) in the middle of photo.
Photo taken on August 26, 2016.**

Coring with a diamond drill generates heat at the core bit, especially when drilling through coarse-grained well-bonded frozen soil or hard rock. The drill bit requires continuous flushing with chilled drilling fluid to cool the bit, remove cuttings, and reduce friction between the drill string and the walls of the borehole. For this project, it was particularly important to minimize thermal disturbance of the permafrost by keeping ground temperatures below 0°C. To meet this thermophysical challenge, a refrigeration unit (chiller) was manufactured by CYR (Photos 2 and 3). It was used to chill drilling fluid to a temperature of approximately -6°C to -7°C.

Photo 3: Drilling fluid refrigeration unit (chiller) with a mixing tank filled with Perma-Drill ES mixed with water.
Photo taken on August 28, 2016.

Two types of drilling fluid additives, Perma-Drill ES and Propylene Glycol, were used because the former, which was utilized at the beginning of the drill program, required a higher concentration (approximately 60%), when mixing with water than the latter (approx. 30%) to lower the drilling fluid temperature to the required -6°C / -7°C. This posed a logistical challenge of shipping additional containers of Perma-Drill ES to the site. Perma-Drill ES (Photo 4) is manufactured by MATEX Control Chemical (1989) Corporation. It consists mainly of concentrated sugar beet juice. Table 1 shows which boreholes were drilled with which additive. Both methods allowed recovery of good quality frozen soil core samples (Photo 5).

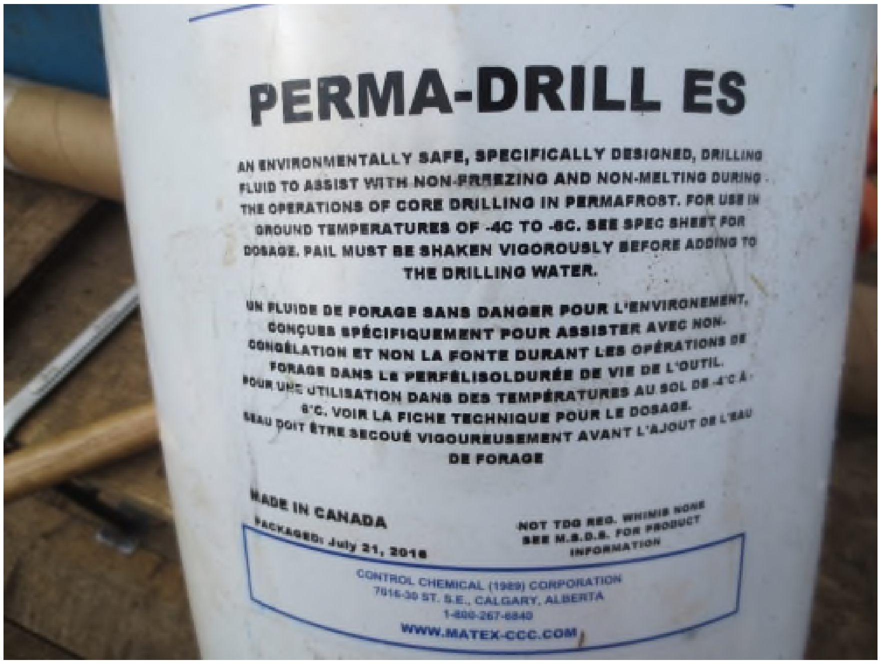


Photo 4: Perma-Drill ES drilling fluid additive.
Photo taken on August 26, 2016.

Photo 5: Good quality intact frozen overburden core recovered with chilled Perma-Drill SE drilling fluid in Borehole GT-10 (0.3 m to 4.0 m depth interval).
Photo taken on September 1, 2016.

2.4 Geotechnical Logging

Frozen overburden and bedrock core examination and logging was conducted immediately following core recovery in a core shack adjacent to the borehole collar to ensure that minimal thermal disturbance affected the frozen core sample. This allowed accurate identification, logging, and sampling of frozen overburden core.

Frozen soil core logging involved three steps:

1. Description of soil composition (lithology) according to the Modified Unified Soil Classification System guidelines (Appendix C) and Tetra Tech's work method WM4440 guidelines;
2. Description of the frozen state of the soil (visible or non-visible ice); and
3. Description of characteristic ice features, including cryogenic structures (cryostructures) found within frozen soil. Steps 2 and 3 were carried out according to the ASTM D4083 procedure and Tetra Tech's work method WM4102 guidelines.

Bedrock core logging followed Tetra Tech's work method WM3403 guidelines and consisted of identification of the following:

1. Rock type;
2. Degree of weathering (W1 to W6, Table 2)
3. Joint set number (JSN, Table 3);
4. Spacing of joints including their roughness, and type of the infill;
5. Fracture frequency (FF); and
6. Rock quality designation (RQD, Table 4).

Rock strength was determined by using a geological hammer at the drill site and a point load tester in the onsite geotechnical field laboratory located at the Coffee Camp. Classification of the rock with regard to strength and strength description terms are based on those suggested by the International Society for Rock Mechanics (ISRM 1981), which are summarized in Table 5.

Table 2: Degree of Weathering

Degree of Weathering	Description	Rating
Residual Soil	Original fabric destroyed	W6
Completely weathered/altered	Original fabric and relict structures remain, but rock is decomposed and friable	W5
Highly weathered/altered	Rock is discoloured and strength is significantly reduced by weathering	W4
Moderately weathered/altered	Rock is discoloured, but rock strength only slightly affected, discontinuous weathering	W3
Slightly weathered/altered	Rock strength unchanged, weathering on joints only	W2
Fresh and unweathered	Alteration may result in an improvement in rock competency (e.g., silicification)	W1

Table 3: Joint Set Number (JSN), J_n (after Barton et al. 1974)

Description	J_n Rating
Massive, no or few joints	0.5 to 1.0
One joint set	2
One joint set plus random	3
Two joint sets	4
Two joint sets plus random	6
Three joint sets	9
Three joint sets plus random	12
Four or more joint sets, random, heavily jointed, “sugar coated”	15
Crushed rock, earth-like	20

Table 4: Correlation Between RQD and Rock Mass Quality

RQD (%)	Rock Quality
<25	Very poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

Table 5: Classification of Rock with Regard to Strength

Grade	Strength Classification	Field Identification Method	Range of Unconfined Compressive Strength (MPa)
R0	Extremely Weak	Indented by thumbnail	<1
R1	Very Weak	Crumbles under firm blows of geological hammer; can be peeled with a pocket knife	1-5
R2	Weak Rock	Can be peeled by a pocket knife with difficulty; shallow indentations made by a firm blow with point of geological hammer	5-25
R3	Medium Strong	Cannot be scraped or peeled with a pocket knife; specimen can be fractured with a single firm blow of geological hammer	25-50
R4	Strong	Specimen required more than one blow of geological hammer to fracture	50-100
R5	Very Strong	Specimen required many blows of geological hammer to fracture	100-250
R6	Extremely Strong	Specimen can only be chipped by the geological hammer	>250

2.5 Sampling and Geotechnical Laboratory Testing

All recovered core samples were placed in wooden core boxes and photographed immediately upon recovery, prior to sample removal. Close-up photographs were taken of ground ice formations and cryostructures where present. Some ground ice features identified in the recovered frozen soil and rock cores are illustrated in Photos 6 to 8.

Photo 6: 15 mm thick horizontal ice lens in frozen silt at 5.95 m depth BGL; GT-66, Halfway Pond. Photo taken on September 24, 2016.

Photo 7: Ice infilling vertical fracture in gneiss bedrock at 2.65 m depth BGL; GT-51, North Pond. Photo taken on September 6, 2016.

Photo 8: Ice inclusion (Vx) in fractured upper bedrock at 13.2 m depth BGL; GT-47, Kona Pond. Photo taken on September 14, 2016.

Representative undisturbed frozen core samples were wrapped in several layers of plastic wrap and were then wrapped in several layers of aluminum foil. The wrapped samples were temporarily stored at the drill sites in insulated coolers with ice packs to maintain their frozen undisturbed state until they could be transferred to a freezer located at the Coffee Camp.

Representative disturbed soil samples were placed in plastic bags, double-bagged for moisture preservation, and transported to the Coffee Camp geotechnical laboratory.

Some of the samples were tested in the field laboratory located at the camp, which was equipped with a microwave oven, an electronic scale, a point load tester, and other basic testing equipment. Testing included excess ground ice content measurement, porewater salinity, moisture content, and bulk density determinations. The remainder of the frozen core samples were shipped to Whitehorse for storage and testing at Tetra Tech's geotechnical laboratory. The offsite testing included natural moisture and excess ice contents, particle size distribution (hydrometer), organic content, bulk density, and Atterberg limits.

Surprisingly high salinities (up to 45 ppt, Table 6) in porewater in some soil samples measured with a handheld refractometer in the field might be explained by contamination of the soil samples with concentrated drilling fluid. However, the complete chemical contents of the drilling fluid additives (Perma-Drill ES) were not available during preparation of this report.

The geotechnical laboratory testing results are summarized below in Tables 6 and 7, are presented fully in Appendix C and Appendix D, and are shown on the borehole logs in Appendix B.

Table 6: Summary of Onsite Laboratory Test Results

Borehole No.	Sample Number	Depth (m)	Frozen Bulk Density (kg/m^3)	Excess Ice Content (% by volume)	Moisture Content (%)	Porewater Salinity (ppt)
GT10	S1	0.5 - 0.65		28.2	119.1	3
	S2	0.65 - 0.8	1,210	50.6	129.2	4
	S3A	0.8 - 1.05	1,344			
	S4	1.05 - 1.15		41.1	72.2	3
	S6	3.25 - 3.43		13.1	24.3	13
	S9	5.3 - 5.5			8.3	
	S10	6.8 - 6.9			9.3	
GT11	S2	2.15 - 2.37		19.5	29.9	14
GT12	S1	0.4 - 0.6		44.5	122.2	5
	S3	2.5 - 3.0		9.4	29.3	3
GT13	S1	0.2 - 0.56		42.1	109.2	13
	S2	0.56 - 0.66	1,318			
	S3	1.07 - 1.15		12.3	10.9	40
	S4	1.34 - 1.60	1,899			
	S6	3.0 - 3.15			13.3	
	R1	5.75 - 6.0			9.8	
	R2	6.0 - 6.1			8.9	
	R4	8.3 - 8.4			4.0	
GT14	S1	0.25 - 0.35		29.0	42.7	5
GT15	S1	0.25 - 0.40		28.2	123.9	10
	S4	1.35 - 1.45		23.7	43.7	8
	S5	2.55 - 2.85	2,132			
	S6	3.35 - 3.50		12.0	12.7	17
	S7	5.8 - 6.0		28.9		5
	S8	5.55 - 5.80	2,051			
GT16	S1	2.19 - 2.28		10.1	27.1	8
GT18	S1	2.2 - 2.3	1,949	21.4	28.6	11
	S2	2.51 - 2.61		16.3	28.4	6
GT19	S1	1.23 - 1.40		14.2	18.3	10
GT20	S1	1.1 - 1.3		13.2	24.2	25
GT43	S1	0.65 - 0.95		44.6	55.8	3
	S2	1.0 - 1.1		1.6	19.2	0
	S3	2.0 - 2.2		53.2	90.0	7
	S5	2.5 - 2.75	1,868	49.5	50.8	10
	S7	4.48 - 4.62	1,932		26.8	16
	S8	6.67 - 6.79			11.5	
	S10	7.63 – 7.82	2,148			
	S12	9.78 - 9.93		0.0	9.0	28
GT44	S1	1.30 - 1.42			22.1	7

Table 6: Summary of Onsite Laboratory Test Results

Borehole No.	Sample Number	Depth (m)	Frozen Bulk Density (kg/m^3)	Excess Ice Content (% by volume)	Moisture Content (%)	Porewater Salinity (ppt)
GT45	S1	1.0 -1.14		38.0	44.0	21
	S2	1.2 - 1.35		36.1	38.8	15
	S6	5.79 - 5.9		4.2		
	S7	6.51 - 6.6			8.2	40
	S8	7.1 - 7.2			12.9	
	S12	9.37 - 9.65			11.1	32
	S14	10.37 - 10.47			10.3	30
	S16	12.78 - 12.85			9.5	
GT46	S1	1.09 - 1.2		28.2	28.4	5
	S2	2.2 - 2.3	1,484			
	S3	2.4 - 2.5		45.0	67.6	3
	S5	3.20 - 3.36	1,957			
	S7	4.58 - 4.7		8.3	11.5	20
	S9	7.18 - 7.34			9.0	
GT47	S1	0.9 - 1.0		10.1	30.3	40
	S3	2.05 - 2.25		15.4	24.8	45
	S4	2.25 - 2.60		3.5	23.8	35
	S6	4.0 - 4.2	1,886			
	S7	4.45 - 4.55			13.3	
	S9	5.17 - 5.31	1,933			
	S10	5.31 - 5.41			9.2	
	S13	6.5 - 6.63			11.4	
	S14	7.0 - 7.15			33.9	
	S16	8.2 - 8.43	2,135			
	S17	8.8 - 8.95			10.1	
	S18	9.4 - 9.46			15.0	
	S21	10.7 - 10.85	2,057			
	S22	12.1 - 12.2			14.9	
GT50	S1	0.4 - 0.6		12.0	213.6	23
	S2	0.7 - 0.8		14.2	14.9	20
	S4	2.25 - 2.35	1,542		53.3	8
	S5	2.35 - 2.65	1,669			
	R3	6.8 - 7.0			12.3	
GT51	S1	0.4 - 0.5			218.8	15
	S2	0.5 - 0.7		17.9	17.9	30
	S3	1.1 - 1.35	1,837			
	S4	1.48 - 1.58		20.1	33.5	5
	S6	2.0 - 2.15		19.8	29.5	10

Table 6: Summary of Onsite Laboratory Test Results

Borehole No.	Sample Number	Depth (m)	Frozen Bulk Density (kg/m^3)	Excess Ice Content (% by volume)	Moisture Content (%)	Porewater Salinity (ppt)
GT57	S1	1.50 - 1.60		30.7	30.5	15
	S2	2.16 - 2.30	1,581	15.6	49.5	7
	S4	3.37 - 3.56	2,007		20.0	9
	S5	5.00 - 5.12		0.0	14.0	16
	S6	6.42 - 6.55			9.3	15
	S8	9.20 - 9.30		0.0	17.7	19
GT58	S1	1.19 - 1.32		32.1	177.5	4
	S3	2.27 - 2.39		11.5	14.2	14
	S5	3.2 - 3.3		0.0	15.1	19
GT60	S1	0.92 - 1			76.9	0
	S2	1.28 - 1.40			50.0	2
	S3	1.88 - 2.00			35.7	4
	S4	2.46 - 2.6		39.2	177.6	6
	S6	3.75 - 4.00	2,101			
GT61	S1	1.23 - 1.33			155.5	
	S2	1.63 - 1.74		7.7	12.0	14
	S3	2.09 - 2.24		12.0	14.6	13
	S5	3.0 - 3.15		17.9	13.1	8
GT62	S1	1.87 - 2.0		23.7	28.9	20
	S3	2.42 - 2.48		46.6	37.5	12
	S4	3.33 - 3.5		41.1	27.0	
GT63	S1	2.00 - 2.13	2,069			
	S2	2.83 - 3.0		2.9	13.6	9
GT64	S1	2.0 - 2.11		6.2	11.9	18
	S3	2.88 - 3.0		35.3	13.2	7
	S4	3.1 - 3.2			12.3	12
GT65	S1	0.5 - 0.6			204.3	15
	S3	1.55 - 1.63		39.2	225.2	7
	S5	2.2 - 2.3			386.7	18
	S6	2.61 - 2.71		15.7	24.6	3
	S8	2.44 - 2.63	1,126			
	S9	3.32 - 3.42			14.6	8
	S11	4.13 - 4.29	1,747			
	S13	4.8 - 4.94		0.0	7.4	8

Table 6: Summary of Onsite Laboratory Test Results

Borehole No.	Sample Number	Depth (m)	Frozen Bulk Density (kg/m^3)	Excess Ice Content (% by volume)	Moisture Content (%)	Porewater Salinity (ppt)
GT66	S1	2.10 - 2.18				
	S2	2.18 - 2.36	1,629	52.2	68.5	40
	S3	2.87 - 2.94		29.9	46.2	14
	S5	4.00 - 4.11		31.5	136.1	6
	S7	5.15 - 5.28		29.3	144.4	5
	S8	6.00 - 6.12		16.3	99.3	5
	S10	6.55 - 6.77	1,425			

Table 7: Summary of Offsite Laboratory Test Results

<table>
<tr><th rowspan="2">Borehole No.</th><th rowspan="2">Sample No.</th><th colspan="2">Depth</th><th rowspan="2">Moisture Content (%)</th><th rowspan="2">Excess Ice Content (% by volume)</th><th rowspan="2">Clay (%)</th><th rowspan="2">Silt (%)</th><th rowspan="2">Sand (%)</th><th rowspan="2">Gravel (%)</th></tr>
<tr><th>From (m)</th><th>To (m)</th></tr>
<tr><td rowspan="3">GT10</td><td>S3A</td><td>0.80</td><td>1.05</td><td>88.4</td><td>35.3</td><td rowspan="2">13</td><td rowspan="2">72</td><td rowspan="2">14</td><td rowspan="2">0.0</td></tr>
<tr><td>S3B</td><td>0.80</td><td>1.05</td><td>108.9</td><td>24.9</td></tr>
<tr><td>S8</td><td>4.20</td><td>4.80</td><td>6.0</td><td></td><td colspan="2">7</td><td>19</td><td>75</td></tr>
<tr><td>GT11</td><td>S1</td><td>1.70</td><td>2.15</td><td>24.8</td><td>15.7</td><td colspan="2">25</td><td>55</td><td>21</td></tr>
<tr><td>GT12</td><td>S2</td><td>0.60</td><td>0.80</td><td>11.1</td><td>33.9</td><td colspan="2">10</td><td>18</td><td>72</td></tr>
<tr><td>GT13</td><td>S7</td><td>3.15</td><td>3.73</td><td>5.9</td><td>0.0</td><td colspan="2">6</td><td>20</td><td>74</td></tr>
<tr><td rowspan="2">GT14</td><td>S2</td><td>0.35</td><td>0.70</td><td>24.4</td><td>24</td><td colspan="2">17</td><td>29</td><td>54</td></tr>
<tr><td>S3</td><td>0.75</td><td>0.95</td><td>17.7</td><td>0.0</td><td>15</td><td>33</td><td>35</td><td>17</td></tr>
<tr><td rowspan="2">GT15</td><td>S2</td><td>0.50</td><td>0.70</td><td>37.2</td><td>31.2</td><td>7</td><td>22</td><td>39</td><td>32</td></tr>
<tr><td>S8</td><td>5.55</td><td>5.80</td><td>12.8</td><td>0.0</td><td>5</td><td>11</td><td>71</td><td>13</td></tr>
<tr><td>GT16</td><td>S2</td><td>2.35</td><td>2.68</td><td>22.2</td><td>0.0</td><td colspan="2">7</td><td>89</td><td>4</td></tr>
<tr><td>GT19</td><td>S2</td><td>2.0</td><td>2.15</td><td>11.2</td><td></td><td>6</td><td>11</td><td>80</td><td>3</td></tr>
<tr><td rowspan="2">GT43</td><td>S4</td><td>2.20</td><td>2.50</td><td>60.2</td><td>36.7</td><td></td><td></td><td></td><td></td></tr>
<tr><td>S6</td><td>4.15</td><td>4.48</td><td>27.3</td><td>0.0</td><td>15</td><td>62</td><td>13</td><td>10</td></tr>
<tr><td rowspan="2">GT45</td><td>S3</td><td>2.00</td><td>2.15</td><td>47.2</td><td>27.6</td><td>10</td><td>43</td><td>29</td><td>18</td></tr>
<tr><td>S5</td><td>5.20</td><td>5.45</td><td>10.4</td><td></td><td colspan="2">30</td><td>39</td><td>32</td></tr>
<tr><td rowspan="2">GT46</td><td>S4</td><td>2.50</td><td>3.00</td><td>17.9</td><td>9.7</td><td colspan="2">48</td><td>29</td><td>24</td></tr>
<tr><td>S8</td><td>6.00</td><td>6.28</td><td>12.6</td><td>0.0</td><td colspan="2">13</td><td>34</td><td>53</td></tr>
<tr><td rowspan="2">GT47</td><td>S5</td><td>3.00</td><td>3.50</td><td>10.7</td><td>0.0</td><td>26</td><td></td><td>27</td><td>48</td></tr>
<tr><td>S19</td><td>9.58</td><td>10.00</td><td>15.0</td><td>0.0</td><td>9</td><td>28</td><td>25</td><td>37</td></tr>
<tr><td>GT51</td><td>S5</td><td>1.60</td><td>2.00</td><td>34.9</td><td>19.5</td><td>9</td><td>23</td><td>60</td><td>8</td></tr>
<tr><td>GT57</td><td>S7</td><td>8.70</td><td>8.90</td><td>7.4</td><td></td><td>4</td><td></td><td>28</td><td>68</td></tr>
<tr><td>GT58</td><td>S2</td><td>1.32</td><td>1.64</td><td>49.1</td><td>8.9</td><td>9</td><td>25</td><td>64</td><td>2</td></tr>
</table>

Table 7: Summary of Offsite Laboratory Test Results

Borehole No.	Sample No.	Depth		Moisture Content (%)	Excess Ice Content (% by volume)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)
		From (m)	To (m)						
GT61	S4/S5	2.24	4.00	12.4		14		38	48
GT62	S2	2.00	2.42	24.9	19.7	18		42	39
GT64	S2	2.33	2.64	13.2	10.7	2	11	49	38
GT65	S7	2.71	3.00	34.3	19.9	4	11	37	49
GT66	S6	4.40	4.76	68.9	16.3	10	76	13	1
	S9	6.12	6.55	90.6		10	51	25	14

2.6 Ground Temperature Monitoring

Two GTCs were installed to determine ground temperatures in locations where there is no or limited ground temperature data: one in Borehole GT-14 (TS 4135) in the North WRSF area and one in Borehole GT-63 (TS 4134) at the Halfway Pond site (Figures 3 and 5).

These boreholes were drilled to the target depth of 21.0 m. A 25 mm I.D. flush couple threaded watertight PVC pipe with a bottom cap were threaded and glued together and lowered into the borehole. The GTCs were inserted inside the watertight PVC pipes. The annulus between the 25 mm PVC pipe and the borehole wall was backfilled with clean, dry sand to hold the PVC pipe in place. A 50 mm solid PVC pipe with a metal housing unit attached at the top was set over the 25 mm PVC pipe to protect the GTC installations. The metal housing was attached to two 2 x 4 wood planks attached to the drill casing left in the hole. A 25 mm watertight PVC pipe was also installed in borehole GT-51 to a depth of approximately 19.8 m to allow potential GTC installation in the future. GTC cable installation reports are provided in Appendix E and the GTC installation set up is shown in Photos 9 and 10.

Photo 9: Downloading ground temperature data from GTC installed in Borehole GT-14, North WRSF area. Photo taken on September 15, 2016.

Photo 10: Ground Temperature Cable installation in Borehole GT-63. Photo taken on September 26, 2016.

Initial GTC readings were taken manually immediately after installation to confirm that all the thermistor beads were working properly. Ground temperature readings were taken twice during the field program and on an approximately monthly basis between October, 2016 and January, 2017. The measured ground temperatures at the depth of zero annual amplitude appear to have reached equilibrium and ranged from approximately -1.1ºC in GT-14, North WRSF area to -1.4ºC in GT-63, Halfway Pond site, indicating permafrost conditions at both locations. Ground temperature profiles from the GTCs showing changes in temperatures with depth are presented in Appendix E.

The depth of zero annual amplitude was estimated from the ground temperature data collected from the two multi-bead GTCs. It ranges from approximately 7 m depth BGL at the GT-14 site to approximately 8 m depth BGL at GT-63 (Appendix E).

A single-bead thermistor string was installed in Borehole GT-66, at the Halfway Pond site, on September 21, 2016, just below the depth where the permafrost table is expected to be located (approximately 1.8 m depth) to confirm the presence of permafrost. Manual readings taken on October 3, 2016 showed a temperature of -0.5ºC at this depth.

2.7 Permafrost Distribution Mapping

Preliminary permafrost mapping was completed in early 2016 and documented by Tetra Tech in the Technical Memo "Permafrost and Related Geohazard Mapping within the Coffee Mine Site Study Area", dated May 3, 2016. Following the fall 2016 drilling program, some updates were necessary. These changes were done in PurVIEW (the mapping technique described in the May 2016 Memo) and are based on the subsurface information collected in the completed boreholes and terrain analysis conducted in the field both on the ground at the drill sites and airborne from a helicopter. The updated maps of permafrost distribution within the Coffee Mine Site are presented in the "Figures" section of this report.

More detailed permafrost mapping, which would show spatial distribution of permafrost parameters such as ground ice content and permafrost temperatures within the mine site area is recommended following completion of the potential second phase of geotechnical drilling planned for late spring of 2017.

3.0 TERRAIN AND SUBSURFACE CONDITIONS

3.1 General

Thirty five vertical boreholes and nine testpits were completed, as described in Section 2.1. The borehole and testpit locations are shown in Figures 2 to 5. Borehole and testpit logs containing sample locations and geotechnical laboratory test results are provided in Appendix B.

Observed terrain and subsurface conditions are discussed in the following sections. The discussions are based on the drill site terrain assessment and the data collected during the drilling, logging, field and laboratory testing phases of the investigation. Subsurface conditions are not uniform; it is expected that conditions between and surrounding the boreholes may deviate from the subsurface conditions identified within the boreholes described in this report. However, the borehole data does give a general indication of the range of subsurface properties to be expected in the area.

Selected photographs (Photos 1 to 94) of the recovered overburden and bedrock cores are presented in the "Photographs" section of this report.

3.2 Kona WRSF Area

Three diamond core boreholes (GT-01, -02, and -09) were drilled within the footprint of the proposed Kona WRSF area, along an approximately northeast-trending line (Figure 5). Overburden recovery ranged from 0% to approximately 60% per run. Borehole GT-09 had no recovery between the 6 m and 14 m depth interval, possibly due to the presence of a thick unfrozen fine-grained soil unit which may have been washed away in the course of diamond drilling. The driller noted that it “felt like drilling through air”.

The terrain and subsurface conditions of the area are discussed in the following sections and are summarized in Table 9.

Table 9: Overburden and Bedrock Condition Summary, Kona WRSF

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Permafrost Conditions	Bedrock Conditions
Kona WRSF	GT-01	1.6	0.00	Boulder; Gravel	Unfrozen	Granite; moderately weathered; competent; jointed
	GT-02	2	0.07	Silt; Gravel	Unfrozen	Granite; moderately to highly weathered; competent; jointed
	GT-09	15	0.00	Gravel; Silt and Sand; Sand; Gravel and Sand	Unfrozen	Granite; slightly to moderately weathered; competent; jointed

3.2.1 Terrain Assessment

The Kona WRSF area was assessed in the field between September 10, 2016 and September 12, 2016.

The area is located on a northeast-trending ridge and extends partway down the upper slope of a small tributary of Halfway Creek (Figure 5). This area slopes to the southeast and south-southeast, with gentle to moderate slopes of 3° to 20° where overburden is thick and moderately steep slopes of 25° to 35° in the northeast, where bedrock is close to surface. The slopes in the vicinity of GT-01 and GT-02 (Photo 11) are vegetated by sparse but tall white spruce and low shrubs (dwarf birch, willow, blueberry, and Labrador tea).

Most of the proposed Kona WRSF area was interpreted to be permafrost-free terrain based on Tetra Tech’s site assessment and the borehole data (Figure 5 and Appendix B). Unfrozen conditions were encountered in all three boreholes, although thick overburden material in GT-09 may be partially frozen. Installation of a multi-bead GTC is recommended at this location in 2017.

Photo 11: Aerial view of proposed Kona WRSF area (in foreground) and proposed Kona Pond (a cluster of drill pads in background), looking southeast. Scattered tall mature white spruce are dominant near GT-01 drill pad (in foreground), while sparse to moderately dense stunted black spruce can be seen in the Kona Pond area, in the creek valley.
Photo taken on September 10, 2016.

3.2.2 Overburden

Bedrock is close to surface just west of Borehole GT-01. Coarse colluvial deposits overlying bedrock are up to 2 m thick at Boreholes GT-01 and -02, but become much thicker (up to 15 m) at GT-09 (Table 9).

The surficial deposits encountered in the boreholes consist mainly of layers of sand and gravel, with some cobbles and boulders. Silt containing small amounts of sand, gravel, and organics is found in the uppermost 2 m at Boreholes GT-02 and -09. A very thin layer of wet, fibrous, woody moss with trace silt was noted at the top of borehole GT-02.

3.2.3 Bedrock

Granite was encountered in all three boreholes. The depth BGL to bedrock is shown in Table 9.

The granite is white to pale yellow, with white, yellow, pink, grey, and black inclusions. It is fine- to coarse-grained and slightly to moderately weathered. Joints are common and may be oxidized or infilled with silt.

Point Load Testing (PLT) was performed onsite on selected bedrock samples to determine relative strength of the bedrock samples. Results of this analysis show that the granite is very weak to very strong and of very poor to excellent quality (RQD 4% to 95%). Fracture Frequency (FF) ranges from 0 to 11 per metre.

3.3 Kona Pond

Five boreholes (GT-43, -44, -45, -46, and -47) were drilled within the footprint of the proposed Kona Pond area (Figure 5). Recovery of overburden was highly variable, ranging from 0 to 100%, with areas of no recovery common within the coarse colluvial portions of the boreholes. A testpit was also dug to 0.9 m depth at GT-47.

The terrain and subsurface conditions of the area are discussed in the following sections and are summarized in Table 10.

Table 10: Overburden and Bedrock Condition Summary, Kona Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
Kona Pond	GT-43	11.0	0.15	Sand; ICE and SILT; Gravel and Silt; Sand and Gravel; Gravel and Sand	0.65	Vx, Vc, Vs, 5-50%	Granite; highly weathered; very weak; jointed
	GT-44	2.0	0.1	Gravel and Sand	Undetermined	Vs, Vc, Vx 5-10%	Granite; moderately to completely weathered; weak to medium strong
	GT-45	14.0	0.1	Silt and Sand; Gravel and Sand; Silt; Peat; Sand; Cobbles	<1.0	Vx, Vs, Vc, Nbe 1-40%	Granite; moderately to completely weathered; jointed
	GT-46	8.7	0.1	Sand and Gravel; Silt; Cobble/ Boulder; Gravel	<1.0	Vs, Vc, Vx, Vr, Nbe 10-30%	Granite; moderately weathered; very weak to strong
	GT-47	13.0	0.15	Gravel; Sand and Silt; Gravel and Sand; Silt; Cobble; Sand and Gravel; Sand	<1.0	Vx, Vs, Vc, Vr 5-20%	Granite; slightly to highly weathered; weak to very strong; jointed

* - at the time of drilling

3.3.1 Terrain Assessment

The Kona Pond area was assessed in the field between September 13, 2016 and September 19, 2016.

The Kona Pond area drains directly into Halfway Creek (Figure 5). The proposed Kona Pond retention structure is located on northeast- and southeast-facing slopes, which contain permafrost. The gentlest slopes are on the south side of and within the tributary creek area, at about 9° slope. Here, stunted black spruce is present on the valley sides (Photo 12), with low shrubs covering the forest floor (Photo 13). The black spruce trees are sparser on the slope north of the creek, which is hummocky and also steeper, at about 15° (moderate slope). Slopes measured at GT-44, -45, and -46 are 19° to 20°, 10° to 15°, and 13° to 15°, respectively. These slopes have a continuous moss cover. The northeast-facing slope is poorly-drained at GT-46. The creek area is covered by a dense mat of shrub willow. The creek channel is 0.3 m to 0.5 m wide and was flowing at the time of assessment.

Photo 12: Sparse to moderately dense stunted black spruce forest on the east-facing slope of Kona Creek between GT-45 and GT-43. Hummocky continuous moss cover with low shrubs is also present. Looking north.
Photo taken on September 11, 2016.

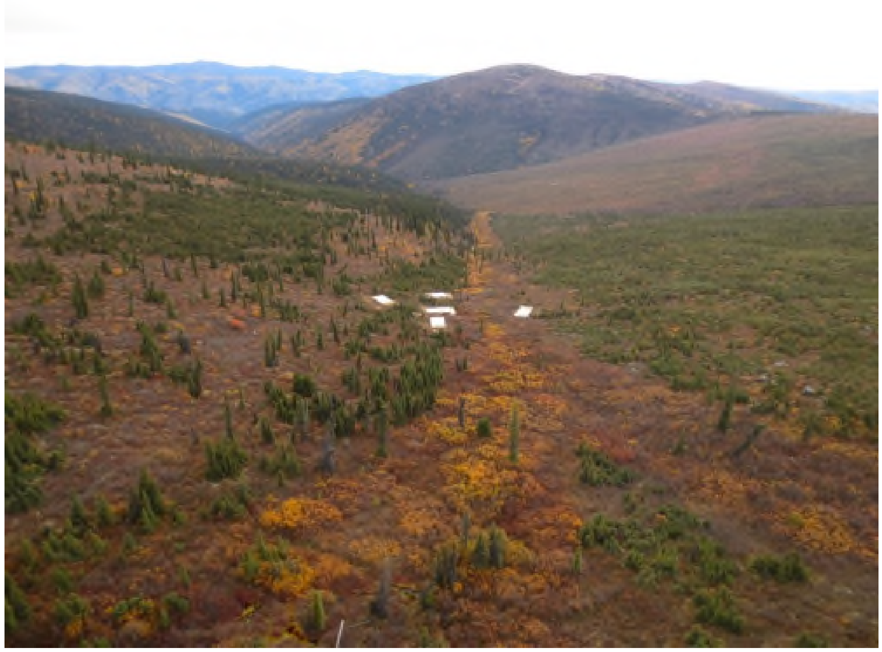


**Photo 13: Aerial view of proposed Kona Pond site, looking northeast. Shrub willow within the creek area is in its fall colours of bright yellow (in the centre of the photo). Low shrubs are evident on the south side of the creek and shrubs with stunted black spruce on the north side.
Photo taken on September 11, 2016.**

The slopes are blanketed with coarse colluvium composed mainly of weathered bedrock and silt with thicknesses ranging from 2 m to 14 m (Table 10). The colluvium is covered by a thin layer of moss.

The proposed Kona Pond site is underlain by permafrost as per Tetra Tech's site assessment and the borehole data (Figure 5 and Appendix B). Permafrost conditions were encountered in all five boreholes.

3.3.2 Overburden

Data from the boreholes and the test pit show that dark brown to black moss up to 0.15 m thick covers the surficial deposits in this area. It may contain roots.

Beds of well graded, brown to grey subangular to angular gravel, sand, silt, and rare cobbles (and mixtures of these) overlie the bedrock, forming a thick colluvial blanket. At Borehole GT-45, dark brown to black organic-rich sandy peat with roots is found between 8.2 m and 9.1 m depth. This suggests that the 8 m of colluvium above it moved downslope in the past, covering a pre-existing ground surface.

The gravimetric moisture content of the frozen overburden ranged from 8% in gravel and sand at depths of 6.5 m to 6.6 m to 90% in sandy silt at a depth of 2.0 to 2.2 m (Tables 6 and 7).

Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in all five boreholes. Excess ice content was measured in the ICE and SILT unit and was found to be as high as 53% at a depth of 2 m in Borehole GT-43. The excess ground ice occurs in the frozen overburden in various forms, e.g. ice lenses (Vs, Vr) ranging in thickness from less than 1 mm to approximately 10 mm, ice inclusions (Vx) up to 5 mm in diameter or ice coatings a few mm thick (Vc) on gravel or cobbles. Photo 14 shows frequently spaced subhorizontal ice lenses observed in Borehole GT-46.

**Photo 14: Closely spaced subhorizontal wavy ice lenses up to 2 mm thick in sandy, gravelly frozen silt at 2.5 m depth BGL; GT-46, Kona Pond.
Photo taken on September 19, 2016.**

3.3.3 Bedrock

Granite was encountered in all five boreholes. The depths are shown in Table 10.

The granite is white or pink, grey and black, although commonly oxidized, medium- to coarse-grained, generally moderately to completely weathered, very weak to very strong, and highly fractured. Joints are common (JSN ranges from 2 to 6) and may show oxidation and or have sand, silt, or ice infills. Quality is very poor to fair, with RQDs generally ranging from 0 to 70, but up to 90% (excellent quality) in Boreholes GT-46 and -47. Fracture frequency is 4 to 12 per metre.

Ground ice was observed infilling joints and fractures in granite as described in the borehole logs (Appendix B) and shown in Photo 15.

Photo 15: Ground ice infilling a fracture in oxidized granite at 13.7 m depth BGL; GT-47, Kona Pond. Photo taken on September 14, 2016.

3.4 Halfway Pond

Five boreholes (GT-62, -63, -64, -65, and -66) were drilled within the footprint of the proposed Halfway Pond area (Figure 5). Recovery of overburden was highly variable (0% to 100%), with sections of "no recovery" logged in all boreholes.

The terrain and subsurface conditions of the Halfway Pond area are discussed in the following sections and are summarized in Table 11.

Table 11: Overburden and Bedrock Condition Summary, Halfway Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
Halfway Pond	GT-62	3.9	0.12	Gravel; Sand; Sand and Gravel; Gravel and Sand	Up to 2	Vs, Vc, Vx, Vr 20-40%	Granite; moderately to completely weathered; medium strong to strong; jointed
	GT-63	3.1	0.1	Sand and Gravel	Up to 2	Vc, Vx, Vr 5%	Granite; moderately to completely weathered; very weak to very strong; jointed; Gneiss; moderately weathered; strong; jointed
	GT-64	3.5	0.15	Sand; Sand and Gravel	1.0	Vc, Vx 5-35%	Granite; moderately weathered; competent; jointed
	GT-65	5.4	0.1	Peat; Sand; Gravel and Sand; Sand and Gravel;	0.1	Vs, Vc, Vx, Vr 10-40%	Granite; moderately to highly weathered; competent; jointed
	GT-66	7.7	-	Cobbles and Gravel; ICE and SAND; Peat; Silt	Up to 2	Vs, Vc, Vx, Vr 5% to >50%	Granite; moderately to highly weathered; competent; jointed

* - at the time of drilling

3.4.1 Terrain Assessment

The Halfway Pond site was assessed in the field between September 20, 2016 and September 24, 2016. It is located on both sides of a small tributary creek of Halfway Creek. Slopes are northeast- and northwest-facing (Figure 5) and are 20° to 27° and 27° to 31° respectively (moderate to moderately steep slopes).

Vegetation on the northeast-facing slope includes low shrubs and very sparse black spruce. The northwest-facing slope comprises mainly moderately dense black spruce and low shrubs (Photo 16).

Photo 16: Aerial view of proposed Halfway Pond site, looking north. Low shrubs and sparse black spruce cover the north-east-facing slope; whereas, the northwest-facing slope is vegetated by moderately dense black spruce and low shrubs.
Photo taken on September 24, 2016.

Wet organic-rich material locally called "black muck", i.e. wind-blown silt intermixed with organic material (McKillop et al 2013), forms a veneer underlain by colluvial sand and gravel up to 7.7 m thick (Table 11).

The proposed Halfway Pond site is underlain by permafrost as per Tetra Tech's site assessment and the borehole data (Figure 5 and Appendix B). Permafrost conditions were encountered in all five boreholes.

3.4.2 Overburden

A thin black muck layer was found at the surface of all borehole locations except for GT-66. It includes brown to black peat or moss with organics, and contains roots and occasionally wood, silt, sand, or gravel. At GT-66, a 0.7 m thick black muck unit dominated by peat overlies silt (believed to be colluvium) and underlies a separate layer of colluvium. It is also found interbedded with sand in the upper 1.5 m of GT-65. These boreholes are in the centre of the small tributary valley, and as such, may have received several pulses of colluvium over the years, which appears to have buried successive layers of the black muck. Radiocarbon dating or paleontological analysis of the peat may be able to determine how long ago these events occurred.

Colluvial deposits at the Halfway Pond site are made up of brown, grey, or black sand and subangular gravel, with lesser amounts of silt. Clay, gravel, cobbles, and organics are present locally, but are rare. The colluvium is massive and well graded.

The moisture content of the overburden is as low as 7% in sand and gravel at 4.8 m in GT-65, but is as high as 387% in the same material at 2.2 m in the same borehole due to the presence of ice (Tables 6 and 7).

Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in all five boreholes. Excess ice content measured in the ICE and SAND unit was found to be as high as 52% at a depth of 2.2 m in GT-66. The excess ground ice typically forms ice lenses (Vs, Vr) ranging in thickness from less than 1 mm to approximately 25 mm, ice inclusions (Vx) up to 40 mm in diameter or ice coatings (Vc) up to 6 mm thick on gravel and cobbles. Photos 17 and 18 show examples of ground ice formations observed in the undisturbed frozen overburden core recovered at the Halfway Pond site.

Photo 17: Ice coating on a piece of gravel at 2.8 m depth BGL, GT-65, Halfway Pond. Photo taken on September 21, 2016.

Photo 18: Ice inclusion (Vx) in frozen sand and gravel at 5.1 m depth BGL, GT-65, Halfway Pond. Photo taken on September 21, 2016.

3.4.3 Bedrock

Granite was encountered in all boreholes, and some gneiss was found at Borehole GT-63. Depth to bedrock is shown in Table 11.

The granite is white, pink, grey and black, fine- to coarse-grained, moderately to completely weathered and very weak to very strong. It contains many joints (JSN is 2 to 6), which may contain ice, silt or sand infills and may be oxidized. RQD is variable (0-90%) and FF ranges from 4 to 9 per metre.

The blue-grey banded gneiss identified at 15.5 m to 17 m depths in Borehole GT-63 is strong, moderately weathered, fine-grained, and contains joints, some of which are infilled with silt or silt and sand. RQD is 38-42 (moderate quality) and FF is 4 to 9 per metre.

Ground ice was observed infilling fractures and joints in bedrock as described in the borehole logs (Appendix B) and shown in Photo 19.

Photo 19: Ground ice infilling joints in granite at 7.9 m depth BGL; GT-65, Halfway Pond. Photo taken on September 21, 2016.

3.5 West WRSF

Five boreholes (GT-16, -17, -18, -19, and -20) were drilled within the footprint of the proposed West WRSF area (Figure 4). Overburden recovery was variable, either ranging from 0% to 50% or 90% to 100%.

The terrain and subsurface conditions of the area are discussed in the following sections and are summarized in Table 12.

Table 12: Overburden and Bedrock Condition Summary, West WRSF

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
West WRSF	GT-16	2.7	0.1	Gravel; Sand	2.0	Vx, Vc 5-10%	Gneiss/Granite; moderately weathered; weak to medium strong; jointed,
	GT-17	2.0	0.1	Gravel	Undetermined	Undetermined – frozen overburden was thermally disturbed	Granite; moderately weathered; weak to medium strong; jointed
	GT-18	3.7	0.1	Gravel	<2.0	Vx, Vc 5-10%	Granite; highly to completely weathered; very weak to medium strong; jointed
	GT-19	2.6	0.1	Sand	<1.0	Vc, Vx, Nbn 10-15%	Gneiss; slightly weathered; competent; jointed;
	GT-20	3.2	0.05	Sandy Gravel	<1.0	Vc 5%	Gneiss; weak to very strong; slightly to completely weathered; jointed

* - at the time of drilling

3.5.1 Terrain Assessment

The West WRSF area was assessed in the field between September 30, 2016 and October 3, 2016.

The West WRSF footprint is on a slope of fairly straight configuration, with a westerly aspect. This slope makes up a portion of a laterally-convex hillside (Figure 4). The slope angle is also quite uniform and dips about 20°, with an area of about 15° at the southern end (moderate slopes).

The proposed West WRSF area is underlain by permafrost as per Tetra Tech's site assessment and the borehole data (Figure 4 and Appendix B). Permafrost conditions were encountered in all five boreholes. Vegetation consists mainly of low shrubs, with scattered stunted black spruce trees and continuous hummocky moss cover (Photo 20).

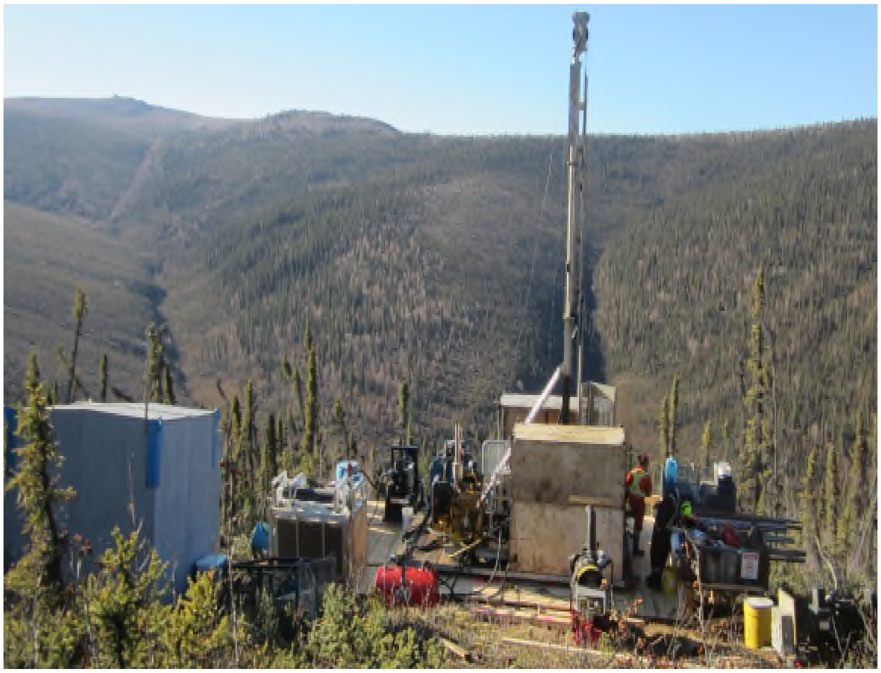


Photo 20: Ground view of proposed West WRSF terrain (GT-16 in foreground), looking west. Moderately dense stunted black spruce forest with continuous hummocky moss cover and low shrubs is evident. Photo taken on September 25, 2016.

3.5.2 Overburden

A thin, dark brown fibrous moss organic layer was encountered at the surface of all the boreholes. It contains roots and wood. This thin organic veneer is underlain by perennially frozen sandy and gravelly colluvium up to 3.7 m thick (Table 12).

Well graded subangular gravel and sand with minor silt and rare cobbles make up the colluvial unit that overlies the bedrock.

The gravimetric moisture content of the overburden material varied from 11% in frozen sand at a depth of 2.0 m in GT-19 to 29% in gravel with some sand at a depth of 2.23 m in GT-18 (Tables 6 and 7).

Permafrost conditions with excess ice (Vc and Vx) were observed in four of the five boreholes. Coarse-grained overburden core recovered in GT-17 was thermally disturbed due to excessive drilling. This did not allow estimation of its permafrost condition. Excess ice content in frozen gravel with some sand was found to be up to 21% at a depth of 2.2 m in GT-19.

3.5.3 Bedrock

Gneiss was encountered at all the boreholes except GT-17 and -18, which are at the western boundary of the West WRSF footprint. Here, granite was encountered instead. Granite also underlies gneiss in Borehole GT-16.

The pink, grey, or dark green gneiss is slightly to completely weathered, weak to very strong, fine- to medium-grained, heavily fractured, and slightly oxidized. It contains numerous joints that may be oxidized and may contain ice, silt, sand, or weathered bedrock. Quartz veins are present, but rare.

Its RQD is variable, ranging from 0% to 50% in Boreholes GT-16 and -18 (very poor to poor) to 75% to 85% in GT-19 (good). FF ranges from 4 to 16 per metre and JSN from 2 to 3.

The granite is pink, grey, or black with white inclusions. It is medium- to coarse-grained, moderately to completely weathered, massive, weak to moderately strong, and highly fractured. Its many joints may or may not contain oxide stains, sand, silt, weathered bedrock, or ice.

Its RQD is very poor to fair at 0% to 70%, FF is 7 to 15 per metre, and JSN is 3 to 6.

Ground ice was observed infilling bedrock fractures and joints in four (GT-17 to GT-20) of the five boreholes as described in the borehole logs (Appendix B).

3.6 West Pond

Five boreholes (GT-57, -58, -59, -60, and -61) were drilled within the footprint of the proposed West Pond area (Figure 5). Recovery was generally excellent, ranging from 20% to 100%, but commonly over 60%.

The terrain and subsurface conditions of the area are discussed in the following sections and are summarized in Table 13.

Table 13: Overburden and Bedrock Condition Summary, West Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
West Pond	GT-57	10.2	0.1	Sand and Gravel; Organic Silt; Gravel; Sand, and Silt	1.4	Vx, Vc, Vs 5-30%	Gneiss; slightly weathered; competent; jointed; Schist; slightly weathered; competent; jointed
	GT-58	4.6	0.1	Silt; Sand and Gravel; Sand; Gravel and Sand	0.55	Vx, Vc, Nbe 3-10%	Schist; slightly to highly weathered; competent; jointed
	GT-59	1.0	0.1	Sand and Gravel	1.2	Ice in rock joints	Schist; moderately to highly weathered; weak to medium strong; jointed
	GT-60	4.9	0.1	Cobbles; Organic Silt; Sand and Gravel; Gravel	0.83	Vx, Vc, Vs, Vr, Nbe 10-40%	Schist; slightly to moderately weathered; competent; jointed

Table 13: Overburden and Bedrock Condition Summary, West Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
	GT-61	4.0	0.15	Peat and Sand; Gravel and Sand	0.15	Vx, Vc, Vs 1-15%	Schist; slightly to highly weathered; competent; jointed
* - at the time of drilling							

3.6.1 Terrain Assessment

The West Pond area was assessed in the field between September 25, 2016 and September 29, 2016.

The proposed West Pond water retention structure area is located along a small tributary creek which flows into Halfway Creek, downstream of the West WRSF and Latte Pit (Figure 5). The slopes have northerly and westerly aspects. The northeast-facing slope is mostly barren, with low shrubs, sparse stunted black spruce, and frost hummocks on the ground surface (Photo 21). This slope is underlain by ice-rich permafrost. The west-facing slope is covered by denser stunted black spruce forest, but permafrost is likely prevalent on this slope as well. It has moderate slopes of 15° to 20°. The barren slope has moderate slopes of similar slope angles.

Thin surficial organic veneer is found at the surface. It is underlain by 1 m to 10 m thick coarse colluvium (Table 13).

Photo 21: Aerial view of proposed West Pond, looking north. The northeast-facing slope displays low shrubs, very few stunted black spruce trees, and continuous hummocky moss cover (foreground). The west-facing slope exhibits denser stunted black spruce forest.
Photo taken on September 29, 2016.

The proposed West Pond site is underlain by permafrost as per Tetra Tech's site assessment and the borehole data (Figure 5 and Appendix B). Permafrost conditions were encountered in all five boreholes.

3.6.2 Overburden

The uppermost surficial deposit is black muck, comprising fibrous black moss or organic silt or fibrous peat and sand. This unit may also contain roots, wood chips, and coarser material up to gravel size.

The underlying colluvial deposits commonly contain beds of black muck to depths of 2.6 m, which is interpreted to indicate that past mass movement activity has buried older ground surfaces. The colluvial deposits themselves consist of mixes of massive sand, gravel, and silt that are dark grey to brown, subangular, and well graded. Trace clay, boulders, and cobbles are also present. At GT-58, frost shattered bedrock is present at the basal contact of this unit with bedrock.

Moisture content ranges from 7% in silty sand and gravel at 8.7 m depth in GT-57 to 178% in peat with a silty interbed approximately 0.2 m thick, which was penetrated at a depth of 2.4 m in GT-60 (Tables 6 and 7).

Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in all five boreholes. Excess ice content was measured in silty frozen peat. It was determined to be as high as 39% at a depth of 2.4 m in GT-60. The excess ground ice occurs in the frozen overburden in various forms, e.g. ice lenses (Vs, Vr) ranging in thickness from less than 1 mm to approximately 3 mm, ice inclusions (Vx) up to 10 mm in diameter or ice coatings (Vc) up to 5 mm thick on gravel and cobbles.

3.6.3 Bedrock

Biotite schist was encountered in all boreholes. Depth to bedrock is shown in Table 13.

The schist is pink, white, grey and black to greenish or bluish black and fine- to coarse-grained. It is moderately sericitized and weakly to moderately chloritized, slightly to completely weathered, massive, and weak to very strong. Quartz veins may be present and joints may be oxidized and/or may contain silt, sand, or ice infill. The JSN is 3 to 6. Rock quality is generally very poor to poor (0% to 50%), but is fair to good at Borehole GT-57, where it is 60% to 90%. FF is generally 4 to 10, but can be as high as 25 per metre.

Ground ice was observed infilling some of the bedrock fractures and joints as described in the borehole logs (Appendix B).

3.7 South Pond

Three boreholes (GT-53, -55, and -56) were drilled within the footprint of the proposed South Pond site (Figure 4). Overburden recoveries were very poor (0% to 35%) and it was not possible to take representative samples for geotechnical analysis. Active layer thickness was measured with a permafrost probe and a hand-dug testpit. Measuring active layer thickness with the permafrost probe at the proposed borehole GT-54 site was found ineffective due to the high clast content of the surficial material. The probe's tip was cold to the touch after extraction at the GT-52 location. The active layer measurements at this location are considered to be more accurate than at GT-54 due to the issues with permafrost probe penetration at the latter site.

The terrain and subsurface conditions of the area are discussed in the following sections and are summarized in Table 14.

Table 14: Overburden and Bedrock Condition Summary, South Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
South Pond	GT-53	6.5	0.1	Gravel	N/A	Interpreted Unfrozen	Gneiss; slightly weathered; competent; jointed
	GT-55	6.3	-	Gravel, rock fragments	N/A	Interpreted Unfrozen	Gneiss; slightly weathered; competent; jointed
	GT-56	7.0	0.1	Sand and Gravel	N/A	Interpreted Unfrozen	Gneiss; moderately weathered; competent; jointed
* - at the time of drilling							

3.7.1 Terrain Assessment

The South Pond area was assessed in the field between October 3, 2016 and October 5, 2016.

The proposed South Pond is located in a creek valley that drains into Latte Creek (Figure 4). The northeast-facing and southwest-facing slopes are moderate to moderately steep, with angles of 32° to 33° and 37° to 38°, respectively (moderately steep to steep). As directed in Tetra Tech's 2016 memorandum "Review of Drill Pad

Design and Construction on Permafrost Slopes", drill pad structures to be built on slopes greater than 23° should be analyzed individually. Safety concerns about drill pad stability on the steep slopes prevented boreholes GT-52 and GT-54 from being drilled during this program.

Vegetation on the southwest-facing slope includes a mix of aspen and spruce (predominantly white spruce), indicating permafrost-free terrain (Photo 22). However, localized areas of stunted black spruce are indicative of the local presence of permafrost. Low shrubs cover the northeast-facing slope and are accompanied by sparse stunted black spruce and continuous moss blanket. Frost hummocks are present on the ground surface, indicating permafrost terrain.

Coarse to very coarse colluvium, which blankets the slopes, is overlain by a thin organic veneer (Table 14).

Photo 22: Aerial view of proposed South Pond, looking northwest. Mix of aspen and spruce (predominantly white spruce) dominates the southwest-facing slope vegetation (right side of photo). The northeast-facing slope is covered by low shrubs and sparse stunted black spruce with continuous hummocky moss cover (shaded left side of photo).
Photo taken on October 4, 2016.

Most of the proposed South Pond site was interpreted to be permafrost-free terrain based on Tetra Tech's site assessment, including testpitting (Testpit GT-54), analysis of the ground temperature data from Borehole SRK-15D-09T, which is located approximately 150 downstream of the site (measured temperatures are above 0°C), and the borehole data from this investigation (Figure 4 and Appendix B). Seemingly unfrozen conditions were encountered in all three boreholes and in Testpit GT-54, although very poor overburden recovery in all three 2016 boreholes (GT-53, GT-55, and GT-56) leaves this interpretation inconclusive. Installation of either a multi-bead GTC or a single-bead thermistor string at the proposed South Pond site is recommended for the 2017 drill program.

3.7.2 Overburden

At the proposed GT-54 site (northeast-facing slope) approximately 0.1 m of moss/organic cover was encountered in the testpit. Below the moss was organic-rich colluvium consisting of silty angular gravel and sand.

The material recovered in the boreholes suggests that fibrous dark brown to black moss and organics (black muck) is also locally present at surface (to 0.1 m).

Below the black muck, gravel consisting of gneiss and granite (GT-53 and -55) or brown silty sand, gravel, and minor cobbles that is well graded (GT-56) makes up the colluvial unit. Sandy silt coating some of the cobbles suggests that at least some sandy silt is also present.

The poor borehole recovery could indicate that coarse colluvium accumulated at the bottom of the valley. The space between the boulders may have been filled in with fine, organic-rich material. This material in its assumed unfrozen state may have been washed away in the course of drilling. This assumption is supported by the driller's comments that within some sections up to 0.8 m long, the drill rod advanced through the material with little to no pressure applied.

3.7.3 Bedrock

Gneiss was encountered in all three boreholes. Depth to bedrock is shown in Table 14.

The gneiss is grey to green with occasional pink bands, fine- to medium-grained, slightly to moderately weathered, medium to very strong, massive, and highly fractured with abundant joints that can contain silt, sand, or oxides. RQD is 5% to 90% (very poor to good), FF ranges from 4 to 11 per metre and JSN ranges from 2 to 10.

3.8 North WRSF

Six boreholes (GT-10 to GT-15) were drilled at various locations within the footprint of proposed North WRSF area (Figure 3). Overburden recovery ranged from 40% to approximately 100% per run, except for Boreholes GT-11 and -15, which had a few sections of no recovery. Shallow (0.4 m to 0.5 m) testpits were hand-dug within the active layer at GT-10, GT-12, GT-13, GT-14, and GT-15 (Appendix B).

The terrain and subsurface conditions of the area are discussed in in the following sections and summarized in Table 15 below.

Table 15: Overburden and Bedrock Condition Summary, North WRSF

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
North WRSF	GT-10	>7.5	0.5	Silt; ICE and SILT with organics ("Black Muck"); Gravel	0.5	Vx, Vc, Vs, ICE and SILT 5% to >50%	Not encountered (at 7.5m depth)
	GT-11	2.3	0.15	Gravel; Sand	Undetermined	Vc, Vx 10-20%	Gneiss; slightly to moderately weathered; competent; jointed
	GT-12	3.0	0.2	Silt; Gravel; Boulders	0.4	Vx, Vr, Vc, Vs 5-40%	Schist; slightly weathered; competent; jointed

Table 15: Overburden and Bedrock Condition Summary, North WRSF

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
	GT-13	5.8	0.2	Silt; Gravel	0.2	Vs, Vc, Vx 5-45%	Mafic Gneiss; strong to very strong;; completely weathered; extremely weak
	GT-14	1.9	0.2	Silt; Gravel; Cobble; Sand	0.3	Vx, Vs, Vc 15-40%	Mafic Gneiss; moderately to highly weathered, weak to very strong; jointed; highly to completely weathered, extremely to very weak; jointed
	GT-15	6.0	0.2	Silt; Sand; Sand and Gravel; Gravel; Cobbles and Boulders	0.2	Vx, Vc, Vs 5-40%	Mafic Gneiss; slightly to completely weathered; very weak to strong; jointed; highly to completely weathered, very weak
* - at the time of drilling							

3.8.1 Terrain Assessment

The North WRSF area was assessed in the field between August 29, 2016 and September 4, 2016.

The assessed area consists of predominantly gentle slopes (6° to 15°), with some sections being moderately steep (up to 20°). Slopes are mainly north- to north-west facing in the upper reaches of the YT-24 Creek basin (Figure 3); however, there is one east-facing slope in the far western part of the footprint, with moderate slopes of 15° to 25°.

The slopes are vegetated by sparse stunted (“drunken”) black spruce forest with a forest floor covered by Sphagnum moss and low shrubs (Labrador tea, dwarf birch, willow, blueberry etc.) (Photo 23). The central portion lacks trees, while the east-facing slope is covered with deciduous trees at lower elevations.

The slopes are blanketed with colluvium ranging from silt to boulder size, and with thicknesses ranging from 1.9 m to more than 7.5 m. The colluvium is covered by veneer of black muck (Table 15).

Photo 23: Aerial view of permafrost terrain in the North WRSF area, looking northwest. Sparse stunted black spruce forest covers gentle slopes of northerly aspect in the foreground, but there are few trees in the central portion of the area (left foreground). Deciduous forest covers the east-facing slope in the central left background. Drill rig can be seen at the Borehole GT-14 site on the right. Photo taken on August 30, 2016.

The proposed North WRSF area is underlain by permafrost as per Tetra Tech's site assessment and the borehole data (Figure 3 and Appendix B). Permafrost conditions were encountered in all six boreholes (Appendix B).

3.8.2 Overburden

The testpit and borehole data show that the area is underlain by a thin layer of black muck at surface (moss, peat, and organic silt), ranging from 0.15 m to 0.5 m thick. This layer is underlain by variable layers of angular sand, gravel, cobbles, and boulders, with minor silt and clay, which form colluvium derived from the underlying bedrock. The surficial deposits are thicker in the western part of the North WRSF (5.8 m to >7.5 m) than in the east, where thicknesses range from 1.9 m to 2.3 m.

The proposed North WRSF area is imperfectly to poorly-drained. Seepage of suprapermafrost groundwater was observed at the bottom of the testpits (Appendix B). The gravimetric moisture content of the frozen overburden samples recovered in the six completed boreholes varied from 8% in frozen gravel with some sand at a depth of 5.3 m in GT-10 to 129% in the black muck (ICE and SILT with organics) at a depth of 0.6 m in the same borehole (Tables 6 and 7).

Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in all six boreholes. Excess ice content was measured in the black muck (ICE and SILT with organics) to be higher than 50% at a depth of 0.6 m in GT-10. The excess ground ice occurs in the frozen overburden in various forms, e.g. ice lenses (Vs, Vr) ranging in thickness from less than 1 mm to approximately 3 mm, ice inclusions (Vx) up to 10 mm in diameter or ice coatings (Vc) up to

5 mm thick on gravel and cobbles. Photos 24 and 25 show examples of ground ice formations observed in the undisturbed frozen overburden core.

Photo 24: ICE and SILT with organics (black muck) encountered at a depth BGL of 0.6 m in Borehole GT-10, North WRSF.
Photo taken on September 1, 2016.

Photo 25: Ice lenses (Vs) and inclusions (Vx) in frozen sand with some gravel and silt at a depth of 5.8 m BGL in Borehole GT-15, North WRSF.
Photo taken on September 4, 2016.

3.8.3 Bedrock

Mafic gneiss was the primary bedrock type encountered in boreholes GT-10, GT-11 and GT-13 through GT-15. Biotite schist was found in Borehole GT-12. Bedrock was not encountered at Borehole GT-10. Depths to bedrock are shown in Table 15.

The mafic gneiss is pinkish grey, dark grey, or black, very weak to very strong, fine- to medium-grained, and slightly to completely weathered. Oxidized joints and fractures are common; these may contain sand, silt, clay, or calcite. The mafic gneiss is of very poor to good quality (RQD 0% to 90%). Fracture frequency ranges from 1 to 10 per metre and JSN ranges from 1 to 2.

The mafic gneiss contains mafic bands that are grey to black, strongly metamorphosed, highly to completely weathered within some intervals forming residual soil, highly altered and extremely to very weak. They are jointed, with an RQD of 0% to 45%, indicating very poor to poor quality, and a FF of 5 to 10 per metre within more competent intervals. Gravimetric moisture content is up to 10% at a depth of 5.8 m in Borehole GT-13 (Table 6).

The biotite schist is light grey, slightly weathered, strong to very strong, with oxidized joints that may contain calcite or oxides. It is of good quality (RQD 70% to 85%), with a FF of 7 to 8 per metre.

Ground ice was observed infilling fractures and joints in bedrock as described in the borehole logs (Appendix B).

3.9 North Pond

Three boreholes (GT-48, -50, and -51) were drilled within the footprint of the proposed North Pond area, located in the southwest-northeast trending YT-24 Creek valley (Figure 3). Overburden recovery was poor in GT-48 (0% to 58%), but good to excellent in the other two boreholes (45-100%). Testpits were completed to 0.4 m depths at GT-48, -50 and at the proposed GT-49 borehole location. Borehole GT-49 was not drilled in 2016 due to safety concerns about drill pad stability on the steep slope underlain by shallow, ice-rich permafrost.

The terrain and subsurface conditions of the area are discussed in the following sections and summarized in Table 16.

Table 16: Overburden and Bedrock Condition Summary, North Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
North Pond	GT-48	1.6	Undetermined	Gravel and Cobbles	Undetermined	Unfrozen	Schist; slightly to moderately weathered; competent; Gneiss; slightly to moderately weathered; competent; jointed

Table 16: Overburden and Bedrock Condition Summary, North Pond

General Areas	Borehole No.	Overburden Thickness (m)	Organic Layer Thickness (m)	Major Overburden Soil Types	Active Layer Thickness* (m)	Permafrost Conditions	Bedrock Conditions
	GT-50	3.4	0.1	Silt; Gravel; Cobbles; Gravel and Sand, Cobbles and Gravel	0.4	Vx, Vs, Vc, Nbe 1-45%	Gneiss; slightly to moderately weathered; competent; jointed
	GT-51	2.4	0.5	Gravel and Sand; Sand	0.5	Vs, Vc, Vx, Nbe 5-30%	Gneiss; slightly to moderately weathered; competent; jointed
* - at the time of drilling							

3.9.1 Terrain Assessment

The North Pond site was assessed in the field on August 26, 2016 and between September 5, 2016 and September 8, 2016. Unfrozen conditions were encountered in borehole GT-48 (southeast facing slope), while permafrost conditions were encountered in GT-50 and GT-51 (northwest facing slope).

The North Pond area drains directly into YT-24 Creek (Figure 3). The southeast abutment of the proposed dyke will rest on a moderately steep (25° to 31°) northwest-facing slope underlain by permafrost and covered by sparse stunted ("drunken") black spruce forest with Sphagnum moss and low shrubs (Labrador tea, dwarf birch, alder, willow, blueberry etc.).

The moderately steep to steep (24° to > 42°) permafrost-free southeast-facing slope, which is covered by dense mixed white and black spruce and trembling aspen (Photo 26), will form the base for the northwest abutment. This slope consists of several subtle benches and is locally covered with rockfall talus. A bedrock outcrop was observed above the GT-48 drill pad location.

The pond will cover a treeless area in the centre that hosts low shrubs and has a gentle 9° slope that faces north.

Photo 26: Aerial view of proposed North Pond site, YT-24 Creek valley, looking south-southwest. Sparse stunted black spruce covers moderately steep northwest-facing slope underlain by permafrost. The steep permafrost-free southeast-facing slope is covered by a dense mix of white spruce and aspen. The treeless area is visible in the distance.
Photo taken on August 30, 2016.

The slopes are blanketed with coarse colluvium 1.6 m to 3.4 m thick (Table 16). The colluvium is covered by a veneer of black muck. Photo 27 shows the black muck veneer exposed in Testpit GT-50, which was excavated to refusal on the permafrost table on August 26, 2016 adjacent to Borehole GT-50.

**Photo 27: Frozen ice-rich black muck exposed at a depth of 0.4 m (thickness of the active layer at the time of digging) in Testpit GT-50, North Pond.
Photo taken on August 26, 2016**

3.9.2 Overburden

The uppermost surficial deposits encountered in Boreholes GT-50 and -51 and the testpits (GT-48 had no overburden recovery) consist of black muck up to 0.50 m thick: dark brown to black moss with roots, peat, organics, and organic silt.

The colluvial deposits beneath the black muck comprise layers of well graded dark grey to brown subangular to angular gravel, sand, minor silt, and cobbles at GT-50 and -51, while poorly graded subangular to subrounded gravel and cobbles are all that was recovered in Borehole GT-48.

The northwest-facing slope is imperfectly to poorly-drained: seepage of suprapermafrost ground water was observed at the bottom of Testpit GT-51 (Photo 28).

Photo 28: Suprapermafrost ground water at 0.4 m depth BGL in Testpit GT-51, North Pond. Photo taken on September 6, 2016.

The gravimetric moisture content of the frozen overburden varies from 15% in gravel at a depth of 0.7 m in Borehole GT-50 to 219% in frozen silt with organics (black muck) at 0.4 m to 0.5 m depth in Borehole GT-51 (Tables 6 and 7).

Permafrost conditions with excess ice (Vc, Vr, Vs, and Vx) were encountered in two (GT-50 and GT-51) of the three boreholes completed at the North Pond site. Excess ice content in frozen silty sand was found to be as high as 20% at a depth of 1.5 m in GT-51. Excess ice content in the black muck veneer was estimated to be as high as 45% at a depth of 0.4 m in the same borehole. The excess ground ice occurs in the frozen overburden in various forms, e.g. ice lenses (Vs, Vr) ranging in thickness from less than 1 mm to approximately 10 mm, ice inclusions (Vx) or ice coatings (Vc) up to 5 mm thick on gravel and cobbles. Photo 29 shows ice coating observed on gravel in Borehole GT-51.

Photo 29: Ice coating on gravel (Vc) in silty sand with a trace of gravel at a depth of approximately 1.5 m BGL in Borehole GT-51, North Pond.
Photo taken on September 6, 2016.

3.9.3 Bedrock

Gneiss was encountered in all three boreholes. The depth to bedrock is shown in Table 16.

The gneiss in Borehole GT-48 is bluish grey, fine grained, slightly to moderately weathered, medium strong to very strong, and may be foliated or include quartz veins. It is fractured, with abundant oxidized joints infilled with silt, sand, and/or calcite. JSN ranges from 2 to 9. Quality is variable, ranging from RQDs of 0% to 78% (very poor to good), and FF is 6 per metre.

The gneiss in boreholes GT-50 and GT-51 is grey or displays yellow, red, and grey bands. It is slightly to moderately weathered, strong to extremely strong, with abundant joints, faults, and fractures, which are commonly oxidized (JSN is 2 to 9). Joints may be infilled with ice, sand, silt, clay, or calcite. A few quartz veins are present as well. Quality is variable, with RQDs ranging from 0% to 90%, and FF is 1 to 14 per metre.

Ground ice was observed infilling some of the bedrock fractures and joints as described in the borehole logs (Appendix B) and illustrated in Photo 30. Excess ice (Vx, Vc, estimated at 1 to 12%) was observed in a fragmented zone (coarse sand to fine gravel-size fragments of rock) at 6.75 m to 7.0 m depth in Borehole GT-50 (Appendix B). Gravimetric moisture content of this fragmented material was measured to be as high as 12% (Table 6).

Photo 30: Ice infilling subvertical fracture in gneiss at a depth of 2.7 m BGL in GT-51, North Pond. Photo taken in September 6, 2016.

4.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

[signatures redacted]

[signatures redacted]

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WM4102 Logging of Perennially Frozen Soils and Ground Ice for Engineering Purposes. Tetra Tech Canada Inc.'s work method, 37 p.

WM4105 Installation of Ground Temperature Cables in Boreholes. EBA, A Tetra Tech Company's work method (DRAFT), 13 p.

WM4400 Geotechnical Soil Classification. EBA, A Tetra Tech Company's work method, 16 p.

