

Waste Rock Storage Facility 3 (WRSF3) Raise Design Report Meliadine Gold Mine, Nunavut



PRESENTED TO
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EXECUTIVE SUMMARY

Agnico Eagle Mines Limited (Agnico Eagle) operates the Meliadine Gold Mine, located approximately 25 km north of Rankin Inlet. The current operation consists of mining the Tiriganiaq deposit with two open pits and an underground operation under the existing Nunavut Water Board (NWB) Type A Water Licence (2AM-MEL1631). The amended Type A Water Licence Amendment issued in 2024 allows Agnico Eagle to mine the Wesmeg, Wesmeg North, Pump, FZone, and Discovery deposits that were included in the 2014 Final Environmental Impact Statement and Nunavut Impact Review Board Project Certificate No.006.

The mine plan presented in the 2024 WLA indicates that approximately 180 million tonnes (Mt) of waste rock and 35 Mt of overburden will be produced from open pit and underground mine operations over the Life of Mine through 2031 (Agnico Eagle 2026). Of the total 180 Mt of waste rock, approximately 153 Mt (85%) of waste rock will be placed and stored within five designated waste rock storage facilities (i.e., WRSF1, WRSF3, WRSF6, WRSF7, and WRSF9). The remaining 27 Mt (15%) of waste rock will be used for backfilling the Tiriganiaq underground mine, for construction activities, and as cover material for Tailings Storage Facility (TSF) during construction and closure.

The WRSF3 approved by the NWB in 2022 has a design storage capacity of 12.5 Mm³ and is expected to reach full capacity by the end of 2026, based on the current mine waste production and placement schedule. To accommodate additional mine waste generated from the mining activities at other ore deposits approved under the 2024 WLA, Tetra Tech Canada Inc. was retained by Agnico Eagle to undertake the detailed engineering design for the WRSF3 raise to provide additional storage capacity while maintaining regulatory compliance and providing a robust design to meet the long-term performance objectives and closure requirements.

The WRSF3 raise design was undertaken through a systematic engineering process that integrated a review of previous design information, evaluation of operational performance of the existing WRSF3, and detailed engineering analyses to verify that the WRSF3 continues to meet established design criteria and regulatory requirements.

Detailed engineering analyses included the following:

- Thermal analyses were conducted to evaluate the long-term thermal condition of the WRSF3 and its foundation under the adopted design climate change scenario (CMIP6 SSP2-4.5). The results of the thermal analyses were incorporated into the subsequent slope stability analyses and potential long-term creep deformation assessment.
- Limit equilibrium slope stability analyses were conducted along four representative sections to evaluate the calculated factor of safety (FoS) against the established design criteria. The calculated FoS for the WRSF3 raise design meets or exceeds the adopted design criteria and Agnico Eagle's requirements for all loading scenarios.
- The results of creep deformation analyses conducted for the TSF design update was referenced to evaluate the potential magnitude of creep deformation for WRSF3 by comparing interpreted subsurface conditions within the footprints of TSF and WRSF3, overall side slopes, and maximum facility height. The modelling results suggest that the maximum horizontal displacement ranges from approximately 0.5 m to approximately 1.5 m over a 100-year analysis period depending on subsurface conditions. WRSF3 would be expected to accommodate this magnitude of deformation without compromising global structural stability or overall functionality.

Waste rock identified as Potential Acid Generating (PAG) will be encapsulated within the central portion of WRSF3 to minimize the potential for acid rock drainage and metal leaching. The PAG storage areas will be located at a minimum horizontal distance of 20 m from the outer slope of WRSF3. In addition, PAG waste rock will not be placed

within the final lift of WRSF3 to ensure that an adequate non-PAG cover layer (i.e., 5 m) is maintained on the top of PAG rock storage areas at closure.

Landfills are proposed within WRSF3 for the disposal of non-salvageable, non-hazardous, and non-putrescible solid waste generated on site. The number and exact locations of landfill cells will be determined during operations based on waste management requirements, operational constraints, and available capacity. No landfill cell will be constructed above Bench 117 m to maintain a minimum 5 m thick waste rock cover. Once filled or no longer required, landfill cells will be covered with at least 5 m of non-PAG waste rock.

The current construction method and procedure established for the construction and operations of the existing WRSF3 will continue to be applied to the WRSF3 raise. Various water management infrastructure components, including channels, berms, and collection ponds, are being used to manage runoff from the WRSF3.

A performance monitoring plan has also been developed, which includes installing ground temperature cables and inclinometers. Regular visual inspections by site engineers and annual inspection by a qualified Geotechnical Engineer will be conducted in accordance with the inspection procedures established for the current mine operations and the requirements of the Type A Water Licence.

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
AEP	Annual Exceedance Probability
Agnico Eagle	Agnico Eagle Mines Limited
ARD/ML	Acid Rock Drainage and Metal Leaching
CDA	Canadian Dam Association
CMIP6	Coupled Model Intercomparison Project Phase 6
CP	Collection Pond
DBM	Design Basis Memo
FEIS	Final Environmental Impact Statement
FoS	Factor of Safety
GTC	Ground Temperature Cable
H	Horizontal
IF	Iron Formation
IFC	Issued for Construction
km	Kilometers
LOM	Life of Mine
Lorax	Lorax Environmental Services
masl	Metres Above Sea Level
Mm ³	Million Metres Cube
Mt	Million Tonnes
NBCC	National Building Code of Canada
NIRB	Nunavut Impact Review Board
Non-PAG	Non-Potential Acid Generating
NU	Nunavut
NWB	Nunavut Water Board
Okane	Okane Consultants Inc.
PAG	Potential Acid Generating
PC	Project Certificate
PGA	Peak Ground Acceleration
ppt	Parts Per Thousand
SSP2-4.5	Shared Socioeconomic Pathway
TDS	Total Dissolved Solids
Tetra Tech	Tetra Tech Canada Inc.

Acronyms/Abbreviations	Definition
The Meliadine Mine	Meliadine Gold Mine
TSF	Tailings Storage Facility
V	Vertical
WMI	Water Management Infrastructure
WLA	Water Licence Amendment
WRSF	Waste Rock Storage Facility

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Agnico Eagle Mines Limited 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 Agnico Eagle Mines Ltd., 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 document is subject to the Limitations on Use of this Document attached in Appendix A.

1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) operates the Meliadine Gold Mine (the Meliadine Mine), located about 25 km north of Rankin Inlet, Nunavut (Figure 1). Commercial production started in May 2019 by processing ore extracted from the Tiriganiaq deposits through one underground mine (Tiriganiaq Underground Mine) and two open pits (Tiriganiaq Open Pit 1 and Tiriganiaq Open Pit 2) under the existing Nunavut Water Board (NWB) Type A Water Licence (2AM-MEL1631).

In January 2024, Agnico Eagle submitted a Water Licence Amendment (WLA) application to the NWB to support the completion of licensing components previously approved under the Nunavut Impact Review Board (NIRB) Project Certificate (PC) No. 006 issued in 2015. The 2024 WLA allows Agnico Eagle to mine other ore deposits, including Wesmeg, Wesmeg North, Pump, FZone, and Discovery, which were included in the 2014 Final Environmental Impact Statement (FEIS) and PC No.006. The amended Type A Water Licence was approved by the Minister of Northern Affairs on November 22, 2024.

The mine plan presented in the 2024 WLA indicates that approximately 180 million tonnes (Mt) of waste rock and 35 Mt of overburden will be produced from open pit and underground mine operations over the Life of Mine (LOM) through 2031 (Agnico Eagle 2026). Of the total 180 Mt of waste rock, approximately 153 Mt (85%) of waste rock will be placed and stored within five designated waste rock storage facilities (i.e., WRSF1, WRSF3, WRSF6, WRSF7, and WRSF9). The remaining 27 Mt (15%) of waste rock will be used for backfilling the Tiriganiaq underground mine, for construction activities, and as cover material for the Tailings Storage Facility (TSF) during construction and closure.

The original design of WRSF3 was completed by Tetra Tech Canada Inc. (Tetra Tech) in 2020 and approved by the NWB on March 30, 2020 (Agnico Eagle 2020). In November 2021, Tetra Tech conducted a redesign of WRSF3 to incorporate a proposed footprint extension to store additional waste rock and overburden material based on an update to the mine waste management plan at that time (Agnico Eagle 2021). The redesign of WRSF3 was approved by the NWB on January 31, 2022.

The WRSF3, approved by the NWB in 2022 (referred to as the existing WRSF3 in this report), has a design storage capacity of 12.5 Mm³ and is expected to reach full capacity by the end of 2026, based on the current mine waste production and placement schedule. To accommodate additional mine waste generated from the mining activities at other ore deposits approved under the 2024 WLA, Agnico Eagle proposes to raise the existing WRSF3.

Tetra Tech was retained by Agnico Eagle to undertake the detailed engineering design for the WRSF3 raise. The primary objective of the WRSF3 raise design at the Meliadine Mine is to provide additional storage capacity while maintaining regulatory compliance and providing a robust design that meets the long-term performance objectives and closure requirements.

This report presents the WRSF3 raise design, including the design basis, criteria, engineering analyses results, construction and operational procedures, monitoring plan, and the Issued for Construction (IFC) drawings. This report is also intended to meet the requirements outlined in Part D, Items 1 and 2 of the amended Type A Water Licence.

2.0 GENERAL SITE CONDITIONS

2.1 Climate and Meteorology

The Meliadine Mine lies within the Southern Arctic Climatic Region, where daylight ranges from a minimum of 4 hours per day in winter to a maximum of 20 hours per day in summer. The nearest weather station is Rankin Inlet A (Station 2303401), located approximately 25 km south of the Meliadine Mine site. The closest long-term regional evaporation station operated by Environment Canada is in Churchill, Manitoba. The monthly mean air temperature is typically above 0°C from June to September and below 0°C between October and May. July is typically the warmest month, and January is the coldest. Winters are typically long and cold, while summers are short and cool. The mean annual temperature for the period of record from 1994 to 2023 was -9.8°C based on measured air temperature data at Rankin Inlet.

The annual total precipitation under mean conditions at the Meliadine Mine site is 394 mm/year, with almost equal amounts falling as snow and rainfall (Tetra Tech 2021a). Average annual evaporation for small waterbodies in the Meliadine Mine site is estimated to be 323 mm between June and September. The average annual loss of snowpack to sublimation and snow redistribution is estimated to from 46% to 52% of the total precipitation for the winter period, and it occurs between October and May.

The region is known for high winds, due in part to the broad, flat, uninterrupted expanses that moving air masses encounter. The wind generally blows from the northwest and north-northwest direction. The mean wind speeds show that north-northwest, and northwest winds, have the highest speeds and tend to be the strongest. Mean monthly wind speeds are typically between 19 km/hour and 29 km/hour, with an average of 22.3 km/hour.

2.2 Environmental Setting

The dominant terrain in the Meliadine Mine area comprises glacial landforms such as drumlins (glacial till), eskers (gravel and sand), and lakes. A series of low relief ridges are composed of glacial deposits, oriented in a northwest-southeast direction, which control the regional surface drainage patterns. The Mine is about 60 metres above sea level (masl) in low-lying topography with numerous lakes.

The surveyed lake surface elevations in the Meliadine Mine area range from about 51 masl at Meliadine Lake to about 74 masl for local small, perched lakes. Lakes formed by glaciofluvial processes or glacial processes, are common throughout the Meliadine Mine area. Most of the perched lakes at the Meliadine Mine site are relatively shallow (less than 2 m water depth). Late winter ice thicknesses on freshwater lakes in the Meliadine Mine area range between 1.0 m and 2.3 m with an average thickness of 1.7 m. Ice covers usually form by the end of October and are completely formed by early November. The spring freshet typically begins in mid-May and is complete by early July (Golder 2012a).

2.3 Permafrost

The Meliadine Mine is located within the Southern Arctic terrestrial eco-zone, which is one of the coldest and driest regions of Canada, in a zone of continuous permafrost. Continuous permafrost to depths of between 285 m to 430 m is expected based on ground temperature data from thermistors installed near Tiriganiaq, FZone, and Discovery deposits (WSP 2024a). The measured ground temperature data indicates that the active layer ranges from 1.0 m to 3.0 m in areas of shallow soils and areas away from the influence of lakes. It is anticipated that the active layer adjacent to lakes or below a body of moving water such as a stream could be deeper. The typical

permafrost ground temperatures at the depths of zero annual amplitude (typically at the depth of below 18 m) are in the range of -5.9°C to -7.0°C in the areas away from lakes and streams. The geothermal gradient ranges from 0.015°C/m to 0.02°C/m (WSP 2024a).

Open taliks (defined by the 0-degree isotherm) are predicted to be present beneath portions of each of the following lakes near the proposed open pits: Lake B4, B5, B7, A6, A8, and CH6. Closed talik is interpreted below Lake D4 based on the 0-degree isotherm interpreted from the thermal model (WSP 2024b).

2.4 Groundwater

In areas of continuous permafrost, there are generally two groundwater flow regimes: a shallow groundwater flow regime located in the active layer near the ground surface, and a deep groundwater flow regime located beneath permafrost. From late spring to early autumn, when temperatures are above 0°C, the active layer thaws. Within the active layer, the water table is expected to be a subdued replica of topography and is expected to parallel the topographic surface. Groundwater in the active layer flows to local depressions and ponds that drain to larger lakes in Meliadine Mine area.

The permafrost in the rock in Meliadine Mine area would be virtually impermeable to groundwater flow. The shallow groundwater flow regime, therefore, has little to no hydraulic connection with the deep groundwater regime. A numerical hydrogeological model for the deep groundwater flow regime was developed in 2012 and updated several times in 2016, 2019, and 2021. It was reported that the elevations of the larger lakes with taliks extending down to the deep groundwater regime (referred to as open taliks) provide the principal driving force for deep groundwater flow. Hydrogeological testing conducted at the Meliadine Mine site indicated that the bulk bedrock is generally of low hydraulic conductivity, ranged from 1×10^{-10} m/s to 6×10^{-9} m/s (WSP 2024b). Groundwater velocities in the deep groundwater regime are very low and on the order of 0.2 m/year to 0.3 m/year.

To a lesser degree, groundwater beneath the permafrost is influenced by density differences due to the upward diffusion of deep-seated brines (density-driven flow). In the Canadian Shield, concentrations of Total Dissolved Solids (TDS) in groundwater increase with depth, primarily in response to upward diffusion of deep-seated brines. A “West Bay”-type well was installed in 2011 at the site near the proposed Tiriganiaq UG infrastructure to establish a baseline for deep groundwater quality. A second “West Bay”-type well was installed in 2020 near the Discovery deposit to collect more baseline data. Mean salinity of groundwater below the permafrost has been estimated at approximately 61,000 mg/L. Salinity can induce a freezing point depression, creating a cryopeg in permafrost where water can be unfrozen even though the temperature is below 0°C. The freezing point depression was calculated to be equivalent to -3.3°C (with salinity approximately 61,000 mg/L), suggesting the depth to the basal cryopeg is between about 350 m and 375 m below ground surface in Meliadine Mine area (Golder 2012a).

2.5 Seismic Zone

The Meliadine Mine site is in an area of low seismic risk and is classified as “Class C” based on the ground conditions. The Peak Ground Acceleration (PGA) for a reference “Class C” site under various Annual Exceedance Probability (AEP) was estimated using the 2020 National Building Code of Canada (NBCC) Seismic Hazard Tool. The estimated PGA is 0.0285 g for a 5% in 50-year probability of exceedance (0.001 per annum or 1 in 1,000 year return) and 0.0498 g for a 2% in 50-year probability of exceedance (0.000404 per annum or 1 in 2,475 year return) for the Meliadine Mine.

3.0 EXISTING WRSF3 DESCRIPTION

3.1 Design and Construction of the Existing WRSF3

3.1.1 Design of the Existing WRSF3

The existing WRSF3 at the Meliadine Mine is located southeast of CP1, and covers all or portions of the former Lakes H19 and H20. The footprint of the existing WRSF3 is approximately 52.6 hectares. The general site layout plan is presented in Figure 2.

The original design of WRSF3 was completed by Tetra Tech in 2020 and approved by the NWB on March 30, 2020. In November 2021, Tetra Tech conducted a redesign of WRSF3 to incorporate a proposed footprint extension to store additional waste rock and overburden material based on an updated mine waste management plan at that time. The redesign of WRSF3 was approved by the NWB on January 31, 2022. The WRSF3 approved in 2022 was designed to store approximately 10 Mm³ of waste rock and 2.5 Mm³ of overburden, for a total storage capacity of 12.5 Mm³.

The design concept for the existing WRSF3 follows the approach previously adopted for WRSF1 at the Meliadine Mine. Waste rock and overburden materials are co-disposed within the facility, with the overburden encapsulated in the central portion of the facility. The outer shell of the facility consists primarily of waste rock, which provides structural stability and thermal and erosion protection for the encapsulated overburden materials.

A transition filter zone between the overburden and waste rock is not considered necessary in the design. Encapsulation of the overburden within the interior of the facility is intended to limit exposure to surface processes and maintain favourable thermal conditions over the long term.

During operation, waste rock and overburden will be placed progressively in lifts, forming a benched slope configuration with designed setback distances between benches. The overall side slopes of the facility are designed at approximately 3 Horizontal (H):1 Vertical (V).

Based on the design approach and the anticipated long-term performance of the facility, additional capping or large-scale regrading of the side slopes is not anticipated to be required at closure. The facility is therefore expected to function as a stable and self-sustaining landform that will require minimal long-term maintenance following mine closure.

3.1.2 Construction of the Existing WRSF3

The former Lakes H19 and H20 within the footprint of the existing WRSF3 were dewatered in 2019, and construction of the WRSF3 commenced in 2020. Waste rock and overburden placement have followed the operational protocols established for current mine operations. The key construction procedures are summarized below:

- Excess snow and ice are removed from the dumping area with the bulldozer during winter placement.
- A topographical survey of the original ground surface is conducted, and survey stakes are installed to mark the limits of overburden and waste rock placement areas.
- Overburden is hauled to its designated placement area and end-dumped. The material is then spread in controlled lifts using a CAT D8 bulldozer and track-packed to achieve compaction. The side slopes of each lift are constructed at natural angle of repose (approximately 1.8H:1V).

- The maximum lift thickness for overburden is 2.5 m.
- Each subsequent bench of overburden material is then “stepped inward”, forming a staircase-like configuration along the perimeter to achieve the required overall design side slope.
- Waste rock is hauled to its designated location and end-dumped. The material is then pushed and placed by a dozer around the perimeter of the overburden to form the outer cover shell. Waste rock is track-packed only. The side slopes of each waste rock bench are constructed at the natural angle of repose (approximately 1.3H:1V).
- The maximum lift thickness for waste rock is 5 m.
- A temporary safety berm is constructed along the outer crest of each lift once waste rock heights reach 3.0 m above the original ground surface, in accordance with Mine Act requirements.
- The temporary safety berm is incorporated into the subsequent lift of cover material to ensure adequate compaction. Specifically, the safety berm material is spread within the next lift of waste rock and compacted as part of that lift rather than remaining uncompacted at the slope face.

As of December 2025, approximately 5.9 Mm³ of waste rock and 3.1 Mm³ of overburden have been placed within the existing WRSF3 based on the as-built survey provided by Agnico Eagle in December 2025.

Runoff from the existing WRSF3 is managed by a water management system surrounding the facility. The system includes Collection Pond 2 (CP2), CP6, Channel9 and Channel10. Water collected in CP2 and CP6 is regularly pumped to CP1 for treatment prior to discharge.

To monitor the thermal conditions of the foundation soils and waste material placed in the facility, four multi-bead ground temperature cables (GTCs) have been installed within the footprint of the existing WRSF3.

3.2 Field Monitoring and Performance Observations

The construction and operation of the existing WRSF3 at the Meliadine Mine involve coordination among multiple departments and management levels, including health and safety, process plant, mining, engineering, environment, contractors, and consultants. Field monitoring data collected between 2020 and 2025, along with regular inspections, indicate that the in situ conditions and performance of the existing WRSF3 meet the design expectations.

Agnico Eagle performs routine visual inspections in accordance with the inspection protocols established for the current mine operations. The inspection is intended to identify potential hazards/risks, including deformations, seepage, slumping, and other signs of instability. Additionally, an annual inspection by a qualified Geotechnical Engineer is conducted to document the performance of the existing WRSF3. Findings from the routine and annual geotechnical inspections are evaluated during the annual external review process to assess the performance of WRSF3.

The collected ground temperature data indicate that the thermal conditions of the foundation soils align with or are colder than the predictions from the thermal models. Routine inspections have not identified any significant deformation, seepage, or signs of instability. These observations demonstrate that the current construction and operational practices are effective and that the existing WRSF3 is performing as intended.

4.0 SUMMARY OF DESIGN BASIS FOR THE WRSF3 RAISE

4.1 Mine Waste Production Plan

Based on the current mine waste management plan, overburden and waste rock generated from the Tiriganiaq01, Tiriganiaq02, Wesmeg02, and Wesmeg03 open pits will be co-disposed within WRSF3. As per the latest mine plan (V23_OP_Global_Summary) provided by Agnico Eagle, approximately 22.9 Mt (12.2 Mm³) of waste rock and approximately 7.7 Mt (4.8 Mm³) of overburden will be stored in WRSF3. Details on the mine waste production schedule and yearly quantities are documented in Section 2.2 of the Design Basis Memo (DBM), attached in Appendix B.

4.2 Mine Waste Properties and Characteristics

4.2.1 Overburden Geotechnical Properties

Numerous site investigation programs have been conducted at Meliadine Mine since 1998, with a total of 24 geotechnical boreholes and test pits drilled/excavated around the footprints of Tiriganiaq01 and Tiriganiaq02, which will serve as the source of the overburden placed in WRSF3.

In general, the overburden consists of a thin layer of organic material overlying sandy gravel or gravelly sand, overlying silty sand or sandy silt till and boulders. Natural moisture contents of the materials range from 2.9% to 11.7% and it is non-plastic in nature (Golder 2010). The overburden materials are assumed to have a specific gravity of 2.70 and an in-place bulk density of 1.62 t/m³ after being placed. The pore-water salinity of the overburden ranges from 4 parts per thousand (ppt) to 12 ppt with an average of 7 ppt (EBA 2013a).

4.2.2 Waste Rock Geotechnical Characteristics

Most of the waste rock is greywacke from the Sam and Upper Oxide formations, and mafic rock from the Wesmeg formation. The waste rock types were generally classified as medium to very strong with uniaxial compressive strengths ranging from 36 MPa to 60 MPa (Tetra Tech 2024). Waste rock from underground sources is typically classified as a 600 mm minus material, with the rock from open pits expected to be of a larger particle size (1,000 mm minus).

The waste rock materials are assumed to have a specific gravity of 2.82 and an in-place bulk density of 1.88 t/m³ after being placed in WRSF3. The assumed specific gravity and in place density for waste rock are consistent with the values used for the detailed design of WRSF1 and WRSF6 at the Meliadine Mine and are considered to be on the lower side for waste rock and overburden management. The actual bulk densities could be higher; therefore, less storage capacity may be required than planned.

4.2.3 Mine Waste Geochemical Characteristics

Results of acid rock drainage and metal leaching (ARD/ML) testing by Golder (2014) and Lorax Environmental Services (2022) indicate that both the overburden and waste rock from the Tiriganiaq deposit are considered Non-Potential Acid Generating (non-PAG) and have low potential for ML. Waste rock that is classified as Potential Acid Generating (PAG) or Uncertain is mostly Iron Formation (IF) waste rock. Approximately 79% of Tiriganiaq IF waste rock is classified as non-PAG. About 50% of IF waste rock at Wesmeg was classified as Uncertain, and about 38%

of IF waste rock was classified as PAG. Waste rock from other lithologies/formations is uniformly classified as non-PAG.

4.3 Subsurface Geotechnical Conditions

A total of 46 boreholes (20 diamond drilling boreholes and 26 percussion drilling probe holes) were drilled within and around the WRSF3 footprint during several geotechnical site investigation programs (Tetra Tech EBA 2014, Tetra Tech EBA 2016, Tetra Tech 2019, Tetra Tech 2020, Tetra Tech 2021). Of these, 14 diamond drilling boreholes are located within the WRSF3 footprint, while the remaining 32 boreholes are located around the footprint area. The locations of drilled boreholes are presented in Figure 3.

Review and interpretation of the borehole logs indicate spatial variability in ground ice conditions across the WRSF3 footprint, with localized zones of ice-rich permafrost soils surrounded by ice-poor overburden soils. Ice-rich materials, defined as soils containing more than 30% excess ice by volume, occur mainly along the west shore of the former Lake H19 and within a localized low-lying area in the central portion of WRSF3.

The interpreted subsurface stratigraphy across the WRSF3 area consists of a thin organic peat layer (0 to 0.5 m thick) overlying variable overburden soils, including silty SAND, SAND and SILT, ice-rich gravelly SAND with some silt, and silty SAND or gravelly SAND with traces of clay and shells, occasionally containing cobbles. These overburden deposits overlie bedrock composed of greywacke, which ranges from highly weathered to fresh, strong, dark grey, and fine-grained. The interpreted thickness of ice-rich soils ranges from approximately 0.1 m to 0.9 m, with an average thickness of approximately 0.4 m. The depth to bedrock across the WRSF3 footprint varies from approximately 2.3 m to 6.5 m.

More details on the subsurface conditions within the WRSF3 footprint and borehole logs are presented in Section 2.6 of the DBM, attached in Appendix B.

4.4 Design Criteria

The design criteria for the WRSF3 raise have been established to provide a robust design that meets long-term performance objectives and regulatory compliance.

The design criteria for the WRSF3 raise include minimum factor of safety (FoS) against slope instability, design earthquake loading, thermal conditions, and deformation limits. The rationale for each design criterion is documented in Section 4.0 of the DBM, attached in Appendix B. The following subsections provide a summary of each established criterion.

4.4.1 Minimum Factor of Safety

The stability acceptance criteria for the design of the WRSF3 raise are established based on the recommendations and approaches presented in Hawley and Cuning (2017) – *Guidelines for Mine Waste Dump and Stockpile Design*. The guidelines recommend stability criteria based on the consequences of failure and the level of confidence in the design parameters.

The selection of the minimum acceptable FoS for the WRSF3 raise design considered the locations of failure, slope slip mechanisms, failure consequence, confidence levels on input parameters, key assumptions, proximity to nearby infrastructure, and site conditions. Table 4-1 presents the selected minimum FoS against slope instability under various loading conditions and potential failure scenario. The selected minimum FoS values presented in Table 4-1 meet or exceed the recommended minimum FoS in Hawley and Cuning (2017)

Table 4-1: Stability Criteria for the WRSF3 Raise Design

Potential Failure Scenario and Conditions	Adopted Minimum Acceptable F	
	Static	Pseudo-Static ^(a)
Surficial, shallow slips (during construction)	1.3	-
Local deep-seated slips (during construction)	1.5	-
Long-term, global deep-seated slips for base cases (after construction)	1.5	1.1 ^(b)
Long-term, global deep-seated slips for sensitivity cases with conservative assumptions (after construction)	1.3	1.1 ^(b)

^(a): Pseudo-static loading was only considered for global deep-seated slip failure under long-term conditions (after construction).

^(b): If the calculated FoS under pseudo-static loading is significantly less than the minimum required FoS (1.1), a dynamic deformation numerical analysis will be conducted to estimate the deformation of WRSF3 under seismic loading.

4.4.2 Design Earthquake

Earthquakes can trigger slope instability and cause intolerable settlement of WRSF3 if the earthquake magnitude exceeds certain thresholds. A maximum design earthquake with a 1 in 2,475 year return event (2% probability of occurrence in 50 years) was selected for both the operational phase and post-closure. The selected design earthquake for the WRSF3 raise design complies with the recommendation for a dam structure classified as High in the Dam Safety Guidelines (CDA 2013).

4.4.3 Thermal Criterion

The initial WRSF3 design assumed that the physical slope stability of the facility does not depend on the freeze-back of the waste rock and overburden. Accordingly, the mine waste stored in the WRSF3 was assumed to remain in an unfrozen condition under the long-term design climate change scenario. However, measures (e.g., seasonal placement strategy) to promote the freeze-back of the overburden have been implemented during the construction of WRSFs at the Meliadine Mine. Potential freeze-back of mine waste and/or permafrost development within WRSF3 would provide additional benefits to both the physical and geochemical stability of the facility. Therefore, no thermal performance criterion is required for the WRSF3 raise design.

4.4.4 Deformation Criteria

4.4.4.1 Creep Deformation Criteria

Ice-rich soils exhibit visco-elastic behaviour and are subject to time-dependent deformation (creep) under sustained shear stress. The magnitude of the creep-induced deformations depends on various factors, including stress state, temperature, distribution and thickness of the ice-rich layer, and porewater salinity.

To evaluate the long-term performance of WRSF3, a creep deformation acceptance criterion of approximately 3% of the maximum facility height was used to assess the potential magnitude of long-term creep deformation. This acceptance criterion addresses overall facility-scale deformation caused by creep in the ice-rich foundation soils rather than localized differential settlement. The criterion is considered reasonable for a WRSF. WRSFs are typically constructed of coarser, free-draining waste rock with relatively high shear strength and limited potential for excess porewater pressure generation. As a result, WRSFs are generally less sensitive to deformation and can tolerate greater deformation without compromising global structural stability or overall functionality.

4.4.4.2 Seismic Deformation Criterion

For seismic deformation, the *Guidelines for Mine Waste Dump and Stockpile Design* by Hawley and Cuning (2017) recommends defining the maximum allowable strain due to a seismic event based on the facility's failure consequence and the confidence level in the design. For the WRSF3 raise design, a maximum allowable strain of 0.75% due to the designed seismic event was established, reflecting the consequence of failure and the level of confidence in the design for WRSF3 at the Meliadine Mine.

4.5 Additional Key Design Considerations

In addition to the expected waste rock production schedule, quantities, and geochemical characteristics, a number of other factors were considered to facilitate the WRSF3 design update, including:

- **Closure Objectives:** The WRSF3 design update will consider and meet the closure objectives stated in the Meliadine Interim Closure and Reclamation Plan – Update 2020, (SNC Lavalin 2022). The key closure objectives are:
 - The physical stability of WRSF3 will be maintained under long-term climate change, static, and seismic conditions, with the deformation under the tolerable thresholds.
 - The WRSF3 will be geochemically stable with minimized generation of ARD/ML to ensure contact water meets Water Licence criteria and is safe for human and wildlife.
 - The closure strategy assumes no re-shaping or re-arranging of the side slopes and that no cover is required given the expected geochemical performance.
 - Minimize dust and erosion concern in the long term.
- **Site Climate Conditions:** The geographic location of the Meliadine Mine site will be maximized to promote freezing of the mine waste, freeze-back of the underlying foundation soils, and encourage permafrost development in the facility. Overburden will be excavated and placed in winter to maintain its frozen condition or to promote the freeze-back. Waste rock will be placed in summer and winter.
- **Environmental Obligations:** To avoid impacts on fish-bearing habitat, a minimum buffer distance of 31 m will be maintained from protected natural lakes, and the overall footprint will be minimized.
- **Water Management:** Where feasible, clean natural runoff will be diverted away from the facility to avoid contact with and flowing through the mine waste. Water management infrastructure (WMI) will be constructed to facilitate the collection and management of contact water from WRSF3 during operations to avoid potentially negative impacts on the receiving environment.
- **Geotechnical Stability:** To maintain the short- and long-term physical stability of the facility under the designed climate change scenario.
- **Constructability/Operational Concerns:** Minimize haulage wherever feasible and reduce pre-production construction; maintain safe distances from the toe of the WRSF3 and haul roads and the open pits.

5.0 WRSF3 RAISE DESIGN

5.1 Design Methodology

The WRSF3 raise design was undertaken through a systematic engineering process that integrated a review of previous design information and an evaluation of the operational performance of the existing WRSFs. Anticipated operational conditions and constraints were also considered in the design update, including the mine production schedule, characteristics, placement strategies, climatic conditions, and site-specific constraints such as foundation conditions. These factors were considered to ensure that the WRSF3 raise design remains practical, constructible, and compatible with ongoing operations.

Following completion of the data review and assessment, an updated WRSF3 design geometry was developed to meet storage requirements while maintaining compliance with operational requirements. Detailed engineering analyses were then conducted to support the design update and to verify that the WRSF3 continues to meet established design criteria and regulatory requirements. Thermal analyses were first performed to characterize the long-term thermal regime of the foundation under the design climate change scenario. The results of the thermal analyses were subsequently used to estimate temperature-dependent shear strength parameters for limit equilibrium slope stability analyses. Dedicated creep deformation analyses were not conducted for the WRSF3 raise design, instead, the creep deformation analyses previously conducted for the TSF design update (Tetra Tech 2026a) were referenced to evaluate the potential magnitude of creep deformation for WRSF3.

5.2 Design Concept and Geometry

The WRSF3 raise design concept was developed based on the observed performance of the existing WRSF3 and the current as-built geometry. The raise design was achieved by increasing the crest elevation, while maintaining the same design side slopes to provide the additional required storage capacity. The design concept for the WRSF3 raise is consistent with the design approach adopted for the existing WRSF3, where waste rock and overburden materials will be co-disposed within the facility, with the overburden encapsulated within the central portion of the facility.

The final top elevation for the updated WRSF3 configuration was determined based on site-specific geometry constraints and results from slope stability analyses. Key design parameters for the WRSF3 raise are summarized in Table 5-1. The IFC drawings, including typical cross sections, are provided in Appendix E.

Table 5-1: Key Parameters and Geometry for the WRSF3 Raise Design

General Parameters	Values
Maximum height of each overburden and waste rock bench (m)	5.0
Angle of repose for overburden	1.8H:1 V
Angle of repose for waste rock	1.3H:1V
Average overall overburden side slopes	4.0H:1V
Average overall waste rock side slopes	3.0H:1V
Typical width of horizontal offset for overburden at each bench (m)	12
Typical width of horizontal offset for waste rock at each bench (m)	10
Internal overburden setback distance from the toe of the WRSF3 (m)	40
Maximum height (elevation) above original ground (m) (masl)	60 (122)
Assumed waste rock in-place bulk density (t/m ³)	1.88
Assumed overburden in-place bulk density (t/m ³)	1.62

An access ramp is incorporated into the design and is designed for dual-lane traffic to accommodate 70-tonne haul trucks (e.g., 775G-CAT), with a 17.1 m wide traffic surface and a maximum gradient of 10%. A safety berm with approximately 5 m wide at base and 1.7 m high will be constructed along the outer edge of the access ramp.

Under the proposed design geometry configuration outlined in Table 5-1, raising WRSF3 to a crest elevation of 122 m (from Elevation 97 m) is expected to provide an additional 4.7 Mm³ of storage capacity (approximately 2.8 Mm³ of waste rock, and 1.9 Mm³ of overburden), bringing WRSF3's total storage capacity from 12.5 Mm³ to 17.2 Mm³.