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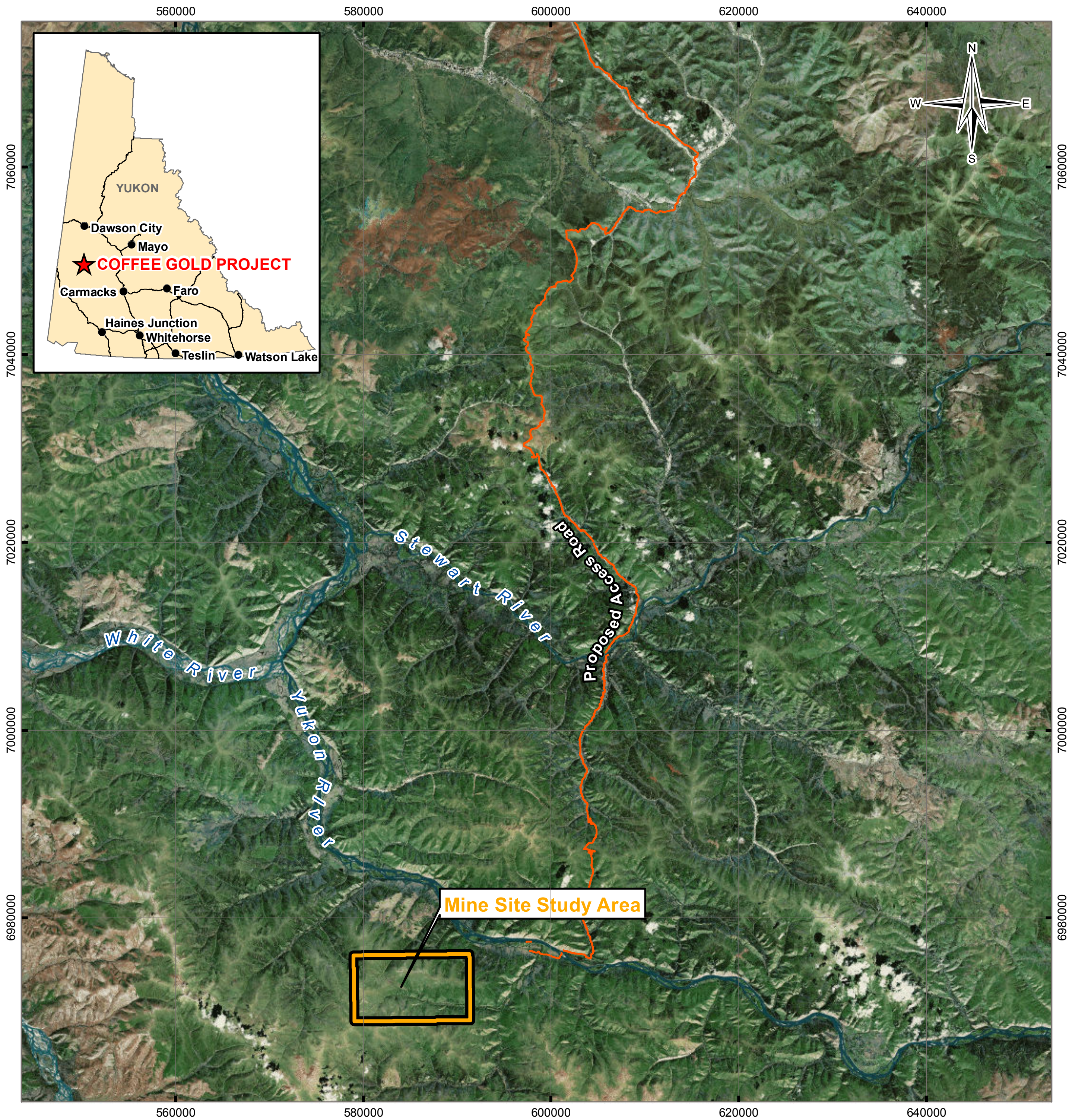
FIGURES

TETRA TECH



LEGEND

- Mine Site Study Area
- Proposed Access Road

NOTES
Base data source:
Imagery from ESRI;
Earthstar Geographics (1999)
Road data from Kaminak (February 2016)

STATUS
ISSUED FOR USE

COFFEE GOLD PROJECT
FALL 2016 GEOTECHNICAL SITE INVESTIGATION DATA REPORT

Site Location

PROJECTION	DATUM	CLIENT
UTM Zone 7	NAD83	GOLDCORP

Scale: 1:600,000
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Kilometres

TETRA TECH

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ENG.EARC03004-02	MEZ	SL	SMC	0
OFFICE	**DATE**			
Tt EBA-VANC	March 20, 2017			

Figure 1

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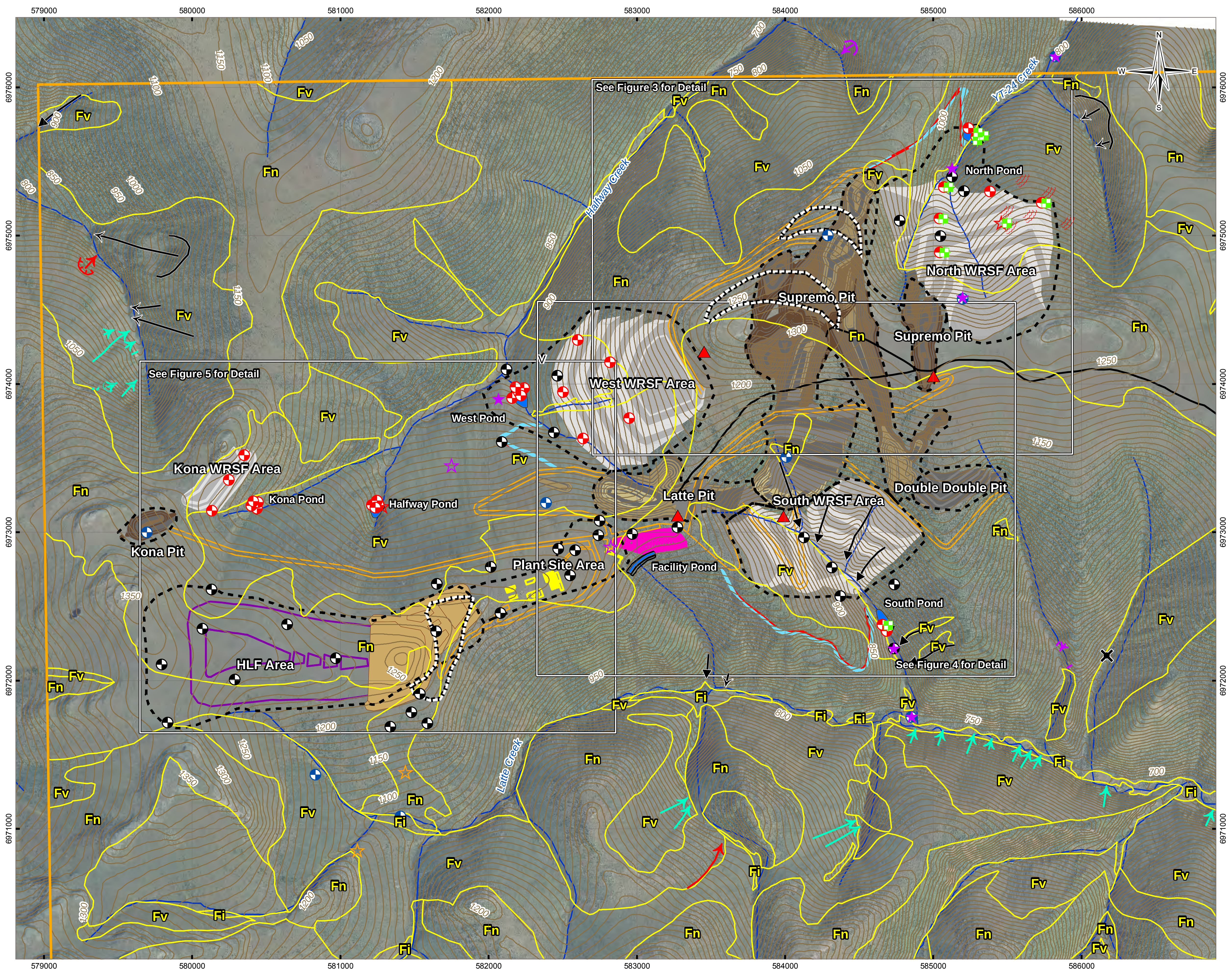

LEGEND

- Testpit (TT/SRK, 2016)
- Borehole (TT/SRK, 2016)
- Thermistor (TT/SRK, 2016)
- Thermistor (Knight Piesold, 2014)
- Vibrating Wire Piezometer (VWP) (TT EBA, 2013)
- Thermistor (SRK, 2015)
- Thermistor/VWP (SRK, 2015)
- Borehole (Lorax, 2015)
- Borehole (SRK, 2015)
- Mine Site Study Area
- Mine Site Facility Areas, Including Pit Outlines
- Fi Perennially Frozen Ground – very ice-rich
- Fv Perennially Frozen Ground – visible excess ice
- Fn Perennially Frozen Ground – ice not visible
- Unfrozen
- Collapsed Pingo
- Solifluction Feature
- V Thermal Erosion Feature
- Cryoplanation Terrace
- Gully
- Landslide Failure Scar
- Landslide Headscarp
- Recent Landslide Failure Scar
- Recent Landslide Headscarp
- Retrogressive Thaw Flow Scar
- Retrogressive Thaw Flow Headscarp
- Active Layer Detachment Scar
- Active Layer Detachment Headscarp
- WRSF Access Road (cut)
- WRSF Access Road (fill)
- Access to Coffee Deposits from Barge Landing
- Haul Road
- Contour (10 m)
- Watercourse

NOTES
Base Data Source:
Access road provided by Kaminak (August 2015).
WRSF roads from JDS Mining (March 2016)
Project Footprint provided by Hemerra (December 14, 2015).
Imagery provided by Kaminak (2011).
CanVec 1:50,000

STATUS
ISSUED FOR USE

COFFEE GOLD PROJECT FALL 2016 GEOTECHNICAL SITE INVESTIGATION DATA REPORT

Borehole and Testpit Location Plan Overview

PROJECTION	DATUM	CLIENT
UTM Zone 7	NAD83	GOLDCORP

Scale: 1:25,000
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Metres

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TETRA TECH

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Tt-VANC	MEZ	SL	VER	0

DATE	PROJECT NO.
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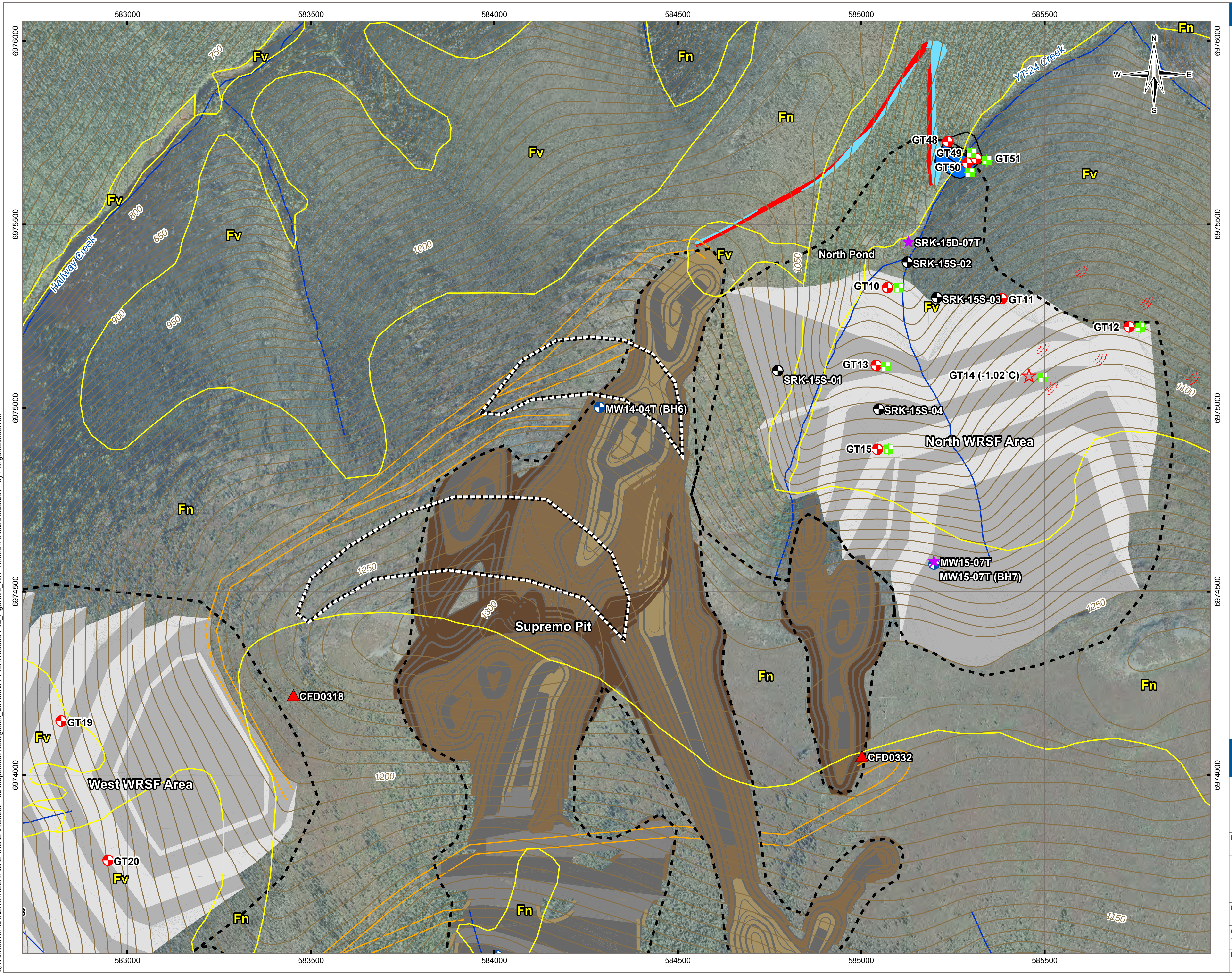
Figure 2



LEGEND

- Testpit (TT/SRK, 2016)
- Borehole (TT/SRK, 2016)
- Thermistor (TT/SRK, 2016)
- Vibrating Wire Piezometer (VWP) (TT EBA, 2013)
- Thermistor/VWP (SRK, 2015)
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- Fn Perennially Frozen Ground – ice not visible
- Unfrozen
- Solifluction Feature
- Cryoplanation Terrace

Pit Backfill
- 0 m
- 1 m - 1250 m

Pit Surface
- 0 m
- 1 m - 1000 m
- 1000 m - 1100 m
- 1100 m - 1200 m
- 1200 m - 1300 m

Waste Dumps
- 0 m
- 1 m - 1250 m
- Settling Pond
- Berm
- WRSF Access Road (cut)
- WRSF Access Road (fill)
- Haul Road
- Contour (10 m)
- Watercourse

NOTES
Base Data Source:
Access road provided by Kaminak (August 2015).
WRSF roads from JDS Mining (March 2016)
Project Footprint provided by Hemerra (December 14, 2015).
Imagery provided by Kaminak (2011). CanVec 1:50,000

STATUS
ISSUED FOR USE

COFFEE GOLD PROJECT FALL 2016 GEOTECHNICAL SITE INVESTIGATION DATA REPORT

Borehole and Testpit Location Plan North Waste Rock Storage Facility Area

PROJECTION	DATUM	CLIENT
UTM Zone 7	NAD83	GOLDCORP

Scale: 1:10,000
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Metres

TETRA TECH

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Tt-VANC	MEZ	SL	VER	0
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Figure 3

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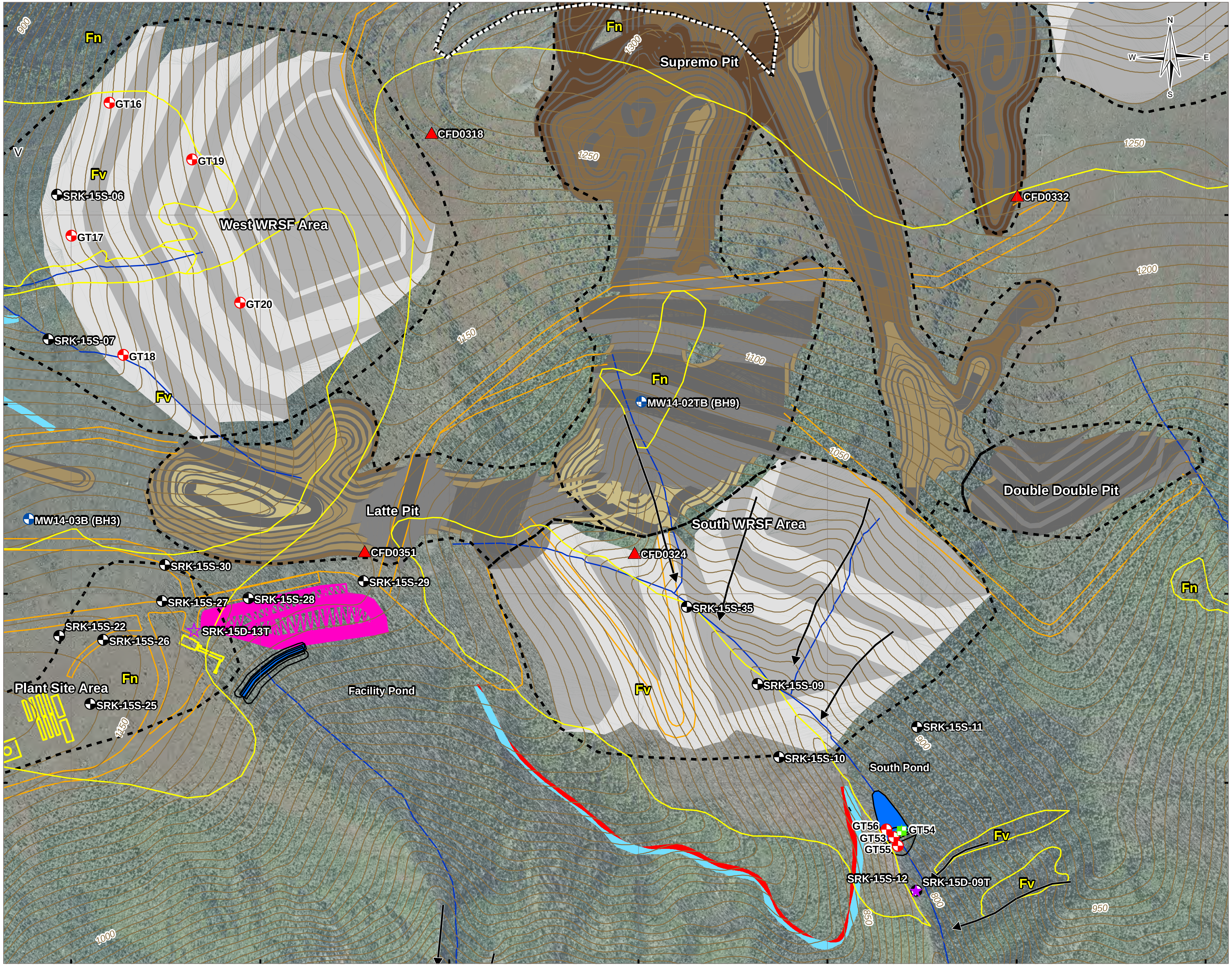

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LEGEND

- Testpit (TT/SRK, 2016)
- Borehole (TT/SRK, 2016)
- Vibrating Wire Piezometer (VWP) (TT EBA, 2013)
- Thermistor (SRK, 2015)
- Thermistor/VWP (SRK, 2015)
- Borehole (Lorax, 2015)
- Borehole (SRK, 2015)
- Mine Site Facility Areas, Including Pit Outlines
- Fi Perennially Frozen Ground – very ice-rich
- Fv Perennially Frozen Ground – visible excess ice
- Fn Perennially Frozen Ground – ice not visible
- Unfrozen
- V Thermal Erosion Feature
- Cryoplanation Terrace
- Gully
- Landslide Failure Scar

Proposed Mine Site Layout

- Plant
- Stockpile

Pit Surface

- 0 m
- 1 m - 1000 m
- 1000 m - 1100 m
- 1100 m - 1200 m
- 1200 m - 1300 m

Waste Dumps

- 0 m
- 1 m - 1250 m
- Settling Pond
- Berm
- WRSF Access Road (cut)
- WRSF Access Road (fill)
- Haul Road
- Contour (10 m)
- Watercourse

NOTES
Base Data Source:
Access road provided by Kaminak (August 2015).
WRSF roads from JDS Mining (March 2016)
Project Footprint provided by Hemerra (December 14, 2015).
Imagery provided by Kaminak (2011). CanVec 1:50,000

STATUS
ISSUED FOR USE

COFFEE GOLD PROJECT
FALL 2016 GEOTECHNICAL
SITE INVESTIGATION DATA REPORT

Borehole and Testpit Location Plan
West WRSF and South WRSF Areas

PROJECTION	DATUM	CLIENT
UTM Zone 7	NAD83	GOLDCORP

Scale: 1:10,000
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Metres

FILE NO.
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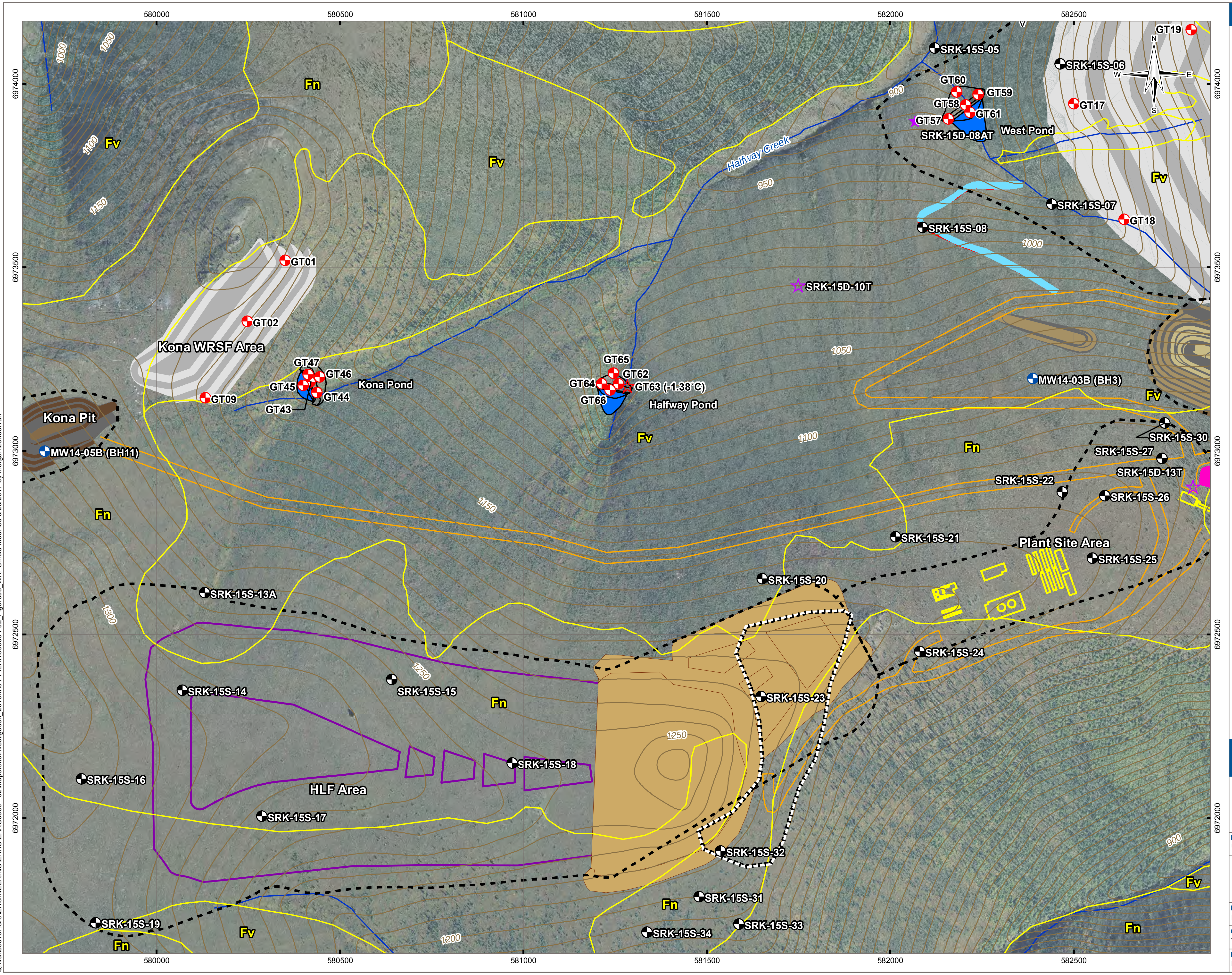
Tt-VANC	MEZ	SL	VER	0

DATE	PROJECT NO.
March 20, 2017	ENG.EARC03004-02

Figure 4



LEGEND

- Borehole (TT/SRK, 2016)
- Thermistor (TT/SRK, 2016)
- Thermistor (SRK, 2015)
- Thermistor/VWP (SRK, 2015)
- Borehole (Lorax, 2015)
- Borehole (SRK, 2015)
- Mine Site Facility Areas, Including Pit Outlines
- Fi Perennially Frozen Ground – very ice-rich
- Fv Perennially Frozen Ground – visible excess ice
- Fn Perennially Frozen Ground – ice not visible
- Unfrozen
- V Thermal Erosion Feature
- Cryoplanation Terrace

Proposed Mine Site Layout

- Plant
- Leach Pad
- Stockpile
- Event Pond

Pit Surface

- 0 m
- 1 m - 1000 m
- 1000 m - 1100 m
- 1100 m - 1200 m
- 1200 m - 1300 m

Waste Dumps

- 0 m
- 1 m - 1250 m
- Settling Pond
- Berm
- WRSF Access Road (cut)
- WRSF Access Road (fill)
- Haul Road
- Contour (10 m)
- Watercourse

NOTES

Base Data Source:
Access road provided by Kaminak (August 2015).
WRSF roads from JDS Mining (March 2016)
Project Footprint provided by Hemerra (December 14, 2015).
Imagery provided by Kaminak (2011). CanVec 1:50,000

STATUS
ISSUED FOR USE

COFFEE GOLD PROJECT
FALL 2016 GEOTECHNICAL
SITE INVESTIGATION DATA REPORT

Borehole Location Plan
West Pond, Kona WRSF, Kona Pond and Halfway Pond

PROJECTION	DATUM	CLIENT
UTM Zone 7	NAD83	GOLDCORP

Scale: 1:10,000
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Metres

TETRA TECH

FILE NO.
EARC03004-02_Figure05_WRFS.mxd

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Tt-VANC	MEZ	SL	VER	0

DATE	PROJECT NO.
March 20, 2017	ENG.EARC03004-02

Figure 5

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PHOTOGRAPHS

Photo 1	Borehole GT-01
Photo 2	Borehole GT-02
Photo 3-4	Borehole GT-09
Photo 5-6	Borehole GT-10
Photo 7-9	Borehole GT-11
Photo 10	Borehole GT-12
Photo 11-12	Borehole GT-13
Photo 13-20	Borehole GT-14
Photo 21-23	Borehole GT-15
Photo 24	Borehole GT-16
Photo 25	Borehole GT-17
Photo 26-27	Borehole GT-18
Photo 28-29	Borehole GT-20
Photo 30-33	Borehole GT-43
Photo 34	Borehole GT-44
Photo 35-39	Borehole GT-45
Photo 40-44	Borehole GT-46
Photo 45-52	Borehole GT-47
Photo 53-54	Borehole GT-48
Photo 55-56	Borehole GT-50
Photo 57-62	Borehole GT-51
Photo 63-64	Borehole GT-53
Photo 65	Borehole GT-55
Photo 66-68	Borehole GT-57
Photo 69-70	Borehole GT-58
Photo 71	Borehole GT-59

Photo 72-77	Borehole GT-60
Photo 78-79	Borehole GT-61
Photo 80-81	Borehole GT-62
Photo 82-86	Borehole GT-63
Photo 87	Borehole GT-64
Photo 88-90	Borehole GT-65
Photo 91-94	Borehole GT-66

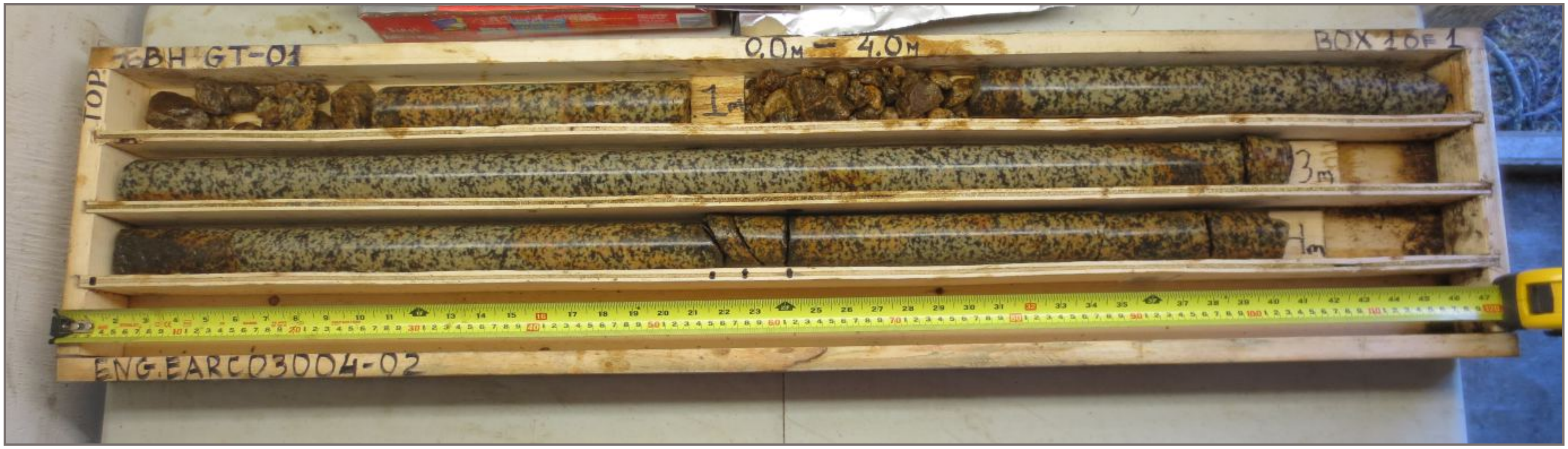


Photo 1: Borehole GT-01; Depth: 0.0 - 4.0 m

Photo 2: Borehole GT-02; Depth: 0.0 - 5.0 m

Photo 3: Borehole GT-09; Depth: 0.0 - 16.81 m

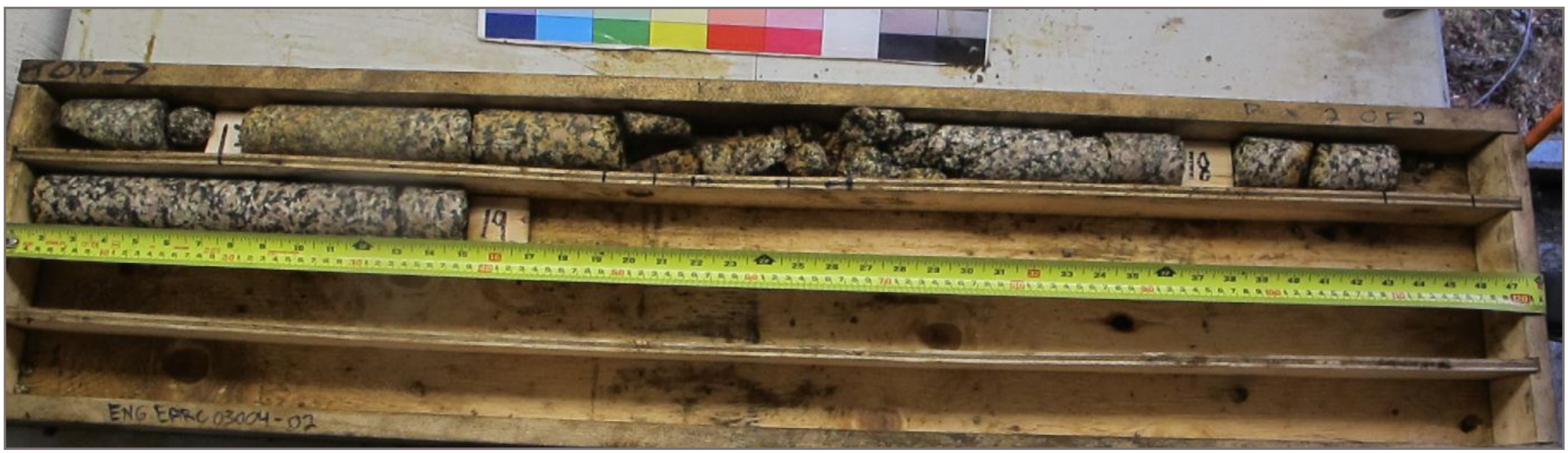


Photo 4: Borehole GT-09; Depth: 16.81 - 19.0 m

Photo 5: Borehole GT-10; Depth: 0.0 - 4.0 m

Photo 6: Borehole GT-10; Depth: 0.0 - 6.0 m

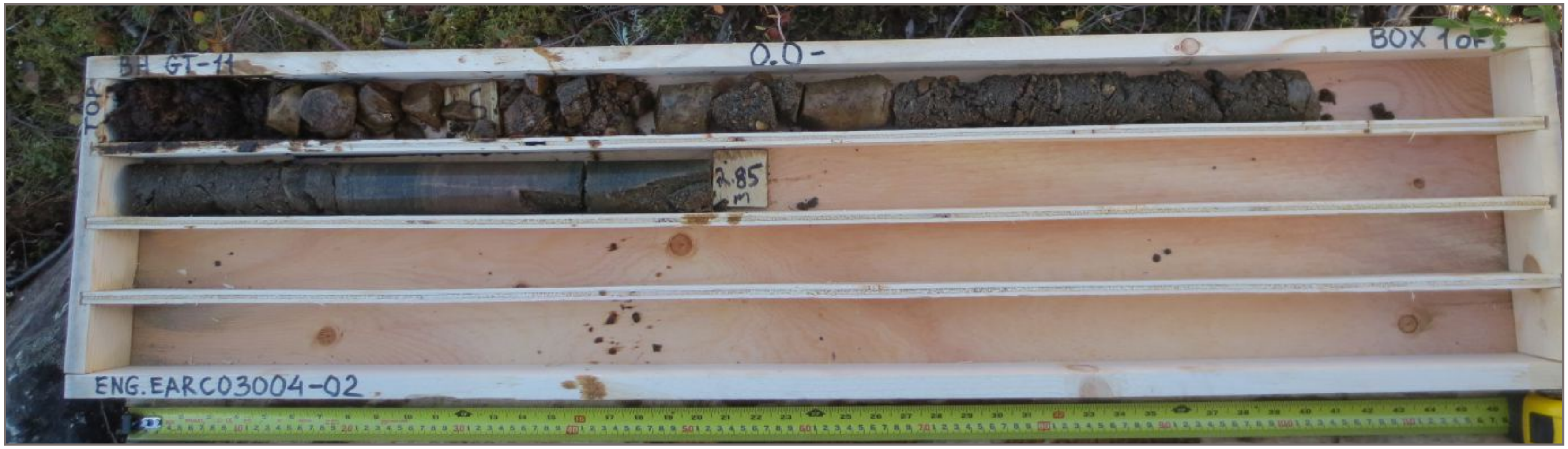


Photo 7: Borehole GT-11; Depth: 0.0 - 2.85 m

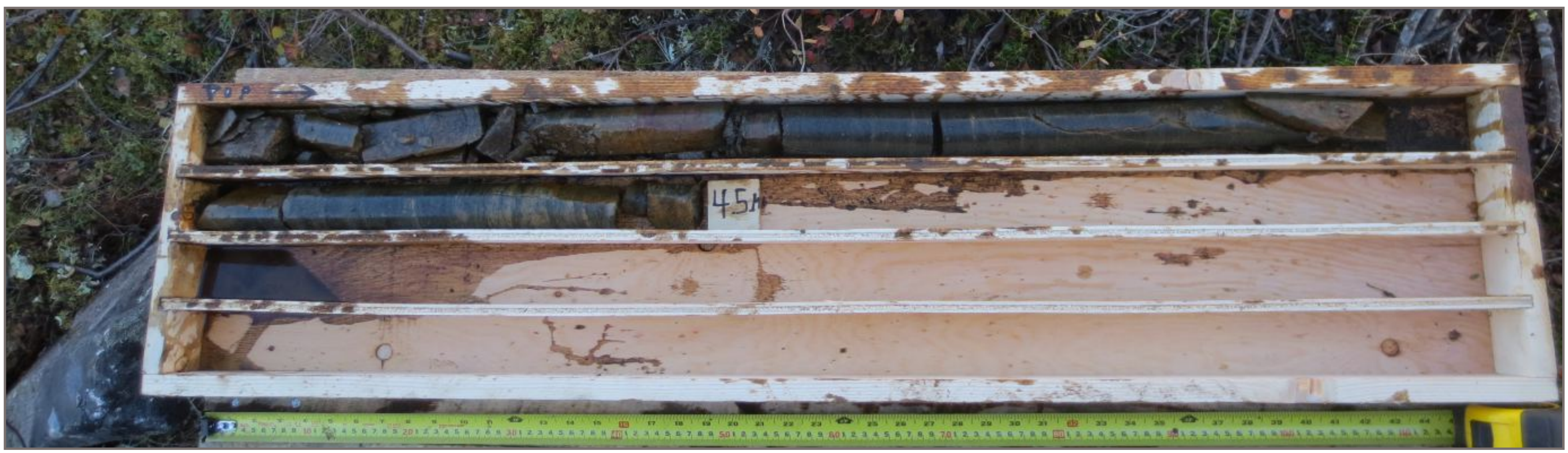


Photo 8: Borehole GT-11; Depth: 3.0 - 4.50 m

Photo 9: Borehole GT-11; Depth: 4.50 - 6.40 m

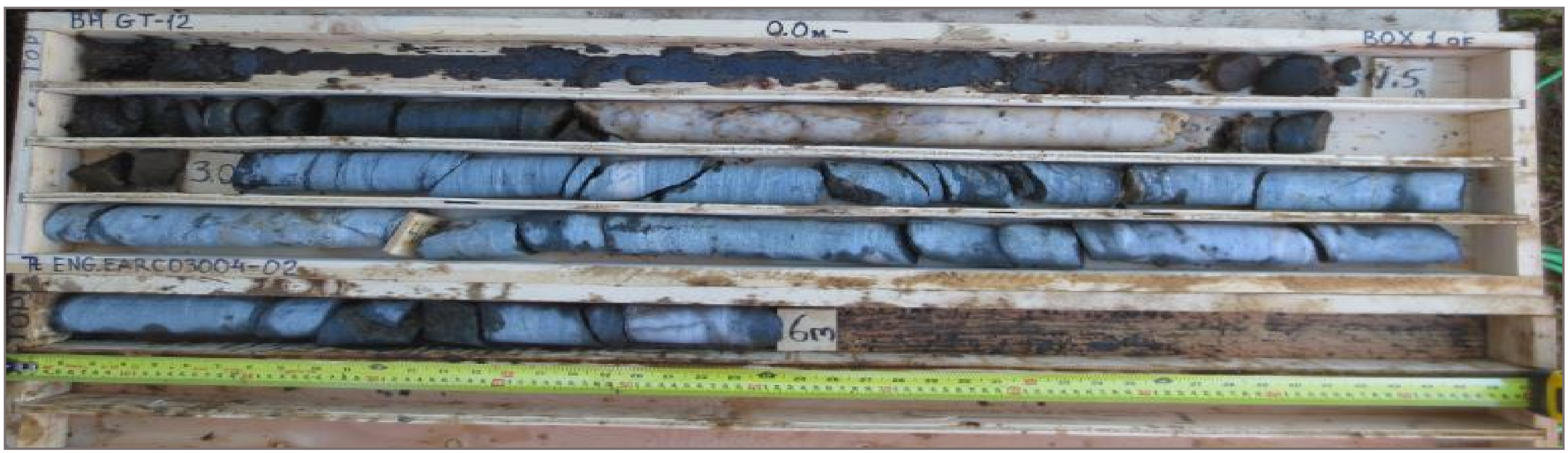


Photo 10: Borehole GT-12; Depth: 0.0 - 6.0 m

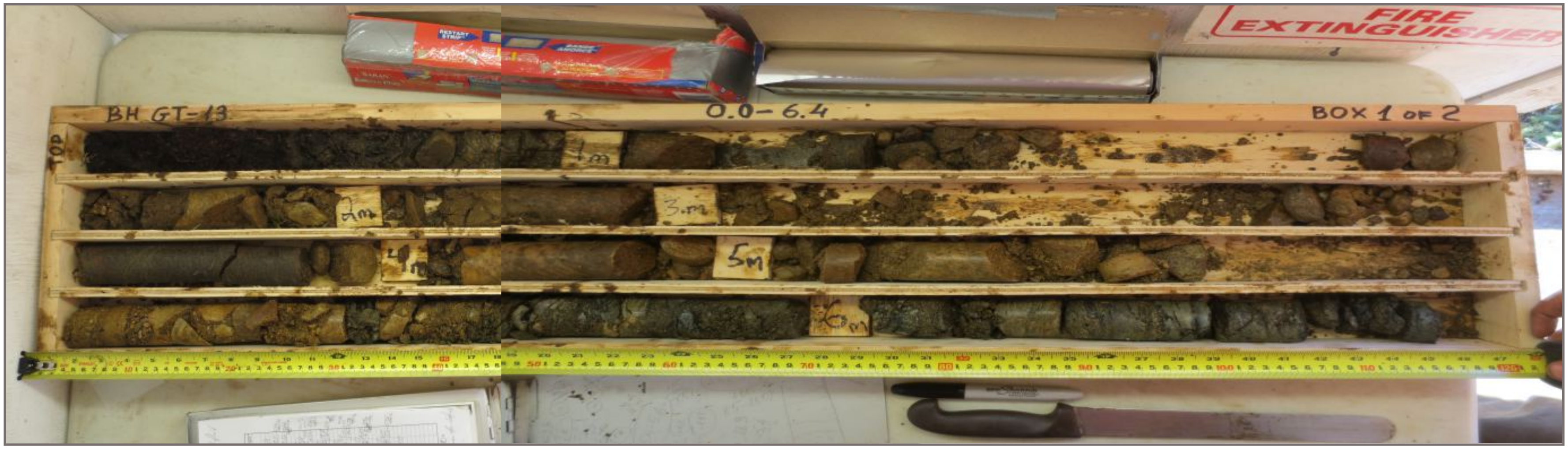


Photo 11: Borehole GT-13; Depth: 0.0 - 6.40 m

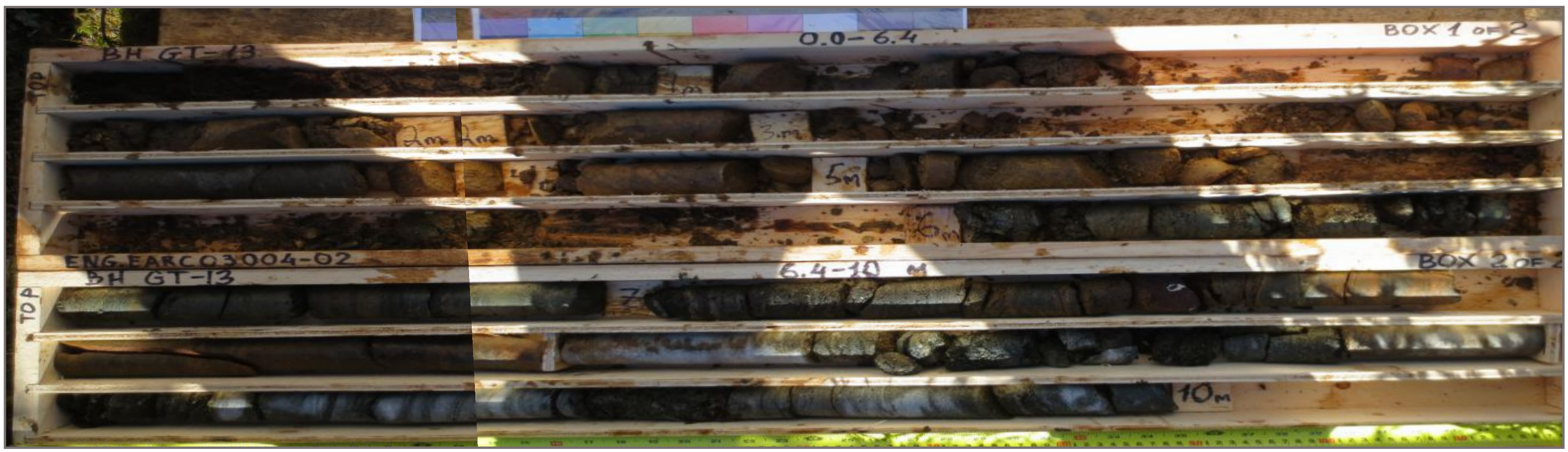


Photo 12: Borehole GT-13; Depth: 6.4 - 10.0 m

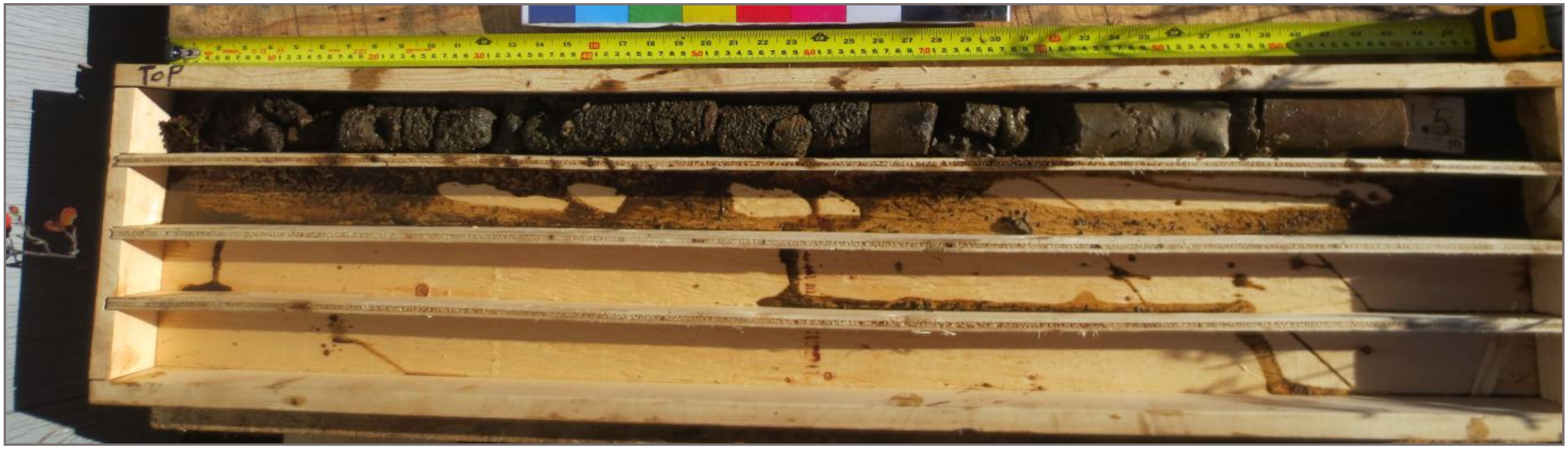


Photo 13: Borehole GT-14; Depth: 0.0 - 1.5 m

Photo 14: Borehole GT-14; Depth: 1.5 - 3.0 m

Photo 15: Borehole GT-14; Depth: 3.0 - 4.5 m

Photo 16: Borehole GT-14; Depth: 4.5 - 8.0 m

Photo 17: Borehole GT-14; Depth: 8.0 - 11.0 m

Photo 18: Borehole GT-14; Depth: 11.0 - 14.0 m

Photo 19: Borehole GT-14; Depth: 14.0 - 17.0 m

Photo 20: Borehole GT-14; Depth: 17.0 - 20.5 m

Photo 21: Borehole GT-15; Depth: 0.0 - 4.0 m

Photo 22: Borehole GT-15; Depth: 0.0 - 7.0 m

Photo 23: Borehole GT-15; Depth: 7.0 - 10.0 m

Photo 24: Borehole GT-16; Depth: 0.0 - 6.0 m

Photo 25: Borehole GT-17; Depth: 0.0 - 5.2 m

Photo 26: Borehole GT-18; Depth: 0.0 - 6.0 m

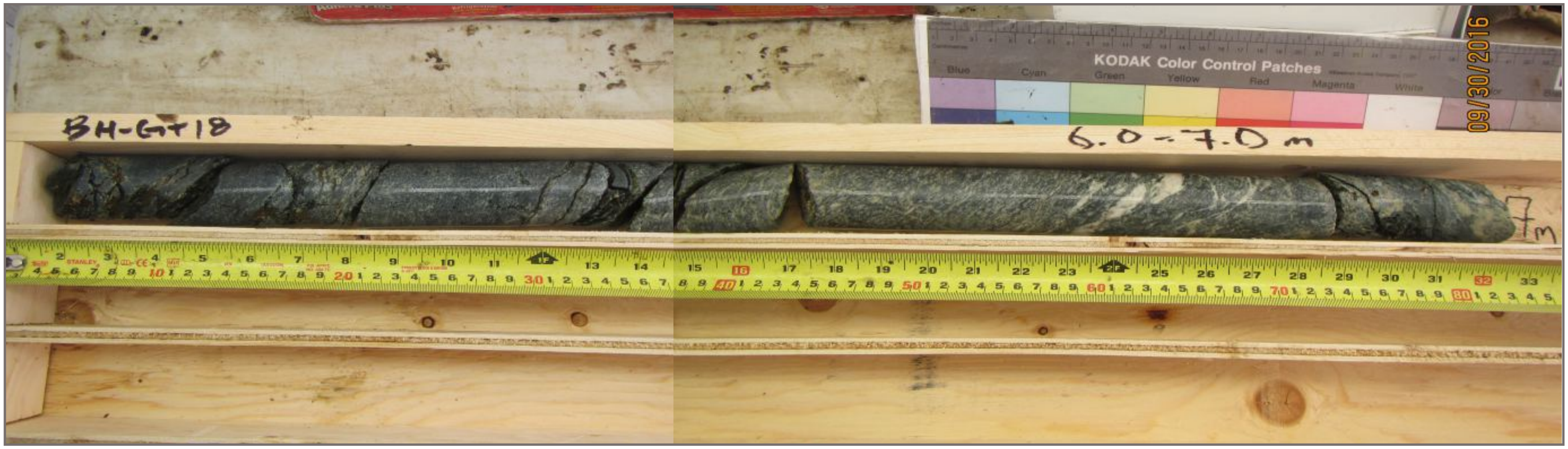


Photo 27: Borehole GT-18; Depth: 6.0 - 7.0 m

Photo 28: Borehole GT-20; Depth: 0.0 - 6.0 m

Photo 29: Borehole GT-20; Depth: 6.0 - 7.0 m

Photo 30: Borehole GT-43; Depth: 0.0 - 3.0 m

Photo 31: Borehole GT-43; Depth: 0.0 - 9.0 m

Photo 32: Borehole GT-43; Depth: 9.0 - 14.0 m

Photo 33: Borehole GT-43; Depth: 14.0 - 18.0 m

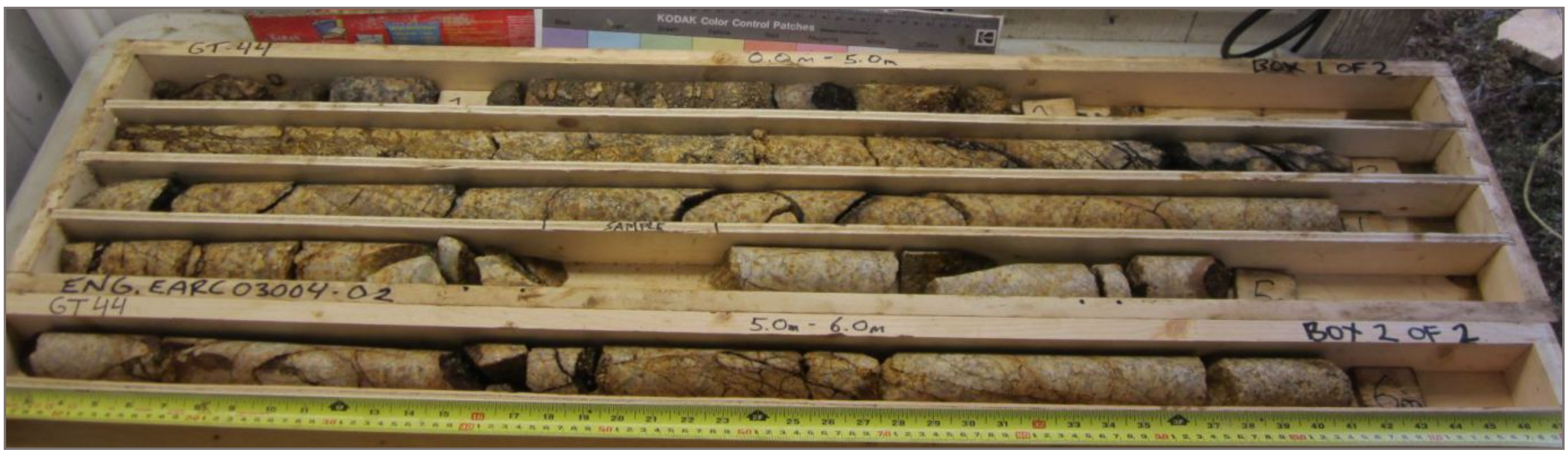


Photo 34: Borehole GT-44; Depth: 0.0 - 6.0 m

Photo 35: Borehole GT-45; Depth: 0.0 - 3.0 m

Photo 36: Borehole GT-45; Depth: 0.0 - 8.0 m

Photo 37: Borehole GT-45; Depth: 0.0 - 12.0 m

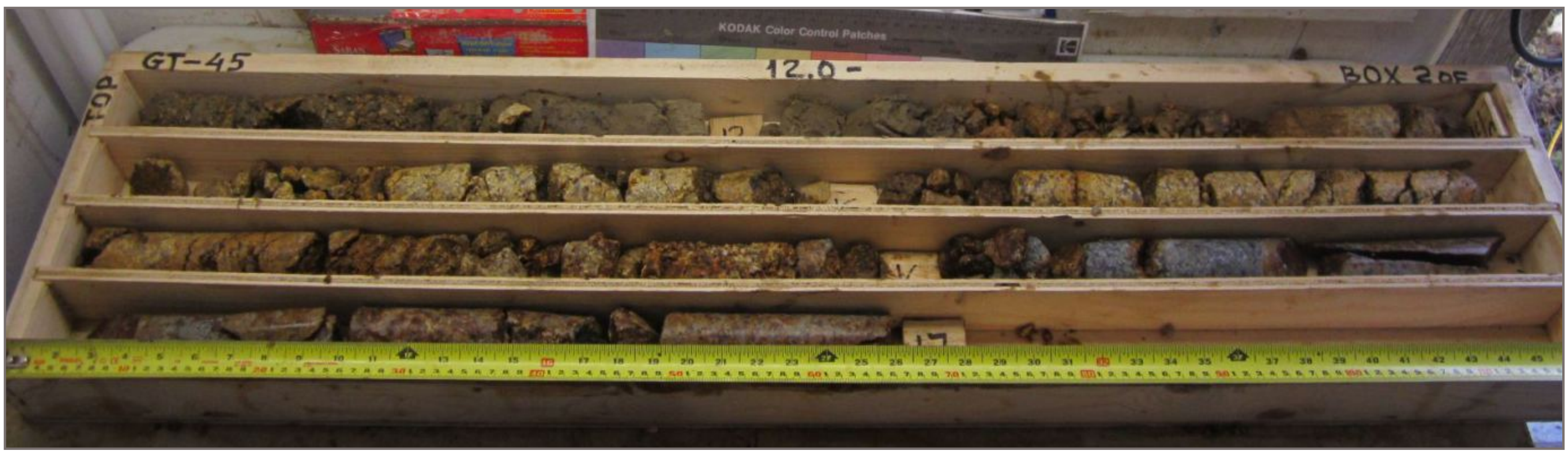


Photo 38: Borehole GT-45; Depth: 12.0 - 17.0 m

Photo 39: Borehole GT-45; Depth: 17.0 - 21.0 m

Photo 40: Borehole GT-46; Depth: 0.0 - 3.0 m

Photo 41: Borehole GT-46; Depth: 0.0 - 4.0 m

Photo 42: Borehole GT-46; Depth: 0.0 - 7.0 m

Photo 43: Borehole GT-46; Depth: 0.0 - 8.0 m

Photo 44: Borehole GT-46; Depth: 0.0 - 11.0 m

Photo 45: Borehole GT-47; Depth: 0.0 - 3.0 m

Photo 46: Borehole GT-47; Depth: 0.0 - 5.0 m

Photo 47: Borehole GT-47; Depth: 0.0 - 7.0 m

Photo 48: Borehole GT-47; Depth: 7.0 - 8.0 m

Photo 49: Borehole GT-47; Depth: 7.0 - 11.0 m

Photo 50: Borehole GT-47; Depth: 7.0 - 12.0 m

Photo 51: Borehole GT-47; Depth: 7.0 - 12.40 m

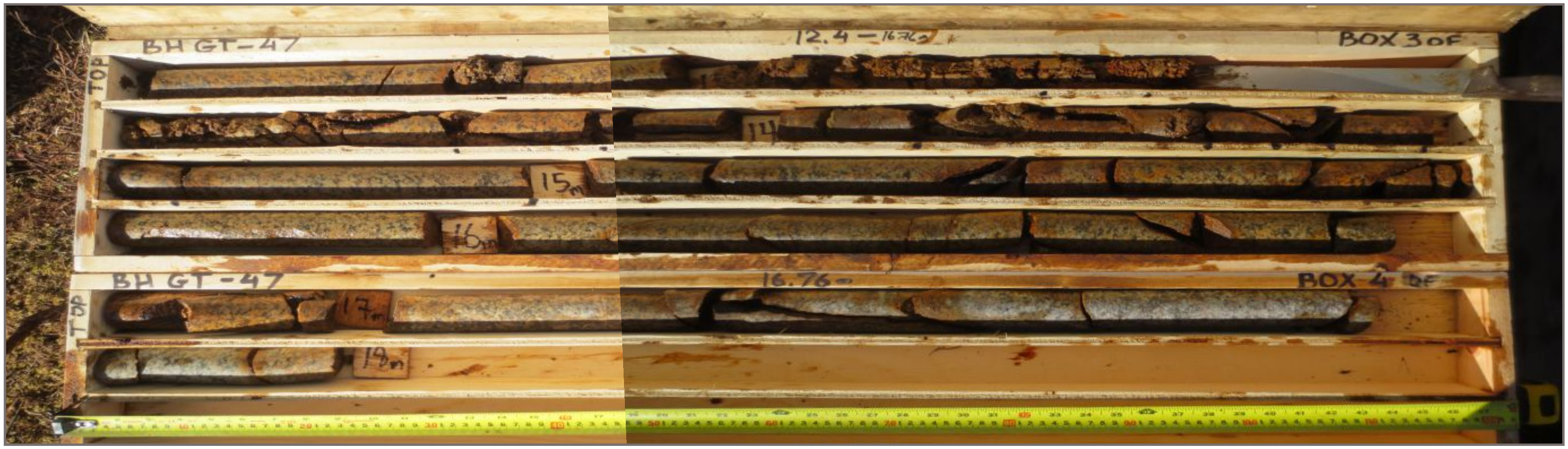


Photo 52: Borehole GT-47; Depth: 12.40 - 16.76 m

Photo 53: Borehole GT-48; Depth: 0.0 - 6.60 m

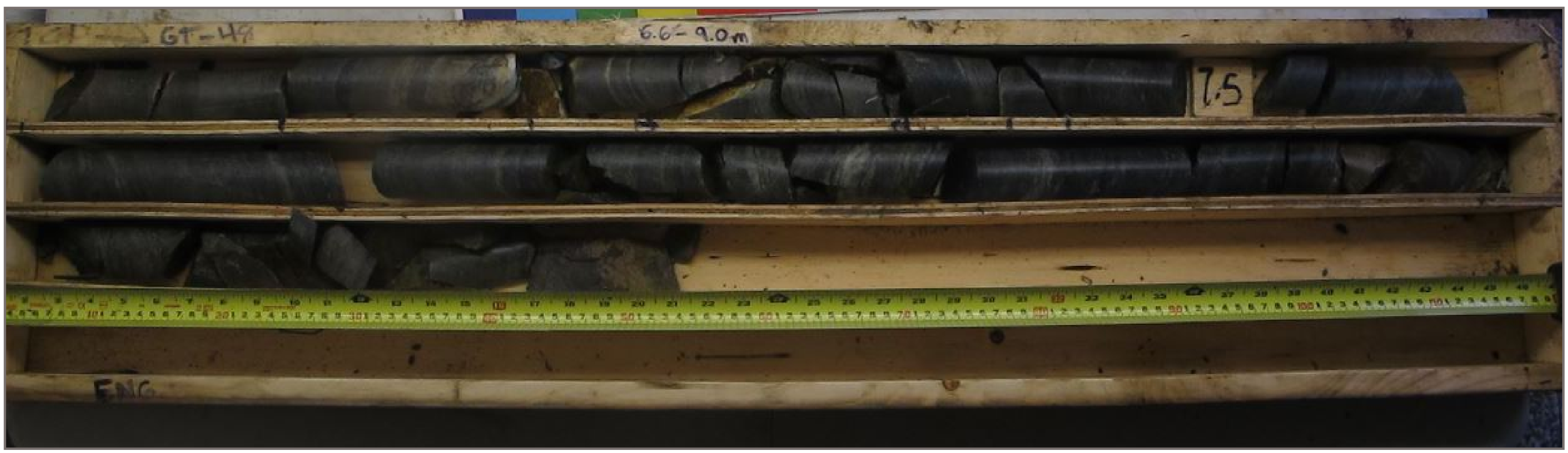


Photo 54: Borehole GT-48; Depth: 6.60 - 9.0 m

Photo 55: Borehole GT-50; Depth: 0.0 - 8.0 m

Photo 56: Borehole GT-50; Depth: 6.0 - 10.0 m

Photo 57: Borehole GT-51; Depth: 0.0 - 3.0 m

Photo 58: Borehole GT-51; Depth: 4.0 - 6.50 m

Photo 59: Borehole GT-51; Depth: 5.8 - 12.50 m

Photo 60: Borehole GT-51; Depth: 10.15 - 14.84 m

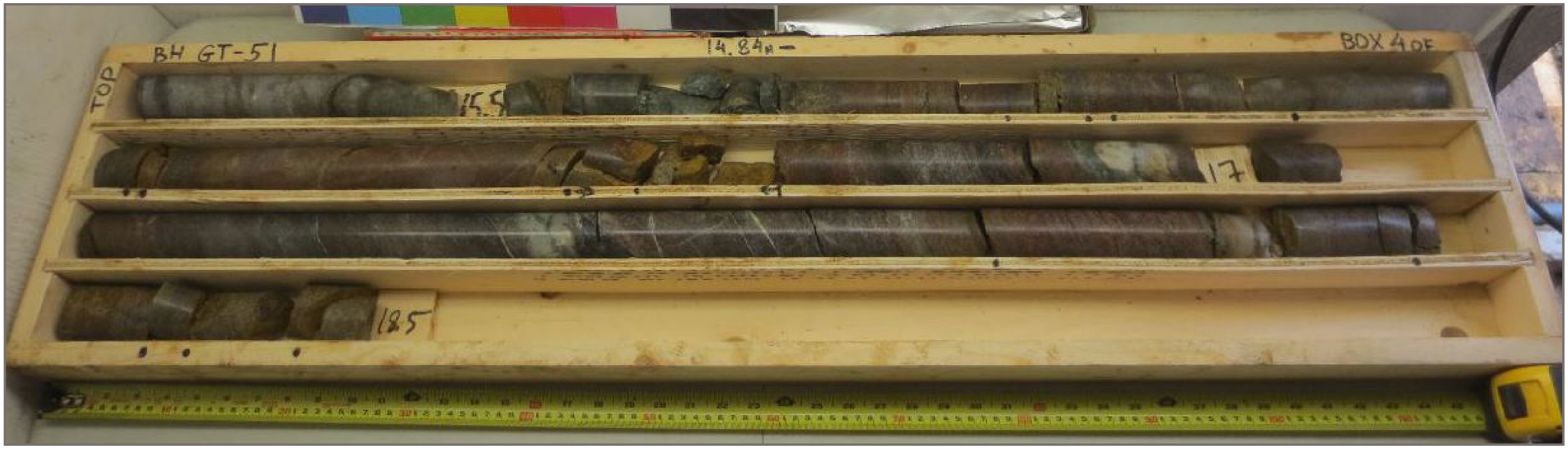


Photo 61: Borehole GT-51; Depth: 14.84 - 18.50 m

Photo 62: Borehole GT-51; Depth: 18.50 - 21.0 m

Photo 63: Borehole GT-53; Depth: 0.0 - 8.0 m

Photo 64: Borehole GT-53; Depth: 8.0 - 1.0 m

Photo 65: Borehole GT-55; Depth: 0.0 - 9.0 m

Photo 66: Borehole GT-57; Depth: 0.0 - 3.0 m

Photo 67: Borehole GT-57; Depth: 3.0 - 5.0 m

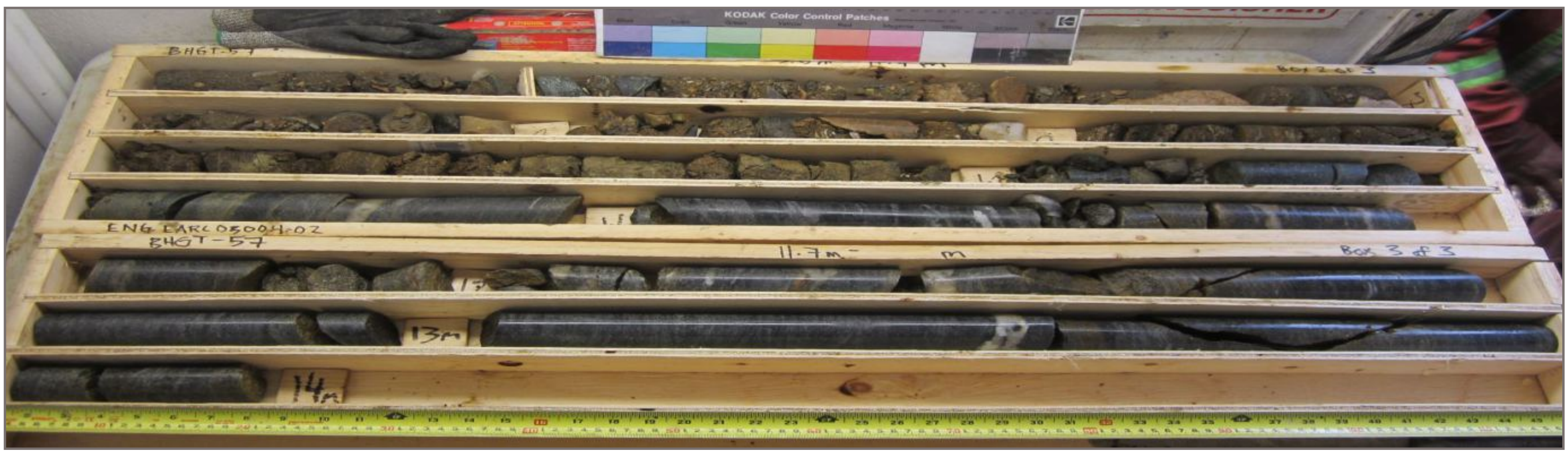


Photo 68: Borehole GT-55; Depth: 5.0 - 14.0 m

Photo 69: Borehole GT-58; Depth: 0.0 - 5.0 m

Photo 70: Borehole GT-58; Depth: 5.0 - 8.0 m

Photo 71: Borehole GT-59; Depth: 0.0 - 5.0 m

Photo 72: Borehole GT-60; Depth: 0.0 - 4.0 m

Photo 73: Borehole GT-60; Depth: 0.0 - 5.0 m

Photo 74: Borehole GT-60; Depth: 0.0 - 6.0 m

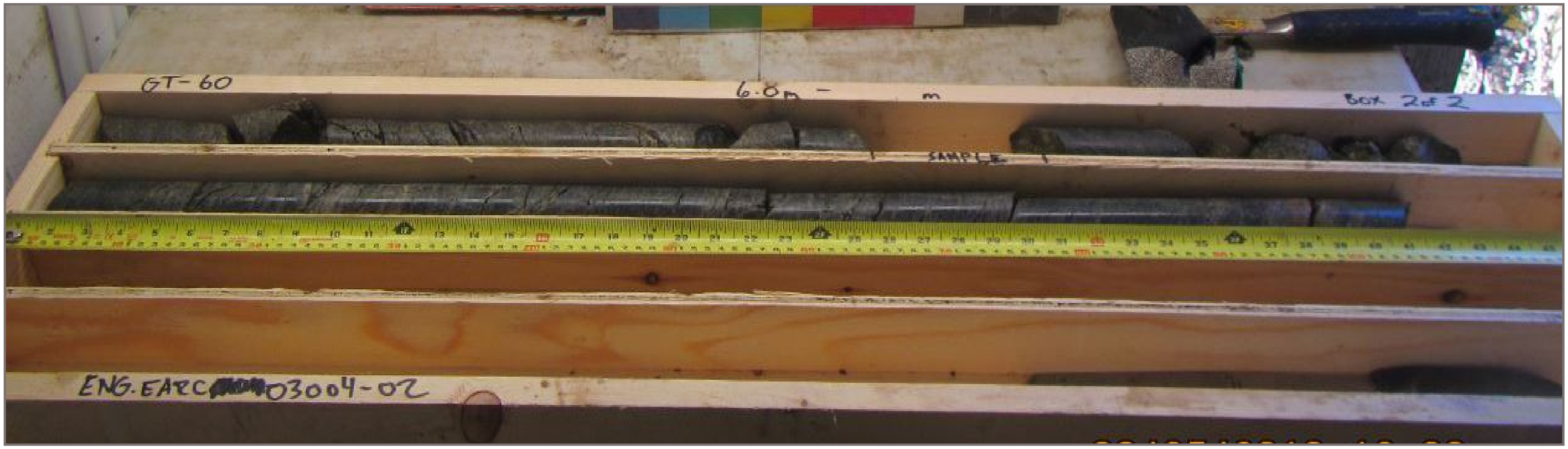


Photo 75: Borehole GT-60; Depth: 6.0 - 8.0 m

Photo 76: Borehole GT-60; Depth: 0.0 - 5.0 m

Photo 77: Borehole GT-60; Depth: 0.0 - 6.0 m

Photo 78: Borehole GT-61; Depth: 0.0 - 5.0 m

Photo 79: Borehole GT-61; Depth: 6.0 - 8.0 m

Photo 80: Borehole GT-62; Depth: 0.0 - 6.0 m

Photo 81: Borehole GT-62; Depth: 6.0 - 8.0 m

Photo 82: Borehole GT-63; Depth: 0.0 - 6.0 m

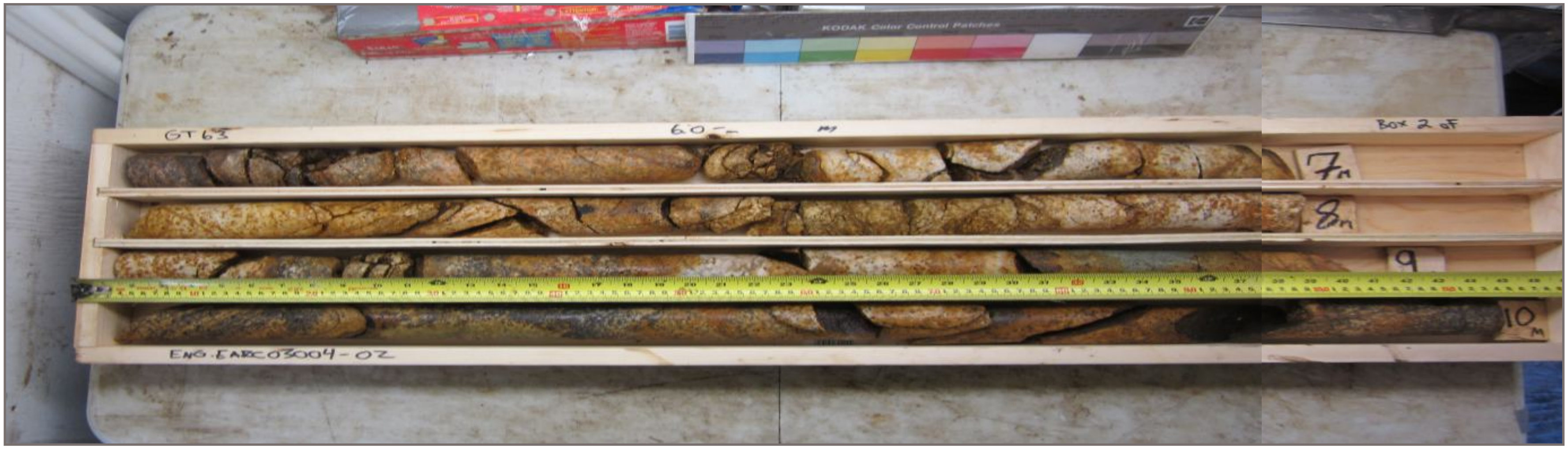


Photo 83: Borehole GT-63; Depth: 6.0 - 10.0 m

Photo 84: Borehole GT-63; Depth: 10.0 - 14.50 m

Photo 85: Borehole GT-63; Depth: 14.50 - 19.0 m

Photo 86: Borehole GT-63; Depth: 19.0 - 21.20 m

Photo 87: Borehole GT-64; Depth: 0.0 - 7.0 m

Photo 88: Borehole GT-65; Depth: 0.0 - 4.0 m

Photo 89: Borehole GT-65; Depth: 0.0 - 6.0 m

Photo 90: Borehole GT-65; Depth: 6.0 - 9.0 m

Photo 91: Borehole GT-66; Depth: 0.0 - 5.0 m

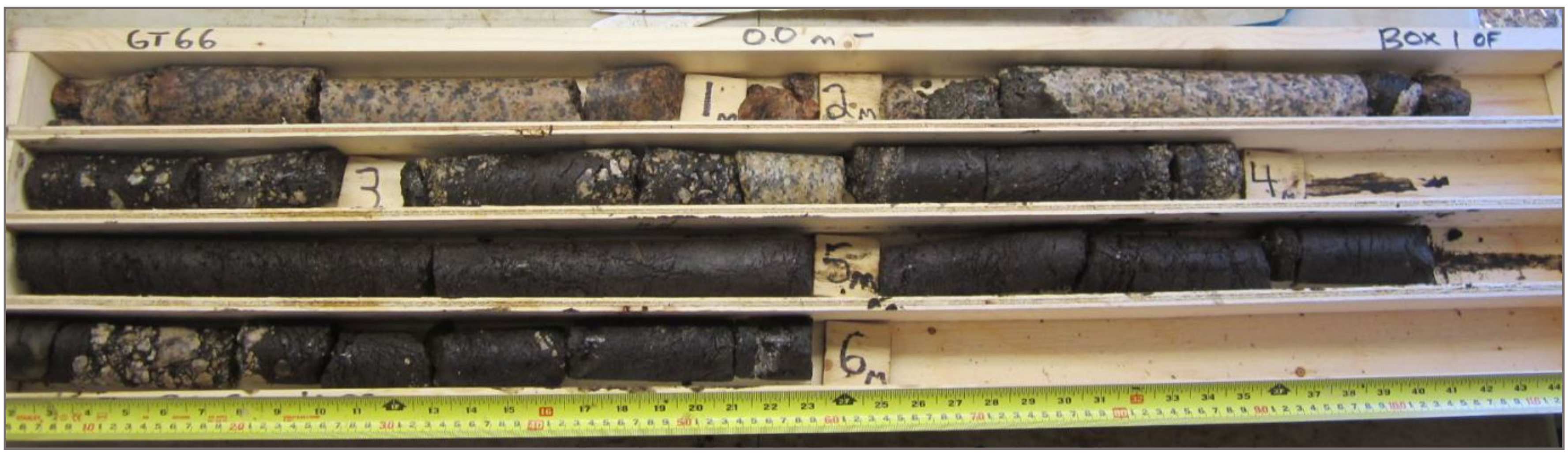


Photo 92: Borehole GT-66; Depth: 0.0 - 6.0 m

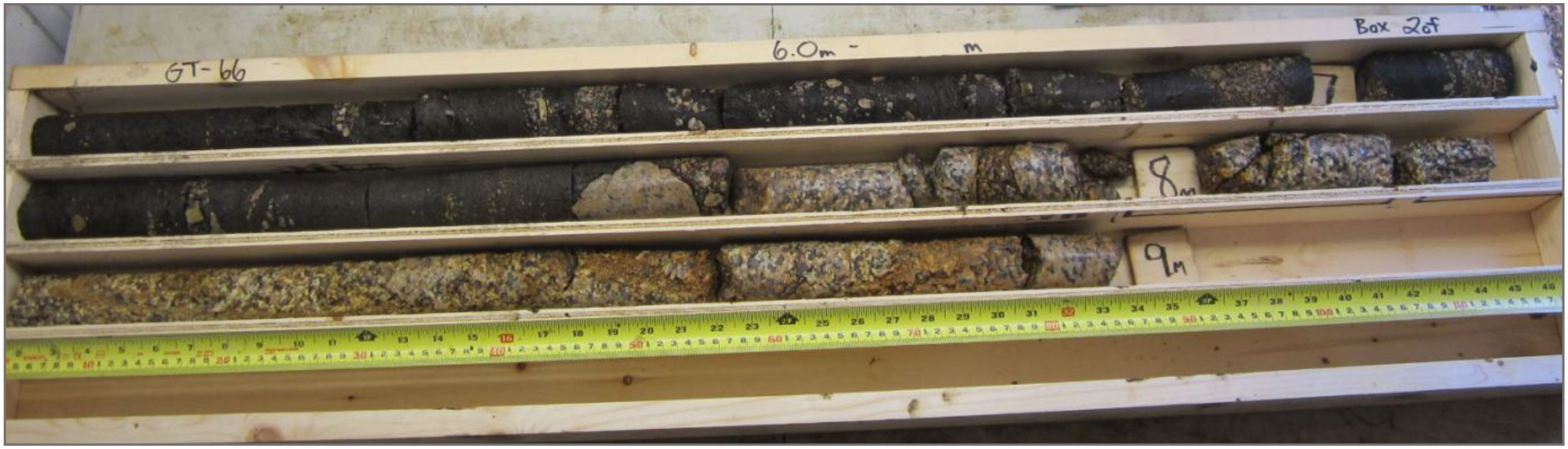


Photo 93: Borehole GT-66; Depth: 6.0 - 9.0 m

Photo 94: Borehole GT-66; Depth: 6.0 - 11.0 m

APPENDIX A

TETRA TECH'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these "General Conditions".

1.1 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of TETRA TECH's Client. TETRA TECH does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than TETRA TECH's Client unless otherwise authorized in writing by TETRA TECH. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the report, if required, may be obtained upon request.

1.2 ALTERNATE REPORT FORMAT

Where TETRA TECH submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed TETRA TECH's instruments of professional service); only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by TETRA TECH shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of TETRA TECH's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except TETRA TECH. TETRA TECH's instruments of professional service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.4 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.5 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.6 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

1.7 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.8 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.9 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

1.10 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.11 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

1.12 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

1.13 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

1.14 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of the report, TETRA TECH may rely on information provided by persons other than the Client. While TETRA TECH endeavours to verify the accuracy of such information when instructed to do so by the Client, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B

BOREHOLE AND TESTPIT LOGS

TETRA TECH

BOREHOLE KEYSHEET

Water Level Measurement

- Measured in standpipe, piezometer or well
- Inferred

Sample Types

- A-Casing
- Core
- Disturbed, Bag, Grab
- HQ Core
- Jar
- Jar and Bag
- NQ Core
- No Recovery
- Split Spoon/SPT
- Tube

Backfill Materials

- Asphalt
- Bentonite
- Cement/ Grout
- Drill Cuttings
- Grout
- Gravel
- Sand
- Slough
- Topsoil Backfill

Lithology - Graphical Legend[1]

- Asphalt
- Bedrock
- Cobbles/Boulders
- Clay
- Coal
- Concrete
- Fill
- Gravel
- Limestone
- Mudstone
- Organics
- Peat
- Sand
- Sandstone
- Shale
- Silt
- Siltstone
- Till
- Topsoil

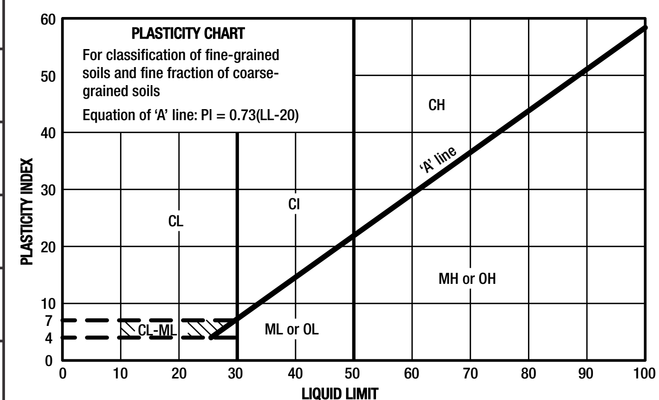
1. The graphical legend is an approximation and for visual representation only. Soil strata may comprise a combination of the basic symbols shown above. Particle sizes are not drawn to scale

TETRA TECH EBA

MODIFIED UNIFIED SOIL CLASSIFICATION

MAJOR DIVISION			GROUP SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE-GRAINED SOILS More than 50% retained on 75 µm sieve*	GRAVELS 50% or more of coarse fraction retained on 4.75 mm sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	$C_u = D_{60} / D_{10}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3	
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines	Not meeting both criteria for GW	
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limits plot below "A" line or plasticity index less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits plot above "A" line or plasticity index greater than 7	
	SANDS More than 50% of coarse fraction passes 4.75 mm sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines	Not meeting both criteria for SW	
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures	Atterberg limits plot below "A" line or plasticity index less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures	Atterberg limits plot above "A" line or plasticity index greater than 7	
FINE-GRAINED SOILS (by behavior) 50% or more passes 75 µm sieve*	SILTS	Liquid limit <50	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of slight plasticity		
		Liquid limit >50	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts		
	CLAYS Above "A" line on plasticity chart negligible organic content	Liquid limit <30	CL	Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays, lean clays		
		Liquid limit 30-50	CI	Inorganic clays of medium plasticity, silty clays		
		Liquid limit >50	CH	Inorganic clays of high plasticity, fat clays		
	ORGANIC SILTS AND CLAYS	Liquid limit <50	OL	Organic silts and organic silty clays of low plasticity		
		Liquid limit >50	OH	Organic clays of medium to high plasticity		
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils		

Classification on basis of percentage of fines:
Less than 5% Pass 75 µm sieve — GW, GP, SW, SP
More than 12% Pass 75 µm sieve — GM, GC, SM, SC
5% to 12% Pass 75 µm sieve — Borderline Classification requiring use of dual symbols



* Based on the material passing the 75 mm sieve

† ASTM Designation D 2487, for identification procedure see D 2488 USC as modified by PFRA

SOIL COMPONENTS

FRACTION	SIEVE SIZE		DEFINING RANGES OF PERCENTAGE BY MASS OF MINOR COMPONENTS	
	PASSING	RETAINED	PERCENTAGE	DESCRIPTOR
GRAVEL coarse	75 mm	19 mm	>35 %	"and"
GRAVEL fine	19 mm	4.75 mm	21 to 35 %	"y-adjective"
SAND coarse	4.75 mm	2.00 mm	11 to 20 %	"some"
SAND medium	2.00 mm	425 µm	>0 to 10 %	"trace"
SAND fine	425 µm	75 µm		
SILT (non plastic) or CLAY (plastic)	75 µm		as above but by behavior	

OVERSIZE MATERIAL

Rounded or subrounded	
COBBLES	75 mm to 300 mm
BOULDERS	> 300 mm
Not rounded	
ROCK FRAGMENTS	>75 mm
ROCKS	> 0.76 cubic metre in volume

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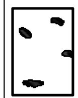
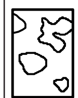
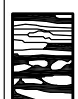
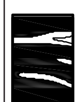
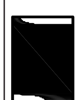
GROUND ICE DESCRIPTION

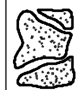
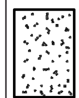
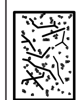
VISIBLE ICE LESS THAN 50% BY VOLUME

GROUP SYMBOL	SYMBOL	SUBGROUP DESCRIPTION	SKETCH	PHOTOGRAPH
V	Vx	Individual ice crystals or inclusions		
	Vc	Ice coatings on particles		
	Vr	Random or irregularly oriented ice formations		
	Vs	Stratified or distinctly oriented ice formations		

VISIBLE ICE GREATER THAN 50% BY VOLUME

ICE	ICE + Soil Type	Ice with soil inclusions		
	ICE	Ice without soil inclusions (greater than 25 mm thick		

ICE NOT VISIBLE

GROUP SYMBOL	SYMBOL	SUBGROUP DESCRIPTION	SKETCH	PHOTOGRAPH
N	Nf	Poorly-bonded or friable		
	Nbn	No excess ice, well-bonded		
	Nbe	Excess ice, well-bonded		

LEGEND: Soil (white box) Ice (black box)

NOTES:

1. Dual symbols are used to indicate borderline or mixed ice classifications.
2. Visual estimates of ice contents indicated on borehole logs ± 5%
3. This system of ground ice description has been modified from NRC Technical Memo 79, Guide to the Field Description of Permafrost for Engineering Purposes.

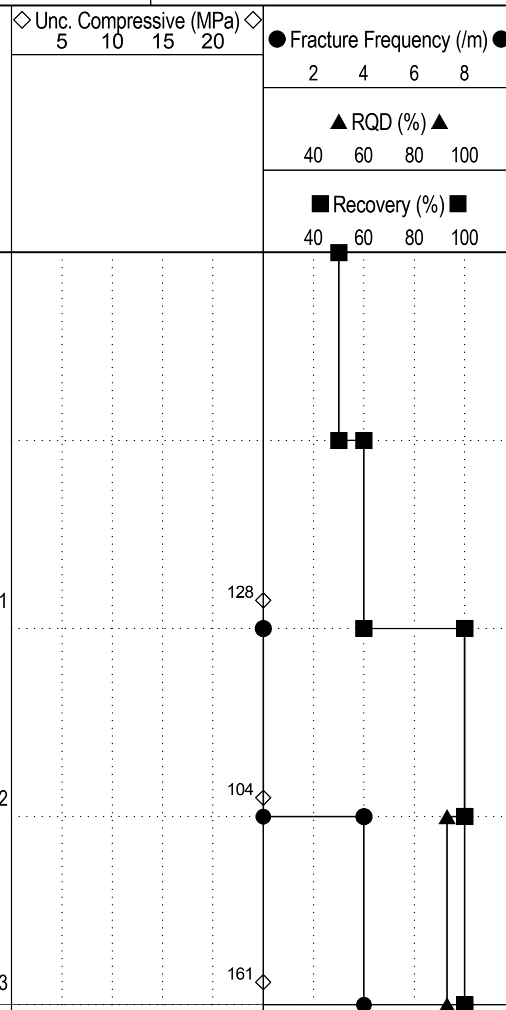
TETRA TECH

Borehole No: **GT-01**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona WRSF	Ground Elev: 1209.53 m
Coffee Creek, Yukon	UTM: 580350 E; 6973519 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Elevation (m)
0	Diamond drill	GRAVEL - loose, matrix washed away during drilling, subrounded gravel, (200 mm thick)	Unfrozen			
		BOULDER (GRANITE)			R1	1209
		No recovery				
1		GRAVEL - loose, silt matrix washed away during drilling, subangular to subrounded gravel			R2	1208
		GRANITE (BEDROCK) - massive, very strong (R5), white to pale yellowish with black specks, medium grained - from 1.60 to 1.65 m, moderately weathered (W3)			01-R1	
2					R3	1207
					01-R2	
3		- at 3.00 m, horizontal joint, planar, rough, oxidation			R4	1206
		- at 3.52 and 3.55 m, inclined joints, planar, rough, oxidation, silt at 3.55 m - at 3.59 m, horizontal joint, planar, smooth, oxidation, silt alteration			01-R3	
4		END OF BOREHOLE (4.00 metres)				1205
5						1204
6						1203
7						
7.5						



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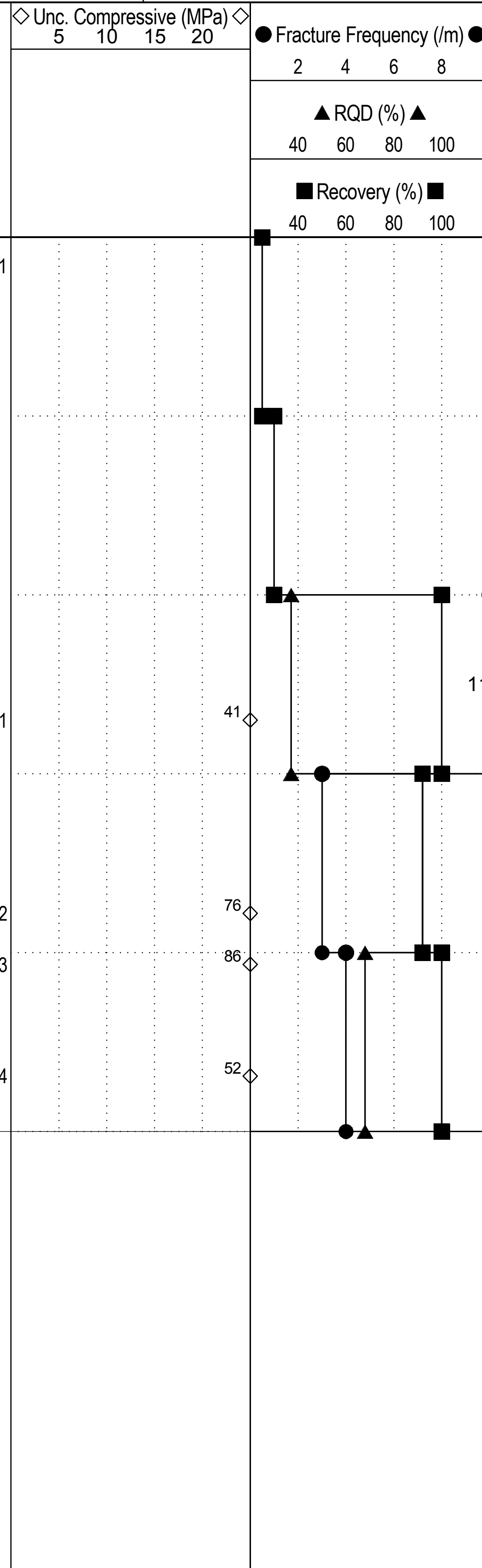
Contractor: Cyr Drilling	Completion Depth: 4 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 10
Logged By: VER	Completion Date: 2016 September 10
Reviewed By: VER	Page 1 of 1

GOLDCORP

Borehole No: **GT-02**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona WRSF	Ground Elev: 1202 m
Coffee Creek, Yukon	UTM: 580247 E; 6973353 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Unc. Compressive (MPa)	Fracture Frequency (/m) / RQD (%) / Recovery (%)	Elevation (m)
0	Diamond drill	MOSS - woody, trace silt, coarse fibrous, wet, very dark brown, (70 mm thick)	Unfrozen		02-S1			1202
		SILT - trace sand, trace gravel, trace organics, poorly graded, moist, dark brown, subangular to subrounded gravel			R1			
		No recovery						
1					R2			1201
		SILT - trace sand, trace gravel, trace organics, poorly graded, moist, dark brown, subangular to subrounded						
2		GRAVEL - loose, matrix washed away during drilling, white, fine to coarse, subangular						1200
		GRANITE (BEDROCK) - moderately to highly weathered (W3-W4), medium strong to strong (R3-R4), white, grey and yellow inclusions, fine to medium grained			R3		11	
		- at 2.05 m, subvertical joint, stepped, rough, highly oxidized			02-R1	41		
		- at 2.14 m, subhorizontal joint, stepped, rough, oxidized						
3		- at 2.16, 2.22 and 2.80 m, inclined joint, undulating, rough, highly oxidized						1199
		- at 2.28, 2.36 and 2.50 m, inclined joint, undulating, smooth, highly oxidized						
		- at 2.54 and 2.94 m, inclined joint, planar, rough, highly oxidized			R4			
		- at 2.62 m, inclined joint, stepped, rough, oxidized, 1 mm silt infill			02-R2	76		
4		- at 3.00 m, slightly weathered (W2)						1198
		- at 3.04 m, inclined joint, undulating, rough, highly oxidized, <1 mm silt infill			02-R3	86		
		- at 3.18 and 3.72 m, inclined joint, undulating, rough, highly oxidized			R5			
		- at 4.17 m, subhorizontal joint, undulating, rough, moderately oxidized			02-R4	52		
5		- at 4.52 m, subhorizontal joint, undulating, rough, highly oxidized						1197
		- at 4.60 m, inclined joint, undulating, rough, oxidized, 1 mm thick silt infill						
		- from 4.78 to 5.00 m, subvertical joint, undulating, rough, highly oxidized						
		END OF BOREHOLE (5.00 metres)						
6								1196
7								1195
7.5								



TETRA TECH

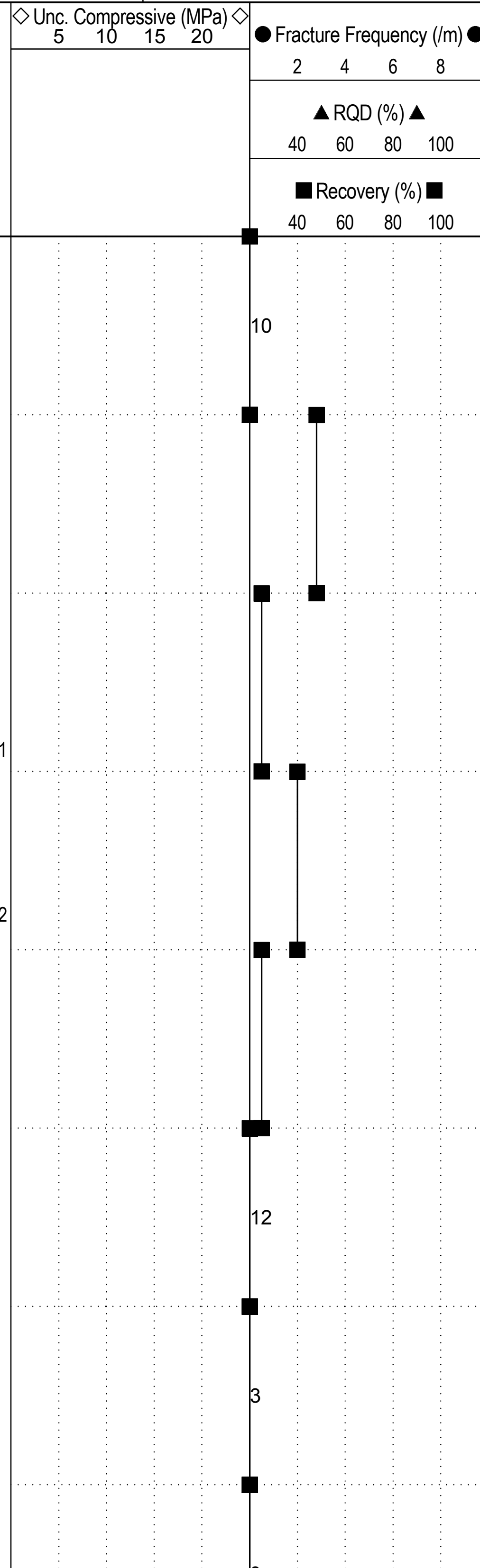
Contractor: Cyr Drilling	Completion Depth: 5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 11
Logged By: RG	Completion Date: 2016 September 11
Reviewed By: VER	Page 1 of 1

Borehole No: **GT-09**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona WRSF	Ground Elev: 1196.66 m
Coffee Creek, Yukon	UTM: 580133 E; 6973145 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number
0	Diamond drill	No recovery - Driller noted that `it felt like drilling air'	Unfrozen (?) - requires additional investigation to more accurately determine thermal condition due to poor overburden recovery	R1
				R2
		GRAVEL - some sand, trace silt, loose, subrounded to subangular gravel		
		BOULDER (GRANITE) - white, black inclusions		
2		SILT AND SAND - trace gravel, well graded, dark yellowish brown, subrounded to subangular gravel		
		No recovery		R3
		SAND - trace to some silt, well graded, damp to moist, yellowish brown		09-S1
3		No recovery		R4
		SAND - some silt, trace organics, well graded, damp to moist, yellowish brown		09-S2
4		- at 4.00 m, very brittle		
		No recovery		R5
5		SAND - trace to some silt, well graded, moist, yellowish brown		
		No recovery		R6
6		SAND - trace to some silt, well graded, moist, loose, yellowish brown		
		No recovery		R7
7.5				



Elevation (m): 1196, 1195, 1194, 1193, 1192, 1191, 1190

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 19 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 12
Logged By: RG	Completion Date: 2016 September 12
Reviewed By: VER	Page 1 of 3

Borehole No: **GT-09**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona WRSF	Ground Elev: 1196.66 m
Coffee Creek, Yukon	UTM: 580133 E; 6973145 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	◇ Unc. Compressive (MPa) ◇ 5 10 15 20	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5	Diamond drill				R8			1189
8					R9		0	1188
9					R10		0	1187
10					R11		0	1186
11					R12		0	1185
12					R13		0	1184
13					R14		0	1183
14		GRAVEL AND SAND - white, oxidized, subangular gravel No recovery			R15		8	1182
15								

TETRA TECH

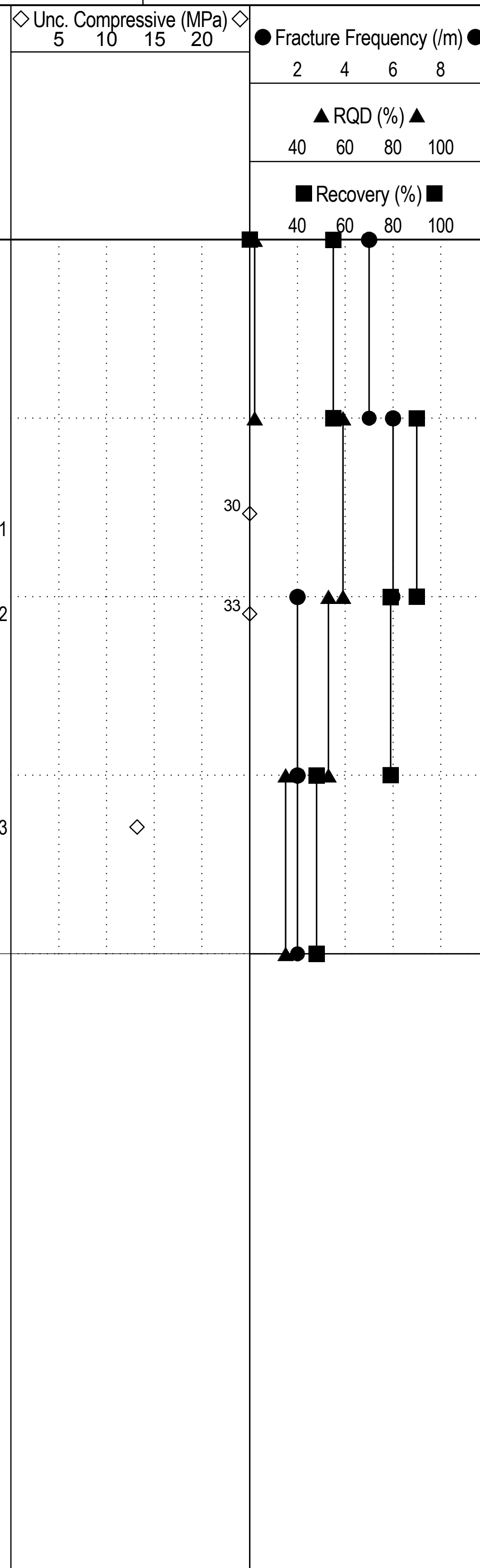
Contractor: Cyr Drilling	Completion Depth: 19 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 12
Logged By: RG	Completion Date: 2016 September 12
Reviewed By: VER	Page 2 of 3

Borehole No: GT-09

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona WRSF	Ground Elev: 1196.66 m
Coffee Creek, Yukon	UTM: 580133 E; 6973145 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Elevation (m)
15	Diamond drill	GRANITE (BEDROCK) - moderately weathered (W3), very weak (R1), white/creamy, black inclusions, medium to coarse grained - at 15.15 and 15.19 m, subhorizontal joint, undulating, rough, oxidization - at 15.26 and 15.38 m, inclined joint, undulating, smooth, highly oxidized - at 15.46 m, horizontal joint, undulating, rough, highly oxidized			R16	1181
16		No recovery GRANITE (BEDROCK) - slightly to moderately weathered (W2-W3), medium strong (R3), massive, white/creamy, black and pink inclusions, medium to coarse grained - at 16.22, 16.31 and 16.45 m, inclined joints, undulating, rough, highly oxidized - at 16.35 m, horizontal joint, undulating, smooth, highly oxidized - at 16.37 m, subhorizontal joints, undulating, smooth, highly oxidized - at 16.84 m, inclined joint, planar, rough, highly oxidized, <1 mm silt infill			R17 09-R1	1180
17					09-R2 R18	1179
18		No recovery GRANITE (BEDROCK) - moderately weathered (W3), medium strong (R3), massive, white/creamy, black and pink inclusions, medium to coarse grained - at 17.01 m, inclined joint, undulating, rough, oxidized - from 17.31 to 17.51 m, subvertical joint, planar, rough, oxidized			09-R3 R19	1178
19		No recovery GRANITE (BEDROCK) - slightly weathered (W2), weak (R2), massive, white/creamy, black and pink inclusions, medium to coarse grained - at 18.06 m, inclined joint, undulating, rough, oxidized - at 18.14 m, subhorizontal joint, undulating, rough, oxidized No recovery END OF BOREHOLE (19.00 metres)				1177
20						1176
21						1175
22						
22.5						



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 19 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 12
Logged By: RG	Completion Date: 2016 September 12
Reviewed By: VER	Page 3 of 3

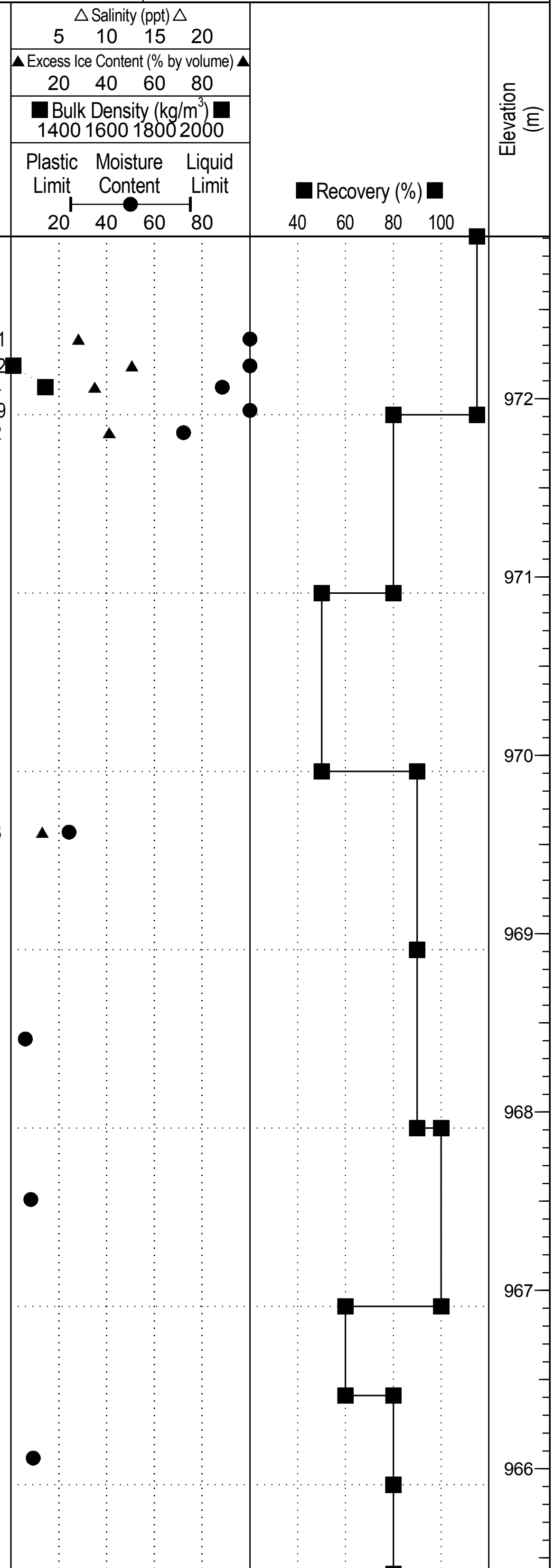
GOLDCORP

Borehole No: **GT-10**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 972.91 m
Coffee Creek, Yukon	UTM: 585072 E; 6975328 N; Z 7

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	MOSS AND PEAT - organic, wet, dark brown to black			
		Frozen, Vx, Vs to 50%		
	SILT - organics, trace to some sand, black	Vx, Vs 25-50%	R1 10-S1	119.1
	ICE AND SILT - organics, trace to some sand, black	50 mm thick ice lens	10-S2	129.2
	SILT - organics, some clay, some sand, black		10-S3A	88.4
1	- at 1.00 m, silty, cobbles disseminated throughout, well graded, angular gravel	Vx, Vc, Vs 30-40%	10-S3	108.9
		Vc, Vx 20-30%	10-S4	72.2
	SAND AND GRAVEL - silty, cobbles		10-S5 R2	
2			R3	
3		Vc, Vx 10-12%		
			10-S6	24.3
			R4 10-S7	
4	GRAVEL - some sand, trace silt, cobbles disseminated throughout	Vc, Vx ~10%		
			R5 10-S8	6
5			10-S9 R6	8.3
6	- at 6.00 m, loose	Thermally disturbed	R7	
	- at 6.50 m, pieces of frozen sand and gravel			
			R8 10-S10	9.3
7	- at 7.00 m, some sand	Vc, Vs ~5%	10-S11 R9	
7.5	END OF BOREHOLE (7.50 metres)			

Method: Diamond drill



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 7.5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 1
Logged By: RG	Completion Date: 2016 September 2
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-10**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 972.91 m
Coffee Creek, Yukon	UTM: 585072 E; 6975328 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	△ Salinity (ppt) △ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							
8									965
9									964
10									963
11									962
12									961
13									960
14									959
15									958

TETRA TECH

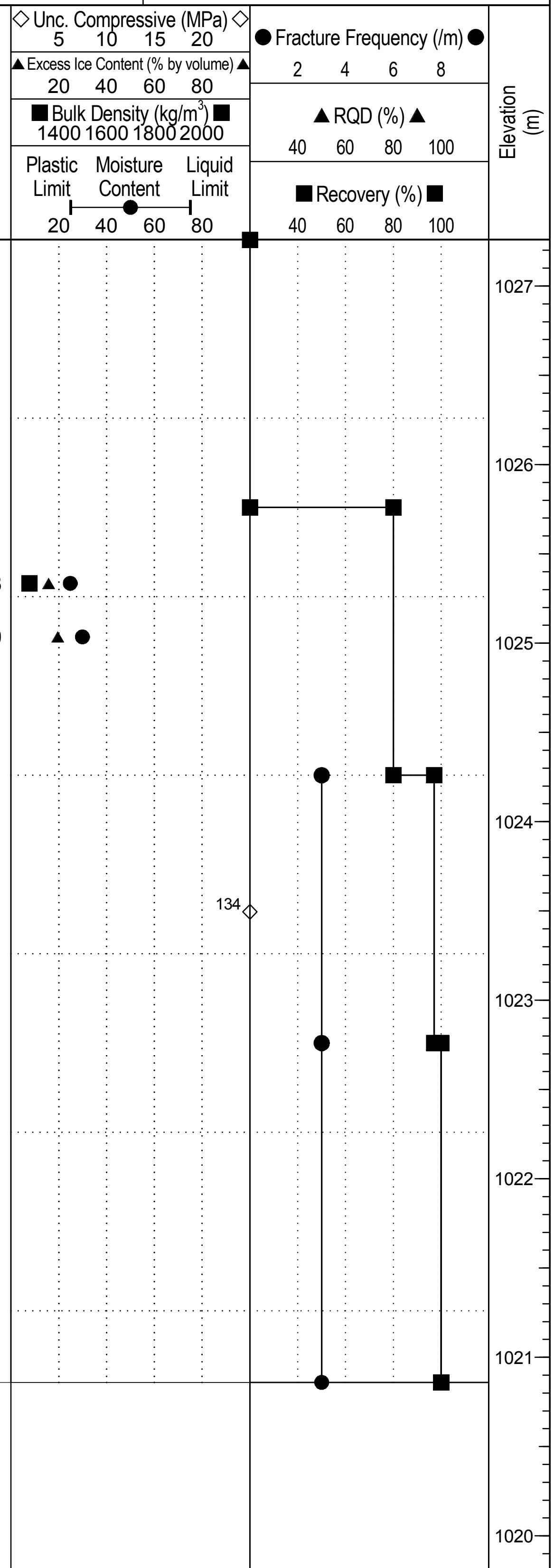
Contractor: Cyr Drilling	Completion Depth: 7.5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 1
Logged By: RG	Completion Date: 2016 September 2
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-11**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1027.26 m
Coffee Creek, Yukon	UTM: 585383 E; 6975298 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond drill	MOSS - organics, wet, (150 mm thick)	Thawed			
		GRAVEL - loose, matrix washed away during drilling				
		No recovery			R1	
		GRAVEL - loose, matrix washed away during drilling				
2		SAND - silty, gravelly, occasional cobble, well graded, dark grey, angular gravel	Frozen, Vc, Vx 10-20%, ice coatings 1-3 mm, ice inclusions to 5 mm		11-S1	24.8
					11-S2	29.9
					R2	
		GNEISS (BEDROCK) - moderately weathered (W3), strong to very strong (R4-R5), dark grey				
3		- at 3.00 m, slightly weathered (W2) - from 3.00 to 4.10 m, vertical fracture, undulating, smooth, oxidation - at 3.48 m, horizontal joint, infilled with clayey silt, 10 mm			R3 11-R1	
4		- from 4.3 to 4.45 m, vertical fracture, undulating, oxidation - from 4.50 to 4.60 m, vertical fracture, planar, smooth, oxidation				
5					11-R2	
		- at 5.18 m, inclined joint, undulating, smooth, oxidation - from 5.40 to 6.40 m, vertical fracture, undulating to planar, thick infill of oxide particles, calcite within planar section			R4	
6.4		END OF BOREHOLE (6.40 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.				



Contractor: Cyr Drilling	Completion Depth: 6.4 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 August 31
Logged By: VER	Completion Date: 2016 August 31
Reviewed By: VER	Page 1 of 1

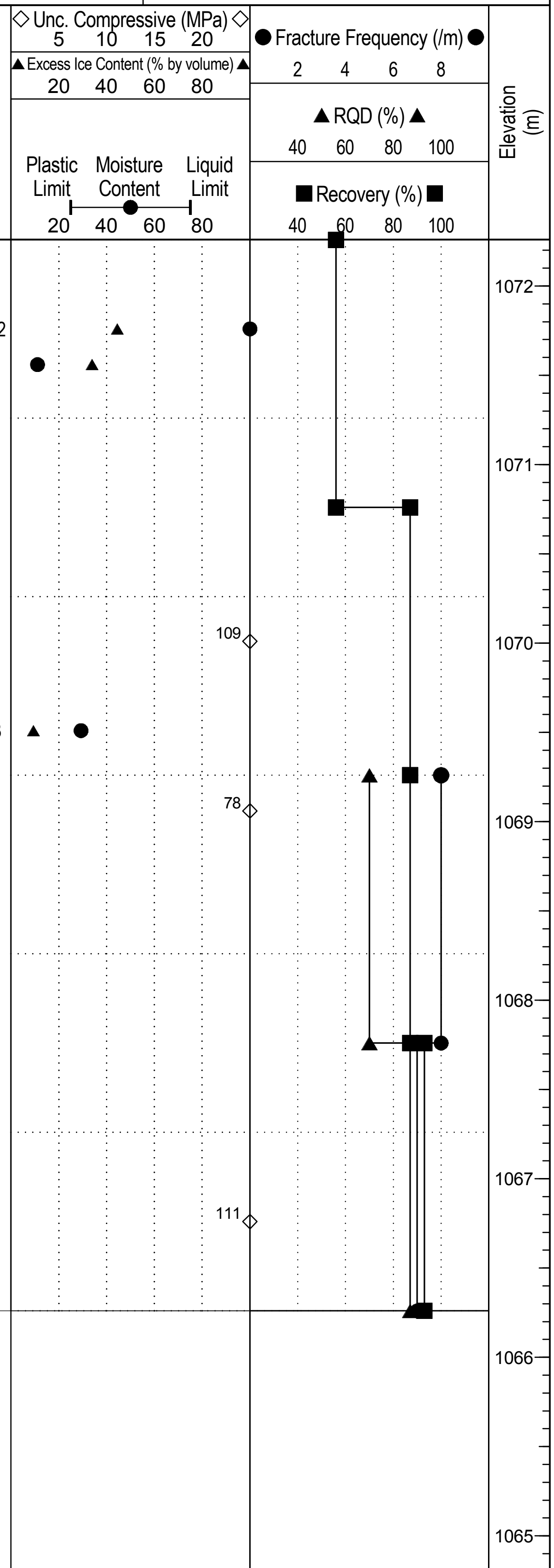
TETRA TECH

Borehole No: **GT-12**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1072.26 m
Coffee Creek, Yukon	UTM: 585731 E; 6975221 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	Diamond drill	MOSS - organics, roots, wet, dark brown, (200 mm thick)	Thawed		
		SILT - trace to some sand, organics, wet, black	Frozen, thermally disturbed - voids to 5 mm wide, Vx, Vr, Vs 30-40% Vc, Vx <10%	12-S1	122.2
		GRAVEL - some sand, trace silt, cobbles disseminated throughout, well graded, greyish brown, angular gravel		12-S2 R1	11.1
1		No recovery			
		BOULDER (BIOTITE SCHIST)		12-R1	
2		BOULDER (QUARTZ)		R2 12-R2	
		SILT - some sand, trace clay	Vr, Vs 5-10%	12-S3	29.3
3		BIOTITE SCHIST (BEDROCK) - slightly weathered (W2), strong to very strong (R4-R5), light grey - at 3.18, 3.50 and 3.55 m, inclined joints, undulating, smooth, calcite, oxide infill - at 3.58, 3.64 and 3.74 m, inclined joints, stepped, smooth, calcite, oxide infill - at 3.84 and 4.26 m, inclined joints, undulating, rough, calcite, oxide infill - at 4.50 m, fresh to slightly weathered (W1-W2) - at 4.66 m, inclined joint, planar, smooth - at 5.02 m, inclined joint, stepped, rough - at 5.59, 5.38, 5.86 and 5.89 m, subhorizontal joints, planar, smooth, slight oxidization, trace calcite - at 5.74 m, subvertical joint, stepped, smooth, calcite, oxidization		12-R3 R3 R4 12-R4	
6		END OF BOREHOLE (6.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.			
7					
7.5					



Contractor: Cyr Drilling	Completion Depth: 6 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 August 29
Logged By: VER	Completion Date: 2016 August 29
Reviewed By: VER	Page 1 of 1

TETRA TECH

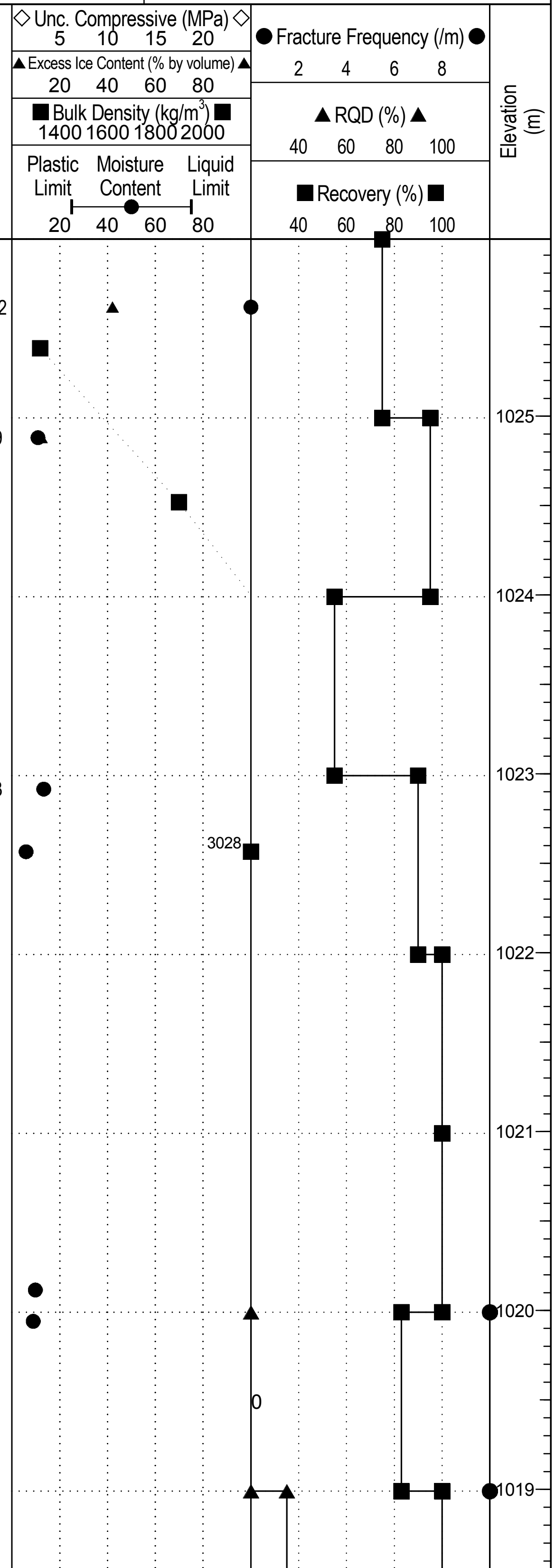
ROCK CORE ENG-EARC03004-02.GPJ EBA.GDT 17/2/14

Borehole No: **GT-13**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1025.99 m
Coffee Creek, Yukon	UTM: 585041 E; 6975116 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond drill	MOSS AND PEAT - coarse fibrous, wet, (200 mm thick)				
		SILT - trace sand, organics, occasional gravel disseminated throughout, dark olive grey	Frozen, Vs, Vx, Vc 35-45%, ice lenses to 3 mm thick		13-S1 R1	109.2
					13-S2	
		No recovery				
1		GRAVEL - sandy, cobbles disseminated throughout, well graded, yellowish brown	Vc, Vx 10-12%		13-S3	10.9
					13-S4 R2	
2					13-S5	
					R3	
3					13-S6	13.3
		- at 3.15 m, some sand, trace silt				
					13-S7 R4	5.9
		- at 3.73 m, 220 mm cobble				
4		- at 4.08 m, 120 mm cobble	Vc, Vx 5-10%, ice inclusions and coatings from 1-2 mm to 20 mm			
					R5 13-S8	
5						
					R6 13-S9	
		MAFIC DYKE (BEDROCK) - completely weathered (W5), extremely weak (R0), grey, very closely spaced discontinuities	Vs 5-10%, to 3 mm thick ice lenses in joints		13-R1	9.8
6					13-R2	8.9
					R7	
7		- at 7.00 m, highly weak (W4)				
7.5						



Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 3
Logged By: VER	Completion Date: 2016 September 3
Reviewed By: VER	Page 1 of 2

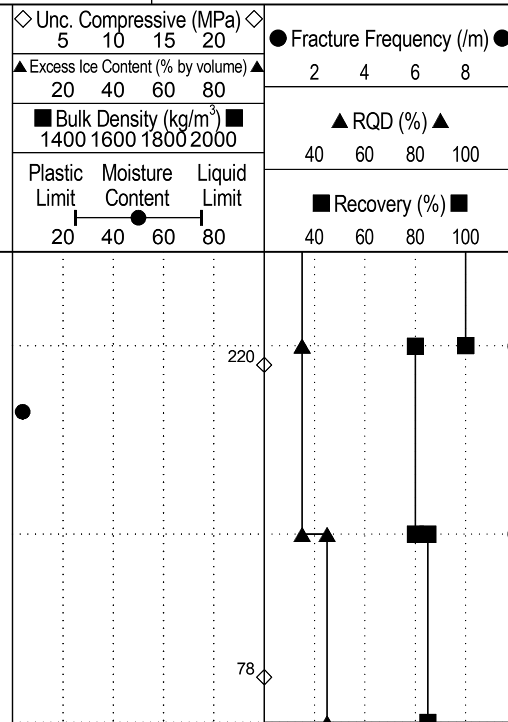
TETRA TECH

Borehole No: **GT-13**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1025.99 m
Coffee Creek, Yukon	UTM: 585041 E; 6975116 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
7.5	Diamond drill	- at 7.40 m, medium strong (R3), reddish grey			R8		
8		GNEISS (BEDROCK) - very strong (R5)			13-R3		1018
		MAFIC DYKE (BEDROCK) - completely weathered (W5), extremely weak (R0), grey			13-R4	4	
					R9		
		GNEISS (BEDROCK) - strong (R4)					
		No recovery					
9		MAFIC DYKE (BEDROCK) - completely weathered (W5), extremely weak (R1), grey					1017
		GNEISS (BEDROCK) - grey					
		MAFIC DYKE (BEDROCK) - completely weathered (W5), extremely weak (R0), grey			R10		
		GNEISS (BEDROCK) - grey			13-R5		
10		MAFIC DYKE (BEDROCK) - completely weathered (W5), extremely weak (R0), grey					1016
		GNEISS (BEDROCK) - grey					
		END OF BOREHOLE (10.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.					
11							1015
12							1014
13							1013
14							1012
15							1011



TETRA TECH

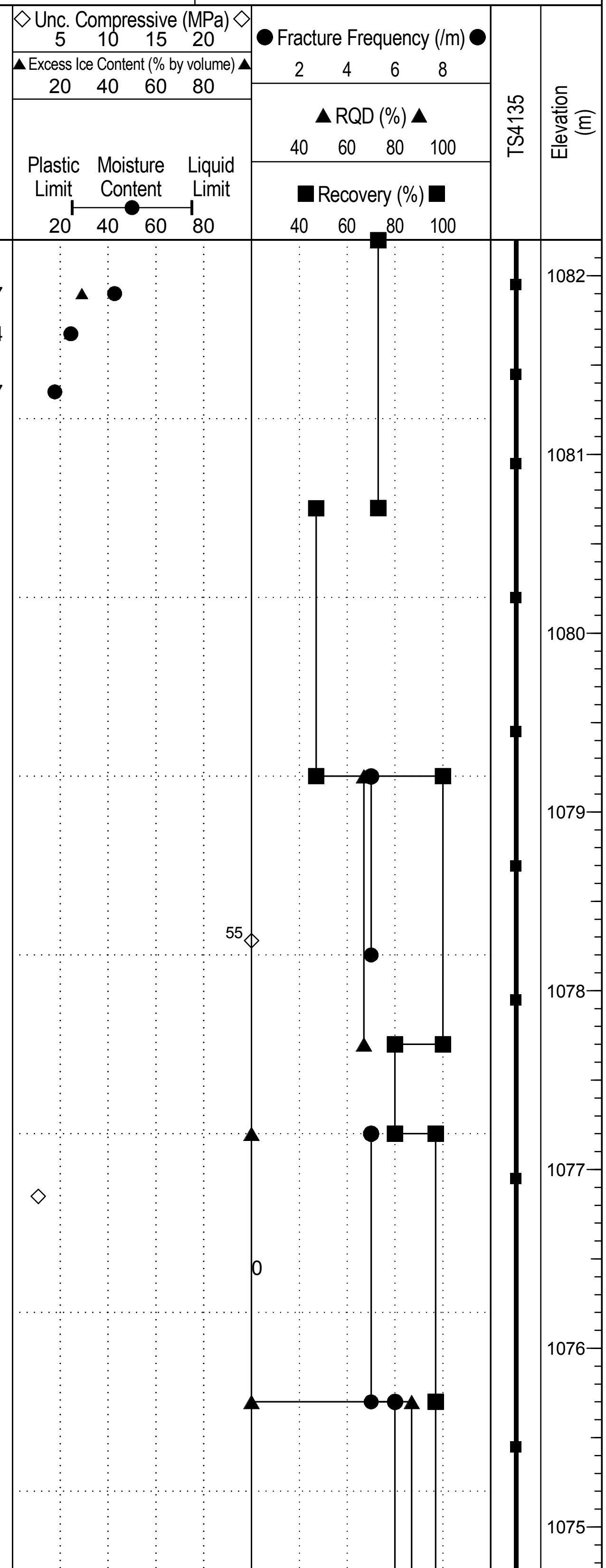
Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 3
Logged By: VER	Completion Date: 2016 September 3
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-14**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1082.2 m
Coffee Creek, Yukon	UTM: 585458 E; 6975088 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond drill	ORGANICS - roots, moss, wet, dark brown, (200 mm thick)				
		SILT - organics, wet, black	Frozen, Vx ~30-40%		14-S1	42.7
		GRAVEL - sandy, some silt, well graded, brown, angular gravel	Vs, Vc, Vx 20-30%, ice lenses to 5 mm thick, clear		14-S2	24.4
		SAND - silty, some gravel, some clay, greyish brown	Thermally disturbed - moist		R1 14-S3	17.7
1		COBBLE (GRANITE)				
		No recovery				
		SAND - some gravel, trace to some silt, dark brownish grey	Frozen, pieces of soil thermally disturbed - wet, Vc, Vx 15-25%		14-S4	
2		GNEISS (BEDROCK) - highly weathered (W4), pinkish brown grey - from 1.90 to 2.15 m, vertical fracture, stepped, smooth, oxidization			R2	
		No recovery				
3					14-R1	
		GNEISS (BEDROCK) - highly weathered (W4), pinkish brown grey - at 3.32 and 3.43 m, inclined joints, planar, rough, oxidization - at 3.54, 3.69 and 4.00 m, inclined joints, planar, smooth, oxidization - at 3.88 to 3.96 m, strong (R4) - from 4.00 to 4.50 m, weak (R2), oxides, clay infill, infinite fractures - at 4.50 m, mechanically broken into gravel - at 5.00 m, vertical fractures, stepped, smooth, oxidization - from 5.00 to 5.10 m, vertical fracture			R3 14-R2 R4	
4						
5						
		MAFIC DYKE (BEDROCK) - strongly metamorphosed, highly to completely weathered (W4-W5), highly altered, very weak (R1), grey - at 5.13 m, subhorizontal joint, oxidization - from 5.77 to 5.88 m, subvertical fractures, planar, smooth - at 5.90 and 5.95 m, horizontal joint, oxidization			14-R3 R5	
6						
		GNEISS (BEDROCK) - moderately weathered (W3), strong (R4), pinkish grey - at 6.08 m, inclined joint, calcite, oxidization - at 6.45 m, inclined joint, oxidization - at 6.50, 6.72, 6.85, 6.93 and 7.09 m, inclined joints, planar, smooth, oxidization - at 7.21 m, subhorizontal joint, planar, smooth			14-R4 R6	
7						
7.5						



Contractor: Cyr Drilling	Completion Depth: 20.5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 August 30
Logged By: VER	Completion Date: 2016 August 30
Reviewed By: VER	Page 1 of 3

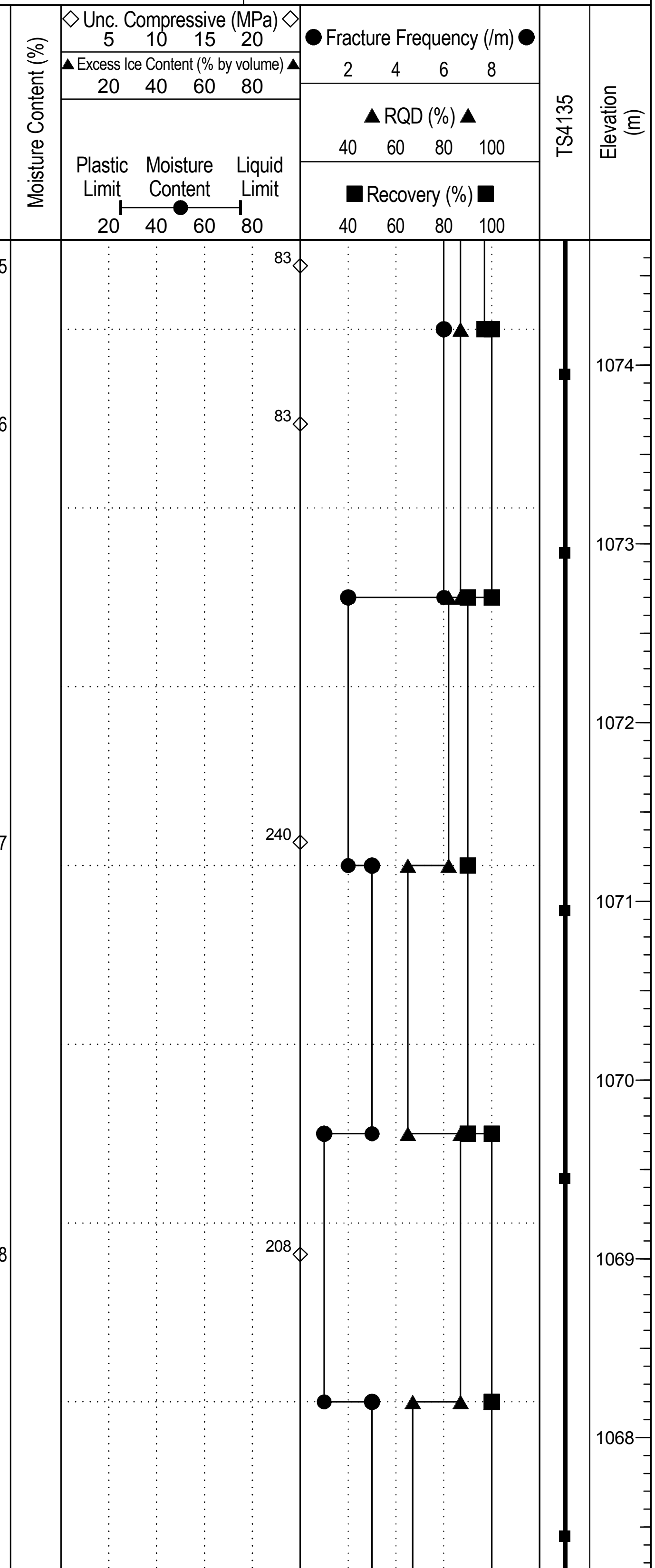
TETRA TECH

Borehole No: **GT-14**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1082.2 m
Coffee Creek, Yukon	UTM: 585458 E; 6975088 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number
7.5	Diamond drill	- at 7.33 m, inclined joint, stepped, smooth, oxidization			14-R5
		- at 7.60 m, inclined joint, stepped, smooth, oxidization			
8		- from 8.00 to 8.30 m, vertical fracture, stepped to planar, smooth, oxidization			
					14-R6
		- at 8.64, and 8.70 m, two subvertical joints, oxidization			R7
9		- from 8.75 to 9.15 m, vertical fracture, stepped, rough, thick oxide infill			
		- from 9.25 to 9.35 m, vertical fracture, stepped, rough, thick oxide infill			
		- at 9.37 m, inclined joint, stepped, smooth, oxidization			
10		- from 10.00 to 10.10 m, three closely spaced joints, undulating to planar, smooth, oxidization			R8
		- from 10.82 to 10.92 m, very strong (R5)			14-R7
11		- from 11.16 to 11.53 m, mafic dyke (bedrock) - highly to completely weathered, (W4-W5), highly altered, extremely weak (R0), grey			
		- at 11.31 and 11.55 m, subvertical joints, oxidization			R9
12		- from 11.88 to 12.13 m, vertical fracture, undulating, rough, oxidization, calcite			
		- from 12.40 to 12.50 m, vertical fracture, planar, smooth, oxidization			
		- from 12.50 to 13.10 m, vertical fracture, undulating, smooth, oxidization			
13		- from 12.60 to 12.74 and 13.10 to 13.16 m, mafic dyke (bedrock) - completely weathered (W5), highly altered, extremely weak (R0), grey			14-R8 R10
14		- from 14.12 to 14.38 m, vertical fracture, oxidization			
15		- from 14.48 to 14.66 and 14.87 to 15.16 m, mafic dyke (bedrock) - completely weathered (W5), highly altered, extremely weak (R0), grey			R11



TETRA TECH

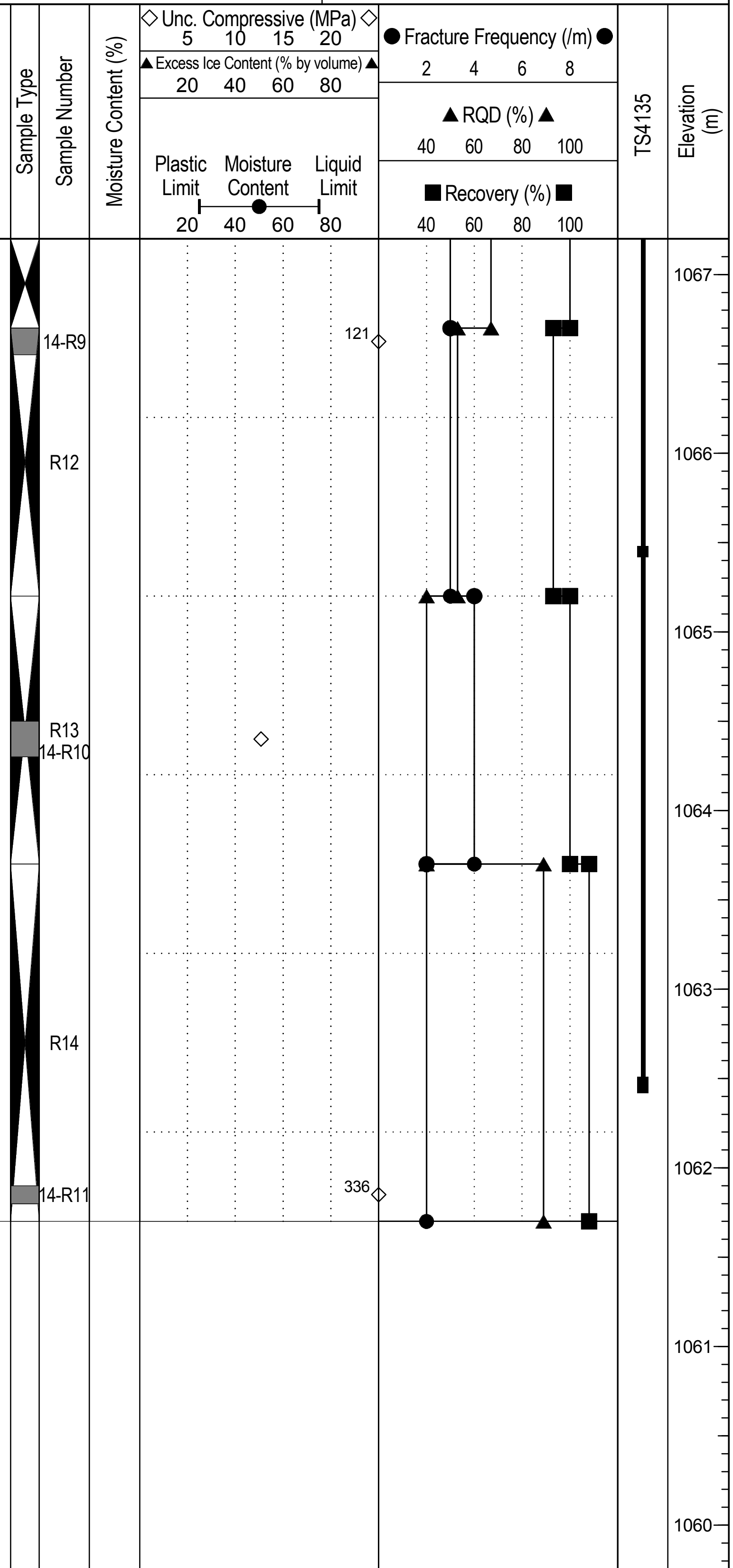
Contractor: Cyr Drilling	Completion Depth: 20.5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 August 30
Logged By: VER	Completion Date: 2016 August 30
Reviewed By: VER	Page 2 of 3

GOLDCORP

Borehole No: **GT-14**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1082.2 m
Coffee Creek, Yukon	UTM: 585458 E; 6975088 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description
15	Diamond drill	- at 14.66 m, horizontal joint, oxidization - at 15.15 and 15.43 m, inclined joints, oxidization - at 15.70, 15.87 and 16.25 m, inclined joints, oxidization	
16		- from 16.00 to 16.20 and 16.62 to 17.00 m, mafic dyke (bedrock) - completely weathered (W5), highly altered, extremely weak (R0), grey	
17		- from 17.00 to 17.14 and 17.56 to 18.35 m, mafic dyke (bedrock) - strongly metamorphised, highly to completely weathered (W4-W5), highly altered, extremely weak (R0), grey - at 17.06 m, subhorizontal joint, oxidization - from 17.08 to 17.46 m, subvertical fractures, undulating, rough, oxidization	
18		- at 18.05 and 18.45 m,, inclined joints, planar, rough, oxidization - from 18.60 to 18.80 m, mafic dyke (bedrock) - highly weathered (W4), highly altered, extremely weak (R0), grey	
19		- at 18.87 m, inclined joint, stepped, smooth, oxidization - from 18.90 to 20.03 m, vertical fractures, undulating/stepped, rough, calcite, oxidization	
20		- at 20.17 m, inclined joints, stepped, rough, oxidization	
21		END OF BOREHOLE (20.50 metres) GTC #TS4135 installed to 19.75 metres Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.	
22			
22.5			



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 20.5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 August 30
Logged By: VER	Completion Date: 2016 August 30
Reviewed By: VER	Page 3 of 3

Borehole No: **GT-15**

GOLDCORP

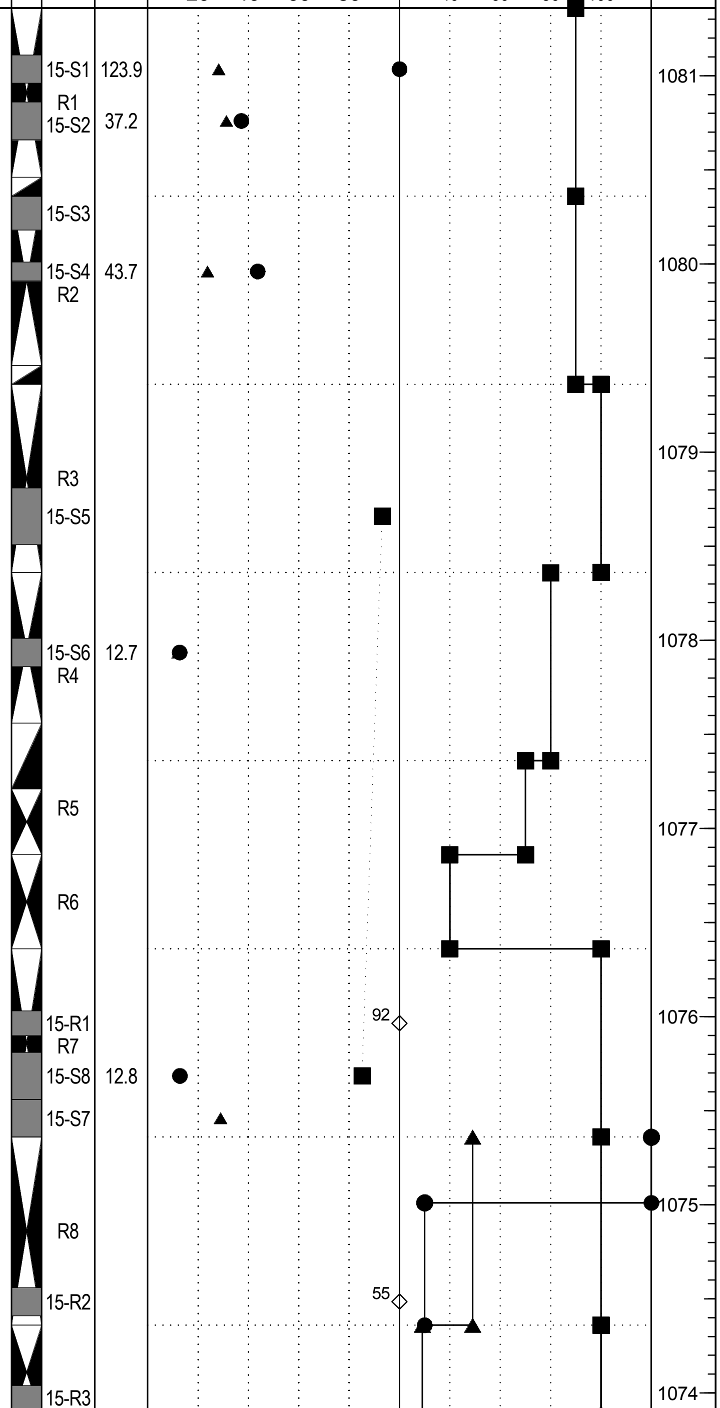
Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1081.36 m
Coffee Creek, Yukon	UTM: 585045 E; 6974887 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	MOSS AND ORGANICS - coarse fibrous, wet, brown, (200 mm thick)	Frozen, Vx, Vc 20-25%		
	SILT - organics, trace sand, poorly graded, dark grey, (200 mm thick)	Vx, Vc 25-30%	15-S1	123.9
	SAND - gravelly, silty, trace clay, well graded, dark grey, subangular gravel	5 mm ice lens	R1 15-S2	37.2
	No recovery			
1	SAND - gravelly, some silt, well graded, dark grey, subangular gravel - at 1.80 m, 100 mm cobble (granite)	Vx, Vc, Vs 10-15%, ice coatings to 5 mm	15-S3 15-S4 R2	43.7
2	No recovery			
	SAND AND GRAVEL - some silt, cobbles and boulders disseminated throughout, well graded, dark grey, subangular gravel	Vx, Vc 5-10% 5 mm ice coating	R3 15-S5 15-S6 R4	12.7
4	No recovery			
	GRAVEL - sandy, trace silt, subangular gravel - at 4.43 m, 70 mm cobble		R5	
	COBBLES AND BOULDERS - fines washed away during drilling, loose	Thermally disturbed	R6	
5	BOULDER (GRANITE) - slightly weathered, very dark grey, white and pink inclusions, fine grained	Thermally disturbed	15-R1	
	SAND - some gravel, some silt, trace clay, dark grey, subangular gravel	Vx, Vc, Vs 35-40%, ice inclusions ~ 2-15 mm diameter 60 mm ice lens	R7 15-S8 15-S7	12.8
6	GNEISS (BEDROCK) - highly to completely weathered (W4-W5), very weak to weak (R1-R2), very dark grey, sand inclusions, fine grained - at 6.35 m, slightly to moderately weathered (W2-W3), medium strong to strong (R3-R4), pink veins, fine to medium grained - at 6.43 m, subhorizontal joint, undulating, rough, > 1 mm thick brown sand/silt infill - at 7.00 m, slightly weathered (W2), medium strong (R3), pink and white inclusions, fine grained - at 7.06 m, horizontal joint, stepped, rough, no visible	~ 15 mm ice inclusion ~ 25 mm ice lens	R8 15-R2 15-R3	
7.5				

Sample Type

◇ Unc. Compressive (MPa) ◇ 5 10 15 20
▲ Excess Ice Content (% by volume) ▲ 20 40 60 80
■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000
Plastic Limit — Moisture Content — Liquid Limit 20 40 60 80
● Fracture Frequency (/m) ● 2 4 6 8
▲ RQD (%) ▲ 40 60 80 100
■ Recovery (%) ■ 40 60 80 100
Elevation (m)



TETRA TECH

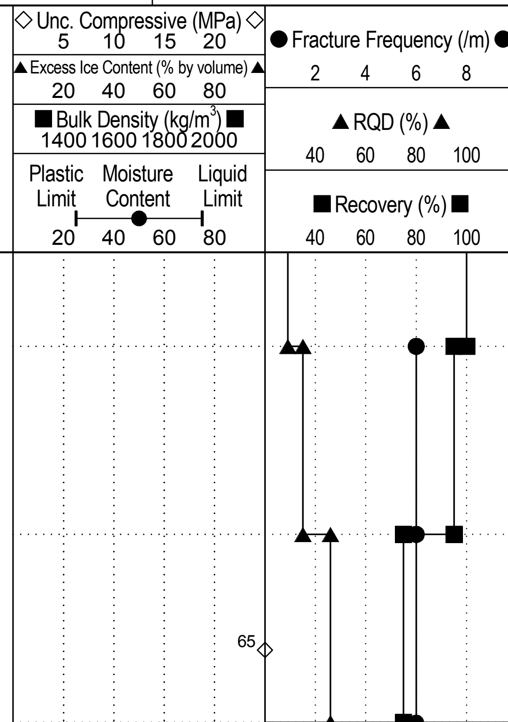
Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 4
Logged By: RG	Completion Date: 2016 September 4
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-15**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1081.36 m
Coffee Creek, Yukon	UTM: 585045 E; 6974887 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
7.5	Diamond drill	weathering - at 7.25 m, inclined joint, undulating, rough, oxidization - at 7.33 m, horizontal joint, undulating, rough, oxidization - at 7.48 m, subhorizontal, planar, rough, no visible weathering			R9 15-R4		
8		MAFIC DYKE (BEDROCK) - highly weathered (W4), very weak (R1), black, white quartz inclusions, medium grained			R10		1073
9		GNEISS (BEDROCK) - slightly to moderately weathered (W2-W3), medium strong to strong(R3-R4), fine grained - from 8.00 to 8.06 m, subvertical joint, stepped, smooth, oxidization - at 8.09 m, inclined joint, planar, rough, oxidization - at 8.20 m, subvertical joint, planar, smooth, oxidization - from 8.40 to 8.50 m, mafic dyke (bedrock) - completely weathered (W5), very weak (R1), medium grained - at 8.43 m, horizontal joint, stepped, smooth, oxidization - at 8.50 m, inclined joint, undulating, rough, highly oxidized - from 8.80 to 8.95 m, vertical joint, undulating, rough, highly oxidized - at 9.04 m, subhorizontal joint, undulating, rough - at 9.27 and 9.54 m, subhorizontal joint, undulating, rough, slight oxidization/weathering - from 9.35 to 9.50 m, subvertical joint, undulating, smooth, highly oxidized/weathered - at 9.50 m, horizontal joint, stepped, smooth, slightly oxidized - at 9.66 m, subhorizontal joint, undulating, smooth, slight to no weathering			R11 15-R5		1072
10		END OF BOREHOLE (10.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.					1071
11							1070
12							1069
13							1068
14							1067
15							



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 4
Logged By: RG	Completion Date: 2016 September 4
Reviewed By: VER	Page 2 of 2

GOLDCORP

Borehole No: **GT-16**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 1006.26 m
Coffee Creek, Yukon	UTM: 582602 E; 6974297 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	MOSS - rooty, coarse fibrous, (100 mm thick)	Thawed		
	GRAVEL - loose, fines washed away during drilling, (50 mm thick)			
	No recovery		R1	
1	GRAVEL - loose, fines washed away during drilling	Thermally disturbed		
	No recovery	Frozen	R2	
2	SAND - trace silt, trace gravel, massive, well graded, dark grey to black, subangular gravel	Vx, Vc 5-10%, clear ice coating on gravel surfaces	16-S1	27.1
			R3 16-S2	22.2
	GNEISS (BEDROCK) - moderately weathered (W3), weak to medium strong (R2-R3), dark grey to dark green, highly fractured, fine grained - at 3.00 m, slight oxidization in joints, silt infill		R4	
4	- at 4.00 m, slight inclined bedding with dark grey and brownish grey alternating, JSN: 2 - at 4.04, 4.10, 4.17, 4.24, 4.48, 4.63, 4.80, 4.83 and 4.95 m, inclined joints, undulating, smooth, no visible alteration, slight silt infill in 4.95 m only		16-R1 R5	
5	- at 5.07, 5.22, 5.36, 5.45, 5.53 and 5.58 m, inclined joints, undulating, smooth, slight silt infill - from 5.66 to 5.73 and 5.80 to 5.95 m, rubble zones, slight yellowish orange oxide staining		16-R2 R6	
6	GRANITE (BEDROCK) - light pink, grey and black, medium grained			
	END OF BOREHOLE (6.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.			

Chart columns: Unc. Compressive (MPa) (5, 10, 15, 20); Excess Ice Content (% by volume) (20, 40, 60, 80); Plastic Limit / Moisture Content / Liquid Limit (20, 40, 60, 80); Fracture Frequency (/m) (2, 4, 6, 8); RQD (%) (40, 60, 80, 100); Recovery (%) (40, 60, 80, 100); Elevation (m) 1006, 1005, 1004, 1003, 1002, 1001, 1000, 999. Fracture frequency annotations: 15 (R1), 0 (R4).

Contractor: Cyr Drilling	Completion Depth: 6 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 1
Logged By: EP	Completion Date: 2016 October 1
Reviewed By: VER	Page 1 of 1

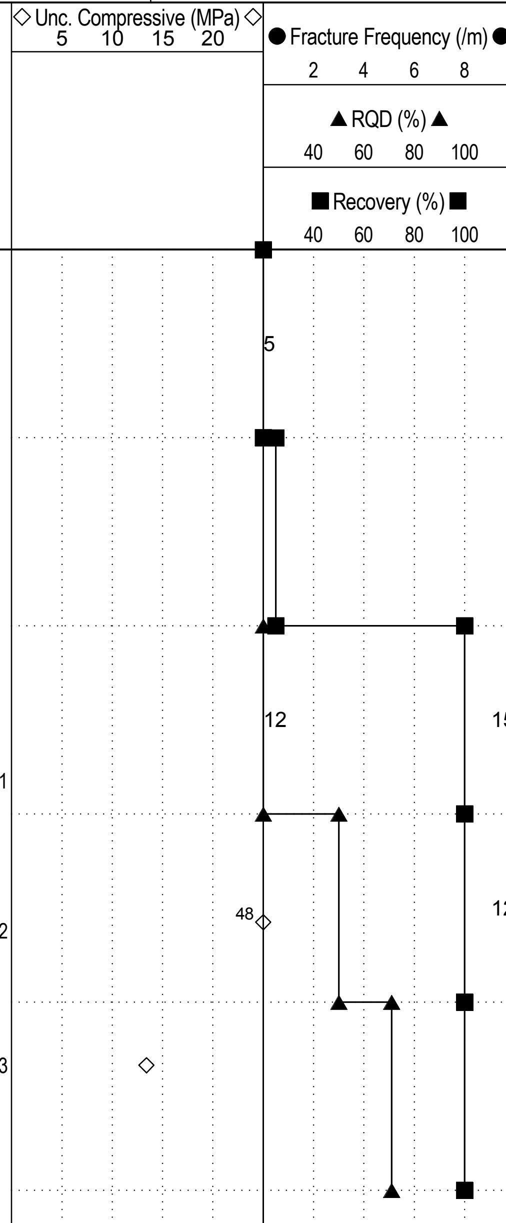
TETRA TECH

Borehole No: **GT-17**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 985.29 m
Coffee Creek, Yukon	UTM: 582500 E; 6973946 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Elevation (m)
0	Diamond drill	ORGANICS - roots, fine to coarse fibrous, dark brown to black, (100 mm thick)	Thawed			985
		No recovery			R1	
1		GRAVEL - loose particles, fines washed away during drilling, subangular gravel	Frozen, thermally disturbed			984
		No recovery			R2	
2		GRANITE (BEDROCK) - moderately weathered (W3), massive, weak to medium strong (R2-R3), grey, white inclusions, coarse grained, JSN: 6 - from 2.00 to 2.18 m, rubble zone - at 2.18 m, inclined joint, undulating, rough, slight oxide staining - at 2.20 m, inclined joint, undulating, smooth, slight silt infill, oxide staining - at 2.27 m, inclined joint, undulating, rough - at 2.34 m, inclined joint, undulating, rough, slight staining - at 2.39 m, inclined joint, undulating, rough, slight sand infill - at 2.45 m, inclined joint, undulating, smooth, slight silt infill, oxide staining - at 2.49 m, inclined joint, stepped, rough, silt infill, oxide staining - from 2.56 to 2.61 m, rubble zone - at 2.74 m, inclined joint, undulating, smooth, slight sand infill - at 2.85 m, inclined joint, undulating, smooth, slight sand infill, slight staining - at 2.89 m, inclined joint, stepped, smooth, sand infill - at 2.91 m, inclined joint, undulating, smooth, slight sand infill - from 3.00 to 3.15 m, rubble zone, fractures frozen together - at 3.17 m, inclined joint, undulating, smooth, ice and sand infill, frozen closed - at 3.19 m, inclined joint, undulating, rough, silty sand infill, frozen closed - at 3.22 m, inclined joint, undulating, rough, ice on faces, frozen closed - at 3.27 m, inclined joint, undulating, smooth, ice on faces, frozen closed - at 3.37 m, subhorizontal joint, undulating, smooth, weathered rock infill - at 3.55 m, subhorizontal joint, undulating, smooth, slight silt infill, oxidized - at 3.58 m, inclined joint, undulating, smooth, oxide staining - at 3.74 m, inclined joint, undulating, smooth - at 3.75 m, inclined joint, undulating, smooth, slight sand infill - at 3.94 and 3.97 m, inclined joint, undulating, smooth	Ice infill in joint Ice infill in joint Ice infill in joint Ice infill in joint Ice infill in joint		R3 17-R1 R4 17-R2 17-R3 R5	983 982 981 980 979 978
3, 4, 5, 6, 7, 7.5						



Contractor: Cyr Drilling	Completion Depth: 5.2 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 30
Logged By: JGD	Completion Date: 2016 September 30
Reviewed By: VER	Page 1 of 2

TETRA TECH

Borehole No: **GT-17**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 985.29 m
Coffee Creek, Yukon	UTM: 582500 E; 6973946 N; Z 7

GOLDCORP

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	◇ Unc. Compressive (MPa) ◇ 5 10 15 20	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5								
8		- JSN: 3 - at 4.14 and 4.18 m, inclined joints, undulating, smooth, oxide staining - at 4.29 m, subhorizontal joint, stepped, rough, oxide staining - at 4.39, 4.50, 4.63 and 4.88 m, inclined joints, undulating, smooth - at 5.00 m, inclined joint, undulating, rough, slight oxide staining - at 5.11 and 5.17 m, inclined joints, undulating, smooth, ice and sand infill						977
9		END OF BOREHOLE (5.20 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.						976
10								975
11								974
12								973
13								972
14								971
15								

TETRA TECH

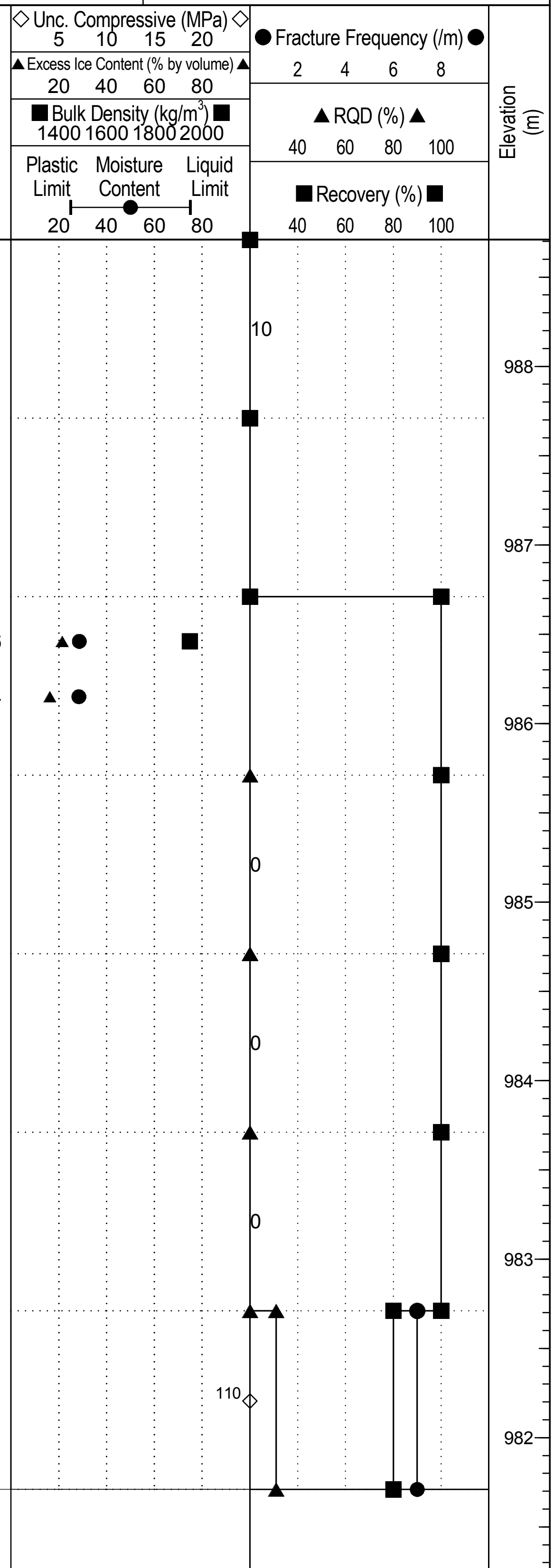
Contractor: Cyr Drilling	Completion Depth: 5.2 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 30
Logged By: JGD	Completion Date: 2016 September 30
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-18**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 988.71 m
Coffee Creek, Yukon	UTM: 582638 E; 6973630 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0 – 0.1	Diamond drill	ORGANICS - roots, fine and coarse fibrous, dark brown, (100 mm thick)	Frozen, thermally disturbed			
0.1 – 1.0		No recovery			R1	
1.0 – 1.25		GRAVEL - some sand, loose, fines washed away during drilling				
1.25 – 2.0		No recovery			R2	
2.0 – 3.75		GRAVEL - some sand, loose, fines washed away during drilling	Vx, Vc 5% Vc, Vx 10%, ice inclusions to 7 mm		18-S1	28.6
					R3	
					18-S2	28.4
					R4	
3.75 – 7.0		GRANITE (BEDROCK) - completely weathered (W5), very weak (R1), dark grey, highly fractured, coarse grained				
		- at 4.20 m, more competent			R5	
		- at 5.10 m, highly weathered (W4), medium strong (R3), grey, white inclusions, fractures infilled with soil and ice			R6	
		- from 6.00 to 6.21 m, rubble zone, ice and soil infill in fractures	From 6.00 to 6.21, ice infill in fractures			
		- at 6.21 m, inclined joint, undulating, smooth, slight oxide staining	Ice infill in joint		R7	
		- at 6.32 m, inclined joint, undulating, smooth, slight oxide staining, ice on face	From 6.32 to 6.42 m, ice infill in fractures		18-R1	
		- from 6.32 to 6.42 m, rubble zone, ice and soil infill in fractures	Ice infill in joint			
		- at 6.42 m, inclined joint, undulating, smooth, silt and ice infill	From 6.72 to 7.00 m, ice infill in fractures			
		- at 6.72 m, inclined joint, undulating, smooth, slight				



Contractor: Cyr Drilling	Completion Depth: 7 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 30
Logged By: JGD	Completion Date: 2016 September 30
Reviewed By: VER	Page 1 of 2

TETRA TECH

Borehole No: **GT-18**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 988.71 m
Coffee Creek, Yukon	UTM: 582638 E; 6973630 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		oxide staining - from 6.72 to 7.00 m, rubble zone, fractures mostly closed, ice infill							981
8		END OF BOREHOLE (7.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							
									980
9									979
10									978
11									977
12									976
13									975
14									974
15									

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 7 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 30
Logged By: JGD	Completion Date: 2016 September 30
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-19**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 1075.69 m
Coffee Creek, Yukon	UTM: 582820 E; 6974147 N; Z 7

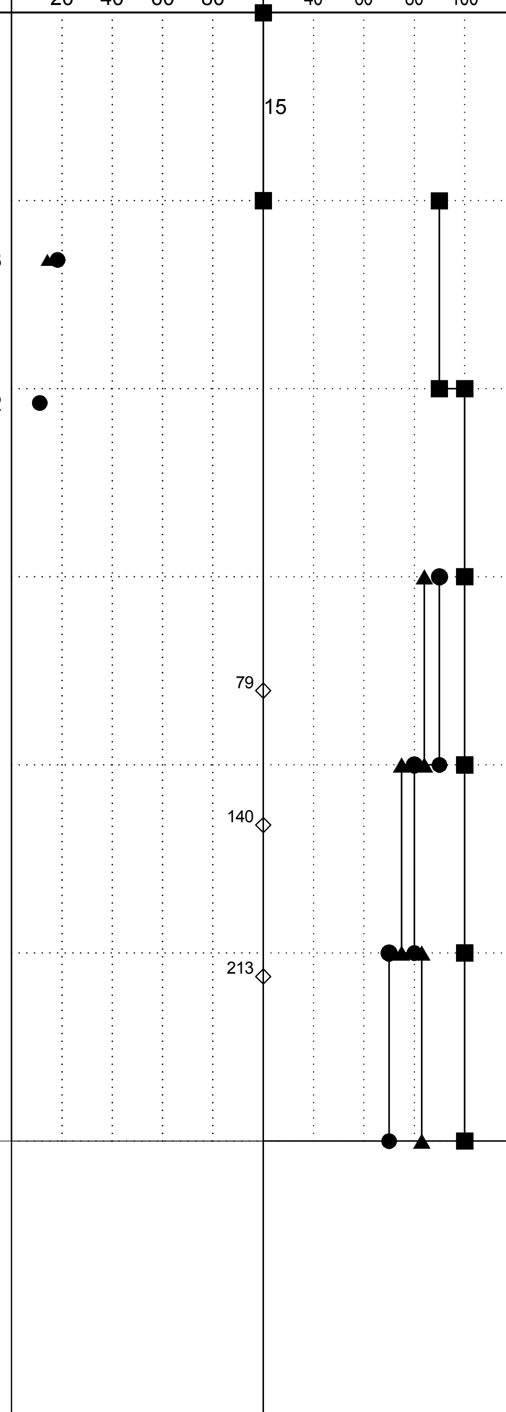
Column headings: Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100 | Elevation (m)

Depth (m): 0, 1, 2, 3, 4, 5, 6, 7, 7.5

Elevation (m): 1075, 1074, 1073, 1072, 1071, 1070, 1069

Method: Diamond drill

Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
ORGANICS - roots, wood chips, coarse fibrous, dark brown, (100 mm thick)	Thawed		
SAND - some silt to silty, some gravel, massive, well graded, grey brown, subangular gravel		R1	
No recovery			
SAND - some silt to silty, some gravel, massive, well graded, grey brown, subangular gravel	Frozen, Vx, Vc 10%		
	Vx, Vc 15%	19-S1	18.3
		R2	
- at 1.68 m, 300 mm cobble	Clear ice inclusions		
No recovery			
SAND - some silt, trace clay, trace gravel, massive, well graded, grey brown, subangular gravel	Nbn	19-S2	11.2
- at 2.00 m, mottled light brown			
		R3	
GNEISS (BEDROCK) - slightly weathered (W2), medium strong (R3), dark grey, white inclusion, JSN: 3			
- at 3.08 m, inclined joint, planar, smooth, silt and ice infill, oxidized	Ice infill in joint		
- at 3.24 m, inclined joint, undulating, rough, slight oxide staining	Ice infill in joint	R4 19-R1	
- at 3.40 m, inclined joint, planar, rough, oxidized			
- at 3.43 m, inclined joint, undulating, smooth, silt and ice infill, oxidized			
- at 3.43 m, inclined joint, undulating, smooth, slight oxide staining	Ice infill in joint		
- at 3.50 m, pink and grey		19-R2	
- at 3.50 m, strong (R4)		R5	
- at 3.54 and 3.76 m, inclined joint, undulating rough			
- at 3.99 m, inclined joint, stepped, rough, slight staining	Ice infill in joint		
- at 4.00 m, moderately weathered (W3)			
- at 4.03 m, inclined joint, undulating, smooth, silt/weathered rock and ice infill		19-R3	
- at 4.25 m, very strong (R5)			
- at 4.26, 4.40 and 4.45 m, inclined joints, undulating, smooth, oxidized/weathered rock infill		R6	
- at 4.52 m, inclined joint, undulating, smooth, oxide staining	Ice infill in joint		
- at 4.65 m, subvertical joint, undulating, rough, ice and sand infill	Ice infill in joint		
- at 4.91 m, inclined joint, stepped, smooth, silt infill			
- at 5.00 m, JSN: 4			
- at 5.25 and 5.28 m, inclined joints, undulating, smooth, ice and silt infill, oxidized			
- at 5.54 m, inclined joint, planar, smooth, slight staining			
- at 5.67 m, inclined joint, stepped, rough, oxide staining			
- at 5.75 m, subvertical joint, undulating, smooth, ice			



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 6 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 2
Logged By: JGD	Completion Date: 2016 October 2
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-19**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 1075.69 m
Coffee Creek, Yukon	UTM: 582820 E; 6974147 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		and silt infill, oxide staining - at 5.82 m, inclined joint, undulating, rough, ice and silt infill, oxidized							1068
8		END OF BOREHOLE (6.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							
									1067
9									
									1066
10									
									1065
11									
									1064
12									
									1063
13									
									1062
14									
									1061
15									

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 6 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 2
Logged By: JGD	Completion Date: 2016 October 2
Reviewed By: VER	Page 2 of 2

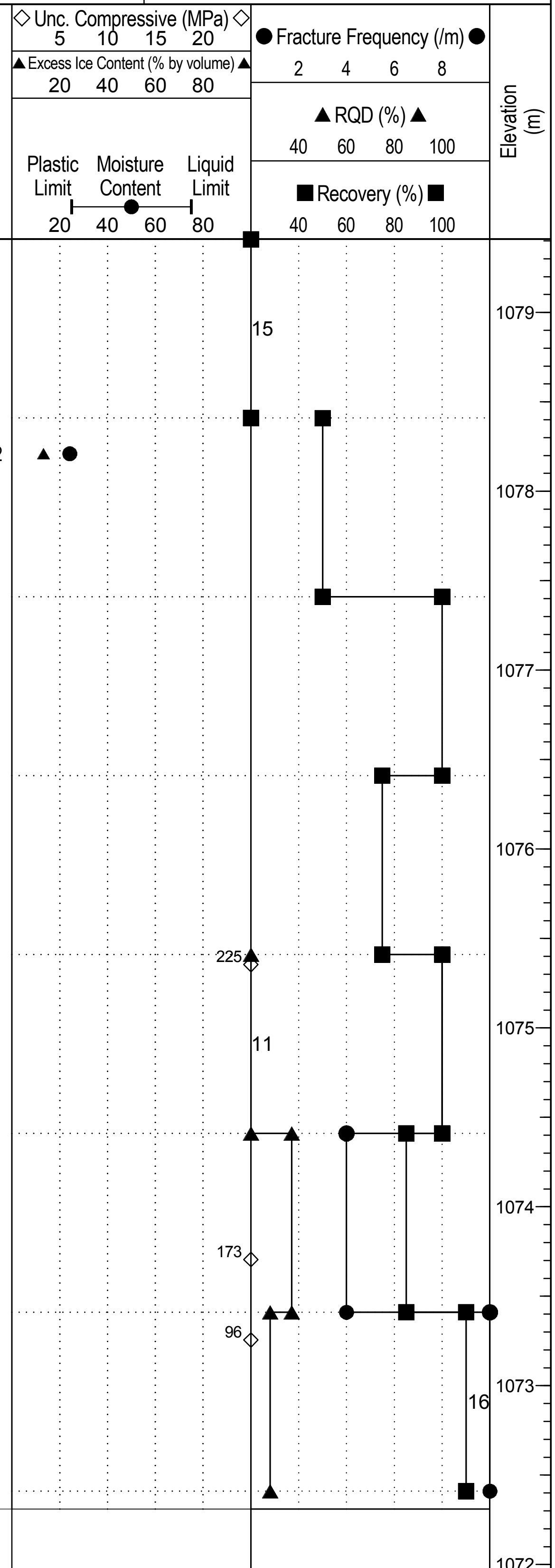
Borehole No: **GT-20**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 1079.41 m
Coffee Creek, Yukon	UTM: 582947 E; 6973768 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	MOSS - organics, roots and rootlets, coarse fibrous, black, (50 mm thick)	Thawed		
	GRAVEL - loose, fines washed away during drilling			
	No recovery		R1	
1	GRAVEL - sandy, some silt, massive, oxide weathered, subangular gravel	Frozen, Vc 5%	20-S1	24.2
	No recovery		R2	
2	GRAVEL - sandy, some silt, cobbles disseminated throughout	Clear ice coatings on gravel surfaces Vc 5%	R3	
3	GNEISS (BEDROCK) - slightly weathered (W2), medium strong (R3), dark grey to greenish, heavily fractured cobbles and gravel, slight oxidization, slight banding, fine to medium grained		R4	
4	- at 4.00 m, moderately weathered (W3), weak to very strong (R2-R5), highly fractured, many inclined joints		20-R1	
	- at 4.58 m, highly to completely weathered (W4-W5), friable, decomposed		R5	
5	- at 4.90 m, 50 mm long quartz vein - from 5.00 to 5.20 m, rubble zone - at 5.20 m, slightly weathered (W2), very strong (R5), JSN: 3 - at 5.31, 5.55 and 5.64 m, inclined joints, undulating, smooth, slight oxide alteration on joints - at 5.77 m, inclined joint, different orientation		R6 20-R2	
6	- at 6.09, 6.21, 6.30, 6.34, 6.39, 6.45, 6.49, 6.55, 6.75, 6.79, ,6.83, 6.86, 6.90 and 6.98 m, inclined joints, undulating, smooth, oxide staining in 6.09 and 6.55 m - at 6.75 m, subvertical joint, undulating, smooth, oxide staining		20-R3 R7	
7	END OF BOREHOLE (7.10 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content	Clear ice ~ 2 mm thick Clear ice ~ 2 mm thick		
7.5				



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 7.1 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 3
Logged By: EP	Completion Date: 2016 October 3
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-20**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West WRSF	Ground Elev: 1079.41 m
Coffee Creek, Yukon	UTM: 582947 E; 6973768 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		values are provided in `Ground Ice Description' column.							
8									1071
9									1070
10									1069
11									1068
12									1067
13									1066
14									1065
15									

TETRA TECH

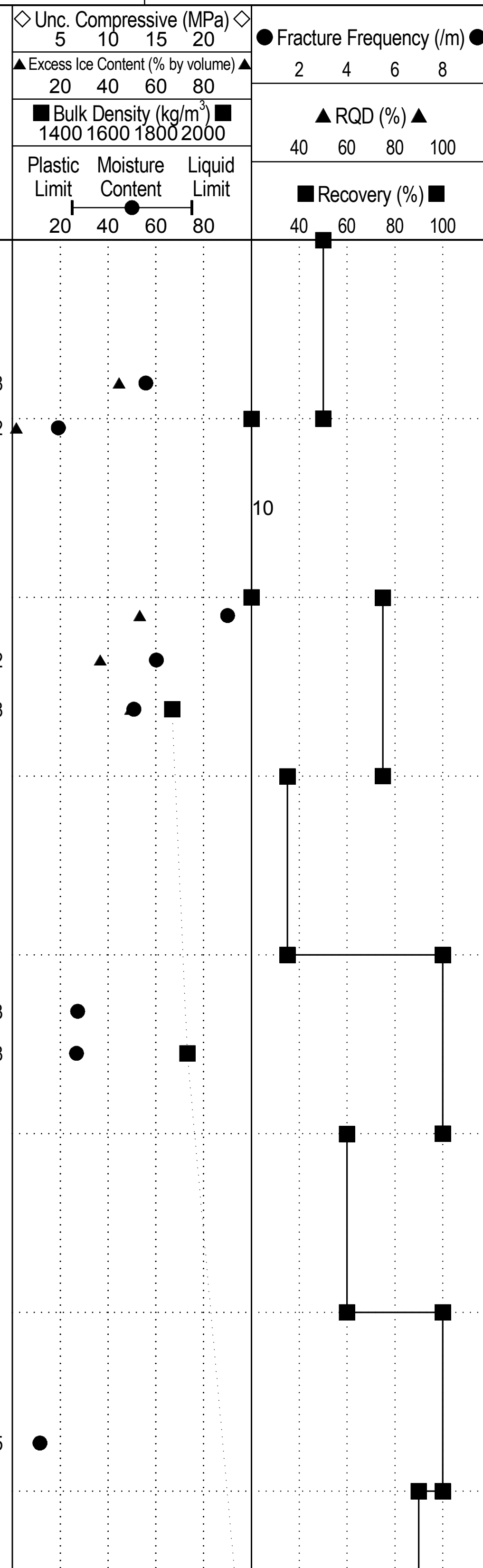
Contractor: Cyr Drilling	Completion Depth: 7.1 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 3
Logged By: EP	Completion Date: 2016 October 3
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-43**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1152.73 m
Coffee Creek, Yukon	UTM: 580418 E; 6973188 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	MOSS - rooty, brown black	Thawed		
	No recovery		R1	
	SAND - silty, trace gravel, massive, grey, subangular gravel	Frozen, Vs, Vx 40-45%	43-S1	55.8
1		Vx, Vc 15-25%	43-S2	19.2
	No recovery		R2	
2	ICE AND SILT - sandy, some gravel, some clay, massive, grey, subangular gravel	ICE ~50%	43-S3	90
			43-S4	60.2
			R3	
		Clear ice lenses to 6 mm thick, ~ 3 mm thick lenses spaced at ~ 7 mm intervals	43-S5	50.8
	No recovery			
3	GRAVEL AND SILT - some matrix washed away when drilling	Thermally disturbed		
	No recovery		R4	
4	SILT - some clay, some sand, trace gravel, massive, poorly sorted, olive green to grey, subangular gravel	Vx, Vc, Vs 5%, < 1 mm thick inclined ice lenses	43-S6	27.3
			R5	
			43-S7	26.8
5			R6	
	No recovery			
6	SAND AND GRAVEL - some silt, massive, well graded, dark greyish brown, subangular gravel	Vs, Vx, Vc 10%	R7	
			43-S8	11.5
7		Three < 1 mm inclined ice lenses	43-S9	
7.5				



Elevation (m): 1152, 1151, 1150, 1149, 1148, 1147, 1146

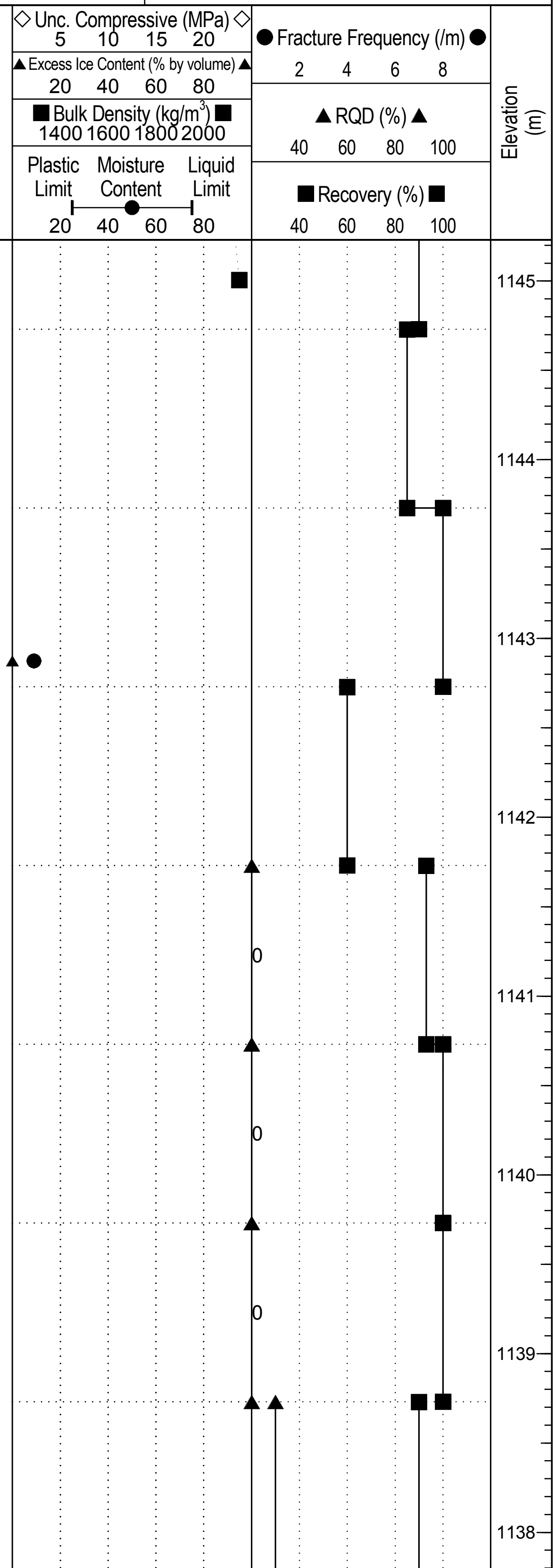
Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 17
Logged By: EP	Completion Date: 2016 September 18
Reviewed By: VER	Page 1 of 3