5.3 Thermal Analyses

Thermal analyses were conducted to estimate the thermal conditions of the overburden, waste rock, and the foundation soils during mine operations and closure for the WRSF3 raise design. The analyses were carried out using Tetra Tech's proprietary finite element computer model, GEOTHERM, and considered a long-term climate change scenario (Shared Socioeconomic Pathway (SSP2-4.5)) developed by Okane Consultants Inc. (Okane) using available Coupled Model Intercomparison Project Phase 6 (CMIP6) climate model outputs from Environment and Climate Change Canada.

Key findings from the thermal analyses are summarized below. Other details regarding the modelling methodology, input parameters, material properties, assumptions, and results are documented in the Technical Memo, attached in Appendix C of this report.

- An active layer approximately 4 m in depth below the surface of the WRSF3 will form. Since most of the material was assumed to be placed during winter/spring, the waste rock and overburden below the active layer zone is expected to remain frozen after placement.
- The predicted temperatures of the placed waste materials below the active layer in WRSF3 range from -0.5°C to -2.0°C after 100 years under the design long-term climate change scenario (CMIP6 SSP2-4.5).
- The predicted long-term (by 2127) ground temperatures in the ice-rich foundation soils within the footprint of WRSF3 range from -0.5°C to -2.2°C, depending on the distance from the WRSF3 toe.

The thermal model will be reviewed on a periodic basis and updated if required, as more ground/waste temperature monitoring data and as-built information become available.

5.4 Slope Stability Analyses

Limit equilibrium analyses were performed using Slope/W in GeoStudio (Seequent 2024) to calculate the FoS against slope failure under various failure scenarios during construction and in the long-term post construction of the WRSF3. Four representative cross-section locations (one section at each side of WRSF3) were selected for slope stability assessment. The analyses considered both static and seismic loading conditions. The post-construction seismic loading was modelled as pseudo-static with a design horizontal peak acceleration representing the transient seismic accelerations that may be induced during the designed earthquake.

To account for the uncertainties and variability in foundation conditions and material properties, a sensitivity check was also conducted at the selected critical cross-section. The sensitivity check includes the following scenarios:

- Elevated water table in the WRSF3, assuming that the water table is located at Bench 87 m.
- Continuous ice-rich soil layer present within the footprint of WRSF3.
- Excess pore-water pressure generation due to thawing of the ice-rich soils, with a R_u of 0.15.
- Fully thawed ice-rich soil layer in the long term.

Table 5-2 presents the smallest calculated FoS at all cross-sections for each loading condition and failure scenario, together with the calculated smallest FoS for a sensitivity check at the selected critical cross-section. Other details regarding the modelling methodology, design criteria, soil profiles, material properties, cases analyzed, and the calculated minimum FoS for each case are documented in the Technical Memo, attached as Appendix D of this report.

The results in Table 5-2 indicate that the calculated FoS for all assessed loading conditions and failure scenarios meets or exceeds the adopted stability criteria as outlined in Table 4-1 of Section 4.4.1.

Table 5-2: Summary of Slope Stability Analyses Results

Loading Condition and Failure Scenario		Targeted Minimum Factor of Safety	Calculated Minimum Factor of Safety
During construction	Shallow slip failure, static loading	1.3	2.5
	Local deep-seated slip failure, static loading	1.5	2.1
Long-term after construction	Global deep-seated slip failure, static loading	1.5	1.5
	Global deep-seated slip failure, pseudo-static loading	1.1	1.2
Long-term after construction, sensitivity case	Global deep-seated slip failure, static loading with water table at Bench 87 m	1.3	1.4
	Global deep-seated slip failure, static loading with continuous ice-rich soil layer present within the footprint of WRSF3	1.3	1.4
	Global deep-seated slip failure, excess pore water pressure due to thawing ice-rich soil layer ($R_u=0.15$)	1.3	1.4
	Global deep-seated slip failure, fully thawed ice-rich soil layer	1.3	2.1

The results of the thermal analyses (Section 5.3) indicate the waste rock and overburden below the active layer (approximately 4.0 m thick) are expected to remain frozen after 100 years under the design long-term climate change scenario. However, the slope stability analyses assumed the waste rock and overburden to be fully thawed, which is considered reasonably conservative. The presence of frozen waste rock and overburden within the WRSF3

after 100 years is expected to further increase the resilience of the WRSF3 to slope instability and enhance its long-term performance.

5.5 Deformation Analyses

5.5.1 Long-term Creep Deformation Analyses

A series of creep deformation analyses were conducted using FLAC 8.0 (Fast Lagrangian Analysis of Continua) to evaluate the potential long-term creep deformation within the ice-rich SILT layer underlying the TSF at the Meliadine Mine (Tetra Tech 2026b). Three modelling cases, with or without mitigation measures, were considered to assess the potential magnitude of long-term creep deformation within the ice-rich SILT layer. The base case assumed the presence of a 0.5 m thick continuous ice-rich SILT layer within the footprint of the TSF. Two sensitivity cases were also evaluated, representing (1) a discontinuous ice-rich SILT Layer and (2) a thawed ice-rich SILT layer within the footprint of TSF.

Key findings from the long-term creep deformation analyses for the TSF are summarized below. Additional details regarding the modelling methodology, input parameters, material properties, assumptions, and predicted deformation results, were documented in the Technical Memo (Tetra Tech 2026b).

The modelling results suggest that the maximum horizontal displacement ranges from approximately 0.5 m (discontinuous ice-rich layer without mitigation) to approximately 1.5 m (continuous ice-rich layer without mitigation) over a 100-year analysis period. The maximum vertical displacement is estimated to range from approximately 0.3 m (discontinuous ice-rich layer without mitigation) to approximately 0.8 m (continuous ice-rich layer without mitigation) over the same period. Based on the modelling results, the maximum horizontal displacement is anticipated to occur approximately at mid-height along the side slopes of the TSF, while the maximum vertical displacement is predicted to occur near the slope crest.

A comparison of the interpreted subsurface conditions within the footprints of the TSF and WRSF3 indicates that significantly less ground ice is interpreted to be present within the WRSF3 footprint. Available subsurface data suggest that localized zones of ice-rich permafrost soils may be present in the central portion of WRSF3, while the perimeter areas are interpreted to consist predominantly of ice-poor overburden soils. On this basis, WRSF3 is likely to be less susceptible to long-term creep deformation than the TSF. Consequently, the results of the creep deformation analyses completed for the TSF are considered to provide a conservative upper-bound reference for evaluating potential long-term creep deformation at WRSF3.

WRSF3 has been designed with overall side slopes and a maximum facility height generally comparable to those of the TSF. Based on the TSF creep deformation analyses, the potential long-term creep deformation at WRSF3 is expected to remain within the adopted deformation acceptance criterion of approximately 3% of the maximum facility height. Even under the conservative estimate of up to approximately 1.5 m of horizontal displacement, WRSF3 would be expected to accommodate this magnitude of deformation without compromising global structural stability or overall functionality.

5.5.2 Seismic Deformation Analyses

The earthquake-induced deformation of WRSF3 was assessed as an initial screening to determine whether an advanced dynamic stress-strain deformation analysis is required for the WRSF3 raise design. Permanent seismic deformation of the WRSF3 slopes was estimated using the empirical Newmark sliding block model proposed by Bray and Travasarou (2007). This method estimates seismic slope displacements by relating the yield acceleration

of the slope to earthquake magnitude and ground motion intensity parameters. The approach is widely used for the preliminary evaluation of seismic deformation potential of earth dams, embankments, and TSFs.

The critical slip surface governing seismic stability was first identified through pseudo-static limit equilibrium slope stability analyses. The yield acceleration (k_y), defined as the horizontal acceleration needed to reduce the FoS to unity, was then determined for the critical failure surface. The yield acceleration represents the threshold acceleration above which permanent displacement may occur during earthquake shaking.

The input parameters used in the Bray and Travararou (2007) relationship to estimate the expected permanent displacement of WRSF3 slopes include:

- The yield acceleration, $k_y=0.1$ g;
- An initial fundamental period, $T_s=0.6$ s, calculated based on the average WRSF3 height of 60 m and an average mine waste shear wave velocity of 400 m/s;
- Design earthquake magnitude, $M_w=6.5$; and
- 5%-damped spectral acceleration, $S_a(T)=0.04$ g, estimated from the 2020 NBCC Seismic Hazard Tool for a Class "C" site at Rankin Inlet.

Based on these parameters, the estimated permanent deformation of the WRSF3 slopes for an earthquake magnitude of 6.5 M_w is approximately 1 cm, which is negligible relative to the scale of the WRSF3. Assuming a failure path length of 180 m (estimated from the slope stability analyses), this displacement corresponds to an equivalent shear strain of approximately 0.01%. This value is well below the recommended maximum allowable strain of 0.75% suggested by Hawley and Cunning (2017).

The predicted seismic deformation represents the cumulative sliding displacement that may occur along the critical slip surface during strong ground shaking. Based on the estimated seismic deformation using the Bray and Travararou (2007) procedure, the seismic-induced deformation at the WRSF3 is expected to remain within acceptable limits and is not anticipated to compromise the WRSF3's overall performance.

6.0 CONSTRUCTION PROCEDURES AND QUALITY CONTROL

6.1 Operational Construction Procedures

A strict but practical operational procedure for the construction of a WRSF was established and implemented during the construction of the existing WRSFs (e.g., WRSF1 and WRSF6). The existing operational procedures are described in Section 3.1.2 and will be followed for the WRSF3 raise.

The overburden placement is planned to take place in the winter season to promote freeze-back and permafrost development in the waste material based on the current mine plan. Following winter placement of overburden materials, settlement may be observed in the spring and summer months if there is not enough or no thermal cover. The settlement may cause surface cracking, depressions, and sinkholes in localized areas. If excessive deformations and settlements occur during the waste placement, additional overburden material and/or waste rock will be placed and compacted in the appropriate zones.

Depending on the actual mine waste production plan during operations, any waste rock benches below the final lift may be used to store overburden material to maintain operational flexibility, provided that the overburden setback distance from the edge of WRSF3 meets the design criteria presented in Table 5-1.

After construction, the most likely settlements could occur in the centre of the WRSF3 where overburden material is to be placed and encapsulated with waste rock. To reduce the risk of the formation of depression zones and potential water ponding, the final lift of the overburden material could be placed with a slope of a minimum 4% from the centre of the pile to the perimeter.

6.2 Quality Control Program

A quality control plan was developed and incorporated into the operation, maintenance, and surveillance plan for the existing WRSFs. This plan includes on-going verification of design assumptions and parameters, including monitoring of ground/waste temperatures and on-going ARD/ML testing. Details on sampling and testing plan are documented in the Mine Waste Management Plan (Agnico Eagle 2026). The quality control plan currently implemented on site will continue for the construction of the WRSF3 raise.

7.0 PAG WASTE ROCK MANAGEMENT

As stated in Section 4.2.3, the geochemical characterization study conducted by Lorax (2022) indicates that waste rock classified as PAG or Uncertain is predominantly associated with the IF lithology. Approximately 79% of the Tiriganiaq IF waste rock is classified as non-PAG. At the Wesmeg deposit, approximately 50% of the IF waste rock was classified as Uncertain and approximately 38% was classified as PAG. Waste rock from other lithologies and formations is consistently classified as non-PAG.

Based on the distribution of waste rock lithologies from the Tiriganiaq and Wesmeg deposits expected to be produced between 2026 and the end of mine life, as provided by Agnico Eagle, approximately 1.3 Mt (representing about 11% of the total waste rock produced between 2026 and 2031) is from IF lithology and will be conservatively managed as PAG material.

Waste rock identified as PAG will be encapsulated within the central portion of WRSF3 to minimize the potential for ARD/ML. The PAG storage areas will be located at a minimum horizontal distance of 20 m from the outer slope of WRSF3. In addition, PAG waste rock will not be placed within the final lift of WRSF3 to ensure that an adequate non-PAG cover layer (i.e., 5 m) is maintained on the top of PAG rock storage areas at closure.

The results of the thermal analyses conducted for the WRSF3 design update indicate that the thickness of the active layer is predicted to reach approximately 4.0 m after 100 years under the design climate change scenario. Waste rock and overburden materials below the active layer are expected to remain frozen. These frozen conditions are expected to significantly limit liquid infiltration and restrict water contact with the zones containing PAG and potentially metal-leaching waste rock within WRSF3, thereby further reducing the potential for ARD/ML generation.

Based on the PAG management approach described above, WRSF3 is expected to provide approximately 1.1 Mm³ of storage capacity between Bench 97 m and Bench 117 m, which is sufficient to accommodate the planned 0.7 Mm³ (1.3 Mt) of PAG waste rock with an additional contingency allowance. The approximate extent of the PAG storage zone is shown on the Drawings 65-684-230-007. The final configuration and extent of the PAG storage zone may be adjusted during operations to reflect actual waste rock production volumes, lithological distribution, and the overburden placement strategy, while maintaining the minimum encapsulation requirements described above.

8.0 LANDFILLS AT WRSF3

Landfills are proposed within WRSF3 for the disposal of non-salvageable, non-hazardous, and non-putrescible solid waste generated during the construction, operation, and closure phases of the Meliadine Mine. The number and exact locations of the landfill cells will be determined during operations based on waste management requirements, operational constraints, and available capacity within WRSF3. No landfill cell will be constructed above Bench 117 m such that the landfill cells will have a minimum 5 m thick waste rock cover on their top.

Each landfill will consist of an approximately 5 m deep depression constructed on selected benches of WRSF3. The depressions will be formed by controlled dumping of waste rock by haul trucks, creating depressions approximately 20 m wide and 50 m long, as illustrated on Drawings 65-684-230-020. Each landfill cell is expected to provide a storage capacity of approximately 4,000 m³. A typical cross-section of the WRSF3 landfill configuration is presented on Drawings 65-684-230-020.

Waste placement within each landfill will occur progressively and in an orderly manner, with a maximum waste thickness of approximately 4.0 m. Waste placement will begin near the entrance of the landfill area and will advance progressively across the active disposal area. Waste materials will be placed in rows, compacted using heavy equipment, and periodically covered with intermediate soil or rockfill layers with a minimum compacted thickness of 0.3 m, as required, to control windblown debris and minimize the attraction of wildlife.

Operational controls will be implemented to ensure that only approved waste materials are disposed of in the landfill areas. Waste acceptance procedures are implemented to prevent the disposal of hazardous, putrescible, or otherwise restricted materials. Landfill areas are inspected regularly as part of site environmental management practices to ensure proper waste placement, cover application, and wildlife deterrence.

Once a landfill cell reaches its design capacity, or if closure is required to facilitate continued development of WRSF3, the cell will be covered with at least 5 m of non-PAG waste rock.

Leachate generation from the landfills is expected to be minimal and of low ionic strength due to restrictions on the types of materials permitted for disposal. Therefore, site-specific landfill liner systems or dedicated leachate collection systems are not considered necessary. Any leachate generated will report to the WRSF3 water management system, including CP2 and CP6, from where water will be pumped to the main attenuation pond (CP1) for treatment prior to discharge to the receiving environment.

Additional details regarding landfill design, operation, monitoring, and closure procedures are provided in the Landfill and Waste Management Plan (Agnico Eagle 2024).

9.0 WATER MANAGEMENT

The water management objectives for the WRSF3 are aligned with the overall water management strategy for the Meliadine Mine, which aims to minimize potential impacts on the quantity and quality of surface water at the mine site and surrounding waterbodies.

The water management system of WRSF3 consists of two collection ponds (i.e., CP2 and CP6), two thermal berms associated with the CPs, and two diversion channels (i.e., Channel9 and Channel10) designed to collect any seepage and runoff from the waste rock facility. The CP6 and associated thermal berm were constructed in 2020. The construction of the CP2 and associated thermal berm, Channel9, and Channel10 was completed in winter 2021/2022.

The management strategy related to the runoff/seepage water for WRSF3 is summarized as follows:

- Seepage and runoff from the north portion of WRSF3 are collected in CP6 and pumped into CP1 for treatment prior to discharge into Meliadine Lake.
- Seepage and runoff from the east portion of WRSF3 is diverted by Channel9 and then collected in CP2 and pumped into CP1 for treatment prior to discharge into Meliadine Lake.
- Seepage and runoff from the west and south portions of WRSF3 are diverted by Channel10 and then collected in CP2 and pumped into CP1 for treatment prior to discharge into Meliadine Lake.
- No water from WRSF3 will be allowed to directly or indirectly discharge to Meliadine Lake.

A localized water ponding area is present at the southwest corner of the existing WRSF3, which is attributed to a natural topographic low within the existing footprint. The current water management approach implemented by Agnico Eagle consists of active removal of accumulated water through pumping on an as-required basis to maintain operational control of ponded water.

As part of ongoing adaptive water management practices, installing a local water collection sump and diversion ditch may be considered to reduce reliance on periodic pumping and improve operational efficiency during the mine life. This potential infrastructure would provide controlled conveyance and temporary storage of surface runoff within the localized low area.

All WMI will remain in place until mine closure activities are complete and monitoring results demonstrate that the contact water quality from the WRSF3 meets the discharge criteria. Additional details on the WRSF3 water management are provided in the Water Management Plan (Agnico Eagle 2025).

10.0 MONITORING AND INSPECTION

Performance monitoring is an integral part of the operation of any structure in an arctic environment. Geotechnical instrumentation is required to monitor the behaviour of placed waste rock and overburden and foundation soils throughout the operation and closure phases. The monitoring system is intended to provide the following information:

- Confirmation that the performance of the foundation soils and placed waste materials is consistent with the predictions made during the design studies, notably in terms of stability, deformation, seepage, and thermal analyses.
- Early warning of the development of potentially adverse trends such as seepage, deformation, and permafrost degradation.

Performance monitoring will be conducted using GTCs and inclinometers. The GTC instrumentation plan for WRSF3 therefore, includes a minimum of six GTCs as shown on Drawings 65-686-230-021, -022, and -023. Three GTCs were installed during the previous geotechnical site investigation program. The installed GTCs were extended horizontally and terminated at the toe of WRSF3. The remaining three GTCs will be installed vertically after completion of the corresponding benches to a minimum depth below the original ground. Additional vertical and horizontal GTCs may be installed if required after review of monitoring data and operational performance. Thermistor readings will be measured once a month during the first year, and then on a quarterly basis during operation, with the readings analyzed and reported in the annual inspection report.

As described in Section 5.5, horizontal displacement is expected over time due to creep in the ice-rich soil layer in the WRSF3 foundation. Two sets of ShapeArray inclinometer systems are recommended for the WRSF3 to monitor the deformation. The proposed instrumentation locations and details are shown on Drawings 65-684-230-023 in Appendix E. Additional instrumentation may be installed if required after review of monitoring data and operational performances.

Visual inspection can provide early warning of many conditions that can contribute to structural failures and incidents. Agnico Eagle will undertake a daily visual inspection of the WRSF3 during active development and monthly inspections when placement activities cease on an interim/seasonal basis. Once construction of the WRSF3 is complete, visual inspection of the completed portion will continue semi-annual until closure. The frequency of the inspection may vary depending on the construction activities and season but will be aligned with the inspection and monitoring protocols established by Agnico Eagle. Records of all inspections will be maintained, and any potential hazards/risks will be identified, including deformations, seepage, slumping, or any other signs of instability.

An annual inspection, in accordance with Part I, Items 13 and 14 of the amended Type A Water Licence 2AM-MEL1631 will be conducted by a qualified Geotechnical Engineer to document the performance of the facility. The annual geotechnical inspection report will be submitted to the NWB in accordance with the Water Licence requirements.

11.0 CLOSURE

We trust this report your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



2026-08-06

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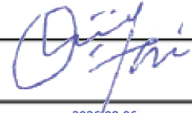
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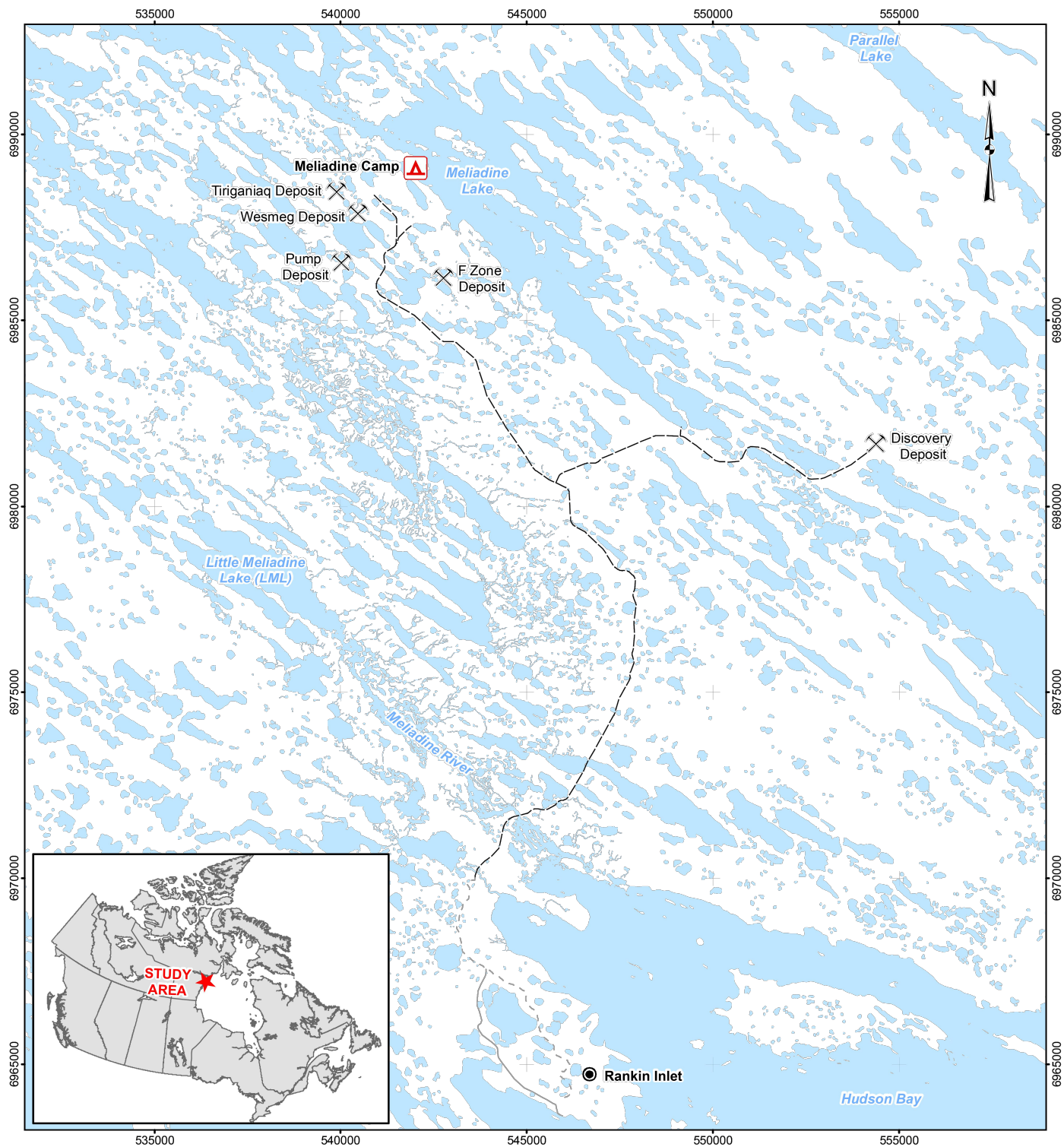
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FIGURES

- Figure 1 General Project Location Plan
- Figure 2 Meliadine Mine General Site Layout
- Figure 3 WRSF3 Footprint with Borehole Locations



LEGEND

- Camp
- Proposed Mine Site
- All-weather Access Road (AWAR)
- Road - New
- Road - Existing
- Watercourse
- Waterbody

AGNICO EAGLE – MELIADINE DIVISION



AGNICO EAGLE – MELIADINE GOLD MINE
FIGURE 1 GENERAL PROJECT LOCATION PLAN

No. PROJ PROJECT No.		DATE	
EARC03140-34		03-06-2026	
DESSINÉ PAR DRAWN BY	EL	FEUILLE/SHT 1 / 1	
APPROUVÉ PAR APPROVED BY	FN		
NO. DESSIN DRAWING NO.		REVISION A	

H
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E
D
C
B
A



NOTES:

Satellite Image Provided by Agnico Eagle Taken on September 22, 2025.



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TITRE / TITLE	# DWG

DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

A	ISSUED FOR REVIEW	2026-03-06	FN
REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR DRAWN BY	EL	DATE	2026-03-06
VÉRIFIÉ PAR CHECKED BY	FN	2026-03-06	
APPROUVÉ PAR APPROVED BY	HX	2026-03-06	
No. PROJET PROJECT NO.	6515		
DATE	2026-03-06		

TITRE / TITLE
AGNICO EAGLE — MELIADINE GOLD MINE

GENERAL SITE LAYOUT

ÉCHELLE/ SCALE	1:10,000	FICHIER FILE	
No. DESSIN/ DRAWING NO.	Figure 2	REVISION	A
		FEUILLE/SHT	1 / 1

\\tt.local\ba\Legacy\Edmonton\Engineering\E 141\Projects_MELIADINE\ENG.EARC03140-43 WRSF3 Raise Design\Figures - Slope Stability Analysis\dwg [FIGURE 1] April 29, 2026 - 11:44:55 am (BY: XIA, HONGWEI)



LEGEND:

- BOREHOLE DRILLED BEFORE 2021
- 2021 BOREHOLE (DIAMOND BOREHOLE)
- 2021 DDH PROBEHOLES
- BOREHOLE WITH ICE-RICH SOILS

0 500m
Scale: 1:10,000 @ 8.5"x11"

CLIENT



**WASTE ROCK STORAGE FACILITY3 (WRSF3)
RAISE DESIGN, MELIADINE GOLD MINE, NU**

**WRSF3 FOOTPRINT WITH
BOREHOLE LOCATIONS**

PROJECT NO.	DWN	CKD	REV
ENG.EARC03140-43	EL/DBD	GZ/HX	A
OFFICE	DATE		
EDM	APRIL 29, 2026		

FIGURE 3

APPENDIX A

LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.

1.12 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.

1.13 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.

1.14 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.

1.15 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.

1.16 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.

1.17 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.

APPENDIX B

DESIGN BASIS MEMO



ISSUED FOR USE-REVISION 1

To:	Justin Bieber, Agnico Eagle Marielle Limoges, Agnico Eagle	Date:	August 6, 2026
c:	Jawad Haloui, Agnico Eagle	Memo No.:	01
From:	Hongwei Xia, P.Eng., Tetra Tech Fai Ndofor, P.Geo., Tetra Tech	File:	ENG.EARC03140-43
Subject:	Design Basis for Waste Rock Storage Facility 3 (WRSF3) Raise Design, Meliadine Gold Mine, Nunavut Agnico Eagle Document Number : 65-686-230-MEM-002		

1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) operates the Meliadine Gold Mine (the Meliadine Mine), located approximately 25 km north of Rankin Inlet, Nunavut. The current operation involves mining the Pump and Tiriganiaq deposits through five open pits and an underground operation under the existing Nunavut Water Board (NWB) Type A Water Licence (2AM-MEL1631).

In January 2024, Agnico Eagle submitted a Water Licence Amendment (WLA) application to support the completion of licensing components previously approved under Nunavut Impact Review Board Project Certificate (PC) No. 006. The 2024 WLA enables Agnico Eagle to mine other ore deposits, including the Wesmeg, Wesmeg North, Pump, FZone, and Discovery, which were included in the 2014 Final Environmental Impact Statement and PC No.006. The amended Type A Water Licence was approved by the Minister of Northern Affairs on November 22, 2024.

The original design of waste rock storage facility 3 (WRSF3) was completed by Tetra Tech Canada Inc. (Tetra Tech) in 2020 and approved by the NWB on March 30, 2020. In November 2021, Tetra Tech conducted a redesign of WRSF3 to incorporate a proposed footprint extension to store additional waste rock and overburden material based on an update to the mine waste management plan at that time. The redesign of WRSF3 was approved by the NWB on January 31, 2022.

To accommodate additional mine waste generated from the mining activities at other ore deposits, Agnico Eagle proposes to raise the currently approved WRSF3. Tetra Tech was retained by Agnico Eagle to undertake the detailed engineering design of the proposed WRSF3 raise.

As part of the detailed engineering design, Tetra Tech has prepared this Design Basis Memorandum (DBM) to document the design basis, criteria, methodology, and parameters for the WRSF3 raise. This DBM is also intended to inform Agnico Eagle's project team and its Engineer of Record and will serve as the foundation for the detailed design. This DBM is a living document for the design of WRSF3 and will be updated as required to reflect changes in the design or mine operations. It will be included as an appendix to the WRSF3 raise design report.

2.0 DESIGN BASIS

2.1 Waste Rock and Overburden Definitions

The term “waste rock” refers to all fragmented rock mass that has no economic value and needs to be stored separately. Waste rock is also commonly referred to as “mine rock” in the mining industry. Typically, waste rock is produced during initial stripping and subsequent development of open pits and underground mining.

The term “overburden” refers to all soils above the bedrock that must be stripped prior to developing the open pits. The overburden at the Meliadine Mine generally consists of a thin layer of organic material or lakebed sediment overlying a layer of non-cohesive soils with variable amounts of silt, sand, gravel, cobbles, and boulders.

2.2 Mine Waste Production Schedule and Quantities

Based on the current mine waste management plan, overburden and waste rock generated from the Tiriganiaq01, Tiriganiaq02, Wesmeg02, and Wesmeg03 open pits will be co-disposed within WRSF3, with the overburden encapsulated by waste rock at the center of WRSF3. Table 1 summarizes the tonnages of overburden and waste rock placed as of December 2025 along projected future placements.

Table 1: Summary of Overburden and Waste Rock at WRSF3

Year	Yearly Waste Rock (tonne)	Accumulated Waste Rock (tonne)	Yearly Overburden (tonne)	Accumulated Overburden (tonne)
2019*	0	0	0	0
2020*	2,954,506	2,954,506	781,894	781,894
2021*	29,428	2,983,934	0	781,894
2022*	584,078	3,568,012	1,653,711	2,435,605
2023*	868,927	4,436,939	2,223,091	4,658,696
2024*	4,024,465	8,461,404	606,119	5,264,815
2025*	2,723,251	11,184,655	0	5,264,815
2026**	3,062,640	14,247,295	1,112,194	6,377,009
2027**	4,343,758	18,591,053	236,870	6,613,879
2028**	0	18,591,053	0	6,613,879
2029**	536,017	19,127,070	0	6,613,879
2030**	485,097	19,612,167	0	6,613,879
2031**	3,255,229	22,867,396	1,107,023	7,720,902
Total	22,867,396	-	7,720,902	-

Note: The tonnage may vary depending on the actual production schedule, engineering optimization, and other factors.

*year-end total values from operation records.

** values provided by Agnico Eagle based on mine plan: V23_OP_Global_Summary.

2.3 Mine Waste Geotechnical Properties

2.3.1 Overburden Geotechnical Properties

Numerous site investigation programs have been conducted at Meliadine Mine since 1998, with a total of 24 geotechnical boreholes and test pits drilled/excavated around the footprints of Tiriganiaq01 and Tiriganiaq02, which will serve as the source of the overburden placed in WRSF3.

In general, the overburden consists of a thin layer of organic material overlying sandy gravel or gravelly sand overlying silty sand or sandy silt till and boulders. Natural moisture contents of the materials range from 2.9% to 11.7%, and it is non-plastic in nature (Golder 2010). The overburden materials are assumed to have a specific gravity of 2.70 and an in-place bulk density of 1.62 t/m³ after being placed. The pore-water salinity of the overburden ranges from 4 parts per thousand (ppt) to 12 ppt with an average of 7 ppt (EBA 2013).

2.3.2 Waste Rock Geotechnical Characteristics

The majority of the waste rock is greywacke from the Sam and Upper Oxide formations, and mafic rock from the Wesmeg formation. The waste rock types were generally classified as medium to very strong with uniaxial compressive strength of 36 MPa to 60 MPa (Tetra Tech 2024). Waste rock from underground sources is typically classified as a 600 mm minus material, with the rock from the open pits expected to be of a larger particle size (1,000 mm minus).

The waste rock materials are assumed to have a specific gravity of 2.82 and an in-place bulk density of 1.88 t/m³ after being placed in WRSF3. The assumed specific gravity and in place density for waste rock are consistent with the values used for the detailed design of WRSF1 and WRSF6 at the Meliadine Mine and are considered to be on the lower side for waste rock and overburden management. The actual bulk densities could be higher; therefore, less storage capacity may be required than planned.

2.4 Mine Waste Geochemical Characteristics

Agnico Eagle conducted a comprehensive geochemical characterization program in 2014 to support the FEIS (Golder 2014a). In 2022, Agnico Eagle conducted another geochemical characterization program (Lorax Environmental Services 2022) by undertaking a series of static and kinetic tests. The purpose of the geochemical characterization program conducted in 2022 was to supplement the 2014 study and to determine the acid rock drainage and metal leaching (ARD/ML) potential of the geologic materials at other ore deposits areas. The key findings from the geochemical characterization programs related to overburden and waste rock from Tiriganiaq and Wesmeg are summarized below:

- Testing the ARD/ML potential included mineralogical and chemical composition testing, acid base accounting (ABA), shake flask extraction (SFE), humidity cell tests (HCTs), large column tests, and field cell tests. Results of the geochemical characterization indicate that both the overburden and waste rock from the Tiriganiaq deposit is considered non-potentially acid generating (non-PAG) and have low potential for ML.
- Waste rock that is classified as potentially acid generating (PAG) or Uncertain is mostly Iron Formation (IF) waste rock. Approximately 79% of Tiriganiaq IF waste rock is classified as non-PAG. About 50% of IF waste rock at Wesmeg was classified as Uncertain and about 38% of IF waste rock was classified as PAG. Waste rock from other lithologies/formations are uniformly classified as non-PAG.

- Geochemical characterization of overburden for the 2014 FEIS showed the material to be non-acid generating and to contain low metal concentrations relative to waste rock. SFE leachate concentrations for all overburden samples met the mine effluent criteria, except for Zn in one sample from the Tiriganiaq deposit.

2.5 Additional Key Design Considerations

In addition to the expected waste rock production schedule, quantities, and geochemical characteristics, several other factors were considered to facilitate the WRSF3 raise design, including:

- **Closure Objectives:** The WRSF3 raise design will consider and meet the closure objectives stated in the Meliadine Interim Closure and Reclamation Plan – Update 2020 (SNC Lavalin 2022). The key closure objectives are:
 - The physical stability of WRSF3 will be maintained under long-term climate change, static, and seismic conditions, with the deformation under the tolerable thresholds.
 - The WRSF3 will be geochemically stable with minimized generation of ARD/ML to ensure contact water meets Water Licence criteria and is safe for human and wildlife.
 - The closure strategy assumes no re-shaping or re-arranging of the side slopes and that no cover is required given the expected geochemical performance.
 - Minimize dust and erosion concern in the long term.
- **Site Climate Conditions:** The geographic location of the mine site will be maximized to promote freezing of the mine waste, freeze-back of the underlying foundation soils, and encourage permafrost development in the facility. Overburden will be excavated and placed in winter to maintain its frozen condition or to promote the freeze-back. Waste rock will be placed in summer and winter.
- **Environmental Obligations:** To avoid impacts on fish-bearing habitat, a minimum buffer distance of 31 m will be maintained from protected natural lakes, and the overall footprint will be minimized.
- **Water Management:** Where feasible, clean natural runoff will be diverted away from the facility to avoid contact with and flowing through the mine waste. Water management infrastructure will be constructed to facilitate the collection and management of contact water from WRSF3 during operations, thereby avoiding potentially negative impacts to the receiving environment.
- **Geotechnical Stability:** To maintain the short- and long-term physical stability of the facility under the designed climate change scenario.
- **Constructability/Operational Concerns:** Minimize haulage wherever feasible and reduce pre-production construction; maintain safe distances from the toe of the WRSF3 and haul roads and the open pits.