Borehole No: **GT-43**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1152.73 m
Coffee Creek, Yukon	UTM: 580418 E; 6973188 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
7.5	Diamond drill				R8	
					43-S10	
8						
					R9	
9		No recovery				
		GRAVEL AND SAND - some silt, massive, well graded, dark greyish brown, subangular gravel	Very thin subhorizontal ice lenses		43-S11	
					R10	
			Vs, Vx, Vc 5-10%, clear ice within cracks ~ 3 m thick		43-S12	9
10			Vx, Vc 5-10%			
		- from 10.24 to 10.46 m, cobble (granite)				
					R11	
		No recovery				
11		GRANITE (BEDROCK) - highly to completely weathered (W4-W5), very weak (R1), oxide staining throughout, highly fractured				
					R12	
12		No recovery				
		GRANITE (BEDROCK) - highly weathered (W4), very weak (R1), oxide staining throughout, highly fractured				
					R13	
13						
					R14	
14						
					R15	
15						



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 17
Logged By: EP	Completion Date: 2016 September 18
Reviewed By: VER	Page 2 of 3

Borehole No: **GT-43**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1152.73 m
Coffee Creek, Yukon	UTM: 580418 E; 6973188 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Unc. Compressive (MPa) / Excess Ice Content (% by volume) / Bulk Density (kg/m³) / Plastic Limit, Moisture Content, Liquid Limit	Fracture Frequency (/m) / RQD (%) / Recovery (%)	Elevation (m)
15	Diamond drill	No recovery							
		GRANITE (BEDROCK) - highly weathered (W4), very weak (R1), oxide staining throughout, highly fractured			R16			0	
		- at 15.80 m, completely weathered (W5)							1137
16		- at 16.00 m, highly weathered (W4)							
		No recovery			R17			0	
									1136
17		GRANITE (BEDROCK) - highly weathered (W4), very weak (R1), oxide staining throughout, highly fractured, JSN: 9			43-R1		36		
		- at 17.04, 17.14, 17.33 and 17.49 m, inclined joints, undulating, smooth, oxide coating			R18			16	
		- at 17.07 and 17.40 m, subvertical joints, undulating, smooth, oxide coating							1135
18		- at 17.52 and 17.56 m, subhorizontal joints, undulating, smooth, oxide coating							
		No recovery							
		END OF BOREHOLE (18.00 metres)							
		Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							1134
19									
									1133
20									
									1132
21									
									1131
22									
22.5									

TETRA TECH

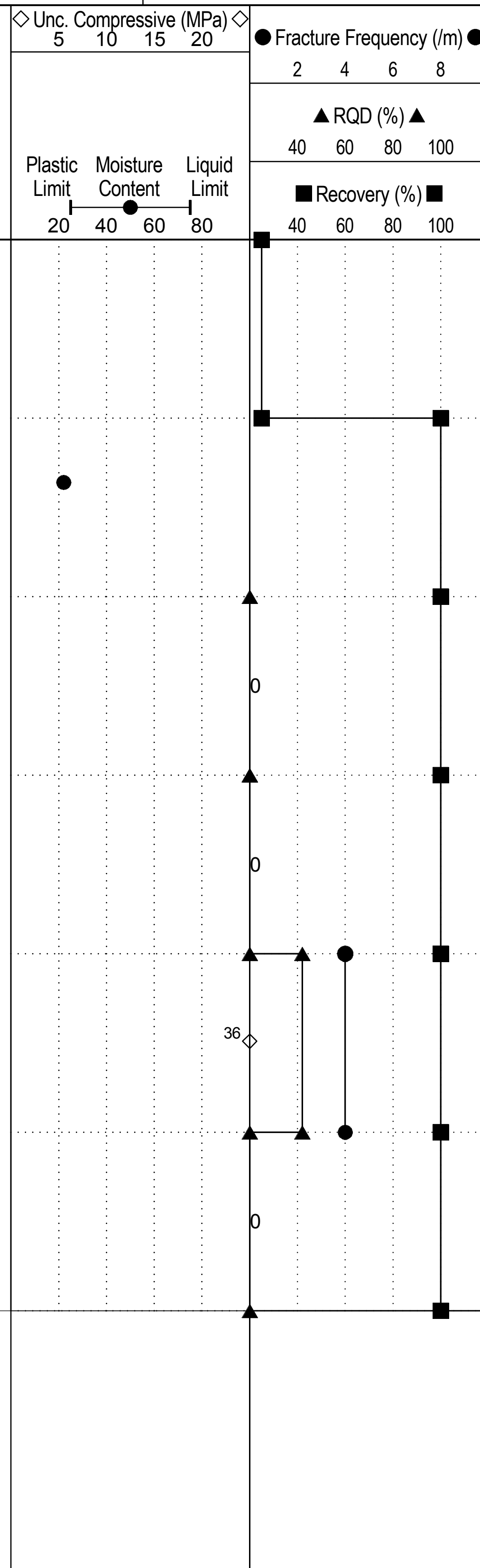
Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 17
Logged By: EP	Completion Date: 2016 September 18
Reviewed By: VER	Page 3 of 3

Borehole No: **GT-44**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1151.09 m
Coffee Creek, Yukon	UTM: 580437 E; 6973159 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Unc. Compressive (MPa) / Plastic Limit, Moisture Content, Liquid Limit	Fracture Frequency (/m) / RQD (%) / Recovery (%)	Elevation (m)
0	Diamond drill	MOSS - organics, roots, (100 mm thick)	Frozen, Vc, Vs, Vx 5-10%						1151
		GRAVEL AND SAND - some silt to silty, massive, poorly sorted, olive brown, subangular gravel							
		No recovery			R1				
1		GRAVEL AND SAND - some silt to silty, massive, poorly sorted, olive brown, subangular gravel			44-S1	22.1			1150
					R2				
					44-S2				
		- at 1.84 m, oxidation							
2		GRANITE (BEDROCK) - completely weathered (W5), weak (R2), oxide and dark staining on joints and core surface, highly fractured, would disintegrate if not frozen			R3			0	1149
3		- at 3.00 m, highly weathered (W4), weak to medium strong (R2-R3)							1148
		- at 3.60 m, joint infilled with sand and silt			R4			0	
4		- at 4.35 m, moderately to highly weathered (W3-W4), slightly more competent, less obvious fracturing	2 mm clear ice in fracture		44-R1		36		1147
		- at 4.36, 4.83 and 4.86 m, subhorizontal joints, undulating, rough, orangish black weathering			R5				
5		- at 4.41 m, inclined joint, undulating, rough to smooth, orangish black weathering, medium strong (R3)							1146
		- at 5.00 m, highly weathered (W4)	Clear ice within joint		R6			0	
6		END OF BOREHOLE (6.00 metres)							1145
		Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							
7									1144
7.5									



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 6 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 18
Logged By: EP	Completion Date: 2016 September 18
Reviewed By: VER	Page 1 of 1

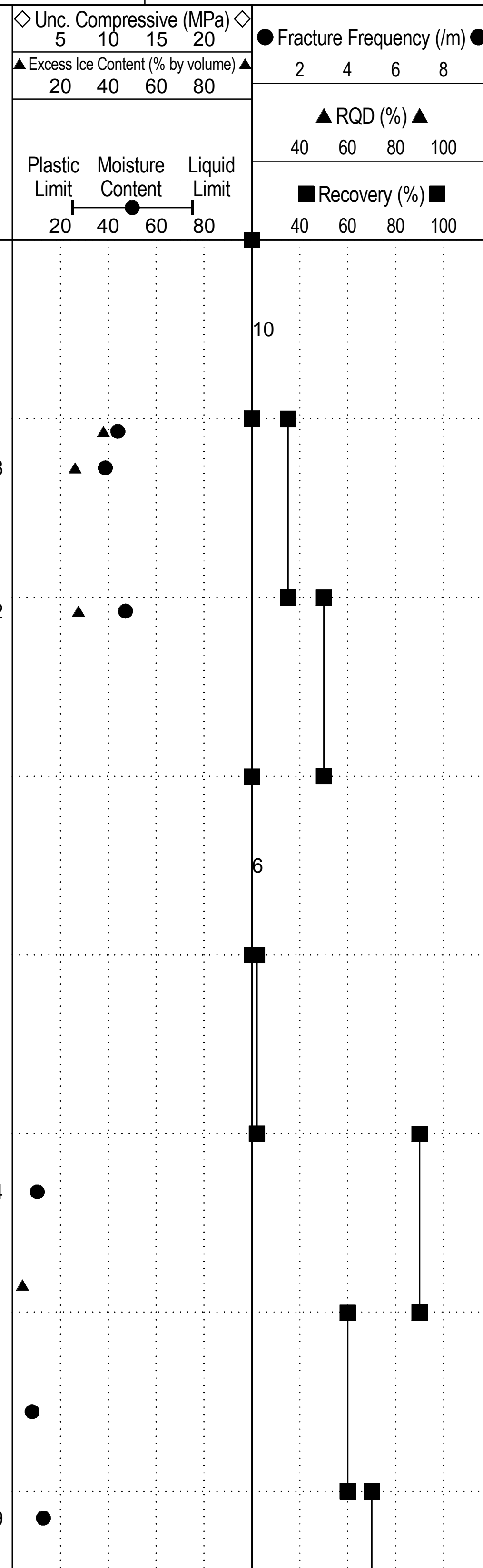
Borehole No: **GT-45**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1155.72 m
Coffee Creek, Yukon	UTM: 580399 E; 6973178 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type / Sample Number	Moisture Content (%)
0	MOSS - organics, roots, (100 mm thick)	Thawed		
	No recovery		R1	
1	SILT AND SAND - some gravel to gravelly, dark grey silt, fine to coarse subangular to angular gravel	Frozen, Vs, Vx, Vc 35-40% ~10 mm thick clear horizontal ice lens	45-S1	44
			45-S2	38.8
	No recovery		R2	
2	SILT - sandy, some gravel, trace clay, dark grey, fine to coarse subangular to angular gravel	Vs ~ 1-2 mm thick four ice lenses spaced at approximately 30 mm intervals, Vs, Vx 25-35%	45-S3	47.2
			45-S4	
	No recovery		R3	
3	SILT AND SAND - trace gravel, dark grey silt, fine to coarse subangular to angular gravel			
	No recovery		R4	
4	SILT AND SAND - some gravel to gravelly, fines washed out, dark grey silt, fine to coarse subangular to angular gravel	Thermally disturbed		
	No recovery		R5	
5	COBBLE/GRAVEL (GRANITE)			
	SAND - gravelly, silty, cobbles (granite) disseminated throughout, well graded, brown to greyish brown, subangular gravel - at 5.51 m, cobble (granite)	Nbe Thermally disturbed	45-S5	10.4
			R6	
			45-S6	
6	No recovery			
	GRAVEL AND SAND - some silt, cobbles (granite) disseminated throughout, well graded, brown to greyish brown, subangular gravel - from 6.00 to 6.30 m, broken cobble (granite)	Thermally disturbed Ice coating on granite gravel/cobble, Vc, Vx 15%	R7 45-S7	8.2
	No recovery			
7	COBBLE (GRANITE) - sandy, gravelly, silty, subangular	~2 mm ice coating on granite cobble, Vc 1-5% of matrix	45-S8	12.9
7.5				



Elevation (m): 1155, 1154, 1153, 1152, 1151, 1150, 1149

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 21 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 15
Logged By: EP/VER	Completion Date: 2016 September 16
Reviewed By: VER	Page 1 of 3

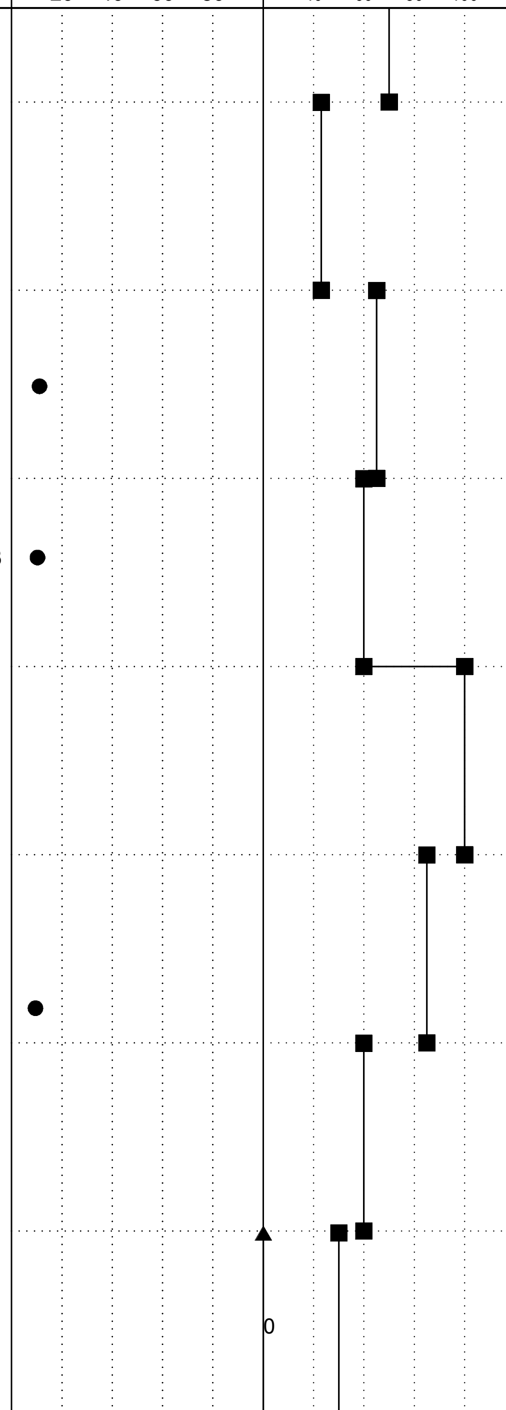
Borehole No: **GT-45**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1155.72 m
Coffee Creek, Yukon	UTM: 580399 E; 6973178 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
7.5	Diamond drill				R8		1148
		No recovery					
8		COBBLE (GRANITE) - sandy, gravelly, silty, white granite, quartz increasing, subangular	Vc, Vx ~10%				
		PEAT - some sand, organic rich, roots, dark brown to black	Nbe		45-S9		
		No recovery			R9		1147
9		PEAT - some sand, organic rich, roots, dark brown to black	Vs, Vc, Vx 10-15%		45-S10		
		SAND AND GRAVEL - some silt, dark greyish brown, subangular gravel	2 mm thick subhorizontal ice lens		45-S11 R10 45-S12	11.1	
		No recovery					1146
10		GRAVEL AND SAND - silty, poorly sorted, dark greyish brown, subangular gravel	Vs, Vx, Vc 10-15%		45-S13 45-S14 R11	10.3	1145
11		SAND - granite, poorly graded, medium grained sand - from 11.85 to 12.00 m, cobble (granite)	Thermally disturbed		R12		1144
12		GRAVEL AND SAND - silty, poorly sorted, dark greyish brown, subangular gravel	Vs, Vc, Vx 5-10%		45-S15 R13 45-S16	9.5	1143
		No recovery					
13		SILT - some sand, trace gravel, trace clay, grey	Thermally disturbed				
		COBBLES (GRANITE) - broken, slightly weathered			R14		
		No recovery					1142
14		GRANITE (BEDROCK) - highly weathered (W4), massive, weak (R2), white, grey and black, yellowish orange oxidization weathering, medium grained					
		No recovery			R15		1141
15							

◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80; ● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 21 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 15
Logged By: EP/VER	Completion Date: 2016 September 16
Reviewed By: VER	Page 2 of 3

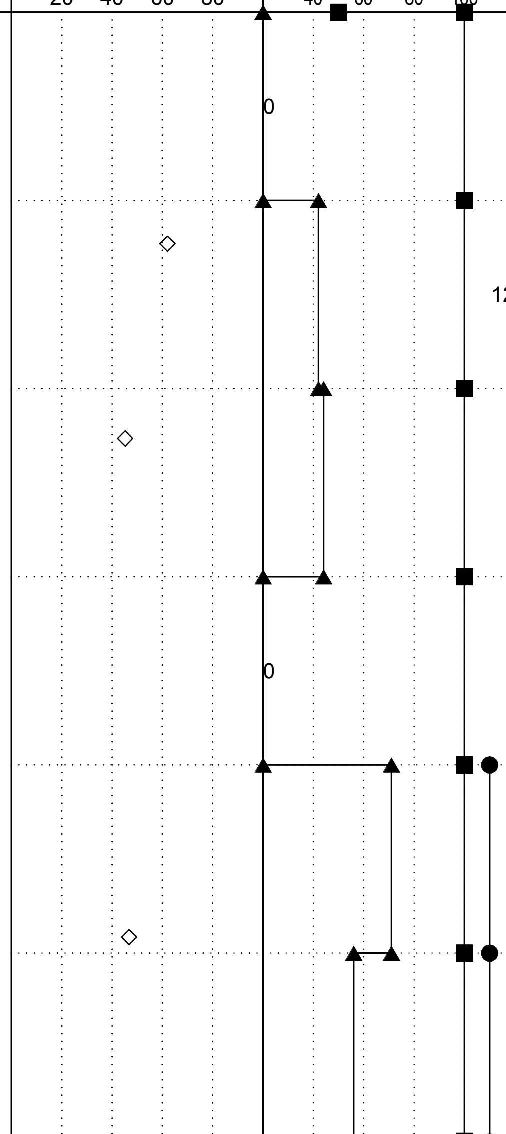
Borehole No: **GT-45**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1155.72 m
Coffee Creek, Yukon	UTM: 580399 E; 6973178 N; Z 7

Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20 | ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 | Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8 | ▲ RQD (%) ▲ 40 60 80 100 | ■ Recovery (%) ■ 40 60 80 100 | Elevation (m)

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Elevation (m)
15	Diamond drill	GRANITE (BEDROCK) - highly weathered (W4), massive, weak (R2), white, grey and black, yellowish orange oxidization weathering, medium grained	Clear ice infilling inclined joints, ice lenses to 3 mm thick	R16	1140
16		- at 16.00 m, moderately weathered (W3), medium strong (R3), more grey, JSN: 6 - from 16.00 to 16.11 m, highly broken up - at 16.17, 16.28, 16.65, 16.77 and 16.84 m, subhorizontal joints, undulating, smooth, orangish red oxidation weathering on surfaces, weak (R2) - at 16.28, 16.45 and 16.84 m, inclined joints, undulating smooth to rough, orangish red oxide staining		45-R1 R17	1139
17		- at 16.38, 16.62 and 16.95 m, subvertical joints, undulating and stepped (16.95 m), smooth, orangish red oxide staining - at 17.41 and 17.63 m, inclined joints, undulating, smooth to rough, orangish red oxidation - at 17.63 m, completely weathered (W5), highly fractured		45-R2 R18	1138
18		- at 18.00 m, very weak to weak (R1-R2)		R19	1137
19		- at 19.00 m, moderately weathered (W3), medium strong to strong (R3-R4), JSN: 4 - at 19.16, 19.32, 19.56 and 19.67 m, inclined joints, undulating, rough, oxidization - at 19.21, 19.23, 19.26, 19.41 and 19.84 m, subhorizontal joints, undulating, rough, oxidization - at 19.83 m, weak (R2)		R20 45-R3	1136
20		- at 20.14, 20.28, 20.57 and 20.85 m, inclined joints, undulating, rough, oxidization - at 20.19, 20.33, 20.40 and 20.76 m, subhorizontal joints, undulating, rough, oxidization		R21	1135
21		END OF BOREHOLE (21.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.			1134
22					
22.5					



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 21 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 15
Logged By: EP/VER	Completion Date: 2016 September 16
Reviewed By: VER	Page 3 of 3

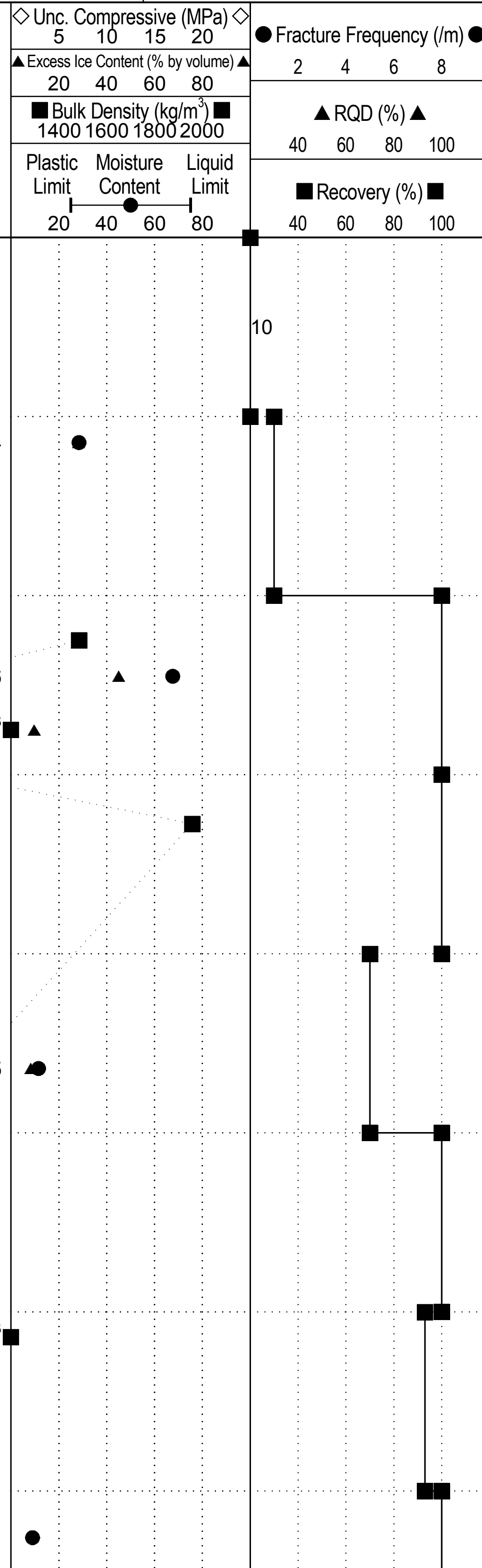
Borehole No: **GT-46**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1148.43 m
Coffee Creek, Yukon	UTM: 580444 E; 6973202 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)	Elevation (m)
0	MOSS - organics, roots, (100 mm thick)	Thawed			
	No recovery - gravel (granite) piece		R1		1148
1	SAND AND GRAVEL - some silt to silty, poorly sorted, brown grey, subangular gravel	Frozen, Vs, Vc 25-30%, subhorizontal clear ice lenses to 4 mm thick	46-S1	28.4	
	No recovery		R2		1147
2	SAND AND GRAVEL - some silt to silty, slightly more weathered, poorly sorted, brown grey, orangish red tint, subangular gravel	Vs, Vx, Vc 25-30%, subhorizontal clear ice lenses to 1 mm thick	46-S2		
			46-S3	67.6	1146
	SILT - sandy, gravelly, trace clay, massive, structureless, dark grey, subangular gravel	Vs, Vx, Vr 10%	R3		
			46-S4	18	
3		Nbe	46-S5		
			R4		1145
			46-S6		
	COBBLE/BOULDER - granite, slight weathering, light pink, grey and black, medium to coarse grained				
4	SAND AND GRAVEL - some silt, massive, grey, subangular gravel	Vc, Vx 10-15% Vs, Vc, Vx 10-15%			1144
		Vs, Vc, Vx 5-10% Three clear ice lenses to 2 mm thick, ice coatings <1 mm thick	R5		
	No recovery		46-S7	11.5	
5	GRAVEL - sandy, some silt, massive, grey, subangular gravel - at 5.27 m, ~ 11 mm cobble (granite)	1 and 3 mm thick clear ice coatings on gravel surfaces	R6		1143
	- at 5.70 m, ~ 18 mm cobble (granite)	Vc, Vs 10-15%, two 1-2 mm thick inclined ice lenses			
6		1 mm thick clear ice coatings on gravel surfaces	46-S8	13	
			R7		1142
7	No recovery	Vc, Vs, Vx 10%			
7.5			46-S9	9	1141



Contractor: Cyr Drilling	Completion Depth: 11 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 19
Logged By: EP	Completion Date: 2016 September 19
Reviewed By: VER	Page 1 of 2

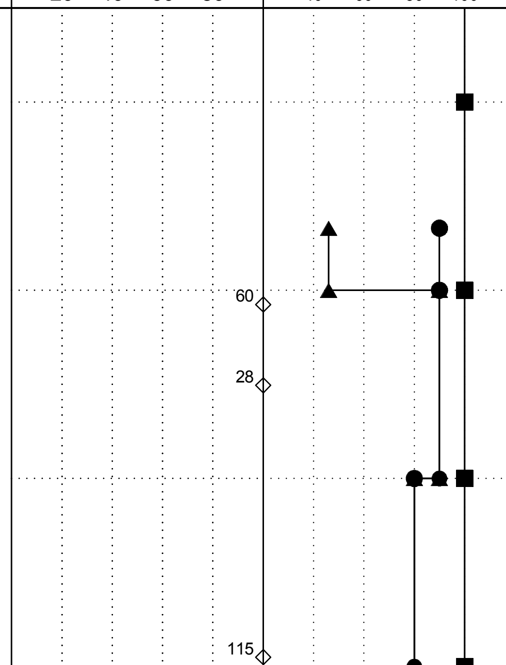
TETRA TECH

Borehole No: **GT-46**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1148.43 m
Coffee Creek, Yukon	UTM: 580444 E; 6973202 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000; Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5	Diamond drill				R8				
8		- from 8.00 to 8.15 m, cobble			R9				1140
		GRANITE (BEDROCK) - moderately weathered (W3), medium strong to strong (R3-R4), grey to light pink, inclined joints with orange weathering and silt infill, medium to coarse grained, JSN: 2							
9		- at 9.00 m, JSN: 4 - at 9.15, 9.23, 9.58 and 9.87 m, inclined joints, undulating, smooth, oxide staining - at 9.31, 9.91 and 9.57 m, subhorizontal joints, undulating, smooth, oxide staining - from 9.58 to 10.50 m, vertical joint, undulating, smooth, oxide staining			46-R1 R10 46-R2		60 28		1139
10		- at 10.68, 10.80 and 10.90 m, inclined joints, undulating, smooth, oxide staining - at 10.75 and 10.86 m, subhorizontal joints, undulating, smooth, oxide staining, very strong (R5)			R11 46-R3		115		1138
11		END OF BOREHOLE (11.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in 'Ground Ice Description' column.							1137
12									1136
13									1135
14									1134
15									



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 11 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 19
Logged By: EP	Completion Date: 2016 September 19
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-47**

GOLDCORP

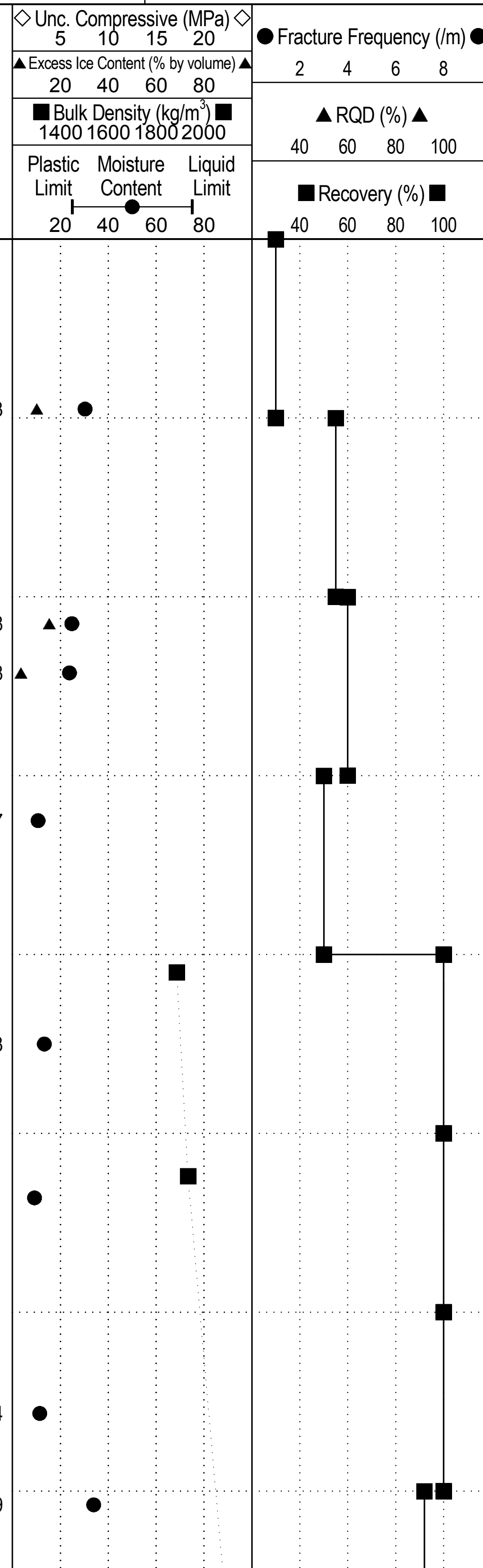
Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1154.63 m
Coffee Creek, Yukon	UTM: 580413 E; 6973208 N; Z 7

Method: Diamond drill

Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
MOSS - (150 mm thick)	Thawed		
No recovery		R1	
GRAVEL - sandy, silty, thermally disturbed	Frozen, Vc, Vr ~10%	47-S1	30.3
SAND AND SILT - trace gravel, wet, thermally disturbed, brown grey, subangular gravel		47-S2	
GRAVEL AND COBBLES - subangular gravel		R2	
No recovery			
GRAVEL AND SAND - silty, well graded, grey, subangular gravel	Vs, Vx, Vc 10-20%	47-S3	24.8
		47-S4	23.8
		R3	
No recovery			
GRAVEL - sandy, silty, well graded, grey, subangular gravel		47-S5	10.7
No recovery		R4	
GRAVEL AND SAND - silty, well graded, grey, subangular gravel		47-S6	
		R5	13.3
		47-S7	
		47-S8	
SILT - trace to some sand, grey	Vx, Vs 20%	47-S9	
		47-S10	9.2
		R6	
		47-S11	
GRAVEL AND SAND - some silt, medium brown, subangular gravel - at 6.35 m, cobble	Vc, Vs, Vx 15-20%	47-S12	
	Subhorizontal undulating ice lens, 2 mm thick	R7	11.4
		47-S13	
COBBLES - gravelly, sandy, trace to some silt, sandy/gravelly intervals between cobbles	Vx, Vc 5-10% Ice inclusions ~ 5 mm diameter	47-S14	33.9

Depth (m): 0, 1, 2, 3, 4, 5, 6, 7, 7.5

Elevation (m): 1154, 1153, 1152, 1151, 1150, 1149, 1148



Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 13
Logged By: VER	Completion Date: 2016 September 14
Reviewed By: VER	Page 1 of 4

TETRA TECH

GOLDCORP

Borehole No: **GT-47**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1154.63 m
Coffee Creek, Yukon	UTM: 580413 E; 6973208 N; Z 7

Column headings: Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; ■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000; Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100 | Elevation (m)

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
7.5			R8, 47-S15	
8	No recovery			
	GRAVEL AND SAND - some silt, well graded, angular gravel		47-S16	
	- from 8.55 to 8.80 m, boulder/cobble	Vc, Vx 5-10%	R9	
			47-S17	10.1
9	GRAVEL - sandy, silty, trace clay, grey			
	- from 9.46 to 9.58 m, cobble	Inclined ice lens ~ 1.5 mm thick	47-S18	15
	- at 9.58 m, becomes siltier	Vs, Vx, Vc 10-20%	R10	
			47-S19	15
10	GRAVEL AND SAND - some silt, well graded	Vx, Vc, Vs 10-20%		
			R11, 47-S20	
			47-S21	
11		Thermally disturbed		
	No recovery		R12	
12	GRAVEL AND COBBLES - sandy silt matrix, grey	Vs, Vc 10-15%, inclined ice lenses ~ 1 mm thick spaced at 50 mm intervals in sandy silt matrix	47-S22	14.9
			R13	
	GRAVEL AND SAND - some silt, well graded		47-S23	
	- from 12.50 to 12.90 m, boulder (granite)	Thermally disturbed	R14	
	- fracture in boulder infilled with silt/sand matrix	Vx, Vc 10-15%		
	SAND - gravelly, some silt, dark yellowish brown, fine gravel	Vx, Vc ~ 10%	47-S24	
13	GRANITE (BEDROCK) - highly weathered (W4), weak to medium strong (R2-R3), white, light pink and black, medium to coarse grained	Vs 9-12%, ~ 1 mm inclined ice lenses spaced at 10 mm intervals		
	- from 13.00 to 13.50 m, completely weathered to residual soil (W5-W6)		R15	
	- from 13.00 to 14.00 m, vertical fracture, planar to undulating, oxidated, infilled with clear ice to 25 mm thick, numerous inclined and subhorizontal joints, oxidated			
14	No recovery			
	GRANITE (BEDROCK) - highly weathered (W4), weak to medium strong (R2-R3), white, light pink and black, medium to coarse grained		R16, 47-R1	
15	- from 14.00 to 14.50 m, vertical fracture infilled with			

Unc. Compressive plot label: 32◇

Elevation (m): 1147, 1146, 1145, 1144, 1143, 1142, 1141, 1140

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 13
Logged By: VER	Completion Date: 2016 September 14
Reviewed By: VER	

Borehole No: **GT-47**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1154.63 m
Coffee Creek, Yukon	UTM: 580413 E; 6973208 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)

Depth 15 – 22.5 m; Method: Diamond drill

silty sand, thermally disturbed, wet, JSN: 4
- at 14.12 m, subhorizontal joint, undulating, rough, silt infill
- at 14.38 m, subhorizontal joint, undulating, smooth, silt infill
- at 14.43 m, inclined joint, undulating, smooth, oxidized
- at 14.49 m, subhorizontal joints, planar, rough, oxidized, silt infill
- at 14.50 m, slightly to moderately weathered (W2-W3), medium strong (R3)
- at 14.56 m, subhorizontal joint, stepped, smooth, oxidized, silt infill
- at 14.62 m, subhorizontal joint, planar, rough, oxidized
- at 14.90 m, subhorizontal joint, undulating, rough, oxidized
- at 15.09 m, subhorizontal joint, planar, smooth, oxidized
- at 15.33 and 15.37 m, closely spaced inclined joints, stepped, smooth, heavily oxidized, very strong (R5)
- at 15.45 m, subhorizontal joint, undulating, rough, oxidized
- at 15.61 m, inclined joint, undulating, smooth, oxidized, silt infill
- at 15.70 m, inclined joint, undulating, rough, oxidized
- at 15.73 and 15.74 m, subhorizontal joints, undulating, rough, oxidized

No recovery

GRANITE (BEDROCK) - slightly to moderately weathered (W2-W3), very strong (R5), white, light pink and black, medium to coarse grained, JSN: 6
- at 16.00 m, subhorizontal joint, planar, rough, oxidized
- at 16.08 to 16.30 m, subvertical joint, undulating, smooth, ice infill
- at 16.23 m, inclined joint, stepped, smooth, heavily oxidized
- at 16.35 m, subhorizontal joint, planar, rough, heavily oxidized
- at 16.38 m, subhorizontal joint, planar, smooth, heavily oxidized
- at 16.45 m, subhorizontal joint, planar, rough, oxidized
- at 16.57 m, inclined joint, undulating, smooth, oxidized
- at 16.59 m, subhorizontal joint, undulating, rough, oxidized, medium strong (R3)
- at 16.76 m, subhorizontal joint, undulating, smooth, oxidized
- at 16.85 m, inclined joint, undulating, smooth, heavily oxidized
- at 16.91 m, subhorizontal, undulating, smooth, heavily oxidized

No recovery

GRANITE (BEDROCK) - slightly weathered (W2),

Samples: 47-R2, R17, R18, 47-R3, R19, 47-R4

Unc. Compressive (MPa): 117, 25, 76

Depth scale: 15, 16, 17, 18, 19, 20, 21, 22, 22.5

Elevation (m): 1139, 1138, 1137, 1136, 1135, 1134, 1133

Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 13
Logged By: VER	Completion Date: 2016 September 14
Reviewed By: VER	Page 3 of 4

TETRA TECH

Borehole No: **GT-47**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Kona Pond	Ground Elev: 1154.63 m
Coffee Creek, Yukon	UTM: 580413 E; 6973208 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
22.5		strong (R4), white, light pink and black, medium to coarse grained, JSN: 6							1132
23									
24									1131
		- at 17.00 m, subhorizontal joint, undulating, rough, oxidized - at 17.25 m, inclined joint, planar, rough, oxidized - at 17.28 m, subhorizontal joint, stepped, smooth, altered, oxidized							1130
25		- from 17.28 to 17.58 m, subvertical joint, undulating, rough, oxidized - at 17.63 m, inclined joint, planar, smooth, oxidized - at 17.83 and 17.86 m, inclined joint, planar, rough, oxidized - at 17.95 m, inclined joint, stepped, rough, oxidized							1129
26		- at 18.00 m, inclined joint, undulating, smooth, heavily oxidized, subhorizontal joint, undulating, rough, oxidized END OF BOREHOLE (18.00 metres)							
27									1128
28									1127
29									1126
30									1125

TETRA TECH

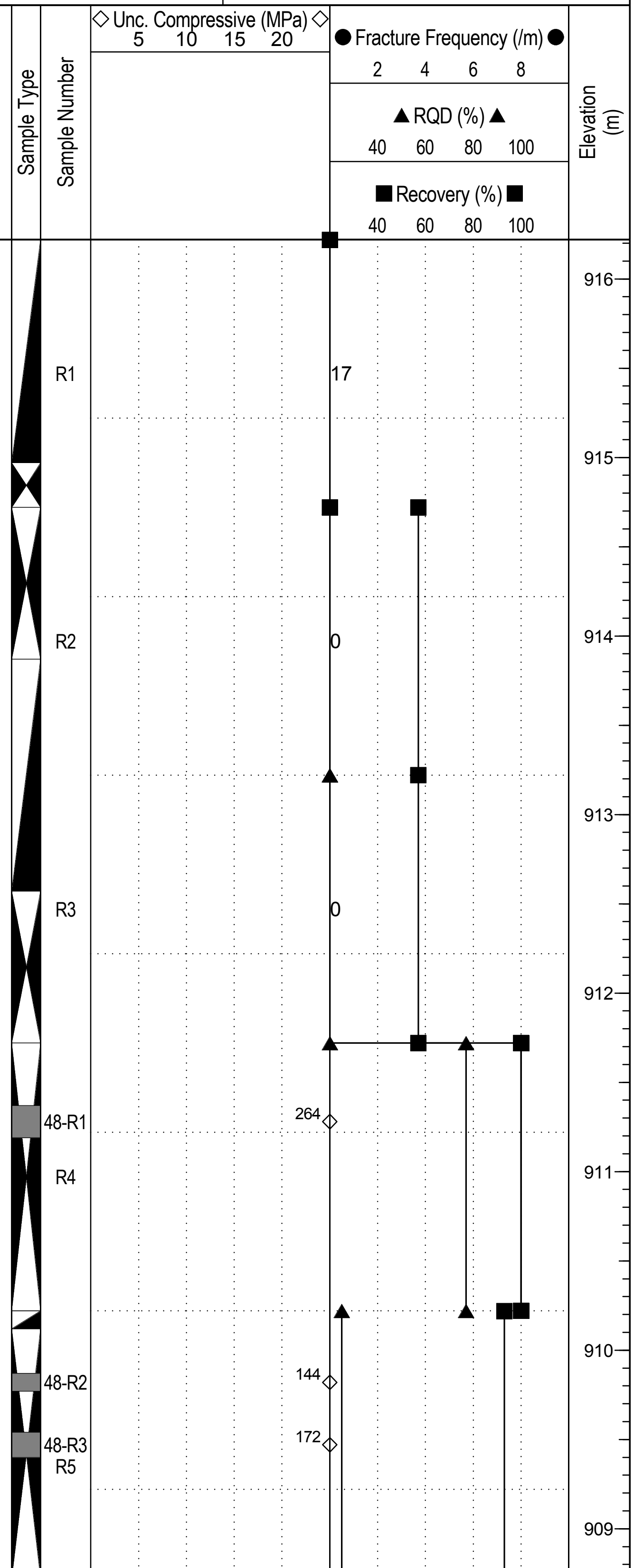
Contractor: Cyr Drilling	Completion Depth: 18 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 13
Logged By: VER	Completion Date: 2016 September 14
Reviewed By: VER	Page 4 of 4

GOLDCORP

Borehole No: **GT-48**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 916.22 m
Coffee Creek, Yukon	UTM: 585236 E; 6975725 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description
0 – 1.25	Diamond drill	No recovery	Unfrozen
1.25 – 1.75		GRAVEL AND COBBLES - fines washed away during drilling, poorly graded, loose, yellowish brown, blue and grey, subangular to subrounded gravel and cobbles - at 1.50 m, grey to white, subangular gravel and cobbles	
1.75 – 2.35		SCHIST (BEDROCK) - slightly to moderately weathered (W2-W3), strong (R4), bluish grey	
2.35 – 3.65		No recovery	
3.65 – 7.5		GNEISS (BEDROCK) - slightly to moderately weathered (W2-W3), medium strong to strong (R3-R4), bluish grey, fine grained, JSN: 9 - at 4.27 m, 50 mm white quartz vein - at 4.50 m, slightly weathered (W2), strong to very strong (R4-R5), white quartz veins - at 4.73 and 4.85 m, inclined joints, planar, rough, oxidized, silt infill - at 4.85 m, extremely strong (R6) - at 5.03 and 5.18 m, inclined joints, undulating, smooth, oxidized, silt infill - from 5.03 to 5.18 m, two vertical veins - at 5.27 m, inclined joint, stepped, smooth, oxidized, calcite infill - at 5.39 m, inclined joint, undulating, rough, oxidized, calcite infill, yellow staining - at 5.53 m, subhorizontal joint, planar, rough, red oxides, calcite infill, yellow staining - at 5.65 m, inclined, planar, rough, oxidized, calcite mixture, silt infill - from 5.69 to 5.81 m, vertical joint, undulating, smooth, oxidized, silt infill - at 5.81 m, subhorizontal joint, undulating, smooth, oxidized, silt infill - at 5.92 and 5.96 m, two closely separated joints, inclined, undulating, smooth, oxidized, silt infill, yellow to brown staining	



Contractor: Cyr Drilling	Completion Depth: 9 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 8
Logged By: RG	Completion Date: 2016 September 8
Reviewed By: VER	Page 1 of 2

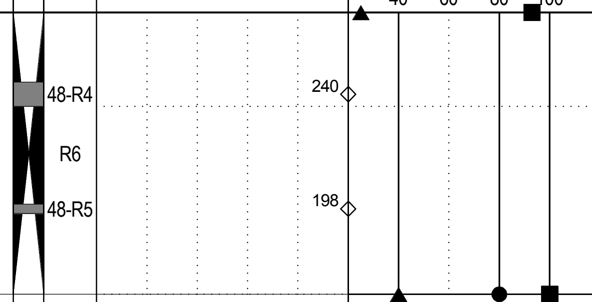
TETRA TECH

GOLDCORP

Borehole No: **GT-48**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 916.22 m
Coffee Creek, Yukon	UTM: 585236 E; 6975725 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	◇ Unc. Compressive (MPa) ◇ 5 10 15 20	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5	Diamond drill	No recovery						
8		GNEISS (BEDROCK) - slightly to moderately weathered (W2-W3), bluish grey, fractures due to mechanical breaks and natural joints, fine grained, JSN: 6 - at 6.35 m, very strong (R5) - at 6.60 m, slightly weathered (W2), wet, quartz veins to 15 mm, fine grained - at 6.60 m, inclined joint, planar, rough, oxidized - at 6.79 m, subhorizontal joint, planar, smooth, oxidized - at 6.94 m, inclined joint, undulating, rough, oxidized, calcite mixture - at 6.98 m, subhorizontal joint, undulating, smooth, oxidized - from 7.06 to 7.26 m, subvertical joint, planar, smooth, highly oxidized, calcite - at 7.34 m, inclined joint, planar, smooth, minor oxidization - at 7.39 m, inclined joint, undulating, rough, oxidized - at 7.50 m, more frequent quartz veins - at 7.87 m, inclined joint, planar, rough, minor oxidization - at 8.00 m, inclined joint, planar, rough, moderately oxidized - at 8.05 m, subvertical joint, planar, rough, highly oxidized - at 8.52 m, inclined joint, undulating, rough, slightly oxidized - at 8.57 m, inclined joint, undulating, rough, highly oxidized - at 8.62 m, inclined joint, undulating, rough, oxidized - at 8.70 m, inclined joint, undulating, rough, ~ 1 mm thick silt/sand infill - from 8.80 to 9.00 m, subvertical joint, planar, rough, highly oxidized with calcite			48-R4 R6 48-R5	240 198		908
9								907
10								906
11		END OF BOREHOLE (9.00 metres)						905
12								904
13								903
14								902
15								



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 9 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 8
Logged By: RG	Completion Date: 2016 September 8
Reviewed By: VER	Page 2 of 2

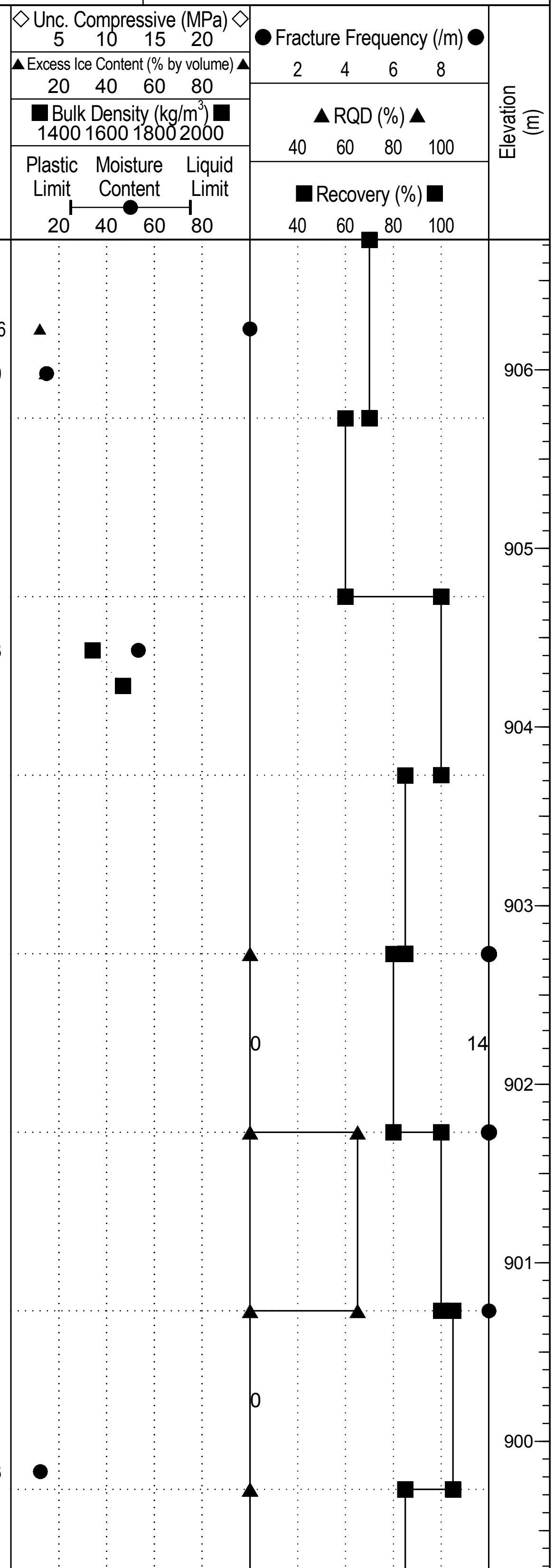
Borehole No: **GT-50**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 906.73 m
Coffee Creek, Yukon	UTM: 585289 E; 6975667 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	MOSS AND PEAT - wet, dark brown, (100 mm thick)	Thawed		
	No recovery			
	SILT - organics, wet, dark brown	Frozen, Vx, Vs 35-45%	50-S1	213.6
			R1	
	GRAVEL - some sand, trace silt, well graded, dark greyish brown, subangular gravel	Vc, Vx 10-15%, ice coating to 5 mm thick	50-S2	14.9
	No recovery			
1	COBBLES - gravelly, loose	Vc, Vx 10-15%	R2	
	No recovery			
2	GRAVEL AND SAND - some silt, well graded, grey, subangular gravel	Vc, Vx 10-15%	50-S3	
	SILT - organics, interlayers of sand to 100 mm thick	Nbe	50-S4	53.3
			R3	
			50-S5	
	COBBLES AND GRAVEL - sandy, silty	Vc, Vx 10-20%		
3	GRAVEL - sandy, trace silt, residual soil of completely weathered bedrock	Vc, Vs <10%		
	GNEISS (BEDROCK) - foliated, grey		R4	
	No recovery			
4	GNEISS (BEDROCK) - slightly to moderately weathered (W2-W3), foliated, strong (R4), grey, JSN: 2 - at 4.11, 4.24, 4.25, 4.30 and 4.35 m, inclined joints, planar and undulating, smooth, oxidized, silt infill, fine sand - at 4.39, 4.46, 4.52, 4.60, 4.65 and 4.73 m, inclined joints, oxidized, silt infill	Nbe	50-R1	
			R5	
5	No recovery			
	GNEISS (BEDROCK) - slightly to moderately weathered (W2-W3), foliated, strong (R4), grey, JSN: 9 - at 5.00 m, subhorizontal joint, stepped, smooth, oxidized - at 5.11 m, inclined joint, stepped, smooth, slightly oxidized - at 5.19 m, subhorizontal joint, stepped, smooth, oxidized - from 5.43 to 5.51 m, vertical fracture, undulating, rough, oxidized - at 5.45, 5.50 and 5.56 m, inclined joints, planar, smooth, oxidized - at 5.63 and 5.67m, inclined joints, undulating, rough, silt infill - at 5.80 m, inclined joint, planar, smooth, oxidized, silt infill - at 5.92 m, subhorizontal joint, stepped, rough,		50-R2	
			R6	
6			R7	
		Vx, Vc 1-12%	50-R3	12.3
7				
7.5				



Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 5
Logged By: VER	Completion Date: 2016 September 5
Reviewed By: VER	Page 1 of 2

TETRA TECH

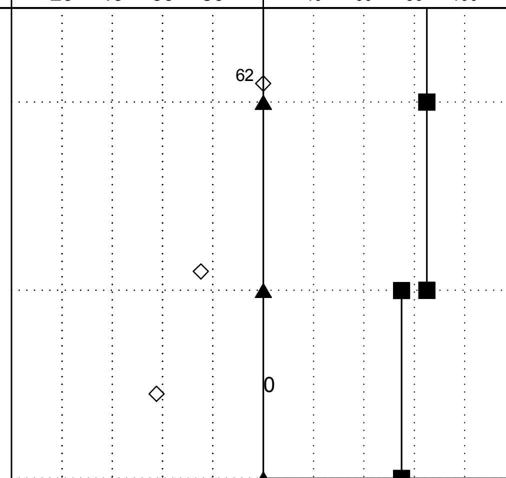
Borehole No: **GT-50**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 906.73 m
Coffee Creek, Yukon	UTM: 585289 E; 6975667 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5–10.0	Diamond drill	oxidized - from 6.00 to 6.75 m, very closely spaced joint, 20-60 mm spacing - from 6.75 to 7.00 m, fragmented zone, coarser sand to fine gravel - at 7.00 m, moderately weathered (W3), weak (R2), very closely spaced joints - at 7.85 m, strong (R4) - from 8.00 to 8.25 m, mechanically fragmented, loose, gravel sized rock fragments - from 8.25 to 8.80 m, very closely spaced joints - at 8.80 m, weak (R2)			R8 50-R4 R9 50-R5 R10 50-R6		62	0	899 898 897
		No recovery							
10		END OF BOREHOLE (10.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							896 895 894 893 892

Depth scale: 8, 9, 10, 11, 12, 13, 14, 15



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 5
Logged By: VER	Completion Date: 2016 September 5
Reviewed By: VER	Page 2 of 2

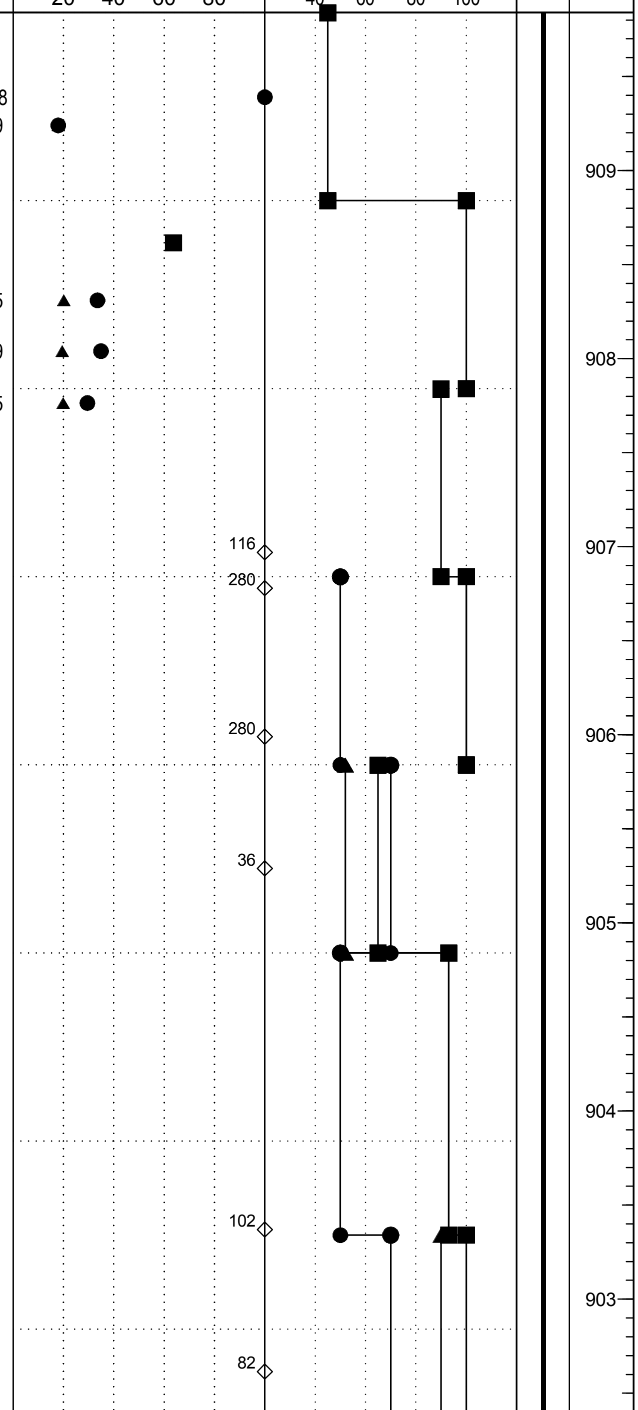
Borehole No: **GT-51**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 909.84 m
Coffee Creek, Yukon	UTM: 585314 E; 6975679 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond drill	MOSS AND PEAT - wet, dark brown, wood pieces, (200 mm thick)	Thawed			
		No recovery				
		ORGANICS - trace to some silt, trace sand, black, (100 mm thick)	Frozen, Vx 15-20% Vc, Vx 20-30%		51-S1	218.8
		GRAVEL AND SAND - some silt, dark grey, angular gravel			R1	17.9
					51-S2	
1		No recovery				
		SAND - silty, trace clay, trace gravel, cobbles disseminated throughout, well graded, dark grey, angular gravel	Vc, Vs, Vx 20-25%, ice lenses and coatings to 5 mm thick		51-S3	
					R2	33.5
					51-S4	
					51-S5	34.9
2			Vc, Vs, Vx 20-25%, 10 mm thick subhorizontal ice lens		51-S6	29.5
		GNEISS (BEDROCK) - highly weathered (W4), very strong (R5), grey			R3	
		- at 2.65 m, subvertical fracture infilled with ice 3-8 mm thick	Clear ice lens 3-8 mm thick		51-R1	
3		No recovery			51-R2	
		GNEISS (BEDROCK) - slightly to moderately weathered (W2-W3), extremely strong (R6), grey, JSN: 4	Frozen SILT - sandy - joint infill to 15 mm thick, Nbe			
		- from 3.18 to 3.83 m, subvertical fracture, undulating, smooth, infilled with ice and frozen sandy silt			R4	
		- at 3.34 and 3.93 m, inclined joint, planar, smooth, oxidized, calcite infill			51-R3	
4		- at 4.00 m, slightly weathered (W2), strong (R4)				
		- at 4.05 and 4.11 m, inclined joints, stepped, rough, oxidized, calcite infill			R5	
		- at 4.40 m, inclined joint, undulating, smooth, slight oxidization			51-R4	
		- at 4.50 m, medium strong (R3)				
5		No recovery				
		GNEISS (BEDROCK) - slightly weathered (W2), strong (R4), grey, JSN: 9				
		- at 5.20 m, inclined joint, planar, rough, oxidized				
		- at 5.54 m, subhorizontal joint, stepped, smooth, oxidized			R6	
6		- at 6.00 m, subhorizontal joint, stepped, rough, oxidized				
		- from 6.20 to 6.30 m, subvertical joint, undulating, rough, oxidized			51-R5	
		- at 6.50 m, very strong (R5)				
7		- at 7.00 m, inclined joint, undulating, rough, oxidized				
		- at 7.15 m, strong (R4), JSN: 4			51-R6	
7.5					R7	

◇ Unc. Compressive (MPa) ◇ 5 10 15 20
▲ Excess Ice Content (% by volume) ▲ 20 40 60 80
■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000
Plastic Limit — Moisture Content — Liquid Limit 20 40 60 80
● Fracture Frequency (/m) ● 2 4 6 8
▲ RQD (%) ▲ 40 60 80 100
■ Recovery (%) ■ 40 60 80 100
TS#3
Elevation (m)



Contractor: Cyr Drilling	Completion Depth: 21 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 6
Logged By: VER	Completion Date: 2016 September 7
Reviewed By: VER	Page 1 of 3

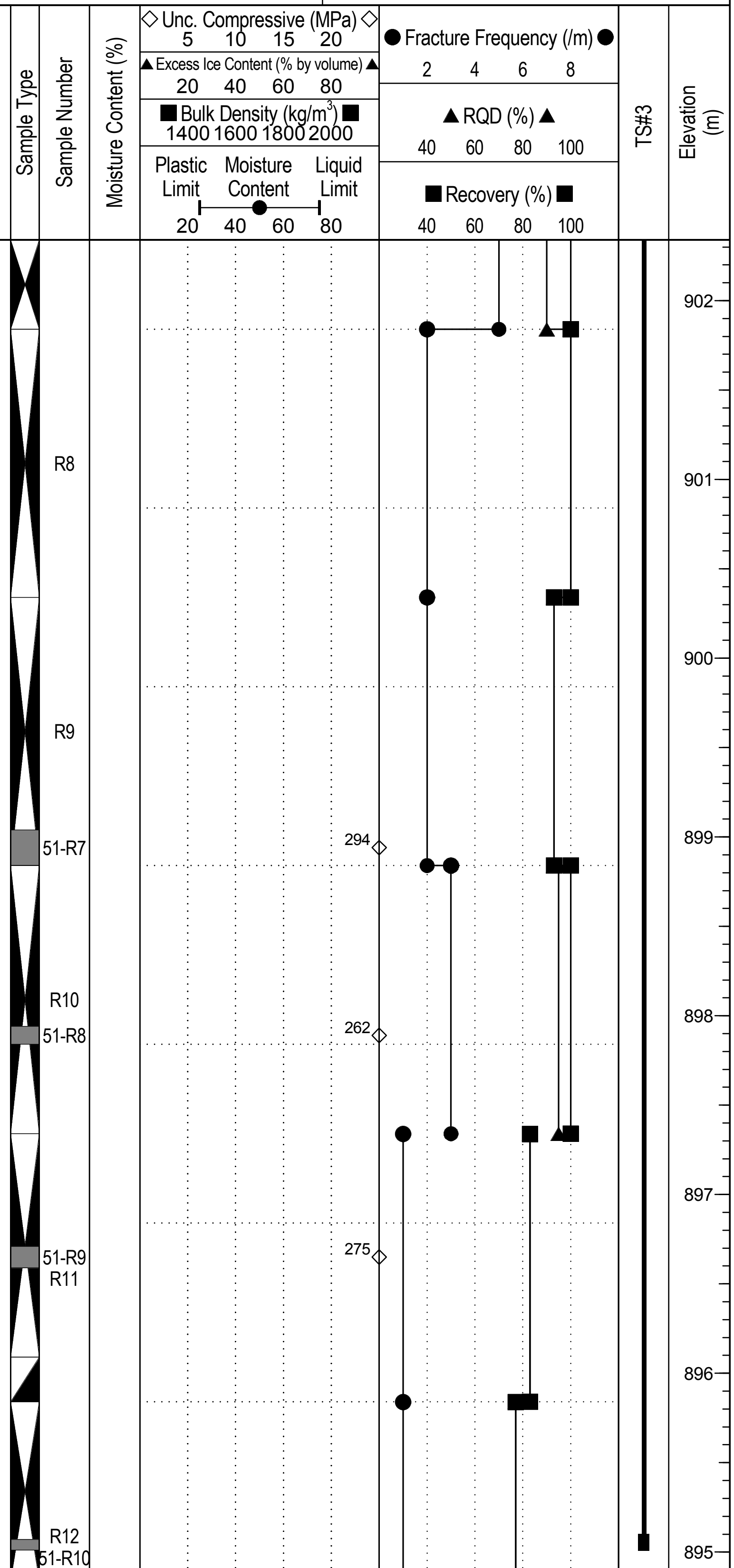
TETRA TECH

GOLDCORP

Borehole No: **GT-51**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 909.84 m
Coffee Creek, Yukon	UTM: 585314 E; 6975679 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description
7.5	Diamond drill	- at 7.30 m, subhorizontal joint, planar, rough, oxidized	
		- at 7.50 m, inclined joint, planar, rough, oxidized	
8		- from 7.70 to 7.74 m, subhorizontal fault zone, silty, clay (rock flour/gouge), yellowish	
		- at 7.90 m, inclined joint, stepped, smooth, oxidized	
		- at 7.96 m, subhorizontal joint, planar, rough, calcite infill	
		- at 8.00 m, subhorizontal joint, planar, smooth, oxidized, calcite infill, JSN: 9	
9		- at 8.10 m, subhorizontal joint, planar, smooth, oxidized, calcite infill	
		- from 8.44 to 9.50 m, vertical fracture, undulating, rough to smooth, oxidized, calcite infill	
		- at 9.50 m, strong (R4)	
10		- at 9.72 m, inclined joint, planar, rough, oxidized, calcite infill	
		- at 9.76 m, 20 mm thick quartzite vein	
		- at 10.00 m, inclined joint, planar, rough, oxidized	
		- at 10.80 m, extremely strong (R6)	
11		- at 11.05 m, inclined joint, planar, rough, oxidized	
		- at 11.13 m, inclined joint, planar, rough, oxidized	
		- at 11.43 m, horizontal joint, planar, rough, oxidized	
12		- from 12.30 to 12.40 m, subhorizontal joint, stepped, rough, oxidized	
13		- at 13.55 m, subhorizontal joint, planar, rough, oxidized	
		No recovery	
14		GNEISS (BEDROCK) - slightly weathered (W2), extremely strong (R5), grey, JSN: 9	
15		- at 14.75 m, horizontal joint, planar, rough, oxidized	



Contractor: Cyr Drilling	Completion Depth: 21 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 6
Logged By: VER	Completion Date: 2016 September 7
Reviewed By: VER	Page 2 of 3

TETRA TECH

Borehole No: **GT-51**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 909.84 m
Coffee Creek, Yukon	UTM: 585314 E; 6975679 N; Z 7

GOLDCORP

Columns: Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; ■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000; Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100 | TS#3 | Elevation (m)

Method: Diamond drill

Lithological Description (15 to 22.5 m):

- at 14.77 m, 10 mm thick horizontal quartz vein

No recovery

GNEISS (BEDROCK) - slightly weathered (W2), very strong (R5), greyish, JSN: 4
- at 15.65 m, subhorizontal joint, undulating, smooth, oxidized
- at 15.72 and 15.74 m, two closely spaded subhorizontal joints, planar, smooth, oxidized, calcite infill and stepped, rough, oxidized, calcite infill
- at 15.93 m, inclined joint, planar, rough, oxidized
- at 16.10, two closely spaced subhorizontal joint, planar, smooth, oxidized
- at 16.48 and 16.53 m, subhorizontal joints, planar, smooth, oxidized
- from 16.48 to 16.65 m, subvertical fracture, undulating, rough, oxidized
- at 17.85 m, subhorizontal joint, stepped, rough, oxidized
- at 18.00 m, 50 mm thick quartz vein
- at 18.18 m, subhorizontal joint, planar, rough, oxidized
- at 18.28, 18.32 and 18.40 m, three closely spaced subhorizontal joint,s planar, rough, oxidized

No recovery

GNEISS (BEDROCK) - moderately weathered (W3), strong (R3), multicoloured rock, bands of reddish, yellowish, greyish rock, mica in breaks, JSN: 4
- at 19.10 m, two closely spaced subhorizontal joints, planar and stepped, rough, oxidized
- from 19.25 to 19.50 m, fault gouge, silty clay, trace fine sand, fragmented zone, infinite FF
- at 19.65 m, 19.82 and 19.85 m, subhorizontal joints, planar, rough, oxidized, medium strong (R3)
- at 20.10 and 20.22 m, subhorizontal joints, planar, rough, oxidized
- at 20.42 and 20.47 m, inclined joints, planar, rough, oxidized
- at 20.57 m, strong (R4)
- from 20.7 to 21.00 m, subvertical fractures, undulating, rough, oxidized, weak broken rock

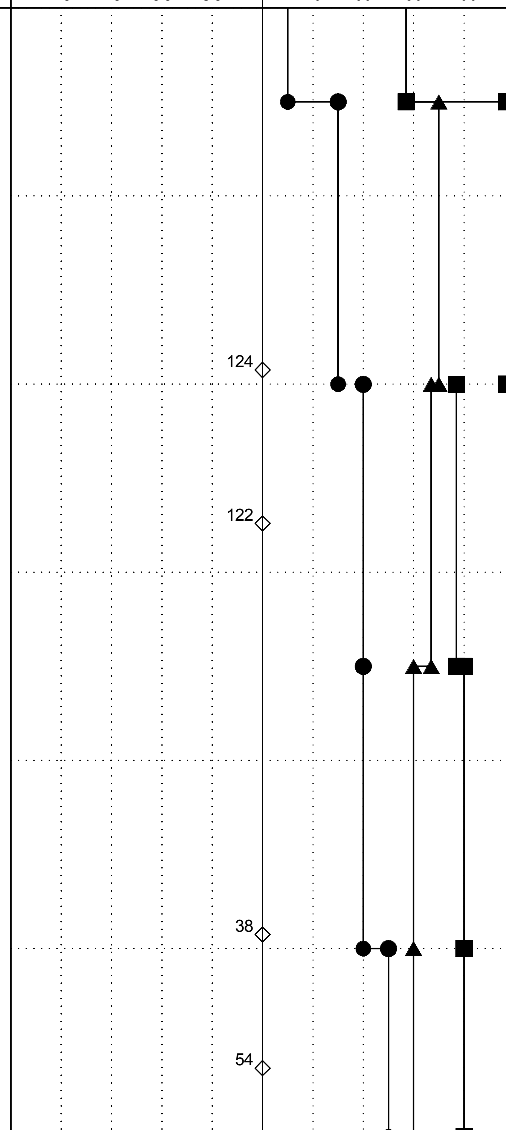
END OF BOREHOLE (21.00 metres)
25 mm diameter PVC installed to 19.84 metres
Thermistor string #3 installed to 14.80 metres
Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.

Sample Numbers: R13, 51-R11, 51-R12, R14, R15, 51-R13, R16, 51-R14

Unc. Compressive values: 124 (at ~16.9 m), 122 (at ~17.7 m), 38 (at ~19.9 m), 54 (at ~20.6 m)

Depth marks: 15, 16, 17, 18, 19, 20, 21, 22, 22.5

Elevation marks: 894, 893, 892, 891, 890, 889, 888



Contractor: Cyr Drilling	Completion Depth: 21 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 6
Logged By: VER	Completion Date: 2016 September 7
Reviewed By: VER	Page 3 of 3

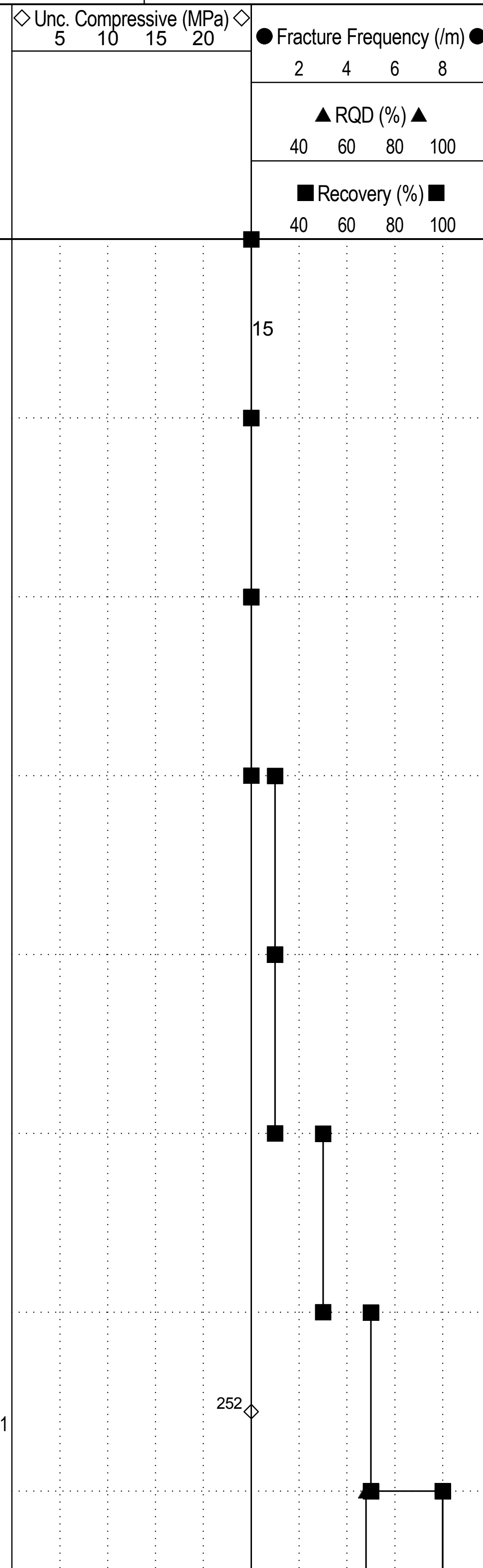
TETRA TECH

Borehole No: **GT-53**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	Ground Elev: 799.34 m
Coffee Creek, Yukon	UTM: 584675 E; 6972356 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Elevation (m)
0	Diamond drill	MOSS - organics, coarse fibrous, black, (100 mm thick)	Unfrozen (?) - requires additional investigation (GTC borehole) to more accurately determine thermal condition			
		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling				799
		No recovery			R1	
1		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling				
		No recovery			R2	798
2		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling				
		No recovery			R3	797
3		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling				
		No recovery			R4	796
4		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling				
		No recovery			R5	795
5		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling				
		No recovery			R6	794
6		GRAVEL - loose, granite and mixed felsic gneiss, matrix washed away during drilling			R7	793
		GNEISS (BEDROCK) - slightly weathered (W2), extremely strong (R6), dark grey to green, fractured, fine to medium grained			53-R1	
		No recovery				
7		GNEISS (BEDROCK) - slightly weathered (W2), extremely strong (R6), dark grey to green, fractured, fine to medium grained, JSN: 4				792
7.5						



TETRA TECH

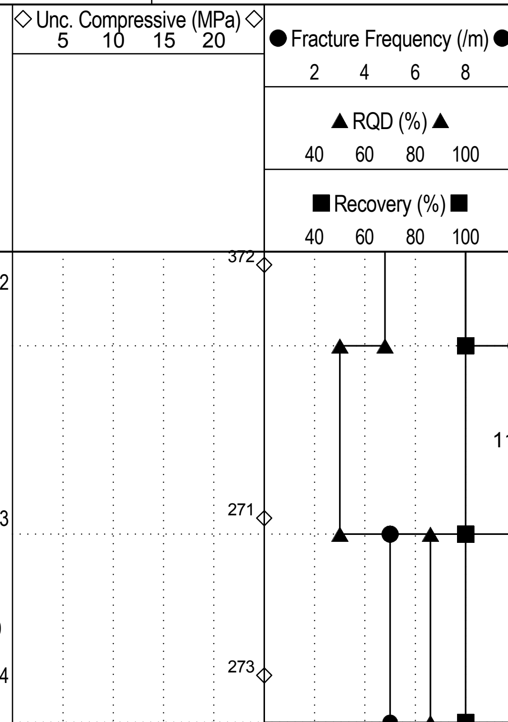
Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 4
Logged By: EP	Completion Date: 2016 October 4
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-53**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	Ground Elev: 799.34 m
Coffee Creek, Yukon	UTM: 584675 E; 6972356 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Elevation (m)
7.5	Diamond drill	- from 7.03 to 7.10 m, quartz vein - at 7.03 and 7.28 m, subhorizontal joints, undulating, smooth, slight oxidization - at 7.21, 7.60, 7.67, 7.74, 7.81 and 7.98 m, inclined joints, undulating, smooth, oxidization - at 7.81 m, 20 mm thick quartz vein - at 8.07, 8.09, 8.68 and 8.97 m, subhorizontal joints, undulating, smooth, slight oxidization - at 8.12, 8.27, 8.29, 8.33, 8.70, 8.81 and 8.86 m, inclined joints, undulating, smooth, slight oxidization - at 9.00 m, JSN: 3 - at 9.33 m, subhorizontal joint, undulating, smooth, no visible alteration - at 9.39, 9.62, 9.88 and 9.98 m, inclined joints, undulating, smooth to rough, no visible alteration			R8 53-R2 R9 53-R3 R10 53-R4	791 790
10		END OF BOREHOLE (10.00 metres)				789 788 787 786 785



Depth scale: 8, 9, 10, 11, 12, 13, 14, 15

Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 4
Logged By: EP	Completion Date: 2016 October 4
Reviewed By: VER	Page 2 of 2

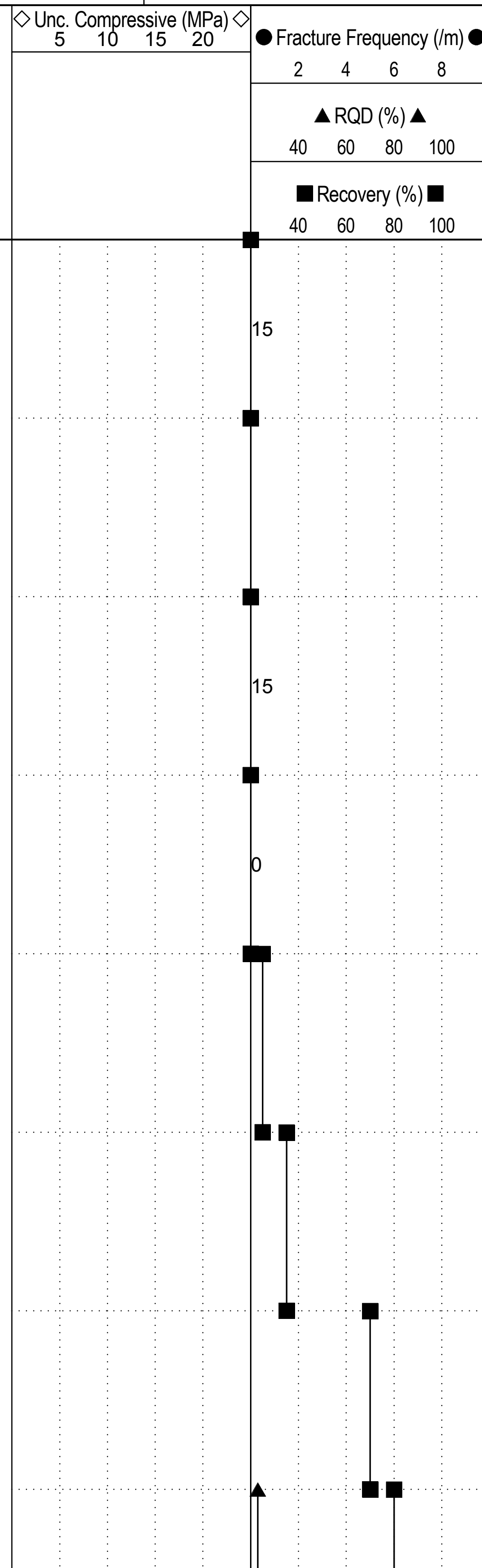
TETRA TECH

Borehole No: **GT-55**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	Ground Elev: 796.6 m
Coffee Creek, Yukon	UTM: 584686 E; 6972333 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Unc. Compressive (MPa) / Fracture Frequency (/m)	Elevation (m)
0	Diamond drill	ROCK FRAGMENTS - felsic gneiss, quartz	Unfrozen (?) - requires additional investigation (GTC borehole) to more accurately determine thermal condition				
		No recovery			R1	15	796
1		ROCK FRAGMENTS - felsic gneiss, quartz					
		No recovery			R2		795
2		ROCK FRAGMENTS - felsic gneiss, quartz					
		No recovery			R3	15	794
3					R4	0	793
4		ROCK FRAGMENTS - felsic gneiss, quartz					
		No recovery			R5		792
5					R6		791
		ROCK FRAGMENTS - felsic gneiss, quartz - at 5.86 m, 140 mm long mixed felsic gneiss with subvertical joint, slightly weathered					
6		SAND - completely pulverized rock					
		GNEISS (BEDROCK) - slightly weathered (W2), medium strong (R3)			R7		790
		No recovery					
7		GNEISS (BEDROCK) - slightly weathered (W2), medium strong (R3)					
7.5							



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 9 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 3
Logged By: EP	Completion Date: 2016 October 3
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-55**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	Ground Elev: 796.6 m
Coffee Creek, Yukon	UTM: 584686 E; 6972333 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	◇ Unc. Compressive (MPa) ◇	● Fracture Frequency (/m) ● / ▲ RQD (%) ▲ / ■ Recovery (%) ■	Elevation (m)
7.5	Diamond drill				R8			789
		No recovery						
8		GNEISS (BEDROCK) - slightly weathered (W2), very strong (R5), JSN: 2 - at 8.21, 8.62, 8.87 and 8.94 m, inclined joints, undulating, smooth, slight oxidization - at 8.46 m, extremely strong (R6)			55-R1	185		
					R9 55-R2	313		788
9		END OF BOREHOLE (9.00 metres)						
10								787
11								786
12								785
13								784
14								783
15								782

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 9 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 3
Logged By: EP	Completion Date: 2016 October 3
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-56**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	Ground Elev: 802.23 m
Coffee Creek, Yukon	UTM: 584656 E; 6972376 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Fracture Frequency (/m) / RQD (%) / Recovery (%)	Elevation (m)
0	Diamond drill	ORGANICS - roots, coarse fibrous, dark brown, (100 mm thick)	Unfrozen (?) - requires additional investigation (GTC borehole) to more accurately determine thermal condition				
		No recovery			R1	10	802
1		SAND AND GRAVEL - silty, well graded, brown, subangular gravel					
		No recovery			R2		801
2		SAND AND GRAVEL - silty, well graded, brown, subangular gravel					
		No recovery			R3	15	800
3		SAND AND GRAVEL - silty, well graded, brown, subangular gravel					
		No recovery			R4		799
4		SAND AND GRAVEL - silty, well graded, brown, subangular gravel					
		No recovery			R5		798
5		SAND AND GRAVEL - silty, well graded, brown, subangular gravel - from 5.00 to 6.15 m, poor recovery, only gravel and cobbles sized particles recovered - matrix washed away during drilling, some sandy silt recovered on cobble particles					797
		No recovery			R6		
6		SAND AND GRAVEL - silty, well graded, brown, subangular gravel					
		GNEISS (BEDROCK) - moderately weathered (W3), massive, strong (R4), grey, pink banding, highly fractured, fine grained			R7		796
		No recovery					
7		GNEISS (BEDROCK) - moderately weathered (W3), massive, strong (R4), grey, pink banding, highly fractured, fine grained - at 7.00 m, more competent, JSN: 10				11	795
7.5							

Fracture Frequency (/m): 2 4 6 8; RQD (%): 40 60 80 100; Recovery (%): 40 60 80 100

TETRA TECH

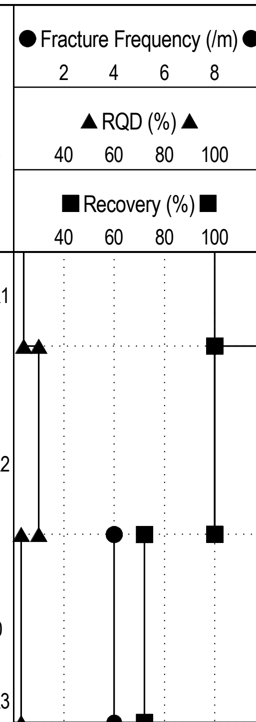
Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 5
Logged By: JGD	Completion Date: 2016 October 5
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-56**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	Ground Elev: 802.23 m
Coffee Creek, Yukon	UTM: 584656 E; 6972376 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Fracture Frequency (/m) / RQD (%) / Recovery (%)	Elevation (m)
7.5	Diamond drill	- at 7.03 m, subhorizontal joint, undulating, smooth - at 7.10 m, subhorizontal joint, undulating, rough, slight silt infill - at 7.15 m, subhorizontal joint, undulating, smooth - at 7.16 m, inclined joint, stepped, smooth, slight sand infill - at 7.24 m, subvertical joint, stepped, rough, oxide staining - at 7.34 m, subhorizontal joint, undulating, rough - at 7.42 m, inclined joint, undulating, smooth, slight staining - at 7.48 m, subvertical joint, undulating, rough, slight oxide staining - at 7.54 m, subhorizontal joint, stepped, rough, slight staining - at 7.60 m, inclined joint, undulating, smooth, slight staining - at 7.78 m, inclined joint, stepped, rough - at 8.00 m, oxidization in joints - at 8.14 m, subvertical joint, undulating, smooth, oxide staining, slight silt infill - at 8.21 m, subhorizontal joint, undulating, rough - at 8.24 m, subhorizontal joint, undulating, rough, slight sand infill - at 8.35 m, subhorizontal joint, undulating, rough, slight oxide staining - at 8.49 m, subhorizontal joint, undulating, smooth, slight oxide staining - at 8.52 m, subhorizontal joint, undulating, smooth, oxidized, slight silt infill - at 8.74 m, inclined joint, undulating, rough, oxidized - at 8.88 m, inclined joint, stepped, rough, oxidized - from 9.00 to 9.65 m, rubble zone - at 9.65 m, subhorizontal joint, undulating, smooth, slight oxide staining, slight silt infill No recovery - at 9.75 m, subhorizontal joint, undulating, smooth, slight oxide staining - at 9.77 m, subhorizontal joint, stepped, smooth END OF BOREHOLE (10.00 metres)			R8 56-R1 R9 56-R2 R10 56-R3		
8							794
9							793
10							792
11							791
12							790
13							789
14							788
15							



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 10 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 October 5
Logged By: JGD	Completion Date: 2016 October 5
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-57**

GOLDCORP

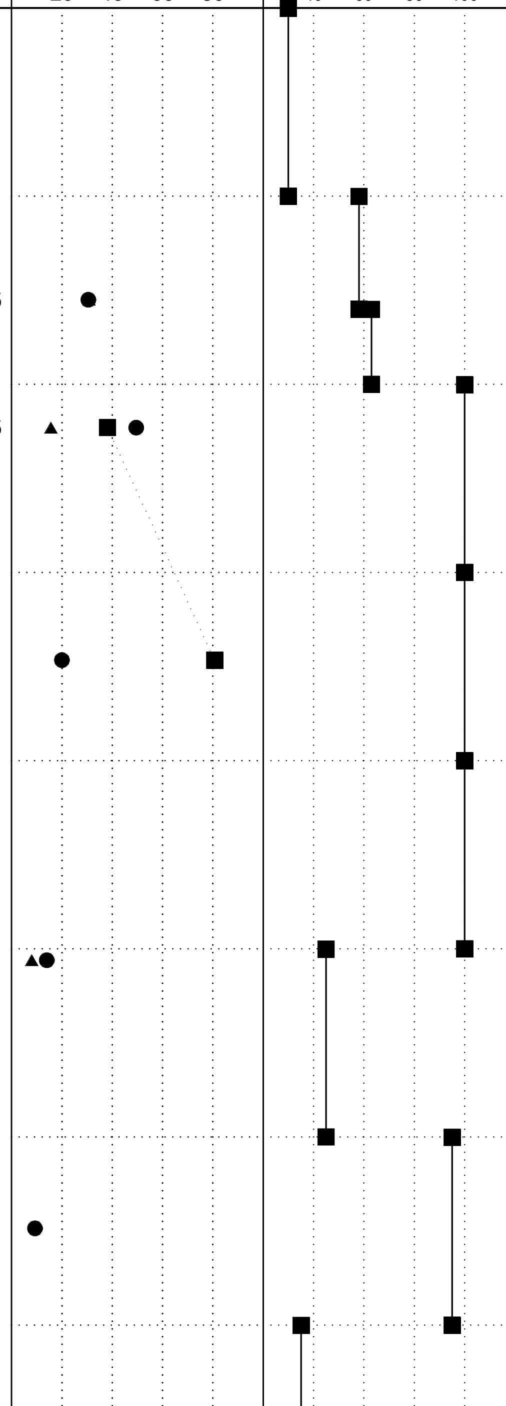
Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 918.67 m
Coffee Creek, Yukon	UTM: 582158 E; 6973904 N; Z 7

Column headings: Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000; Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100 | Elevation (m)

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	ORGANICS - roots, wood chips, fine to coarse fibrous, brown, (100 mm thick)	Thawed		
	SAND AND GRAVEL - silty, trace clay, massive, well graded, brown, subangular gravel		R1	
	No recovery		R2	
	SAND AND GRAVEL - silty, trace clay, massive, well graded, brown, subangular gravel	Frozen, Vx, Vc 30%	57-S1	30.5
		Vx, Vc 10%	R3	
2	No recovery			
	SILT (ORGANIC) - some sand, some gravel, trace clay, brown, subangular gravel, slight organic odour	Vs 15%, 1-2 mm thick ice lenses closely spaced 3-5 mm apart	57-S2	49.5
		Vs 10%, becomes randomly spaced	R4	
	SAND AND GRAVEL - silty, massive, well graded, brown, subangular gravel	Vx, Vc 10%	57-S3	
3	- from 3.00 to 3.40 m, large gravel inclusions to 40 mm diameter			
			57-S4	20
	- from 3.72 to 4.95 m, boulder (granite)		R5	
			R6	
5	- at 5.00 m, poor recovery, matrix washed away, only gravel sized particles recovered	1 mm thick ice lens	57-S5	14
	No recovery		R7	
6	SAND AND GRAVEL - silty, massive, well graded, brown, subangular gravel			
			57-S6	9.3
	- at 6.65 m, 100 mm diameter cobble		R8	
7	No recovery			
	SAND AND GRAVEL - silty, massive, well graded, brown, subangular gravel			
7.5	- from 7.00 to 8.00 m, loose gravel, matrix washed			

Elevation (m): 918, 917, 916, 915, 914, 913, 912



TETRA TECH

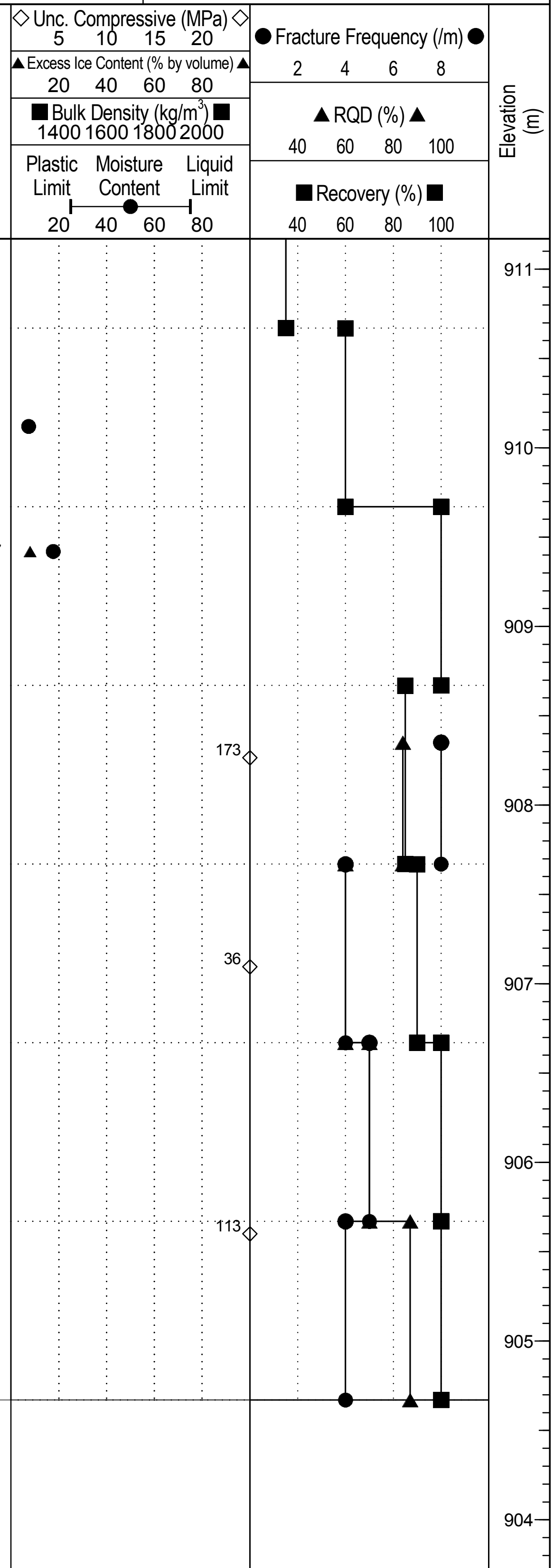
Contractor: Cyr Drilling	Completion Depth: 14 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 25
Logged By: JGD/EP	Completion Date: 2016 September 26
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-57**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 918.67 m
Coffee Creek, Yukon	UTM: 582158 E; 6973904 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
7.5	Diamond drill	away, only large gravel sized particles recovered			R9	
8						
		No recovery	Vc, Vx 5%		R10 57-S7	7.4
		GRAVEL - sandy, trace silt, massive, well graded, brown, subangular gravel				
9		- from 8.00 to 8.50 m, poor recovery, matrix washed away during drilling, only gravel sized particles recovered				
		- some silt, orangey brown			57-S8	17.7
		No recovery			R11	
		SAND AND SILT - trace clay, massive, grey to dark brown				
10		- gravel sized bedrock				
		GNEISS (BEDROCK) - slightly weathered (W2), massive, very strong (R5), dark grey to greenish black, fine grained, JSN: 2			57-R1 R12	
		- at 10.29, 10.33, 10.48, 10.55 and 10.67 m, inclined joints, undulating, smooth, slight weathering, 10 mm thick silt infill at 10.48				
11		- at 10.75 m, 20 mm thick quartz vein				
		No recovery				
		BIOTITE SCHIST (BEDROCK) - slightly weathered (W2), massive, medium strong (R3), dark grey to greenish black, fine grained, JSN: 2			R13 57-R2	
		- at 11.00 m, more inclined quartz veins				
		- at 11.02 m, inclined joint, undulating, smooth				
12		- from 11.33 to 11.48 and 11.77 to 11.90 m, rubble zones				
		- at 11.65 m, subhorizontal joint, undulating, smooth, slightly weathered (W2)				
		No recovery			R14	
		BIOTITE SCHIST (BEDROCK) - slightly weathered (W2), massive, very strong (R5), dark grey to greenish black, fine grained, JSN: 3				
13		- from 12.00 to 12.16 m, rubble zone			57-R3	
		- at 12.35 m, subhorizontal joint, undulating, smooth, slightly weathered (W2)				
		- at 12.46, 12.57 and 12.97 m, inclined joints, undulating, smooth, slightly weathered (W2)			R15	
		- at 13.00 m, JSN: 4				
		- at 13.01 m, very strong (R5)				
14		- at 13.43 and 13.89 m, subhorizontal joint, undulating, smooth				
		- at 13.56 and 13.65 m, inclined joints, undulating to stepped, smooth, slightly weathered (W2)				
		END OF BOREHOLE (14.00 metres)				
15		Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.				



Contractor: Cyr Drilling	Completion Depth: 14 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 25
Logged By: JGD/EP	Completion Date: 2016 September 26
Reviewed By: VER	Page 2 of 2

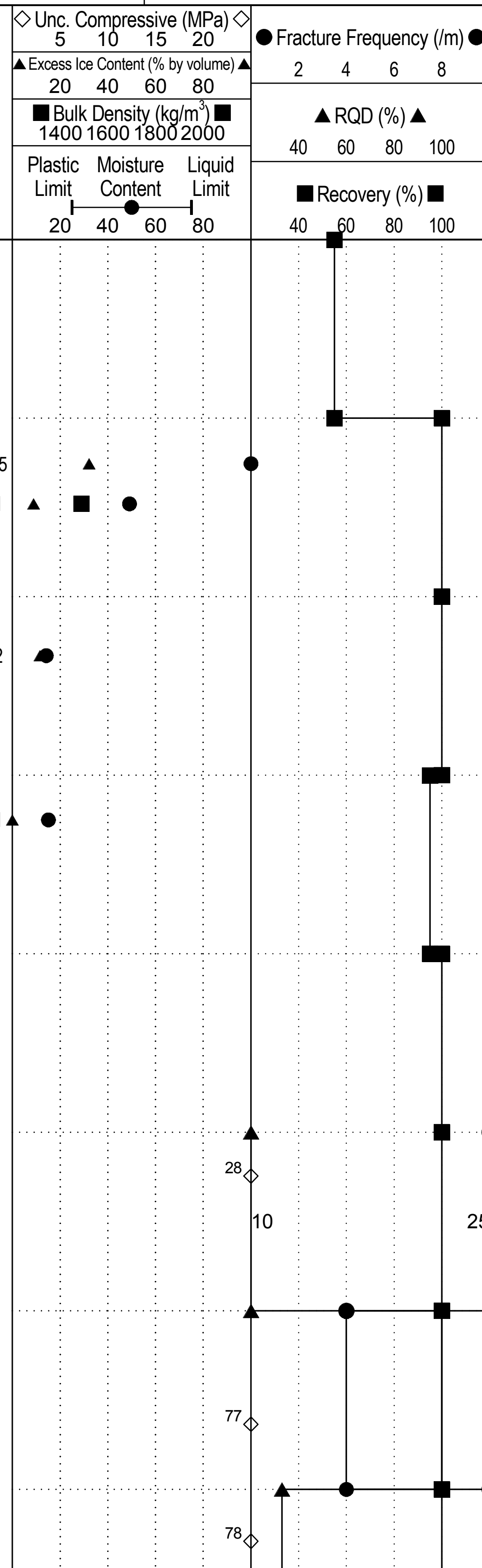
TETRA TECH

Borehole No: **GT-58**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 901.44 m
Coffee Creek, Yukon	UTM: 582205 E; 6973942 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond drill	MOSS - organics, fine fibrous, black, (100 mm thick)	Thawed			
		No recovery			R1	
		SILT - sandy, organics, rootlets, fine fibrous	Nbe			
		SAND AND GRAVEL - silty, trace clay, massive, grey, subangular gravel	Vc 3%			
1		SAND - silty, trace clay, trace gravel, organics, massive, black to grey, subangular gravel	Vx, Vc, Vs 5%		58-S1	177.5
					58-S2	49.1
					R2	
		- from 1.71 to 1.88 m, cobble (granite)	3 mm thick clear ice lens			
2		GRAVEL AND SAND - silty, trace clay, massive, grey, subangular gravel	Vc, Vx 3-5%			
			Vc, Vx 10%		58-S3	14.2
					R3	
3					58-S4	
			Vc, Vx 3%		58-S5	15.1
					R4	
		- from 3.55 to 3.74 and 3.81 to 3.95 m, ice shattered cobbles (granite)				
4		No recovery				
		GRAVEL AND SAND - silty, trace clay, massive, grey, subangular gravel - from 4.00 to 4.55 m, frost shattered rock			R5	
		BIOTITE SCHIST (BEDROCK) - highly weathered (W4), massive, medium strong (R3), grey, pink and white, fine to medium grained				
5		- at 5.00 m, slightly weathered (W2), light pink to dark grey			58-R1	
					R6	
		- from 5.59 to 5.66 m, quartz vein - from 5.66 to 5.78 m, rubble zone, ~25 inclined joints, undulating, smooth, some slight light green weathering				
6		- at 6.00 m, dark grey to green, JSN: 4 - at 6.23 and 6.53 m, inclined joints, undulating, rough, oxidized, slight silt infill	~3 mm thick clear ice lens along joint		R7	
		- at 6.55 m, strong (R4)			58-R2	
		- at 6.70 and 6.91 m, subhorizontal joints, undulating, rough, slight silt infill				
7		- at 7.00 m, JSN: 9 - from 7.00 to 7.10 and 7.78 to 8.00 m, subvertical joints, undulating, smooth, slight oxidization			58-R3	
7.5						



Elevation (m): 901, 900, 899, 898, 897, 896, 895, 894

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 26
Logged By: EP	Completion Date: 2016 September 26
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-58**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 901.44 m
Coffee Creek, Yukon	UTM: 582205 E; 6973942 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Unc. Compressive (MPa) 5 10 15 20 / Excess Ice Content (% by volume) 20 40 60 80 / Bulk Density (kg/m³) 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
7.5		- at 7.07, 7.40, 7.41, 7.45, 7.55, 7.63 and 7.71 m, subhorizontal joints, undulating, rough to smooth, slight oxidization - at 7.22 and 7.76 m, inclined joints, undulating, smooth, slight oxidization			R8				
8		END OF BOREHOLE (8.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							893
9									892
10									891
11									890
12									889
13									888
14									887
15									

TETRA TECH

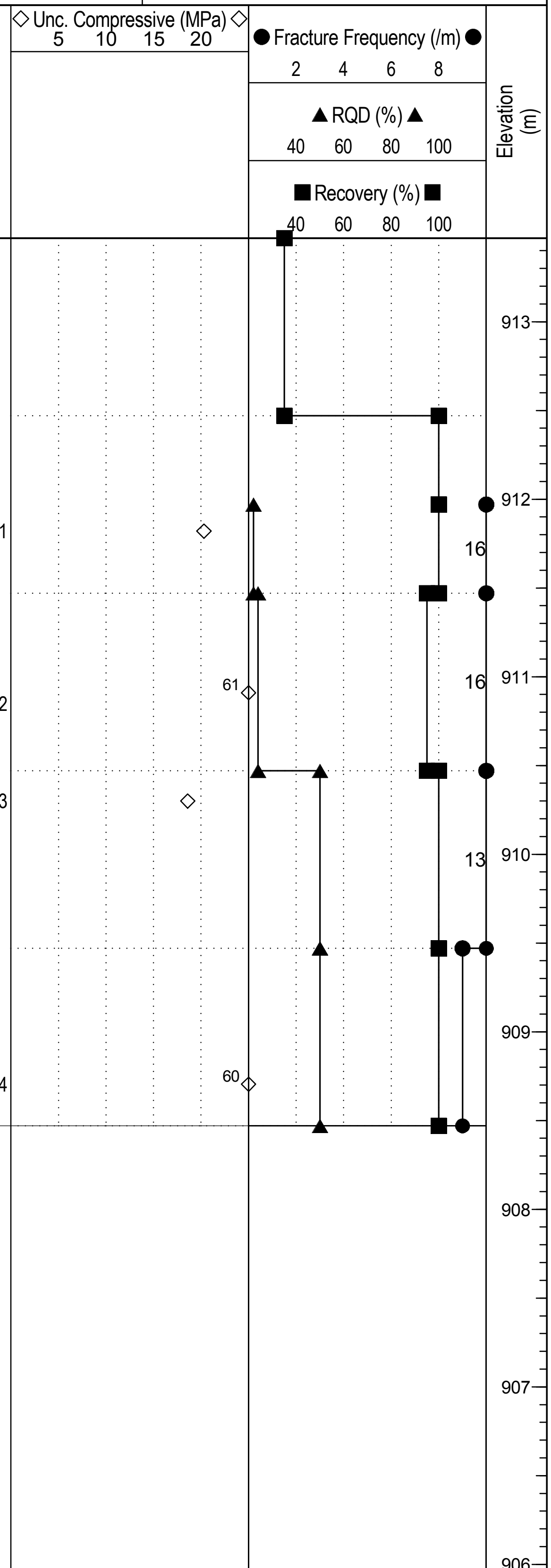
Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 26
Logged By: EP	Completion Date: 2016 September 26
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-59**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 913.47 m
Coffee Creek, Yukon	UTM: 582239 E; 6973971 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number
0	Diamond drill	ORGANICS - roots, wood chips, coarse fibrous, (100 mm thick)	Thawed		
		SAND AND GRAVEL - some silt, massive, well graded, brown, subangular gravel			R1
1		BIOTITE SCHIST (BEDROCK) - moderately weathered (W3), medium strong (R3), light pink, light grey and black, fine to medium grained, JSN: 6	Frozen - ice in rock joints		R2
		- at 1.03 m, inclined joint, undulating, smooth, silt, sand and ice infill			
		- at 1.10 m, inclined joint, undulating, rough, silty sand and ice infill			59-R1
		- at 1.14 m, inclined joint, undulating, smooth, silty sand and ice infill			R3
2		- at 1.18 m, inclined joint, undulating, rough, oxidized			
		- at 1.30 m, highly weathered (W4), weak (R2)			
		- from 1.30 to 1.50 m, rubble zone			R4
		- at 1.50 m, JSN: 3			59-R2
		- at 1.60 m, moderately weathered (W3), weak (R2)			
3		- at 1.60 m, inclined joint, undulating, smooth, oxidized			
		- at 1.72 m, inclined joint, undulating, smooth, oxidized, silty sand and ice infill			59-R3
		- at 1.78 m, inclined joint, undulating, smooth, oxidized			
		- at 1.80 m, inclined joint, undulating, smooth, oxidized, clear ice infill			R5
		- at 1.85 m, inclined joint, undulating, rough, oxidized, sand infill			
4		- at 1.89 and 1.96 m, inclined joints, undulating, smooth, oxidized			
		- at 2.08 m, inclined joint, undulating, smooth, oxidized			
		- at 2.13 m, inclined joint, undulating, smooth, weathered, silty sand and ice infill			R6
		- at 2.15 m, inclined joint, undulating, smooth, oxidized, slight sand infill			59-R4
5		- at 2.20 and 2.24 m, inclined joints, undulating, rough, oxidized			
		- at 2.25 m, inclined joint, undulating, smooth, oxidized, slight sand infill			
		- at 2.35 m, inclined joint, undulating, smooth, oxidized			
		- at 2.39 m, inclined joint, undulating, smooth, weathered infill			
		- at 2.42 m, inclined joint, undulating, smooth, oxidized			
6		- at 2.44 m, inclined joint, undulating, smooth, 3 mm thick ice infill			
		- at 2.48 m, inclined joint, undulating, smooth, oxidized, ice infill			
		- from 2.52 to 2.85 m, pink, grey and white inclusions, strong (R4)			
		- at 2.52, 2.62, 2.77 and 2.86 m, inclined joints, undulating, smooth, oxidized			
7		- at 2.91 m, inclined joint, undulating, rough, oxidized			
		- at 3.00 m, JSN: 6			
		- at 3.11 m, inclined joint, undulating, rough, oxidized			
7.5		- at 3.24 m, inclined joint, undulating, rough, slightly oxidized			



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 27
Logged By: JGD	Completion Date: 2016 September 27
Reviewed By: VER	Page 1 of 2

GOLDCORP

Borehole No: **GT-59**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 913.47 m
Coffee Creek, Yukon	UTM: 582239 E; 6973971 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	◇ Unc. Compressive (MPa) ◇ 5 10 15 20	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		- at 3.31 m, inclined joint, undulating, smooth, oxidized, slight sand infill - at 3.40 m inclined joint, undulating, smooth, slightly oxidized - at 3.54 and 3.62 m, inclined joints, undulating, rough, slightly oxidized - at 3.65 m, inclined joint, undulating, rough, oxidized, slight sand infill - at 3.67 m, inclined joint, undulating, smooth, oxidized, sand and ice infill - at 3.81 m, inclined joint, undulating, smooth, oxidized, sand infill - at 3.88 m, inclined joint, undulating, rough, slightly oxidized - at 3.92 m, inclined joint, undulating, smooth, slightly oxidized - at 3.96 m, inclined joint, undulating, smooth, oxidized, slight sand infill - at 4.00 m, inclined joint, stepped, smooth, oxidized, slight sand and ice infill - at 4.10 m, inclined joint, undulating, rough, sand infill, rock altered and weak around joint - at 4.20 m, inclined joint, undulating, smooth, oxidized - from 4.20 to 4.26 m, rubble zone, ice in joints - from 4.23 to 4.36 m, pink and white inclusions - at 4.35 m, inclined joint, undulating, rough, oxidized - at 4.44 and 4.52 m, inclined joints, undulating, smooth, oxidized - at 4.61 m, inclined joint, undulating, smooth, slightly oxidized - at 4.70 m, inclined joint, undulating, smooth, oxidized, silty sand infill - at 4.88 m, inclined joint, undulating, smooth, completely weathered, silty sand infill, rock altered and weak around joint END OF BOREHOLE (5.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.						
8								905
9								904
10								903
11								902
12								901
13								900
14								899
15								

TETRA TECH

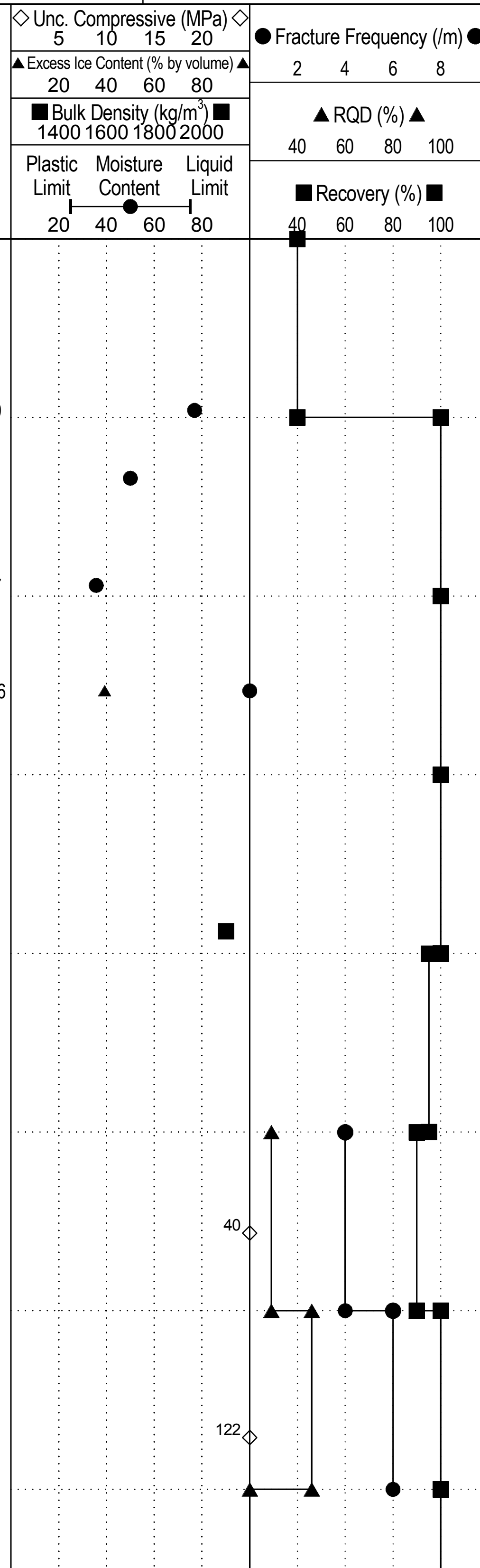
Contractor: Cyr Drilling	Completion Depth: 5 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 27
Logged By: JGD	Completion Date: 2016 September 27
Reviewed By: VER	

GOLDCORP

Borehole No: **GT-60**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 895.08 m
Coffee Creek, Yukon	UTM: 582181 E; 6973978 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
0	Diamond drill	ORGANICS - rooty, fine to coarse fibrous, dark brown, (100 mm thick)	Thawed				895
		No recovery			R1		
		COBBLE - frost shattered, dark grey					
1		SILT (ORGANIC) - trace sand, trace gravel, roots, dark brown, inclusions, fine gravel - at 1.00 m, gravel chips - at 1.10 m, some sand - at 1.55 m, 80 mm diameter cobble	Frozen, Nbe		60-S1	76.9	894
					60-S2	50	
					R2		
2		SAND AND GRAVEL - silty, massive, well graded, dark grey and brown, subangular gravel	Vx, Vc 10-15%		60-S3	35.7	893
		SILT (ORGANIC) AND PEAT - fine fibrous, dark brown	Vs, Vr 40%		R3	177.6	
		SAND AND GRAVEL - silty, massive, well graded, brown grey, subangular gravel - at 3.31 m, 75 mm diameter cobble	Vx, Vc 10-15%		60-S4 60-S5		
3							892
					R4		
			Ice inclusion - 10 mm thick clear ice 5 mm thick clear ice coating on particles		60-S6		
4		GRAVEL - some sand, some silt					891
					R5		
		No recovery					
5		BIOTITE SCHIST (BEDROCK) - moderately weathered (W3), medium strong to strong (R3-R4), black grey, pink and white inclusions, coarse grained - from 5.00 to 5.17 m, rubble zone - at 5.00 m, medium strong (R3), JSN: 6 - from 5.28 to 5.42 m, rubble zone - at 5.60 m, inclined joint, undulating, rough, silty sand infill - from 5.75 to 6.00 m, rubble zone	Ice coatings on fracture surfaces in rubble zones		R6 60-R1		890
6		No recovery					889
		BIOTITE SCHIST (BEDROCK) - slightly weathered (W2), medium strong (R3), black grey, pink and white inclusions, coarse grained - at 6.10 m, inclined joint, undulating, rough, slight sand infill - from 6.10 to 6.34 m, rubble zone, silty sand and ice infill - at 6.42 m, inclined, silty sand infill, frozen shut - st 6.50 m, inclined joint, undulating, rough	3 mm thick clear ice		R7 60-R2		
7							888
7.5							



TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 25
Logged By: JGD	Completion Date: 2016 September 25
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-60**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 895.08 m
Coffee Creek, Yukon	UTM: 582181 E; 6973978 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Unc. Compressive (MPa) 5 10 15 20 / Excess Ice Content (% by volume) 20 40 60 80 / Bulk Density (kg/m³) 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
7.5–8		- at 6.65 m, very strong (R5) - at 6.80 m, subvertical joint, undulating, rough - from 6.68 to 7.00 m, rubble zone - silty sand infill - at 7.00 m, JSN: 3 - at 7.13 m, 3 mm thick quartz vein - at 7.16 m, 10 mm thick quartz vein - from 7.21 to 7.65 m, subvertical fracture, inclined fractures typically have ice infill, oxidized - at 7.81 m, strong (R4)			R8 60-R3		76		887
9		END OF BOREHOLE (8.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							886
10									885
11									884
12									883
13									882
14									881
15									

TETRA TECH

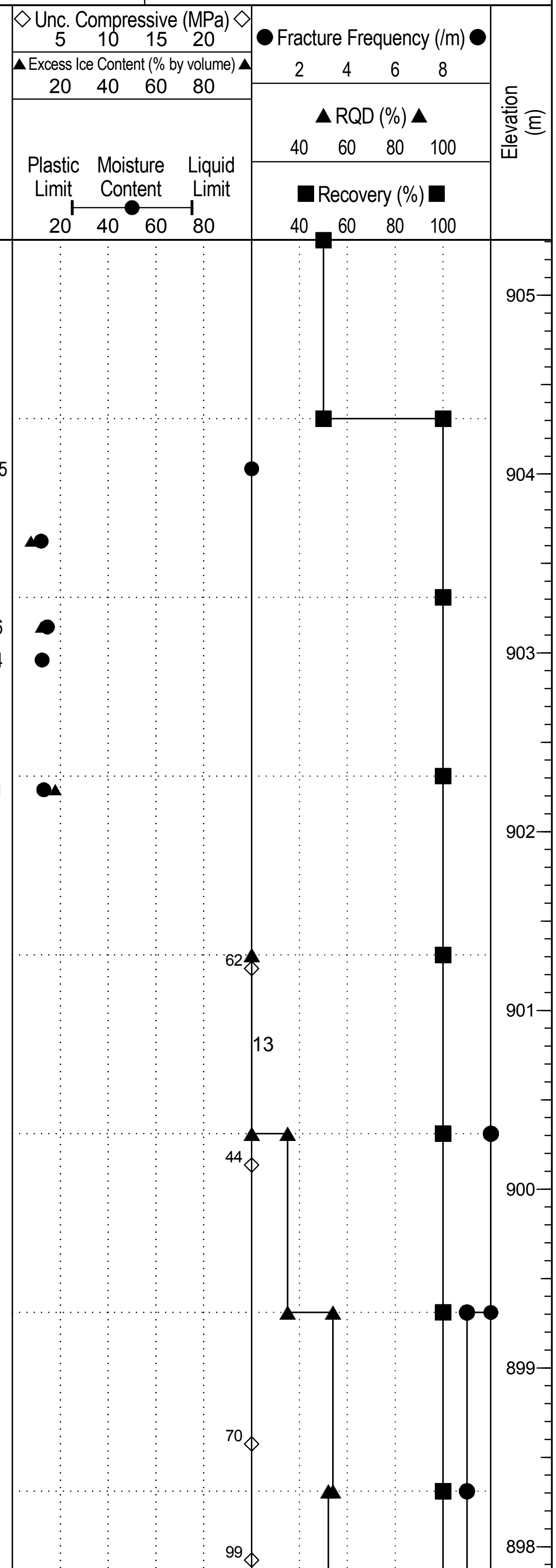
Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 25
Logged By: JGD	Completion Date: 2016 September 25
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-61**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 905.31 m
Coffee Creek, Yukon	UTM: 582217 E; 6973922 N; Z 7

GOLDCORP

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	Diamond drill	MOSS - organics, roots, rootlets, fine to coarse fibrous, black, (150 mm thick)	Frozen, Vx, Vc 1-3%, ice coatings on gravel		
		PEAT AND SAND - silty, some gravel, fine fibrous, black, subangular gravel		R1	
		No recovery			
1		PEAT AND SAND - silty, some gravel, fine fibrous, black, subangular gravel		61-S1	155.5
		GRAVEL AND SAND - some silt, massive, well graded, dark grey, subangular gravel (granite)	Vc, Vx 3%	R2	
				61-S2	12
2			Vc, Vs 10-15%, Clear ice coatings to 3 mm thick	61-S3	14.6
				61-S4	12.4
				R3	
3				61-S5	13.1
				R4	
				61-S6	
4		BIOTITE SCHIST (BEDROCK) - highly weathered (W4), strong (R4), light pink, grey and black, fine to medium grained, frozen - numerous fractures infilled with silt and sand, some 1 mm thick ice lenses		61-R1	
				R5	
5		- at 4.90 m, moderately weathered (W3), less silt and sand infill - at 5.00 m, slightly weathered (W2), JSN: 2 - at 5.06, 5.10, 5.45, 5.54, 5.67, 5.71, 5.73, 5.76, 5.86 and 5.91 m, inclined joints, undulating, smooth, very slight weathering, some have little silt infill - at 5.10 m, medium strong (R3) - at 5.50 m, grey to dark blue, slight banding of quartz veins, fine to medium grained		61-R2	
				R6	
6		- at 6.00 m, JSN: 4 - at 6.06, 6.12, 6.22, 6.31, 6.39, 6.46 and 6.65 m, inclined joints, undulating, smooth, no visible staining or weathering - at 6.65 m, strong (R4) - at 6.82 and 6.85 m, subhorizontal joints, undulating, smooth, no visible staining or weathering		R7	
				61-R3	
7		- at 7.00 m, JSN: 2 - at 7.11, 7.27, 7.29, 7.33, 7.44, 7.58, 7.75, 7.86 and 7.94 m, inclined joints, undulating, smooth, slight		61-R4	
7.5					



Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 29
Logged By: EP	Completion Date: 2016 September 29
Reviewed By: VER	Page 1 of 2

TETRA TECH

GOLDCORP

Borehole No: **GT-61**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, West Pond	Ground Elev: 905.31 m
Coffee Creek, Yukon	UTM: 582217 E; 6973922 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		weathered, greenish alteration			R8				
		- at 7.86 m, 10 mm thick gouge, silt and ice infill on joint							
8		END OF BOREHOLE (8.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							897
9									896
10									895
11									894
12									893
13									892
14									891
15									

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 29
Logged By: EP	Completion Date: 2016 September 29
Reviewed By: VER	Page 2 of 2

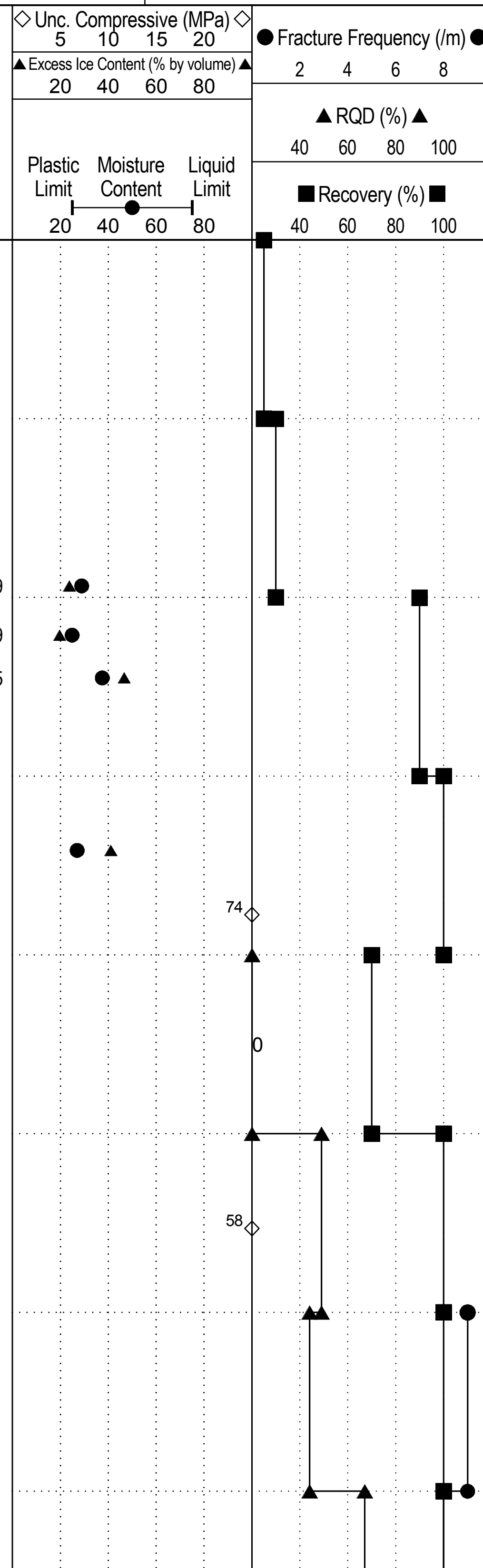
Borehole No: **GT-62**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1020.93 m
Coffee Creek, Yukon	UTM: 581259 E; 6973183 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)	Elevation (m)
0	MOSS - organics, roots, fine to coarse fibrous, (120 mm thick)	Thawed			
	GRAVEL - loose, matrix washed away during drilling				
	No recovery		R1		
1	GRAVEL - loose, matrix washed away during drilling				1020
	No recovery		R2		
2	SAND - silty, some gravel, trace clay, massive, well graded, grey, subangular gravel	Frozen, Vs, Vc, Vx 20-25%, ~3-4 mm thick clear subhorizontal ice lenses	62-S1	28.9	1019
	SAND AND GRAVEL - some silt, massive, well graded, dark grey to black, subangular gravel - from 2.10 to 2.20 and 2.50 to 2.62 m, granite cobble	Vs, Vr, Vx, Vc 40%, 1-7 mm thick clear ice lenses 30 mm thick clear ice inclusions on base of granite cobble	62-S2 62-S3 R3	24.9 37.5	
3	No recovery				1018
	SAND AND GRAVEL - silty, trace clay, massive, well graded, dark grey to black, subangular gravel				
	GRAVEL AND SAND - trace to some silt, well graded, brownish, subangular to angular gravel	Vs, Vx, Vr, Vc 40%, 5-10 mm thick clear ice lenses and coatings on gravel, ice inclusions to 10 mm thick	62-S4 R4 62-R1	27	
4	GRANITE (BEDROCK) - moderately weathered (W3), strong (R4), light pink, grey, black and white, coarse grained - at 4.50 m, completely weathered (W5), very weak to weak (R1-R2)		R5		1017
	No recovery				1016
5	GRANITE (BEDROCK) - highly weathered (W4), medium strong (R3), light pink, grey, black and white, some ice infill in joints, coarse grained - from 5.40 to 5.89 m, strong (R4)		R6 62-R2		
6	- at 6.00 m, moderately weathered (W3), JSN: 4 - at 6.10 and 6.20 m, subhorizontal joints, undulating, smooth, oxidized - at 6.25, 6.48, 6.55, 6.82, 6.90 and 6.93 m, inclined joints, undulating, smooth, oxidized, silt infill		R7		1015
7	- from 6.95 to 7.00 m, rubble zone - at 7.00 m, JSN: 2 - at 7.03, 7.10, 7.17, 7.33, 7.38, 7.43, 7.55 and 7.98 m, inclined joints, undulating, smooth, oxidized,	3 mm thick ice lens in joint			1014
7.5					



Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 22
Logged By: EP/JGD	Completion Date: 2016 September 22
Reviewed By: VER	Page 1 of 2

TETRA TECH

GOLDCORP

Borehole No: **GT-62**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1020.93 m
Coffee Creek, Yukon	UTM: 581259 E; 6973183 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		slight silt infill			R8 62-R3				
8		END OF BOREHOLE (8.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							1013
9									1012
10									1011
11									1010
12									1009
13									1008
14									1007
15									1006

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 8 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 22
Logged By: EP/JGD	Completion Date: 2016 September 22
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-63**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1028.67 m
Coffee Creek, Yukon	UTM: 581284 E; 6973177 N; Z 7

Column headings: Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20; ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80; ■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000; Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8; ▲ RQD (%) ▲ 40 60 80 100; ■ Recovery (%) ■ 40 60 80 100 | #TS4134 | Elevation (m)

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	PEAT - roots, coarse fibrous, wet, dark brown to black, (100 mm thick)	Thawed		
	No recovery		R1	
1	SAND AND GRAVEL (COLLUVIUM) - silty, trace clay, well graded, brown, subangular gravel to 60 mm diameter			
	No recovery		R2	
2	SAND AND GRAVEL (COLLUVIUM) - silty, trace clay, well graded, brown, subangular gravel to 60 mm diameter	Frozen, Vx, Vr, Vc 5%	63-S1	
	- at 2.20 m, more gravel		R3	
3	GRANITE (BEDROCK) - completely weathered (W5), very weak (R1), light pink, medium to coarse grained, ice and silt infill in fractures		63-S2	13.6
	- at 3.55 m, highly weathered (W4)		R4	
4	- at 4.00 m, moderately weathered (W3), medium strong (R3)	15 mm thick ice lens in fracture		
		10 mm thick ice lens in fracture		
	- at 4.52 m, strong (R4)	10 mm thick ice lens in fracture	R5, 63-R1	
		15 mm thick ice lens in fracture		
5	- at 5.00 m, JSN: 6	15 mm thick ice lens in fracture		
	- at 5.09 m, inclined joint, undulating, smooth, oxidized			
	- at 5.40 m, subhorizontal joint, undulating, rough, silt/sand and ice infill		R6	
	- at 5.58 m, inclined joint, undulating, smooth, oxidized			
	- from 5.58 to 5.80 m, rubble zone - rubble to 40 mm diameter			
6	- at 6.00 m, JSN: 9, silt/sand and ice infill in joints		R7	
	- at 6.60 m, weak (R2), white, oxidized on core surface			
	- at 6.68 m, inclined joint, undulating, smooth, oxidized, silt/sand and ice infill			
7	- at 6.74 m, subhorizontal joint, undulating, smooth, oxidized, ice on joint surface			
7.5	- at 6.81 m, inclined joint, undulating, smooth,			

Plot values: Unc. Compressive 84 (at about 4.6 m); RQD values 0 (at about 3.5 m), 15 (at about 6.5 m), 0 (at 7.5 m).

Elevation (m): 1028, 1027, 1026, 1025, 1024, 1023, 1022

TETRA TECH

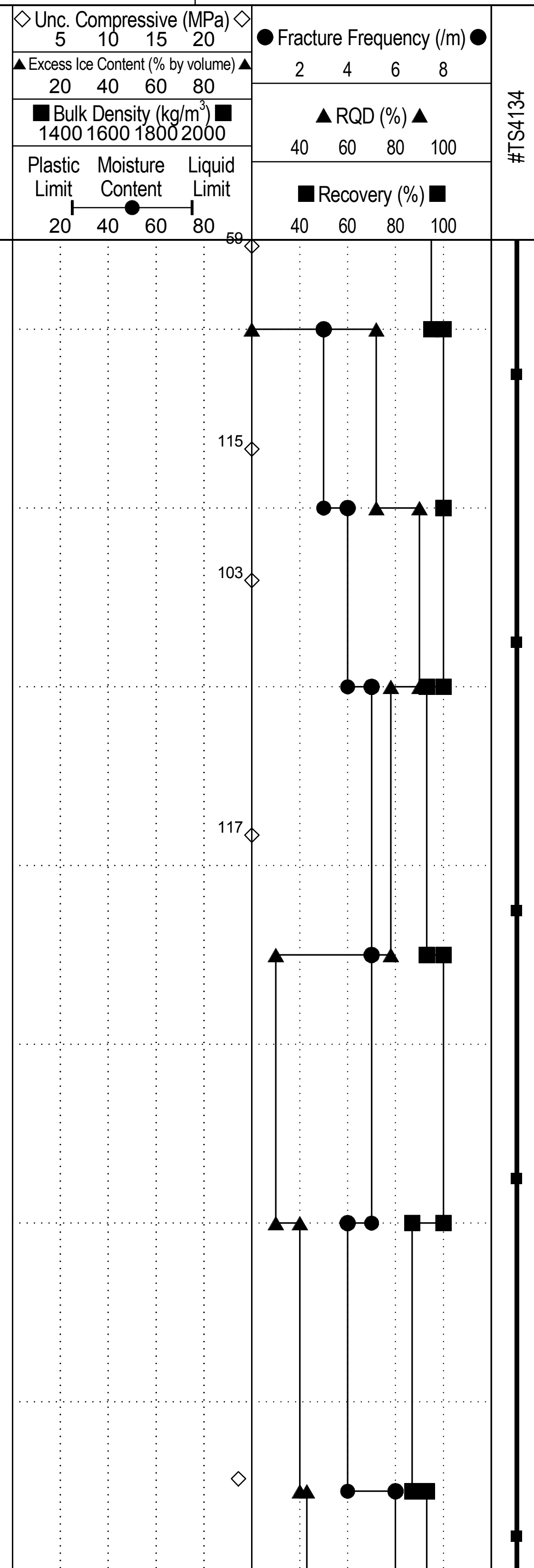
Contractor: Cyr Drilling	Completion Depth: 21.2 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 23
Logged By: EP/JGD	Completion Date: 2016 September 23
Reviewed By: VER	

GOLDCORP

Borehole No: **GT-63**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1028.67 m
Coffee Creek, Yukon	UTM: 581284 E; 6973177 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
7.5	Diamond drill	oxidized, silt/sand and ice infill - at 7.00 m, highly weathered (W4) - at 7.41 m, strong (R4)			R8 63-R2		1021
8		- at 8.00 m, JSN: 3 - at 8.27 m, moderately weathered (W3), medium strong (R3), more competent - at at 8.27 m, subhorizontal joint, undulating, smooth, oxidized, sand and ice infill - at 8.60 and 8.76 m, inclined joints, undulating, smooth, oxidized			R9 63-R3		1020
9		- at 8.85 m, very strong (R5) - at 9.00 m, heavily oxidized, JSN: 4 - at 9.19, 9.60., 9.78 and 9.87 m, inclined joints, undulating, smooth, oxidized			63-R4 R10		1019
10		- at 10.00 m, JSN: 6, less oxidization on surface - at 10.05 m, subhorizontal joint, undulating, smooth, oxidized, slight silt infill - at 10.12 m, subhorizontal joint, undulating, rough, oxidized - at 10.71, 10.78 and 10.93 m, inclined joints, undulating, smooth, oxidized			R11 63-R5		1018
11		- at 11.10 m inclined joint, stepped, smooth, oxidized - at 11.23 m, subhorizontal joint, undulating, rough, oxidized - at 11.50 m, JSN: 6 - at 11.58 m, inclined joint, undulating, smooth, oxidized, slight silt infill - at 11.67 m, inclined joint, undulating, rough, oxidized					1017
12		- -at 11.69 m, highly weathered (W4), weak (R2) - from 11.76 to 12.13 m, subvertical joint, undulating, smooth, oxidized - at 11.98 m, subhorizontal joint, undulating, smooth, oxidized, slight silt/sand infill - at 12.19 m, inclined joint, undulating, smooth, oxidized, slight silt infill - at 12.50 m, inclined joint, undulating, smooth, oxidized			R12 63-R6		1016
13		- from 12.60 to 13.30 m, rubble zone, granite rubble to 60 mm diameter - at 13.00 m, moderately weathered (W3), medium strong (R3) - at 13.30 m, inclined joint, undulating, smooth, oxidized, silt infill - at 13.42 m, inclined joint, undulating, rough, silty sand infill			R13 63-R7		1015
14		- from 13.50 to 13.90 m, rubble zone - at 14.19 m, inclined joint, undulating, smooth, oxidized, coarse sand					1014
15							



Contractor: Cyr Drilling	Completion Depth: 21.2 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 23
Logged By: EP/JGD	Completion Date: 2016 September 23
Reviewed By: VER	Page 2 of 3

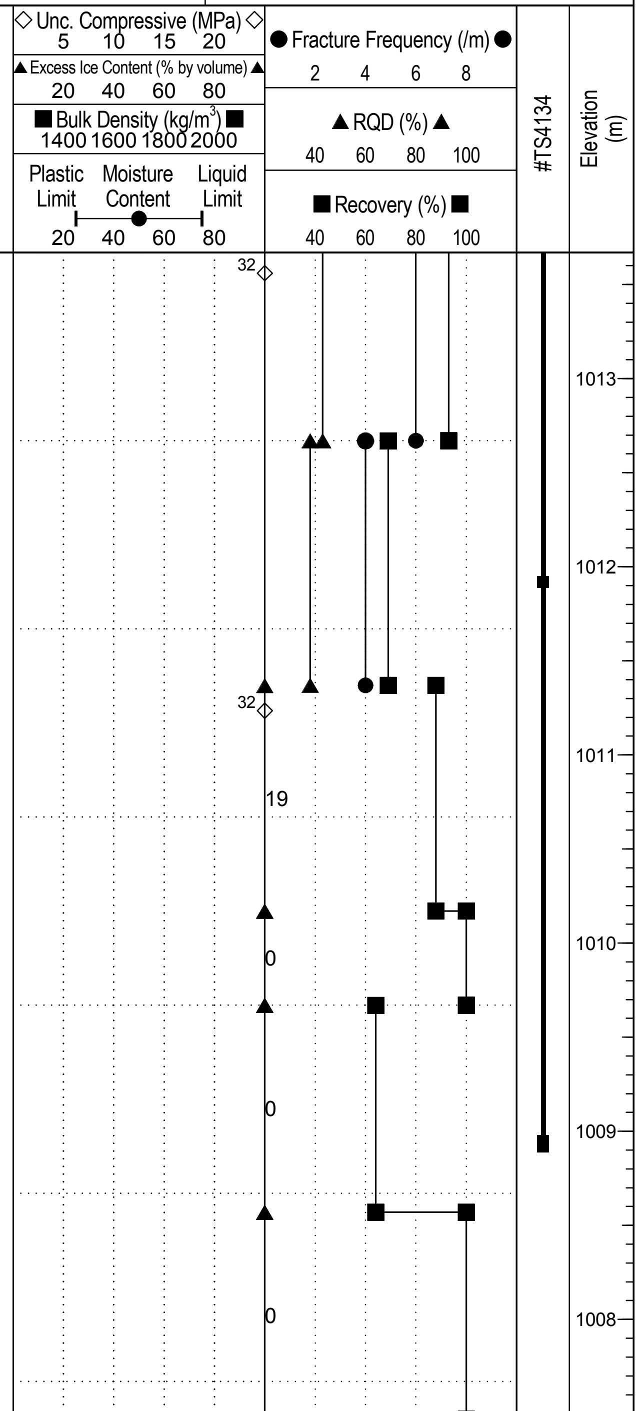
TETRA TECH

Borehole No: **GT-63**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1028.67 m
Coffee Creek, Yukon	UTM: 581284 E; 6973177 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
15	Diamond drill	- at 14.36 m, weak (R2) - at 14.55, 14.68 and 14.97 m, inclined joints, undulating, smooth, oxidized - at 15.00 m, medium strong (R3) - from 15.17 to 15.32 m, rubble zone, sand to gravel sized particles - 15.40 m, inclined joint, undulating, smooth, oxidized, silt/sand infill - at 15.43 m, inclined joint, undulating, smooth, oxidized, silt infill			63-R8 R14		1013
16		GNEISS (BEDROCK) - moderately weathered (W3), strong (R4), blue grey, banded, fine grained - from 15.67 to 16.25 m, rubble zone - at 16.42 m, inclined joint, undulating, smooth, oxidized, slight silt infill - at 16.60 m, inclined joint, undulating, rough, oxidized, silt and sand infill - from 16.80 to 16.90 m, rubble zone, sand to gravel sized particles			63-R9 R15		1012
17		No recovery			63-R10		1011
18		GRANITE (BEDROCK) - highly weathered (W4), medium strong (R3), light pink, dark grey and black, highly fractured, fine to medium grained			R16		
		No recovery					1010
19		GRANITE (BEDROCK) - highly weathered (W4), medium strong (R3), light pink, dark grey and black, highly fractured, fine to medium grained - from 18.50 to 21.20 m, rubble zone			R17 R18		1009
20		No recovery					
21		GRANITE (BEDROCK) - highly weathered (W4), medium strong (R3), light pink, dark grey and black, highly fractured, fine to medium grained			R19		1008
22		END OF BOREHOLE (21.20 metres) GTC #TS4135 installed Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.					1007
22.5							



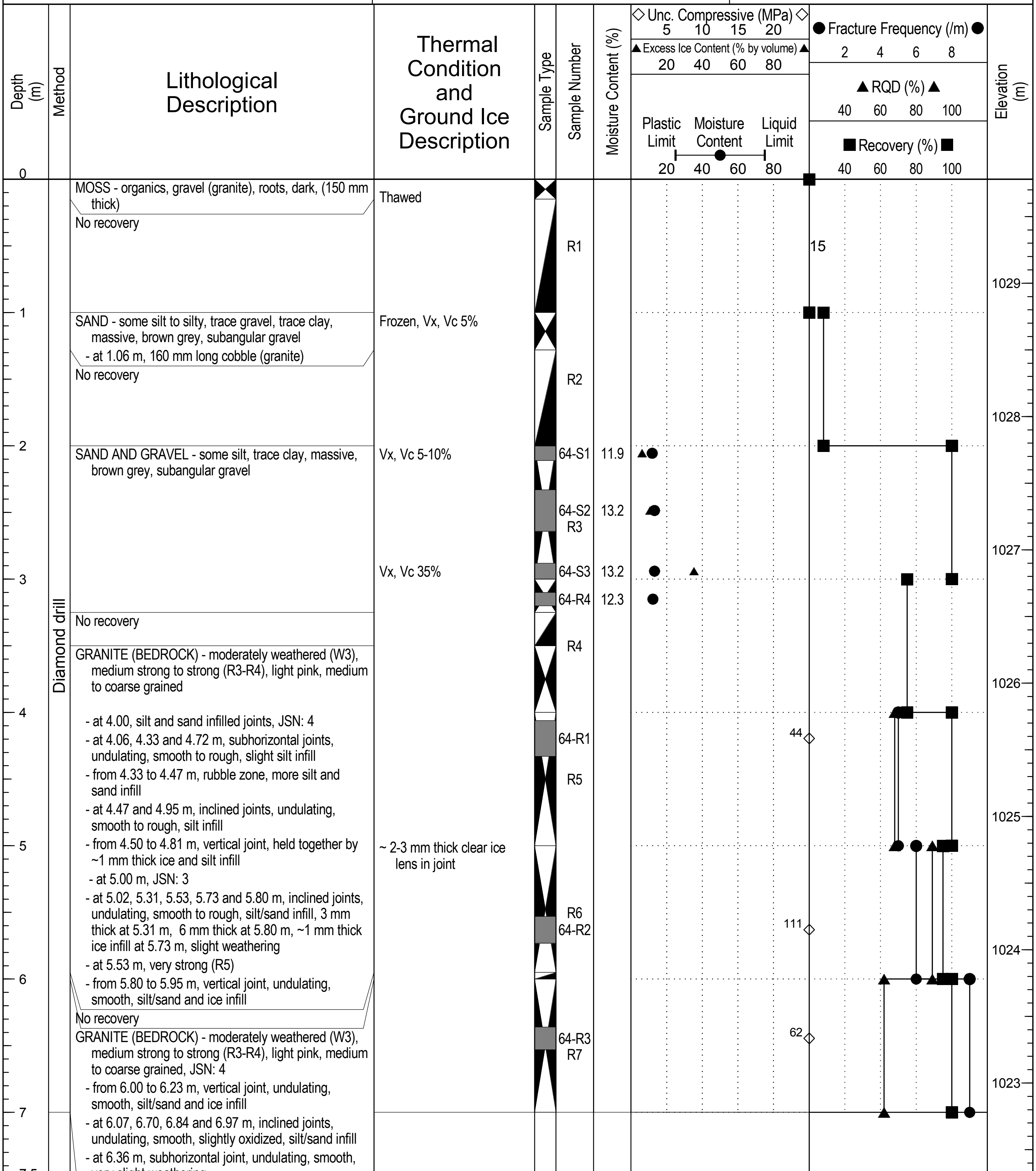
Contractor: Cyr Drilling	Completion Depth: 21.2 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 23
Logged By: EP/JGD	Completion Date: 2016 September 23
Reviewed By: VER	Page 3 of 3

TETRA TECH

Borehole No: **GT-64**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1029.78 m
Coffee Creek, Yukon	UTM: 581213 E; 6973183 N; Z 7



Contractor: Cyr Drilling	Completion Depth: 7 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 20
Logged By: EP/JGD	Completion Date: 2016 September 20
Reviewed By: VER	Page 1 of 2

TETRA TECH

Borehole No: **GT-64**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1029.78 m
Coffee Creek, Yukon	UTM: 581213 E; 6973183 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5		- at 6.36 m, strong (R4) - from 6.70 to 6.84 m, rubble zone, silt and sand infill END OF BOREHOLE (7.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							1022
8									1021
9									1020
10									1019
11									1018
12									1017
13									1016
14									1015
15									

Contractor: Cyr Drilling	Completion Depth: 7 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 20
Logged By: EP/JGD	Completion Date: 2016 September 20
Reviewed By: VER	Page 2 of 2

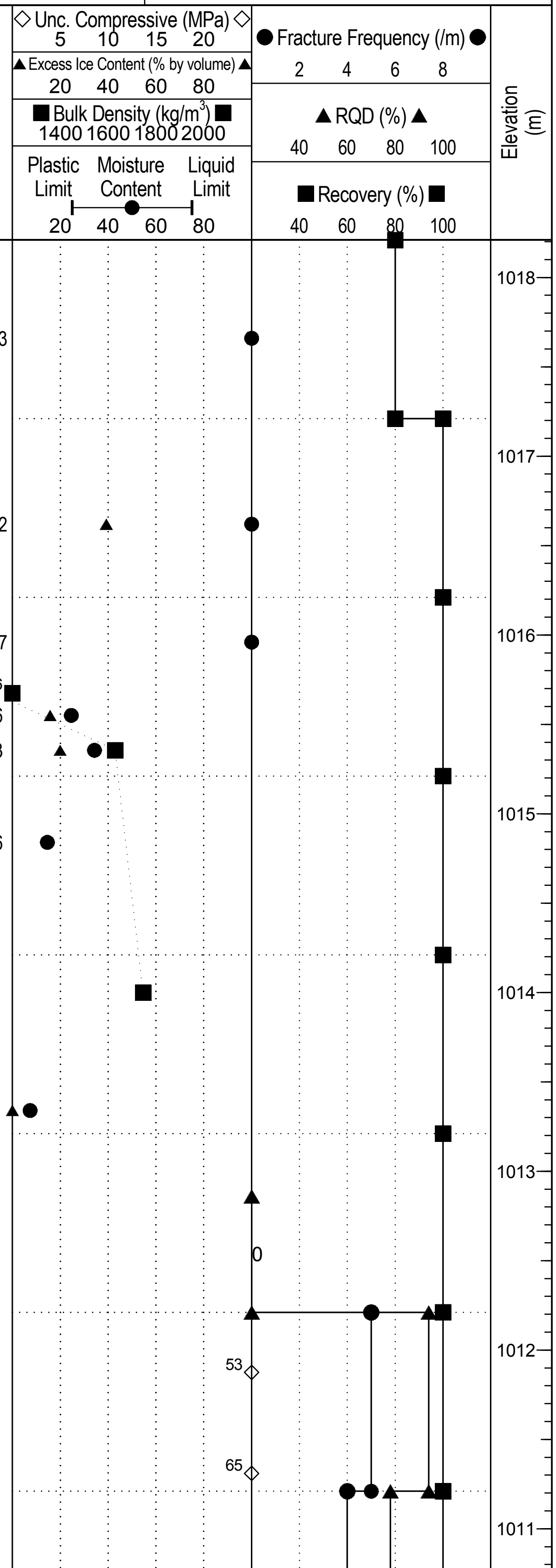
GOLDCORP

Borehole No: **GT-65**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1018.21 m
Coffee Creek, Yukon	UTM: 581245 E; 6973212 N; Z 7

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type / Sample Number	Moisture Content (%)
0	MOSS - roots, (100 mm thick)			
	PEAT - woody, silty, fine fibrous, amorphous granular, brown to black	Frozen, Vs, Vr 10%, < 1 mm thick subvertical and subhorizontal ice lenses	R1 65-S1	204.3
	SAND - silty, grey			
1	No recovery			
	SAND - silty, grey			
	PEAT - woody, silty, some sand, fine fibrous, amorphous granular, brown to black	Vx, Vs 10-15%, 10 mm thick clear subhorizontal ice lens	65-S2	
	GRAVEL AND SAND - some silt, trace clay	Vs, Vx, Vr 40%, very thin inclined ice lenses throughout	R2 65-S3	225.2
2		Two 5 mm thick clear subhorizontal ice lenses 50 mm apart	65-S4	
		Vs, Vx, Vc 15%, 25 mm thick ice inclusion	65-S5	386.7
			R3	1126
	SAND AND GRAVEL - some silt to silty, poorly sorted, grey, subangular gravel	Vc, Vx 10%	65-S8	24.6
			65-S6	
			65-S7	34.3
3	- at 3.00 m, 180 mm thick silt layer	Vx, Vs 10%		
			65-S9	14.6
			R4 65-S10	
4		Vc, Vx, Vs 15%, various ice inclusions and lenses, ice coatings on gravel to 6 mm thick	65-S11	
			R5 65-S12	
			65-S13	7.4
5	- at 5.00 m, larger gravel	25 mm thick clear ice lens at bottom of gravel		
	GRANITE (BEDROCK) - highly weathered (W4), very fractured, silt infilling in joints		R6	
6	- at 6.00 m, pyrite nodules, moderately weathered (W3), strong (R4), JSN: 6			
	- at 6.02 and 6.31 m, inclined joints, undulating, smooth, oxidized, weathering in joints		65-R1	
	- at 6.20 and 6.95 m, subhorizontal joints, undulating, smooth, oxidized, weathering		R7	
			65-R2	
7	- at 7.00 m, subvertical joint, undulating, smooth, oxidized			
7.5	- at 7.00 m, medium strong (R3), JSN: 3			



Contractor: Cyr Drilling	Completion Depth: 9 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 21
Logged By: EP	Completion Date: 2016 September 21
Reviewed By: VER	Page 1 of 2

TETRA TECH

Borehole No: **GT-65**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1018.21 m
Coffee Creek, Yukon	UTM: 581245 E; 6973212 N; Z 7

Depth (m)	Method	Lithological Description	Thermal Condition and Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m^3) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
7.5	Diamond drill	- from 7.23 to 7.70 m, subvertical joint running through - at 7.26, 7.65 and 7.80 m, inclined joints, undulating, smooth, oxidized, weathering - from 7.80 to 8.44 m, rubble zone, joints infilled with clear ice to 4 mm - at 8.44, 8.52, 8.71 and 8.92 m, inclined joints, undulating, smooth, oxidized, weathering, slight silt infill, black coatings on joints - at 8.61 m,subhorizontal joint, undulating, smooth, oxidized, weathering, slight silt infill - at 8.70 m, medium strong (R3)	3 mm thick clear ice in joint		R8 R9 65-R3		30 ◇		1010
9		END OF BOREHOLE (9.00 metres) Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.							1009
10									1008
11									1007
12									1006
13									1005
14									1004
15									

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 9 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 21
Logged By: EP	Completion Date: 2016 September 21
Reviewed By: VER	Page 2 of 2

Borehole No: **GT-66**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1023.37 m
Coffee Creek, Yukon	UTM: 581236 E; 6973166 N; Z 7

Column headings: Depth (m) | Method | Lithological Description | Thermal Condition and Ground Ice Description | Sample Type | Sample Number | Moisture Content (%) | ◇ Unc. Compressive (MPa) ◇ 5 10 15 20 / ▲ Excess Ice Content (% by volume) ▲ 20 40 60 80 / ■ Bulk Density (kg/m³) ■ 1400 1600 1800 2000 / Plastic Limit, Moisture Content, Liquid Limit 20 40 60 80 | ● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100 | Thermistor | Elevation (m)

Method: Diamond drill

Depth (m)	Lithological Description	Thermal Condition and Ground Ice Description	Sample Number	Moisture Content (%)
0	COBBLES AND GRAVEL - granite, moderately weathered (W3), light pink, grey and black, medium to coarse gravel	Thawed	R1	
	No recovery			
1			R2	
2	ICE AND SAND - some gravel, some silt, trace clay, organics, massive, well graded, dark grey, subangular gravel	Frozen, ice ~ 50%	66-S1	
			66-S2	68.5
	- from 2.40 to 2.63 m, cobble (granite)	Vs, Vr, Vc, Vs 30%, subhorizontal clear ice lenses to 7 mm thick, clear ice inclusions to 40 mm thick	R3	
	SAND - some gravel, some silt, trace clay, organics, massive, well graded, dark grey, subangular gravel		66-S3	46.2
3	- at 3.00 m increasing gravel and organics content	Vs, Vr, Vc, Vx 30%	R4	
			66-S4	
4	PEAT - trace sand, trace silt, roots 3-10 mm thick, fine fibrous, black	Vx, Vs, Vr, Vc 30%, subhorizontal clear ice lenses, sections of ice ~10 mm thick	66-S5	136.1
	SILT - some sand, trace clay, trace gravel		R5	
			66-S6	976 68.9
5			66-S7	144.4
	- from 5.41 to 5.45 m, wood chunk		R6	
	- from 5.45 to 5.55 m, more sand and gravel			
6	- at 6.12 m, sandy, some gravel, trace clay	Vs, Vc, Vr, Vx 15%, three ~ 7 mm thick clear inclined ice lenses	66-S8	99.3
	- from 6.40 to 6.47 and 6.95 to 7.00 m, intervals of sand		66-S9	90.6
			R7	
			66-S10	
7	- from 7.07 to 7.10 m, increased sand and gravel	Vx, Vr, Vc, Vs 5-10% 2 mm thick ice coating on gravel		
7.5				

RQD (%) at R1 and R2: 0

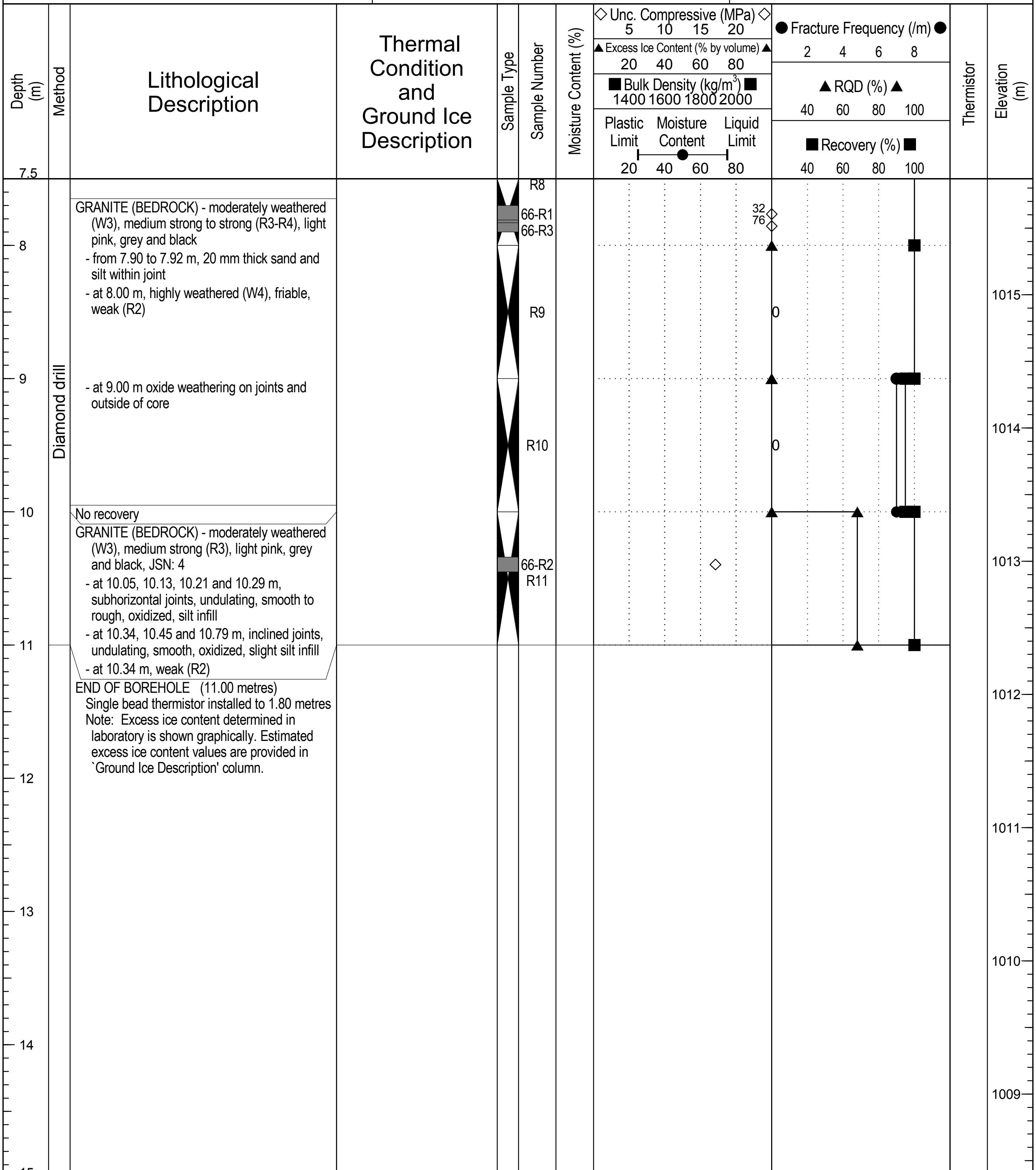
Elevation (m): 1023, 1022, 1021, 1020, 1019, 1018, 1017, 1016

TETRA TECH

Contractor: Cyr Drilling	Completion Depth: 11 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 24
Logged By: EP	Completion Date: 2016 September 24
Reviewed By: VER	Page 1 of 2

Borehole No: **GT-66**

Project: Fall 2016 Geotechnical Investigation	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, Halfway Pond	Ground Elev: 1023.37 m
Coffee Creek, Yukon	UTM: 581236 E; 6973166 N; Z 7



GRANITE (BEDROCK) - moderately weathered (W3), medium strong to strong (R3-R4), light pink, grey and black
- from 7.90 to 7.92 m, 20 mm thick sand and silt within joint
- at 8.00 m, highly weathered (W4), friable, weak (R2)
- at 9.00 m oxide weathering on joints and outside of core

No recovery

GRANITE (BEDROCK) - moderately weathered (W3), medium strong (R3), light pink, grey and black, JSN: 4
- at 10.05, 10.13, 10.21 and 10.29 m, subhorizontal joints, undulating, smooth to rough, oxidized, silt infill
- at 10.34, 10.45 and 10.79 m, inclined joints, undulating, smooth, oxidized, slight silt infill
- at 10.34 m, weak (R2)

END OF BOREHOLE (11.00 metres)
Single bead thermistor installed to 1.80 metres
Note: Excess ice content determined in laboratory is shown graphically. Estimated excess ice content values are provided in `Ground Ice Description' column.

Contractor: Cyr Drilling	Completion Depth: 11 m
Drilling Rig Type: D-10 Diamond Drill	Start Date: 2016 September 24
Logged By: EP	Completion Date: 2016 September 24
Reviewed By: VER	Page 2 of 2

Testpit No: **GT-10**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 972.91 m
Coffee Creek, Yukon	UTM: 585072 E; 6975328 N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - (200 mm thick)		972.9
0.1				972.8
0.2		ORGANICS - silty, wet, black, (100 mm thick), (black muck)		972.7
0.3		SILT - gravel and cobbles disseminated throughout, wet, grey, angular gravel and cobbles		972.6
0.4		END OF TESTPIT (0.4 metres) Note: Refusal on permafrost table. Slow water seepage visible at the bottom of the testpit along the permafrost table, Ice inclusions and ice lenses are visible at the frozen bottom of the testpit.		972.5
0.5				972.4
0.6				972.3
0.7				972.2
0.8				972.1
0.9				972.0
1				

TETRA TECH

Contractor:	Completion Depth: 0.4 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 26
Logged By: RG/VER	Completion Date: 2016 August 26
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-12**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1072.26 m
Coffee Creek, Yukon	UTM: 585731 E; 6975221 N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - roots, (200 mm thick)		
0.1				1072.2
0.2		GRAVEL AND COBBLES - some silt, trace clay, wet, angular gravel and cobbles		1072.1
0.3				1072.0
0.4		END OF TESTPIT (0.4 metres)		1071.9
0.5				1071.8
0.6				1071.7
0.7				1071.6
0.8				1071.5
0.9				1071.4
1				1071.3

TETRA TECH

Contractor:	Completion Depth: 0.4 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 25
Logged By: RG/VER	Completion Date: 2016 August 25
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-13**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1025.99 m
Coffee Creek, Yukon	UTM: 585041 E; 5975116 N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - roots, (250 mm thick)		
0.1				1025.9
0.2				1025.8
		SILT - gravel and cobbles disseminated throughout, angular gravel and cobbles		
0.3				1025.7
0.4				1025.6
		END OF TESTPIT (0.45 metres) Note: Refusal on permafrost table. Slow water seepage visible at the bottom of the testpit along the permafrost table. Visible ice inclusions and lenses.		
0.5				1025.5
0.6				1025.4
0.7				1025.3
0.8				1025.2
0.9				1025.1
1				1025.0

TETRA TECH

Contractor:	Completion Depth: 0.45 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 25
Logged By: RG/VER	Completion Date: 2016 August 25
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-14**

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1082.2 m
Coffee Creek, Yukon	UTM: 585458 E; 6975088 N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - peat, roots, (150 mm thick)		
0.1				1082.1
		GRAVEL AND COBBLES - silty, some clay, wet		
0.2				1082.0
0.3				1081.9
0.4				1081.8
0.5		END OF TESTPIT (0.5 metres) Note: Refusal on cobble or boulder. Slow water seepage visible at the bottom of the testpit.		1081.7
0.6				1081.6
0.7				1081.5
0.8				1081.4
0.9				1081.3
1				1081.2

TETRA TECH

Contractor:	Completion Depth: 0.5 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 25
Logged By: RG/VER	Completion Date: 2016 August 25
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-15**

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North WRSF	Ground Elev: 1081.36 m
Coffee Creek, Yukon	UTM: 585045 E; 6974887 N; Z 7

GOLDCORP

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - (200 mm thick)		
0.1				1081.3
0.2		SILT - organics, trace sand, wet, dark brown		1081.2
0.3				1081.1
0.4				1081.0
				1080.9
0.5		END OF TESTPIT (0.5 metres) Note: Refusal on gravel or cobble material		
0.6				1080.8
0.7				1080.7
0.8				1080.6
				1080.5
0.9				1080.4
1				

TETRA TECH

Contractor:	Completion Depth: 0.5 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 25
Logged By: RG/VER	Completion Date: 2016 August 25
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-49**

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	
Coffee Creek, Yukon	UTM: E; N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Depth (ft)
0	Testpit	MOSS - roots, (200 mm thick)		0
0.2		COBBLES AND BOULDERS - silt and organic matrix (black muck), wet, dark brown to black		
0.4		END OF TESTPIT (0.4 metres) Note: Refusal on permafrost table. Slow water seepage visible at the bottom of the testpit along the permafrost table. Visible ice inclusions and lenses.		

Depth (m) scale: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1

Depth (ft) scale: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2

TETRA TECH

Contractor:	Completion Depth: 0.4 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 26
Logged By: RG/VER	Completion Date: 2016 August 26
Reviewed By: VER	Page 1 of 1

GOLDCORP

Testpit No: **GT-50**

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 906.73 m
Coffee Creek, Yukon	UTM: 585289 E; 6975667 N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - roots, (150 mm thick)		906.7
0.1				906.6
0.2		SILT - organics, trace sand, wet, black		906.5
0.3				906.4
0.4		END OF TESTPIT (0.4 metres) Note: Refusal on permafrost table. Visible ice inclusions and lenses		906.3
0.5				906.2
0.6				906.1
0.7				906.0
0.8				905.9
0.9				905.8
1				

TETRA TECH

Contractor:	Completion Depth: 0.4 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 26
Logged By: RG/VER	Completion Date: 2016 August 26
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-51**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, North Pond	Ground Elev: 909.84 m
Coffee Creek, Yukon	UTM: 585314 E; 6975679 N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Elevation (m)
0	Testpit	MOSS - roots, (150 mm thick)		909.8
0.1				909.7
		PEAT - some silt, wet, black, (200 mm thick)		
0.2				909.6
0.3				909.5
		PEAT AND SILT - dark brownish grey		
0.4		END OF TESTPIT (0.4 metres) Note: Refusal on permafrost table. Slow water seepage visible at the bottom of the testpit along the permafrost table. Visible ice inclusions and lenses.		909.4
0.5				909.3
0.6				909.2
0.7				909.1
0.8				909.0
0.9				908.9
1				

TETRA TECH

Contractor:	Completion Depth: 0.4 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 August 26
Logged By: RG/VER	Completion Date: 2016 August 26
Reviewed By: VER	Page 1 of 1

Testpit No: **GT-54**

GOLDCORP

Project: Fall 2016 Geotechnical Investigation Data Report	Project No: ENG.EARC03004-02
Location: Coffee Mine Site, South Pond	
Coffee Creek, Yukon	UTM: E; N; Z 7

Depth (m)	Method	Soil Description	Notes and Comments	Depth (ft)
0 – 0.2	Testpit	MOSS - organic cover, leaf litter, roots, (200 mm thick)		
0.2 – 0.7	Testpit	SILT AND GRAVEL - trace sand, organic rich, damp, subangular to angular gravel to 200 mm long, unfrozen		
0.7		END OF TESTPIT (0.7 metres) Note: Permafrost Probe tested to 1.1 metres, refusal on gravel, not likely frozen ground.		

Depth (m) scale: 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1

Depth (ft) scale: 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2

TETRA TECH

Contractor:	Completion Depth: 0.7 m
Drilling Rig Type: Hand Shovel	Start Date: 2016 September 18
Logged By: EP	Completion Date: 2016 September 18
Reviewed By: VER	Page 1 of 1

APPENDIX C
OFFSITE GEOTECHNICAL LABORATORY SOIL TEST RESULTS

BULK DENSITY AND ICE CONTENT TEST RESULTS

Project:	Coffee Gold Project - 2016 Geotech. Invest.	Sample No.:	See Below
Project No.:	ENG.EARC03004-02	Date Tested:	November 18, 2016
Client:	Kaminak Gold Corporation	Tested By:	AT/TW
Address:	Coffee Creek	Page:	1 of 1

B.H. & Sample Number	Mass of Sample (g)	Diameter (mm)	Width (mm)	Length (mm)	Bulk Density (kg/m^3)	Height of Supernatant Water (mm)	Height of Saturated Sediment (mm)	Excess Ice Content %
GT10-S3A	107.7	-	-	-	-	7.0	14.0	35.3
GT10-S3B	88.0	-	-	-	-	7.0	23.0	24.9
GT11-S1	561.4	42.4	45.0	293.0	1277.5	6.0	35.0	15.7
GT12-S2	806.4	-	-	-	-	8.0	17.0	33.9
GT13-S7	1057.3	44.1	44.8	225.0	3028.2	0.0	90.0	0.0
GT14-S2	700.1	-	-	-	-	11.0	38.0	24.0
GT14-S3	543.4	-	-	-	-	0.0	55.0	0.0
GT15-S2	422.1	-	-	-	-	10.0	24.0	31.2
GT15-S8	897.4	-	-	-	-	0.0	80.0	0.0
GT16-S2	942.5	-	-	-	-	0.0	81.0	0.0
GT43-S4	574.8	-	-	-	-	17.0	32.0	36.7
GT43-S6	939.5	-	-	-	-	0.0	105.0	0.0
GT45-53	294.4	-	-	-	-	7.0	20.0	27.6
GT45-S5	608.6	-	-	-	-	0.0	40.0	0.0
GT46-S4	1224.7	-	-	-	-	7.0	71.0	9.7
GT46-S8	940.7	-	-	-	-	0.0	70.0	0.0
GT47-S5	1252.4	-	-	-	-	0.0	115.0	0.0
GT47-S19	1149.3	-	-	-	-	0.0	130.0	0.0
GT51-S5	591.3	-	-	-	-	8.0	36.0	19.5
GT57-S7	570.6	-	-	-	-	0.0	55.0	0.0
GT58-S2	736.0	43.2	44.8	325.0	1489.4	5.0	56.0	8.9
GT62-S2	706.2	-	-	-	-	9.0	40.0	19.7
GT64-S2	-	-	-	-	-	7.0	64.0	10.7
GT65-S7	636.0	43.2	44.6	257.7	1630.5	8.0	35.0	19.9
GT66-S6	649.7	43.7	54.0	355.3	975.7	10.0	56.0	16.3

Remarks: ______

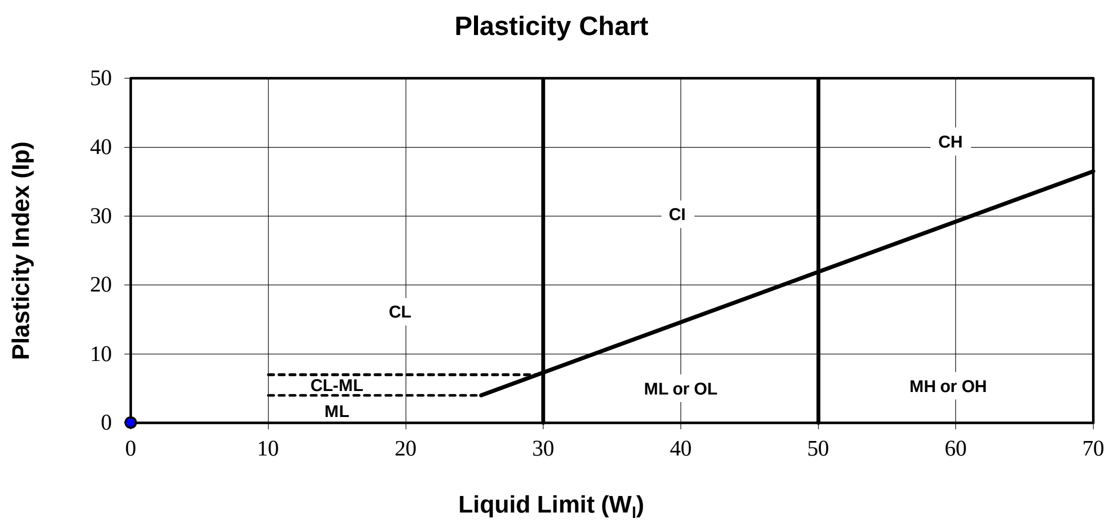
Whitehorse, YT **Reviewed By:** ______ P.Eng.