2.6 Subsurface Geotechnical Conditions

A total of 46 boreholes (20 diamond drilling boreholes and 26 percussion drilling probe holes) were drilled within and around the WRSF3 footprint during several geotechnical site investigation programs (Tetra Tech EBA 2014, Tetra Tech EBA 2016, Tetra Tech 2019, Tetra Tech 2020, Tetra Tech 2021). Of these, 14 diamond drilling boreholes are located within the WRSF3 footprint, while the remaining 32 boreholes are located around the footprint area. The locations of the drilled boreholes are presented in Figure 1. Table 2 summarizes the key geotechnical information of the overburden soils in the WRSF3 area, together with depth to bedrock. Detailed borehole logs are attached in Appendix B.

Review and interpretation of the borehole logs indicate spatial variability in ground ice conditions across the WRSF3 footprint, with localized zones of ice-rich permafrost soils surrounded by ice-poor overburden soils. Ice-rich materials, defined as soils containing more than 30% excess ice content by volume, occur mainly along the west shore of the former Lake H19 and within a localized low-lying area in the central portion of WRSF3, as indicated by the purple boreholes in Figure 1.

The interpreted subsurface stratigraphy across the WRSF3 area consists of a thin organic peat layer (0 to 0.5 m thick) overlying variable overburden soils including silty SAND¹, SAND and SILT, ice-rich gravelly SAND with some silt, and silty SAND or gravelly SAND with traces of clay and shells, occasionally containing cobbles. These overburden deposits overlie bedrock composed of greywacke, which ranges from highly weathered to fresh, strong, dark grey, and fine-grained. The interpreted thickness of ice-rich soils ranges from approximately 0.1 m to 0.9 m, with an average thickness of approximately 0.4 m. The depth to bedrock across the WRSF3 footprint varies from approximately 2.3 m to 6.5 m.

Table 2: Geotechnical Information of Overburden Soils within and near the WRSF3 Footprint

Borehole No.	General Location	Organics Thick (m)	Major Overburden Soil Types	Ice Conditions	Depth to Bedrock (m)
GT14-01	Within WRSF3 Footprint	0.10	SAND; SAND and SILT; Silty SAND; ICE and SILT	0.2 m ICE and SILT	2.3
GT14-02		0.60	Silty SAND; Sandy SILT	Up to 20% Vx, Vr	3.9
BH16-08		0.10	SAND; ICE and SAND; ICE and SILT; Silty SAND; GRAVEL and SAND	Up to 10% Vc, Vs; 0.15 m ICE and SAND; 0.75 m ICE and SILT	4.3
GT19-08		0.45	SAND; SAND and ICE; Silty SAND	Up to 60% Vu, Vs; 40% Vx; 1 mm to 2 mm thick ice formations	3.4
GT19-09		0.45	Silty SAND; SAND	Up to 35% Vx, Vc	3.1
GT19-10		0.50	Silty SAND; COBBLE; SAND	Up to 10% Vr; Up to 5% Vs, 1 mm thick; Nbn	3.4
GT19-11		0.35	BOULDER; Gravelly SAND	Nbn in organic layer	3.4
GT19-12		0.00	COBBLE; SAND; Sandy SILT; BOULDER	Nbn	4.5
GT14-03		0.28	SAND and SILT; SAND; SILT	Vs 2%	2.8
GT14-04		0.10	Gravelly SAND; SAND; SILT and SAND	Up to 25% Vc, Vx, Vs, Vr	4.5
BH16-01		0.13	SAND and GRAVEL; ICE and SAND; Silty SAND; ICE and SILT	Up to 20% Vx, Vs, Vc; 0.50 m ICE and SAND; 0.50 m ICE and SILT	3.5
BH16-02		0.13	BOULDER, SAND and GRAVEL; Gravelly SAND; ICE and SAND; SILT and SAND	Vx 10%; 0.35 m ICE and SAND; 0.60 m ICE and SAND	6.4
BH16-03		0.00	Gravelly SAND; SAND and GRAVEL; SILT and SAND	Up to 15% Vx, Vs, Vc	6.5
GT21-66		0.1	PEAT; SAND; ICE and SAND; GRAVEL	Up to 70% Vr, Vs, Nbe; 0.6 m of ICE + SAND and GRAVEL	2.3

¹ Where applicable, the soil description has been based on the following classification system:

Principal soil constituent shall be capitalized in the soil description. The soil constituents are described in the following manner and are listed in decreasing order of significance:

- >35% "and" (soil constituent in capital letters, e.g., ...and SAND) (Note that the use of the qualifier "and" is not to be applied to SILT/CLAY Principal constituents, i.e., SILT and CLAY).
- 21% to 35% "y – adjective" (e.g., silty, clayey).
- 10% to 20% "some" (soil constituent, e.g., some sand).
- >0 to 10% "trace" (soil constituent, e.g., trace gravel).

"occasional" use for noting presence of isolated occurrences.

Table 2: Geotechnical Information of Overburden Soils within and near the WRSF3 Footprint

Borehole No.	General Location	Organics Thick (m)	Major Overburden Soil Types	Ice Conditions	Depth to Bedrock (m)
GT21-64	Near WRSF3 Footprint	0.45	PEAT; GRAVEL	Up to 15% Vx; ice crystals	2.7
GT21-65		0.29	PEAT; SILT; GRAVEL and COBBLE	Up to 20% Vs, Vr; lenticular ice and ice crystals	4.5
BH16-04		0.24	COBBLE and BOULDER; Gravelly SAND; SAND and GRAVEL; Silty SAND	Up to 10% Vx, Vs, Vc	8.5
BH16-05		1.07	SAND and GRAVEL; SAND; GRAVEL and SAND; BOULDER	Up to 50% Vx, Vs; 0.10 m ICE	4.9
BH16-06		0.06	SAND and GRAVEL; SAND; SAND and SILT	Up to 15% Vx, Vs	2.9
BH16-07		0.06	SAND and SILT; ICE and SAND; GRAVEL and SAND	Up to 20% Vx, Vs; 0.10 m ICE and SAND	6.4
GT19-01*		-	-	-	1.7
GT19-02*		-	-	-	6.7
GT19-03*		-	-	-	2.9
GT19-04*		-	-	-	5.6
GT19-05*		-	-	-	2.4
GT19-06*		-	-	-	2.9
GT19-07*		-	-	-	6.1
TH-CP6-01*		-	-	-	4.9
TH-CP6-02*		-	-	-	4.4
GT21-01*		-	-	-	5.0
GT21-02*		-	-	-	8.2
GT21-03*		-	-	-	4.2
GT21-04*		-	-	-	3.8
GT21-05*		-	-	-	5.3
GT21-06*		-	-	-	6.7
GT21-07*		-	-	-	7.6
GT21-08*		-	-	-	5.0
GT21-09*		-	-	-	3.5
GT21-10*		-	-	-	12.8
GT21-11*		-	-	-	7.0
GT21-12*		-	-	-	6.5
GT21-14*		-	-	-	4.3
GT21-15*		-	-	-	6.1
GT21-67*		-	-	-	2.5
GT21-68*		-	-	-	4.8
GT21-69*		-	-	-	1.5
GT21-70*		-	-	-	0.9

*Destructive holes to confirm bedrock depths; overburden soils were not logged.

3.0 DESIGN CONCEPT AND KEY PARAMETERS

The design concept for the WRSF3 raise is consistent with the design approach previously adopted for the existing WRSFs (e.g. WRSF1 and WRSF6) at the Meliadine Mine. The design basis for the raise has been developed considering the observed performance and operational experience of the existing WRSFs. The following assumptions were adopted for the WRSF3 raise design, which are consistent with the assumptions made for the initial design of WRSF3:

- Overburden and waste rock materials will be co-disposed within WRSF3, with overburden encapsulated at the center of the facility.
- A transition filter zone between the overburden and waste rock will not be required. The waste rock encapsulating the overburden is expected to provide sufficient thermal and erosion protection over the long term.
- Waste rock and overburden will be placed in lifts with designed setback distances between benches and at their respective angles of repose. Capping and regrading of the side slopes is not planned at closure.

Table 3 summarizes the key design parameters for the WRSF3 raise design.

Table 3: Key Design Parameters for the WRSF3 Raise Design

Design Parameters	Values
Maximum height of each overburden and waste rock bench (m)	5.0
Angle of repose for overburden	1.8 Horizontal (H):1 Vertical (V)
Angle of repose for waste rock	1.3H:1V
Average overall overburden side slopes	4.0H:1V*
Average overall waste rock side slopes	3.0H:1V *
Typical width of horizontal offset for overburden at each bench (m)	14*
Typical width of horizontal offset for waste rock at each bench (m)	10*
Internal overburden setback distance from the toe of the WRSF3 raise (m)	40*
Maximum height (elevation) above original ground (m) (masl)	60 (122)*
Reference original ground elevation (masl)	62
Assumed waste rock in-place bulk density (t/m ³)	1.88
Assumed overburden in-place bulk density (t/m ³)	1.62

* These key parameters will be verified and optimized as needed based on results obtained from the thermal and stability analyses.

4.0 DESIGN CRITERIA

4.1 Design Criteria for Factor of Safety

The British Columbia Mine Waste Rock Pile Research Committee published the first stability acceptance criteria developed specifically for mine waste rock dumps in 1991 – Mined Rock and Overburden Piles, Investigation and Design Manual, Interim Guidelines, May 1991 prepared by Piteau Associates Engineering Ltd. (PAE 1991) The interim guidelines provide the minimum recommended factor of safety (FoS) based on the combined consideration of the potential scale of instability (shallow failure versus overall, deep-seated failure), design basis (short-term versus long-term), confidence (shear strength parameters and analysis method), and the consequence of instability.

The latest design guideline published by Hawley and Cuning (2017) – *Guidelines for Mine Waste Dump and Stockpile Design* provides guidelines for assigning stability criteria and FoS for various mine waste pile configurations and site conditions. The suggested stability acceptance criteria are based on the failure consequence and confidence level of the foundation conditions, waste material properties, piezometric pressures, fill slope angles, fill height, and precipitation.

The guidelines presented by Hawley and Cuning (2017) are considered as an update and improvement to the previous interim design acceptability criteria proposed by PAE (1991); however, unlike the PAE (1991) guidelines, Hawley and Cuning (2017) do not explicitly consider the potential scale of instability and design basis, instead, these aspects are implicitly grouped into the “Consequence” category which considers both the impact of the potential instability (often related to the scale or size and mechanism of instability) and the service life of the structure. The stability acceptance criteria suggested by Hawley and Cuning (2017) is presented in Table 4.

Table 4: Suggested Stability Acceptance Criteria by Hawley and Cuning (2017)

Consequence ¹	Confidence ²	Minimum FoS for Static Analysis	Minimum FoS for Pseudo-Static Analysis
Low	Low	1.3-1.4	1.05-1.1
	Moderate	1.2-1.3	1.0-1.05
	High	1.1-1.2	1.0
Moderate	Low	1.4-1.5	1.1-1.15
	Moderate	1.3-1.4	1.05-1.1
	High	1.2-1.3	1.0-1.05
High	Low	>1.5	1.15
	Moderate	1.4-1.5	1.1-1.15
	High	1.3-1.4	1.05-1.1

1. Consequence of Failure:

Low – waste dumps and stockpiles with overall fill slopes less than 25° and less than 100 m high and repose angle slopes less than 50 m high. No critical infrastructure or unrestricted access within potential runout shadow. Limited potential for environmental impact. Long-term (more than 5 years) exposure for sites subject to very low to low (less than 350 mm) annual precipitation; medium-term (1 to 5 years) exposure for sites subject to moderate (350 mm to 1,000 mm) annual precipitation; short-term (less than 1 year) exposure for sites subject to high (1,000 mm to 2,000 mm) annual precipitation; dry season construction/operation only for sites subject to very high (more than 2,000 mm) annual precipitation or intensive rainy season(s).

Moderate – waste dumps with overall fill slopes less than 30° and less than 250 m high or repose angle slopes less than 100 m high. No critical infrastructure or unrestricted access, or robust containment/mitigative measures to protect critical infrastructure and access within potential runout shadow. Potential for moderate environmental impact, but manageable. Long-term (more than 5 years) exposure for sites subject to moderate (350 mm to 1,000 mm) annual precipitation; medium-term (1 to 5 years) exposure for sites subject to high (1,000 mm to 2,000 mm) annual precipitation; short-term (less than 1 year) exposure for sites subject to very high (more than 2,000 mm) annual precipitation or intensive rainy season(s).

High – waste dumps with overall fill slopes more than 30° and more than 250 m high, or with repose angle slopes more than 200 m high. Critical infrastructure or unrestricted access within potential runout shadow with limited runout mitigation/containment measures. Potential for high environmental impact that would be difficult to manage. Long-term exposure (more than 5 years) for sites subject to high (1,000 mm to 2,000 mm) annual precipitation; medium-term (1 to 5 years) exposure for sites subject to very high (more than 2,000 mm) annual precipitation or intensive rainy season(s).

2. Confidence Level:

Low – limited confidence in foundation conditions, waste material properties, piezometric pressures, analysis technique, or potential instability mechanism(s). Poorly defined or optimistic input parameters; high data variability. For proposed structures, investigations at the conceptual level with limited supporting data. For existing structures, poorly documented or unknown construction and operational history; lack of monitoring records; unknown or poor historical performance.

Moderate – moderate confidence in foundation conditions, waste material properties, piezometric pressures, analysis technique, or potential failure mechanism(s). Input parameters adequately defined; moderate data variability. For proposed structures, investigations at the pre-feasibility study level with adequate supporting data. For existing structures, reasonably complete construction documentation and monitoring records; fair historical performance.

High – high confidence in foundation conditions, waste material properties, piezometric pressures, analysis technique, and instability mechanism(s). Well-defined, conservative input parameters; low data variability. For proposed structures, investigations at the feasibility study level with comprehensive supporting data. For existing structures, well-documented construction and monitoring records and good historical performance."

The stability acceptance criteria for the WRSF3 raise design are established based on the recommendations and approaches presented in Hawley and Cuning (2017) by considering the consequences of failure and confidence level of the WRSF3. The selection of the minimum acceptable FoS for the WRSF3 raise design considered the locations of failure, slope slip mechanisms, failure consequence, confidence levels on input parameters, key assumptions, proximity to nearby infrastructure, and site conditions.

Three types of slope slip failure were considered in selecting the stability acceptance criteria, including:

- **Surficial, shallow slip failure:** A shallow failure involving the side slopes of the WRSF3 with a failure depth not exceeding 5 m.

- **Local deep-seated slip failure:** A slip failure occurring within the side slopes of the WRSF3 without extending into the foundation soils, with a failure depth of up to 15 m.
- **Global deep-seated slip failure:** A large-scale slip failure extending through the tailings and potentially into the foundation soils, with a failure depth typically greater than 15 m. The runout associated with the failure may impact adjacent mining infrastructure, water management systems, or the surrounding watershed.

Table 5 lists the key considerations, consequences, and confidence classifications, and adopted stability criteria for the WRSF3 raise design as per Hawley and Cuning (2017). The selected FoS in Table 5 meet or exceed the FoS recommended in Hawley and Cuning (2017).

Table 5: Stability Criteria for the WRSF3 Raise Design

Potential Failure Scenario and Conditions	Consequence of Failure	Confidence Level	Recommended FoS		Adopted FoS	
			Static	Pseudo-Static	Static	Pseudo-Static ^(a)
Surficial, shallow slips (during construction)	Low	High	1.1 - 1.2	1.0	1.3	-
Local deep-seated slips (during construction)	High	Moderate	1.4 - 1.5	1.05 - 1.1	1.5	-
Long-term, global deep-seated slips for base cases (after construction)	High	Moderate	1.4 - 1.5	1.1 - 1.15	1.5	1.1 ^(b)
Long-term, global deep-seated slips for sensitivity cases with conservative assumptions (after construction)	High	High	1.3 - 1.4	1.05 - 1.1	1.3	1.1 ^(b)

^(a) Pseudo-static loading was only considered for global deep-seated slip failure under long-term conditions (after construction).

^(b) If the calculated FoS under pseudo-static loading is significantly less than the minimum required FoS (1.1), a dynamic deformation numerical analysis will be conducted to estimate the deformation of TSF under seismic loading.

The consequences of failure and confidence levels in Table 5 are assigned based on the following rationales for each failure scenario:

- **Surficial, shallow slip failure:** The consequence failure is rated **Low**, as a surficial shallow slip failure will involve a limited volume of the placed waste rock and overburden, with no critical infrastructure within the potential runout zone. Such a failure is not expected to impact mine operations and have limited potential for environmental impact. The confidence level is rated **High**, supported by the implementation of good mine waste placement protocols on site, as well as the use of reasonably conservative strength parameters assumed for the waste rock cover material and overburden in the analysis.
- **Local deep-seated slip failure:** The consequence of failure is rated **High**, as the potential runout of the local deep-seated slip failure is likely to reach the downstream critical infrastructure (e.g., CP2 and CP6) or outside receiving environment (e.g., Meliadine Lake). The failure could be mitigated, and it may temporarily impact mine operations and waste placement in short-term (days to a few weeks). The failure could also result in a moderate environmental impact. The confidence level is rated **Moderate**, supported by a moderate level understanding of the foundation conditions based on the number of boreholes drilled, construction quality control and quality assurance, reasonable conservative input parameters adopted, and analysis techniques applied.

- **Global deep-seated slip failure:** The consequence of failure is rated **High**, as the potential runout of a global deep-seated slip failure is expected to reach the downstream critical infrastructure (e.g., CP2 and CP6) or outside receiving environment (e.g., Meliadine Lake), such a failure would also result in long-term impacts on mine operations (weeks to months or longer), and could cause significant environmental impacts. For example, a global deep-seated failure could cause the mine waste slide into fish-bearing lakes (e.g., Meliadine Lake) on the east side, potentially resulting in loss of life and/or significant loss or deterioration of habitat. The confidence level is rated **Moderate**, supported by the same rationale applied to the local deep-seated slip failure.

For the global deep-seated slip failure scenario under long-term static loading conditions, the adopted FoS was selected from the upper or lower bound values listed in the guidelines, by considering the level of uncertainty associated with the assumptions adopted for the analyses. The upper bound value of the suggested FoS (1.5) was selected for the global deep-seated failure for the base cases, while the lower bound value (1.3) was selected for the global deep-seated failure in the sensitivity cases that include more adverse assumptions.

4.2 Design Earthquake

The Meliadine Mine is located in an area of low seismic risk. Site-specific probabilistic or deterministic seismic hazard studies have not been conducted. A 1 in 2,475 year return earthquake (with a horizontal PGA of 0.0498 g estimated from the 2020 National Building Code of Canada seismic hazard website (<http://www.earthquakescanada.nrcan.gc.ca/hazard-alea/interpolat/calc-en.php>)) will be considered for the analyses under seismic (pseudo-static) loading conditions for the WRSF3 raise design.

4.3 Thermal Criterion

The initial WRSF3 design assumed that the physical slope stability of the facility does not depend on the freeze-back of the waste rock and overburden. Accordingly, the mine waste stored in the WRSF3 was assumed to remain in an unfrozen condition under the long-term design climate change scenario. However, measures (e.g., seasonally placement strategy) to promote the freeze-back of the overburden have been implemented during the construction of WRSFs at the Meliadine Mine. Potential freeze-back of the mine waste and/or permafrost development within WRSF3 would provide additional benefits to both the physical and geochemical stability of the facility. Therefore, no thermal performance criterion is required for the design of WRSF3 raise.

4.4 Deformation Criterion

Ice-rich soils exhibit visco-elastic behaviour and are subject to time-dependent deformation (creep) under sustained shear stress. The magnitude of the creep-induced deformations depends on various factors, including stress state, temperature, distribution and thickness of the ice-rich layer, and porewater salinity.

To evaluate the long-term performance of the WRSF3 raise, a creep deformation acceptance criterion of approximately 3% of the maximum facility height will be used to assess the potential magnitude of long-term creep deformation. This acceptance criterion refers to overall facility-scale deformation associated with creep of the ice-rich foundation soils rather than localized differential settlement. The criterion is considered reasonable for a WRSF. Compared to a TSF, WRSFs are typically constructed of coarser, free-draining waste rock with relatively high shear strength and limited potential for excess porewater pressure generation. As a result, WRSFs are generally less sensitive to deformation and can tolerate greater deformation without compromising global structural stability or overall functionality.

In terms of seismic performance, the guidelines for Mine Waste Dump and Stockpile Design by Hawley and Cuning (2017) recommend defining the maximum allowable strain due to a seismic event based on the classification of

failure consequence of the facility and the confidence level in the design. For WRSF3 (classified as having a high failure consequence and moderate level of confidence as described in Section 5.1), the recommended maximum allowable strain due to a seismic event is 0.75%. The strain in the guidelines is defined as the ratio of the cumulative displacement along a defined failure path due to a seismic event to the length of the failure path, expressed as a percentage. Accordingly, the maximum allowable displacement due to a seismic event for WRSF3 will be determined by applying the 0.75% strain limit to the failure path lengths identified through slope stability analyses.

5.0 DESIGN METHODOLOGY

5.1 General

The long-term stability of WRSF3 is governed by the long-term shear strength of the ice-rich foundation materials. Under long-term conditions, ice-rich soils behave as cohesive materials, with cohesion temperature-dependent: colder ground temperatures correspond to higher long-term cohesion. Therefore, estimating the permafrost temperatures within the ice-rich foundation materials under the design long-term climate change scenarios is required to establish appropriate long-term shear strength parameters.

As described in Section 4.4, creep-induced deformations are expected to occur in the ice-rich materials when subjected to sustained shear stress. The magnitude of creep deformation is primarily dependent on the state of stress, temperature, thickness, and porewater salinity of the ice-rich layer. For the WRSF3 raise design, potential creep-induced deformation will be considered to assess the long-term integrity of WRSF3 over the design life (e.g., 100 years).

The following design methodology will be adopted for the engineering analyses. Thermal analyses will first be performed to characterize the long-term thermal regime of the foundation under the design climate change scenario. The results of the thermal analyses will subsequently be used to estimate the temperature-dependent shear strength parameters for limit equilibrium slope stability analyses. Dedicated creep deformation analyses will not be conducted for the WRSF3 raise design, instead, the creep deformation analyses previously conducted for the TSF design update will be referenced to evaluate the potential magnitude of creep deformation for WRSF3.

5.2 Thermal Analyses

5.2.1 Methodology

Thermal analyses will be carried out to estimate permafrost temperatures in the foundation under the designed long-term climate change scenarios using Tetra Tech's proprietary finite element computer model, GEOTHERM. GEOTHERM has the capacity to simulate transient heat conduction with phase changes, considering a variety of boundary conditions, including heat flux, convective heat flux, and temperature and ground-air boundaries. The heat exchange at the ground surface is modelled with an energy balance equation considering air temperatures, wind velocity, snow depth, and solar radiation. The model facilitates the inclusion of temperature phase change relationships for saline soils, such that any freezing depression and unfrozen water content variations can be explicitly modelled.

GEOTHERM has been verified by comparing its results with closed-form analytical solutions and many different field observations. The model has formed the basis for thermal evaluations and designs of a substantial number of projects in the Arctic and sub-Arctic regions since 1980s, including the design of WRSF1, WRSF3, WRSF6, TSF,

water retention dikes (e.g., Dike D-CP1 and D-CP5), and thermal berms currently in operation at the Meliadine Mine.

A two-dimensional thermal analysis was conducted for the initial design of WRSF3 in 2020 to evaluate the long-term thermal behaviour of the facility under the long-term climatic change conditions. The thermal analysis was subsequently updated in 2021 to reflect revisions to the WRSF3 design, including modifications to the facility geometry and waste placement configuration.

For the WRSF3 raise design, the existing two-dimensional thermal model will be calibrated to ground temperature data collected from the ground temperature cables (GTCs) installed within the WRSF3 footprint. The calibration process will involve adjusting model parameters to achieve reasonable agreement between simulated temperatures and measured field data. Calibration of the thermal model will improve the reliability of the predicted thermal behaviour of the facility and provide a more representative assessment of the long-term thermal conditions within WRSF3.

Following model calibration, the thermal model will be updated to incorporate the proposed geometry of the WRSF3 raise. The updated model will reflect the revised facility height, slope configuration, and waste placement sequence associated with the proposed raise. The updated thermal model will be run for a period of 100 years to evaluate the long-term thermal behaviour of WRSF3 under the design long-term climate change scenario.

5.2.2 Mean Climate Data

Climatic data required for the thermal analyses includes monthly air temperature, wind speed, solar radiation, and snow cover. Table 6 summarizes the mean climate data to be used for the thermal analyses.

Table 6: Mean Climatic Data for Thermal Analyses

Month	Monthly Air Temperature (°C) ^(a)	Monthly Wind Speed (km/h) ^(b)	Monthly Average Snow Cover (m) ^(b)	Daily Solar Radiation (W/m ²) ^(c)
January	-30.2	24.1	0.31	12.5
February	-30.2	24.0	0.35	45.8
March	-24.9	23.7	0.40	120.4
April	-15.8	23.0	0.40	204.6
May	-5.4	22.9	0.23	250.4
June	4.5	20.2	0.01	253.3
July	10.8	19.4	0.00	228.8
August	10.0	21.0	0.00	161.3
September	4.1	23.9	0.00	92.9
October	-4.1	26.1	0.03	42.5
November	-16.6	25.0	0.14	16.7
December	-25.0	24.2	0.25	6.7
Mean	-10.3	23.1		

Notes:

^(a) Sourced from monthly historical climate data at Rankin Inlet (1981-2024).

^(b) Sourced from Canadian Climate Normals at Rankin Inlet (1991-2020).

^(c) Sourced from Environment Canada Photovoltaic Potential and Solar Resource Maps (1998-2020).

5.2.3 Climate Change Projection

Historical air temperature records from Rankin Inlet indicate a long-term warming trend. In consideration of the observed warming trend and current state-of-practice, it is prudent to incorporate the potential long-term effects of climate change into the thermal analyses for the WRSF3 raise design.

In 2021, the Government of Canada released updated climate change projections based on the Coupled Model Intercomparison Project Phase 6 (CMIP6), available through the Canadian Climate Data and Scenarios (CCDS) platform (<https://climate-scenarios.canada.ca/?page=main>). These CMIP6 climate change projections were used in the latest Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR6). The CCDS platform provides projected seasonal and annual climate changes for each Canadian province or territory, based on a suite of Shared Socioeconomic Pathway (SSP) scenarios that reflect different future greenhouse gas emission and radiative forcing levels, including SSP1-2.6, SSP2-4.5, SSP3-7.0, SSP4-6.0, and SSP5-8.5.

In 2025 Okane Consultants Inc. (Okane) conducted a climate change assessment for the Meliadine Mine using the available CMIP6 climate models' outputs and developed a site-specific climate database for the SSP2-4.5 scenario. Figure A presents the historical mean annual air temperatures recorded at Rankin Inlet (from 1982 to 2024), projected mean annual air temperatures for Nunavut from Environment and Climate Change Canada, and the site-specific projections developed by Okane for the Meliadine Mine.

Figure A indicates that the CMIP6 SSP2-4.5 projections from Environment and Climate Change Canada are slightly warmer than the warming trend observed at Rankin Inlet and are considered to represent a reasonable climate change scenario for design. The projections developed by Okane are slightly lower than that of the CMIP6 SSP2-4.5 projection from Environment and Climate Change Canada. Based on the direction provided by Agnico Eagle, the CMIP6 SSP2-4.5 climate dataset developed by Okane will be used for the design of WRSF3 raise.

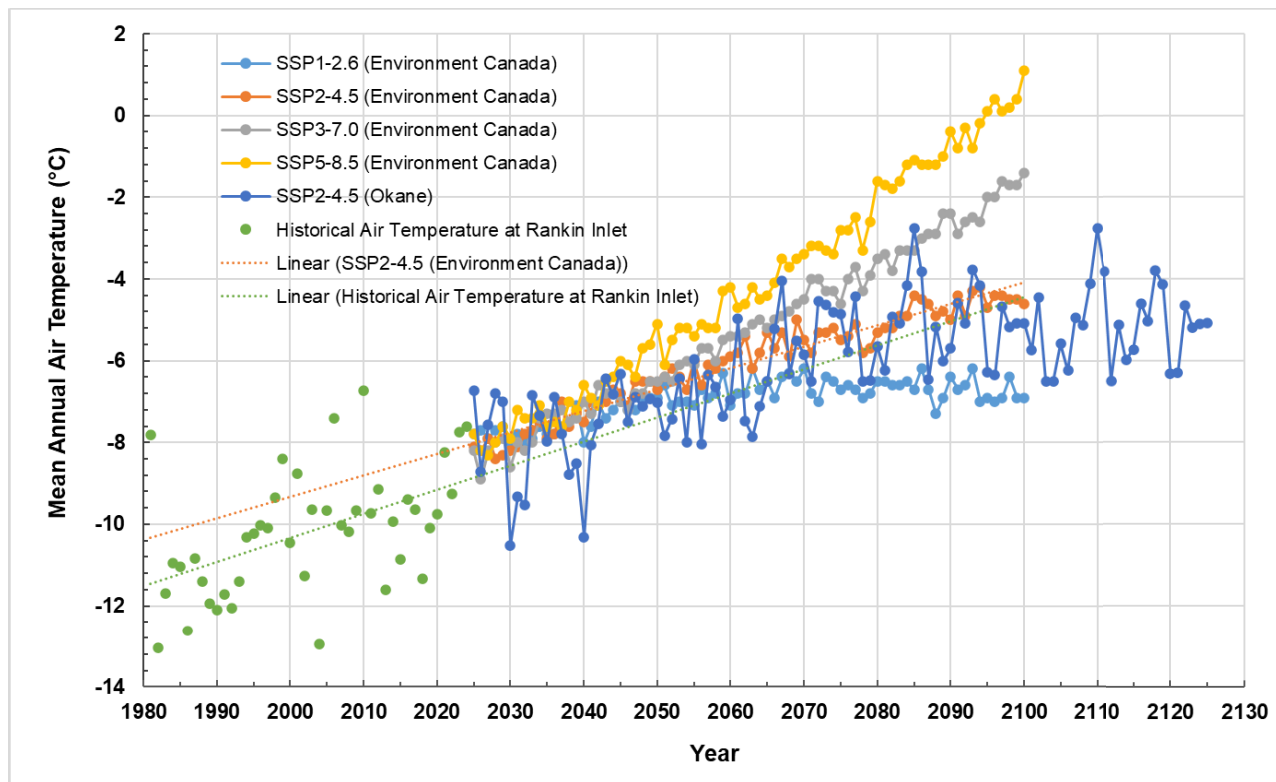


Figure A: Historical Air Temperature at Rankin Inlet and Climate Change Projections

5.2.4 Material Properties for Thermal Analyses

The thermal properties of the materials to be used for the thermal analyses will be determined indirectly from well-established correlations with soil index properties (Farouki 1986; Johnston 1981) or experience. Soil index properties will be estimated from available geotechnical information and from experience. Table 7 presents the material properties for foundation soils, waste rock, overburden waste, and bedrock to be used for the thermal analyses.

The porewater salinity is assumed to be 7 ppt for the overburden waste and foundation soils, 2 ppt for the waste rock, and 0 ppt for bedrock in the thermal analyses based on the available salinity test results (EBA 2013).

Table 7: Material Properties for Foundation Soils, Waste Rock, and Overburden

Material	Water Content (%)	Bulk Density (Mg/m ³)	Thermal Conductivity (W/m-K)		Specific Heat (kJ/kg-K)		Latent Heat (MJ/m ³)
			Frozen	Unfrozen	Frozen	Unfrozen	
SAND	20	2.0	2.48	1.54	0.96	1.30	113
Ice-rich SAND/SILT	60	1.53	2.39	0.95	1.29	2.16	210
Sandy SILT	15	1.95	2.44	1.71	0.91	1.12	92
Bedrock	1	2.63	2.90	2.90	0.75	0.77	9
Overburden Waste	17	1.76	1.59	1.18	0.93	1.24	85
Waste Rock	3	1.96	1.04	1.26	0.77	0.83	19

5.2.5 Material Initial Temperature

The following assumed initial temperature at placement will be used for the thermal analyses:

- -1.0°C for the materials placed between November and June.
- 5.0°C for the materials placed between July and October.

5.2.6 Model Boundary Conditions

A ground-air climate boundary will be applied to the WRSF3 raise and ground surfaces exposed to air. The input data for the ground-air boundary includes historical monthly air temperatures, wind speed, snow depth, and solar radiation (see Section 3.2.3). To consider the snow drifting and impact of active placement of mine waste, snow cover thickness over the top of WRSF3 raise surfaces will be assumed to be 50% of mean monthly snow cover thickness during active placement of mine waste and 100% of mean monthly snow cover thickness after the completion of the mine waste placement. Snow cover thickness on the slope of WRSF3 and over the original ground will be assumed to be 100% of mean monthly snow cover thickness during the active placement and after the completion of the mine waste placement. The assumed snow cover thickness is considered reasonably conservative based on field observations at existing WRSFs.

A heat flux boundary will be assigned at the model base to account for heat exchange between the model and the outer system. The value of heat flux will be estimated based on the bedrock thermal properties and the geothermal gradient at depths in the region. The average thermal gradient at the Meliadine Mine is estimated to be 1.7°C/100 m based on the study conducted by WSP (2024).

5.3 Slope Stability Assessment

5.3.1 General

Slope stability assessments will be conducted on four critical cross-sections to validate and refine the preliminary design geometry presented in Section 3.0. The following loading conditions will be considered in the stability assessment.

- Stability under static loading during short-term stage construction.
- Stability under static loading under long-term post-construction conditions.
- Stability under seismic (pseudo-static) loading during long-term after construction.
- Other parametric sensitivity cases (e.g., elevated water table, continuous ice-rich layer, and thawing ice-rich foundation soils).

The locations of the selected typical sections to be used for the slope stability assessments are presented in Figure 2. These four sections were considered as the critical cross-sections based on the foundation and topographic conditions.

5.3.2 Methodology

Two-dimensional limit equilibrium analyses will be conducted to calculate the FoS against slope instability during construction and in the long-term post construction of WRSF3. The analyses will consider both static and seismic loading conditions. Potential post-construction seismic loading will be modelled as pseudo-static with a design horizontal peak acceleration to the waste material to represent the transient seismic accelerations that may be induced during the designed earthquake. The pseudo-static analysis will serve as an initial screening tool to determine the requirements for an advanced seismic deformation analysis.

All analyses will be conducted using the two-dimensional limit equilibrium software Slope/W in GeoStudio 2024 (Seequent 2024). The widely accepted Morgenstern-Price method with a half-sine interslice force assumption will be adopted in the analyses.

5.3.3 Foundation Conditions and Soil Profile

The overall geotechnical subsurface conditions underlying the WRSF3 footprint are summarized in Section 2.6. It is expected that the thin organic layer will be compressed under loads from waste rock and overburden placed above, and its shear strength parameters will be close to those of the underlying overburden soils (sand and silt). Therefore, any local presence of the compressed thin organic layer will not be specially modelled and will be represented by the equivalent underlying overburden soils in the stability analyses.

Soil Profile along Section A

Two boreholes were drilled along Section A, including GT14-02 and GT19-12. Based on the borehole logs, subsurface conditions at Section A generally consist of a thin layer of organic PEAT overlying SAND, ice-poor SILT, sandy/silty GRAVEL, BOULDER, and bedrock. Accordingly, the stability analysis along Section A will be based on the foundation soils comprising a 1.5 m thick layer of SAND, a 2.5 thick layer of ice-poor SILT over bedrock.

Soil Profile along Section B

Five boreholes were drilled near Section B, including GT16-01, BH16-02, GT21-64, GT21-65, and GT21-66. Based on the borehole logs, subsurface conditions at Section B generally consist of a layer of SAND AND GRAVEL, ice-poor SAND, ice-rich SILT or SAND (localized), a layer of SAND and SILT, a layer of SAND and GRAVEL, and bedrock. Accordingly, the stability analyses along Section B will be based on the foundation soils comprising a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

Soil Profile along Section C

Four boreholes were drilled along Section C, including GT19-10, GT19-11, BH16-01, and BH16-02. Based on the borehole logs, subsurface conditions at Section C generally consist of a thin layer of organic PEAT overlying SAND or GRAVEL or ice-poor SILT, ice-rich SILT or SAND (localized), a layer of GRAVEL or SAND, and bedrock. Accordingly, the stability analyses along Section C will be based on the foundation soils comprising a 1.0 m thick layer of SAND and GRAVEL, a 0.5 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 1.0 m thick layer of GRAVEL and SAND over bedrock.

Soil Profile along Section D

Two boreholes were drilled along Section D, including GT19-08 and GT19-11. Based on the borehole logs, subsurface conditions at Section D generally consist of a layer of organic PEAT overlying SAND, a layer of GRAVEL or SAND with localized ICE and SAND zones, and bedrock. Accordingly, the stability analyses along Section D will be based on the foundation soils comprising a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

5.3.4 Material Properties

The material properties of the foundation soils to be used in the stability analyses were estimated based on available testing results at the Meliadine Mine, literature review, experience on similar materials, and engineering judgement. A series of soil strength tests have been conducted through laboratory direct simple and consolidated-undrained triaxial tests on various thawed and reconstituted samples collected from past drilling programs at different locations of the Meliadine Mine for other infrastructure designs (EBA 2013; Tetra Tech 2021; Tetra Tech 2024). Figure B presents the inferred peak and residual internal angles of friction measured from the laboratory tests on various soil types.

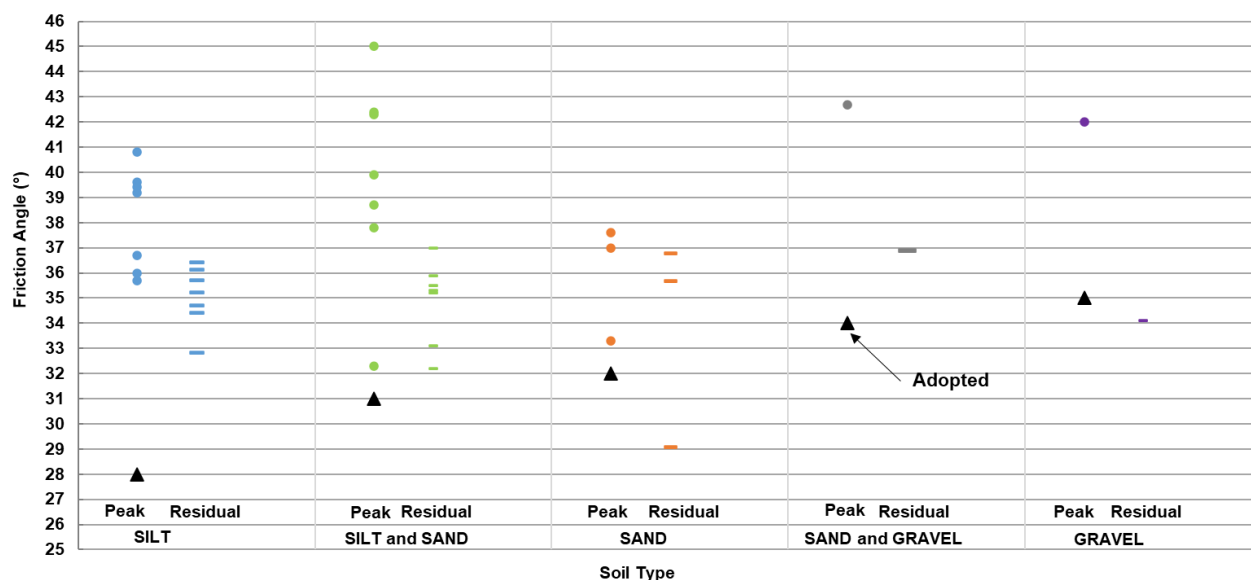


Figure B: Inferred Angle of Friction on Various Soils from Laboratory Tests

Table 8: Internal Friction Angle for Soils from Testing Results and Published References

Soil Type	Values of Laboratory Testing for Soil Samples from Meliadine	Typical Values based on Literature Review ¹	Values to be Adopted in Slope Stability Analyses
SILT	35-41° (peak) 33-37° (residual)	27-30° (loose) 30-35° (dense)	28°
SILT and SAND	32-45° (peak) 32-37° (residual)	/	31°
SAND	33-38° (peak) 29-37° (residual)	27-34° (loose) 34-46° (dense)	32°
SAND and GRAVEL	43° (peak) 37° (residual)	33-50°	34°
GRAVEL	42° (peak) 34° (residual)	35-50°	35°

Note:

1: values are based literature (Bowles & Guo 1996, Terzaghi 1996, Harr 1966).

/: values are not provided.

Based on laboratory data presented graphically in Figure B, the range of the strength values have been summarized in Table 8 along with typical values from published references (Bowles & Guo 1996; Terzaghi 1996; Harr 1966). This information has been utilized to determine the strength values of different soils for the slope stability analyses.

An important factor in the slope stability assessment is the strength of the ice-rich soils in the foundation. The frozen ice-rich soils are expected to behave as frictional materials under short-term loading conditions (i.e., during construction or during pseudo-static analysis) and as cohesive materials under long-term loading conditions. Accordingly, the angle of internal friction of 28° for thawed SILT will be used for ice-rich SILT under short-term loading conditions. The long-term cohesion of the frozen ice-rich SILT will be estimated based on the predicted temperatures from the thermal analysis, the publication by Weaver and Morgenstern (1981), and porewater salinity.

The overburden cover material is expected to behave as a frictional material in both short-term and long-term loading conditions. The friction angle of 28° will be adopted for the overburden material based on Tetra Tech's experience with similar materials at the Meliadine Mine and other northern mine sites.

Douglas (2002) established a large database of published and unpublished triaxial testing undertaken on rockfill and carried out an extensive statistical analysis of the factors affecting its strength. The database determined that a non-linear relationship exists between the secant friction angle (ϕ'_{sec}) of the rockfill and normal stress (σ_n) as shown in Figure C.

A comparison of the derived relationships between the secant friction angle and normal stress presented by Douglas (2002), Leps (1970), and Barton (1981) (in Figure C) indicates that Douglas (2002) estimated higher frictional angles at low normal stress levels (lower than 100 kPa), and slightly lower frictional angles at normal stresses greater than 100 kPa.

To account for the non-linear shear strength behaviour of the rockfill in the slope stability analysis, the shear strength of the waste rock will be assigned using a combination of constant values and the non-linear relationship proposed by Douglas (2002), depending on the stress level. For the zone with a thickness (measured perpendicular to the outer slope) between 0 m and 15 m (corresponding to normal stress less than approximately 300 kPa), a constant internal friction of 42° will be assigned to the waste rock. For zones where the normal stress exceeds 300 kPa, the non-linear relationship derived by Douglas (2002) will be used to define the shear strength of the waste rock.

The bedrock within the WRSF3 footprint is a competent greywacke with depths ranging from approximately 2.3 m to 6.5 m. The strength of the bedrock is much greater than that of the overburden, and therefore, it will not control the stability. For modelling purposes, the bedrock will be assumed to be impenetrable.

Table 9 summarizes material properties to be used for the foundation materials, waste rock, and overburden in the stability analyses.

Table 9: Material Properties for the WRSF3 Stability Analyses

Material	Effective Angle of Internal Friction, ϕ	Cohesion c	Bulk Density	Comments
	(°)	(kPa)	(kg/m ³)	
Waste Rock	42 or non-linear relationship derived by Douglas (2002)	0	2,040	Based on Tetra Tech's experience with similar materials at the Meliadine Mine (WRSFs design) and other northern mine sites.
Overburden	28	0	1,960	Based on Tetra Tech's experience with similar materials at the Meliadine Mine (WRSFs design) and other northern mine sites.
GRAVEL (Ice poor or thawed)	35	0	2,000	Ice-poor GRAVEL will behave as a frictional material in both short-term and long-term loading conditions. The friction angle of 35° will be adopted for GRAVEL based on Tetra Tech's experience with gravels at the Meliadine Mine (WRSFs design) and other northern mining projects.
SAND and GRAVEL	34	0	2,000	A residual internal angle of friction of 37° was measured from one SAND and GRAVEL sample. In slope stability analysis, a lower value of 34° will be adopted based on Tetra Tech's experience with similar materials at the Meliadine Mine (WRSFs design) and other northern mine sites.
SAND (Ice-poor or Thawed)	32	0	1,800	The laboratory test results indicated that the residual internal angle of friction ranges from 29° to 37° for SAND. In the slope stability analysis, an internal friction angle of 32° will be adopted for SAND.
SAND and SILT (Ice-poor or Thawed)	31	0	1,800	The laboratory test results indicated that the residual internal angle of friction ranges from 32° to 37° for SILT and SAND. These values from the laboratory tests are on the high side based on the literature review (Bowles & Guo 1996, Terzaghi 1996, Harr 1966) and Tetra Tech's experience with similar materials at the Meliadine Mine (WRSFs design) and other northern mine sites. In the slope stability analysis, an internal friction angle of 31° will be adopted for SAND and SILT.

Table 9: Material Properties for the WRSF3 Stability Analyses

Material	Effective Angle of Internal Friction, ϕ	Cohesion c	Bulk Density	Comments
	(°)	(kPa)	(kg/m ³)	
Thawed SILT	28	0	1,700	The internal friction angles from laboratory tests (32° to 36°) are on the high side for SILT side based on the literature review (Bowles & Guo 1996, Terzaghi 1996, Harr 1966) and Tetra Tech's experience with similar materials at the Meliadine Mine (WRSFs design) and other northern mine sites. In the slope stability analysis, an internal friction angle of 28° for SILT will be adopted, which is the same as that adopted in the existing TSF design and WRSFs detailed designs.
Ice-rich SILT	0	Temperature dependent	1,600	To be determined based on the predicted temperatures from the thermal analysis and the publication by Weaver and Morgenstern (1981) and then adjusted for the impact of porewater salinity on freezing point depression.
Thawing Ice-rich SILT	28	0	1,600	The same properties as thawed SILT above.
Ice-poor SILT	28	0	1,700	Similar behavior as thawed SILT in the long-term. The same shear strength will be adopted as thawed SILT.

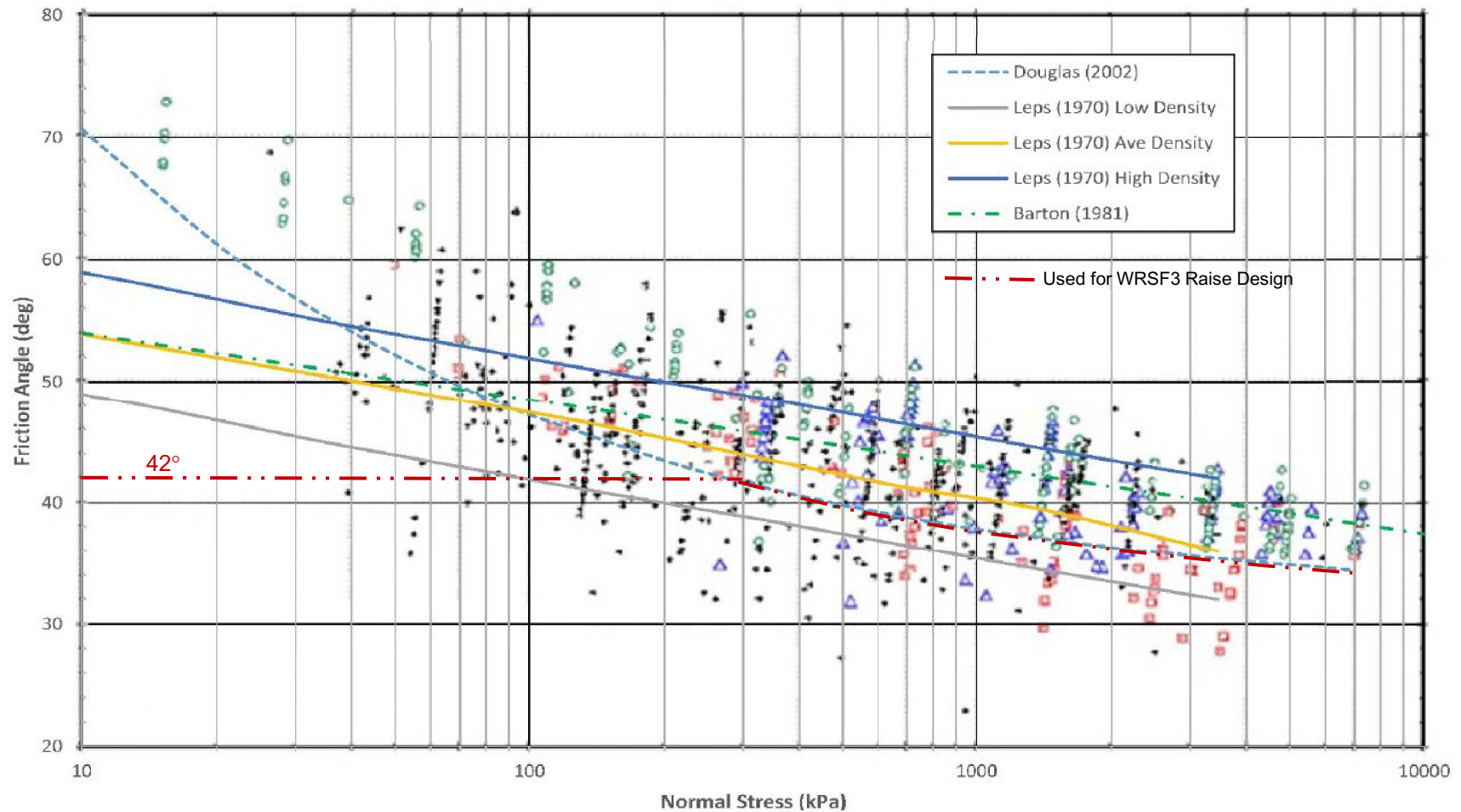


Figure C: Non-linear Relationship between Secant Friction Angle of the Rockfill and Normal Stress

5.3.5 Other Input Parameters

5.3.5.1 Excess Pore-Water Pressure

Excess pore water pressure generated by waste placement above the original ground is not expected when the foundation soils are frozen. Excess pore water pressure may be generated when foundation soils thaw due to the initial lift of waste placement in the summer or long-term climate change, if thawing occurs faster than the excess pore water pressure is produced. To consider the potential generation of excess pore water pressure, a pore pressure coefficient ($\bar{B}$) or pore-pressure ratio (R_u) was used together with an assumed piezometric line.

Morgenstern and Nixon studied the consolidation of thawing soils and concluded that the excess pore-water pressures and the degree of consolidation in thawing soils depend primarily on the thawing consolidation ratio (R) (Morgenstern and Nixon 1971). Closed-form solutions were developed to calculate the normalized pore-pressure distribution in the thawing layer for different thawing consolidation ratios. The thaw consolidation ratio, R , can be calculated using the following equation:

$$R = \frac{\alpha}{2\sqrt{C_v}}$$

where: α denotes a constant, which can be determined through thermal analysis or measured ground temperature data; and C_v denotes the coefficient of consolidation of the thawing soil.

A R_u value of 0.15 was estimated using the ice-rich soil thawing rate predicted from the coupled thermal and seepage analyses conducted for the TSF design update (Tetra Tech 2026a) and average coefficient of consolidation (C_v) of 0.0117 cm²/s, determined from consolidation tests on a remolded sample collected during the 2024 drilling program (Tetra Tech 2024).

The thawing rate estimated for the TSF design update is expected to be of similar magnitude for WRSF3, therefore, for the design of WRSF3 raise, an R_u of 0.15 will be used to assess the scenario in which excess pore water pressure is generated during the thawing of the ice-rich soils and does not fully dissipate over a reasonable time period.

For long-term static and seismic loading conditions, it is assumed that no excess pore water pressure is present.

5.3.5.2 Seismicity

The Meliadine Mine is situated in an area of low seismic risk and site-specific probabilistic or deterministic seismic hazard studies were not conducted. The peak ground acceleration (PGA) under a potential earthquake at the Meliadine Mine was estimated from the 2020 National Building Code of Canada seismic hazard website (<http://www.earthquakescanada.nrcan.gc.ca/hazard-alea/interpolat/calc-en.php>). The estimated PGA is 0.0498 g for a 2% in 50-year probability of exceedance (0.000404 per annum or 1 in 2,475 year return) for the area. A horizontal PGA of 0.0498 g will be used for the analyses under seismic (pseudo-static) loading conditions for the design of WRSF3 raise.

6.0 LIQUEFACTION POTENTIAL

Liquefaction potential (under both static and cyclic loading) of the overburden waste and foundation overburden soils for WRSF3 is considered as very low risk due to the following factors:

- The foundation overburden soils are expected to be in frozen conditions, except for a small zone of seasonal unfrozen soils in the active layer close to the lowermost toe of WRSF3;
- Under the worst-case scenario that the foundation soils are thawed in the long term under the climate change scenario, the thawing rate is expected to be very slow with no excess pore-water pressure generated. Undrained conditions are not expected in the foundation soils in the long term;
- The waste rock and overburden are expected to be in unsaturated conditions during waste placement and are predicted to be in frozen conditions in the long term (after freeze back if initially placed in unfrozen conditions);
- In the case that waste rock and overburden are thawed in the long-term under the climate change scenario, liquefaction potential is expected to be very low, given the characteristics of the waste rock and overburden; and
- The Meliadine mine site is in an area of low seismic risk.

As a result, liquefaction assessment will not be conducted for the design of WRSF3 raise, and soil properties for liquefiable overburden soils will not be used in the stability analyses.

7.0 DEFORMATION OF WRSF3 RAISE AND ITS FOUNDATION

It is expected that some of the waste materials (especially the overburden waste), placed in frozen conditions within the active layer (annual freeze-thaw) zones, will settle when thawed during the thawing seasons after placement. Most of the thaw settlement is expected to occur during the construction period or within several years following the waste placement.

Based on the monitoring performance of the existing WRSF1 at the Meliadine Mine, the anticipated settlement is considered acceptable and is not expected to adversely affect the overall stability of WRSF3.

A series of creep deformation analyses were conducted using FLAC 8.0 (Fast Lagrangian Analysis of Continua) to evaluate the potential long-term creep deformation within the ice-rich SILT layer beneath the TSF at the Meliadine Mine (Tetra Tech 2026). Given that WRSF3 has similar overall design side slopes and maximum height as the TSF, the results from the creep deformation analyses conducted for the TSF will be used to assess the potential long-term creep deformation of WRSF3 while accounting for the subsurface conditions observed within the WRSF3 footprint.

In addition to creep-induced deformation, earthquake-induced displacement of WRSF3 will be assessed based on the simplified procedure proposed by Bray and Travasarou (2007). The widely accepted approach provides a preliminary estimate of seismic-induced deformation by accounting for both design geometry and seismic loading conditions. This simplified procedure will serve as an initial screening tool to determine whether more advanced dynamic stress-strain modelling is required for the design of the WRSF3 raise.

8.0 MONITORING PLAN

Performance monitoring is an integral part of the operation of critical infrastructure at the Meliadine Mine. Geotechnical instrumentation is required to monitor the behavior of the placed waste materials and the underlying foundation during operation. The instrumentation is intended to provide the following information:

- Confirmation that the performance of the foundation soils and placed waste materials are consistent with the predictions made during the design studies, notably in terms of stability, deformation, and thermal analyses.
- Early warning of the development of potentially adverse trends such as deformation and permafrost degradation.

The current instrumentation program for WRSF3 includes six GTCs to monitor the ground temperatures within WRSF3 and its foundation soils. The need for additional GTCs will be further evaluated after review of monitoring data and operational performance. In addition, two sets of ShapeArray inclinometers are recommended to be installed during construction to monitor the potential deformation of WRSF3 and the underlying foundation soils.

Regular visual inspection will be conducted during the construction phase. The frequency of the visual inspection will depend on the material placement activities and construction phases. An annual geotechnical inspection will be conducted by a qualified Geotechnical Engineer as per the conditions in the Type A Water Licence (2AM-MEL1631).

9.0 CLOSURE

We trust this memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

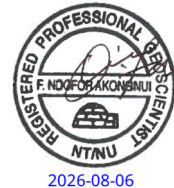
Respectfully submitted,
Tetra Tech Canada Inc.



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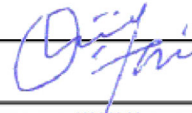
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PERMIT TO PRACTICE TETRA TECH CANADA INC.	
Signature	
Date	2026-08-06
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FIGURES

- Figure 1 WRSF3 Footprint with Borehole Locations
Figure 2 Location of Sections for Slope Stability Analyses

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LEGEND:

- BOREHOLE DRILLED BEFORE 2021
- 2021 BOREHOLE (DIAMOND BOREHOLE)
- 2021 DDH PROBEHOLES
- BOREHOLE WITH ICE-RICH SOILS

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Scale: 1:10,000 @ 8.5"x11"

CLIENT



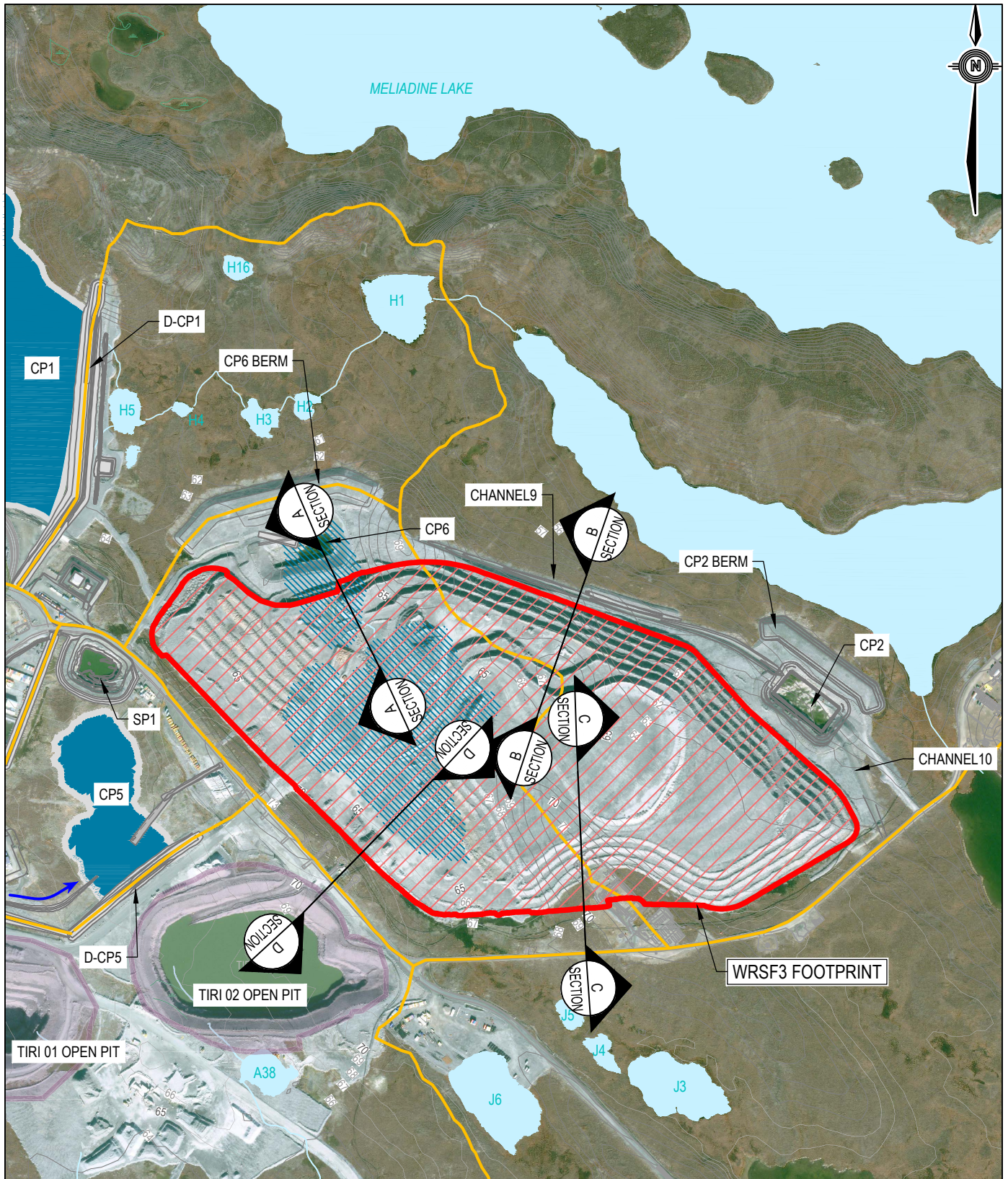
WASTE ROCK STORAGE FACILITY3 (WRSF3)
RAISE DESIGN, MELIADINE GOLD MINE, NU

WRSF3 FOOTPRINT WITH
BOREHOLE LOCATIONS

PROJECT NO.	DWN	CKD	REV
ENG.EARC03140-43	EL/DBD	GZ/HX	A
OFFICE	DATE		
EDM	APRIL 29, 2026		

FIGURE 1

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NOTE:

SATELLITE IMAGE PROVIDED BY AGNICO EAGLE
TAKEN ON SEPTEMBER 22, 2025

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Scale: 1:10,000 @ 8.5"x11"

CLIENT



**WASTE ROCK STORAGE FACILITY 3 (WRSF3)
RAISE DESIGN, MELIADINE GOLD MINE, NU**

**LOCATION OF SECTIONS FOR
SLOPE STABILITY ANALYSES**

PROJECT NO.	DWN	CKD	REV
ENG.EARC03140-43	EL/DBD	GZ/HX	A
OFFICE	DATE		
EDM	APRIL 29, 2026		

FIGURE 2

APPENDIX A

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

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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 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.

1.12 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.

1.13 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.

1.14 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.

1.15 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.

1.16 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.

1.17 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.

APPENDIX B

BOREHOLE LOGS

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	Classification on basis of percentage of fines GW, GP, SW, SP GM, GC, SM, SC Borderline Classification requiring use of dual symbols	$C_u = D_{60} / D_{10}$ 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	PLASTICITY CHART For classification of fine-grained soils and fine fraction of coarse-grained soils Equation of 'A' line: $PI = 0.73(LL - 20)$	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of slight plasticity
						>50	MH		Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CLAYS	Liquid limit		<30	CL	Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays, lean clays				
			30-50	CI	Inorganic clays of medium plasticity, silty clays				
			>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				
			>50	OH	Organic clays of medium to high plasticity				
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils					
SOIL COMPONENTS					OVERSIZE MATERIAL				
FRACTION	SIEVE SIZE		DEFINING RANGES OF PERCENTAGE BY MASS OF MINOR COMPONENTS		Rounded or subrounded				
GRAVEL coarse fine	PASSING		RETAINED	PERCENTAGE	DESCRIPTOR	COBBLES 75 mm to 300 mm BOULDERS > 300 mm			
	75 mm 19 mm	19 mm 4.75 mm	>35 % 21 to 35 %	"and" "y-adjective"	Not rounded ROCK FRAGMENTS >75 mm ROCKS > 0.76 cubic metre in volume				
SAND coarse medium fine	4.75 mm 2.00 mm 425 µm	2.00 mm 425 µm 75 µm	11 to 20 % >0 to 10 %	"some" "trace"					
SILT (non plastic) or CLAY (plastic)	75 µm		as above but by behavior						

TETRA TECH

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

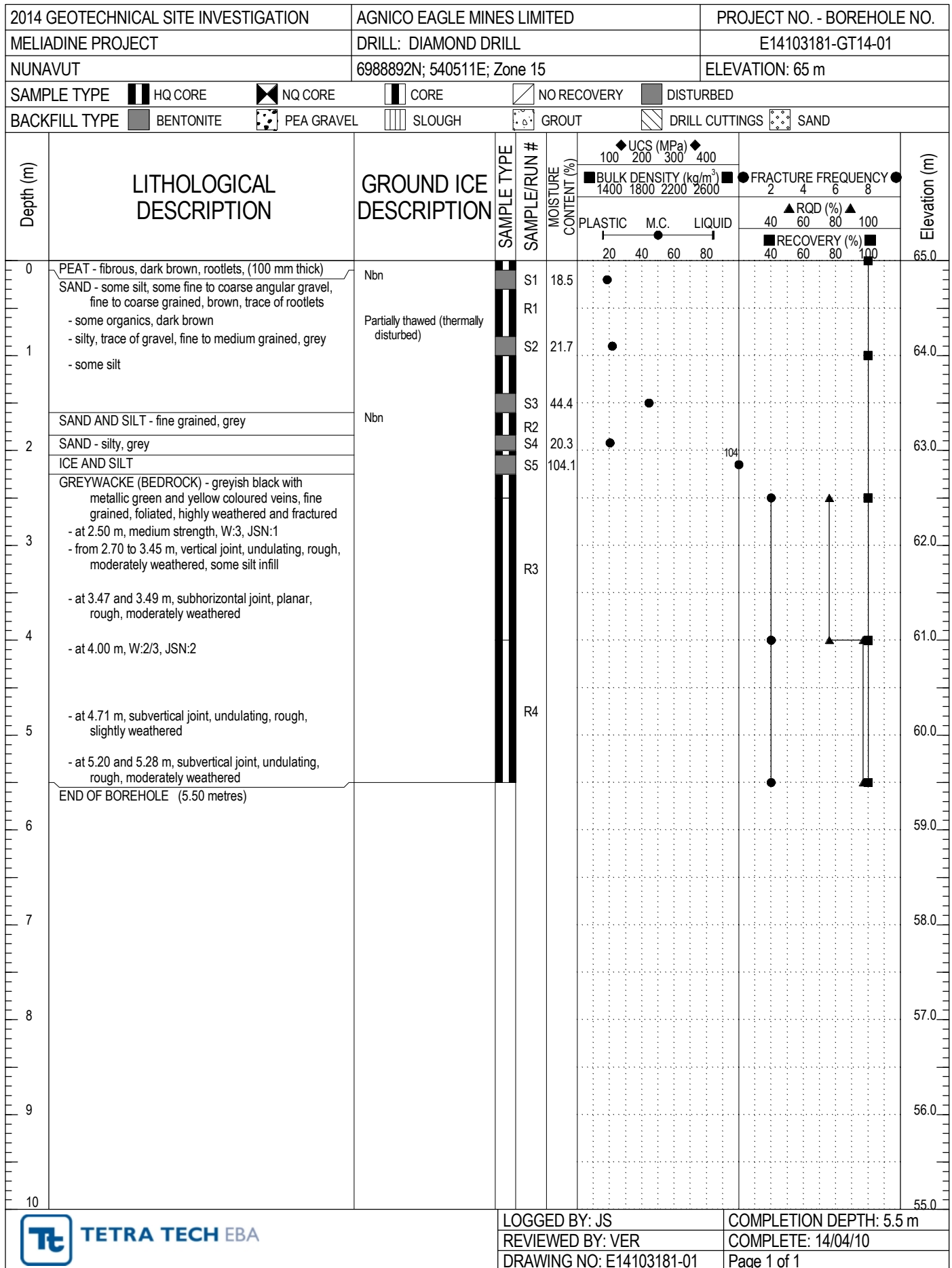
GROUP SYMBOL	SYMBOL	SUBGROUP DESCRIPTION	SKETCH	PHOTOGRAPH
N	Nf	Poorly-bonded or friable		
	Nbn	No excess ice, well-bonded		
	Nbe	Excess ice, well-bonded		