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample Number:	S3 (A/B)
	Coffee Creek - North WRD	Borehole Number:	GT10
Project No:	ENG.EARC03004-02	Source:	0.80 - 1.05 m
Client:	Kaminak Gold Corporation	Sampled By:	VER Tested By: AMT
Attention:	[name redacted]	Date Sampled:	September 1, 2016
Email:		Date Tested:	November 30, 2016

Sample Description: SILT - some sand, some clay



Liquid Limit ($W_{1)}$:	0	Natural Moisture (%)	98.7
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Material is too silty to perform tests; plastic limit could not be determined.

Reviewed By: ____________________ C.E.T.

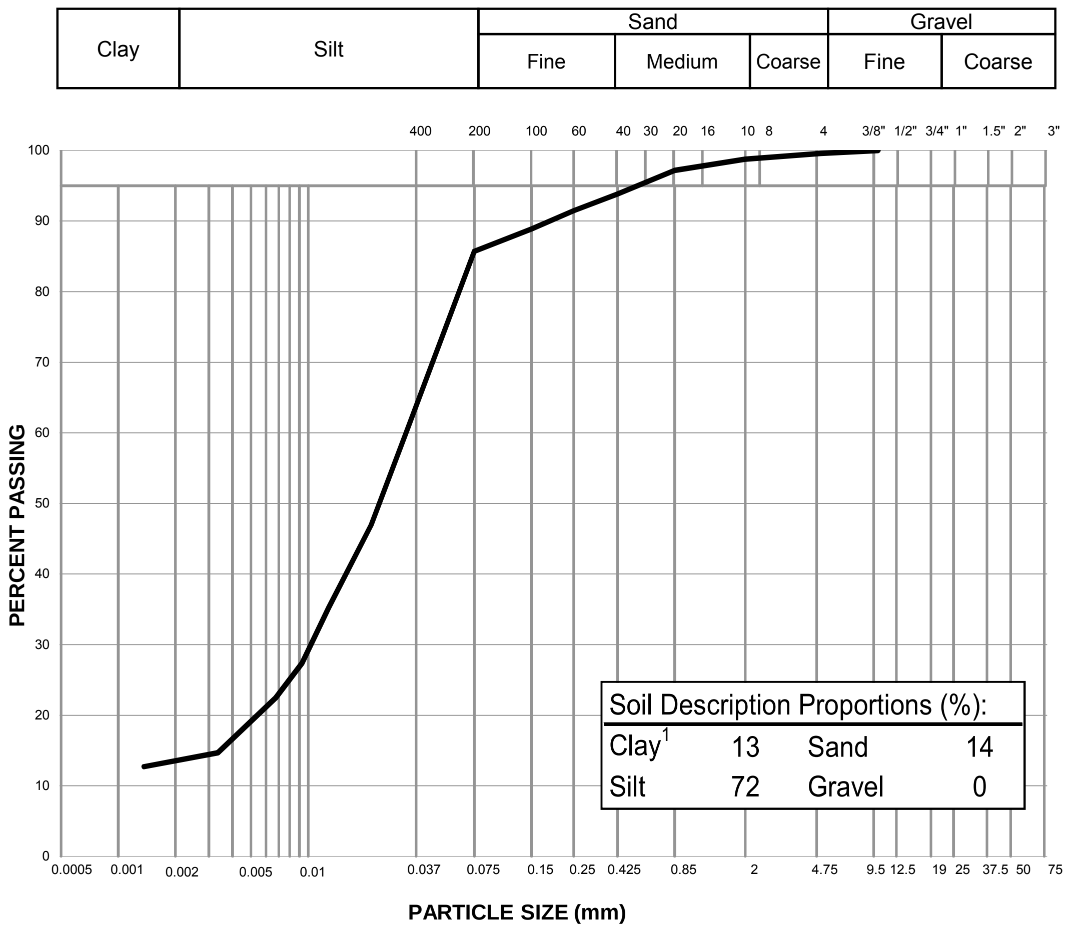
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S3 (A/B)
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT10
Client:	Kaminak Gold Corporation	Sample Depth:	0.80 - 1.05 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 28, 2016 By: AMT	Date sampled:	September 1, 2016
Soil Description[2]:	SILT - some sand, some clay	Sampled By:	VER
		USC Classification:	Cu: #N/A
Moisture Content:	98.7%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	
12.5	
10	100
5	100
2	99
0.85	97
0.425	94
0.25	91
0.15	89
0.075	85.7
0.0324	59.6
0.0214	46.9
0.0128	35.2
0.0093	27.4
0.0068	22.5
0.0033	14.7
0.0014	12.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______

Remarks: ______

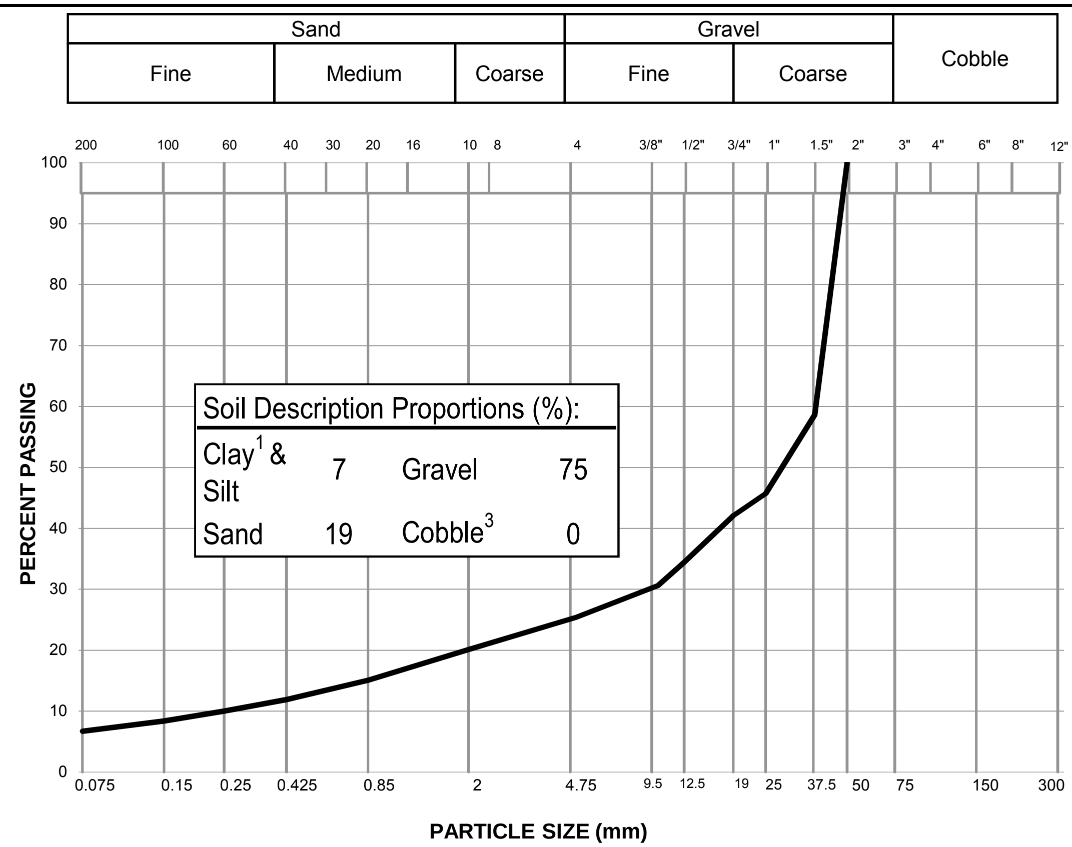
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S8
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT10
Client:	Kaminak Gold Corporation	Sample Depth:	4.20 - 4.80 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 1, 2016
Soil Description[2]:	GRAVEL - some sand, trace silt	Sampled By:	VER
		USC Classification:	Cu: 154.3
Moisture Content:	6.0%		Cc: 9.3

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	100
38	59
25	46
19	42
12.5	34
10	31
5	25
2	20
0.85	15
0.425	12
0.25	10
0.15	8
0.075	6.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ____________

Remarks: ____________

Reviewed By: ____________ P.Eng.

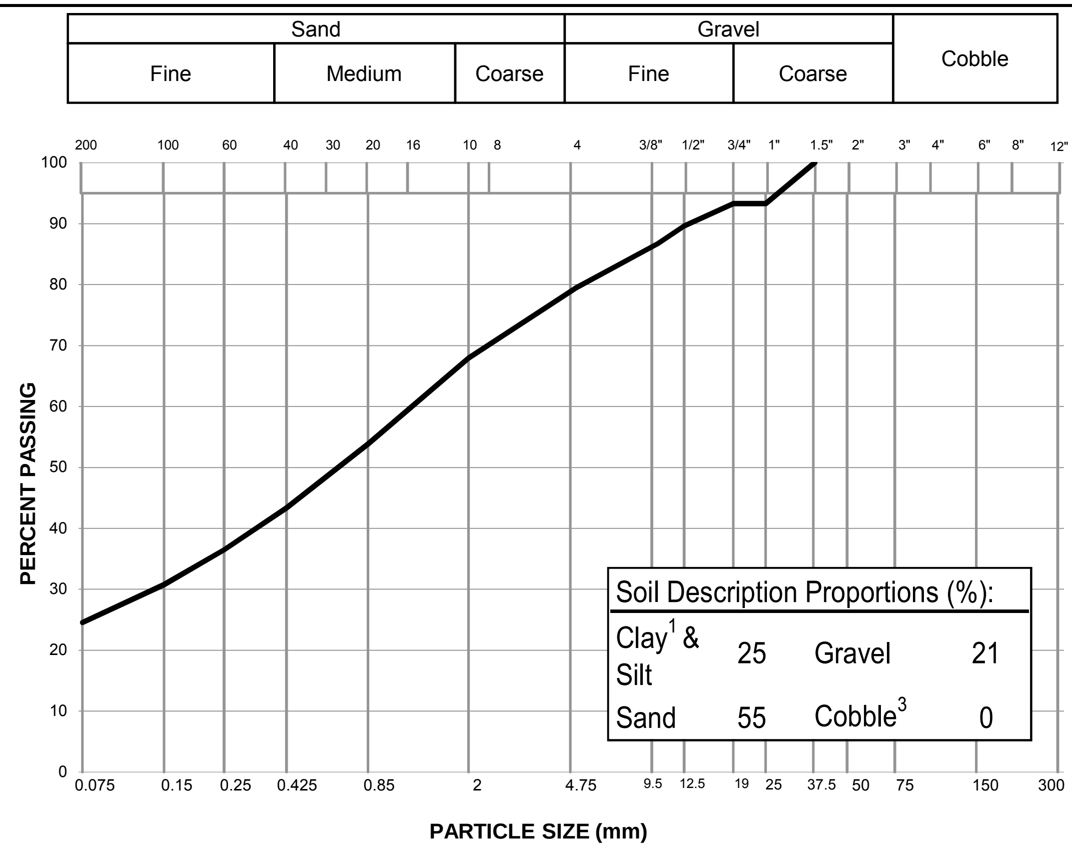
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S1
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT11
Client:	Kaminak Gold Corporation	Sample Depth:	1.70 - 2.15 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 1, 2016 By: TW	Date sampled:	August 31, 2016
Soil Description[2]:	SAND - silty, gravelly	Sampled By:	SA/VER
		USC Classification:	Cu: #N/A
Moisture Content:	24.8%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	93
19	93
12.5	90
10	87
5	79
2	68
0.85	54
0.425	43
0.25	36
0.15	31
0.075	24.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ______

Remarks: ______

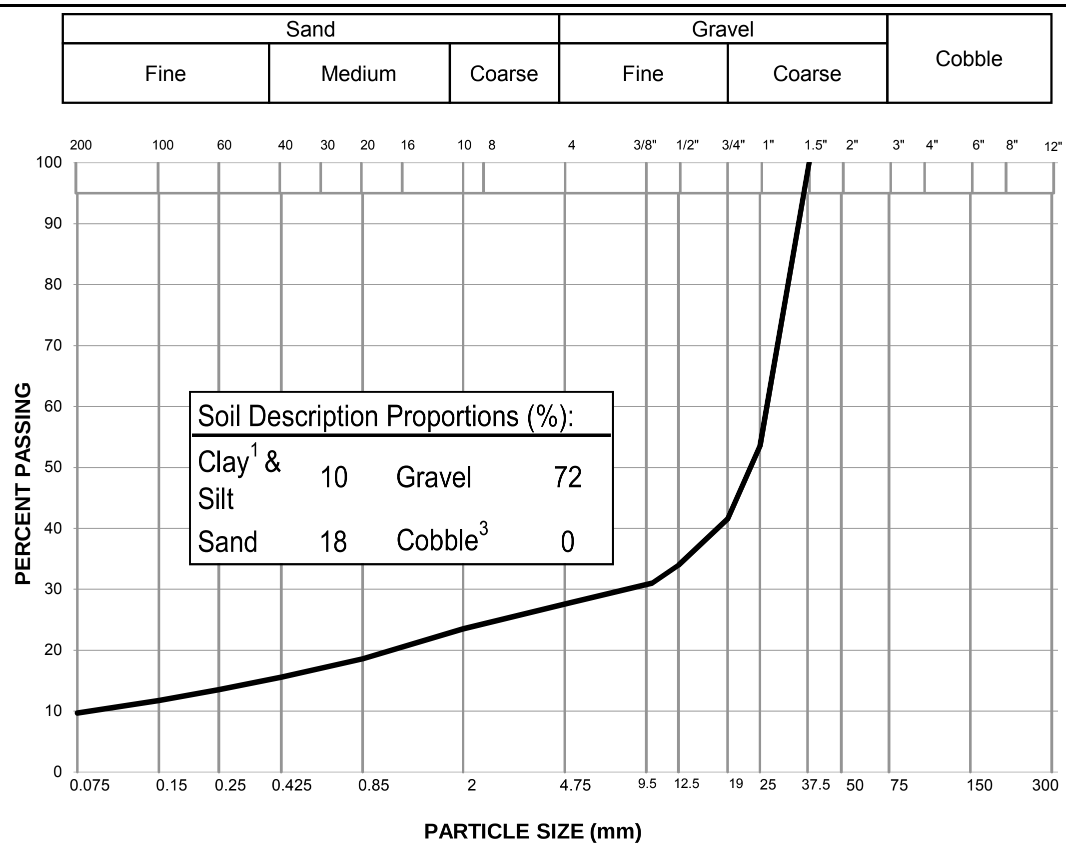
Reviewed By: ______ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT12
Client:	Kaminak Gold Corporation	Sample Depth:	0.60 - 0.80 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 1, 2016 By: TW	Date sampled:	August 31, 2016
Soil Description[2]:	GRAVEL - some sand, trace silt	Sampled By:	SA/VER
		USC Classification:	Cu: 311.6
Moisture Content:	11.1%		Cc: 30.8

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	54
19	42
12.5	34
10	31
5	28
2	24
0.85	19
0.425	16
0.25	14
0.15	12
0.075	9.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

Reviewed By: ______________________ P.Eng.

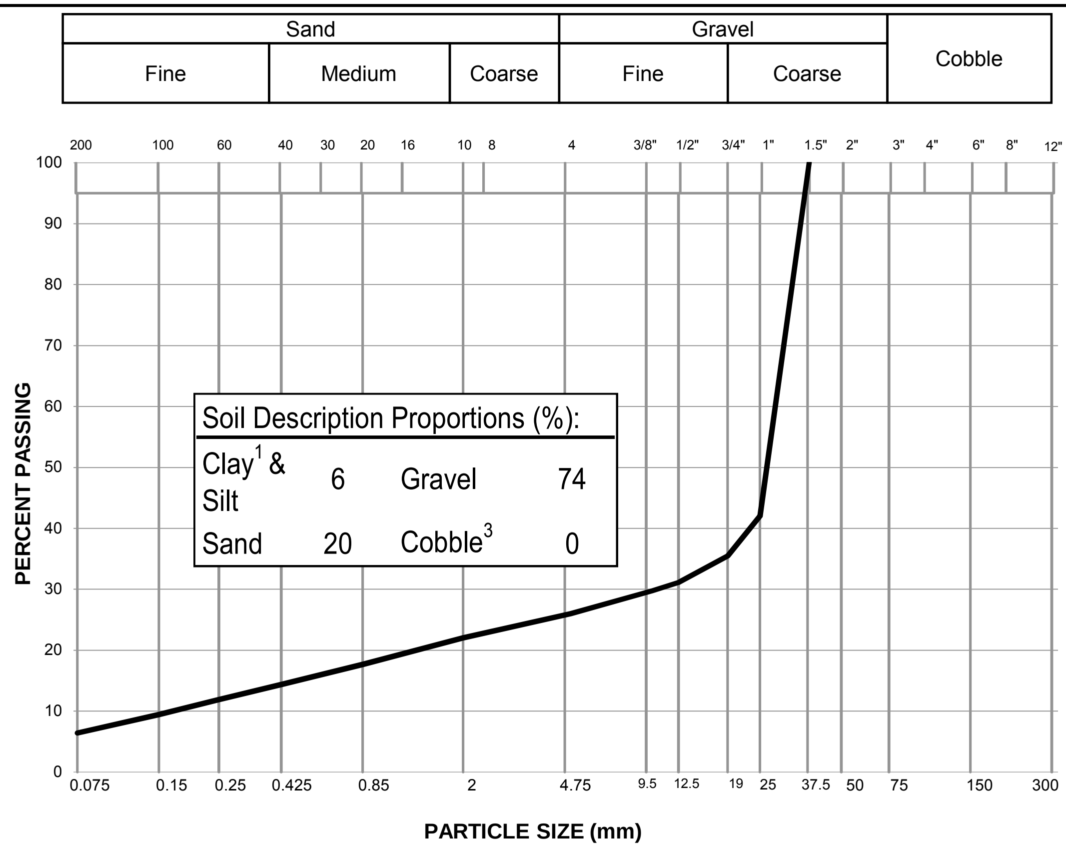
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S7
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT13
Client:	Kaminak Gold Corporation	Sample Depth:	3.15 - 3.73 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 1, 2016 By: TW	Date sampled:	September 3, 2016
Soil Description[2]:	GRAVEL - some sand, trace silt	Sampled By:	VER
		USC Classification:	Cu: 167.4
Moisture Content:	5.9%		Cc: 21.7

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	42
19	35
12.5	31
10	30
5	26
2	22
0.85	18
0.425	14
0.25	12
0.15	9
0.075	6.4



Soil Description Proportions (%):

Clay[1] & Silt	6	Gravel	74
Sand	20	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ________

Remarks: ________

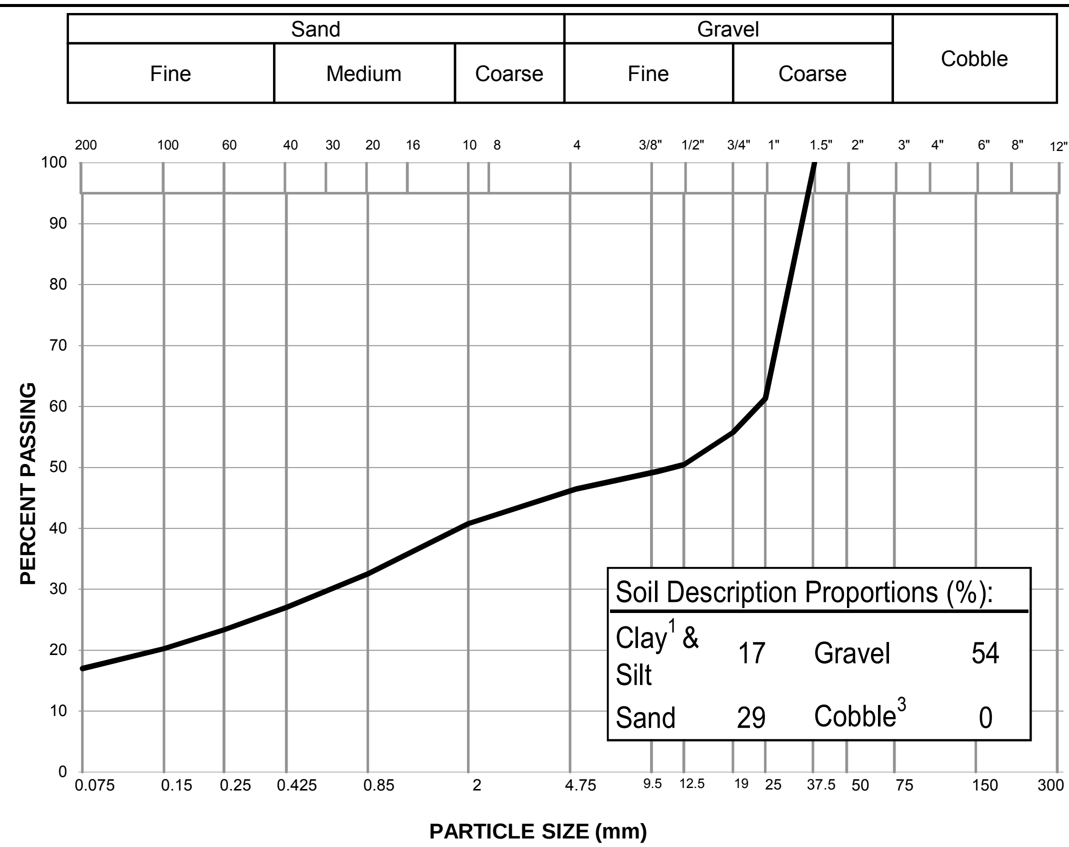
Reviewed By: ________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT14
Client:	Kaminak Gold Corporation	Sample Depth:	0.35 - 0.70 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 1, 2016 By: TW	Date sampled:	August 30, 2016
Soil Description[2]:	GRAVEL - sandy, some silt	Sampled By:	SA/VER
		USC Classification:	Cu: #N/A
Moisture Content:	24.4%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	61
19	56
12.5	50
10	49
5	46
2	41
0.85	33
0.425	27
0.25	23
0.15	20
0.075	17.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ________________

Remarks: ________________

Reviewed By: ________________ P.Eng.

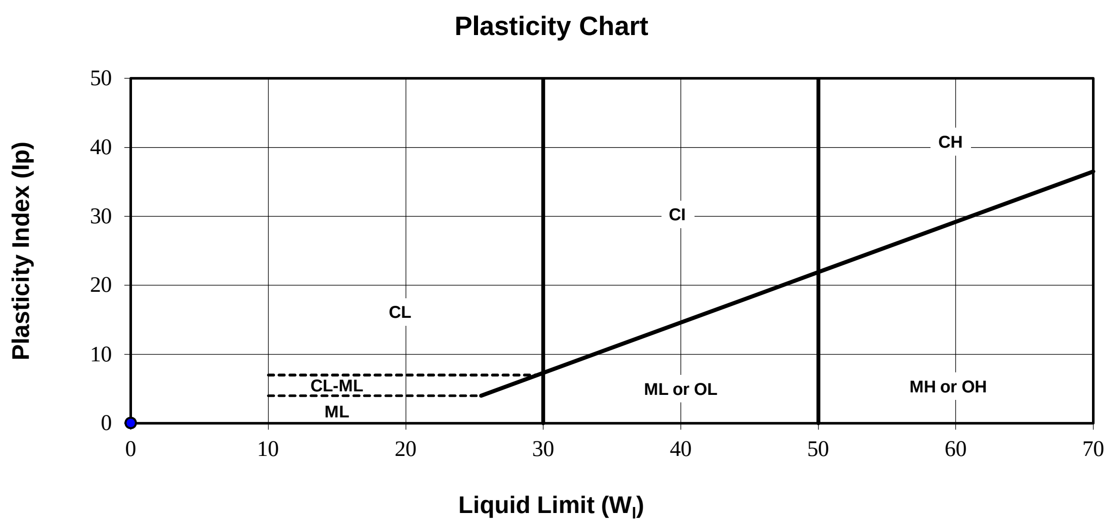
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample Number:	S3
	Coffee Creek - North WRD	Borehole Number:	GT14
Project No:	ENG.EARC03004-02	Source:	0.75 - 0.95 m
Client:	Kaminak Gold Corporation	Sampled By:	VER/SA Tested By: AMT
Attention:	[name redacted]	Date Sampled:	August 30, 2016
Email:		Date Tested:	November 30, 2016

Sample Description: SAND - silty, some gravel, some clay



Liquid Limit (W_1) :	0	Natural Moisture (%)	17.7
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Material is too silty to perform tests; plastic limit could not be determined.

Reviewed By: ______________________ C.E.T.

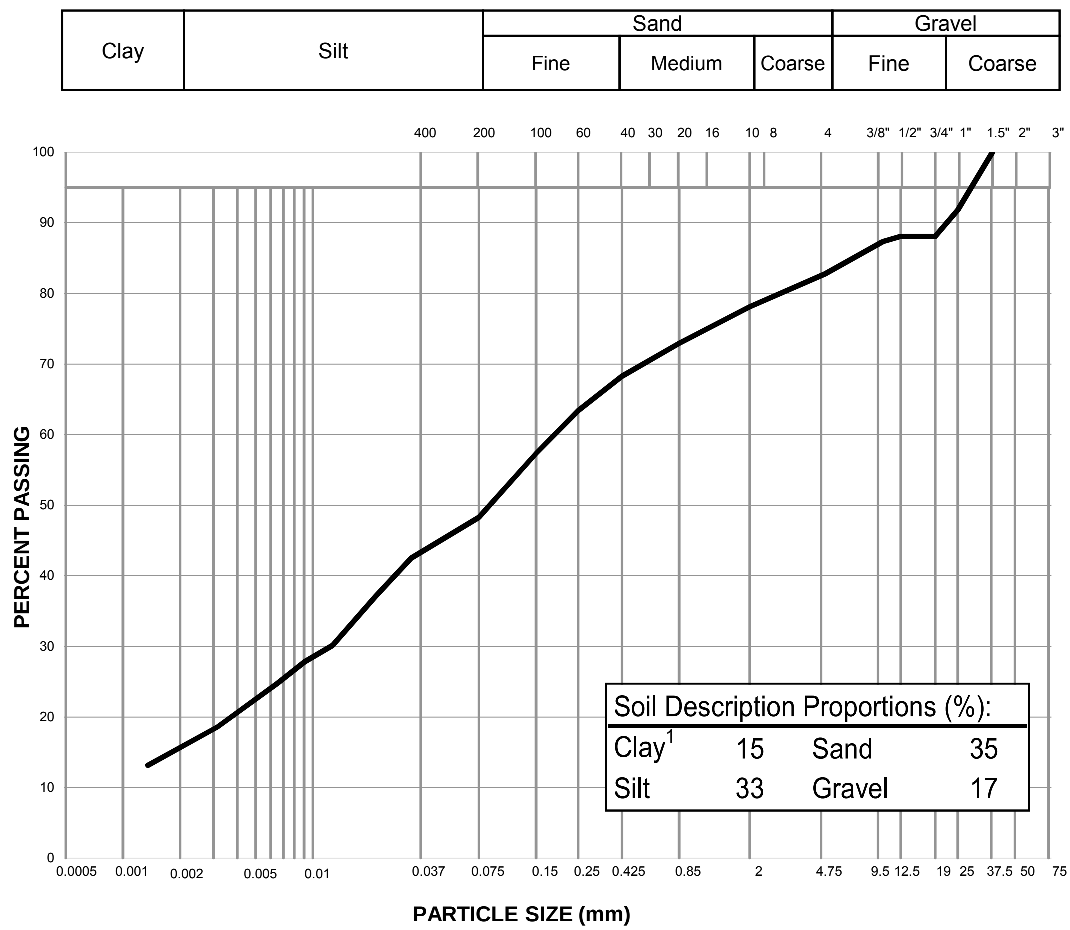
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S3
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT14
Client:	Kaminak Gold Corporation	Sample Depth:	0.75 - 0.95 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	August 30, 2016
Soil Description[2]:	SAND - silty, some gravel, some clay	Sampled By:	VER/SA
		USC Classification:	Cu: #N/A
Moisture Content:	17.7%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	92
19	88
12.5	88
10	87
5	83
2	78
0.85	73
0.425	68
0.25	63
0.15	57
0.075	48.3
0.0331	42.5
0.0214	37.1
0.0127	30.1
0.0091	27.8
0.0065	24.7
0.0031	18.6
0.0014	13.1



Soil Description Proportions (%):			
Clay[1]	15	Sand	35
Silt	33	Gravel	17

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: __________

Remarks: __________

Reviewed By: __________ P.Eng.

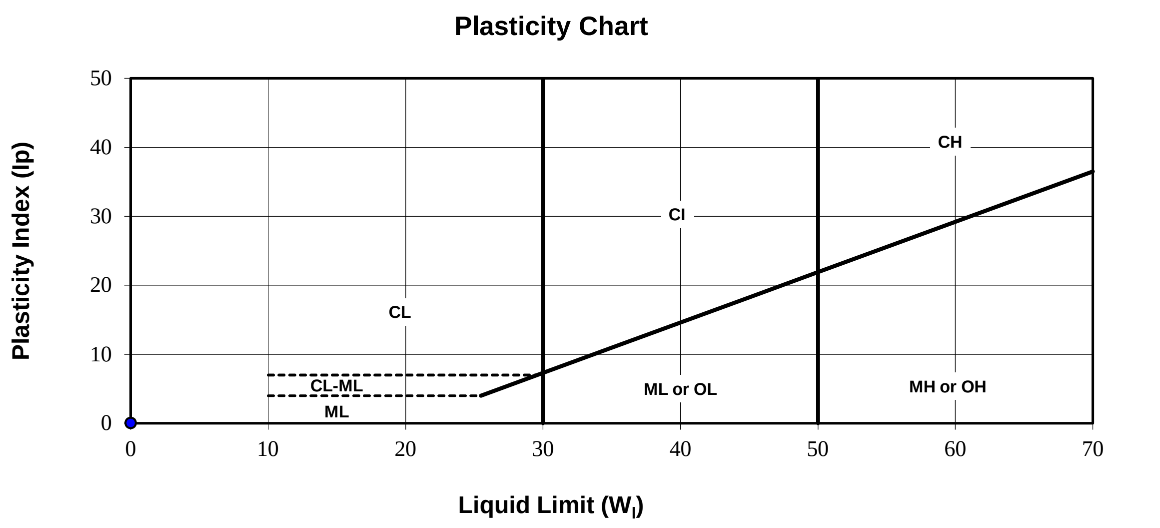
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample Number:	S2
	Coffee Creek - North WRD	Borehole Number:	GT15
Project No:	ENG.EARC03004-02	Source:	0.50 - 0.70 m
Client:	Kaminak Gold Corporation	Sampled By:	RG Tested By: AMT
Attention:	[name redacted]	Date Sampled:	September 4, 2016
Email:		Date Tested:	November 30, 2016

Sample Description: SAND - gravelly, silty, trace clay



Liquid Limit ($W_{1)}$:	0	Natural Moisture (%)	37.2
Plastic Limit :	0	Soil Plasticity:	NP
Plasticity Index (Ip) :	**0**	Mod.USCS Symbol:	N/A

Remarks: Material is too silty to perform tests; plastic limit could not be determined.

Reviewed By: ______________________ C.E.T.

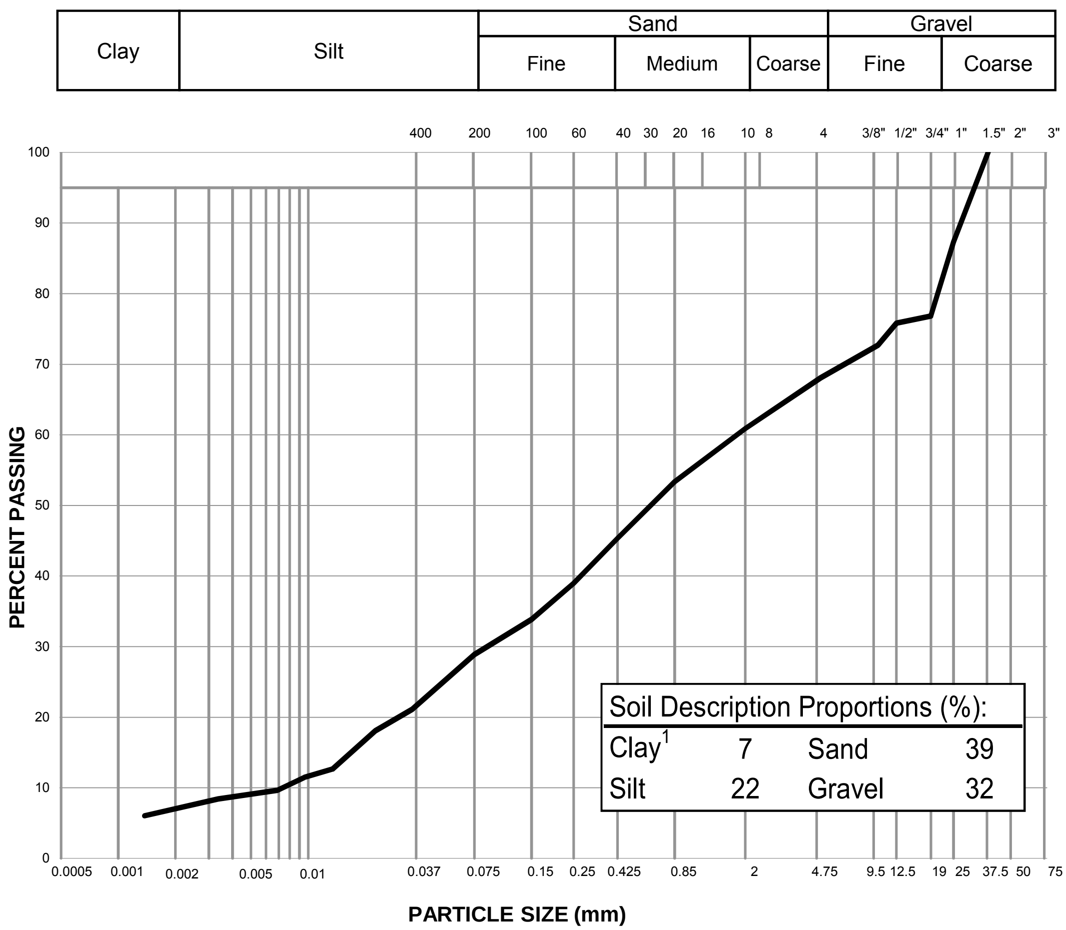
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT15
Client:	Kaminak Gold Corporation	Sample Depth:	0.50 - 0.70 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 28, 2016 By: AMT	Date sampled:	September 4, 2016
Soil Description[2]:	SAND - gravelly, silty, trace clay	Sampled By:	RG
		USC Classification:	Cu: 251.6
Moisture Content:	37.2%		Cc: 0.6

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	87
19	77
12.5	76
10	73
5	68
2	61
0.85	53
0.425	45
0.25	39
0.15	34
0.075	28.9
0.0352	21.1
0.0226	18.1
0.0134	12.7
0.0095	11.5
0.0069	9.6
0.0034	8.4
0.0014	6.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

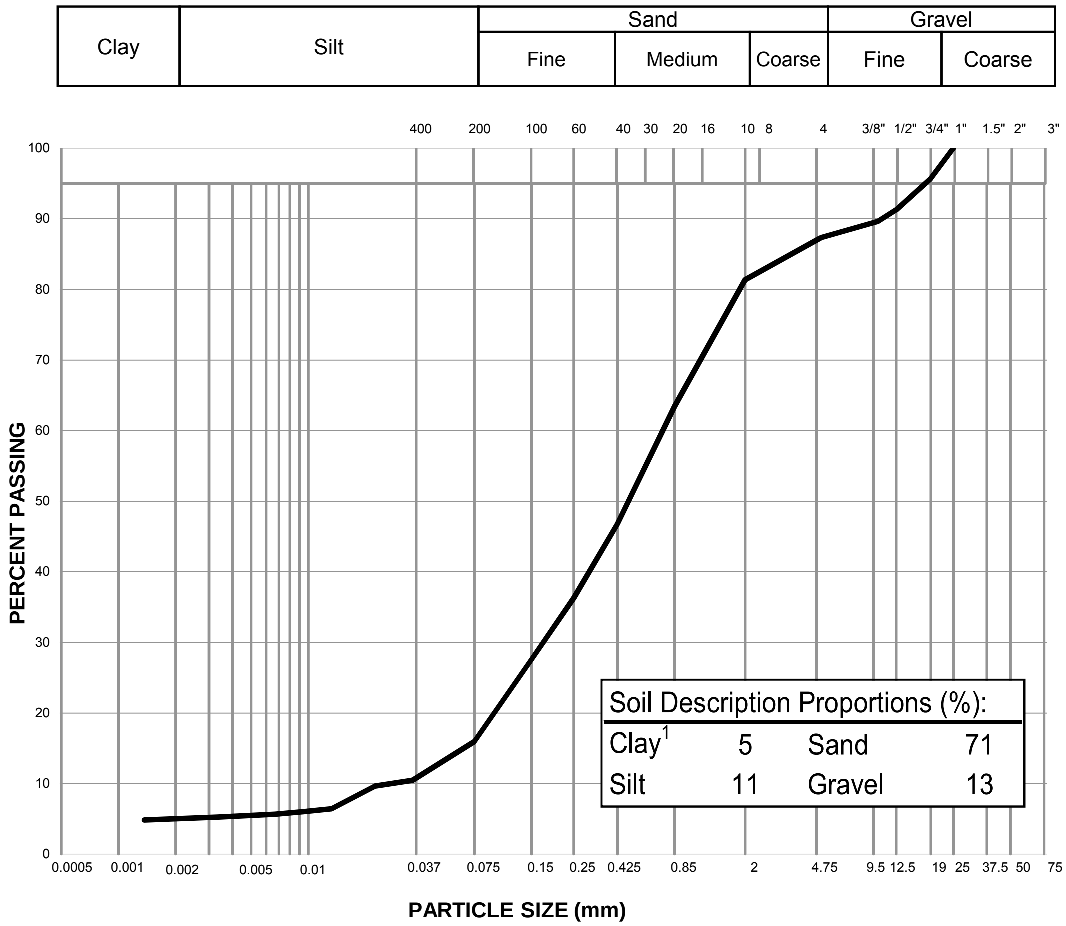
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S8
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North WRD	Sample Loc.:	GT15
Client:	Kaminak Gold Corporation	Sample Depth:	5.55 - 5.80 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 2, 2016 By: AMT	Date sampled:	September 4, 2016
Soil Description[2]:	SAND - some gravel, some silt, trace clay	Sampled By:	RG
		USC Classification:	Cu: 27.4
Moisture Content:	12.8%		Cc: 1.5

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	96
12.5	91
10	90
5	87
2	81
0.85	63
0.425	47
0.25	36
0.15	28
0.075	15.9
0.0354	10.5
0.0225	9.7
0.0133	6.4
0.0094	6.0
0.0067	5.6
0.0033	5.2
0.0014	4.8



Soil Description Proportions (%):			
Clay[1]	5	Sand	71
Silt	11	Gravel	13

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

Reviewed By: ______________________ P.Eng.

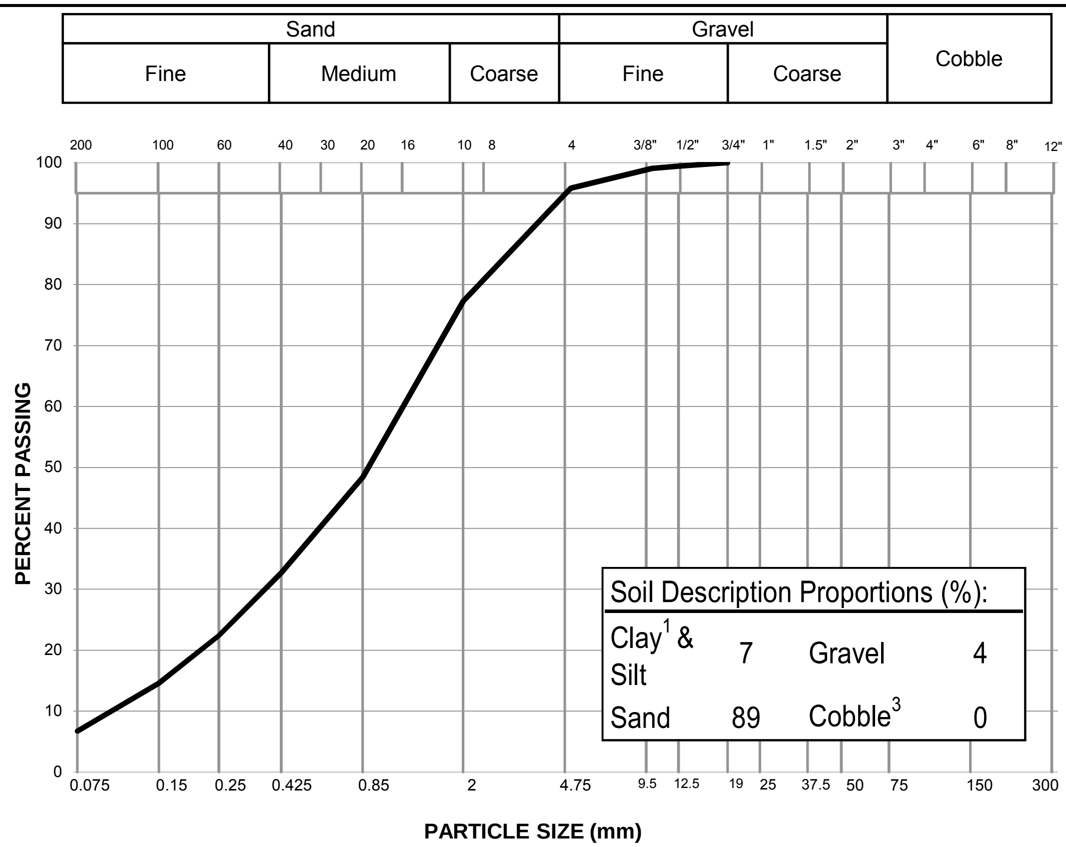
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - West Dump	Sample Loc.:	GT16
Client:	Kaminak Gold Corporation	Sample Depth:	2.35 - 2.68 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 1, 2016 By: TW	Date sampled:	August 30, 2016
Soil Description[2]:	SAND - trace silt, trace gravel	Sampled By:	SA/VER
		USC Classification:	Cu: 12.4
Moisture Content:	22.2%		Cc: 1.0

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	
25	
19	100
12.5	99
10	99
5	96
2	77
0.85	48
0.425	33
0.25	22
0.15	15
0.075	6.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: __________

Remarks: __________

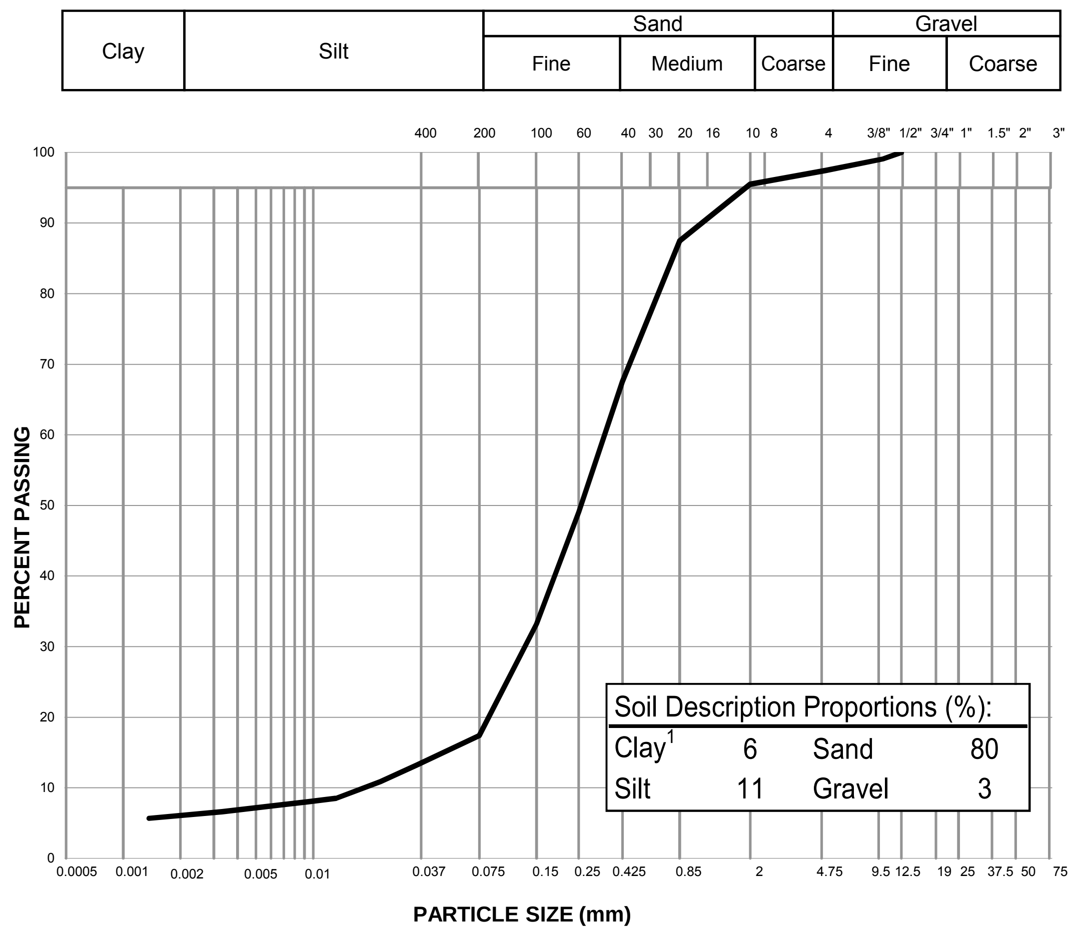
Reviewed By: __________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - West Dump	Sample Loc.:	GT19
Client:	Kaminak Gold Corporation	Sample Depth:	2.00 - 2.15 m
Client Rep.:	[name redacted]t	Sampling Method:	Grab
Date Tested:	December 2, 2016 By: AMT	Date sampled:	October 2, 2016
Soil Description[2]:	SAND - some silt, trace clay, trace gravel	Sampled By:	JGD
		USC Classification:	Cu: 18.5
Moisture Content:	11.2%		Cc: 2.7

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	
12.5	100
10	99
5	97
2	95
0.85	87
0.425	68
0.25	49
0.15	33
0.075	17.4
0.0351	13.2
0.0225	10.9
0.0132	8.5
0.0094	8.0
0.0066	7.6
0.0033	6.6
0.0014	5.7



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

Reviewed By: ______________________ P.Eng.

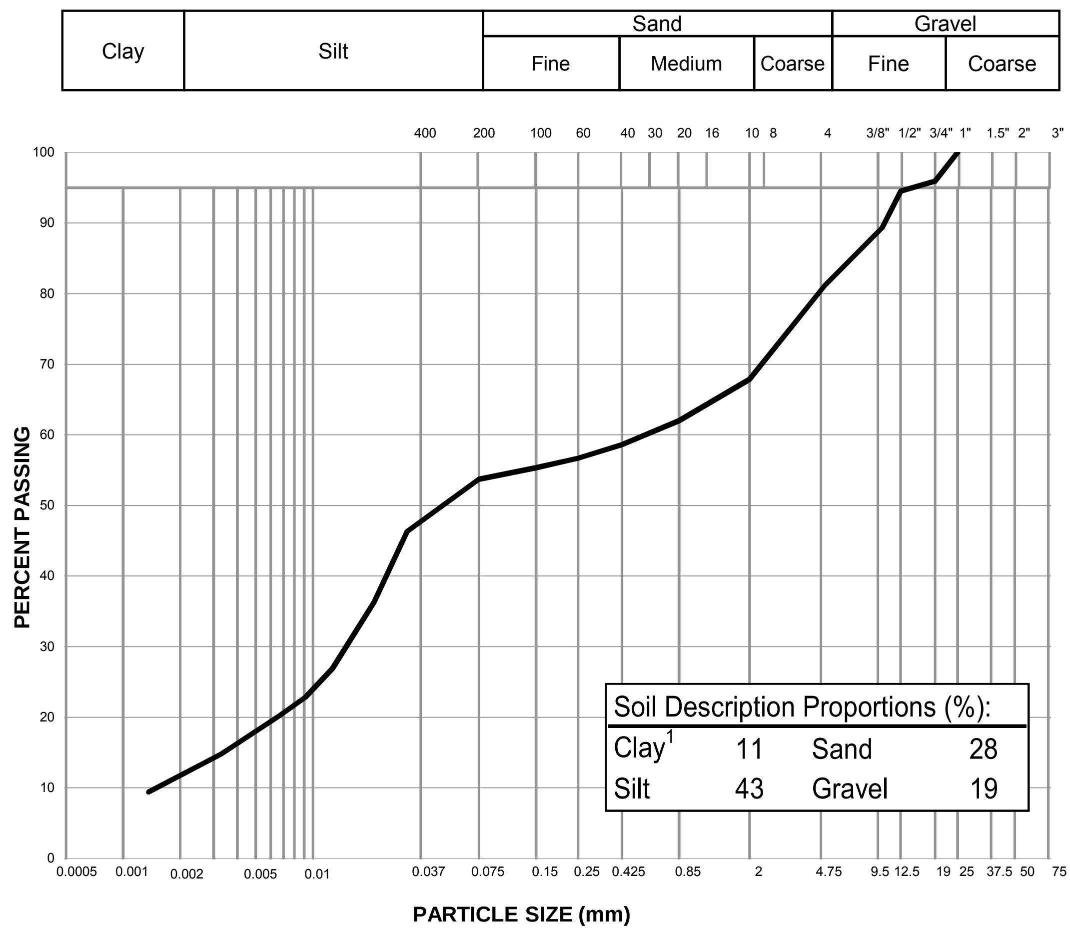
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S4
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT43
Client:	Kaminak Gold Corporation	Sample Depth:	2.20 - 2.50 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 17, 2016
Soil Description[2]:	SILT - sandy, some gravel, some clay	Sampled By:	EP
		USC Classification:	Cu: 379.8
Moisture Content:	60.2%		Cc: 0.3

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	96
12.5	95
10	89
5	81
2	68
0.85	62
0.425	59
0.25	57
0.15	55
0.075	53.7
0.0314	46.3
0.0210	36.3
0.0127	26.9
0.0091	22.8
0.0066	20.1
0.0033	14.8
0.0014	9.4



Soil Description Proportions (%):			
Clay[1]	11	Sand	28
Silt	43	Gravel	19

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

Reviewed By: ____________________ P.Eng.

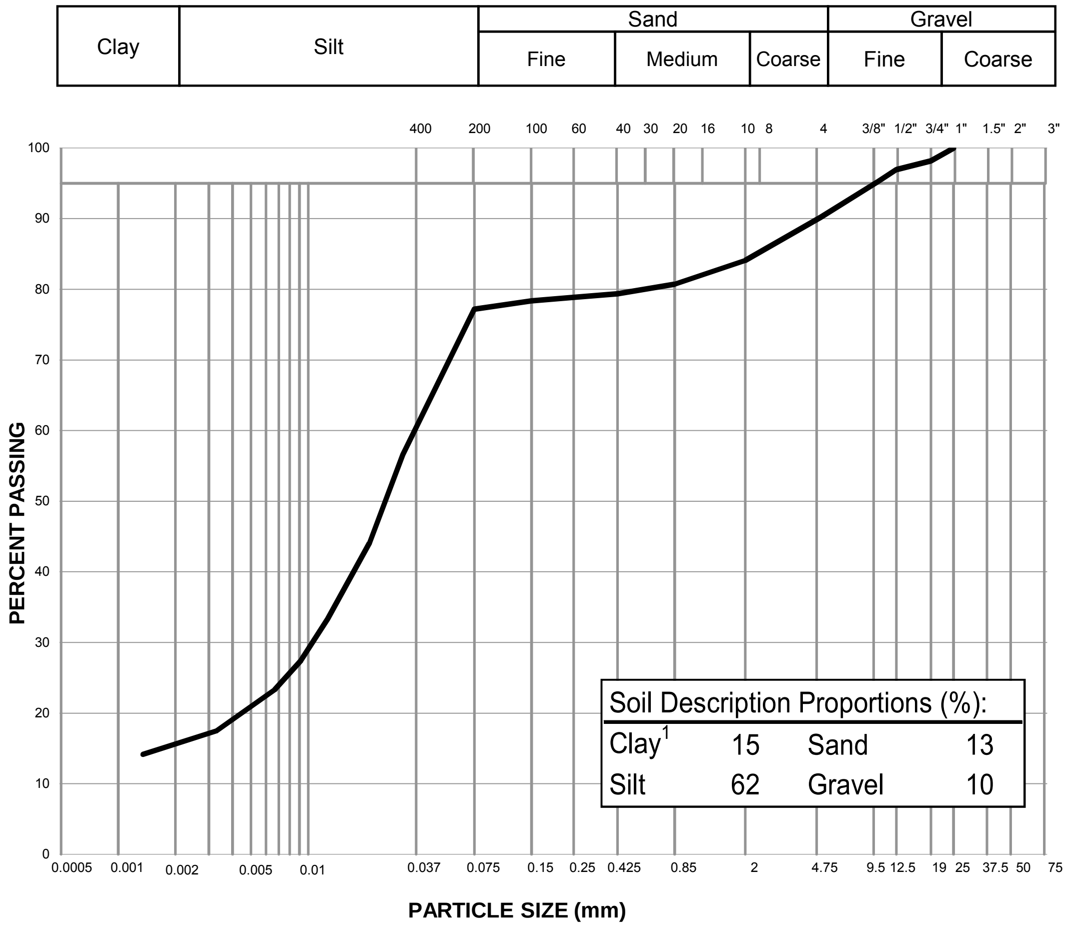
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S6
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT43
Client:	Kaminak Gold Corporation	Sample Depth:	4.15 - 4.48 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 17, 2016
Soil Description[2]:	SILT - some clay, some sand, trace gravel	Sampled By:	EP
		USC Classification:	Cu: #N/A
Moisture Content:	27.3%		Cc: #N/A

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	98
12.5	97
10	95
5	90
2	84
0.85	81
0.425	79
0.25	79
0.15	78
0.075	77.2
0.0315	56.6
0.0210	44.1
0.0127	33.3
0.0092	27.5
0.0067	23.3
0.0033	17.5
0.0014	14.2



Soil Description Proportions (%):			
Clay[1]	15	Sand	13
Silt	62	Gravel	10

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

Reviewed By: ______________________ P.Eng.

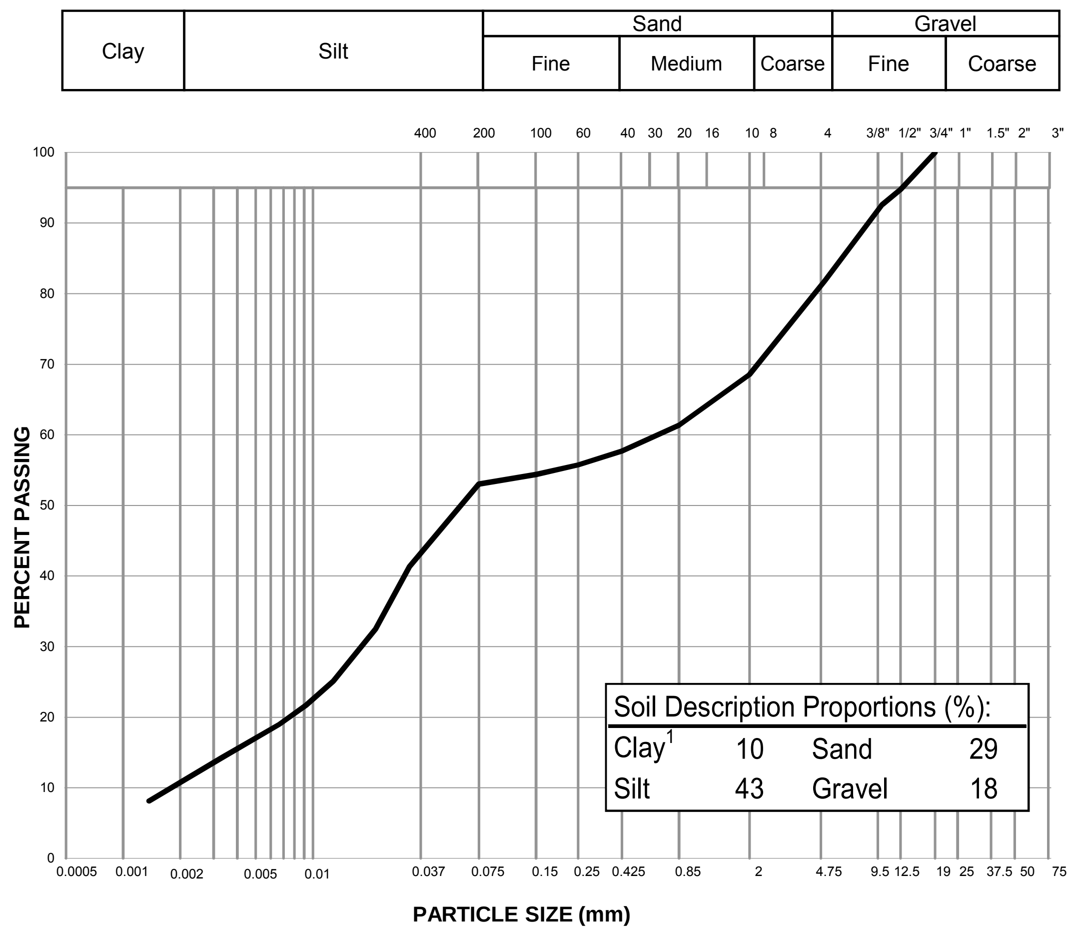
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S3
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT45
Client:	Kaminak Gold Corporation	Sample Depth:	2.00 - 2.15 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 15, 2016
Soil Description[2]:	SILT - sandy, some gravel, trace clay	Sampled By:	VER/EP
		USC Classification:	Cu: 353.4
Moisture Content:	47.2%		Cc: 0.3

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	100
12.5	95
10	93
5	82
2	69
0.85	61
0.425	58
0.25	56
0.15	54
0.075	53.0
0.0324	41.4
0.0214	32.6
0.0128	25.1
0.0092	21.7
0.0067	19.0
0.0033	14.2
0.0014	8.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

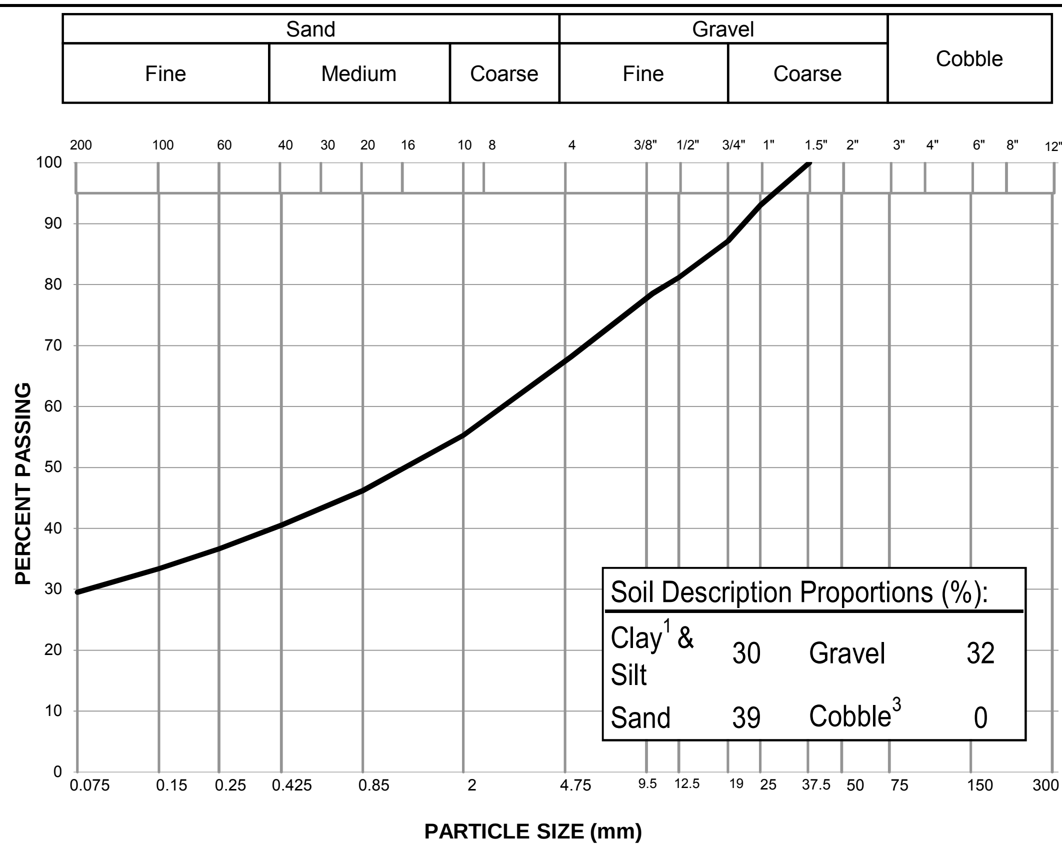
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S5
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT45
Client:	Kaminak Gold Corporation	Sample Depth:	5.20 - 5.45 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 15, 2016
Soil Description[2]:	SAND - gravelly, silty	Sampled By:	EP
		USC Classification:	Cu: #N/A
Moisture Content:	10.4%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	93
19	87
12.5	81
10	79
5	68
2	55
0.85	46
0.425	41
0.25	37
0.15	33
0.075	29.5



Soil Description Proportions (%):			
Clay[1] & Silt	30	Gravel	32
Sand	39	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ______________________

Remarks: ______________________

Reviewed By: ______________________ P.Eng.

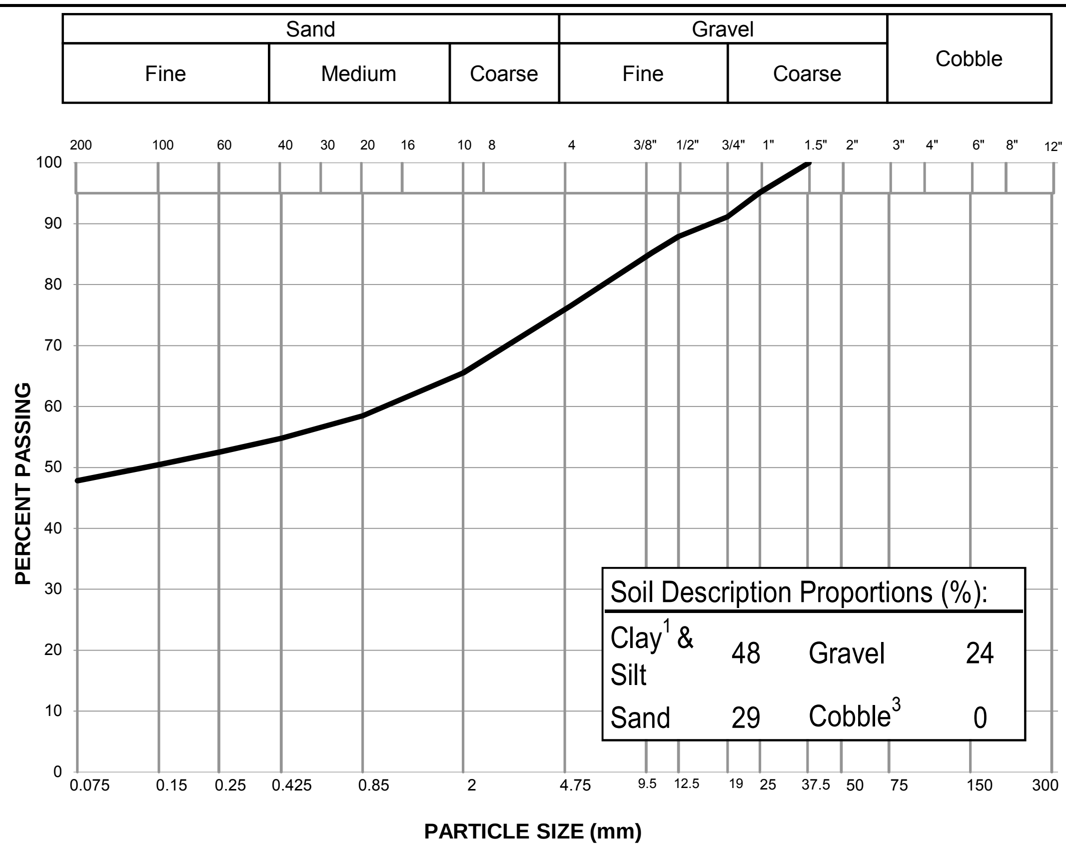
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S4
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT46
Client:	Kaminak Gold Corporation	Sample Depth:	2.50 - 3.00 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 19, 2016
Soil Description[2]:	SILT - sandy, gravelly	Sampled By:	EP
		USC Classification:	Cu: #N/A
Moisture Content:	17.9%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	95
19	91
12.5	88
10	85
5	76
2	66
0.85	59
0.425	55
0.25	52
0.15	50
0.075	47.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

Reviewed By: ______________________ P.Eng.

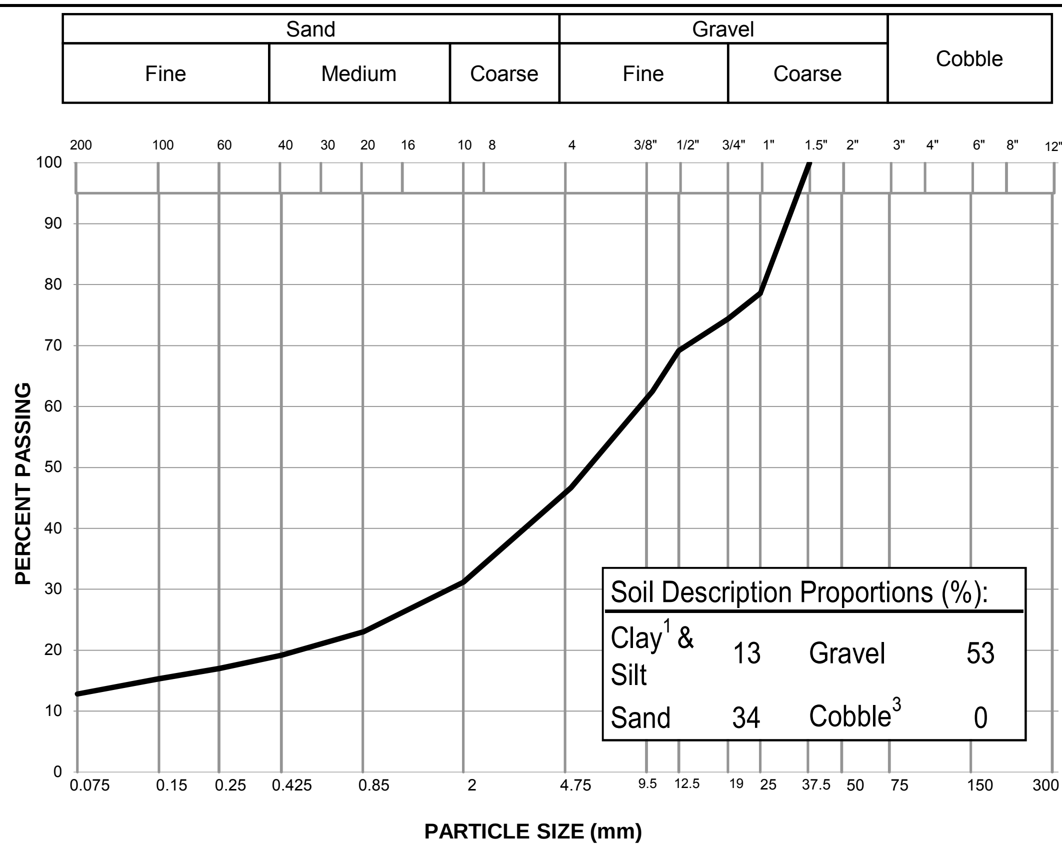
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S4
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT46
Client:	Kaminak Gold Corporation	Sample Depth:	6.00 - 6.28 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 19, 2016
Soil Description[2]:	GRAVEL - sandy, some silt	Sampled By:	EP
		USC Classification:	Cu: #N/A
Moisture Content:	12.6%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	79
19	74
12.5	69
10	62
5	47
2	31
0.85	23
0.425	19
0.25	17
0.15	15
0.075	12.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ______________________

Remarks: ______________________

Reviewed By: ______________________ P.Eng.

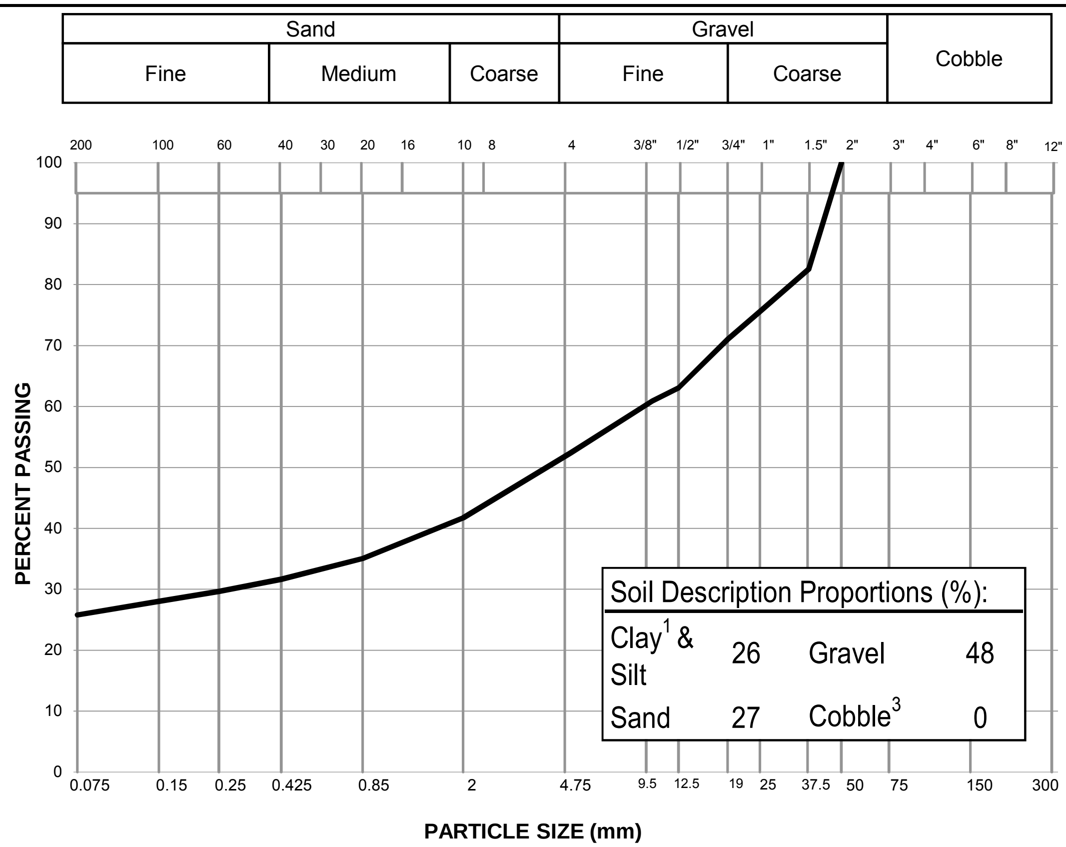
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S5
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT47
Client:	Kaminak Gold Corporation	Sample Depth:	3.00 - 3.50 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 13, 2016
Soil Description[2]:	GRAVEL - sandy, silty	Sampled By:	VER
		USC Classification:	Cu: #N/A
Moisture Content:	10.7%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	100
38	83
25	76
19	71
12.5	63
10	61
5	52
2	42
0.85	35
0.425	32
0.25	30
0.15	28
0.075	25.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

Reviewed By: ______________________ P.Eng.

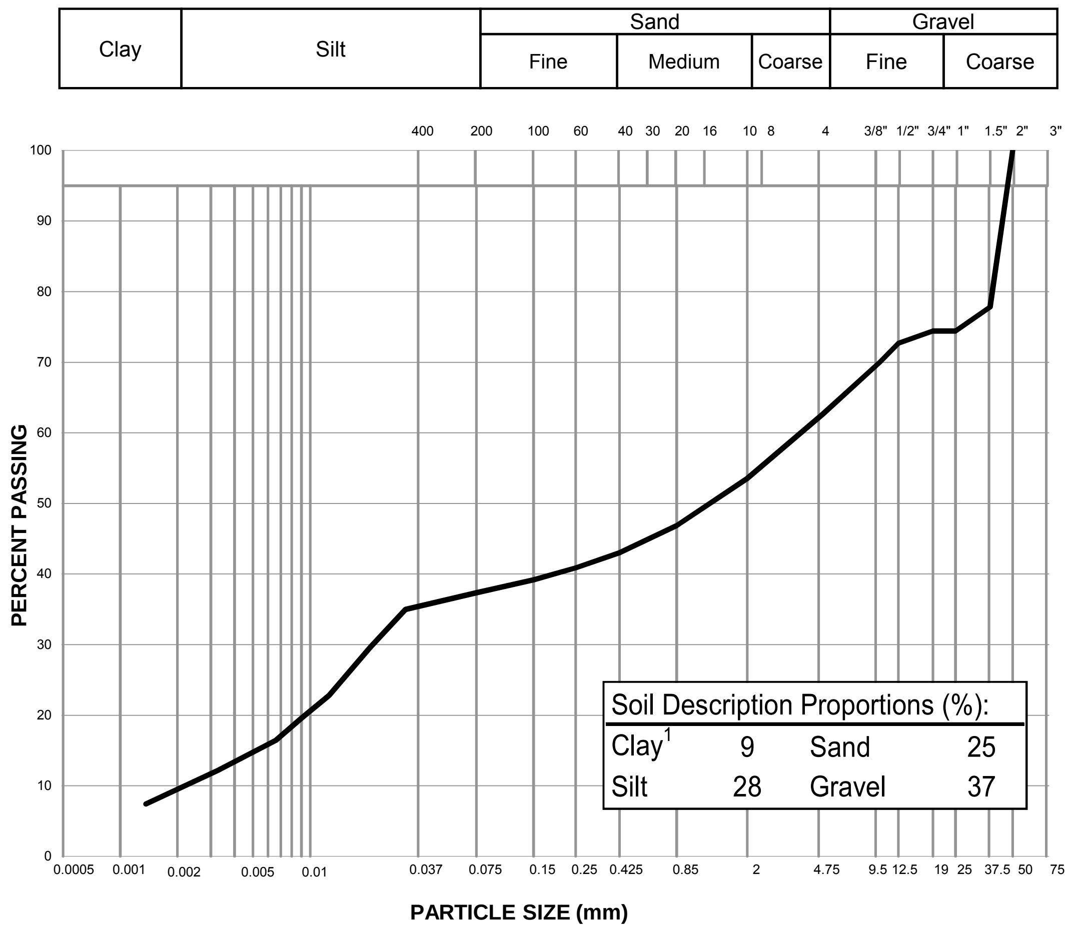
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S19
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - Kona Pond	Sample Loc.:	GT47
Client:	Kaminak Gold Corporation	Sample Depth:	9.58 - 10.00 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 2, 2016 By: AMT	Date sampled:	September 13, 2016
Soil Description[2]:	GRAVEL - silty, sandy, trace clay	Sampled By:	VER
		USC Classification:	Cu: 1724.2
Moisture Content:	18.6%		Cc: 0.0

Particle Size (mm)	Percent Passing
75	
50	100
38	78
25	74
19	74
12.5	73
10	70
5	63
2	54
0.85	47
0.425	43
0.25	41
0.15	39
0.075	37.4
0.0318	35.0
0.0208	29.7
0.0126	22.8
0.0090	19.6
0.0066	16.4
0.0033	12.2
0.0014	7.4



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

Reviewed By: ______________________ P.Eng.

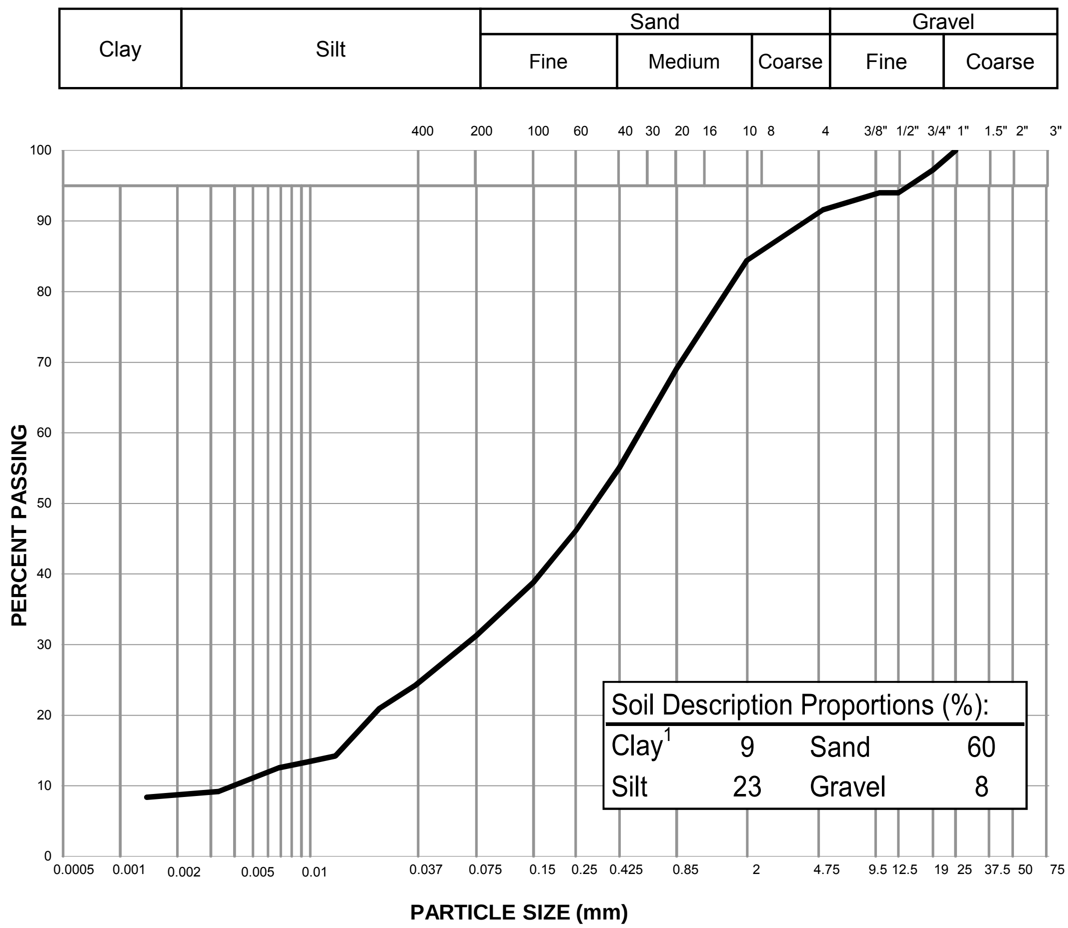
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S5
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North Pond	Sample Loc.:	GT51
Client:	Kaminak Gold Corporation	Sample Depth:	1.60 - 1.20 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 6, 2016
Soil Description[2]:	SAND - silty, trace clay, trace gravel	Sampled By:	VER
		USC Classification:	Cu: 138.7
Moisture Content:	34.9%		Cc: 1.9

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	97
12.5	94
10	94
5	92
2	84
0.85	69
0.425	55
0.25	46
0.15	39
0.075	31.3
0.0359	24.2
0.0230	20.9
0.0136	14.2
0.0096	13.4
0.0068	12.5
0.0033	9.2
0.0014	8.4



Soil Description Proportions (%):			
Clay[1]	9	Sand	60
Silt	23	Gravel	8

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification:

Remarks:

Reviewed By: ____________________ P.Eng.