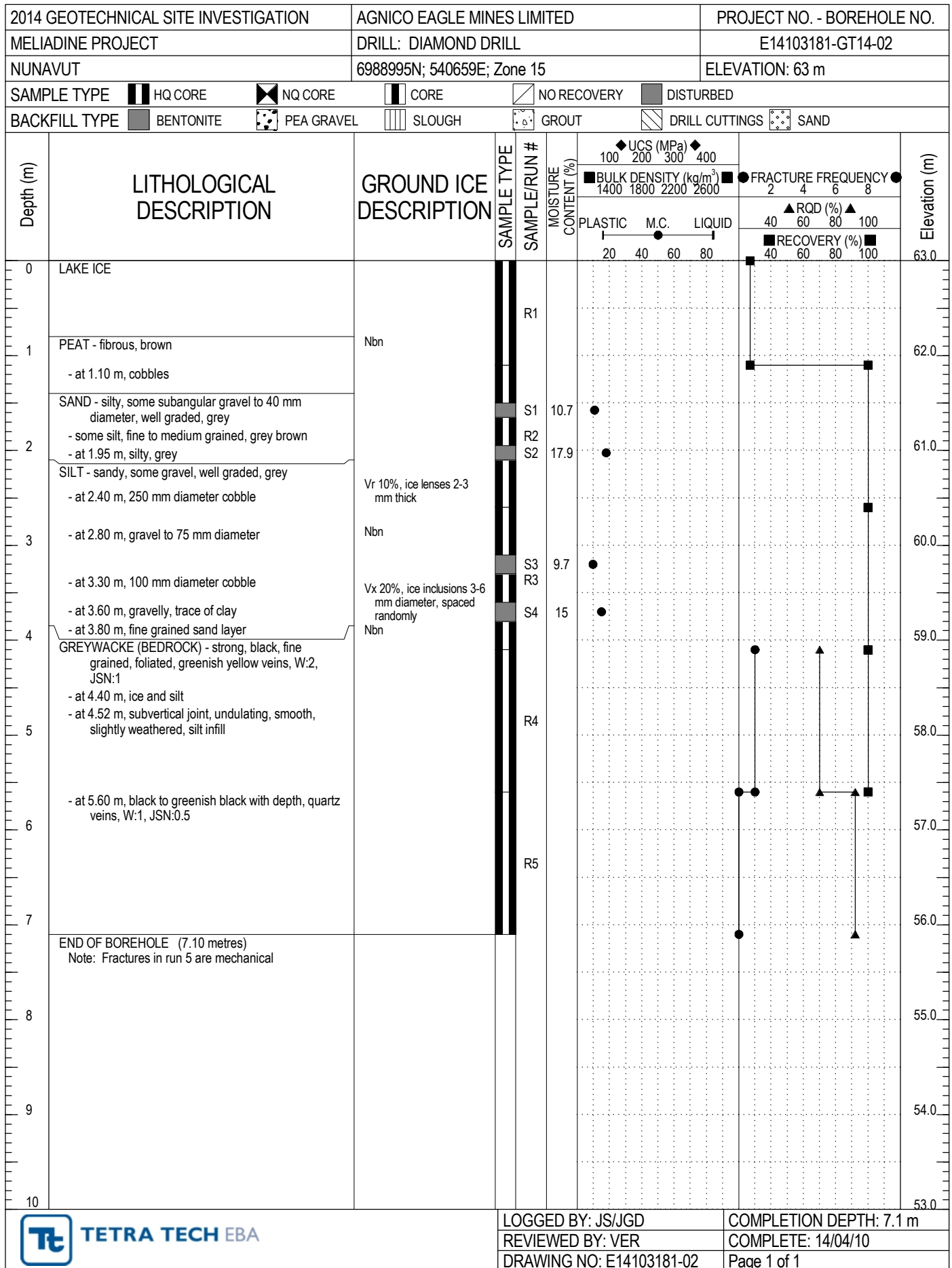
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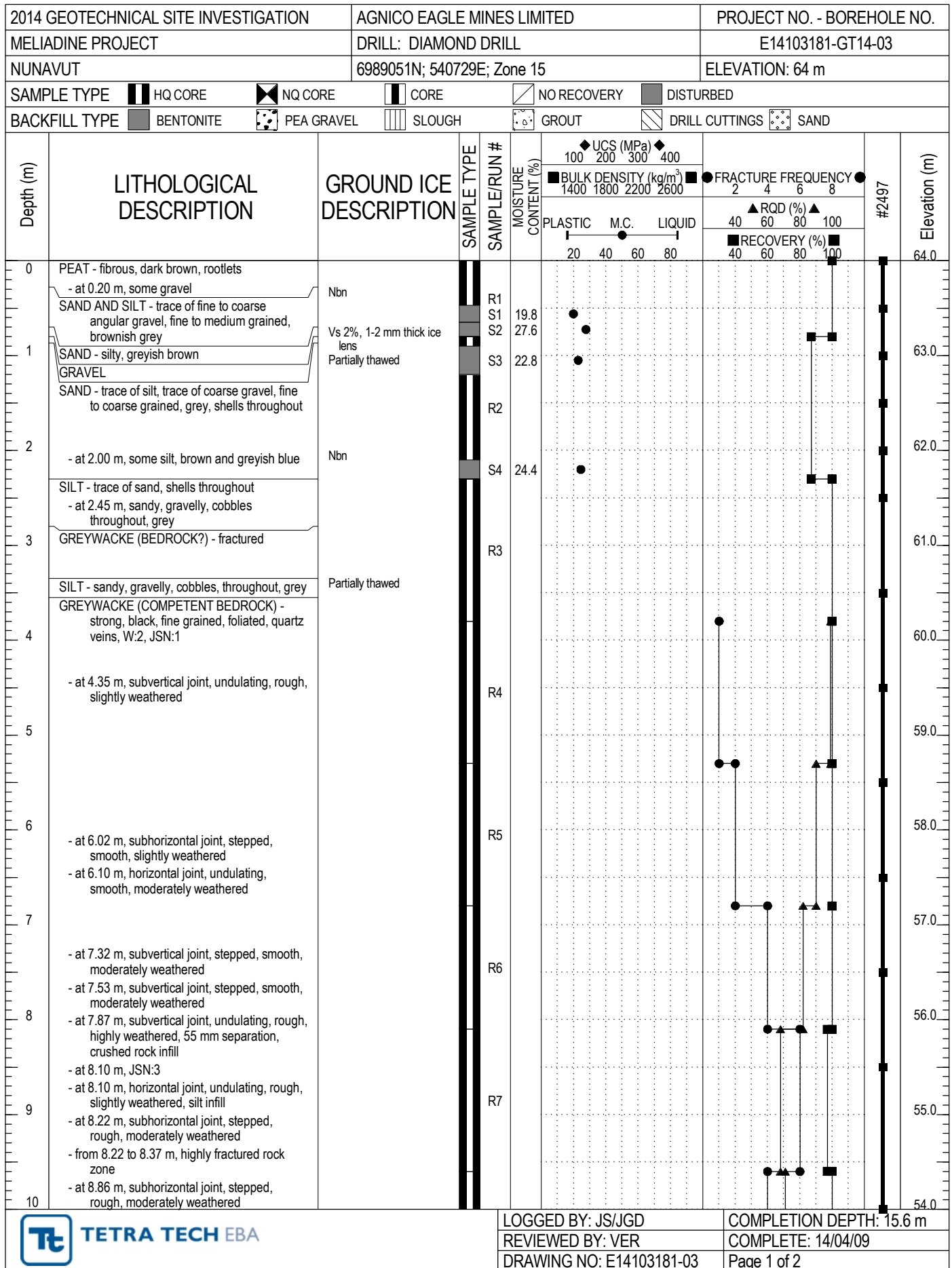
Soil  Ice 

NOTES:

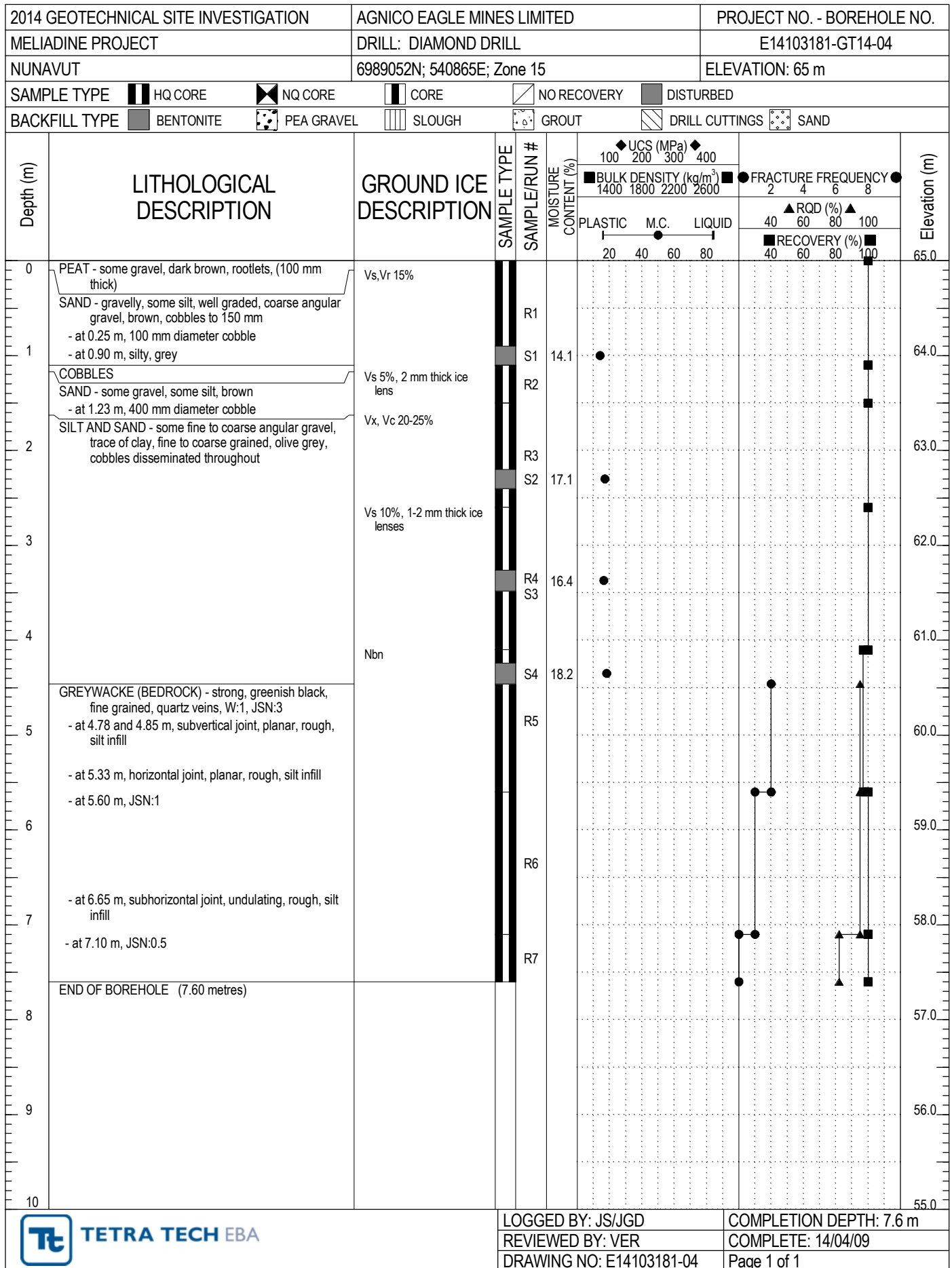
1. Dual symbols are used to indicate borderline or mixed ice classifications.
2. Visual estimates of ice contents indicated on borehole logs $\pm 5\%$
3. This system of ground ice description has been modified from NRC Technical Memo 79, Guide to the Field Description of Permafrost for Engineering Purposes.







ROCK CORE LOG E14103181-01.GPJ EBA.GDT 14/05/21



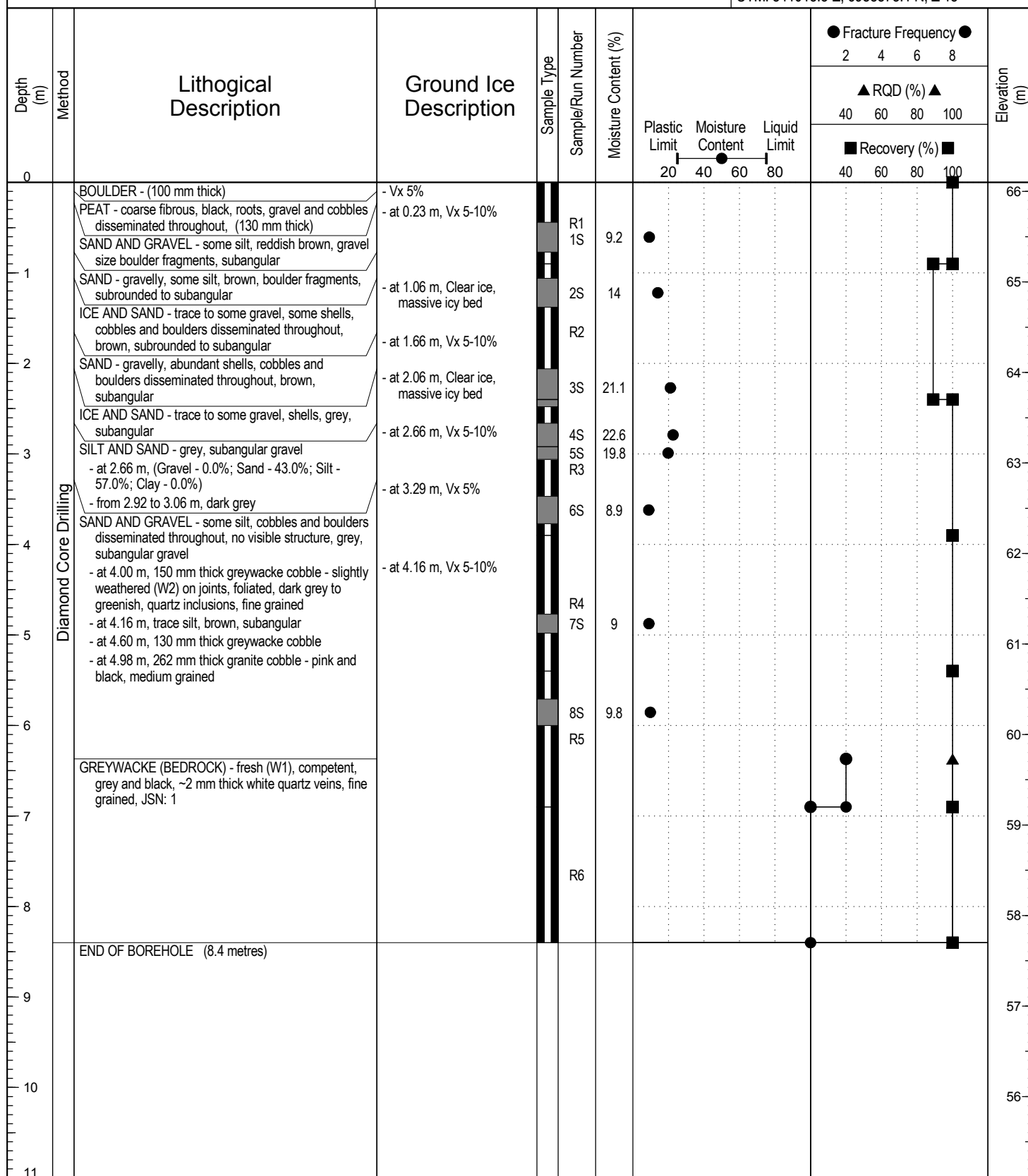
Agnico Eagle Mines			Borehole No: BH16-01					
			Project: Winter 2016 Geotechnical Site Investigation			Project No: ENG.EARC03020-01		
			Location: Meliadine Project, Nunavut			Ground Elev: 65.9 m		
						UTM: 540985.4 E; 6988814.7 N; Z 15		
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample/Run Number	Moisture Content (%)	● Fracture Frequency ● 2 4 6 8 ▲ RQD (%) ▲ 40 60 80 100 ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
0						Plastic Limit Moisture Content Liquid Limit		
						20 40 60 80 40 60 80 100		
0	Diamond Core Drilling	PEAT - coarse fibrous, black, rootlets, (130 mm thick)	- Vx 5-10%		1S	15.9		
		SAND AND GRAVEL (TILL) - some silt, trace organics (roots), massive, well graded, brown, subrounded gravel	- at 0.13 m, Vx, Vc 10%		R1			
		- at 0.43 m, abundant shells			2S	12.3		
1		ICE AND SAND - silty, trace gravel, structureless, light grey, some shells, subrounded	at 0.90 m, Clear to cloudy ice, massive icy bed		3S	11.9		65
		SAND - silty, trace gravel, poorly graded, light brown, subrounded gravel	- at 1.38 m, Vx 15%		R2			
		ICE AND SILT - sandy, trace clay, light grey	- at 1.51 m, Clear ice, massive icy bed		4S	55.8		64
2		- at 1.65 m, (Gravel - 0.0%; Sand - 41.0%; Silt - 58%; Clay - 1.0%)	- at 2.00 m, Vx 15%		5S	5.5		
		SAND AND GRAVEL - massive, well graded, light grey	- at 2.10 m, Vx 20%, clear ice inclusions		R3			63
		GRAVEL AND SAND - some silt, cobbles and boulders disseminated throughout, poorly graded, grey, subrounded	- at 2.40 m, Vx 5-10%		6S	7		62
3			- at 3.00 m, Vs 15%, clear subhorizontal ice lenses from 2 to 10 mm thick		R4			61
4		GREYWACKE (BEDROCK) - fresh (W1), foliated, very to extremely strong, greyish black, white quartz veins, fine grained, JSN: 1	- at 3.04 m, Vx 5-10%		R5			60
5								
6		- at 5.80 m, ~ 10 mm thick inclined quartz vein						
6		END OF BOREHOLE (6.1 metres)						
7								59
8								58
9								57
10								56
11								55
			Contractor: Orbit Garant Drilling Inc.			Completion Depth: 6.1 m		
			Drilling Rig Type: Diamond Drill Rig			Start Date: 2016 March 26		
			Logged By: EP			Completion Date: 2016 March 26		
			Reviewed By: GZ			Page 1 of 1		

Borehole No: BH16-02

Project No: ENG.EARC03020-01

Ground Elev: 66.1 m

UTM: 541013.3 E: 6988873.1 N: Z 15



Completion Depth: 8.4 m

Start Date: 2016 March 26

Completion Date: 2016 March 27

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TETRA TECH EBA

Agnico Eagle Mines			Borehole No: BH16-03							
			Project: Winter 2016 Geotechnical Site Investigation				Project No: ENG.EARC03020-01			
			Location: Meliadine Project, Nunavut				Ground Elev: 66 m			
							UTM: 540924.7 E; 6989010.3 N; Z 15			
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample/Run Number	Moisture Content (%)	● Fracture Frequency ● 2 4 6 8 ▲ RQD (%) ▲ 40 60 80 100 ■ Recovery (%) ■ 40 60 80 100			Elevation (m)
0							Plastic Limit 20 40 60 80			66
1	Diamond Core Drilling	SAND (TILL) - gravelly, some silt, massive, brown, rootlets and roots to 2 mm thick, subrounded gravel	- Vx 5-10%		1S	7.3	●			
					R1					
		SAND AND GRAVEL (TILL) - some silt, cobbles and boulders disseminated throughout, massive, brown, subangular gravel			2S	5.6	●			65
			- at 1.25 m, Vc 5-10% - at 1.34 m, Vx 10-15%, clear ice		3S	9.6	●			
					R2					64
		- at 1.95 m, light brown to grey - at 2.15 m, 100 mm thick greywacke cobble - foliated, dark grey, <1 mm thick white quartz veins, fine grained	- at 2.10 m, Vs 10-15%, 10 mm thick subhorizontal clear ice lens - at 2.25 m, Nbe		4S	9	●			
		SILT AND SAND - some gravel, cobbles and boulders disseminated throughout - at 2.25 m, (Gravel - 11.0%; Sand - 41.0%; Silt - 48.0%; Clay - 0.0%) - at 3.00 m, granite cobbles - pink, black and white, fine to medium grained - at 3.40 m, 350 mm thick greywacke boulder - grey to greenish, subhorizontal quartz vein, fine grained			5S	10.3	●			63
					R3					
		GRAVEL AND SAND - cobbles and boulders disseminated throughout, light brown	- at 4.10 m, Nbe		6S	7.8	●			62
					R4					61
2				7S	7.6	●				
3				8S	10.9	●			60	
4										
5										
6										
7		GREYWACKE (BEDROCK) - fresh (W1), foliated, very strong, greyish black to dark green, fine grained, JSN: 0.5 - at 6.95 m, subhorizontal joint - undulating, smooth, very light brownish weathering - at 7.10 m, extremely strong						●	59	
8								●		
9		END OF BOREHOLE (8.6 metres)						●	57	
10									56	
11									55	
 TETRA TECH EBA			Contractor: Orbit Garant Drilling Inc.				Completion Depth: 8.6 m			
			Drilling Rig Type: Diamond Drill Rig				Start Date: 2016 March 27			
			Logged By: RG/EP				Completion Date: 2016 March 27			
			Reviewed By: GZ				Page 1 of 1			

Agnico Eagle Mines			Borehole No: BH16-04						
			Project: Winter 2016 Geotechnical Site Investigation			Project No: ENG.EARC03020-01			
			Location: Meliadine Project, Nunavut			Ground Elev: 64.5 m			
						UTM: 540684.6 E; 6989270.2 N; Z 15			
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type Sample/Run Number	Moisture Content (%)	● Fracture Frequency ● 2 4 6 8 ▲ RQD (%) ▲ 40 60 80 100 ■ Recovery (%) ■ 40 60 80 100			Elevation (m)
0						Plastic Limit Moisture Content Liquid Limit 20 40 60 80			
1	Diamond Core Drilling	PEAT - fine fibrous, light brown grey to black, interbedded with silt and fine sand, (240 mm thick) COBBLES AND BOULDERS - matrix consisting of sand, some gravel, trace to some silt, well graded, light brown, subrounded gravel - at 0.24 m, 360 mm thick greywacke boulder - foliated, dark grey, fine grained - at 0.62 m, dark brown to black, subvertical contact intrusion - at 0.65 m, 230 mm thick greywacke cobble - foliated, dark grey, fine grained - at 1.00 m, 160 mm thick greywacke cobble - foliated, dark grey, fine grained - at 1.16 m, gravelly, some silt, brown, subangular - at 1.37 m, 210 mm thick greywacke cobble - foliated, dark grey, fine grained - at 1.75 m, 150 mm thick greywacke cobble - foliated, dark grey, fine grained SAND - gravelly, some silt, cobbles and boulders disseminated throughout, grey, subangular - at 2.40 m, 100 mm thick granite cobble - at 2.58 m, 170 mm thick greywacke cobble - foliated, dark grey, fine grained SAND AND GRAVEL - silty, cobbles and boulders disseminated throughout, well graded, brown, subangular - at 2.75 m, (Gravel - 37.2%; Sand - 37.6%; Fines - 25.2%) - at 3.31 m, 320 mm thick granite boulder - very strong, dark grey, black and grey, fine to medium grained - at 4.00 m, some silt - at 4.00 m, (Gravel - 40.4%; Sand - 41.6%; Fines - 18.0%) SAND - silty, some gravel, cobbles and boulders disseminated throughout, light brown, subrounded gravel, coarse sand - at 5.45 m, 330 mm thick greywacke boulder - at 5.61 m, 10 mm thick silt layer - at 6.80 m, 480 mm thick greywacke boulder - foliated, dark grey, fine grained - at 7.28 m, well graded, brown, subangular - at 8.23 m, 270 mm thick greywacke cobble - foliated, dark grey, fine grained - at 8.30 m, 20 mm thick sand layer GREYWACKE (BEDROCK) - fresh (W1), foliated, very strong, dark grey to greenish black, quartz veins, fine grained, JSN: 1 - at 9.30 and 9.55 m, subvertical joints - undulating, smooth, slightly weathered (W2) face	- Vs, Vx 5-10%, clear subhorizontal ice lenses - at 0.62 m, Vx, Vs 5-10% - at 0.88 m, Vs 10%, 1 mm thick clear ice lenses randomly spaced in subvertical orientation - at 1.16 m, Vx, Vc 5-10%, clear ice - at 1.68 m, Vs, Vx 10% in sand layers, clear ice - at 3.63 m, Nbe - at 4.92 m, Nbe	R1 1S 2S R2 3S R3 4S R4 5S 6S R5 7S R6 R7	14.9 42.8 6.7 6 10.9 12 11.6				
2									
3									
4									
5									
6									
7									
8									
9									
10			END OF BOREHOLE (10.0 metres)						
11									
			Contractor: Orbit Garant Drilling Inc.			Completion Depth: 10 m			
			Drilling Rig Type: Diamond Drill Rig			Start Date: 2016 March 27			
			Logged By: EP			Completion Date: 2016 March 27			
			Reviewed By: GZ			Page 1 of 1			

Agnico Eagle Mines

Borehole No: BH16-05

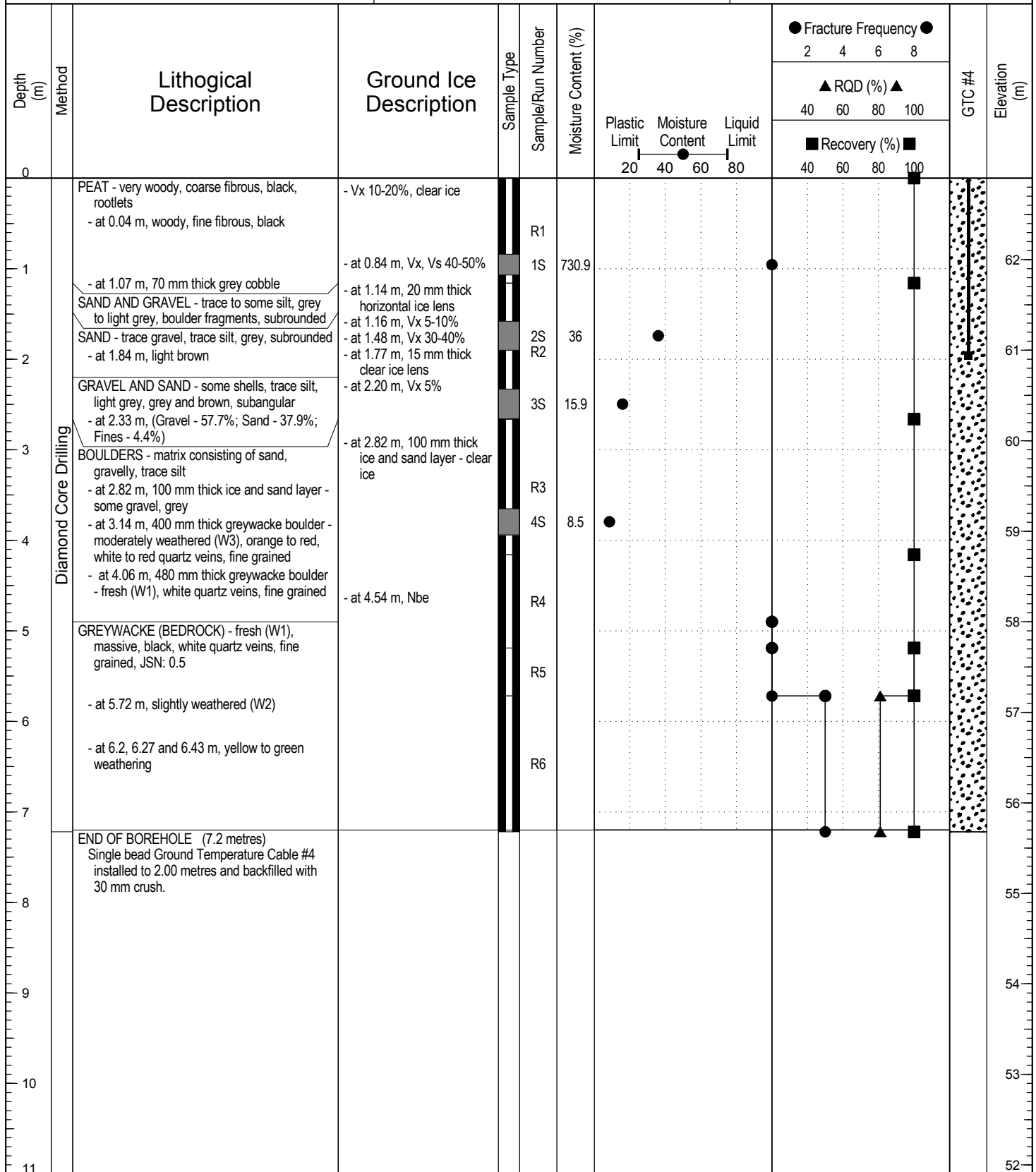
Project: Winter 2016 Geotechnical Site Investigation

Project No: ENG.EARC03020-01

Location: Meliadine Project, Nunavut

Ground Elev: 62.9 m

UTM: 540615.3 E; 6989294.4 N; Z 15



TETRA TECH EBA

Contractor: Orbit Garant Drilling Inc.

Completion Depth: 7.2 m

Drilling Rig Type: Diamond Drill Rig

Start Date: 2016 March 27

Logged By: RG

Completion Date: 2016 March 27

Reviewed By: GZ

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Borehole No: BH16-06

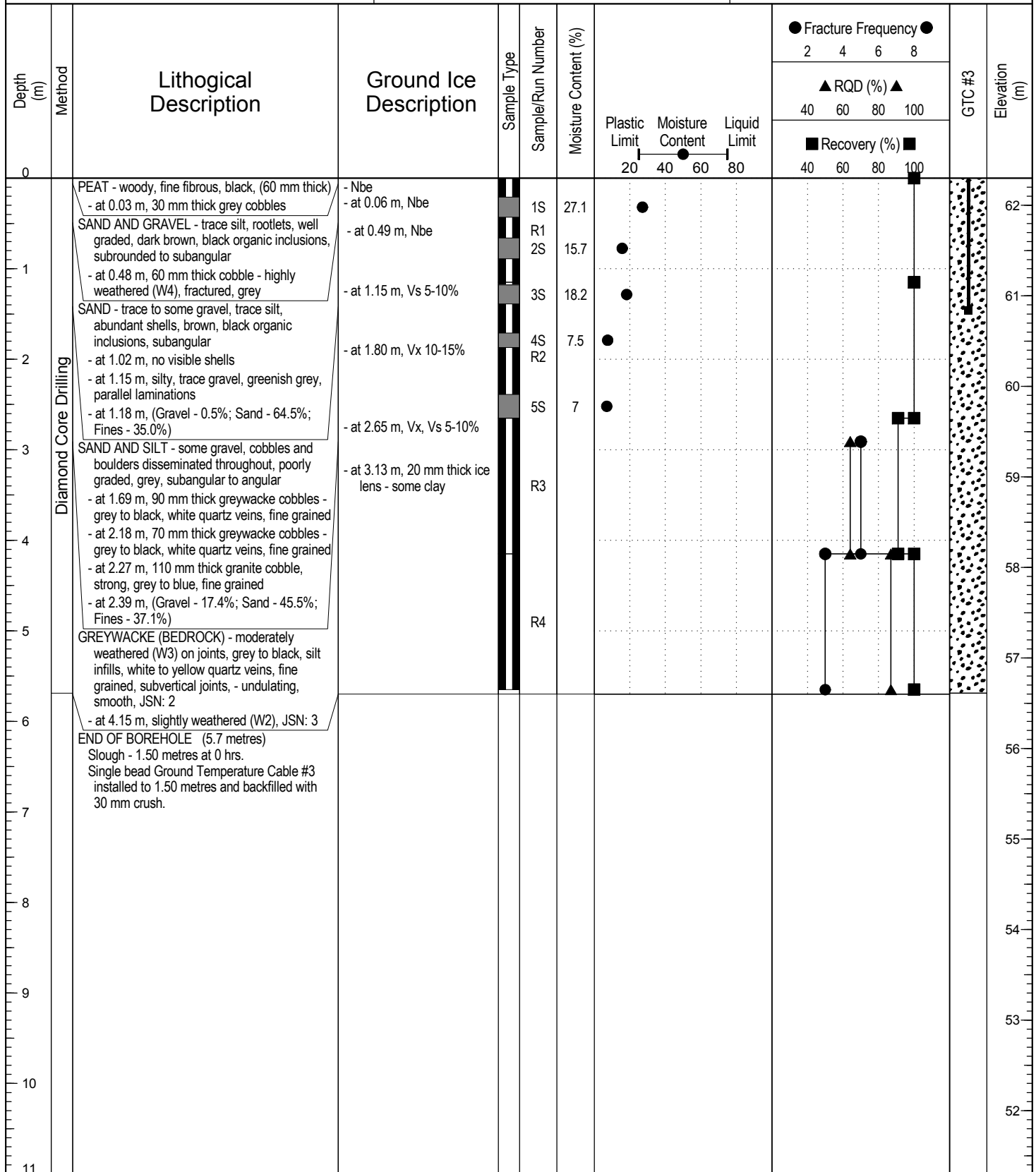
Project: Winter 2016 Geotechnical Site Investigation

Project No: ENG.EARC03020-01

Location: Meliadine Project, Nunavut

Ground Elev: 62.3 m

UTM: 540521.9 E; 6989257.1 N; Z 15



TETRA TECH EBA

Contractor: Orbit Garant Drilling Inc.

Completion Depth: 5.7 m

Drilling Rig Type: Diamond Drill Rig

Start Date: 2016 March 28

Logged By: RG

Completion Date: 2016 March 28

Reviewed By: GZ

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Agnico Eagle Mines

Borehole No: BH16-07

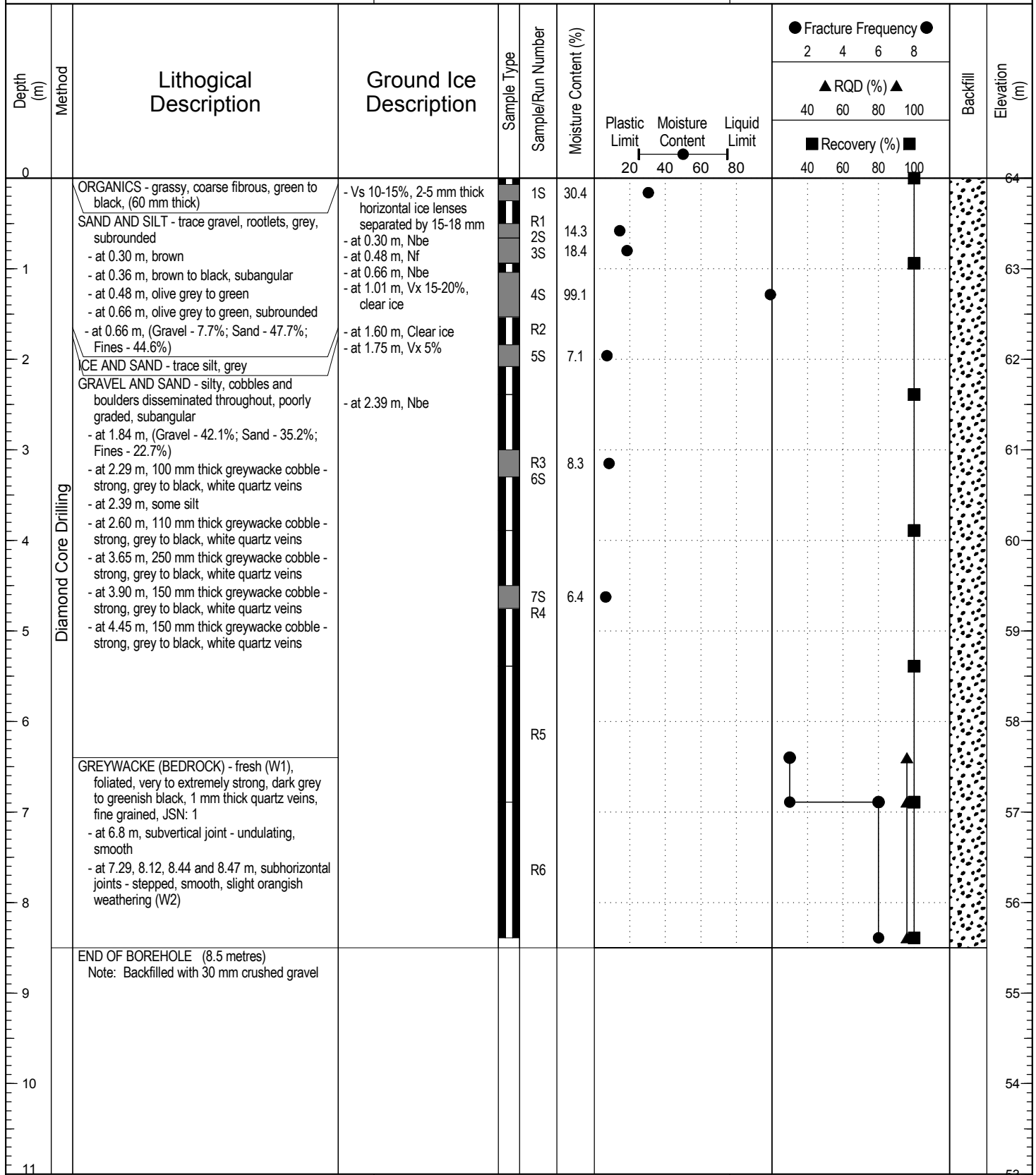
Project: Winter 2016 Geotechnical Site Investigation

Project No: ENG.EARC03020-01

Location: Meliadine Project, Nunavut

Ground Elev: 64 m

UTM: 540424.7 E; 6989190 N; Z 15



TETRA TECH EBA

Contractor: Orbit Garant Drilling Inc.

Completion Depth: 8.5 m

Drilling Rig Type: Diamond Drill Rig

Start Date: 2016 March 27

Logged By: RG/EP

Completion Date: 2016 March 27

Reviewed By: GZ

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Borehole No: BH16-08

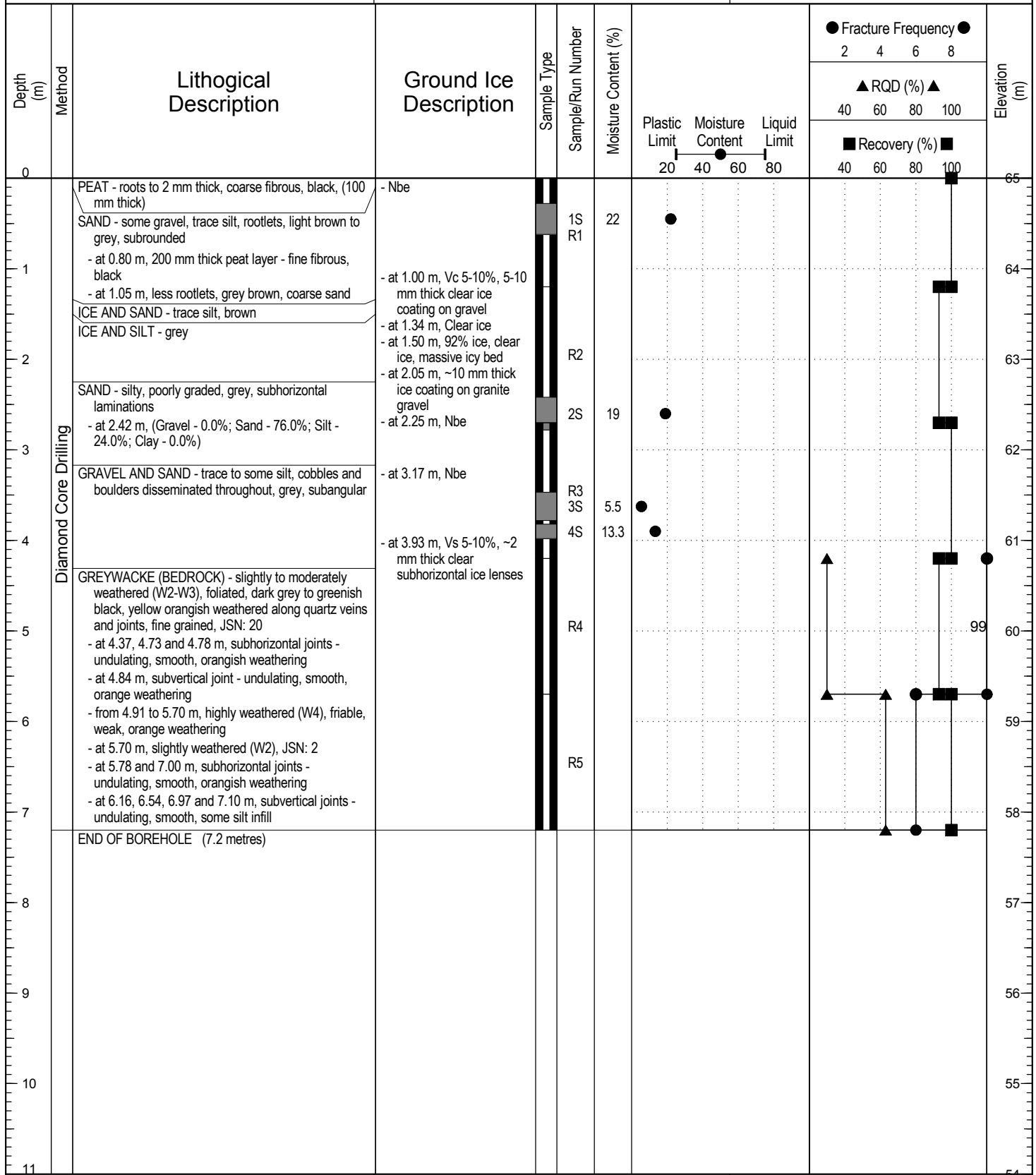
Project: Winter 2016 Geotechnical Site Investigation

Project No: ENG.EARC03020-01

Location: Meliadine Project, Nunavut

Ground Elev: 65 m

UTM: 540337.5 E; 6989082.6 N; Z 15



TETRA TECH EBA

Contractor: Orbit Garant Drilling Inc.

Completion Depth: 7.2 m

Drilling Rig Type: Diamond Drill Rig

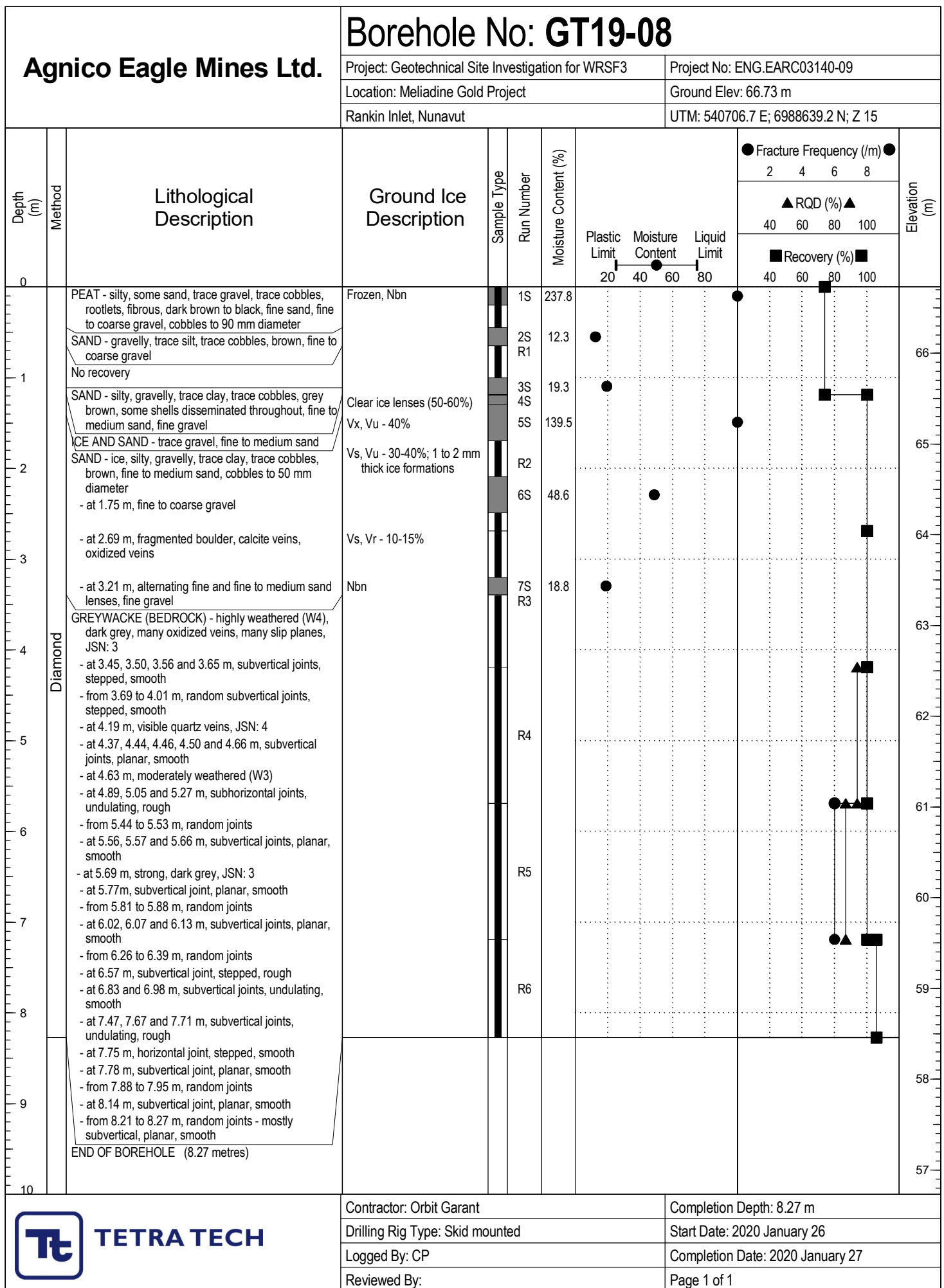
Start Date: 2016 March 28

Logged By: EP

Completion Date: 2016 March 28

Reviewed By: GZ

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TETRA TECH

Contractor: Orbit Garant

Drilling Rig Type: Skid mounted

Logged By: CP

Reviewed By:

Completion Depth: 8.27 m

Start Date: 2020 January 26

Completion Date: 2020 January 27

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Agnico Eagle Mines Ltd.			Borehole No: GT19-09					
			Project: Geotechnical Site Investigation for WRSF3			Project No: ENG.EARC03140-09		
			Location: Meliadine Gold Project			Ground Elev: 64.7 m		
			Rankin Inlet, Nunavut			UTM: 540425 E; 6989068.7 N; Z 15		
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Run Number	Moisture Content (%)	● Fracture Frequency (/m) ● ▲ RQD (%) ▲ ■ Recovery (%) ■	Elevation (m)
0		PEAT - sandy, rootlets, fibrous, dark brown to black	Frozen, Nbn		1S	62.5		
1		SAND - silty, trace gravel, fine sand	Nbe		R1			64
		- at 0.89 m, trace to some gravel, trace silt, trace cobbles, 50% shell fragments disseminated throughout, fine to coarse sand, angular gravel and cobbles	Vx - 15%		2S	13.3		
			Vx, Vc - 35%		3S			
					4S	108.4		63
2		No recovery	Vx 10%		5S	25.6		
		SAND - trace to some gravel, trace silt, trace cobbles, 50% shell fragments disseminated throughout, fine to coarse sand, angular gravel and cobbles			R2			
		ICE - sand inclusions						
		- 1at 1.59 m, 20 mm thick granite boulder						
3		SAND - silty, trace clay, trace gravel, brown, 40% shell fragments disseminated throughout, fine to coarse angular gravel	Vc, Vx ~10%		6S	10.2		62
		- at 1.91 m, no visible shells, fine sand						
		- at 2.53 m, gravelly, cobbles for 160 mm						
		- at 2.79 m, silty, some gravel, cobbles disseminated throughout, striation marks in sand, fine sand, fine to coarse angular gravel, angular cobbles to 90 mm diameter			R3			61
4	Diamond	GREYWACKE (BEDROCK) - slightly weathered (W2), light and dark grey, calcite veins, fine greywacke, JSN: 9						
		- at 3.32 m, subhorizontal joint, undulating, rough						
		- at 3.67 m, subvertical joint, planar, smooth						
		- at 4.17 m, subvertical joint, undulating, rough						
		- at 4.24 m, subhorizontal joint, undulating, rough						
		- at 4.29 m, fresh, JSN: 4						
		- from 4.48 to 4.53 m, subvertical joint, undulating, rough						
		- at 4.60 m, subhorizontal joint, undulating rough						
		- from 4.89 to 4.95 m, subvertical joint, undulating, rough						
		- at 5.29, 5.51, 5.58 and 5.69 m, subhorizontal joints, undulating, rough						
		- at 5.79 m, JSN: 2						
		- at 5.97 m, subvertical joint						
		- at 6.30 m, subvertical quartz vein						
		- at 6.96 m, subvertical joint, undulating, rough						
		END OF BOREHOLE (7.29 metres)						57
8								
9								
10								
			Contractor: Orbit Garant			Completion Depth: 7.29 m		
			Drilling Rig Type: Skid mounted			Start Date: 2020 January 25		
			Logged By: CP			Completion Date: 2020 January 25		
			Reviewed By:			Page 1 of 1		

Agnico Eagle Mines Ltd.			Borehole No: GT19-10											
			Project: Geotechnical Site Investigation for WRSF3					Project No: ENG.EARC03140-09						
			Location: Meliadine Gold Project					Ground Elev: 64.96 m						
			Rankin Inlet, Nunavut					UTM: 540926.7 E; 6988549 N; Z 15						
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Run Number	Moisture Content (%)	Plastic Limit Moisture Content Liquid Limit			Fracture Frequency (/m) RQD (%) Recovery (%)			Elevation (m)	
0		ICE - lake ice	Ice Nbn				20	40	60	80	2	4	6	8
		PEAT - some sand, some silt, trace gravel, trace cobbles, rootlets, fibrous, dark brown, fine sand			1S	30								
			Vr ~5-10%		R1									
1		SAND - silty, trace gravel, trace cobbles, greyish brown, fine to coarse sand, fine to coarse angular gravel			2S	112.1								64
		- at 1.40 m, some silt, brown, shells disseminated throughout	Nbn		3S	27.9								
2		- trace silt			R2									63
		- at 2.30 m, silty, dark grey, fine sand	Vs 1-5% ~ 1mm thick		4S	23.2								
					5S	37.7								
3		COBBLES - coarse gravel matrix												62
		SAND AND GRAVEL - silty, some cobbles, trace clay, greyish brown, fine to coarse sand, fine to coarse angular gravel	Vr ~5%, thermally disturbed		6S	13.8								
		GREYWACKE (BEDROCK) - foliated, fresh, grey, abundant quartz veins, fine greywacke, JSN: 2			R3									61
4		- at 3.30, 3.33, 3.41, 3.44, 3.56, 3.56 and 3.92 m, subvertical joints, planar to undulating, rough												
		- at 3.93 m, slightly weathered, JSN: 4			R4									
5		- at 4.53, 4.58, 4.60 and 4.68 m, subvertical joints, undulating, rough												60
		- at 4.58 m, subhorizontal joint, undulating, smooth			R5									
6		- at 5.02, 5.21 and 5.33 m, subvertical joints, undulating, rough												59
		- at 5.44 m, horizontal joint, undulating, rough			R6									
7		- at 6.22, 6.25 and 6.27 m, subvertical joints, undulating, rough												58
		- at 6.34 m, subhorizontal joint, stepped, rough												
		- at 6.39 m, subvertical joint, undulating, rough												
		- at 6.81 m, subhorizontal joint, undulating, rough												
		END OF BOREHOLE (6.88 metres)												
8														57
9														56
10														55
			Contractor: Orbit Garant					Completion Depth: 6.88 m						
			Drilling Rig Type: Skid mounted					Start Date: 2020 January 26						
			Logged By: FN					Completion Date: 2020 January 26						
			Reviewed By:					Page 1 of 1						

Agnico Eagle Mines Ltd.				Borehole No: GT19-11				
				Project: Geotechnical Site Investigation for WRSF3		Project No: ENG.EARC03140-09		
				Location: Meliadine Gold Project		Ground Elev: 63.9 m		
				Rankin Inlet, Nunavut		UTM: 540852 E; 6988830.9 N; Z 15		
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Run Number	Moisture Content (%)	● Fracture Frequency (/m) ● 2 4 6 8 ▲ RQD (%) ▲ 40 60 80 100 ■ Recovery (%) ■ 40 60 80 100	Elevation (m)
0		ICE - lake ice, (20 mm thick)	Ice					
		No recovery	Nbn					
		PEAT - trace silt, trace cobbles, trace gravel, rootlets, fibrous, dark brown to black, fine gravel		1S		227.2		
1		BOULDER - fragmented, some silt, trace gravel, moderately weathered, black, peat infill, boulder fragments to 90 mm diameter, coarse gravel		R1				63
		PEAT - trace silt, trace cobbles, trace gravel, rootlets, fibrous, dark brown to black, fine gravel		2S		6.8		
2		GRAVEL - sandy, some silt, cobbles, brown, fine to coarse sand, fine to coarse gravel		R2				62
		- from 1.96 to 2.71 m, boulder - calcite veins, fine grained						
3		- silty for 200 mm		3S		8.6		
		- cobbles to 90 mm diameter						61
		GREYWACKE (BEDROCK) - slightly weathered, very strong, dark grey, some moss green colour, calcite veins, fine greywacke, JSN: 4		R3				60
4		- at 3.91 m, subvertical joint, undulating, smooth						
		- at 4.26 m, subhorizontal joint, undulating, rough						
5		- at 4.61 and 4.72 m, subhorizontal joints, undulating, rough		R4				59
		- at 5.06 m, subhorizontal joint, stepped, rough						
6		- at 5.64 m, subhorizontal joint, undulating, smooth						
		- at 5.72 m, random joints						
		- at 5.91 m, subhorizontal joint, undulating, rough		R5				58
		- at 5.97 m, subhorizontal joint, undulating, smooth						
		- from 6.15 to 6.85 m, more light pink and green						
		- at 6.19 m, angular joint, undulating, smooth						
7		- at 7.02 m, subhorizontal joint, undulating, rough, silt lens in fissure						
		- at 7.14 m, random joints						
		- at 7.19 m, subhorizontal joint, stepped, rough		R6				56
8		- at 8.23 m, subhorizontal joint, undulating, smooth						
		- at 8.27 and 8.64 m, undulating, rough						
9		- at 9.14 m, subvertical joint, undulating, rough						
		- at 9.19 and 9.61 m, subhorizontal joints, undulating, rough		R7				55
10		- at 9.82 m, subvertical joint, planar, rough, iron						54
				Contractor: Orbit Garant		Completion Depth: 16.29 m		
				Drilling Rig Type: Skid mounted		Start Date: 2020 January 26		
				Logged By: CP/FN		Completion Date: 2020 January 26		
				Reviewed By:		Page 1 of 2		



TETRA TECH

Agnico Eagle Mines Ltd.			Borehole No: GT19-11										
			Project: Geotechnical Site Investigation for WRSF3					Project No: ENG.EARC03140-09					
			Location: Meliadine Gold Project					Ground Elev: 63.9 m					
			Rankin Inlet, Nunavut					UTM: 540852 E; 6988830.9 N; Z 15					
Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Run Number	Moisture Content (%)	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)
10	Diamond	staining											
11		- at 10.07 and 10.18 m, subvertical joints, undulating, rough - at 10.25 m, horizontal joint, undulating, rough - at 10.31 and 10.50 m, subhorizontal joints, undulating rough - at 10.63, 11.18 and 11.67 m, subvertical joints, undulating, rough		R8									53
12		- at 11.79 m, JSN: 3 - from 12.03 to 12.38 m, random joints, oxide stains, calcite infill		R9									52
13		- at 12.65 m, subhorizontal joint, undulating, rough - from 12.84 to 13.15 m, random joints											51
14		- at 13.29 m, JSN: 4		R10									50
15		- at 14.54 m, horizontal to subvertical joint, undulating, rough - at 14.75 m, horizontal joint, undulating, rough - at 14.84 and 14.97 m, horizontal joints, planar, rough		R11									49
16		- at 15.52 m, subvertical joint, undulating, rough											48
17		END OF BOREHOLE (16.29 metres)											47
18													46
19													45
20													44
			Contractor: Orbit Garant					Completion Depth: 16.29 m					
			Drilling Rig Type: Skid mounted					Start Date: 2020 January 26					
			Logged By: CP/FN					Completion Date: 2020 January 26					
			Reviewed By:					Page 2 of 2					

Agnico Eagle Mines Ltd.

Borehole No: GT19-12

Project: Geotechnical Site Investigation for WRSF3

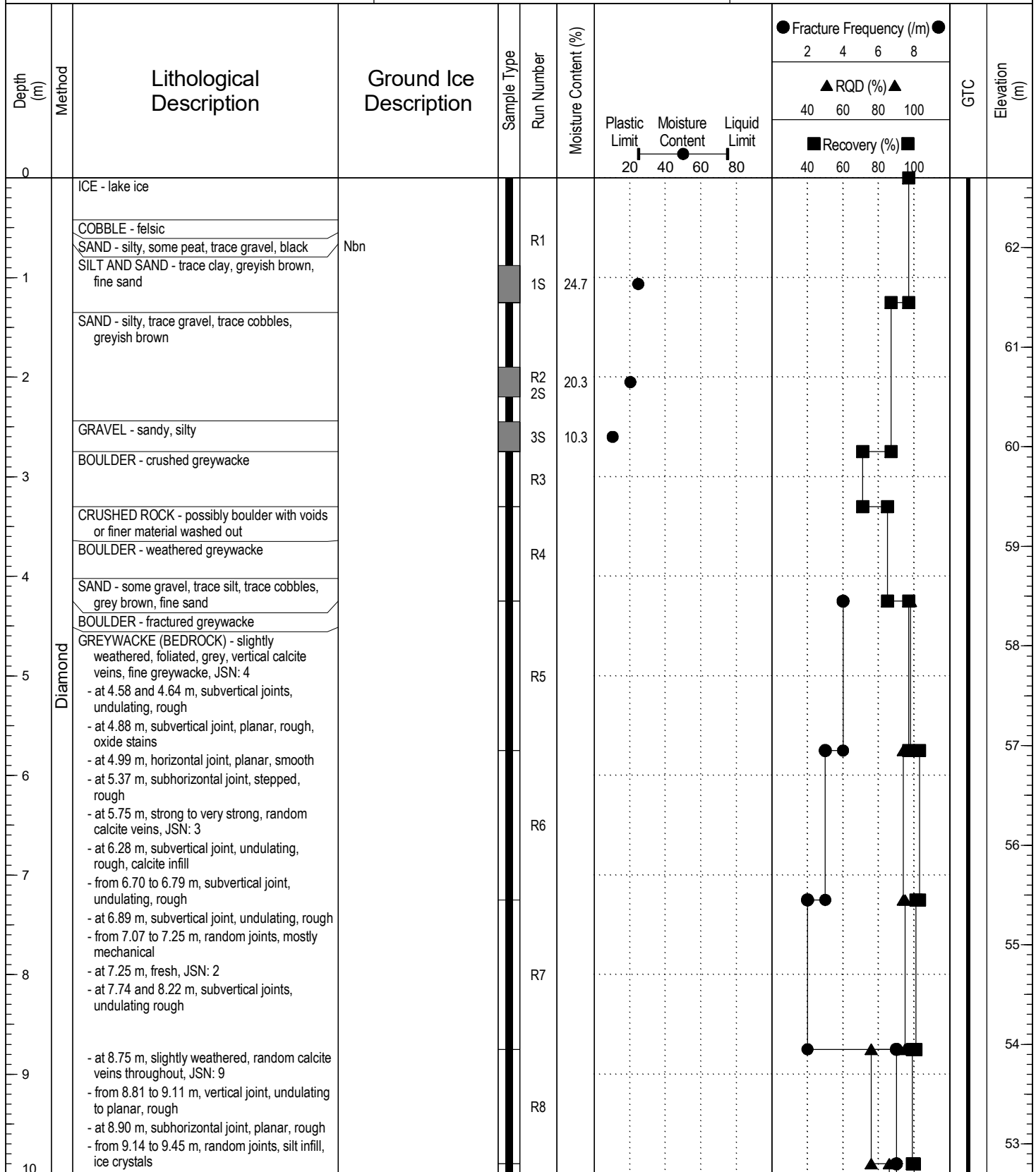
Project No: ENG.EARC03140-09

Location: Meliadine Gold Project

Ground Elev: 62.7 m

Rankin Inlet, Nunavut

UTM: 540633.5 E; 6989059.8 N; Z 15



TETRA TECH

Contractor: Orbit Garant

Completion Depth: 16.15 m

Drilling Rig Type: Skid mounted

Start Date: 2020 January 25

Logged By: FN

Completion Date: 2020 January 25

Reviewed By:

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Agnico Eagle Mines Ltd.

Borehole No: GT19-12

Project: Geotechnical Site Investigation for WRSF3

Project No: ENG.EARC03140-09

Location: Meliadine Gold Project

Ground Elev: 62.7 m

Rankin Inlet, Nunavut

UTM: 540633.5 E; 6989059.8 N; Z 15



TETRA TECH

Contractor: Orbit Garant

Completion Depth: 16.15 m

Drilling Rig Type: Skid mounted

Start Date: 2020 January 25

Logged By: FN

Completion Date: 2020 January 25

Reviewed By:

Page 2 of 2

Agnico Eagle Mines Limited

Borehole No: GT21-64

Project: Spring 2021 Geotechnical Investigation

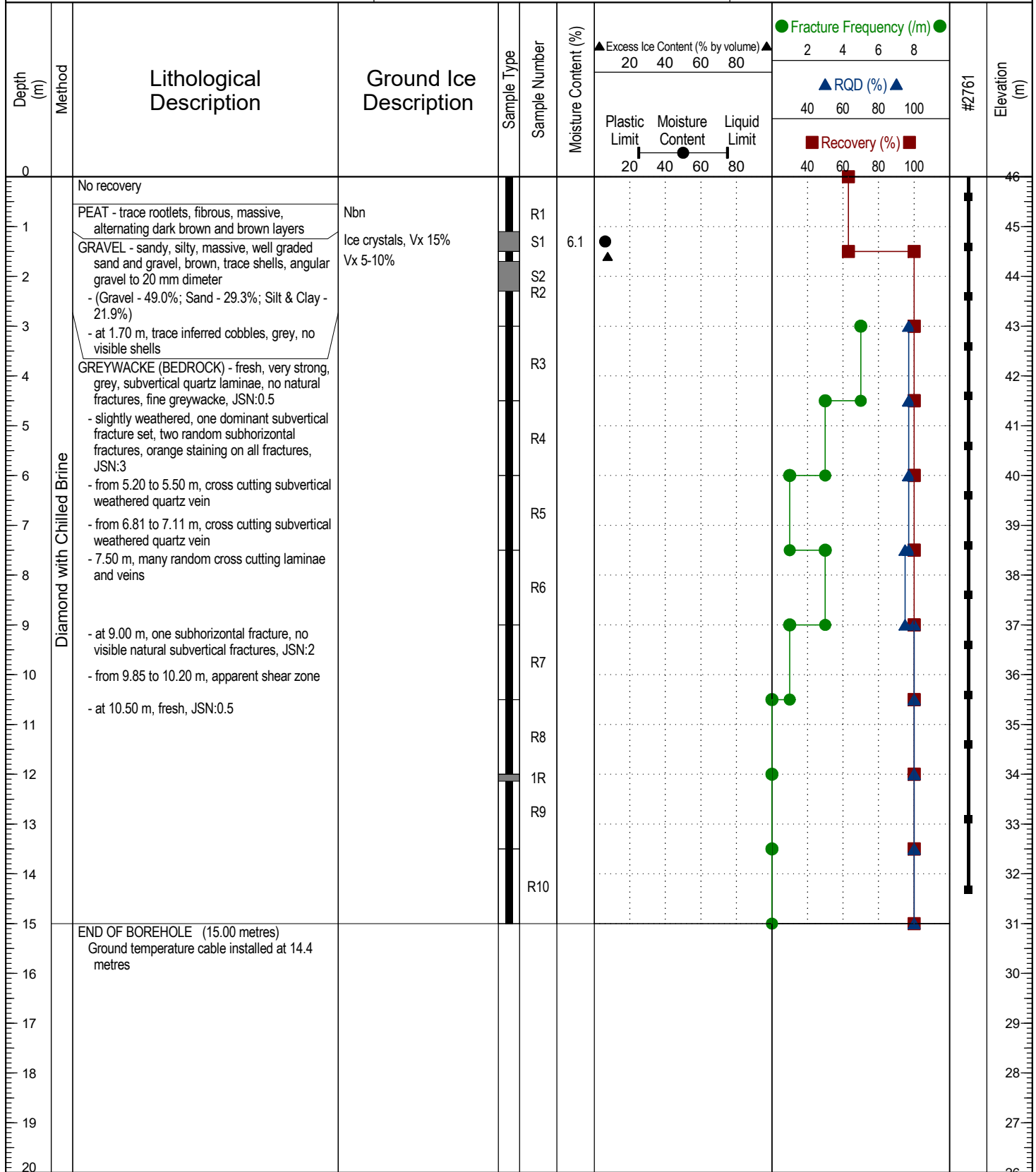
Project No: ENG.EARC03193-02

Location: CP2 Berm

Ground Elev: 46 m

Meliadine Gold Project, Nunavut

UTM: 541524 E; 6989012 N; Z 15



TETRA TECH

Contractor: Orbit Garant Drilling inc.

Completion Depth: 15 m

Drilling Rig Type: Diamond Drill Rig

Start Date: 2021 April 26

Logged By: LM

Completion Date: 2021 April 26

Reviewed By: HX

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Agnico Eagle Mines Limited

Borehole No: GT21-65

Project: Spring 2021 Geotechnical Investigation

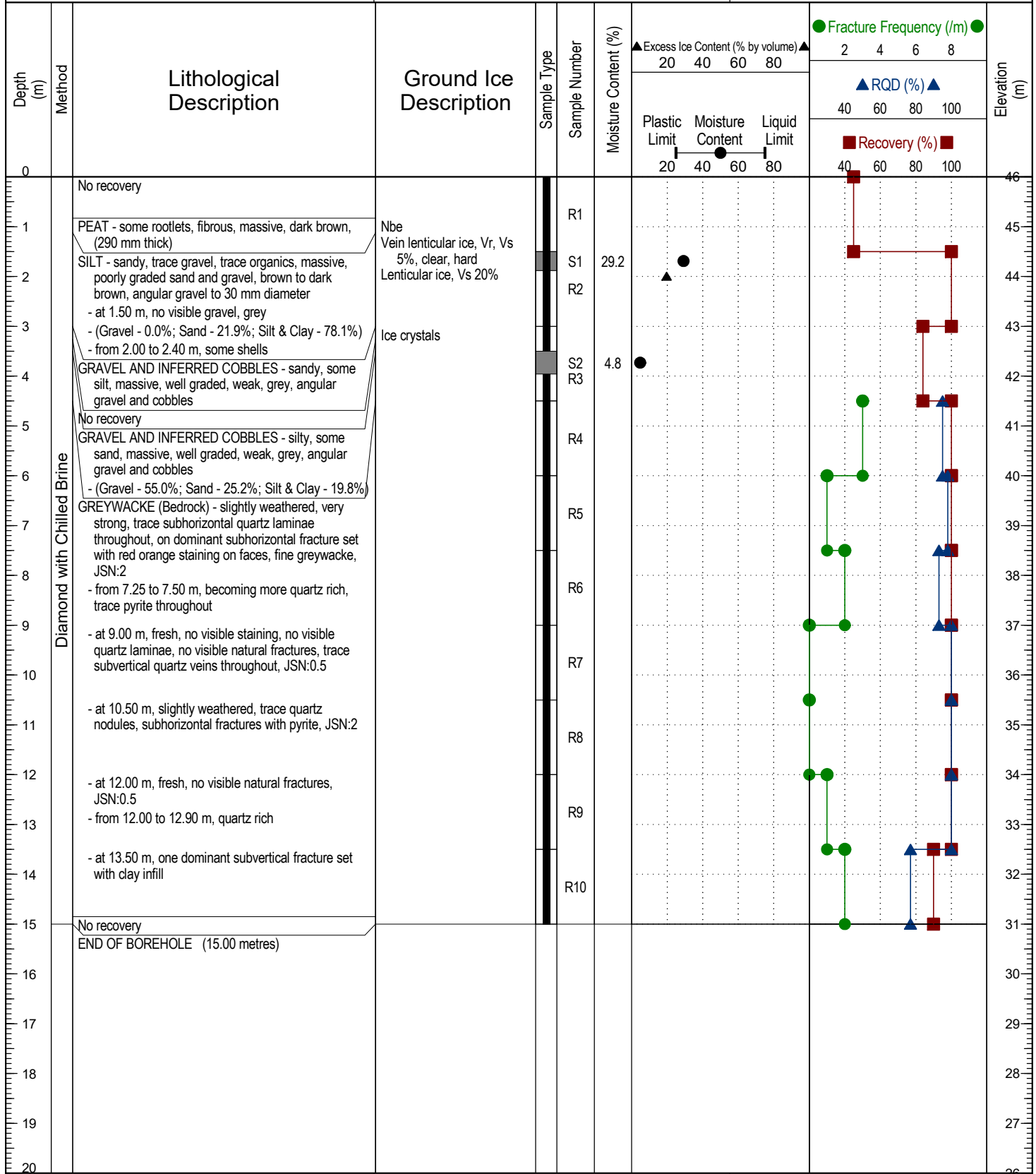
Project No: ENG.EARC03193-02

Location: CP2 Berm

Ground Elev: 46 m

Meliadine Gold Project, Nunavut

UTM: 541563 E; 6988974 N; Z 15



TETRA TECH

Contractor: Orbit Garant Drilling inc.

Completion Depth: 15 m

Drilling Rig Type: Diamond Drill Rig

Start Date: 2021 April 25

Logged By: LM

Completion Date: 2021 April 25

Reviewed By: HX

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Agnico Eagle Mines Limited

Borehole No: GT21-66

Project: Spring 2021 Geotechnical Investigation

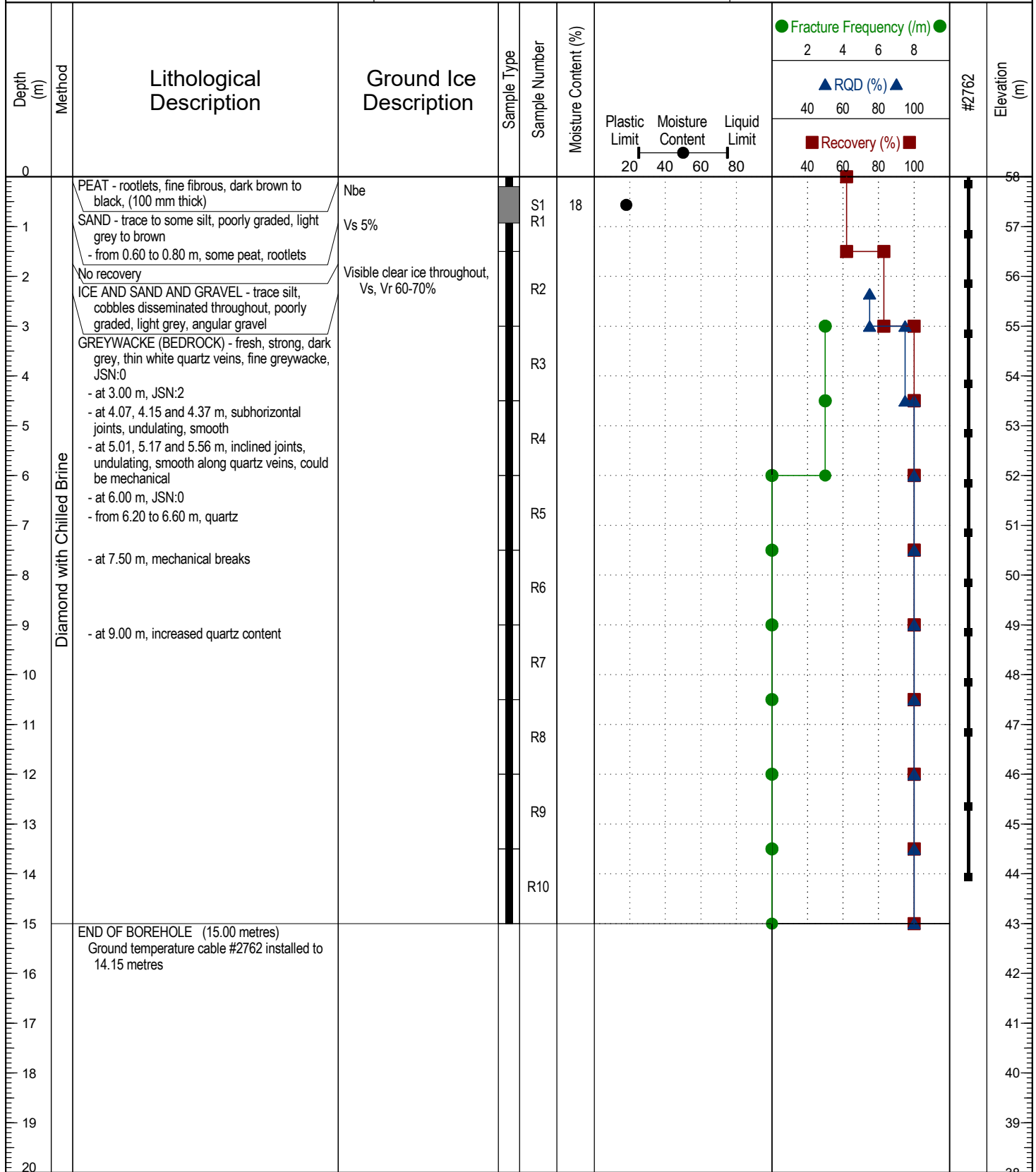
Project No: ENG.EARC03193-02

Location: WRSF3

Ground Elev: 58 m

Meliadine Gold Project, Nunavut

UTM: 541295 E; 6988736 N; Z 15



TETRA TECH

Contractor: Orbit Garant Drilling inc.