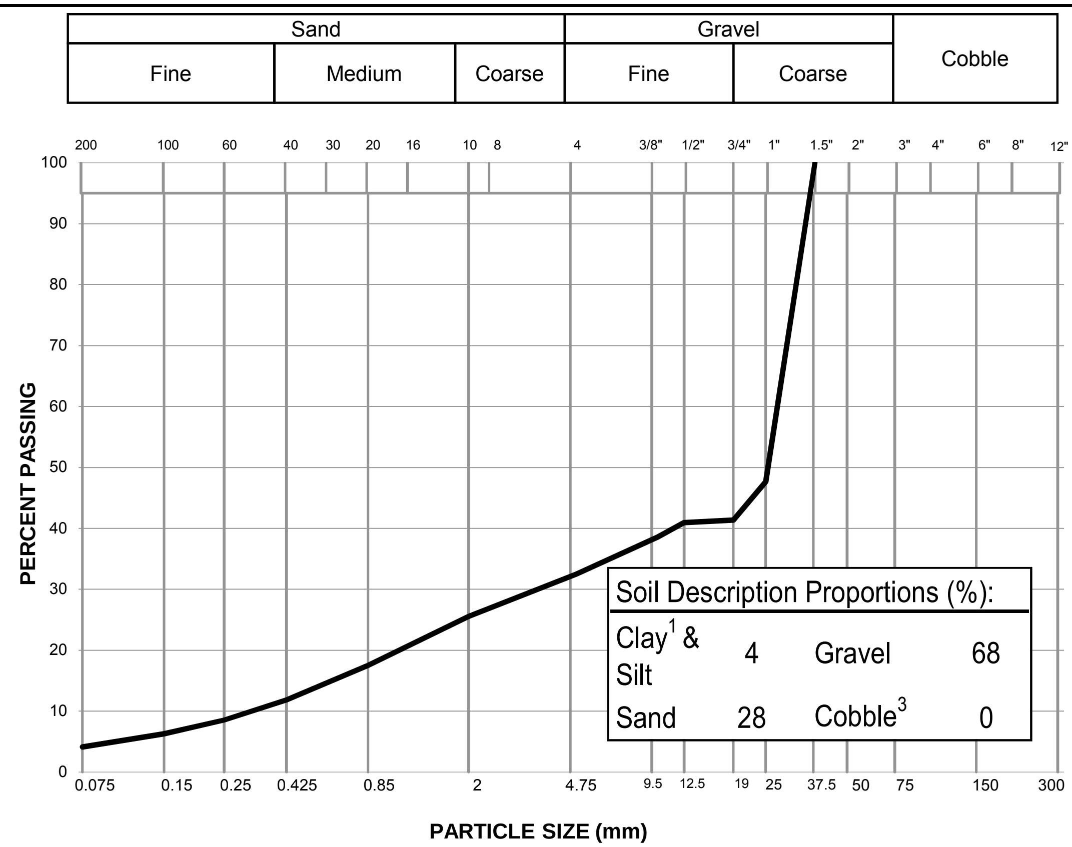
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S7
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - North Pond	Sample Loc.:	GT57
Client:	Kaminak Gold Corporation	Sample Depth:	8.70 - 8.90 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 8, 2016
Soil Description[2]:	GRAVEL - sandy, trace silt	Sampled By:	JGD
		USC Classification:	Cu: 85.9
Moisture Content:	7.4%		Cc: 1.7

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	48
19	41
12.5	41
10	39
5	33
2	26
0.85	18
0.425	12
0.25	9
0.15	6
0.075	4.1



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ______________________________

Remarks: ______________________________

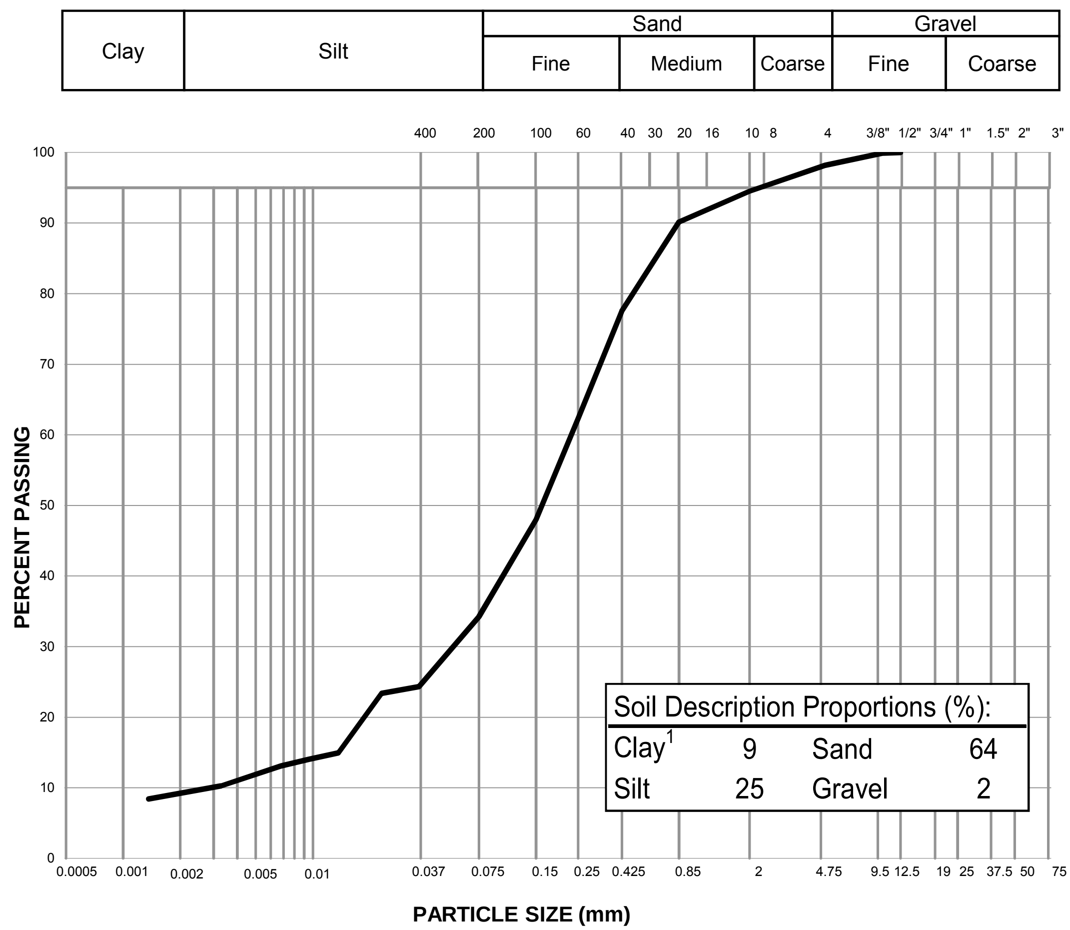
Reviewed By: ____________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - West Pond	Sample Loc.:	GT58
Client:	Kaminak Gold Corporation	Sample Depth:	1.32 - 1.64 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 26, 2016
Soil Description[2]:	SAND - silty, trace clay, trace gravel	Sampled By:	EP
		USC Classification:	Cu: 78.0
Moisture Content:	49.1%		Cc: 4.9

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	
12.5	100
10	100
5	98
2	95
0.85	90
0.425	77
0.25	62
0.15	48
0.075	34.2
0.0363	24.3
0.0230	23.4
0.0136	15.0
0.0095	14.0
0.0068	13.1
0.0033	10.3
0.0014	8.4



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

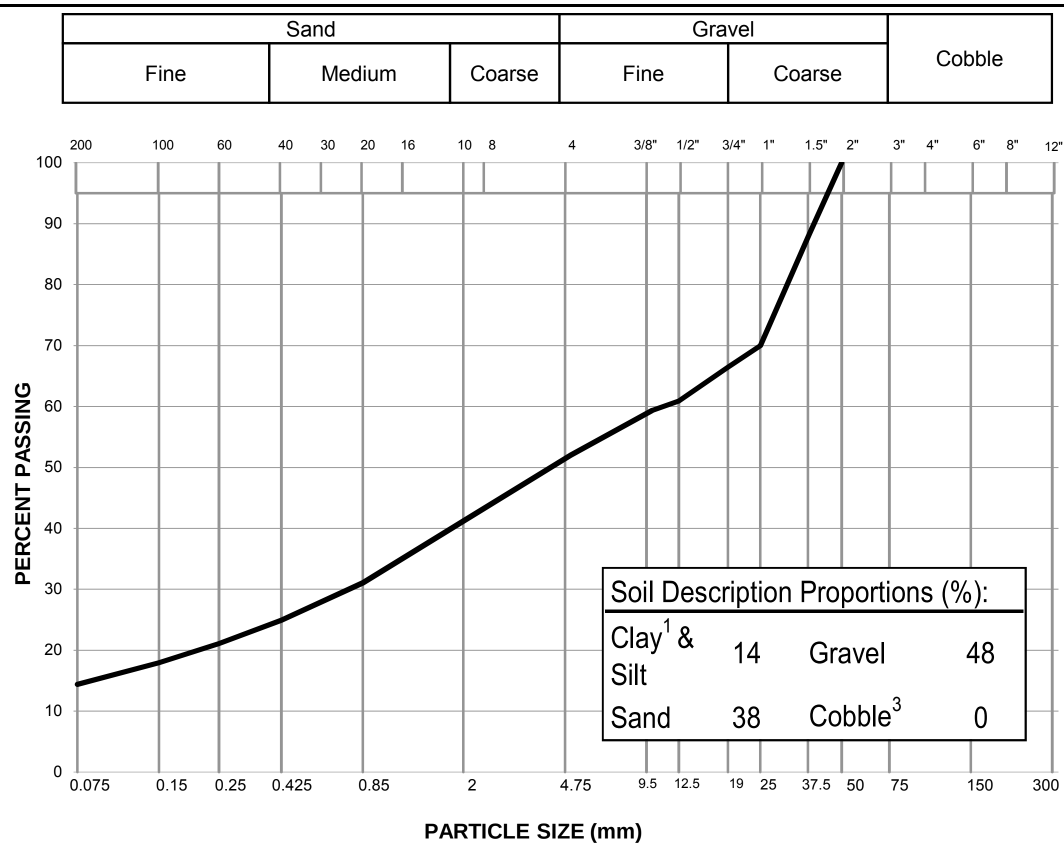
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S4 & S6 (combined)
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - West Pond	Sample Loc.:	GT61
Client:	Kaminak Gold Corporation	Sample Depth:	2.24 - 4.00 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 29, 2016
Soil Description[2]:	GRAVEL and SAND - some silt	Sampled By:	EP
		USC Classification:	Cu: #N/A
Moisture Content:	12.4%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	100
38	88
25	70
19	66
12.5	61
10	59
5	52
2	41
0.85	31
0.425	25
0.25	21
0.15	18
0.075	14.4



Soil Description Proportions (%):

Clay[1] & Silt	14	Gravel	48
Sand	38	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: ______________________

Remarks: ______________________

Reviewed By: ______________________ P.Eng.

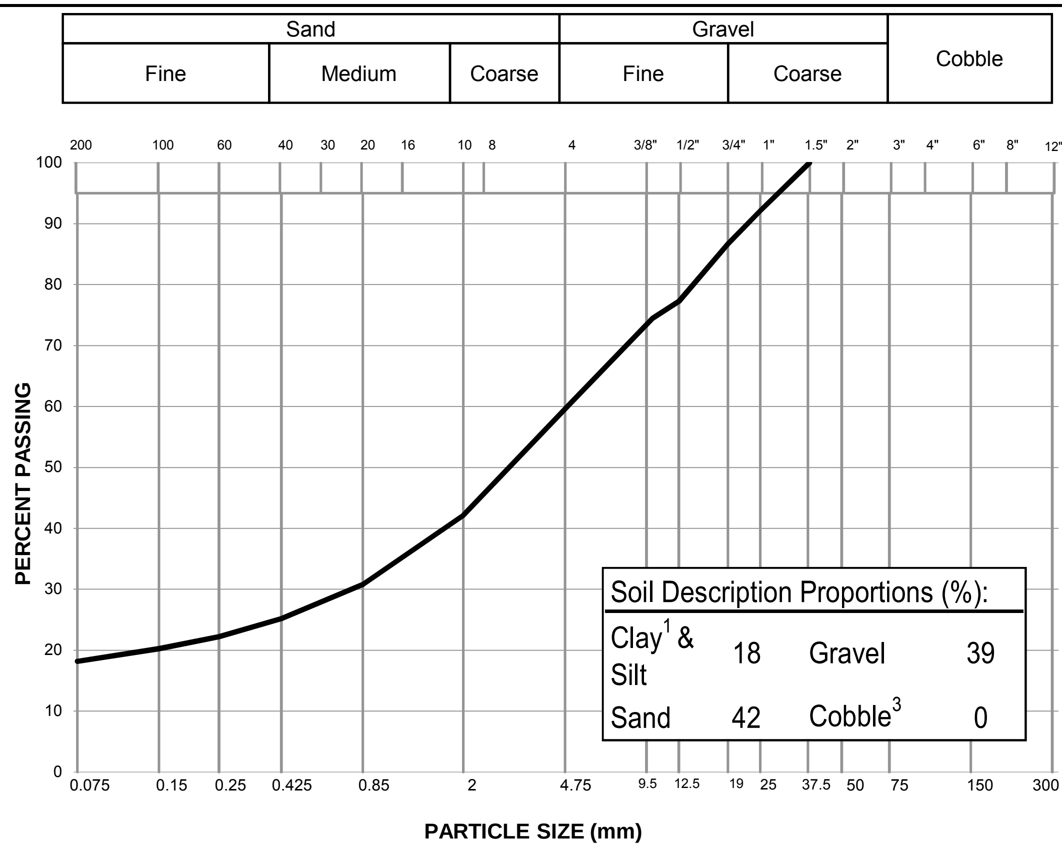
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - HL Pond	Sample Loc.:	GT62
Client:	Kaminak Gold Corporation	Sample Depth:	2.00 - 2.42 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 5, 2016 By: AMT	Date sampled:	September 22, 2016
Soil Description[2]:	GRAVEL and SAND - some silt	Sampled By:	JGD
		USC Classification:	Cu: #N/A
Moisture Content:	24.9%		Cc: #N/A

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	
38	100
25	92
19	87
12.5	77
10	74
5	61
2	42
0.85	31
0.425	25
0.25	22
0.15	20
0.075	18.2



Soil Description Proportions (%):			
Clay[1] & Silt	18	Gravel	39
Sand	42	Cobble[3]	0

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols
[3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification:

Remarks:

Reviewed By: ____________________ P.Eng.

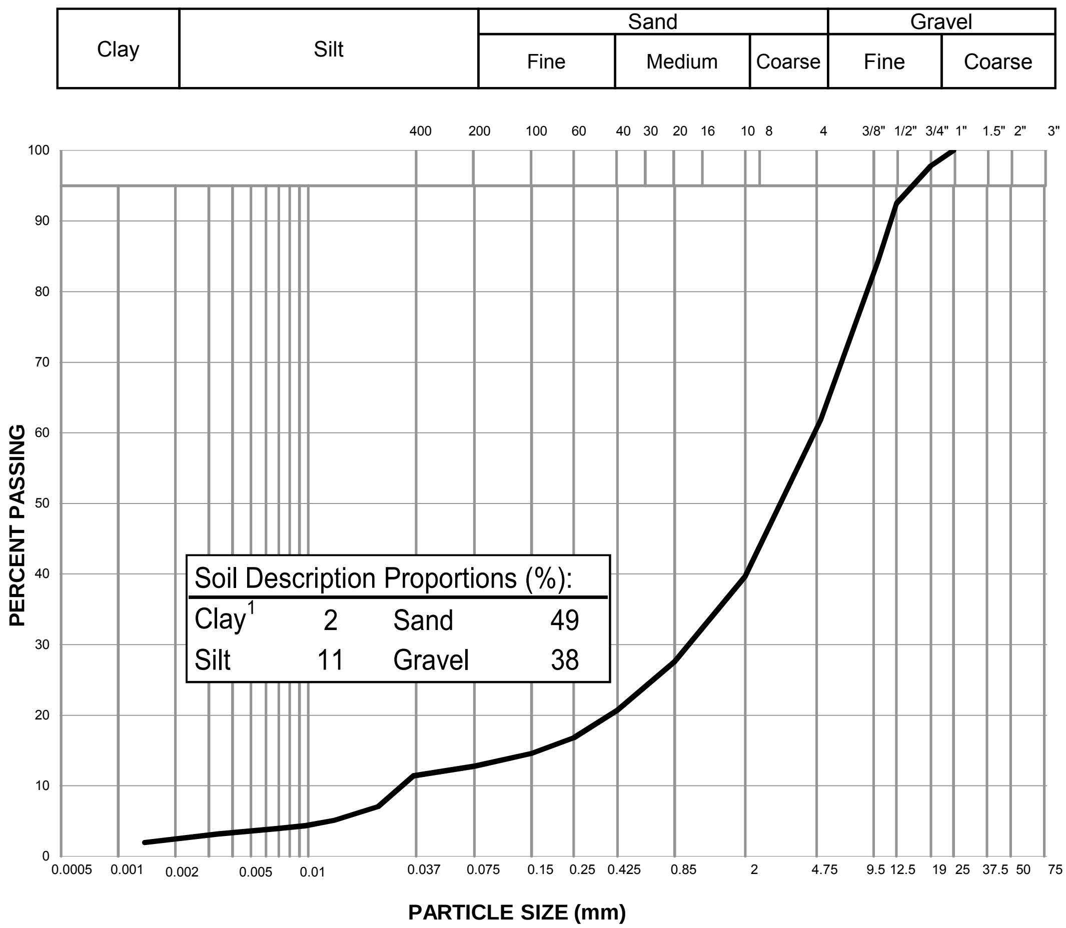
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - HL Pond	Sample Loc.:	GT64
Client:	Kaminak Gold Corporation	Sample Depth:	2.33 - 2.64 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 20, 2016
Soil Description[2]:	SAND and GRAVEL - some silt, trace clay	Sampled By:	EP
		USC Classification:	Cu: 149.1
Moisture Content:	13.2%		Cc: 7.7

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	98
12.5	93
10	84
5	62
2	40
0.85	28
0.425	21
0.25	17
0.15	15
0.075	12.8
0.0359	11.4
0.0234	7.1
0.0137	5.1
0.0096	4.3
0.0068	3.9
0.0033	3.1
0.0014	2.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______________________________

Remarks: ______________________________

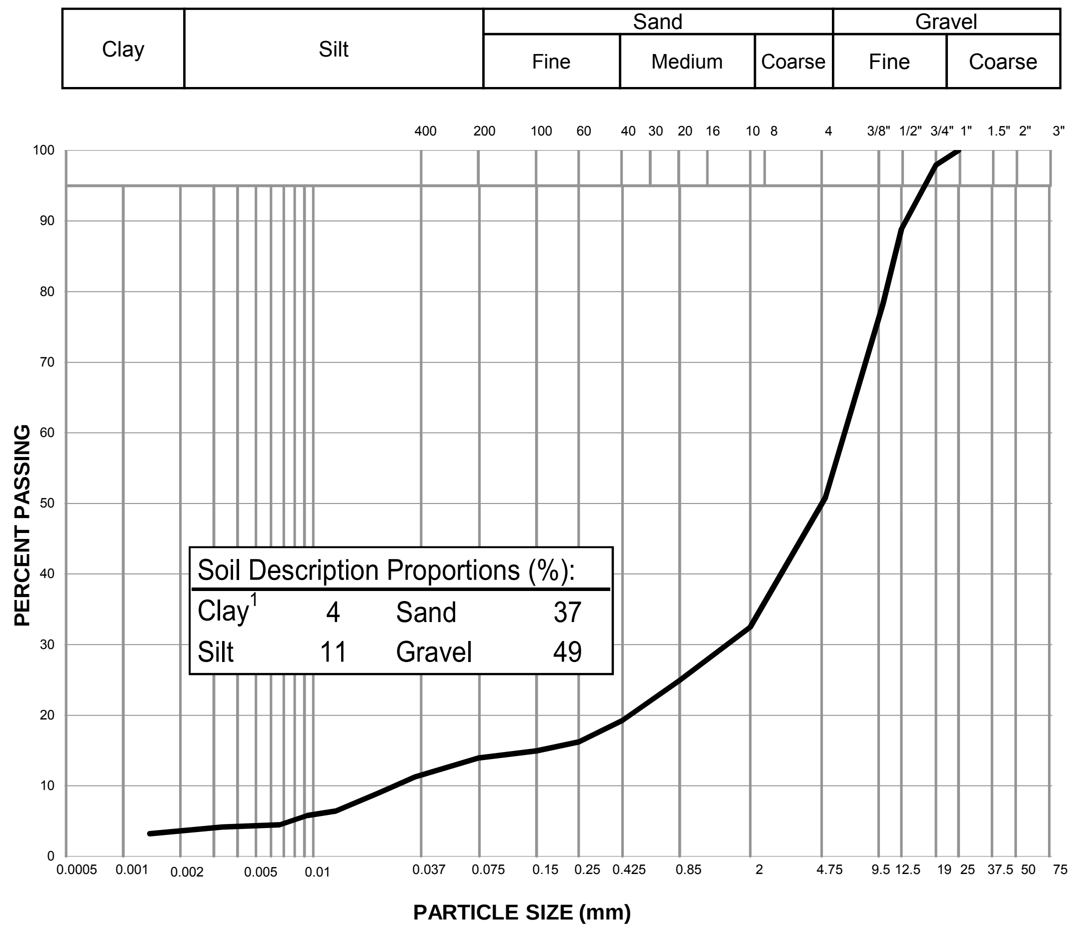
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S2
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - HL Pond	Sample Loc.:	GT65
Client:	Kaminak Gold Corporation	Sample Depth:	2.71 - 3.00 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 21, 2016
Soil Description[2]:	GRAVEL and SAND - some silt, trace clay	Sampled By:	EP
		USC Classification:	Cu: 241.0
Moisture Content:	34.3%		Cc: 14.3

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	98
12.5	89
10	78
5	51
2	32
0.85	25
0.425	19
0.25	16
0.15	15
0.075	14.0
0.0344	11.2
0.0222	9.0
0.0131	6.4
0.0093	5.8
0.0067	4.5
0.0033	4.2
0.0014	3.2



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______

Remarks: ______

Reviewed By: ______________________ P.Eng.

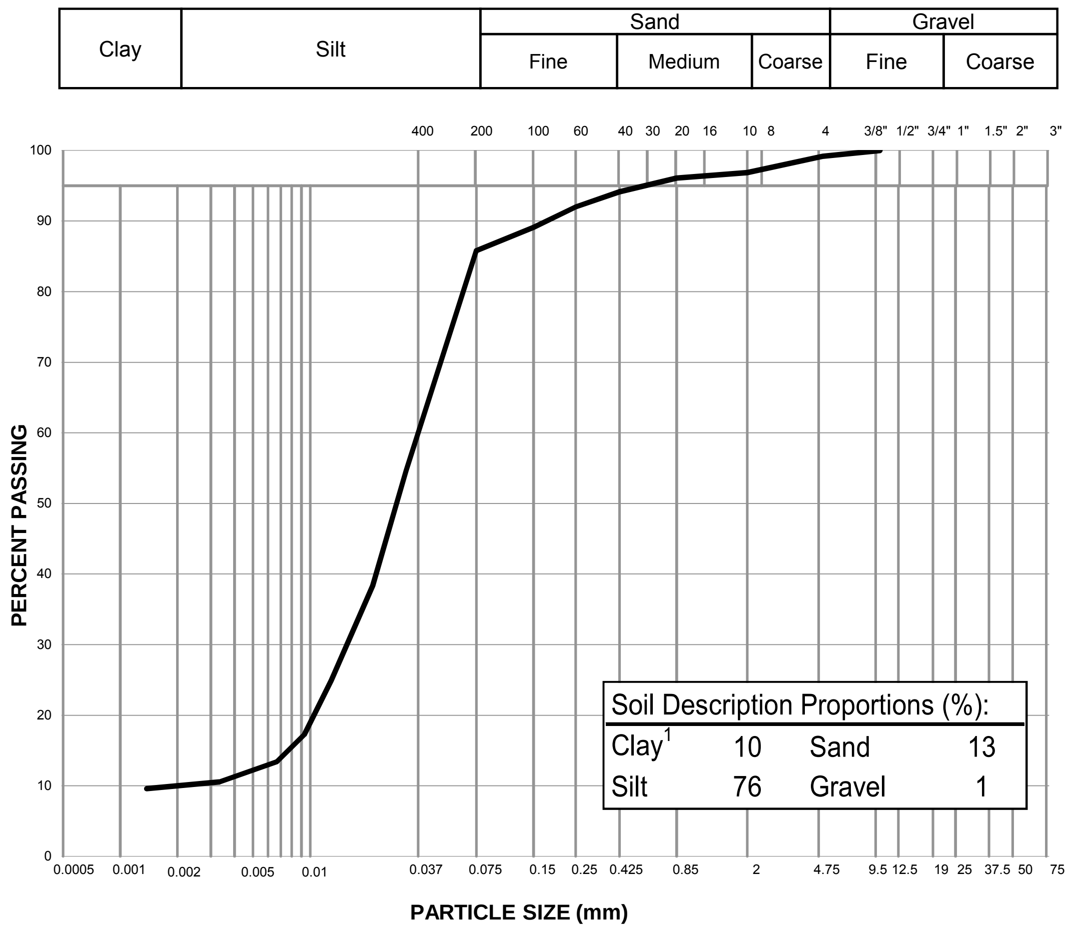
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S6
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - HL Pond	Sample Loc.:	GT66
Client:	Kaminak Gold Corporation	Sample Depth:	4.40 - 4.76 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	November 30, 2016 By: AMT	Date sampled:	September 24, 2016
Soil Description[2]:	Organic SILT - some sand, trace clay, trace gravel	Sampled By:	EP
		USC Classification:	Cu: 17.7
Moisture Content:	68.9%		Cc: 3.0

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	
12.5	
10	100
5	99
2	97
0.85	96
0.425	94
0.25	92
0.15	89
0.075	85.8
0.0320	54.7
0.0214	38.4
0.0129	24.9
0.0093	17.3
0.0067	13.4
0.0033	10.5
0.0014	9.6



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual
[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

Reviewed By: ______________________ P.Eng.

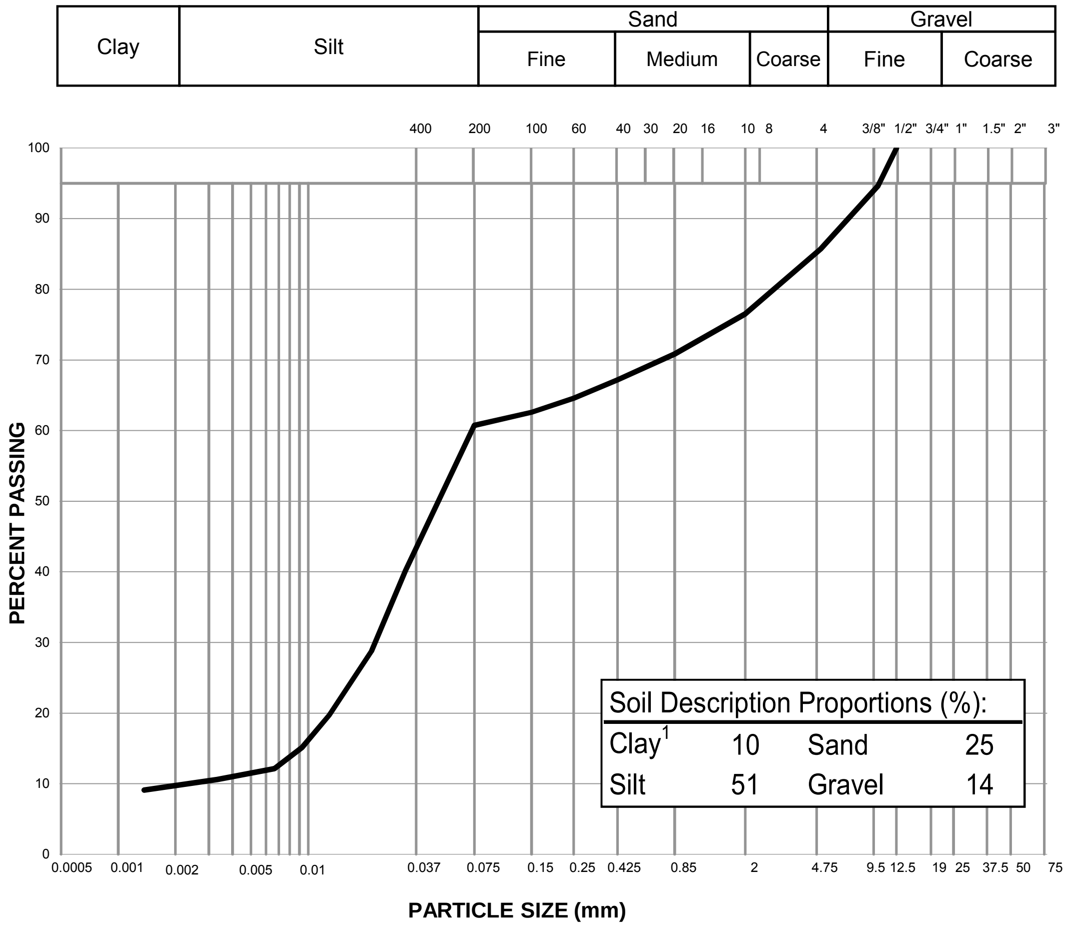
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Coffee Gold 2016 - Geotech. Invest.	Sample No.:	S9
Project No.:	ENG.EARC03004-02	Material Type:	
Site:	Coffee Creek - HL Pond	Sample Loc.:	GT66
Client:	Kaminak Gold Corporation	Sample Depth:	6.12 - 6.55 m
Client Rep.:	[name redacted]	Sampling Method:	Grab
Date Tested:	December 2, 2016 By: AMT	Date sampled:	September 24, 2016
Soil Description[2]:	SILT - sandy, some gravel, trace clay	Sampled By:	EP
		USC Classification:	Cu: 28.9
Moisture Content:	90.6%		Cc: 2.8

Particle Size (mm)	Percent Passing
75	
50	
38	
25	
19	
12.5	100
10	95
5	86
2	77
0.85	71
0.425	67
0.25	65
0.15	63
0.075	60.8
0.0325	40.1
0.0216	28.8
0.0129	19.7
0.0093	15.1
0.0066	12.1
0.0033	10.6
0.0014	9.1



Soil Description Proportions (%):			
Clay[1]	10	Sand	25
Silt	51	Gravel	14

Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to EBA description protocols

Specification: ______________________

Remarks: ______________________

Reviewed By: ______________________ P.Eng.

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Coffee Gold Project - 2016 Geotech. Invest.	Sample No.:	See Below
Project No.:	ENG.EARC03004-02	Date Tested:	November 18, 2016
Client:	Kaminak Gold Corporation	Tested By:	AMT
Address:	Coffee Creek	Page:	1 of 2

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
GT10	S3A	88.4	
GT10	S3B	108.9	
GT10	S8	6.0	
GT11	S1	24.8	
GT12	S2	11.1	
GT13	S7	5.9	
GT14	S2	24.4	
GT14	S3	17.7	
GT15	S2	37.2	
GT15	S8	12.8	
GT16	S2	22.2	
GT19	S2	11.2	
GT43	S4	60.2	
GT43	S6	27.3	
GT45	S3	47.2	
GT45	S5	10.4	
GT46	S4	17.9	
GT46	S8	12.6	
GT47	S5	10.7	
GT47	S19	15.0	
GT51	S5	34.9	
GT57	S7	7.4	

Reviewed By: ____________________________ P.Eng.

MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	Coffee Gold Project - 2016 Geotech. Invest.	Sample No.:	See Below
Project No.:	ENG.EARC03004-02	Date Tested:	November 18, 2016
Client:	Kaminak Gold Corporation	Tested By:	AMT
Address:	Coffee Creek	Page:	2 of 2

B.H. Number	Sample Number	Moisture Content (%)	Visual Description of Soil
GT58	S2	49.1	
GT61	S4/S6	12.4	
GT62	S2	24.9	
GT64	S2	13.2	
GT65	S7	34.3	
GT66	S6	68.9	
GT66	S9	90.6	

Reviewed By: ______________________________ P.Eng.

APPENDIX D
ONSITE ROCK STRENGTH INDEX TEST RESULTS

Table D.1. Diametral Point Load Rock Strength Test Results

Rock Core Testing Point Load (Diametral)					
Sample No.	**Depth (m)**	**UCS (Mpa)**	**Rock Strength**	**Photo ID**	**Comments**
GT01-R1	1.80 - 1.90	128.1	Very Strong	Photo 1E	Valid test
GT01-R2	2.82 - 2.98	103.6	Very Strong	Photo 2E	Valid test
GT01-R3	3.84 - 3.92	160.9	Very Strong	Photo 3E	Valid test
GT02-R1	2.62 - 2.78	40.7	Medium Strong	Photo 4E	Valid test
GT02-R2	3.72 - 3.84	76.3	Strong	Photo 5E	Valid test
GT02-R3	4.00 - 4.18	85.5	Strong	Photo 6E	Valid test
GT02-R4	4.60 - 4.78	52.2	Strong	Photo 7E	Valid test
GT09-R1	16.45 - 16.62	30.3	Medium Strong	Photo 8E	Valid test
GT09-R2	17.00 - 17.19	33.4	Medium Strong	Photo 9E	Valid test
GT09-R3	18.14 - 18.44	13.2	Weak	Photo 10E	Valid test
GT11-R1	3.73 - 3.80	133.5	Very Strong	Photo 11E	Valid test
GT11-R2	4.95 - 5.10	95.1	Strong	Photo 12E	Invalid test
GT12-R1	1.70 - 1.77	45.3	Medium Strong	Photo 13E	Invalid test
GT12-R2	2.20 - 2.30	108.7	Very Strong	-	Valid test
GT12-R3	3.20 - 3.30	77.7	Strong	Photo 14E	Valid test
GT12-R4	5.40 - 5.60	88.6	Strong	Photo 15E	Invalid test; Fracture occurred along joint
GT12-R4 (Redo)	5.40 - 5.60	110.5	Very Strong	Photo 16E	Valid test; Redo of previous test
GT13-R3	8.00 - 8.20	220.0	Very Strong	Photo 17E	Valid test
GT13-R5	9.60 - 9.70	78.4	Strong	Photo 18E	Valid test
GT14-R1	2.90 - 3.00	-	-	-	Not tested as it was determined to be a cobble sample
GT14-R2	3.88 - 3.96	54.5	Strong	Photo 19E	Valid test
GT14-R3	5.30 - 5.40	2.7	Very Weak	Photo 20E	Valid test; very weathered
GT14-R4	6.72 - 6.85	76.9	Strong	Photo 21E	Invalid test
GT14-R5	7.53 - 7.72	83.2	Strong	Photo 22E	Valid test
GT14-R6	8.46 - 8.60	82.7	Strong	Photo 23E	Valid test
GT14-R7	10.82 - 10.92	240.3	Very Strong	Photo 24E	Valid test
GT14-R8	13.15 - 13.24	207.9	Very Strong	Photo 25E	Valid test
GT14-R9	15.50 - 15.65	121.4	Very Strong	Photo 26E	Valid test
GT14-R10	17.70 - 17.90	12.7	Weak	Photo 27E	Valid test
GT14-R11	20.30 - 20.40	335.8	Extremely strong	Photo 28E	Valid test
GT15-R1	5.33 - 5.46	92.4	Strong	Photo 29E	Valid test; Boulder sample
GT15-R2	6.80 - 6.95	55.2	Strong	Photo 30E	Valid test
GT15-R3	7.32 - 7.45	38.4	Medium Strong	Photo 31E	Invalid test; Fracture did not cross both conical platens
GT15-R4	7.65 - 7.70	-	-	Photo 32E	Invalid test; Fracture occurred while setting up plate load test (very weak)
GT15-R5	9.55 - 9.68	65.4	Strong	Photo 33E	Valid test
GT16-R1	4.34 - 4.48	8.8	Weak	Photo 34E	Valid test
GT16-R2	5.07 - 5.22	14.8	Weak	Photo 35E	Valid test
GT17-R1	2.72 - 2.88	19.4	Weak	Photo 36E	Invalid test; Through existing fracture
GT17-R2	3.50 - 3.68	47.9	Medium Strong	Photo 37E	Valid test
GT17-R3	4.28 - 4.39	13.4	Weak	Photo 38E	Valid test
GT18-R1	6.43 - 6.58	109.5	Very Strong	Photo 39E	Valid test
GT19-R1	3.50 - 3.71	79.2	Strong	Photo 40E	Valid test
GT19-R2	4.25 - 4.39	140.0	Very Strong	Photo 41E	Valid test
GT19-R3	5.00 - 5.25	212.5	Very Strong	Photo 42E	Valid test
GT20-R1	4.00 - 4.11	224.8	Very Strong	Photo 43E	Valid test
GT20-R2	5.64 - 5.77	172.9	Very Strong	Photo 44E	Valid test
GT20-R3	6.09 - 6.20	95.5	Strong	Photo 45E	Valid test
GT43-R1	17.14 - 17.33	35.7	Medium Strong	Photo 46E	Valid test
GT44-R1	4.41 - 4.57	36.4	Medium Strong	Photo 47E	Valid test
GT45-R1	16.17 - 16.29	15.5	Weak	Photo 48E	Valid test
GT45-R2	17.18 - 17.35	11.3	Weak	Photo 49E	Valid test
GT45-R3	19.83 - 20.00	11.7	Weak	Photo 50E	Valid test
GT46-R1	9.00 - 9.15	60.4	Strong	Photo 51E	Valid test
GT46-R2	9.43 - 9.58	27.6	Medium Strong	Photo 52E	Valid test
GT46-R3	10.90 - 11.00	114.5	Very Strong	Photo 53E	Valid test
GT47-R1	14.50 - 14.60	31.6	Medium Strong	Photo 54E	Valid test
GT47-R2	15.38 - 15.46	117.4	Very Strong	Photo 55E	Valid test
GT47-R3	16.60 - 16.71	25.1	Medium Strong	Photo 56E	Valid test
GT47-R4	17.82 - 17.95	75.6	Strong	Photo 57E	Valid test
GT48-R1	4.85 - 5.03	264.1	Extremely strong	Photo 58E	Valid test
GT48-R2	6.35 - 6.45	143.8	Very Strong	Photo 59E	Valid test
GT48-R3	6.68 - 6.82	171.8	Very Strong	Photo 60E	Valid test
GT48-R4	7.87 - 8.00	239.5	Very Strong	Photo 61E	Valid test
GT48-R5	8.52 - 8.57	197.7	Very Strong	Photo 62E	Valid test
GT50-R1	4.10 - 4.19	62.3	Strong	Photo 63E	Invalid test; Fracture did not cross both conical platens
GT50-R2	5.25 - 5.35	1.9	Very Weak	Photo 64E	Invalid test; Fracture occurred while setting up plate load test (very weak)
GT50-R4	7.85 - 7.95	61.6	Strong	Photo 65E	Valid test
GT50-R5	8.80 - 9.00	18.8	Weak	Photo 66E	Valid test

Table D.1. Diametral Point Load Rock Strength Test Results

Rock Core Testing Point Load (Diametral)					
Sample No.	**Depth (m)**	**UCS (Mpa)**	**Rock Strength**	**Photo ID**	**Comments**
GT50-R6	9.50 - 9.60	14.4	Weak	Photo 67E	Invalid test; Fracture did not cross both conical platens
GT51-R1	2.84 - 2.90	115.6	Very Strong	Photo 68E	Valid test
GT51-R2	3.00 - 3.12	279.8	Extremely strong	Photo 69E	Valid test
GT51-R3	3.80 - 3.90	-	-	-	Sample was not located
GT51-R4	4.50 - 4.60	35.7	Medium Strong	Photo 70E	Valid test
GT51-R5	6.44 - 6.50	102.4	Very Strong	Photo 71E	Valid test
GT51-R6	7.15 - 7.30	81.9	Strong	Photo 72E	Valid test
GT51-R7	10.80 - 11.00	294.2	Extremely strong	Photo 73E	Valid test
GT51-R8	11.90 - 12.00	262.2	Extremely strong	Photo 74E	Valid test
GT51-R9	13.13 - 13.25	274.6	Extremely strong	Photo 75E	Valid test
GT51-R10	14.77 - 14.83	-	-	Photo 76E	Invalid test; Fracture occurred while setting up plate load test (very weak)
GT51-R11	16.85 - 17.00	124.1	Very Strong	Photo 77E	Valid test
GT51-R12	17.68 - 17.80	122.2	Very Strong	Photo 78E	Invalid test; Fracture did not cross both conical platens
GT51-R13	19.85 - 20.00	37.6	Medium Strong	Photo 79E	Invalid test; Fracture did not cross both conical platens
GT51-R14	20.57 - 20.70	53.9	Strong	Photo 80E	Invalid test; Fracture did not cross both conical platens
GT53-R1	6.50 - 6.61	251.5	Extremely strong	Photo 81E	Valid test
GT53-R2	7.50 - 7.64	371.7	Extremely strong	Photo 82E	Invalid test; Broke along existing fracture
GT53-R3	8.86 - 8.97	271.0	Extremely strong	Photo 83E	Valid test
GT53-R4	9.62 - 9.88	272.9	Extremely strong	Photo 84E	Valid test
GT55-R1	8.00 - 8.21	185.2	Very Strong	Photo 85E	Valid test
GT55-R2	8.46 - 8.62	312.6	Extremely strong	Photo 86E	Valid test
GT57-R1	10.33 - 10.48	173.4	Very Strong	Photo 87E	Valid test
GT57-R2	11.49 - 11.66	35.5	Medium Strong	Photo 88E	Valid test
GT57-R3	13.01 - 13.14	113.0	Very Strong	Photo 89E	Valid test
GT58-R1	5.19 - 5.30	28.2	Medium Strong	Photo 90E	Valid test
GT58-R2	6.55 - 6.72	77.3	Strong	Photo 91E	Valid test
GT58-R3	7.24 - 7.34	77.7	Strong	Photo 92E	Valid test
GT59-R1	1.60 - 1.71	20.3	Weak	Photo 93E	Valid test
GT59-R2	2.51 - 2.61	61.4	Strong	Photo 94E	Valid test
GT59-R3	3.11 - 3.23	18.6	Weak	Photo 95E	Valid test; Weathering in joint
GT59-R4	4.73 - 4.81	59.6	Strong	Photo 96E	Valid test
GT60-R1	5.47 - 5.60	39.7	Medium Strong	Photo 97E	Valid test
GT60-R2	6.64 - 6.78	122.2	Very Strong	Photo 98E	Valid test
GT60-R3	7.81 - 7.90	76.1	Strong	Photo 99E	Valid test
GT61-R1	4.00 - 4.15	61.9	Strong	Photo 100E	Valid test
GT61-R2	5.10 - 5.25	43.9	Medium Strong	Photo 101E	Valid test
GT61-R3	6.65 - 6.22	70.2	Strong	Photo 102E	Valid test
GT61-R4	7.33 - 7.44	99.0	Strong	Photo 103E	Valid test
GT62-R1	3.73 - 3.82	73.6	Strong	Photo 104E	Valid test
GT62-R2	5.44 - 5.62	57.9	Strong	Photo 105E	Valid test
GT62-R4	9.31 - 9.50	103.0	Very Strong	Photo 106E	Valid test
GT63-R1	4.52 - 4.66	84.0	Strong	Photo 107E	Valid test
GT63-R2	7.41 - 7.66	59.1	Strong	-	Valid test
GT63-R3	8.85 - 8.76	115.1	Very Strong	Photo 108E	Valid test
GT63-R4	9.31 - 9.50	-	-	-	Sample was not located
GT63-R5	10.75 - 10.91	117.2	Very Strong	Photo 109E	Valid test
GT63-R6	12.20 - 12.34	18.6	Weak	Photo 110E	Invalid test
GT63-R7	14.36 - 14.50	23.6	Weak	Photo 111E	Valid test
GT63-R8	15.02 - 15.20	32.2	Medium Strong	Photo 112E	Valid test
GT63-R9	16.23 - 16.35	27.4	Medium Strong	Photo 113E	Invalid test
GT63-R10	17.37 - 17.50	31.6	Medium Strong	Photo 114E	Valid test
GT64-R1	4.06 - 4.33	43.5	Medium Strong	Photo 115E	Valid test
GT64-R2	5.53 - 5.73	110.8	Very Strong	Photo 116E	Valid test
GT64-R3	6.36 - 6.53	62.1	Strong	Photo 117E	Valid test
GT65-R1	6.26 - 6.41	52.5	Strong	Photo 118E	Valid test
GT65-R2	6.85 - 6.95	65.2	Strong	Photo 119E	Valid test
GT65-R3	8.70 - 8.83	30.3	Medium Strong	Photo 120E	Valid test
GT66-R1	7.70 - 7.83	31.8	Medium Strong	Photo 121E	Valid test
GT66-R2	10.34 - 10.45	17.1	Weak	-	Valid test; Along weathered joint

Ae - Surface area of platens
P - Load at failure
Isc - Size corrected point load strength
Isc= F*Is
F - Size correction factor =(De/50)^0.45
UCS - Unconfined compressive strength
UCS ~ 23*Isc

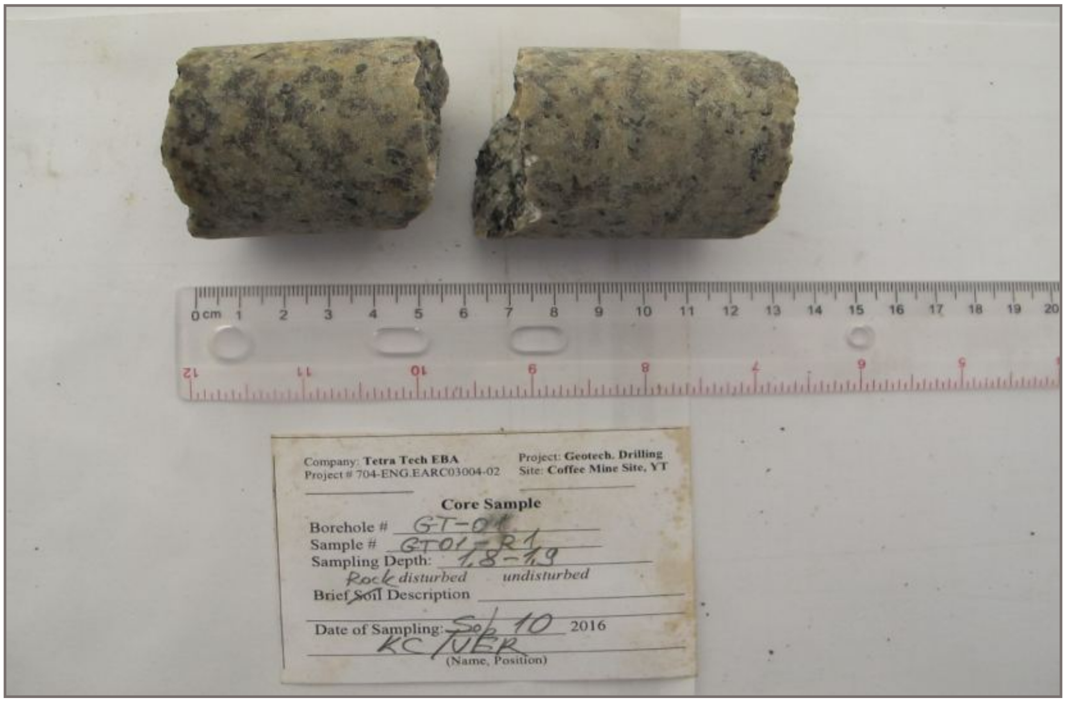


Photo 1E: Tested rock core sample GT01-R1; Depth: 1.80 - 1.90 m; Valid test

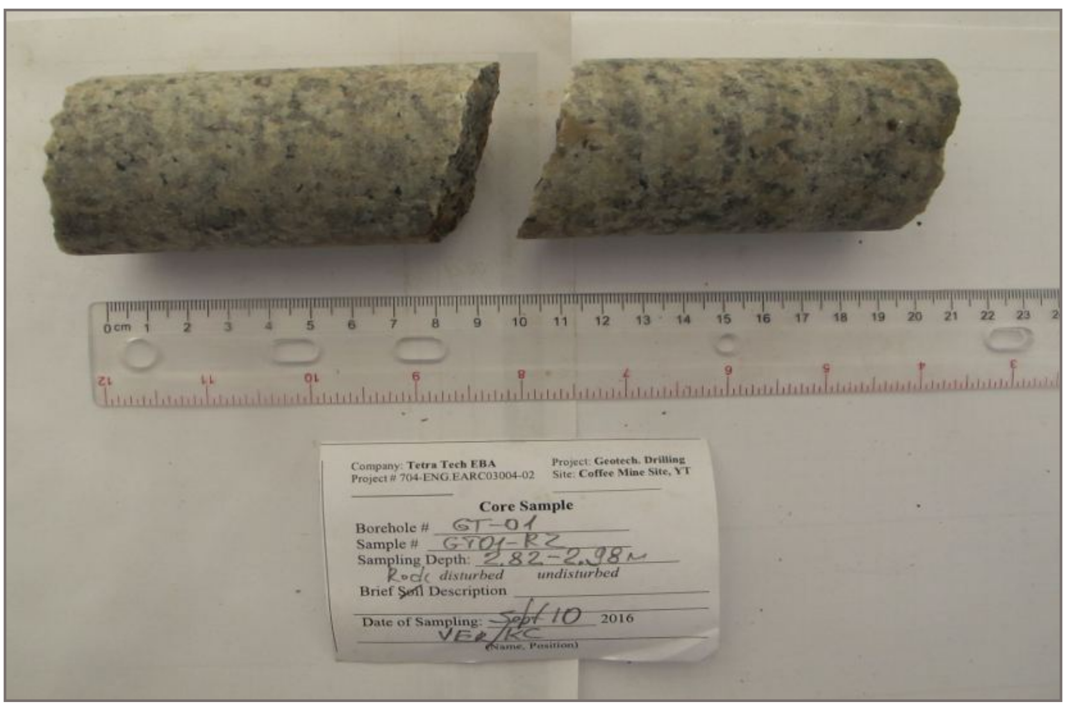


Photo 2E: Tested rock core sample GT01-R2; Depth: 2.82 - 2.98 m; Valid test

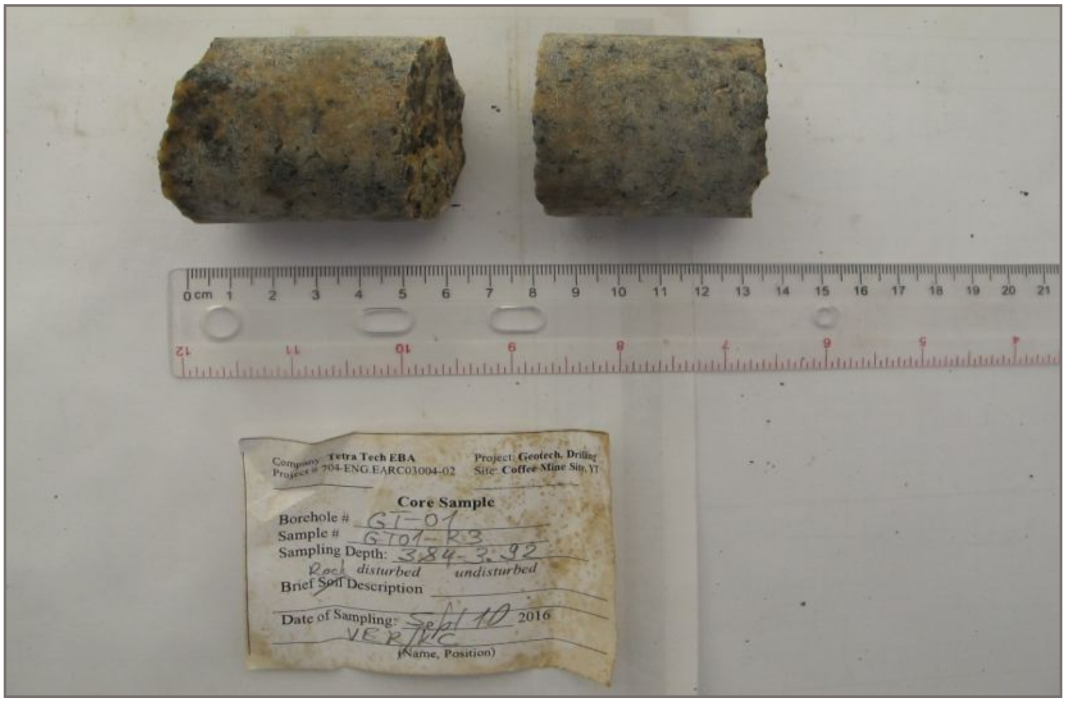


Photo 3E: Tested rock core sample GT01-R3; Depth: 3.84 - 3.92 m; Valid test

Photo 4E: Tested rock core sample GT02-R1; Depth: 2.62 - 2.78 m; Valid test

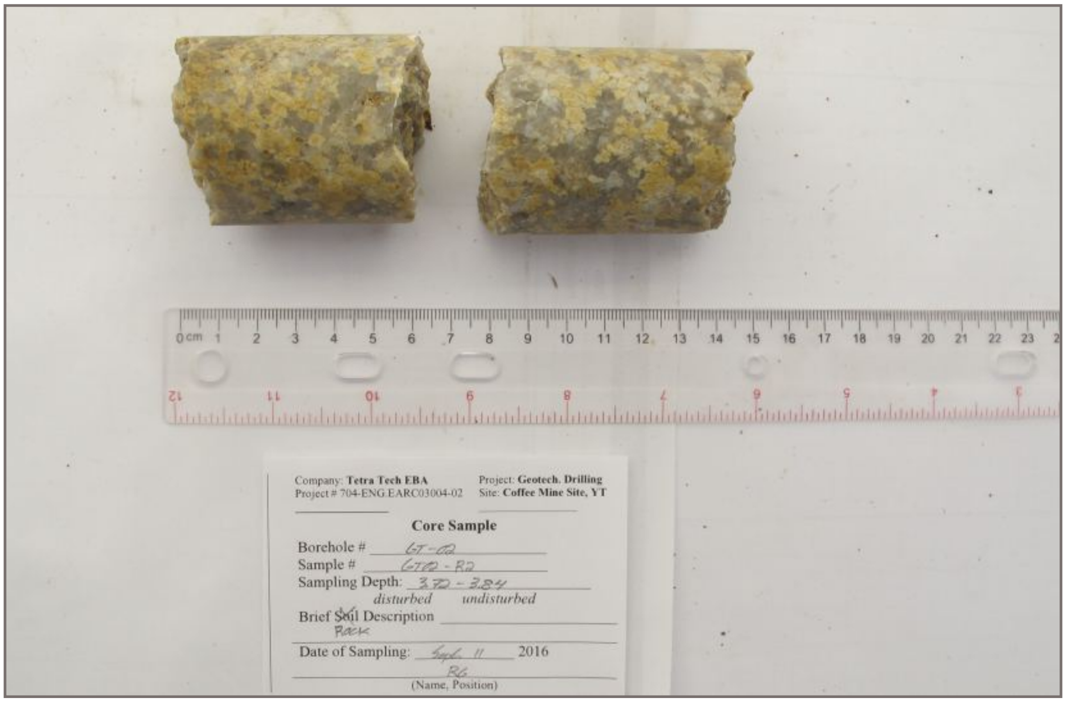


Photo 5E: Tested rock core sample GT02-R2; Depth: 3.72 - 3.84 m; Valid test

Photo 6E: Tested rock core sample GT02-R3; Depth: 4.00 - 4.18 m; Valid test

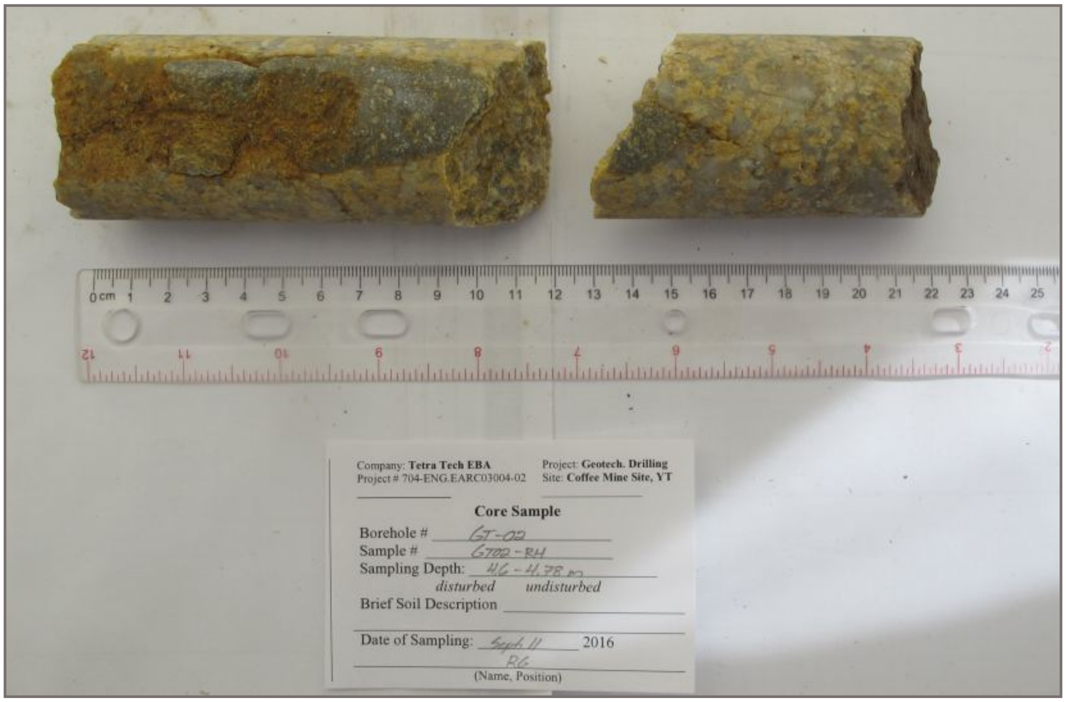


Photo 7E: Tested rock core sample GT02-R4; Depth: 4.60 - 4.78 m; Valid test

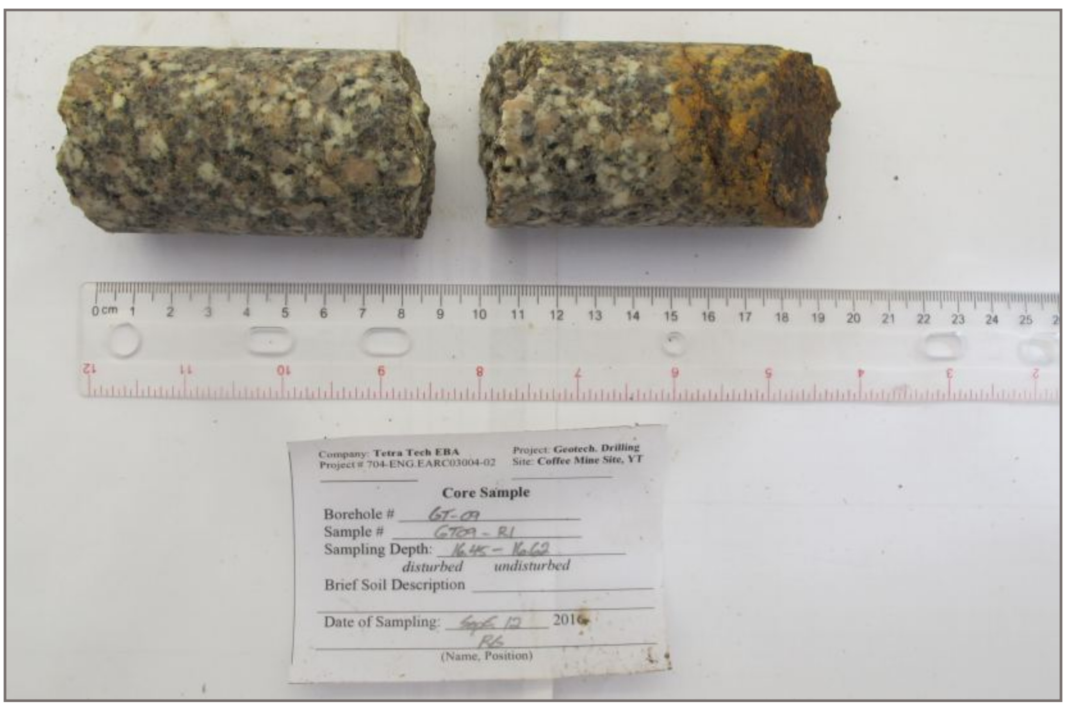


Photo 8E: Tested rock core sample GT09-R1; Depth: 16.45 - 16.62 m; Valid test

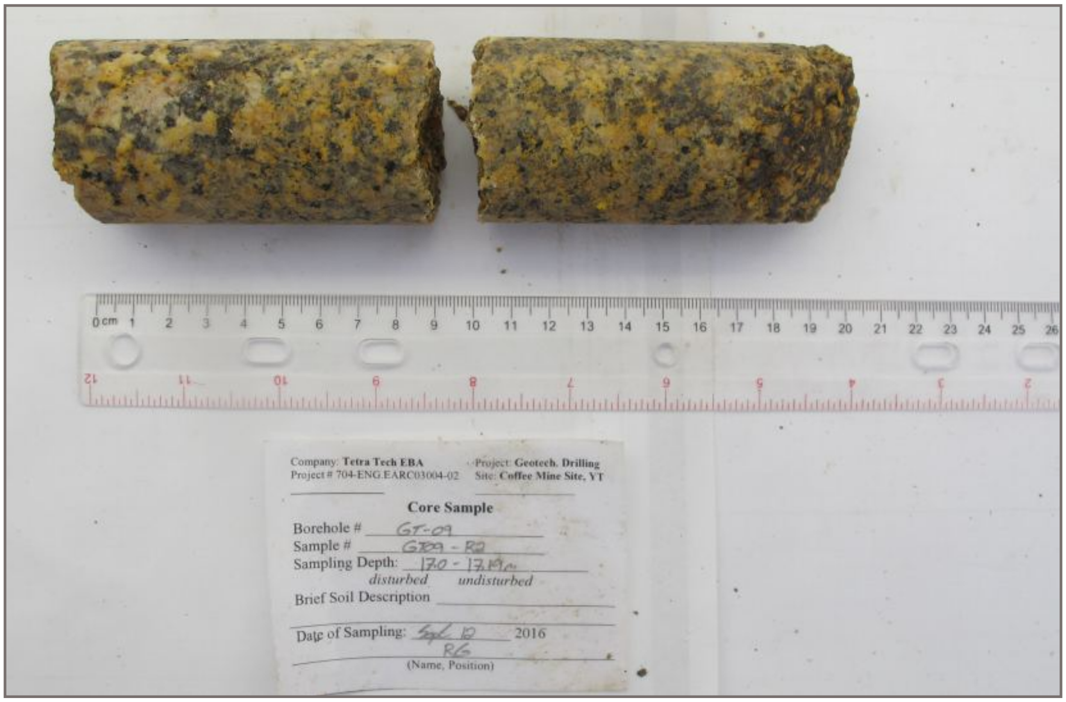


Photo 9E: Tested rock core sample GT09-R2; Depth: 17.00 - 17.19 m; Valid test

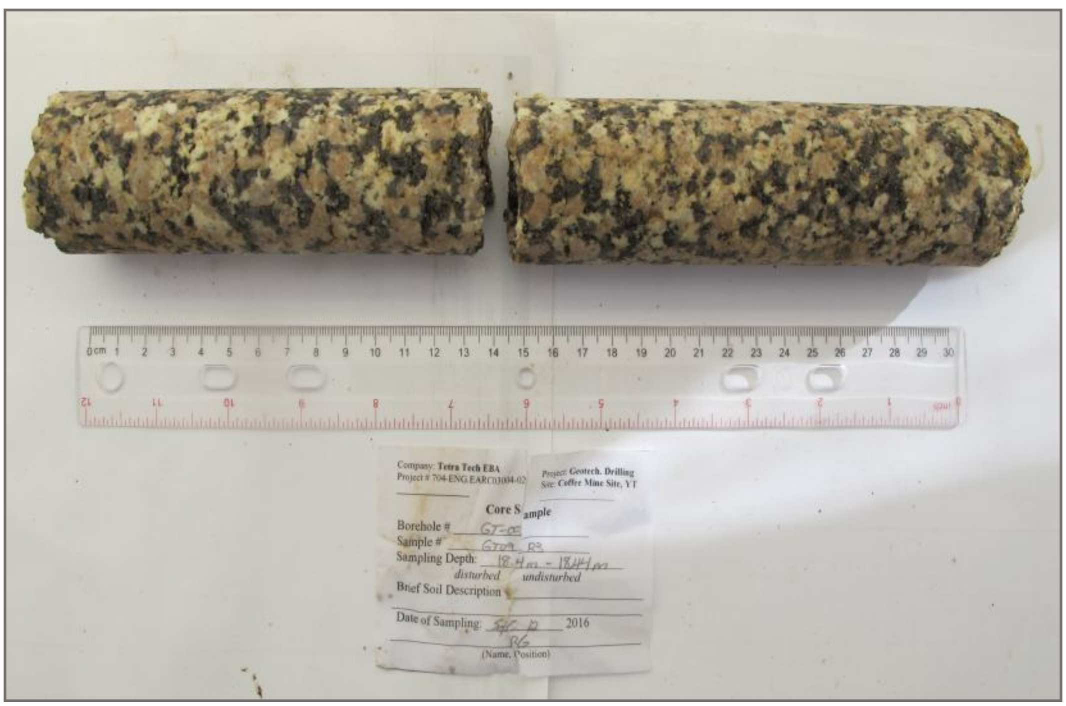


Photo 10E: Tested rock core sample GT09-R3; Depth: 18.14 - 18.44 m; Valid test

Photo 11E: Tested rock core sample GT11-R1; Depth: 3.73 - 3.80 m; Valid test

Photo 12E: Tested rock core sample GT11-R2; Depth: 4.95 - 5.10 m; Invalid test

Photo 13E: Tested rock core sample GT12-R1; Depth: 1.70 - 1.77 m; Invalid test

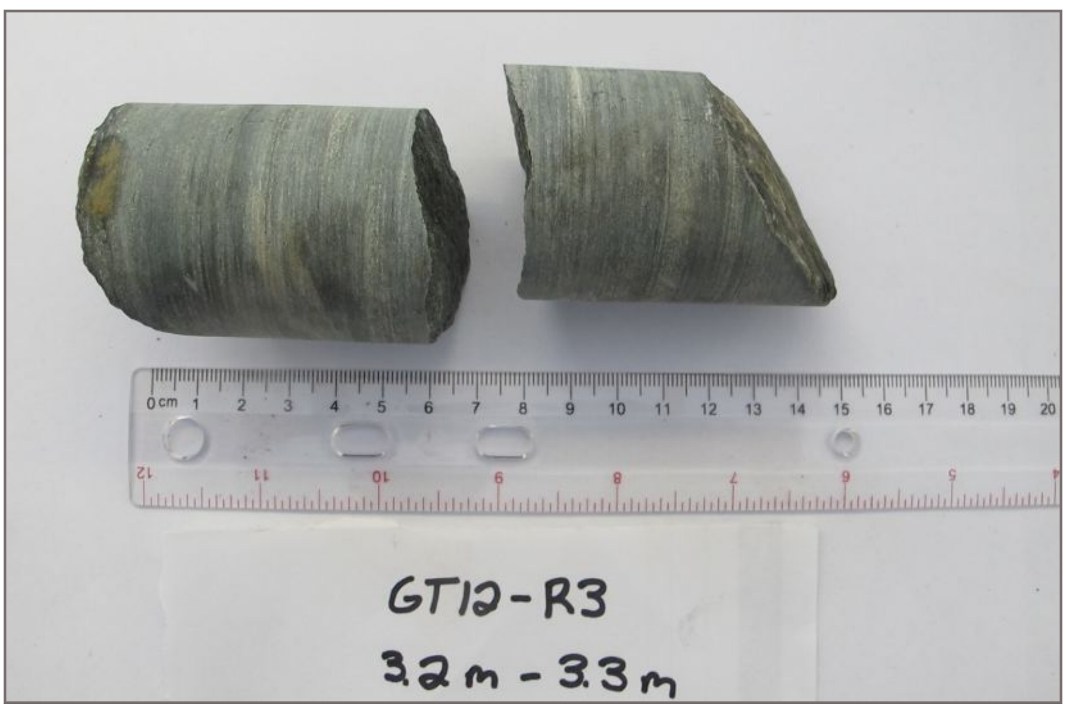


Photo 14E: Tested rock core sample GT12-R3; Depth: 3.20 - 3.30 m; Valid test

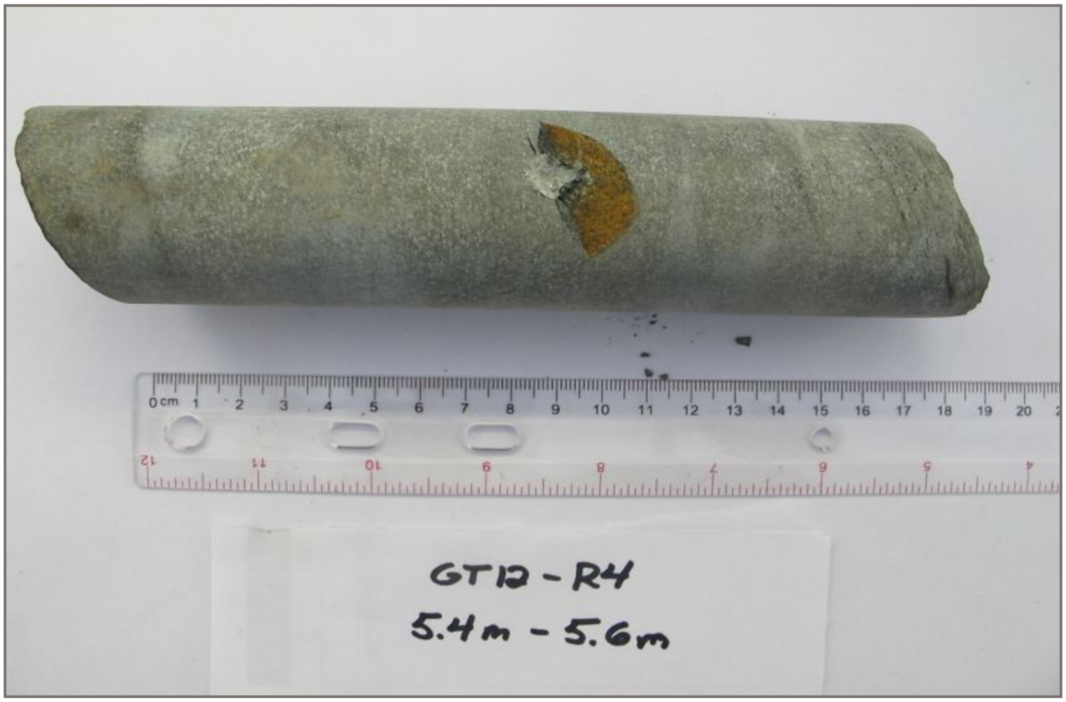


Photo 15E: Tested rock core sample GT12-R4; Depth: 5.40 - 5.60 m; Invalid test

Photo 16E: Tested rock core sample GT12-R4 (Redo); Depth: 5.40 - 5.60 m; Valid test