Completion Depth: 15 m

Drilling Rig Type: Diamond Drill Rig

Start Date: 2021 April 26

Logged By: EP

Completion Date: 2021 April 26

Reviewed By: HX

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APPENDIX C

THERMAL ANALYSES MEMO



To:	Justin Bieber, Agnico Eagle Marielle Limoges, Agnico Eagle	Date:	May 22, 2026
c:	Jawad Haloui, Agnico Eagle	Memo No.:	002
From:	Fai Ndofor, P.Geo., Tetra Tech Hongwei Xia, P.Eng., Tetra Tech	File:	704-ENG.EARC03140-43
Subject:	Thermal Analyses for Waste Rock Storage Facility 3 (WRSF3) Raise Design, Meliadine Gold Mine, Nunavut Agnico Eagle Document Number: 65-686-230-MEM-004		

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to undertake a detailed engineering design update for the Waste Rock Storage Facility 3 (WRSF3) at the Meliadine Gold Mine (the Meliadine Mine), Nunavut. The WRSF3 design update is to raise WRSF3, approved by the Nunavut Water Board in 2022 under Type A Water Licence (2AM-MEL1631), for additional storage capacity.

In support of the design update, thermal analyses were performed to characterize the thermal regime of the foundation soils during operation and after closure. The objectives of the analyses are to provide supporting information for the stability analyses and potential deformation assessment for the design of WRSF3 raise and to evaluate the thermal performance of WRSF3 under the design long-term climate change scenario.

This technical memorandum summarizes the analysis methodology, key input parameters, assumptions, and results from the thermal analyses. Additional details regarding the overall methodology, input parameters, and design assumptions are documented in the Design Basis Memorandum (DBM) for the WRSF3 raise design (Tetra Tech 2026). This technical memorandum provides supplemental information specific to thermal modelling and should be read in conjunction with the DBM. This technical memorandum will be included as an appendix to the WRSF3 raise design report.

2.0 GENERAL SITE CONDITIONS

2.1 Climate

The Meliadine Mine lies within the Southern Arctic Climatic Region where daylight reaches a minimum of 4 hours per day in winter and a maximum of 20 hours per day in summer. The nearest weather station is Rankin Inlet A (Station 2303401), located approximately 25 km south of the Project site. The monthly mean air temperature is typically above 0°C from June to September and below 0°C between October and May. July is typically the warmest month, and January is the coldest. The mean annual temperature for the period of record, from 1994 to 2023, was -9.8°C, based on measured air temperature data at Rankin Inlet.

Mean annual precipitation at the mine site, based on the hydrological year from 1 October to 30 September, is estimated to be 394.0 mm and is typically equally split between rainfall and snowfall (Tetra Tech 2021b).

The region is known for high winds, due in part to the broad, flat, uninterrupted expanses that the moving air masses encounter. The wind blows from the north and north-northwest direction more than 30% of the time. The mean

values for wind speed show that the north-northwest, together with north and northwest winds, have the highest speeds and tend to be the strongest. Mean monthly wind speeds are typically between 19 km/hour and 27 km/hour.

2.2 General Subsurface Conditions

A total of 46 boreholes (20 diamond drilling boreholes and 26 percussion drilling probe holes) were drilled within and around the WRSF3 footprint during several geotechnical site investigation programs (Tetra Tech EBA 2014, Tetra Tech EBA 2016, Tetra Tech 2019, Tetra Tech 2021). Of these, 14 diamond drilling boreholes are located within the WRSF3 footprint, while the remaining 32 boreholes are located around the footprint area. The locations of drilled boreholes are presented in Figure 1. More details regarding the key geotechnical information of the overburden soils in the WRSF3 area together with depth to bedrock are described in Section 2.6 of the DBM (Tetra Tech 2026).

Review and interpretation of the borehole logs indicates spatial variability in ground ice conditions across the WRSF3 footprint, with localized zones of ice-rich permafrost soils surrounded by ice-poor overburden soils. Ice-rich materials, defined as soils containing more than 30% excess ice content by volume, occur mainly along the west shore of the former Lake H19 and within a localized low-lying area in the central portion of WRSF3.

The interpreted subsurface stratigraphy across the WRSF3 area consists of a thin organic peat layer (0 to 0.5 m thick) overlying variable overburden soils including silty SAND, SAND and SILT, ice-rich gravelly SAND with some silt, and silty SAND or gravelly SAND with traces of clay and shells, occasionally containing cobbles. These overburden deposits overlie bedrock composed of greywacke, which ranges from highly weathered to fresh, strong, dark grey, and fine-grained. The interpreted thickness of ice-rich soils ranges from approximately 0.1 m to 0.9 m, with an average thickness of approximately 0.4 m. The depth to bedrock across the WRSF3 footprint varies from approximately 2.3 m to 6.5 m.

2.3 Ground Temperature and Permafrost Condition

The Meliadine Mine is located within a continuous permafrost zone. Continuous permafrost is expected to depths of between 285 m and 430 m based on ground temperature data from thermistors installed near the Tiriganiaq, FZone, and Discovery deposits (WSP 2024). The measured ground temperature data indicate that the active layer ranges from 1.0 m to 3.0 m in areas of shallow soils and areas away from the influence of lakes. It is anticipated that the active layer adjacent to lakes or below a body of moving water, such as a stream, could be deeper. The typical permafrost ground temperatures at the depths of zero annual amplitude (typically at depths below 18 m) are in the range of -5.9°C to -7.0°C in the areas away from lakes and streams. The geothermal gradient ranges from 0.015°C/m to 0.02°C/m (WSP 2024).

3.0 PRELIMINARY MINE WASTE PLACEMENT PLAN FOR WRSF3

Based on the mine waste placement quantities presented in Table 1 of the DBM (Tetra Tech 2026), a preliminary placement plan was developed and adopted for the thermal analyses. Table 1 summarizes the waste rock and overburden placement plan used for the thermal analyses.

Table 1: Preliminary Waste Rock and Overburden Placement Plan for WRSF3

Waste Type	Bench Elevation (m)	Approximate Period of Mine Waste Placement
Overburden	67	January to March 2022
Waste rock	67	January to May 2022
Overburden	72	April to July 2022
Waste rock	72	June to December 2022
Overburden	77	December 2022 to March 2023
Waste rock	77	Summer 2023
Waste rock	82	Summer 2024
Waste rock	87	Winter 2025
Waste rock	92	Summer 2026
Overburden	97	December 2026 to April 2027
Waste rock	97	Summer 2027
Overburden	102	December 2027 to April 2028
Overburden	107	December 2028 to April 2029
Waste rock	107	Summer 2029
Waste rock	112	Summer 2030
Waste rock	122	Summer 2031

The preliminary waste rock and overburden placement plan presented in Table 1 was developed based on the currently available mine waste production schedule and the design storage capacity of WRSF3. Although the actual placement schedule and corresponding bench elevations over time may vary depending on operational waste production rates and quantities, such variations are not expected to significantly affect the long-term thermal performance of WRSF3, as the long-term thermal performance is primarily governed by the overall waste mass, material properties, and long-term climatic change conditions.

4.0 THERMAL MODEL AND CLIMATE DATA

4.1 General

Thermal analyses were carried out using Tetra Tech's proprietary finite element computer model, GEOTHERM. The model simulates transient heat conduction with change of phase considering a variety of boundary conditions, including heat flux, convective heat flux, and temperature and ground-air boundaries. The heat exchange at the ground surface is modelled with an energy balance equation considering air temperatures, wind velocity, snow depth, and solar radiation. The model facilitates the inclusion of temperature phase change relationships for saline soils, such that any freezing depression and unfrozen water content variations can be explicitly modelled.

The model has been verified by comparing its results with closed-form analytical solutions and many different field observations. The model has formed the basis for thermal evaluations and designs of a substantial number of projects in the Arctic and sub-Arctic regions since the 1980s, including mine waste storage facilities, dams, foundations, pipelines, utilidor systems, and landfills.

A two-dimensional (2D) thermal analysis was firstly carried out to calibrate model parameters with the climatic and soil conditions for the original ground and to compare with measured ground temperature data collected from the ground temperature cables (GTCs) installed within the WRSF3 footprint (i.e., GT14-03). Following the model

calibration, the 2D model was revised to incorporate the waste rock and overburden placement sequence, the planned future raise. The revised model was run over a 100-year period under the adopted climate change scenario to evaluate the long-term thermal performance of WRSF3.

4.2 Mean Climatic Data

Climatic data required for the thermal analyses include air temperature, precipitation, wind speed, solar radiation, and snow cover thickness. The closest meteorological station with long-term climatic data is at Rankin Inlet (approximately 25 km south of the Meliadine Mine). Mean monthly air temperature, wind speed, snow cover, relative humidity, and precipitation at the Rankin Inlet station were obtained from the Climate Data website ([Download — ClimateData.ca](https://climate.weather.gc.ca/climate_normals/index_e.html)) and from Environment and Natural Resources Canada's website (https://climate.weather.gc.ca/climate_normals/index_e.html). Mean daily solar radiation data for the period 1951 to 1980 at Baker Lake station (Environment Canada 1982) were used for the Meliadine Mine site. Table 2 summarizes the mean climatic data used for thermal analyses.

Table 2: Mean Climate Data Used for Thermal Analyses

Month	Average Air Temperature (°C) ^(a)	Average Wind Speed (km/h) ^(b)	Average Snow Cover (m) ^(c)	Average Solar Radiation (W/m ²) ^(d)
January	-29.6	24.1	0.28	9.1
February	-30.0	24.0	0.31	38.7
March	-24.5	23.7	0.36	119.5
April	-15.5	23.0	0.35	206.4
May	-5.1	22.9	0.19	259.7
June	4.9	20.2	0.03	252.0
July	11.2	19.4	0.00	226.4
August	10.3	21.0	0.00	160.8
September	4.6	23.9	0.00	124.9
October	-3.5	26.1	0.04	41.3
November	-15.9	25.0	0.14	14.4
December	-23.8	24.2	0.24	3.7
Average	-9.8	23.1	-	-

Notes:

^(a) Based on measured monthly air temperatures at Rankin Inlet station (1994-2023).

^(b) Based on measured wind speed data at Rankin Inlet station (1991-2020 Climate Normals).

^(c) Based on measured snow cover data at Rankin Inlet station (1983-2012).

^(d) Based on measured solar radiation data at Baker Lake station (1951-1980).

4.3 Climate Change Projection

The historical air temperature record at Rankin Inlet indicates a clear long-term warming trend. Consistent with current state-of-practice, this observed warming supports the inclusion of climate change in the thermal analyses for the design of WRSF3 raise.

In 2025 Okane Consultants Inc. (Okane) conducted a climate change assessment for the Meliadine Mine using available Coupled Model Intercomparison Project Phase 6 (CMIP6) climate model outputs and developed a site-specific climate database (2025 to 2125) for the Shared Socioeconomic Pathway (SSP) climate change scenario (SSP2-4.5). Based on the direction provided by Agnico Eagle, the CMIP6 SSP2-4.5 climate change dataset

developed by Okane was used for the design of WRSF3 raise. Figures 2 to 4 present the projected annual mean air temperatures, the annual total net radiation, and the annual mean of wind speed, respectively, at the Meliadine Mine under the CMIP6 SSP2-4.5 climate change scenario. More details on climate change projections are documented in Section 5.2.3 of the DBM (Tetra Tech 2026).

5.0 THERMAL ANALYSES OF WRSF3

5.1 Thermal Model Calibration

5.1.1 Previous Thermal Analyses

An axisymmetric thermal analysis was conducted in 2020 to determine the initial ground temperature conditions beneath the lakes located within the original footprint of WRSF3 in support of the initial facility design (Tetra Tech 2020b). The analysis simulated the thermal influence of the former lakes (i.e., Lakes H19 and H20) prior to lake dewatering and was used to initialize the subsurface temperature distribution within the foundation soils. Following initialization of the ground temperature profile, additional axisymmetric thermal analyses of a representative section were conducted to simulate the WRSF3 construction sequence and to estimate the long-term thermal regime following completion of the facility under the long-term climate change scenarios.

In 2021, a 2D thermal model was developed to support the WRSF3 extension design and was calibrated against measured ground temperatures at borehole GT21-66 (Tetra Tech 2021c). The thermal analyses completed in 2021 were used to estimate the long-term ground temperature conditions within the proposed WRSF3 extension area under the adopted long-term climate change scenarios.

As discussed in Section 2.3, borehole logging indicates that ground ice conditions within the WRSF3 footprint are spatially variable. Localized zones of ice-rich permafrost soils have been identified primarily along the west shore of the former Lake H19 and within a localized low-lying area in the central portion of the WRSF3 footprint. Despite this observed spatial variability, a continuous ice-rich soil layer was conservatively assumed in both the 2020 and 2021 thermal models. Specifically, the 2020 thermal model incorporated a 1.0 m thick ice-rich SILT and sand layer, while the 2021 thermal model assumed a 0.6 m thick ice-rich sand and gravel layer.

Ground temperature monitoring data within the WRSF3 footprint are available from four GTCs installed in Boreholes GT14-03, GT19-11, GT19-12, and GT21-66 during previous site investigation programs. At present, only the GTCs installed in GT14-03 and GT19-12 remain operational. Since 2022, the remaining two cables (GT19-11 and GT21-66) have malfunctioned, and there is no recent temperature data from these sites. A comparison of the measured ground temperatures within the ice-rich soil layers and those predicted by the previous thermal models is presented in Figure 5. The comparison in Figure 5 indicates:

- The 2020 thermal model predicts ground temperatures within the ice-rich soil layer that are approximately 2°C to 4°C warmer than the temperatures measured at GT14-03 and GT19-12. This discrepancy is primarily associated with the initialization approach adopted in the 2020 analysis, which assumed ground temperature conditions representative of the former lakebed environment prior to dewatering. This assumption likely led an elevated initial temperature distribution compared to the actual post-dewatering thermal regime.

- The 2021 thermal model predicted colder ground temperatures during the period between September 2022 and July 2023 when compared to the available monitoring data. However, the predicted temperatures within the ice-rich soil layer generally correspond with the average temperatures measured at GT14-03 and GT19-12 after July 2023. The earlier discrepancy is considered likely related to uncertainties in the timing and distribution of waste placement near the GTC locations, which were likely not fully captured in the 2021 thermal analysis.

Considering the discrepancies between the temperatures predicted by previous thermal models and available ground temperature monitoring data, an updated thermal analysis was undertaken to provide a more representative assessment of the long-term thermal conditions beneath the WRSF3 raise. The updated model was developed along a representative section passing through Borehole GT14-03, where reliable long-term ground temperature monitoring data (from 2019 to 2025) are available.

The updated model was calibrated using measured temperature data from GT14-03 to improve the representation of the current thermal regime and the thermal response of the foundation soils to waste placement. In addition, the updated analysis explicitly incorporates the WRSF3 construction sequence, waste placement history, and future placement schedule.

5.1.2 Soil Profiles and Material Properties

Based on the geotechnical conditions within the WRSF3 footprint outlined in Section 2.2, a generalized soil profile for the original ground was developed and used for the thermal analyses. The assumed soil profile beneath the original ground surface includes a 1.5 m thick layer of SAND, followed by a 0.5 m thick layer of ice-rich SAND and SILT, and a 1.5 m thick layer of sandy SILT above the bedrock.

Review and interpretation of available borehole logs indicate spatial variability in ground ice conditions across the WRSF3 footprint, with localized zones of ice-rich permafrost within otherwise ice-poor overburden soils. For the thermal analyses, a simplified representation was adopted in which a continuous ice-rich soil layer is assumed to be present within the foundation profile. This assumption is considered appropriate for thermal modelling because the mechanical and thermal behaviour of ice-rich permafrost soils is strongly dependent on temperature due to the presence of excess ice and associated phase change effects. In contrast, the shear strength and thermal response of ice-poor soils are generally not significantly influenced by temperature variations. Therefore, representing the foundation with a continuous ice-rich layer ensures that the thermal analysis captures the temperature-dependent behaviour that governs the response of ice-rich soils. Given that the ice-rich materials identified in boreholes occur only locally within the footprint, the adopted assumption is expected to reasonably represent an upper-bound condition for the potential influence of ground ice on the thermal behaviour of the foundation soils.

The organic layer over the original ground within the WRSF3 footprint was not specifically modelled in the thermal analyses. It is expected that the organic layer will be compressed under loads from waste rock and overburden or removed during the snow removal process prior to the waste placement. The ground generally tends to be colder with an organic cover. Therefore, it is slightly conservative to exclude the thin, compressed organic layer in the thermal analyses.

The material properties for the soils below the original ground in the thermal analyses are presented in Table 3. Thermal properties of the materials in the thermal analyses are determined indirectly from well-established correlations with soil index properties (Farouki 1986; Johnston 1981) or experience. Soil index properties were estimated from available geotechnical information and experience. The porewater salinity was assumed to be 7 ppt for the overburden waste and foundation overburden soils, 2 ppt for the waste rock and 0 ppt for bedrock in the thermal analyses.

Table 3: Material Properties Used in Thermal Analyses for WRSF3

Material	Water Content (%)	Bulk Density (Mg/m ³)	Thermal Conductivity (W/m-K)		Specific Heat (kJ/kg-K)		Latent Heat (MJ/m ³)
			Frozen	Unfrozen	Frozen	Unfrozen	
Waste Rock	3	1.96	1.04	1.26	0.77	0.83	19
Overburden	17	1.76	1.59	1.18	0.93	1.24	85
SAND	20	2.0	2.48	1.54	0.96	1.30	113
Sandy SILT	15	1.95	2.44	1.71	0.91	1.12	92
Ice-rich SAND and SILT	60	1.53	2.39	0.95	1.29	2.16	210
Bedrock	1	2.66	3.0	3.0	0.75	0.77	9

5.1.3 Boundary Condition

A ground surface energy balance boundary built into GEOTHERM was applied to the surface of exposed waste rock or overburden and natural ground surface as applicable. During the active waste placement period, a snow reduction factor, determined through model calibration, was applied to the WRSF3 top and slope surfaces to account for reduced snow accumulation resulting from construction activities and potential snow drifting. After completion of waste placement, full mean snow cover was applied to the WRSF3 surfaces, which is a reasonably conservative assumption based on the field observations at the existing WRSFs. Thicker snow cover insulates the ground from winter heat loss, resulting in warmer thermal conditions in WRSF3. The natural ground surface was assigned full mean snow cover during and after construction.

A heat flux boundary was assigned at the model base to consider the heat exchange between the model and the outer system. The value of heat flux was estimated based on the bedrock thermal properties and the geothermal gradient at depths in the region. The average thermal gradient at the Meliadine Mine is estimated to be 1.7°C/100 m based on the study conducted by WSP (2024).

5.1.4 Waste Rock and Overburden Initial Temperature

The following assumed initial temperature at placement was used for the thermal analyses:

- -1.0°C for the materials placed between November and June.
- 5.0°C for the materials placed between July and October.

The actual initial material temperature may vary depending on ambient conditions at the time of placement. However, the difference between the assumed initial temperatures used in the analysis and the actual placement temperatures is not expected to significantly affect the long-term thermal performance of WRSF3. This is because near-surface thermal transients associated with initial placement conditions dissipate relatively quickly compared to the long-term conductive heat transfer processes that govern the thermal regime of WRSF3. Over time, the temperature field becomes dominated by external climatic boundary conditions and the thermal properties of the waste and foundation materials, rather than initial thermal conditions. As a result, reasonable variations in initial placement temperature are expected to have only a localized and short-duration influence rather than the long-term thermal behaviour of WRSF3.

5.2 Thermal Calibration Results and Discussion

Figure 6 presents a comparison between the measured ground temperatures and those predicted by the thermal calibration model at Borehole GT14-03, at depths of 1.5 m, 2.5 m, and 15 m below the original ground surface. The comparison indicates generally good agreement between the measured and modelled ground temperatures over the monitoring period, with the model adequately reproducing both the magnitude and trend of the observed thermal response. Minor discrepancies are considered to be within the expected range of measurement uncertainty and natural spatial variability in ground thermal conditions. The calibration results indicate that the thermal model and key input parameters are reasonable and provide a defensible representation of site thermal behaviour. On this basis, the calibrated model is considered suitable for evaluating the long-term thermal performance of WRSF3 and for supporting subsequent design and performance assessments.

5.3 WRSF3 Thermal Analyses Results and Discussion

The results of the thermal analyses are presented in the following figures:

- Figures 7 and 8 present the predicted isotherms on October 1 for the years 2027 and 2030 during the active placement of waste rock and overburden for WRSF3 raise.
- Figures 9 to 13 present the predicted isotherms on October 1 for the years 2037, 2057, 2077, 2097, and 2127, respectively, following the completion of waste rock and overburden placement in WRSF3 raise.
- Figures 14 to 16 show the predicted temperature profiles (trumpet curves) on October 1 for the years 2027, 2037, 2057, 2077, 2097, and 2127 at locations through the 122 m bench (200 m from the toe of WRSF3), 97 m bench (120 m from the toe of WRSF3), and 77 m bench (70 m from the toe of WRSF3), respectively.
- Figures 17 and 18 present the predicted ground temperatures with time at seven selected locations within the foundation soil at a depth of 1.5 m below the original ground surface during the construction stage and after completion of WRSF3 construction, respectively.

These figures indicate that the ground temperatures within WRSF3 and its foundation vary with time and location. The initially unfrozen waste rock and overburden below the active layer will gradually freeze back within five to ten years (Figures 7 to 10). By 2037 (Figure 10) the temperatures of the waste rock and overburden are predicted to decrease to approximately -1.0°C to -5.0°C in zones at least 5 m below the top waste rock surface. Thereafter, the estimated temperatures gradually increase to respond to the adopted long-term climate change conditions (Figures 11 to 13). By 2127, the temperatures within the waste rock and the overburden in zones below the active layer are predicted to range from approximately -1.0°C to -2.5°C .

As illustrated in Figures 17 and 18, the predicted temperatures within the ice-rich layer range from -5.0°C to -2.7°C at the end of waste placement (in 2031). Similar to the temperatures in the waste rock and overburden, the ground temperatures within the ice-rich soil layer are predicted to gradually increase in respond to the adopted long-term climate change conditions. By 2127, the estimated temperatures within the ice-rich soil layer range from -1.5°C to -2.2°C , depending on the distance from the toe of WRSF3.

The thermal analyses results will be used to estimate the long-term evolution of ground temperatures within the foundation soils, with particular emphasis on the ice-rich layers that govern the long-term shear strength of the foundation materials. The predicted ground temperatures provide the basis for the selection of temperature-dependent shear strength parameters used in the slope stability assessment of the WRSF3 raise.

6.0 LIMITATIONS OF MEMO

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7.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



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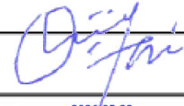
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FIGURES

Figure 1	WRSF3 Footprint with Borehole Locations
Figure 2	Projection of Annual Mean Air Temperatures at Meliadine from 2025 to 2125
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Figure 17	Predicted Temperature Profiles at Mid-Depth of Ice-Rich Layer (from 2022 to 2027)
Figure 18	Predicted Temperature Profiles at Mid-Depth of Ice-Rich Layer (from 2027 to 2127)

\\tt.local\ba\Legacy\Edmonton\Engineering\E 141\Projects_MELIADINE\ENG.EARC03140-43 WRSF3 Raise Design\Figures - Slope Stability Analysis\dwg [FIGURE 1] April 29, 2026 - 11:44:55 am (BY: XIA, HONGWEI)



LEGEND:

- BOREHOLE DRILLED BEFORE 2021
- 2021 BOREHOLE (DIAMOND BOREHOLE)
- 2021 DDH PROBEHOLES
- BOREHOLE WITH ICE-RICH SOILS

0 500m
Scale: 1:10,000 @ 8.5"x11"

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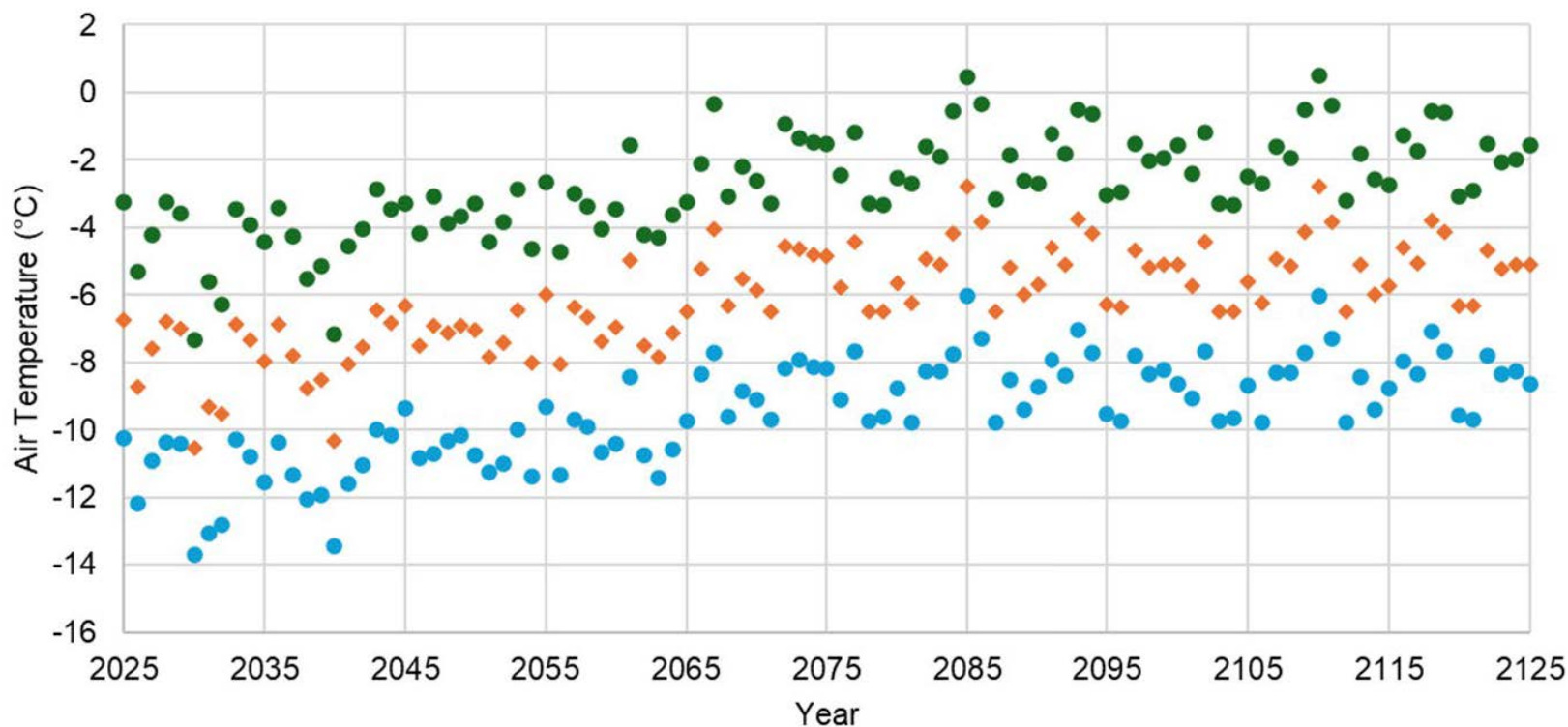


WASTE ROCK STORAGE FACILITY3 (WRSF3)
RAISE DESIGN, MELIADINE GOLD MINE, NU

WRSF3 FOOTPRINT WITH
BOREHOLE LOCATIONS

PROJECT NO.	DWN	CKD	REV
ENG.EARC03140-43	EL/DBD	GZ/HX	A
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EDM	APRIL 29, 2026		

FIGURE 1



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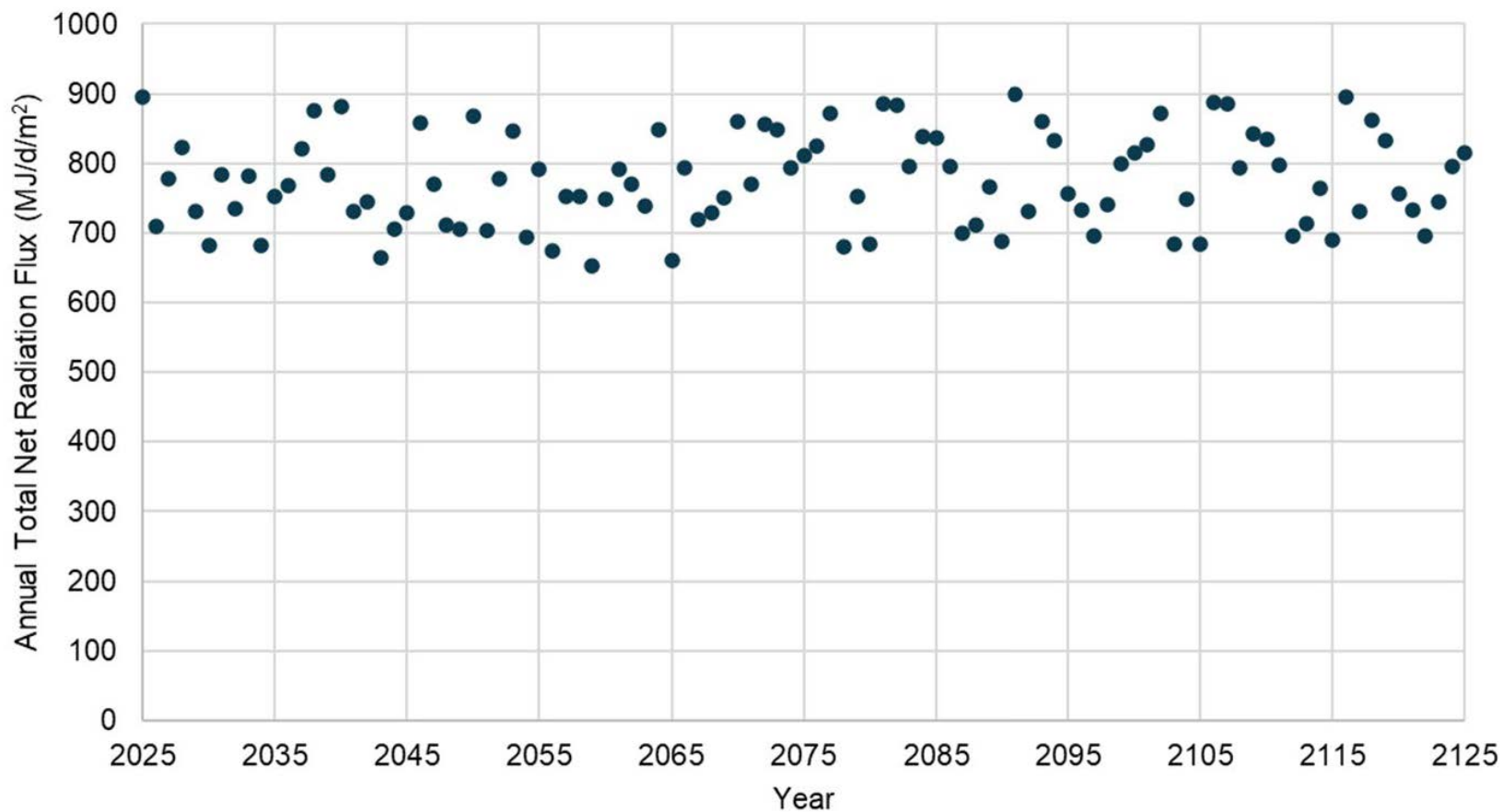


THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU

PROJECTION OF ANNUAL MEAN AIR
TEMPERATURES AT MELIADINE FROM 2025 TO
2125

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 2



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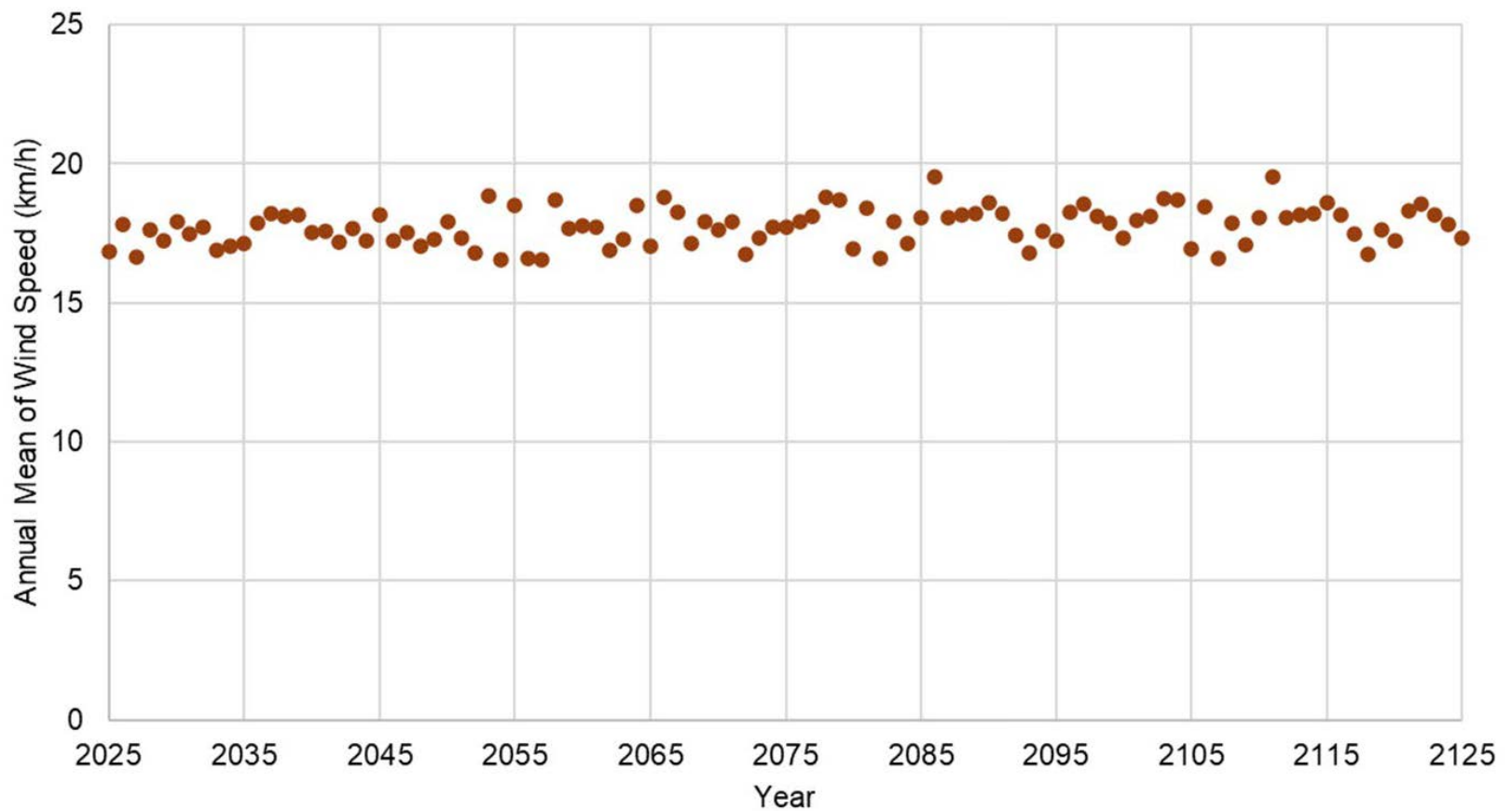


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

**PROJECTION OF ANNUAL TOTAL NET RADIATION
AT MELIADINE FROM 2025 TO 2125**

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 3



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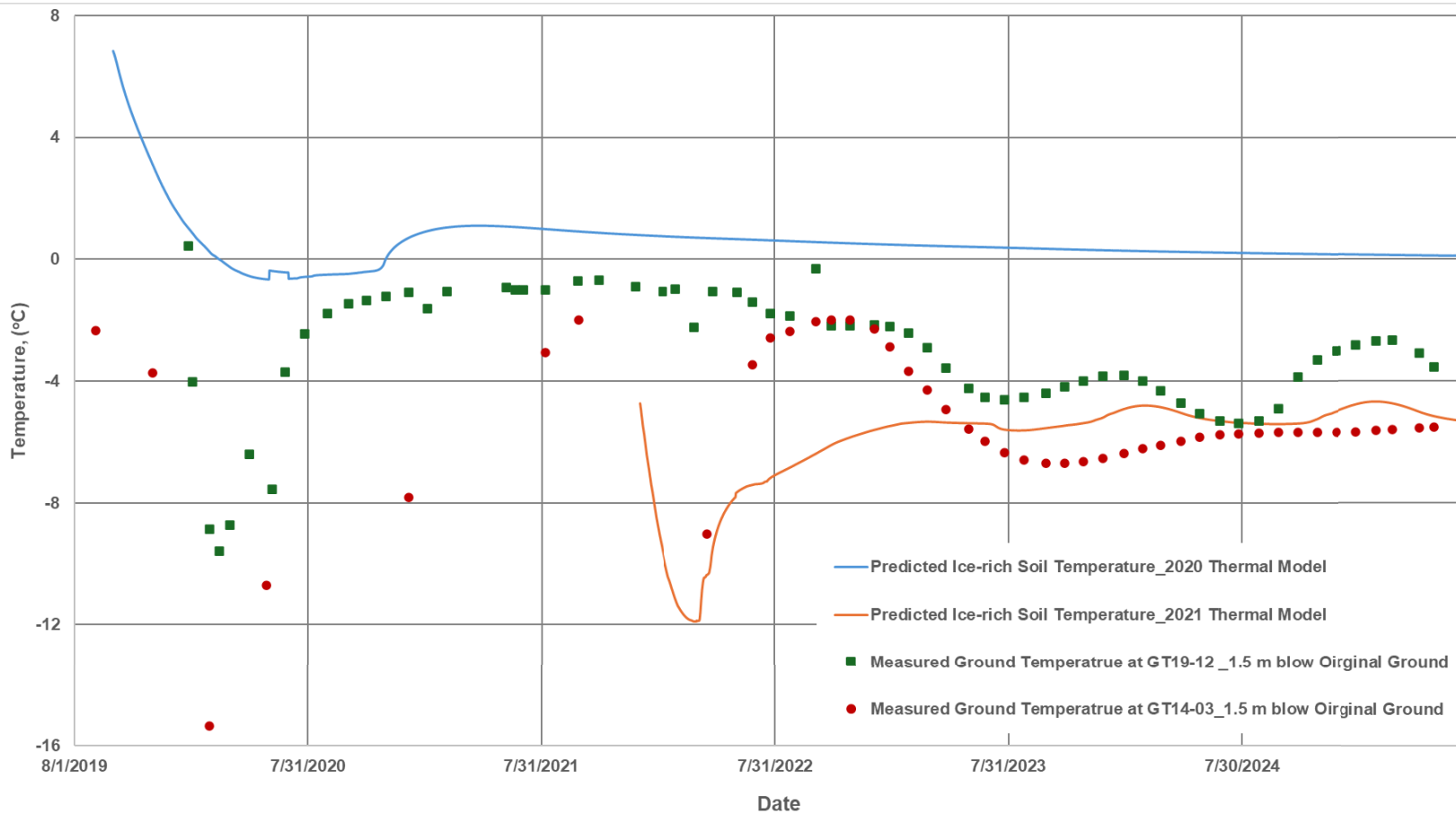


THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU

PROJECTION MEAN WIND SPEED AT MELIADINE
FROM 2025 TO 2125

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 4



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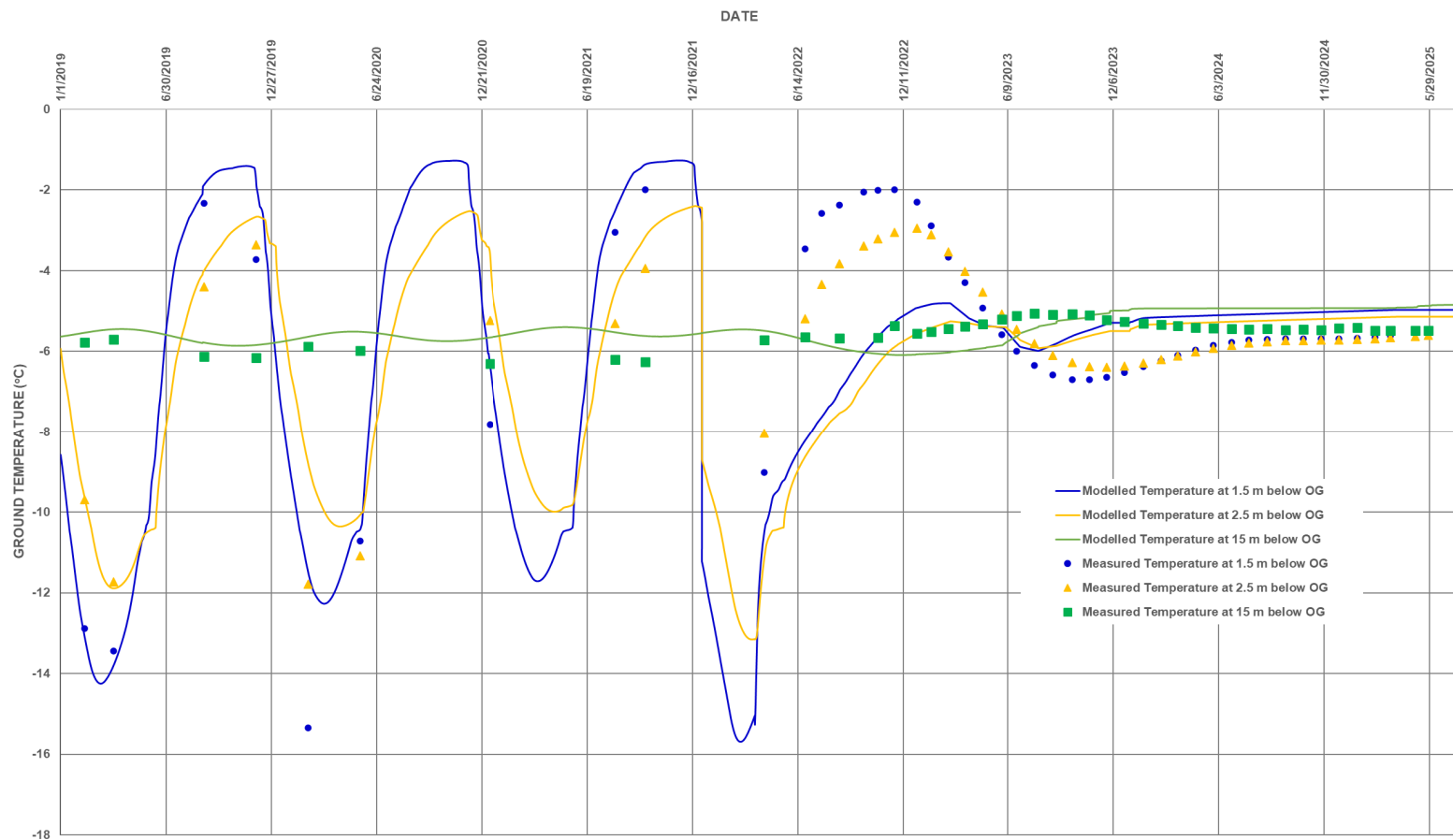
**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

**COMPARISON BETWEEN MEASURED GROUND
TEMPERATURES AND PREDICTED BY THE 2020
AND 2021 THERMAL MODELS**

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 5

STATUS
ISSUED FOR USE



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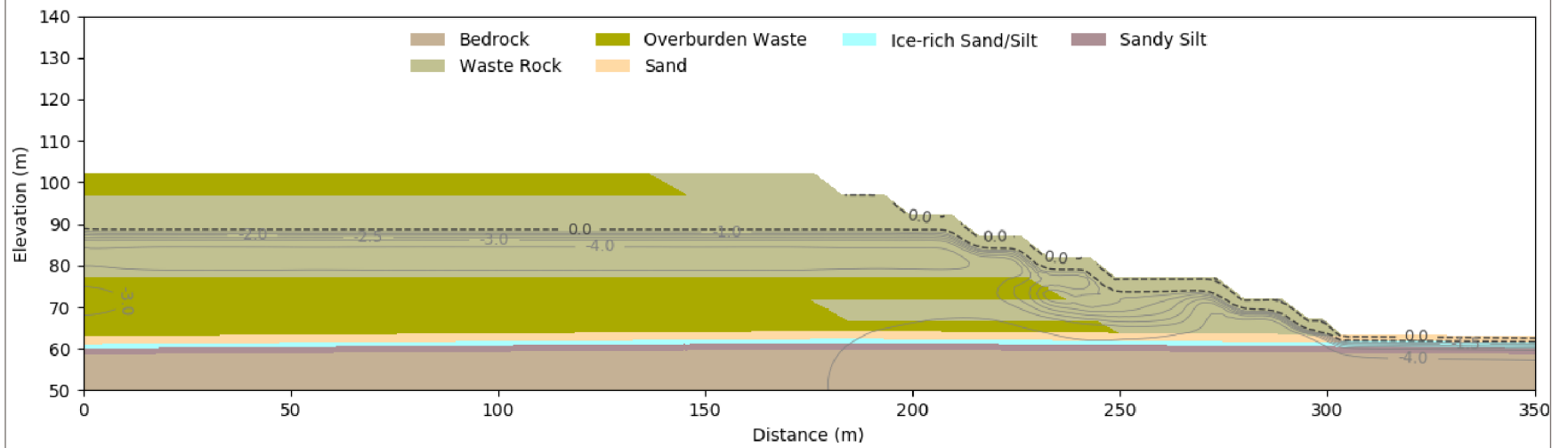
THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU

COMPARISON BETWEEN MEASURED AND
MODELLED GROUND TEMPERATURES AT
SELECTED DEPTHS

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 6

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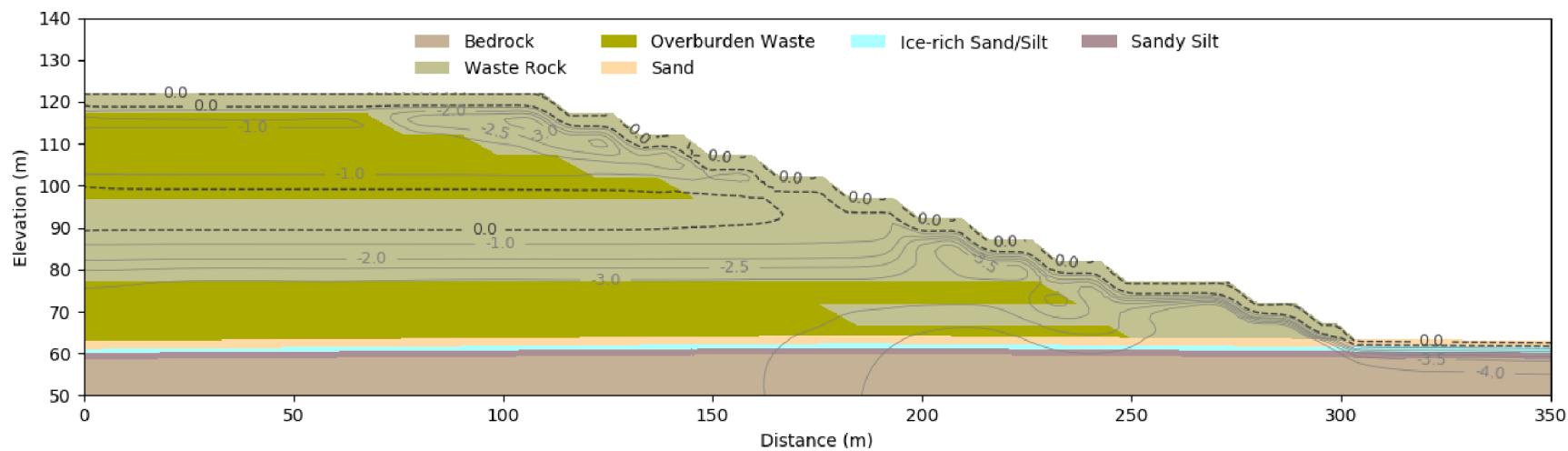


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2027

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 7



LEGEND

NOTES

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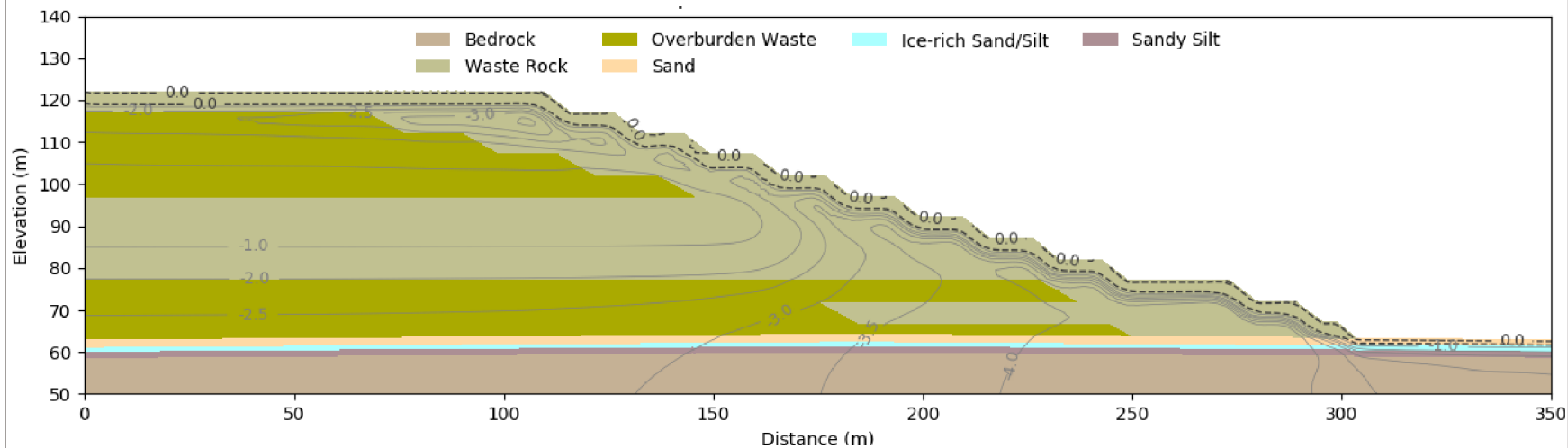


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2030

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 8



LEGEND

NOTES

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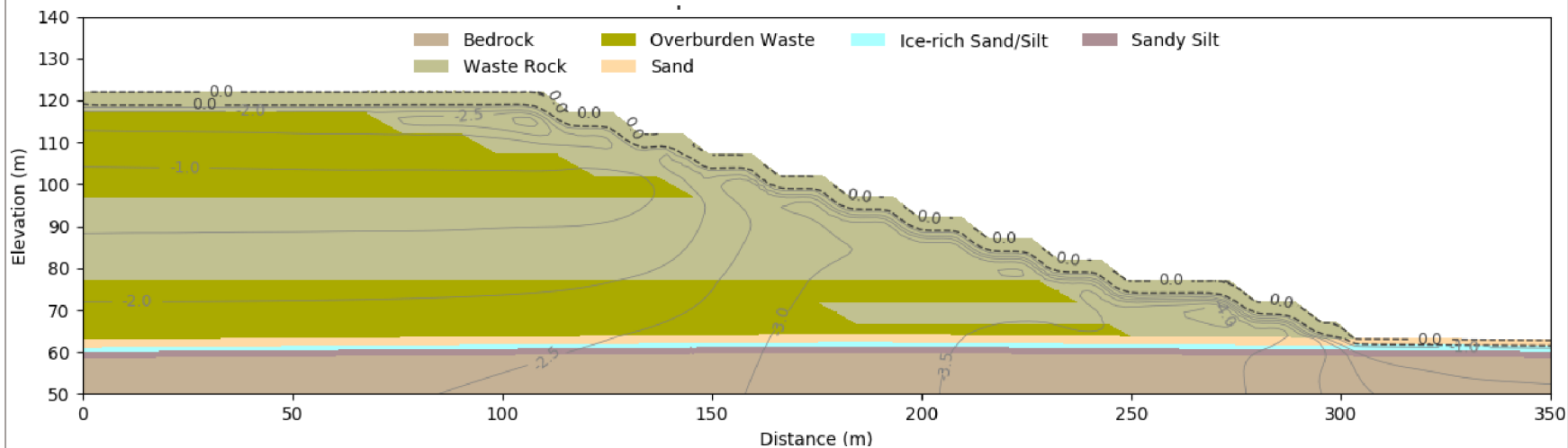


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2037

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 9



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NOTES

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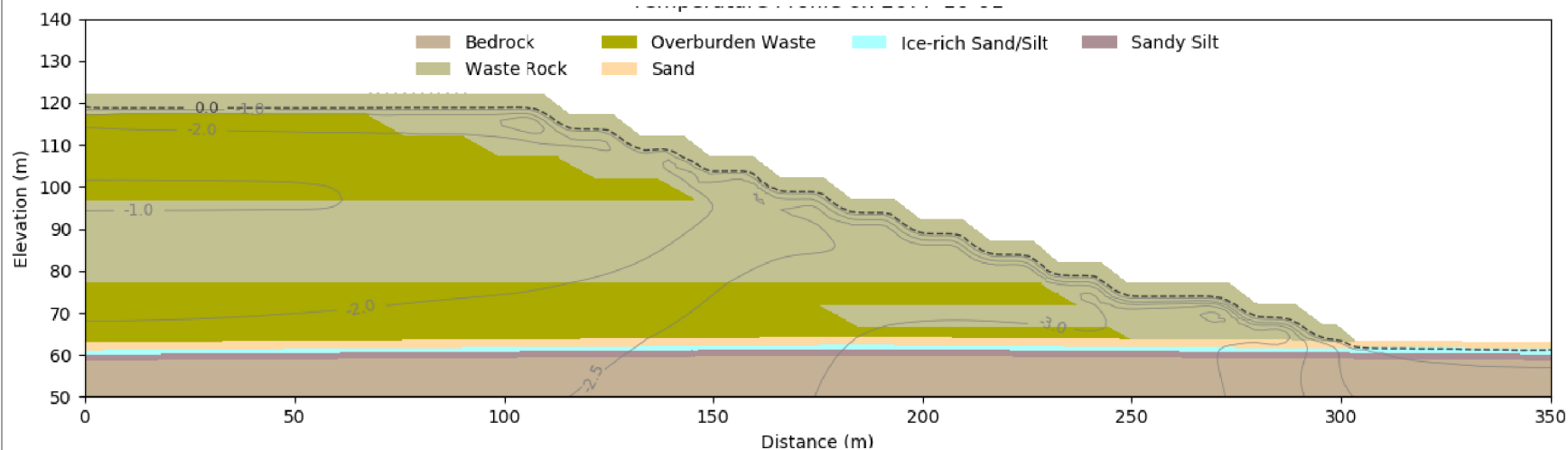


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2057

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 10



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NOTES

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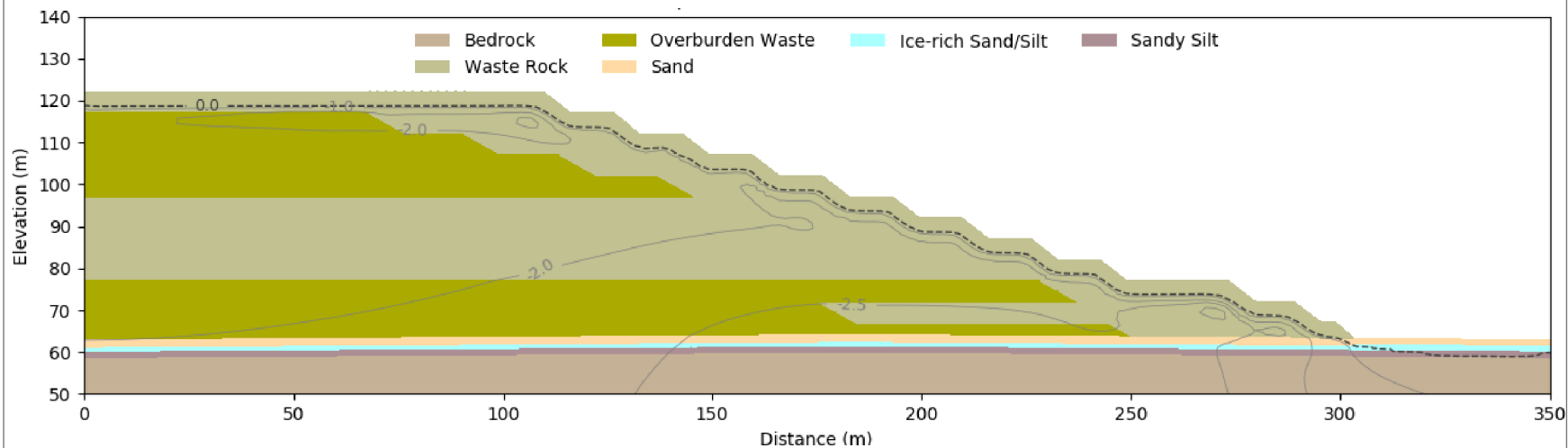


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2077

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 11



LEGEND

NOTES

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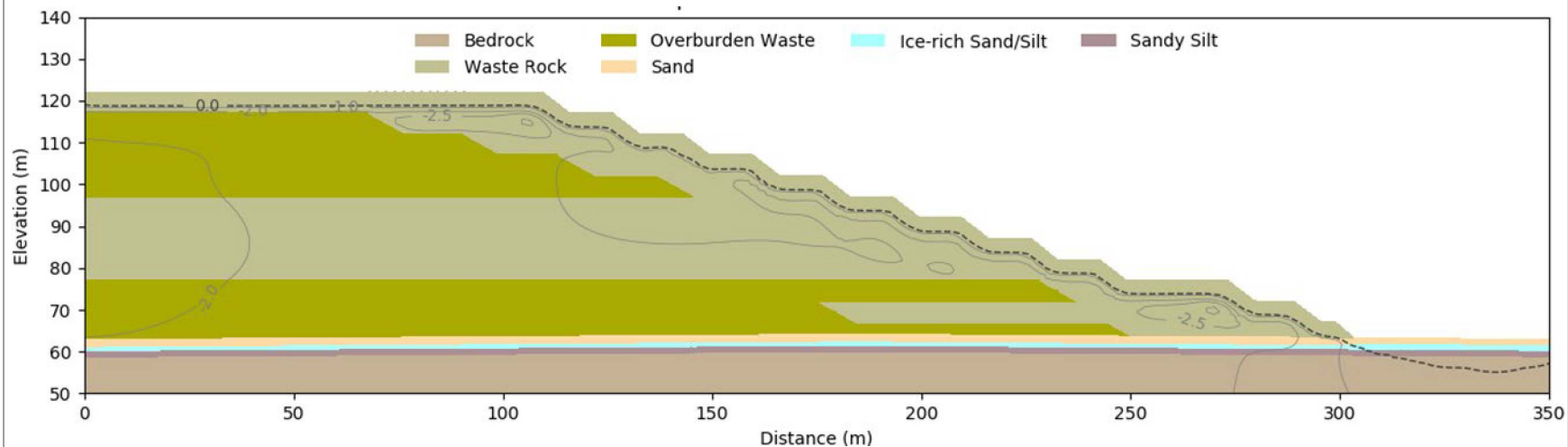


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2097

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 12



LEGEND

NOTES

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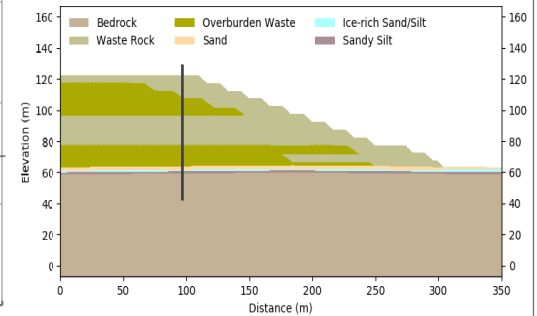
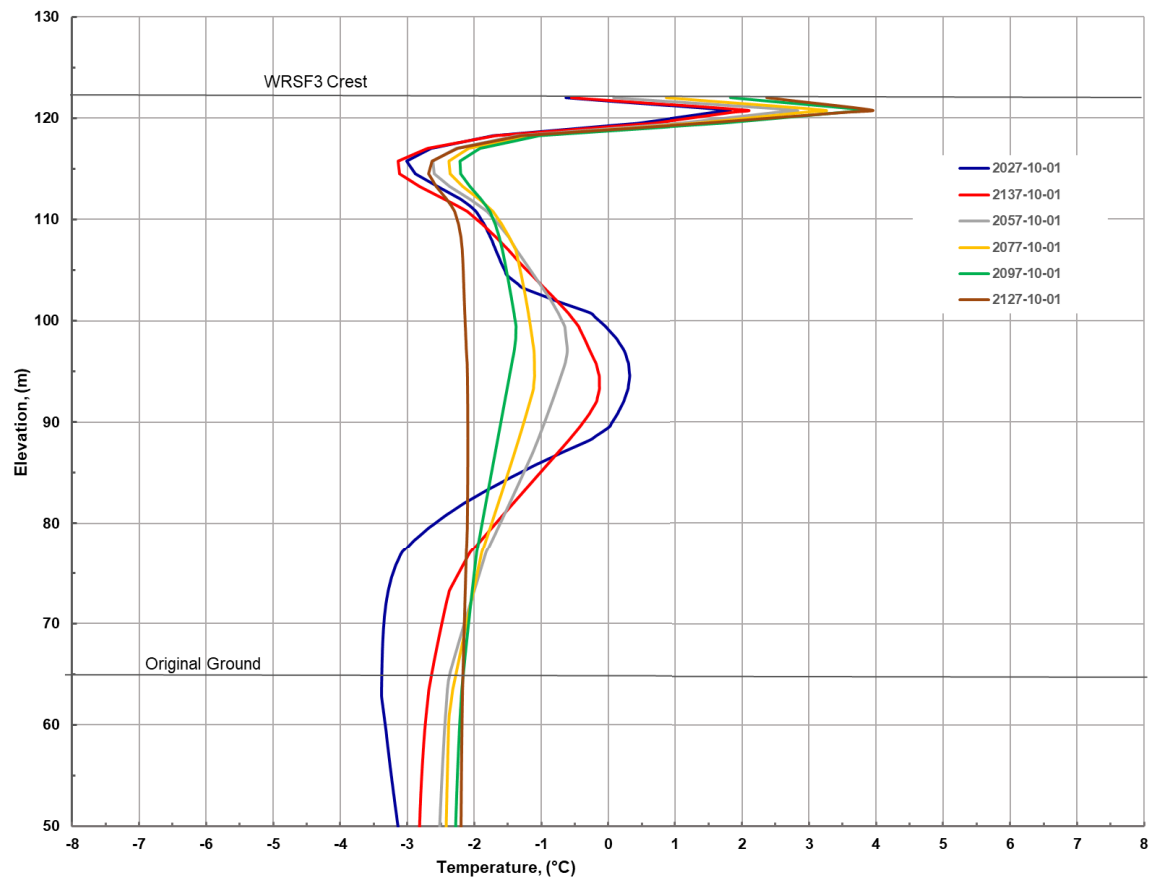


**THERMAL ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD MINE, NU**

PREDICTED ISOTHERMS ON OCTOBER 1, 2127

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 13



LEGEND

NOTES

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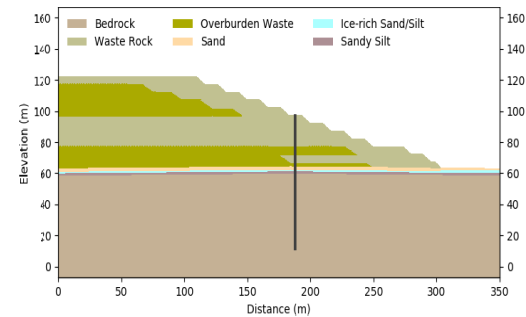
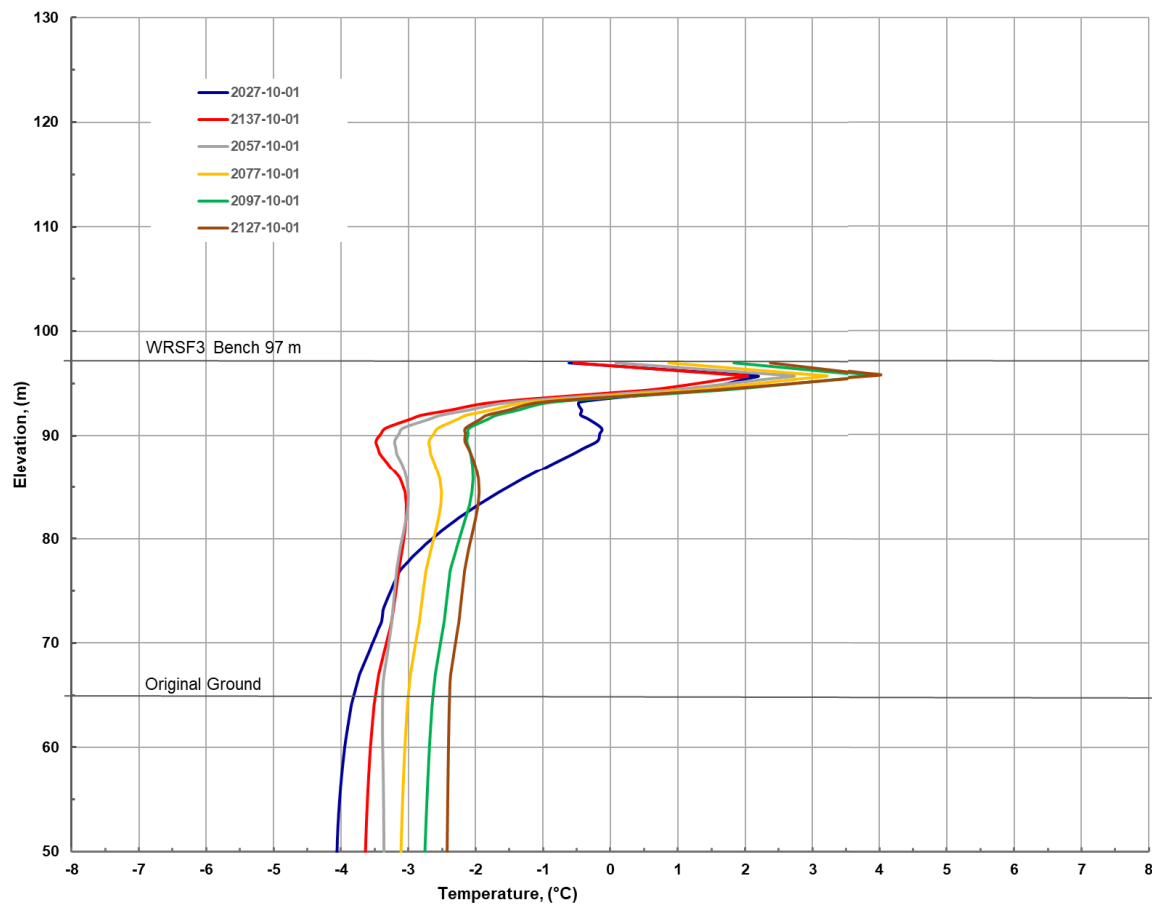


THERMAL ANALYSIS OF WRSF3 RAISE DESIGN MELIADINE GOLD MINE, NU

**PREDICTED TEMPERATURE PROFILES ON
OCTOBER 1 BELOW 122 M BENCH (ABOUT 200 M
FROM THE TOE OF WRSF3)**

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 14



LEGEND

NOTES

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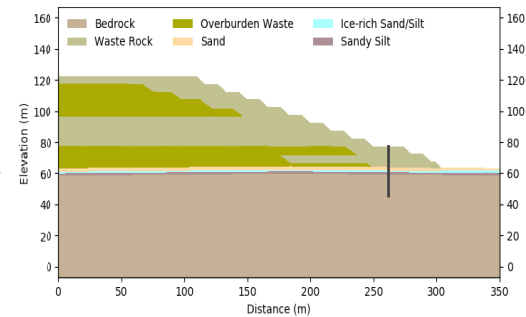