Photo 17E: Tested rock core sample GT13-R3; Depth: 8.00 - 8.20 m; Valid test

Photo 18E: Tested rock core sample GT13-R5; Depth: 9.60 - 9.70 m; Valid test

Photo 19E: Tested rock core sample GT14-R2; Depth: 3.88 - 3.96 m; Valid test

Photo 20E: Tested rock core sample GT14-R3; Depth: 5.30 - 5.40 m; Valid test

Photo 21E: Tested rock core sample GT14-R4; Depth: 6.72 - 6.85 m; Invalid test

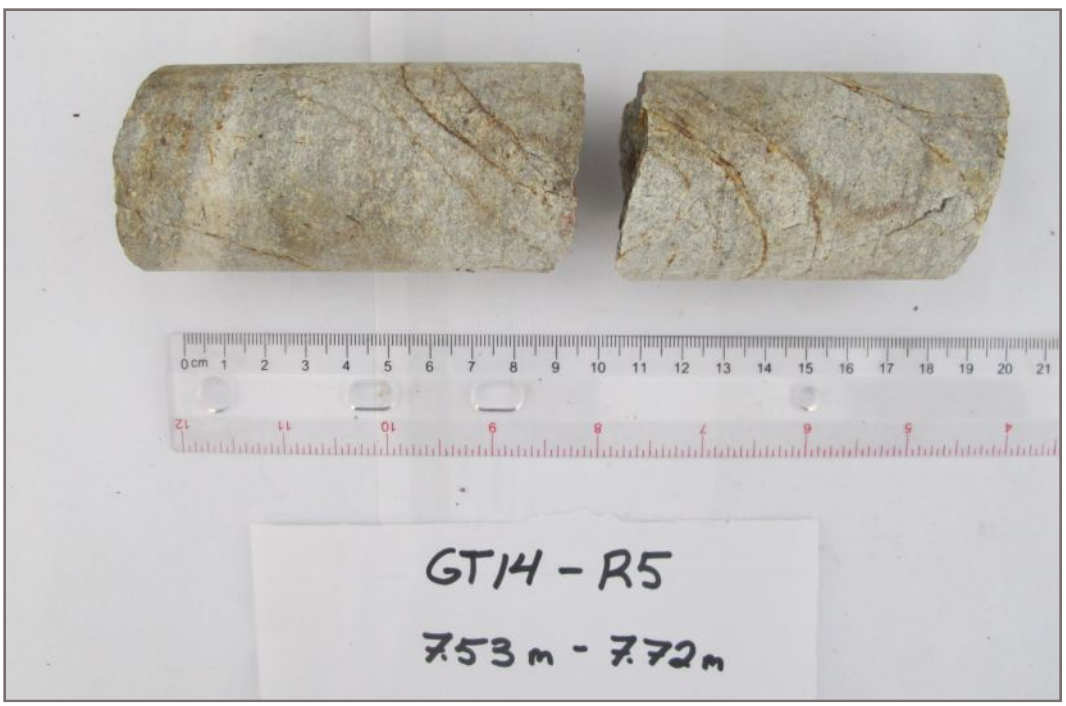


Photo 22E: Tested rock core sample GT14-R5; Depth: 7.53 - 7.72 m; Valid test

Photo 23E: Tested rock core sample GT14-R6; Depth: 8.46 - 8.60 m; Valid test

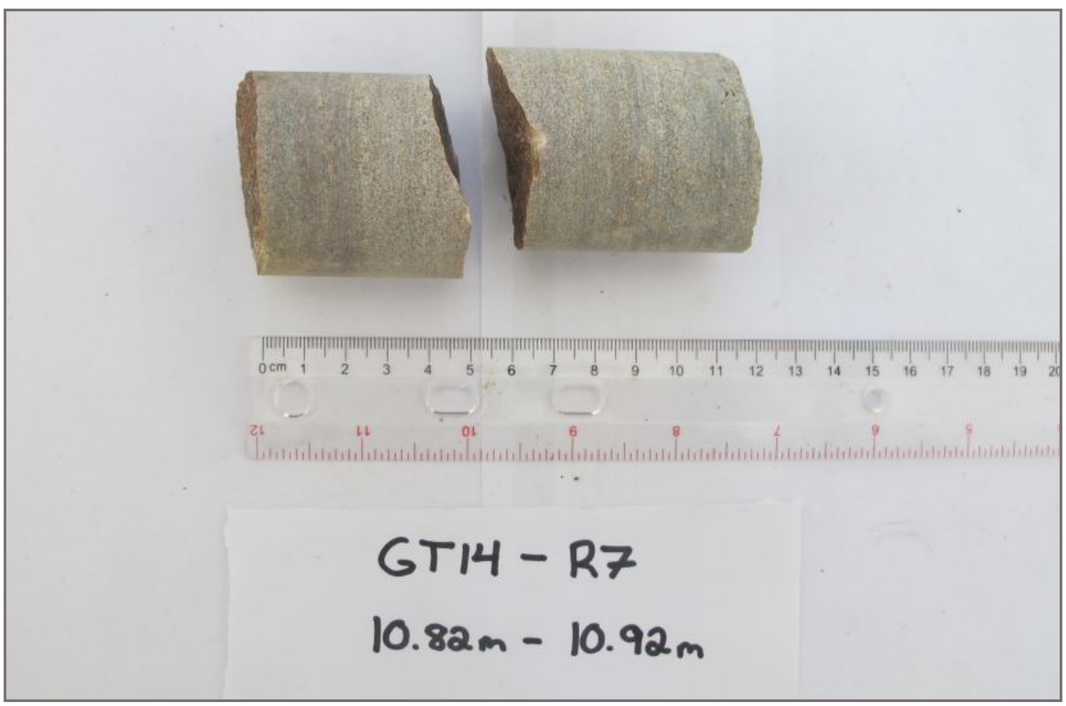


Photo 24E: Tested rock core sample GT14-R7; Depth: 10.82 - 10.92 m; Valid test

Photo 25E: Tested rock core sample GT14-R8; Depth: 13.15 - 13.24 m; Valid test

Photo 26E: Tested rock core sample GT14-R9; Depth: 15.50 - 15.65 m; Valid test

Photo 27E: Tested rock core sample GT14-R10; Depth: 17.70 - 17.90 m; Valid test

Photo 28E: Tested rock core sample GT14-R11; Depth: 20.30 - 20.40 m; Valid test

Photo 29E: Tested rock core sample GT15-R1; Depth: 5.33 - 5.46 m; Valid test

Photo 30E: Tested rock core sample GT15-R2; Depth: 6.80 - 6.95 m; Valid test

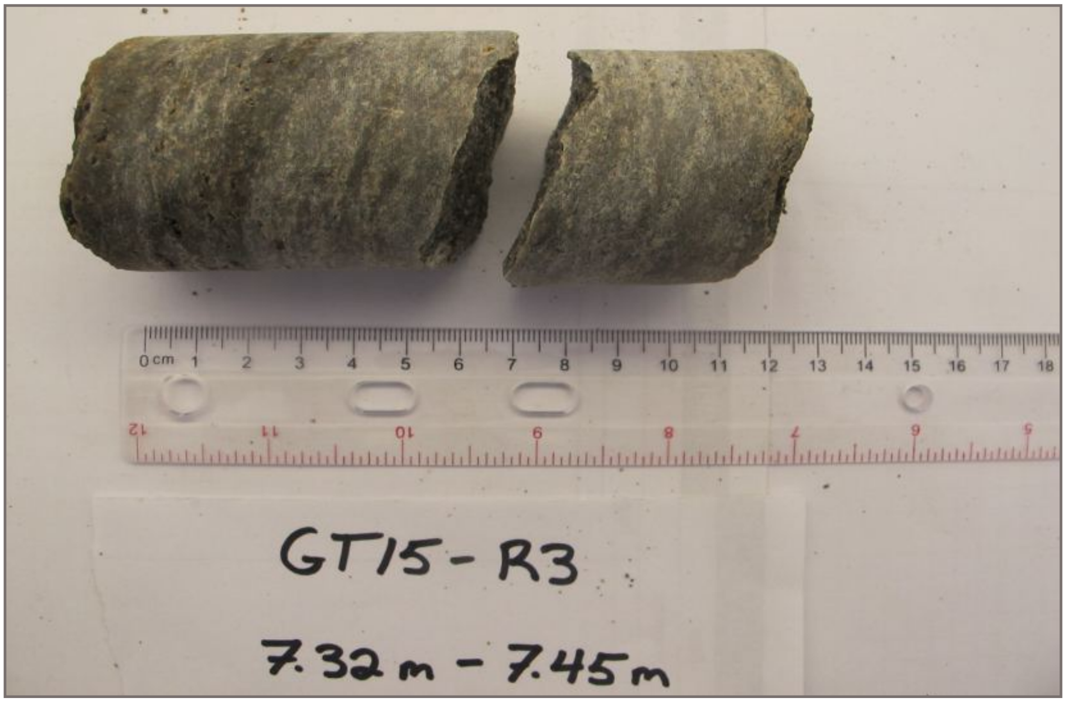


Photo 31E: Tested rock core sample GT15-R3; Depth: 7.32 - 7.45 m; Invalid test

Photo 32E: Tested rock core sample GT15-R4; Depth: 7.65 - 7.70 m; Invalid test

Photo 33E: Tested rock core sample GT15-R5; Depth: 9.55 - 9.68 m; Valid test

Photo 34E: Tested rock core sample GT16-R1; Depth: 4.34 - 4.48 m; Valid test

Photo 35E: Tested rock core sample GT16-R2; Depth: 5.07 - 5.22 m; Valid test

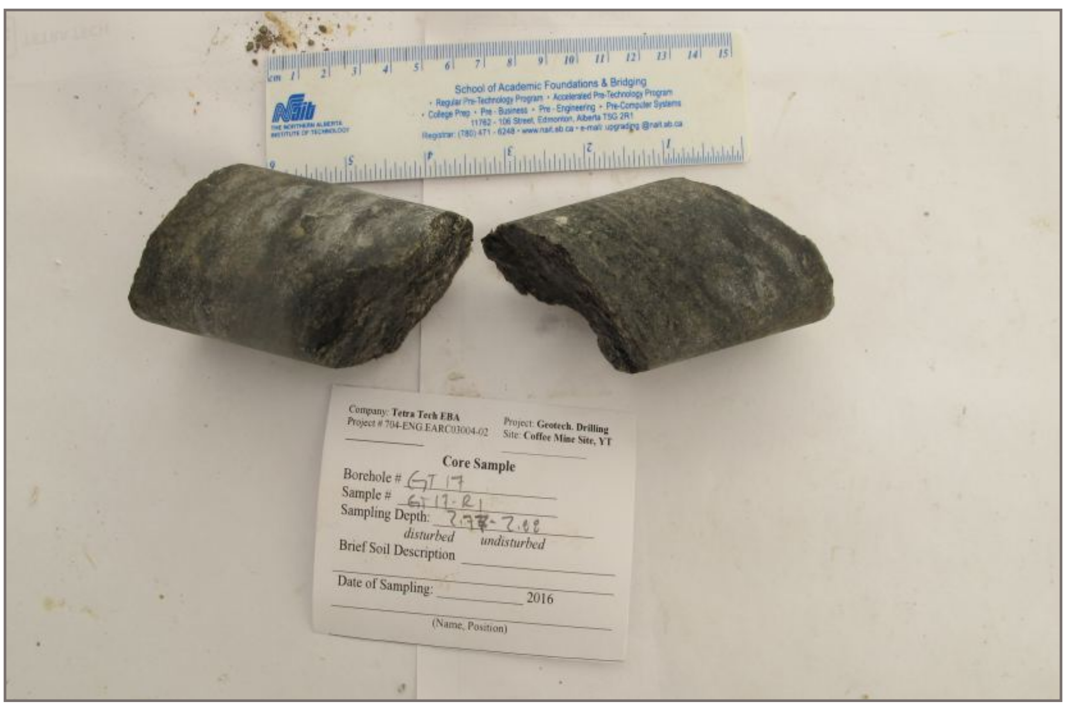


Photo 36E: Tested rock core sample GT17-R1; Depth: 2.72 - 2.88 m; Invalid test

Photo 37E: Tested rock core sample GT17-R2; Depth: 3.50 - 3.68 m; Valid test

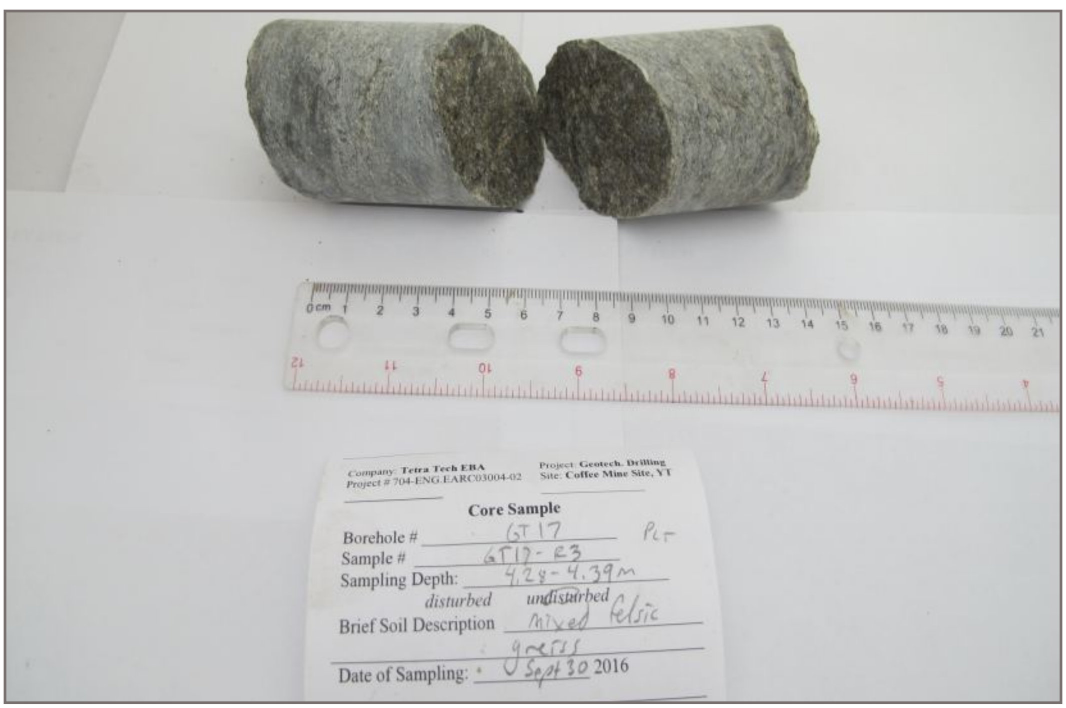


Photo 38E: Tested rock core sample GT17-R3; Depth: 4.28 - 4.39 m; Valid test

Photo 39E: Tested rock core sample GT18-R1; Depth: 6.43 - 6.58 m; Valid test

Photo 40E: Tested rock core sample GT19-R1; Depth: 3.50 - 3.71 m; Valid test

Photo 41E: Tested rock core sample GT19-R2; Depth: 4.25 - 4.39 m; Valid test

Photo 42E: Tested rock core sample GT19-R3; Depth: 5.00 - 5.25 m; Valid test

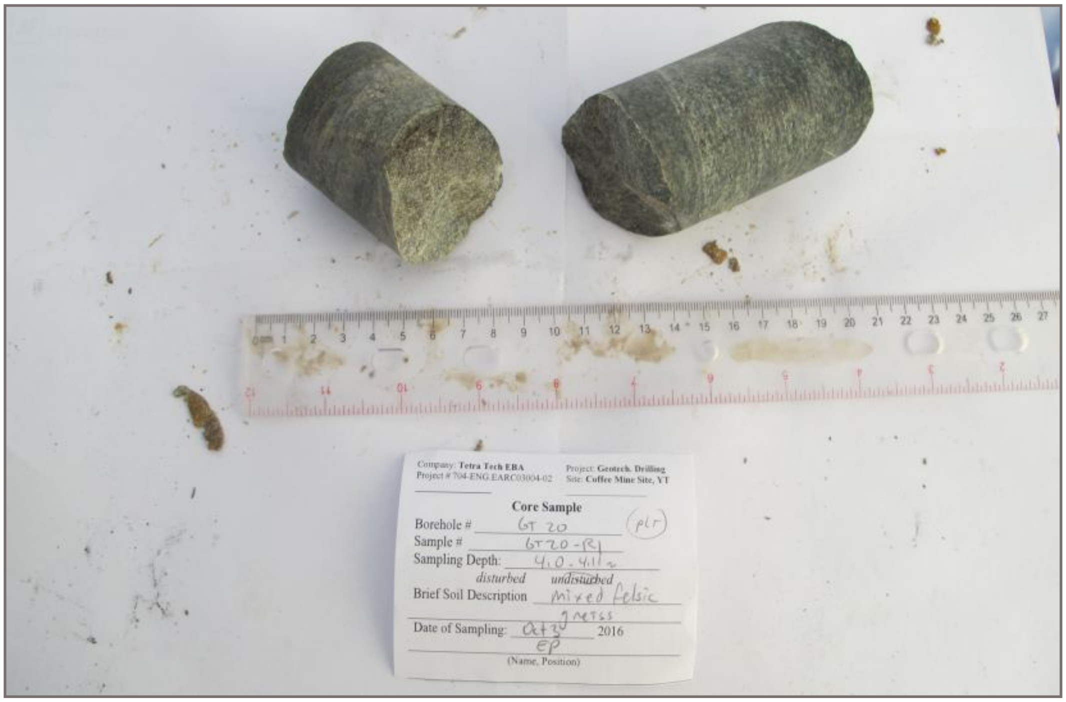


Photo 43E: Tested rock core sample GT20-R1; Depth: 4.00 - 4.11 m; Valid test

Photo 44E: Tested rock core sample GT20-R2; Depth: 5.64 - 5.77 m; Valid test

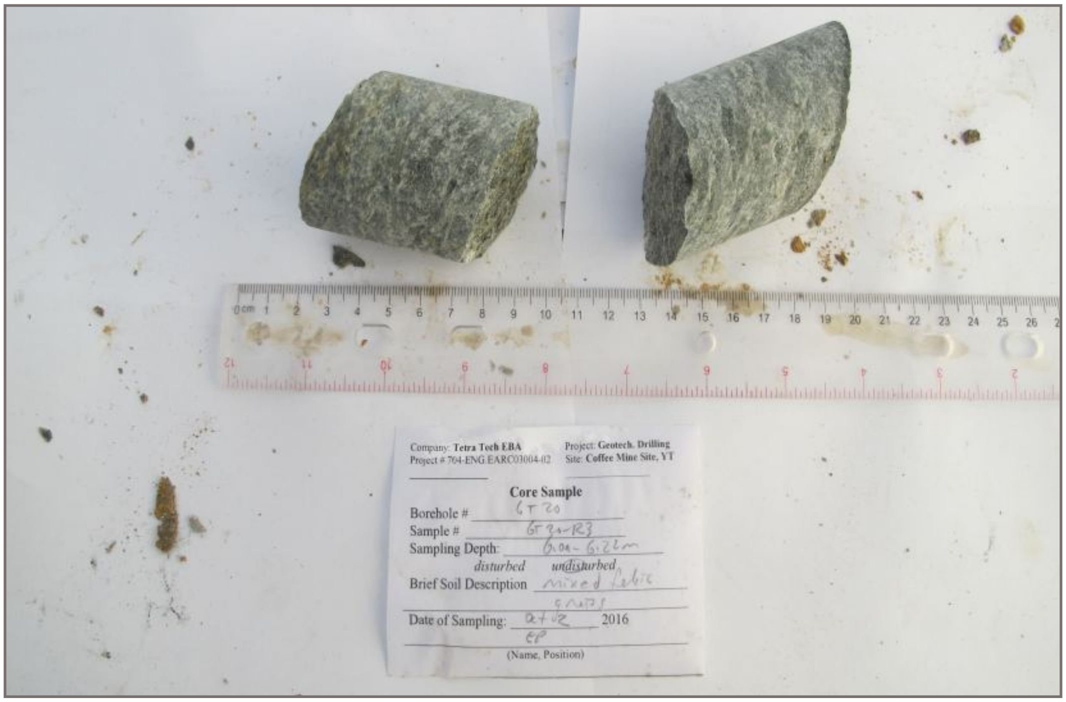


Photo 45E: Tested rock core sample GT20-R3; Depth: 6.09 - 6.20 m; Valid test

Photo 46E: Tested rock core sample GT43-R1; Depth: 17.14 - 17.33 m; Valid test

Photo 47E: Tested rock core sample GT44-R1; Depth: 4.41 - 4.57 m; Valid test

Photo 48E: Tested rock core sample GT45-R1; Depth: 16.17 - 16.29 m; Valid test

Photo 49E: Tested rock core sample GT45-R2; Depth: 17.18 - 17.35 m; Valid test

Photo 50E: Tested rock core sample GT45-R3; Depth: 19.83 - 20.00 m; Valid test

Photo 51E: Tested rock core sample GT46-R1; Depth: 9.00 - 9.15 m; Valid test

Photo 52E: Tested rock core sample GT46-R2; Depth: 9.43 - 9.58 m; Valid test

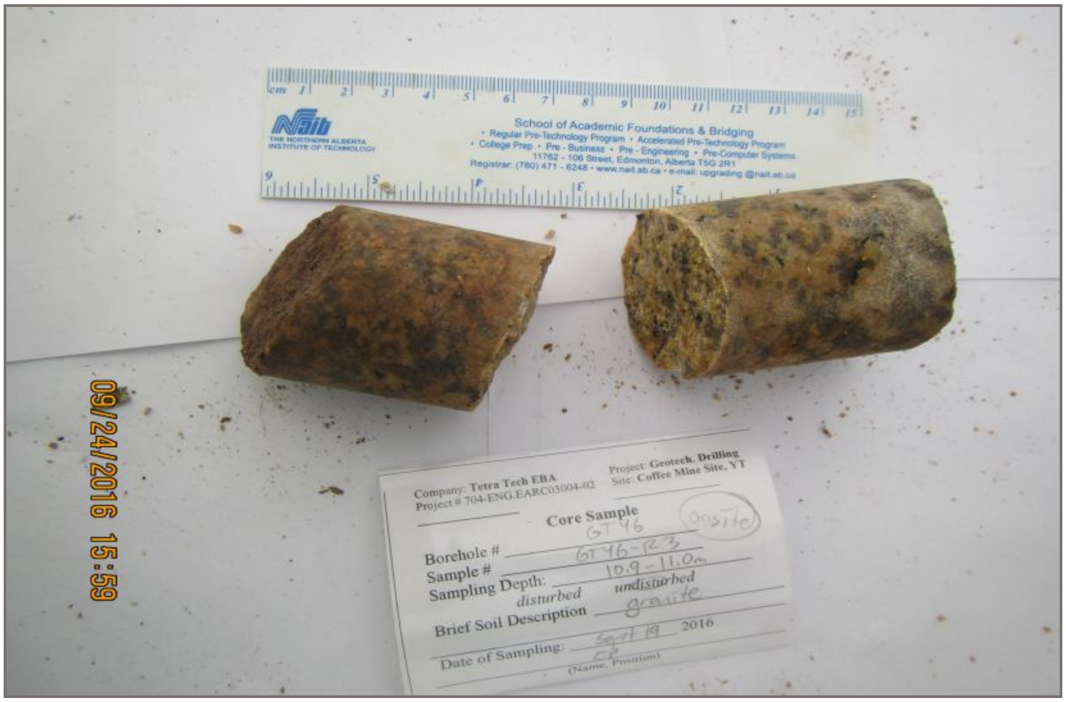


Photo 53E: Tested rock core sample GT46-R3; Depth: 10.90 - 11.00 m; Valid test

Photo 54E: Tested rock core sample GT47-R1; Depth: 14.50 - 14.60 m; Valid test

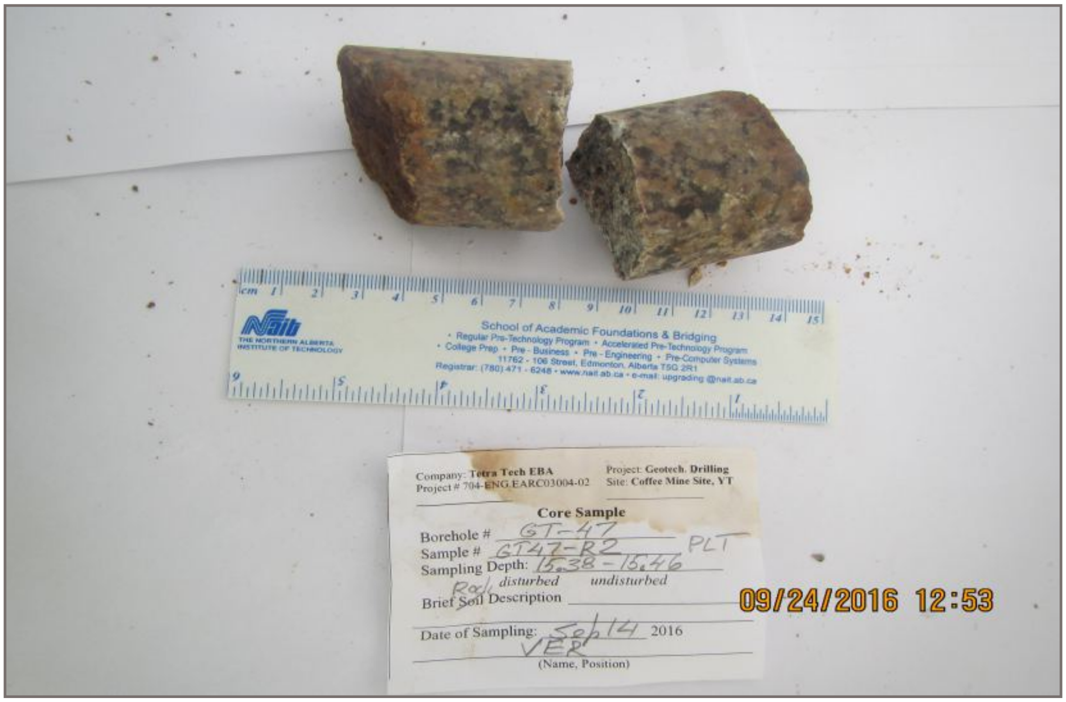


Photo 55E: Tested rock core sample GT47-R2; Depth: 15.38 - 15.46 m; Valid test

Photo 56E: Tested rock core sample GT47-R3; Depth: 16.60 - 16.71 m; Valid test

Photo 57E: Tested rock core sample GT47-R4; Depth: 17.82 - 17.95 m; Valid test

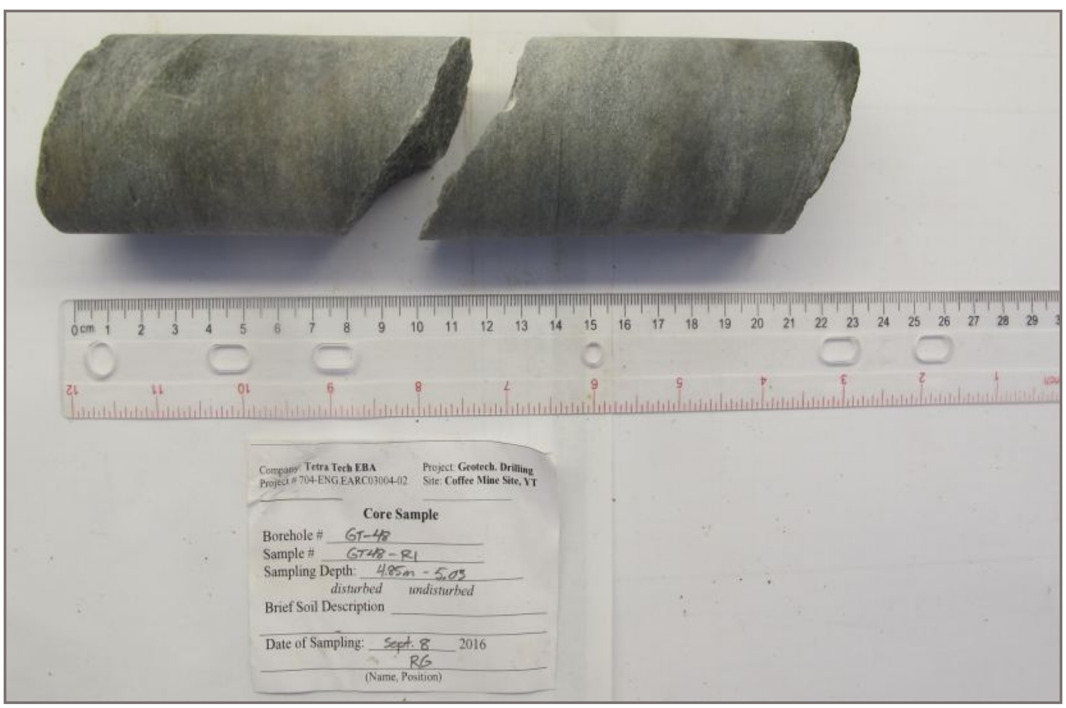


Photo 58E: Tested rock core sample GT48-R1; Depth: 4.85 - 5.03 m; Valid test

Photo 59E: Tested rock core sample GT48-R2; Depth: 6.35 - 6.45 m; Valid test

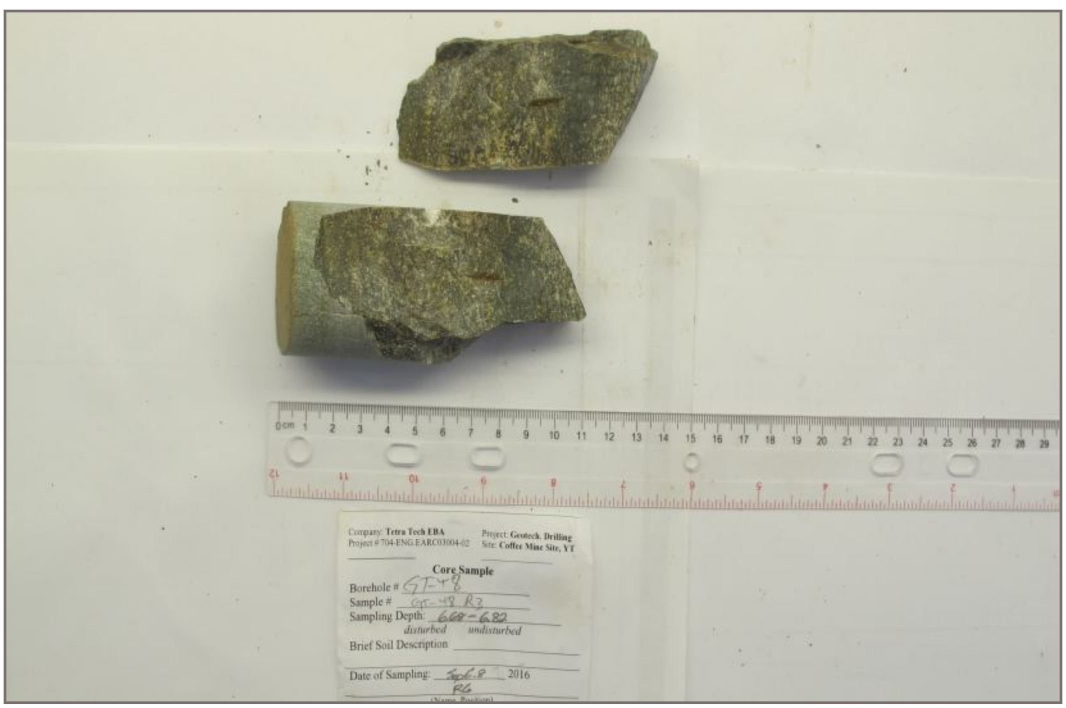


Photo 60E: Tested rock core sample GT48-R3; Depth: 6.68 - 6.82 m; Valid test

Photo 61E: Tested rock core sample GT48-R4; Depth: 7.87 - 8.00 m; Valid test

Photo 62E: Tested rock core sample GT48-R5; Depth: 8.52 - 8.57 m; Valid test

Photo 63E: Tested rock core sample GT50-R1; Depth: 4.10 - 4.19 m; Invalid test

Photo 64E: Tested rock core sample GT50-R2; Depth: 5.25 - 5.35 m; Invalid test

Photo 65E: Tested rock core sample GT50-R4; Depth: 7.85 - 7.95 m; Valid test

Photo 66E: Tested rock core sample GT50-R5; Depth: 8.80 - 9.00 m; Valid test

Photo 67E: Tested rock core sample GT50-R6; Depth: 9.50 - 9.60 m; Invalid test

Photo 68E: Tested rock core sample GT51-R1; Depth: 2.84 - 2.90 m; Valid test

Photo 69E: Tested rock core sample GT51-R2; Depth: 3.00 - 3.12 m; Valid test

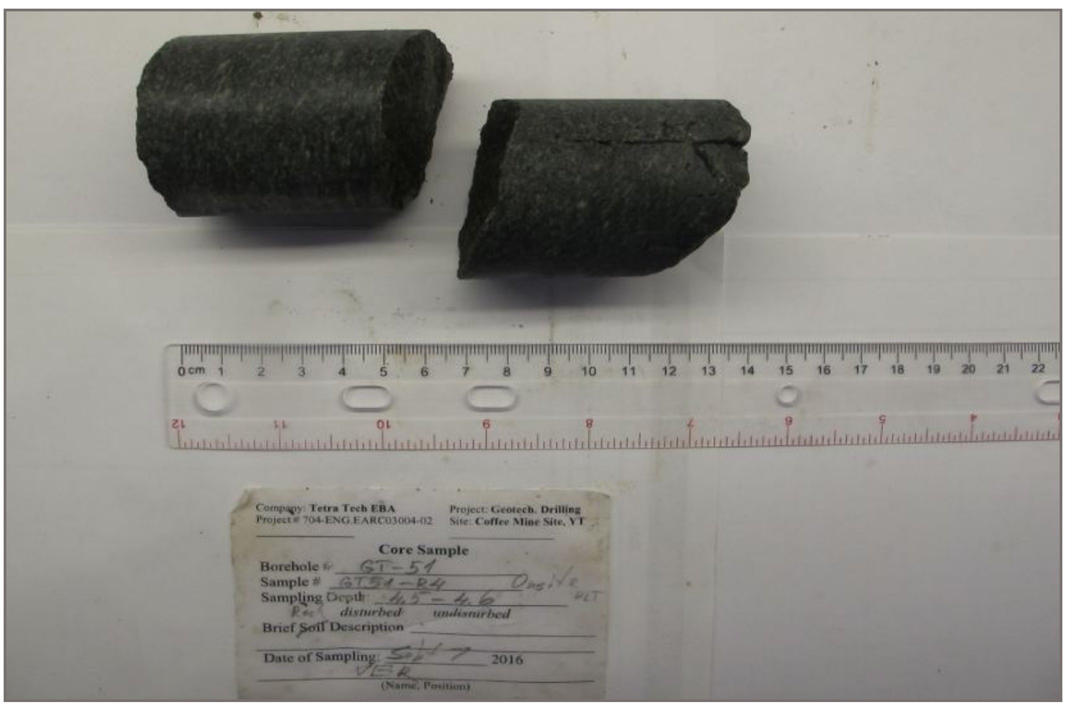


Photo 70E: Tested rock core sample GT51-R4; Depth: 4.50 - 4.60 m; Valid test

Photo 71E: Tested rock core sample GT51-R5; Depth: 6.44 - 6.50 m; Valid test

Photo 72E: Tested rock core sample GT51-R6; Depth: 7.15 - 7.30 m; Valid test

Photo 73E: Tested rock core sample GT51-R7; Depth: 10.80 - 11.00 m; Valid test

Photo 74E: Tested rock core sample GT51-R8; Depth: 11.90 - 12.00 m; Valid test

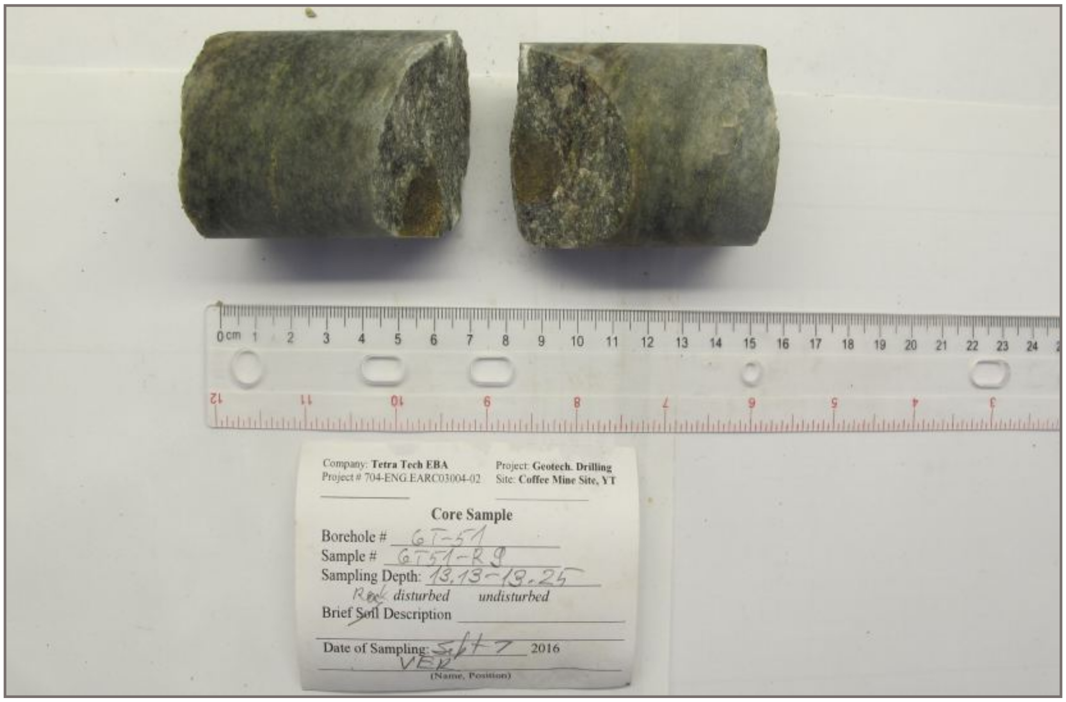


Photo 75E: Tested rock core sample GT51-R9; Depth: 13.13 - 13.25 m; Valid test

Photo 76E: Tested rock core sample GT51-R10; Depth: 14.77 - 14.83 m; Invalid test

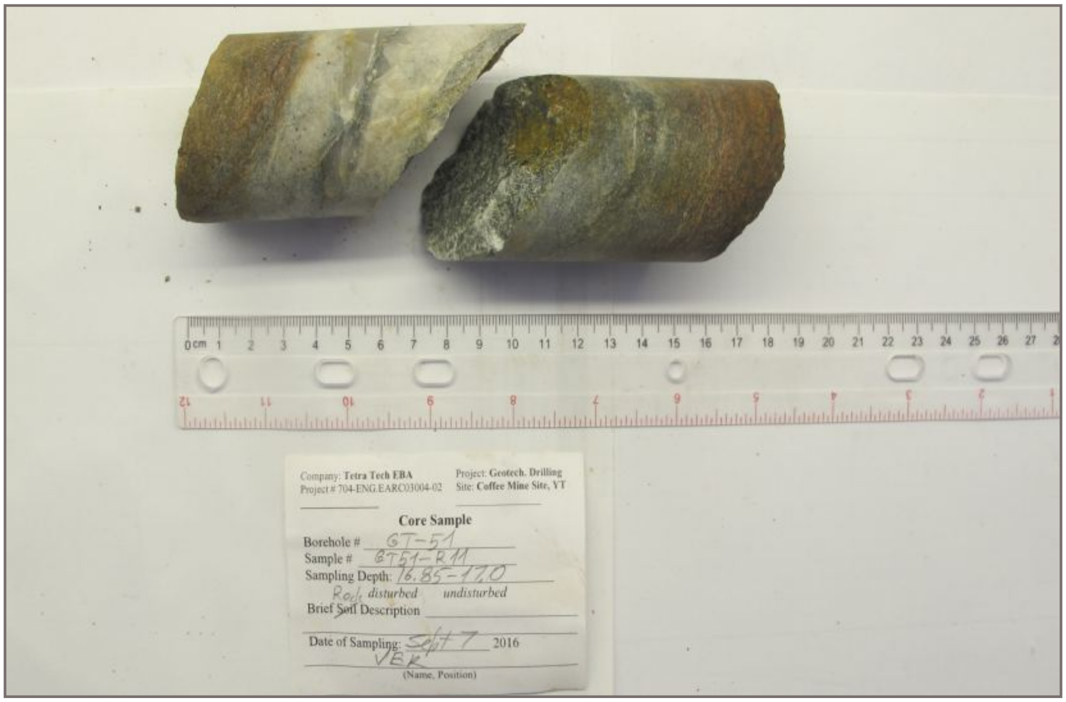


Photo 77E: Tested rock core sample GT51-R11; Depth: 16.85 - 17.00 m; Valid test

Photo 78E: Tested rock core sample GT51-R12; Depth: 17.68 - 17.80 m; Invalid test

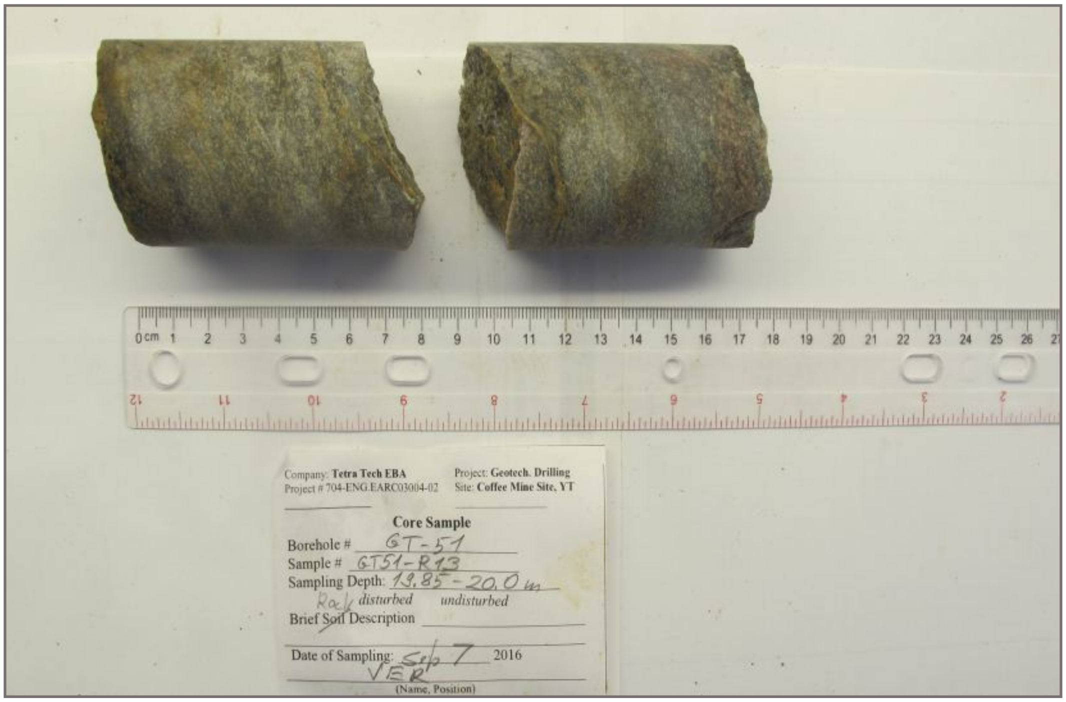


Photo 79E: Tested rock core sample GT51-R13; Depth: 19.85 - 20.00 m; Invalid test

Photo 80E: Tested rock core sample GT51-R14; Depth: 20.57 - 20.70 m; Invalid test

Photo 81E: Tested rock core sample GT53-R1; Depth: 6.50 - 6.61 m; Valid test

Photo 82E: Tested rock core sample GT53-R2; Depth: 7.50 - 7.64 m; Invalid test

Photo 83E: Tested rock core sample GT53-R3; Depth: 8.86 - 8.97 m; Valid test

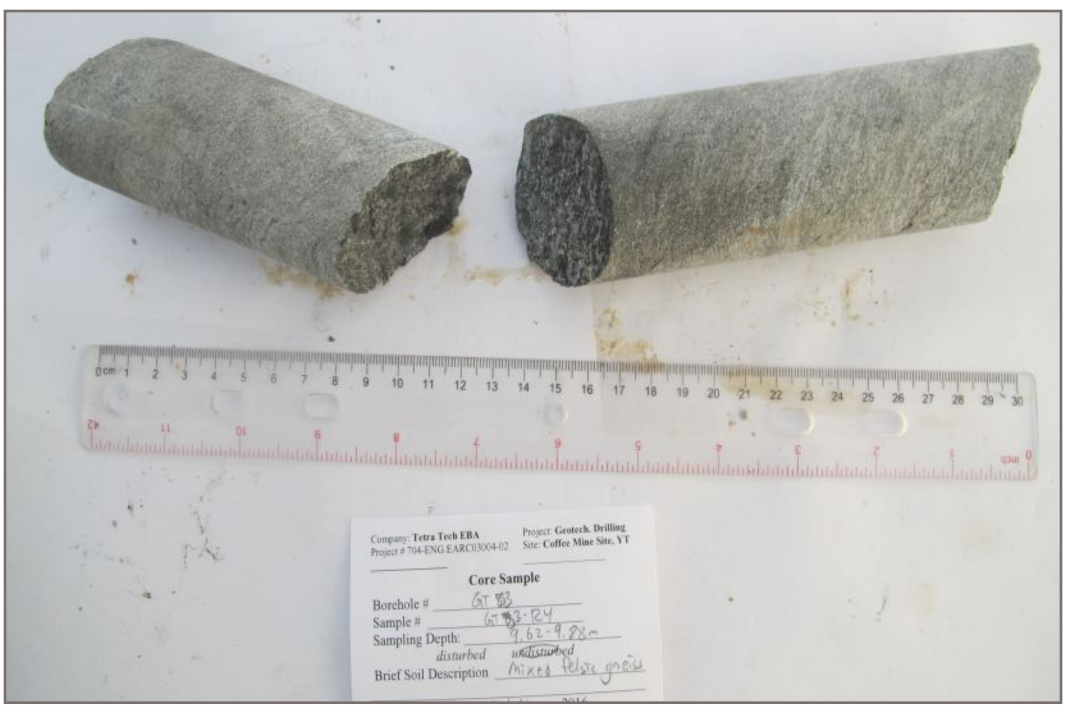


Photo 84E: Tested rock core sample GT53-R4; Depth: 9.62 - 9.88 m; Valid test

Photo 85E: Tested rock core sample GT55-R1; Depth: 8.00 - 8.21 m; Valid test

Photo 86E: Tested rock core sample GT55-R2; Depth: 8.46 - 8.62 m; Valid test

Photo 87E: Tested rock core sample GT57-R1; Depth: 10.33 - 10.48 m; Valid test

Photo 88E: Tested rock core sample GT57-R2; Depth: 11.49 - 11.66 m; Valid test

Photo 89E: Tested rock core sample GT57-R3; Depth: 13.01 - 13.14 m; Valid test

Photo 90E: Tested rock core sample GT58-R1; Depth: 5.19 - 5.30 m; Valid test

Photo 91E: Tested rock core sample GT58-R2; Depth: 6.55 - 6.72 m; Valid test

Photo 92E: Tested rock core sample GT58-R3; Depth: 7.24 - 7.34 m; Valid test

Photo 93E: Tested rock core sample GT59-R1; Depth: 1.60 - 1.71 m; Valid test

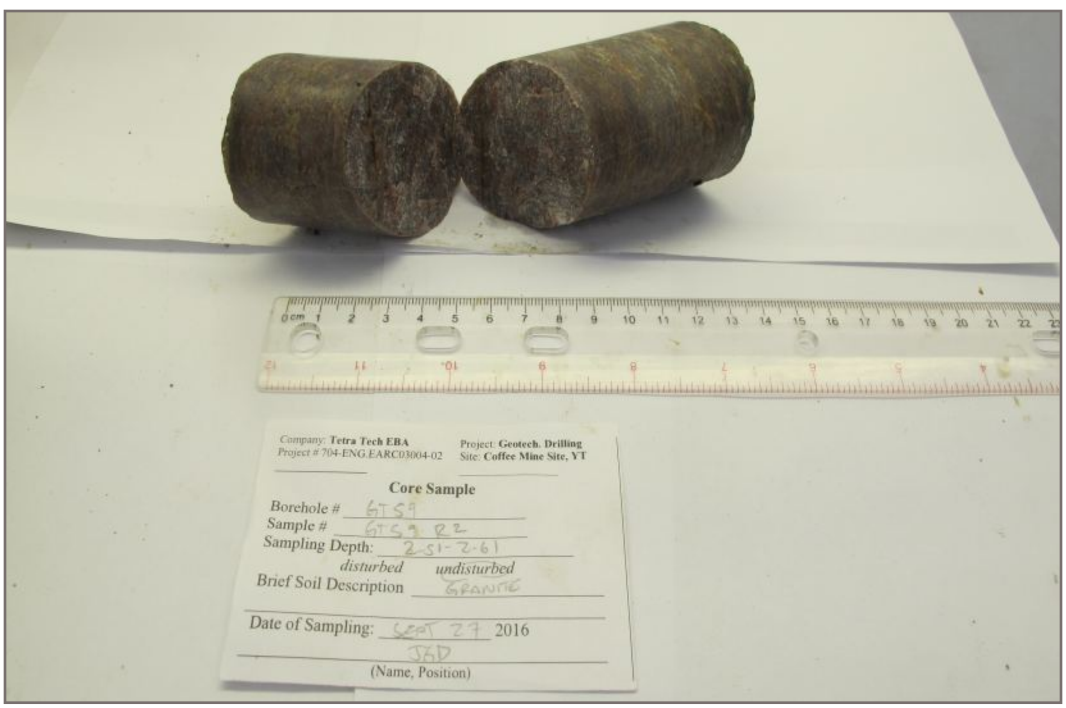


Photo 94E: Tested rock core sample GT59-R2; Depth: 2.51 - 2.61 m; Valid test

Photo 95E: Tested rock core sample GT59-R3; Depth: 3.11 - 3.23 m; Valid test

Photo 96E: Tested rock core sample GT59-R4; Depth: 4.73 - 4.81 m; Valid test

Photo 97E: Tested rock core sample GT60-R1; Depth: 5.47 - 5.60 m; Valid test

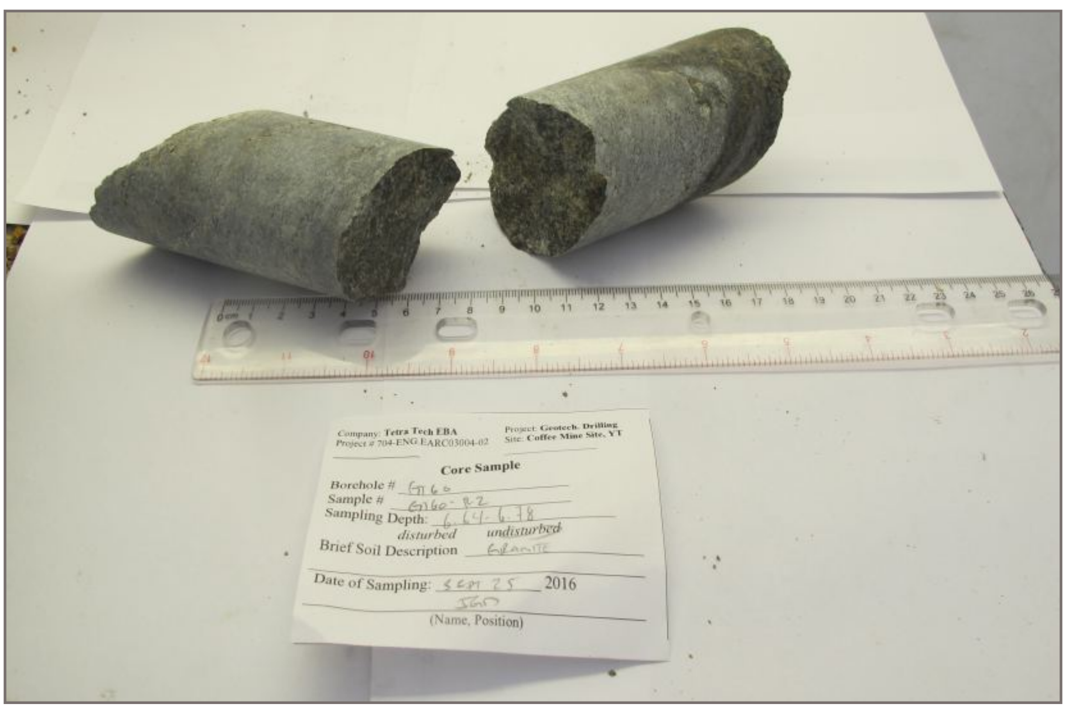


Photo 98E: Tested rock core sample GT60-R2; Depth: 6.64 - 6.78 m; Valid test

Photo 99E: Tested rock core sample GT60-R3; Depth: 7.81 - 7.90 m; Valid test

Photo 100E: Tested rock core sample GT61-R1; Depth: 4.00 - 4.15 m; Valid test

Photo 101E: Tested rock core sample GT61-R2; Depth: 5.10 - 5.25 m; Valid test

Photo 102E: Tested rock core sample GT61-R3; Depth: 6.65 - 6.22 m; Valid test

Photo 103E: Tested rock core sample GT61-R4; Depth: 7.33 - 7.44 m; Valid test

Photo 104E: Tested rock core sample GT62-R1; Depth: 3.73 - 3.82 m; Valid test

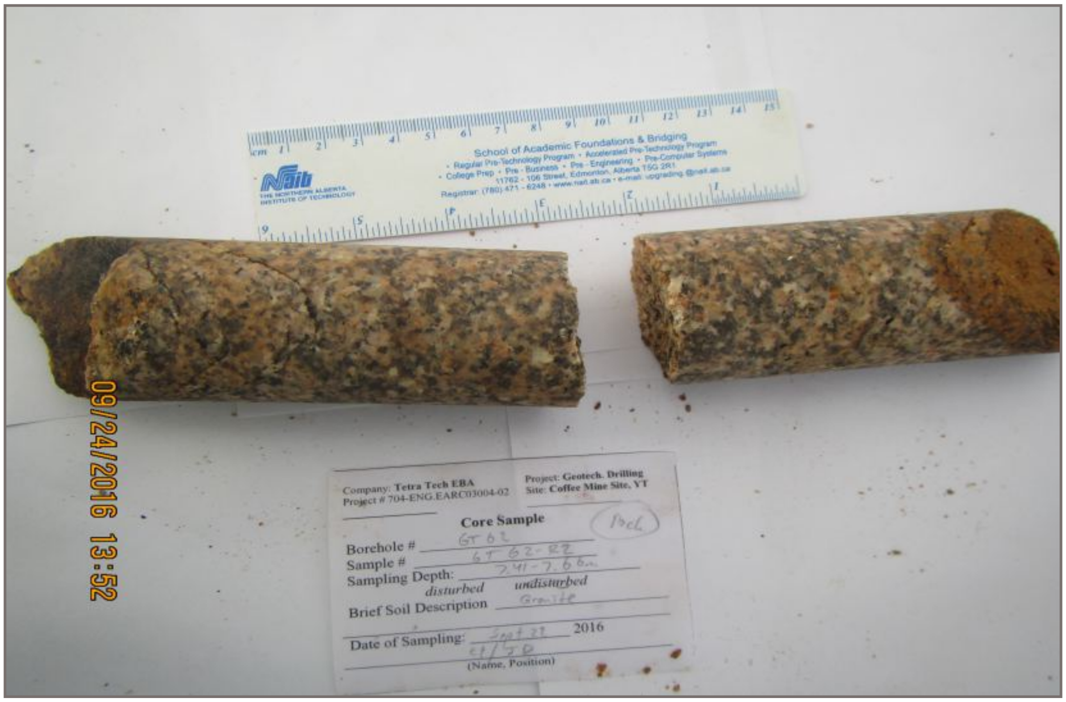


Photo 105E: Tested rock core sample GT62-R2; Depth: 5.44 - 5.62 m; Valid test

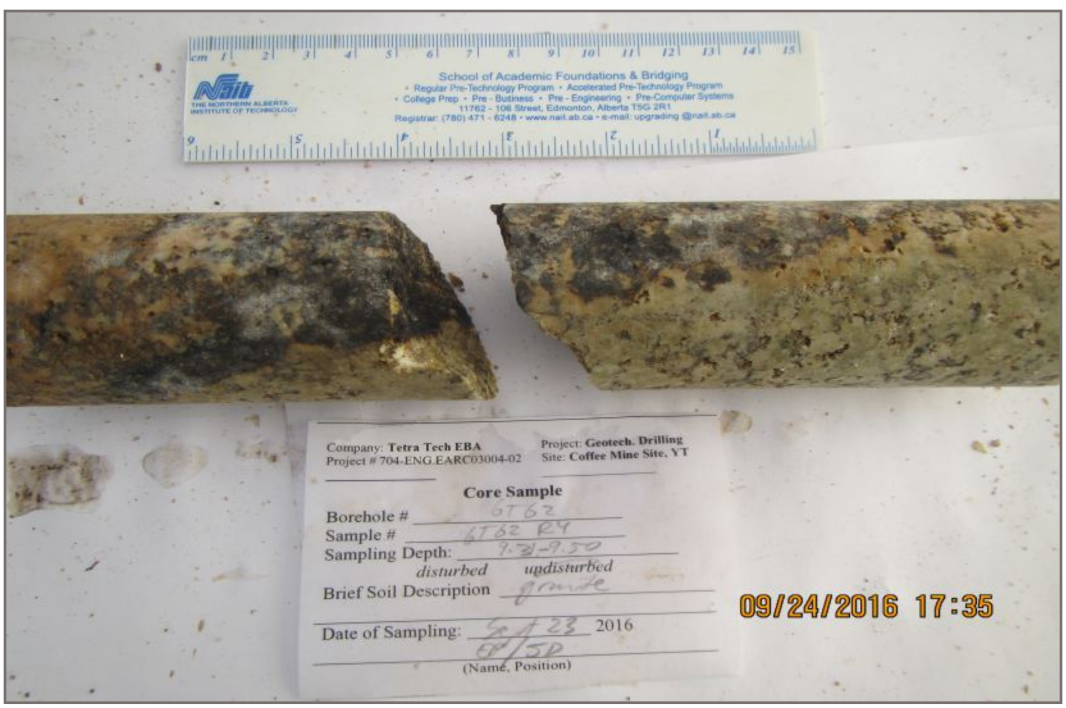


Photo 106E: Tested rock core sample GT62-R4; Depth: 9.31 - 9.50 m; Valid test

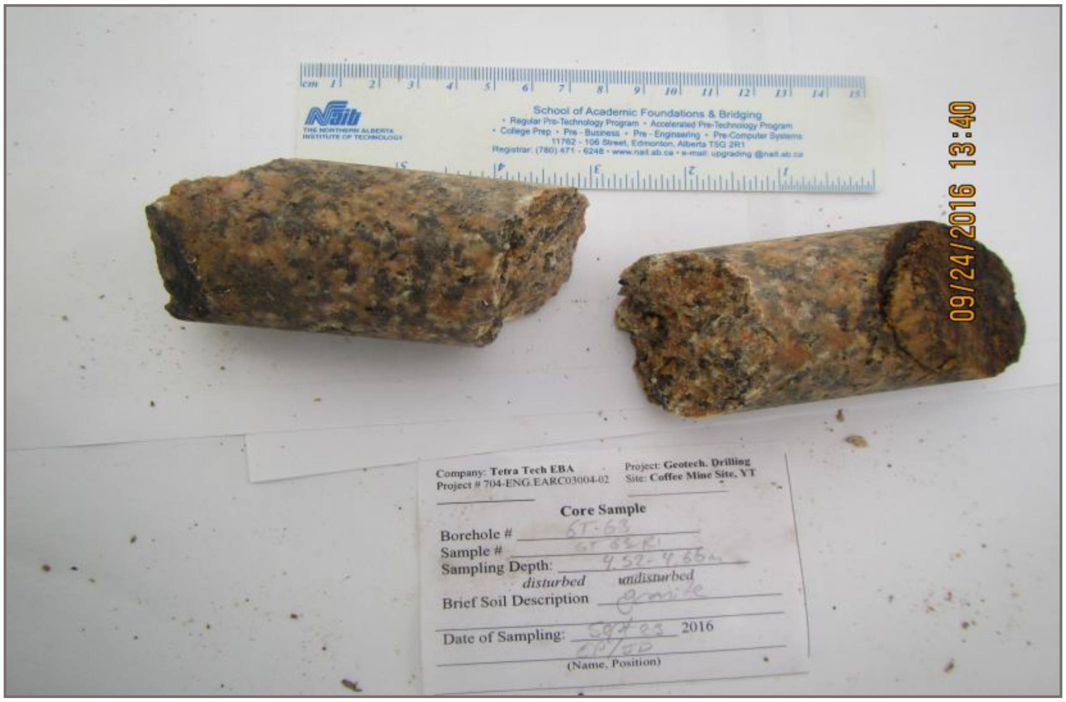


Photo 107E: Tested rock core sample GT63-R1; Depth: 4.52 - 4.66 m; Valid test

Photo 108E: Tested rock core sample GT63-R3; Depth: 8.85 - 8.76 m; Valid test

Photo 109E: Tested rock core sample GT63-R5; Depth: 10.75 - 10.91 m; Valid test

Photo 110E: Tested rock core sample GT63-R6; Depth: 12.20 - 12.34 m; Invalid test

Photo 111E: Tested rock core sample GT63-R7; Depth: 14.36 - 14.50 m; Valid test

Photo 112E: Tested rock core sample GT63-R8; Depth: 15.02 - 15.20 m; Valid test

Photo 113E: Tested rock core sample GT63-R9; Depth: 16.23 - 16.35 m; Invalid test

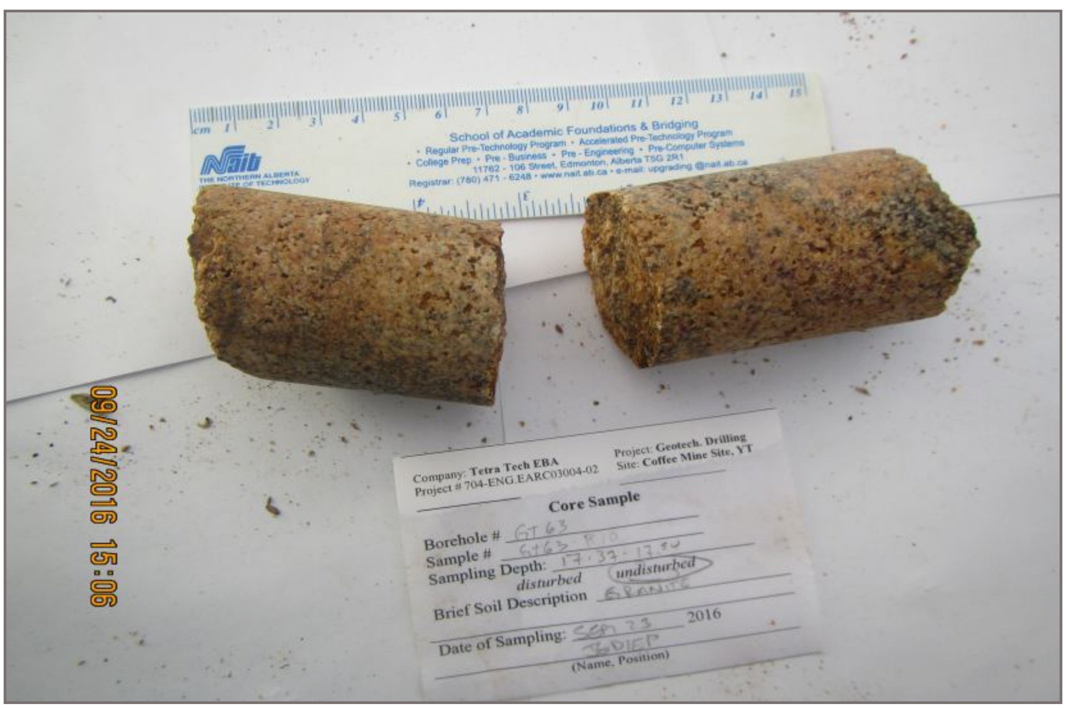


Photo 114E: Tested rock core sample GT63-R10; Depth: 17.37 - 17.50 m; Valid test

Photo 115E: Tested rock core sample GT64-R1; Depth: 4.06 - 4.33 m; Valid test

Photo 116E: Tested rock core sample GT64-R2; Depth: 5.53 - 5.73 m; Valid test

Photo 117E: Tested rock core sample GT64-R3; Depth: 6.36 - 6.53 m; Valid test

Photo 118E: Tested rock core sample GT65-R1; Depth: 6.26 - 6.41 m; Valid test

Photo 119E: Tested rock core sample GT65-R2; Depth: 6.85 - 6.95 m; Valid test

Photo 120E: Tested rock core sample GT65-R3; Depth: 8.70 - 8.83 m; Valid test

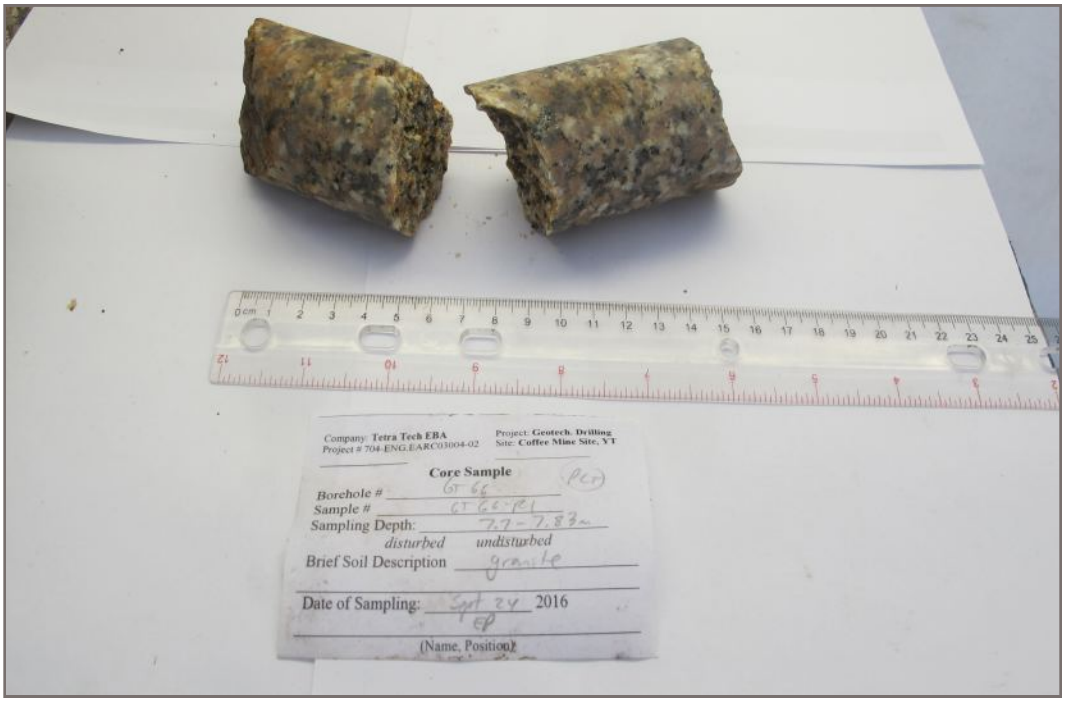


Photo 121E: Tested rock core sample GT66-R1; Depth: 7.70 - 7.83 m; Valid test

APPENDIX E
GTC INSTALLATION FORMS AND GROUND TEMPERATURE PROFILES

Table F.1. Summary of Boreholes Instrumented with Ground Temperature Cables (GTC)

Borehole No.	Site Infrastructure	GTC Type	GTC Serial No.
GT-14	North Waste Rock Storage Facility	Multi-bead GTC	TS 4135
GT-51	North Pond	PVC Pipe for future multi-bead GTC	-
GT-63	Heap Leach Pond	Multi-bead GTC	TS 4134
GT-66	Heap Leach Pond	Single-bead thermistor string	2

SITE: COFFEE MINE SITE, YT

LOCATION: GT-14 (NORTH WRSF)

COORDINATES: NORTHING: 6 975 088

EASTING: 585 456

GROUND ELEVATION:

1ST BEAD ELEVATION:

NUMBER OF BEADS: 16

CABLE INSTALLATION NO.: 1

CABLE SERIAL NO.: TS 4135

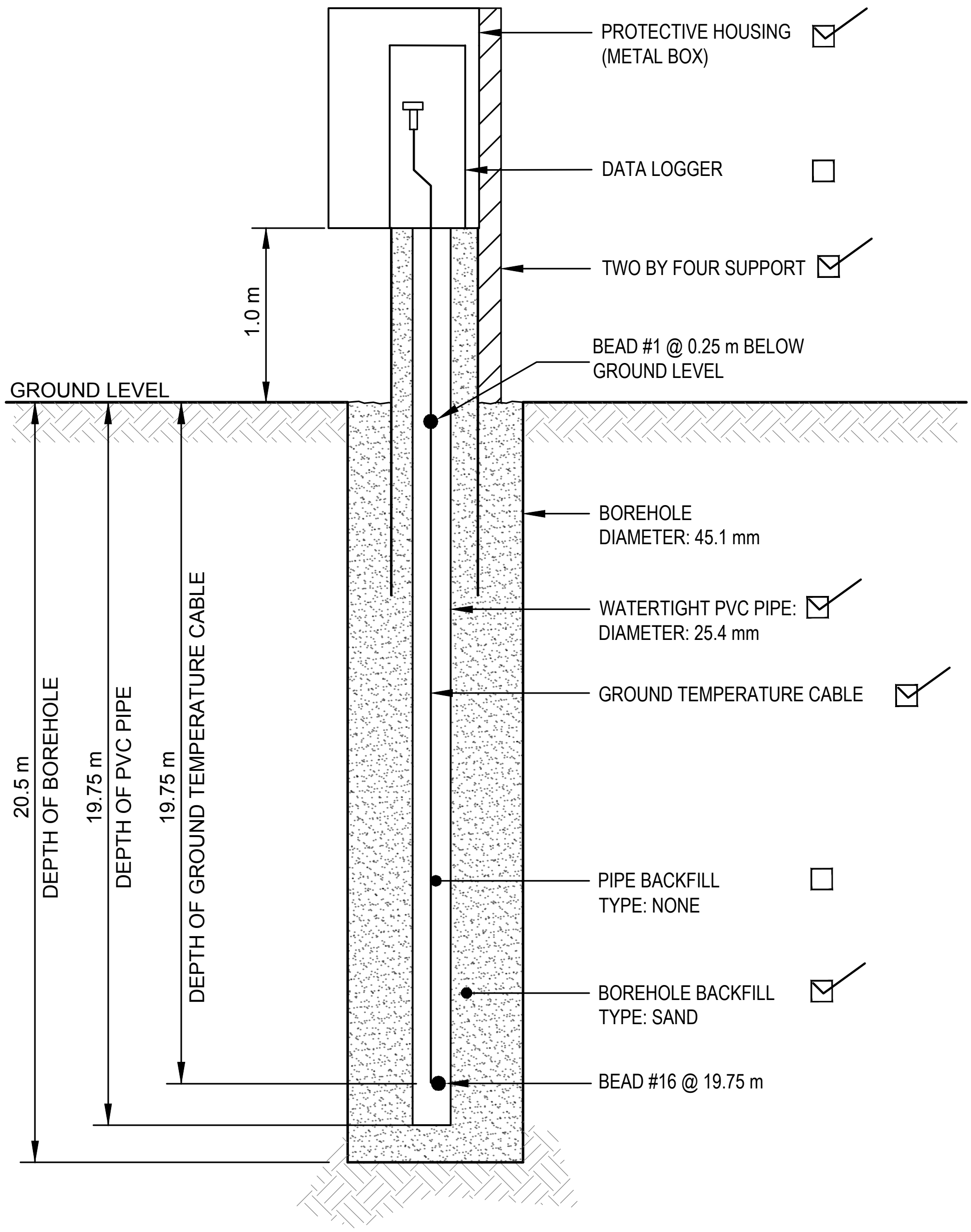
DRILLING DATE: A□□□□t 30, 2016

INSTALLATION DATE: A□□□□t 30, 2016

CABLE LENGTH: 20.0 m

LEAD LENGTH: 3.3 m

HOLE DEPTH: 20.5 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.25
2	0.75
3	1.25
4	2.00
5	2.75
6	3.50
7	4.25
8	5.25
9	6.75
10	8.25
11	9.75
12	11.25
13	12.75
14	14.75
15	16.75
16	19.75

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

GOLDCORP

TETRA TECH

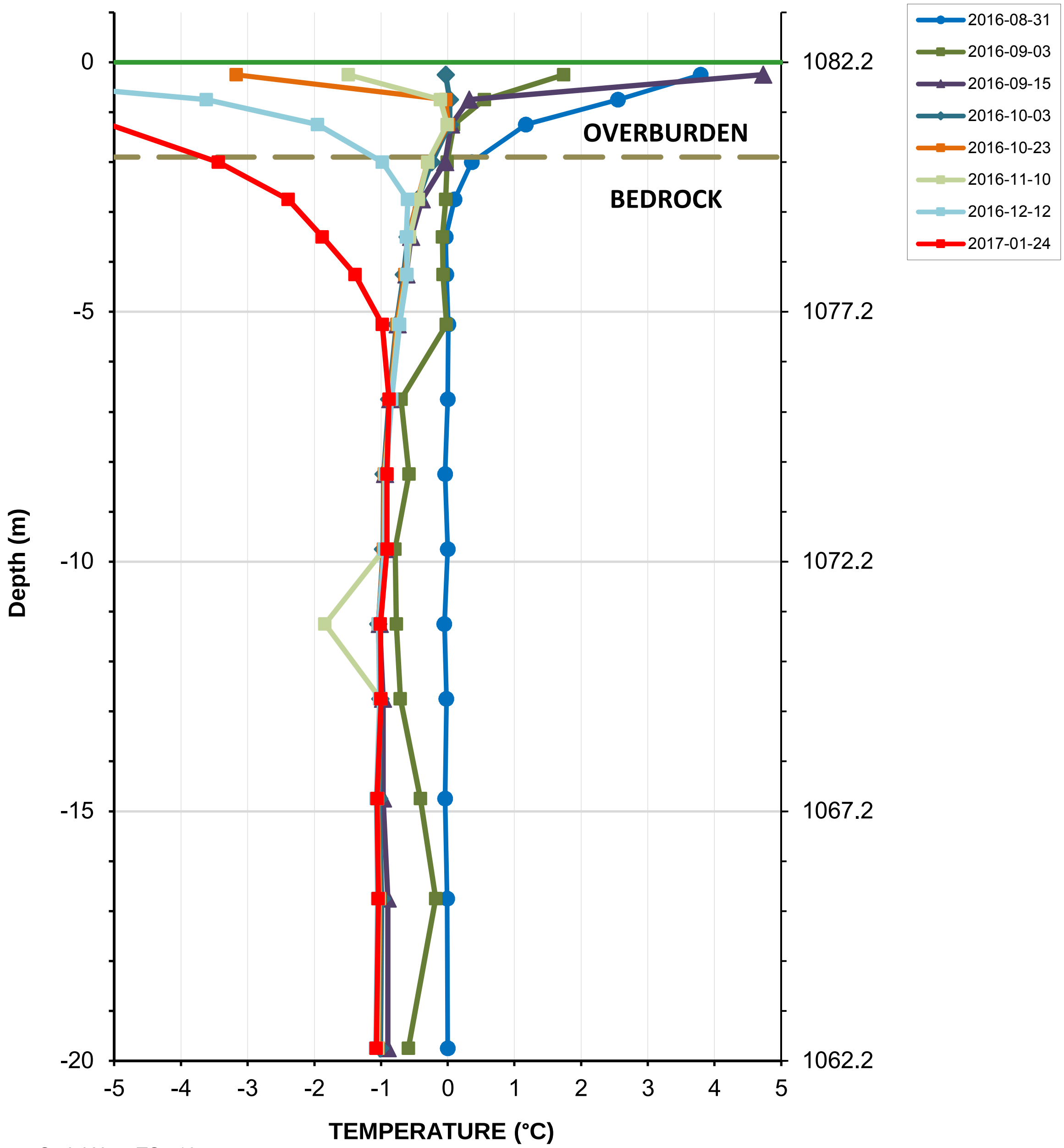
GROUND TEMPERATURE CABLE INSTALLATION REPORT
COFFEE MINE SITE, YT

NORTH WASTE ROCK STORAGE FACILITY
GT-14

PROJECT NO.	DWN	CKD	REV
ENG.EARC03004-02	RG	VER	0

OFFICE	DATE
EDM	October 2016

GTC# TS 4135



Serial No.: TS 4135
Date Installed: August 30, 2016
Coordinates (UTM Zone 7): E:585 456
N:6 975 088

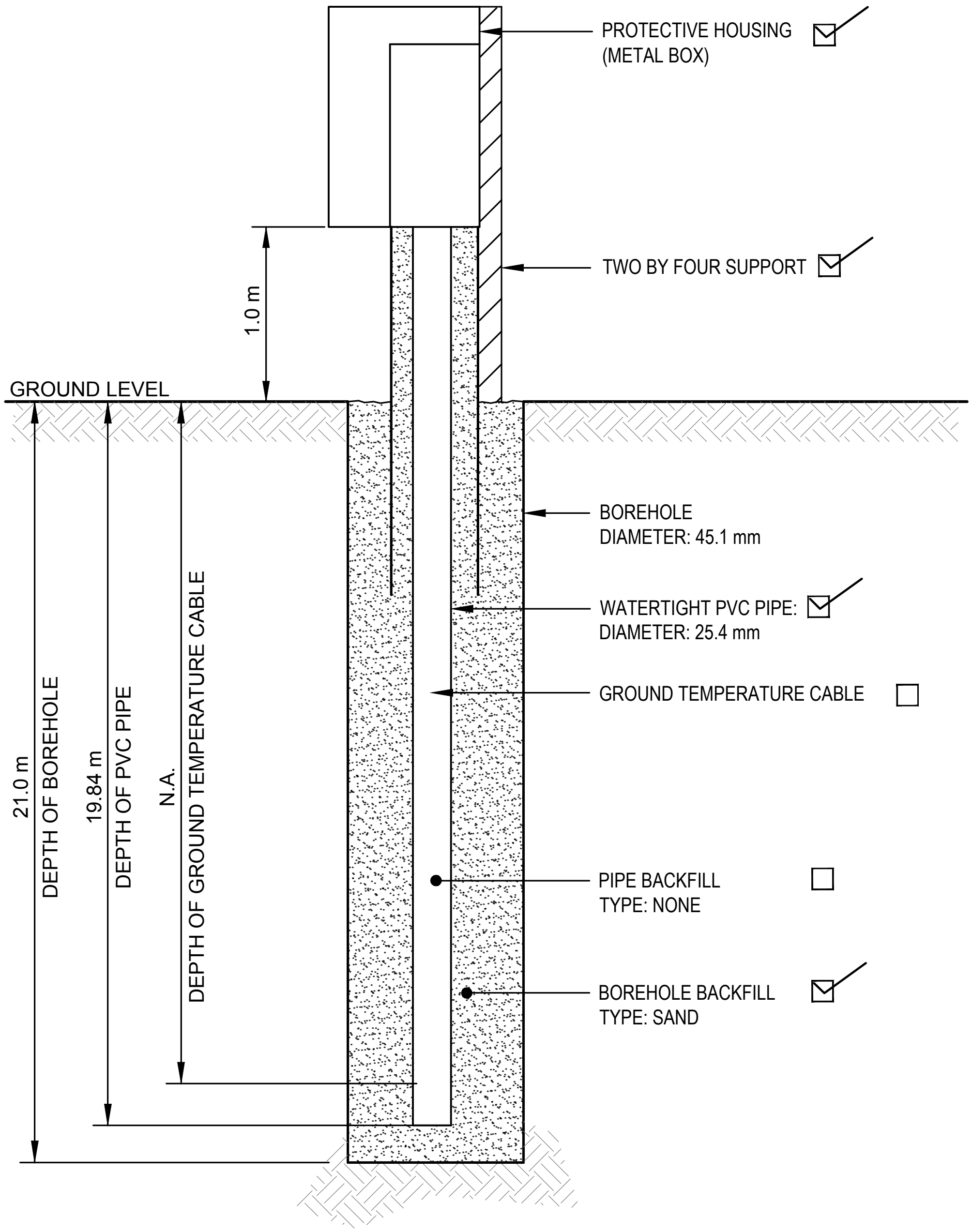
TT EBA File No: ENG.EARC03004-02.001

Ground Temperature Profile
Borehole GT-14, North WRSF

TETRA TECH

SITE: COFFEE MINE SITE, YT
LOCATION: GT-51 (NORTH POND)
COORDINATES: NORTHING: 6 975 675
EASTING: 585 313
GROUND ELEVATION:
1ST BEAD ELEVATION:
NUMBER OF BEADS: N.A.

CABLE INSTALLATION NO.: N.A.
CABLE SERIAL NO.: N.A.
DRILLING DATE: September 6, 2016
INSTALLATION DATE: September 7, 2016
CABLE LENGTH: N.A.
LEAD LENGTH: N.A.
HOLE DEPTH: 21.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

NOTES
1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT
GOLDCORP

TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
COFFEE MINE SITE, YT

NORTH POND
GT-51

PROJECT NO.	DWN	CKD	REV
ENG.EARC03004-02	RG	VER	0

OFFICE	DATE
EDM	October 2016

PVC# 1

SITE: COFFEE MINE SITE, YT

LOCATION: GT-63 (HALFWAY POND)

COORDINATES: NORTHING: 6 973 171

EASTING: 581 284

GROUND ELEVATION:

1ST BEAD ELEVATION:

NUMBER OF BEADS: 16

CABLE INSTALLATION NO.: 2

CABLE SERIAL NO.: TS 4134

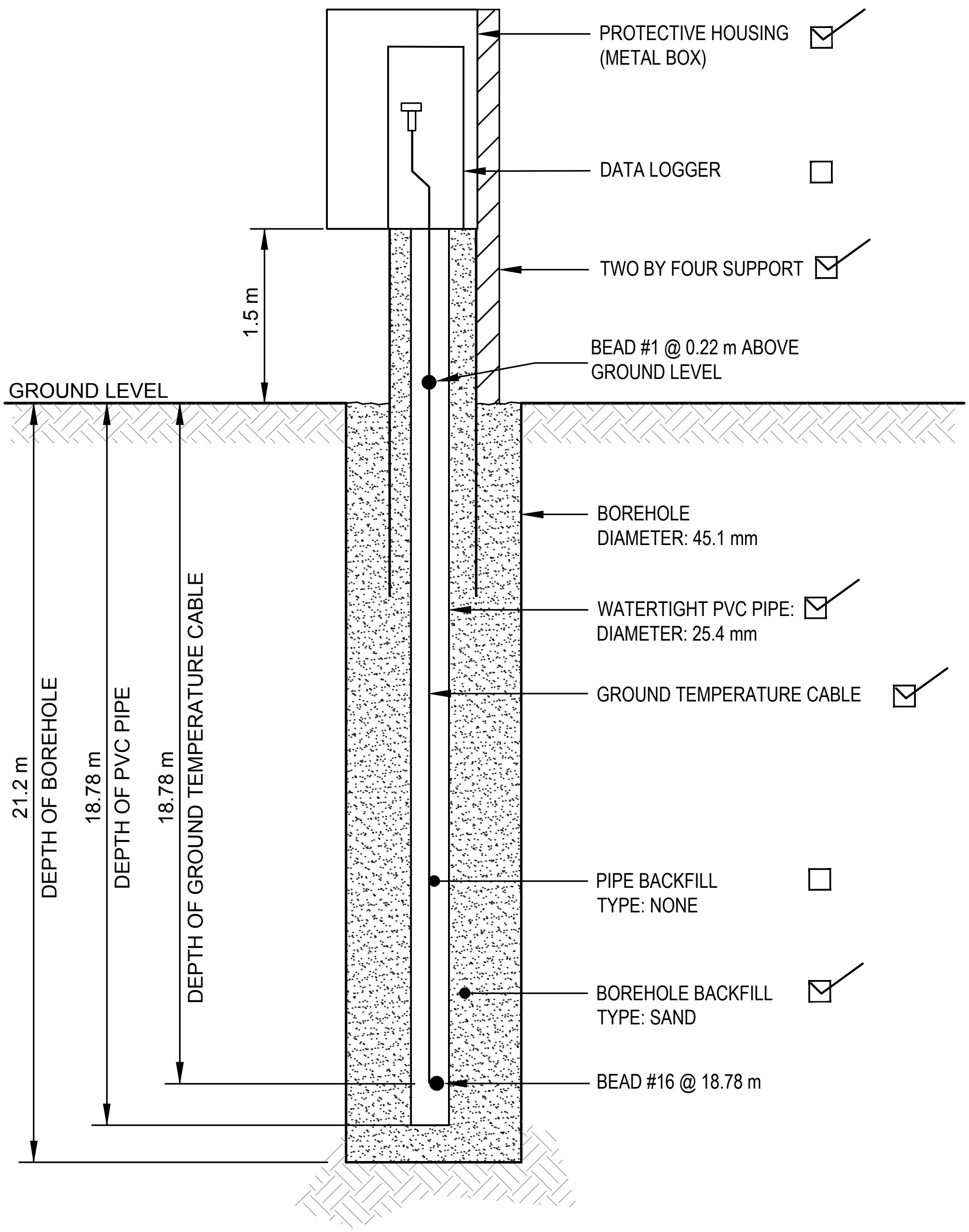
DRILLING DATE: September 23, 2016

INSTALLATION DATE: September 23 □ 24, 2016

CABLE LENGTH: 20.0 m

LEAD LENGTH: 3.3 m

HOLE DEPTH: 21.2 m



BEAD NO.	DEPTH BELOW OG (m)
1	+0.22
2	0.03
3	0.28
4	1.03
5	1.78
6	2.53
7	3.28
8	4.28
9	5.78
10	7.28
11	8.78
12	10.28
13	11.78
14	13.78
15	15.78
16	18.78

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

GOLDCORP

TETRA TECH

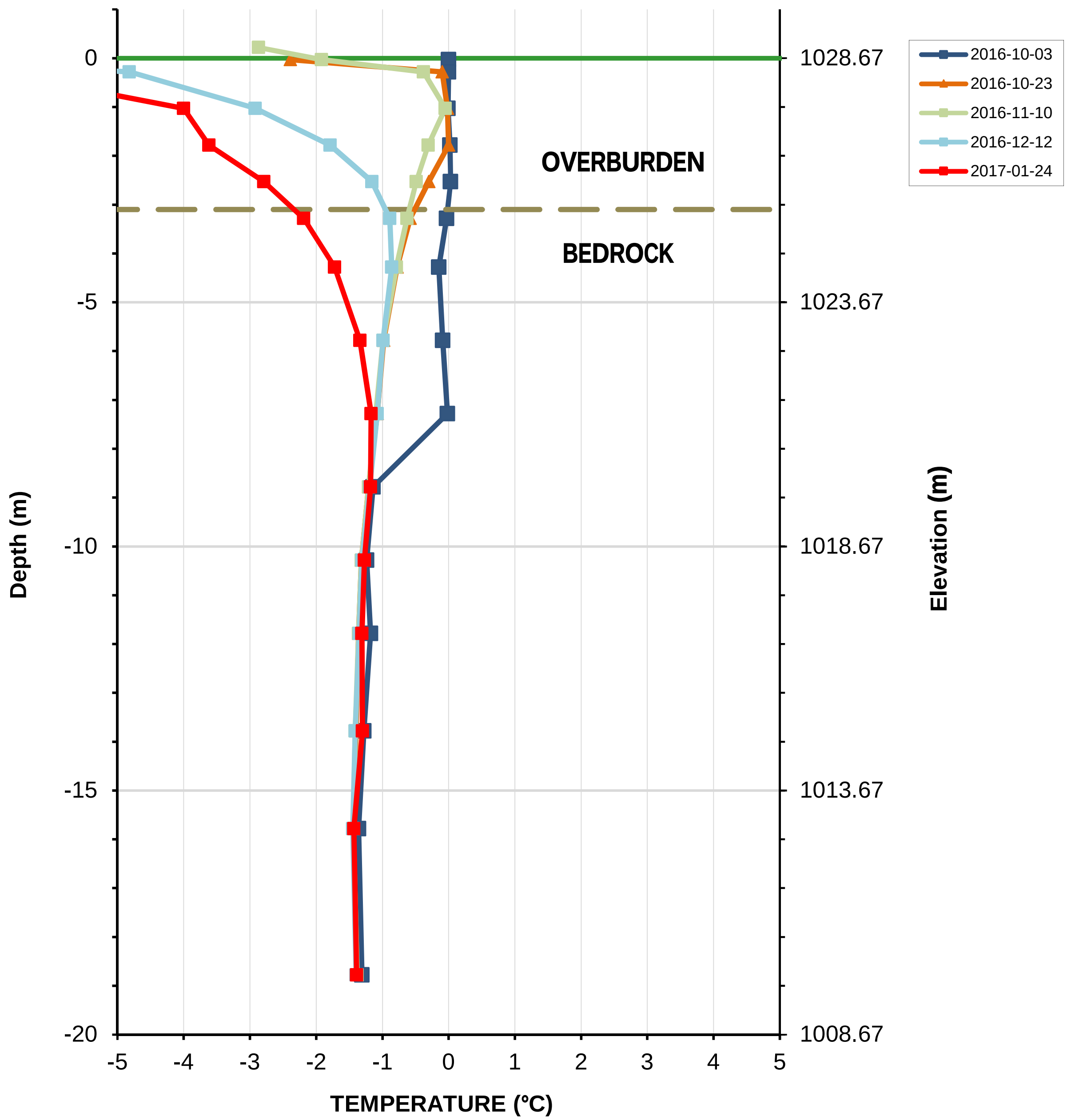
GROUND TEMPERATURE CABLE INSTALLATION REPORT
COFFEE MINE SITE, YT

HALFWAY POND
GT-63

PROJECT NO.	DWN	CKD	REV
ENG.EARC03004-02	RG	VER	0

OFFICE	DATE
EDM	October 2016

GTC# TS 4134

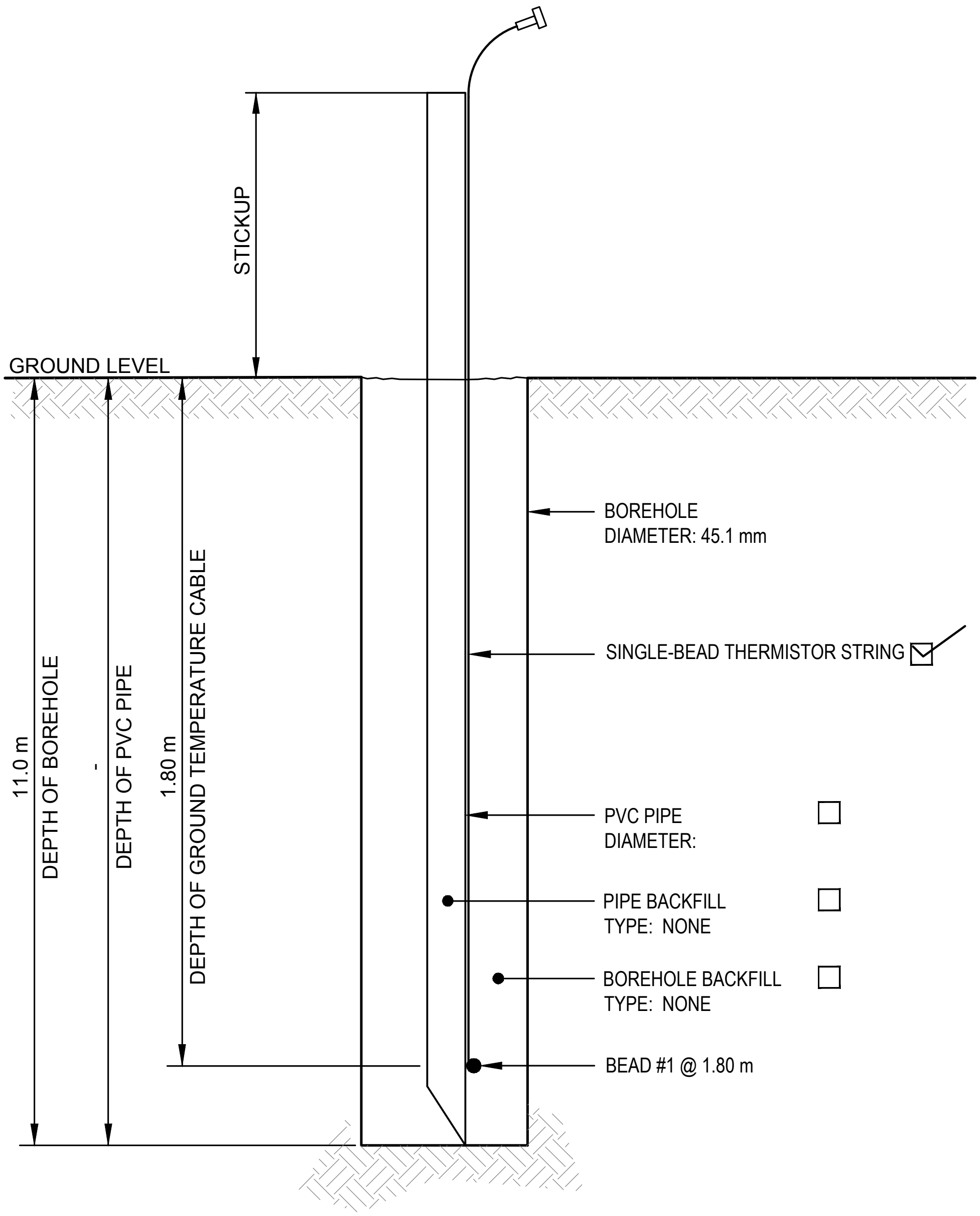


Serial No.: TS 4134
Date Installed: September 24, 2016
Coordinates (UTM Zone 7): E:581 284
N:6 973 171

TT EBA File No: ENG.EARC03004-02.001

Ground Temperature Profile
Borehole GT-63, Halfway Pond

SITE: COFFEE MINE SITE, YT	CABLE INSTALLATION NO.:
LOCATION: GT-66 (HALFWAY POND)	CABLE SERIAL NO.: 2
COORDINATES: NORTHING: 6 973 169	DRILLING DATE: September 24, 2016
EASTING: 581 235	INSTALLATION DATE: September 25, 2016
GROUND ELEVATION:	CABLE LENGTH: 5.0 m
1ST BEAD ELEVATION:	LEAD LENGTH:
NUMBER OF BEADS: 1	HOLE DEPTH: 11.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	1.80
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

NOTES

1) INDICATE ORIGINAL GROUND ELEVATIONS
2) INDICATE ALL BEAD LOCATIONS
3) LEAD LENGTH IS THE LENGTH OF CABLE TO THE FIRST BEAD
4) ALL DIMENSIONS ARE IN METRES
5) DRAWING NOT TO SCALE

CLIENT

GOLDCORP

TETRA TECH

GROUND TEMPERATURE CABLE INSTALLATION REPORT
COFFEE MINE SITE, YT

HALFWAY POND
GT-66

PROJECT NO.	DWN	CKD	REV
ENG.EARC03004-02	RG	VER	0

OFFICE	DATE
EDM	October 2016

THERM. #2

THERMISTOR STRING CALIBRATION

Project: Coffee Gold Geotechnical Investigation
Date of Calibration: August 4, 2016
Project No.: ENG.EARC03004-02
Calibration Temp.: 0.02
Client:
Attention:

Length of Thermistor (☐ feet ■ meters)	String Number	Location of String	Calibration Resistance (kΩ)			Temperature (ºC)	Calibration Factor (ºC)
			Trial 1	Trial 2	Trial 3		
5	1		16.29	16.29	16.29	0.04	-0.02
5	2		16.31	16.31	16.31	0.02	0.00
15	3		16.31	16.31	16.31	0.02	0.00
15	4		16.30	16.30	16.30	0.03	-0.01

Carrier:
Date Shipped:
W/B Number:
Shipped By: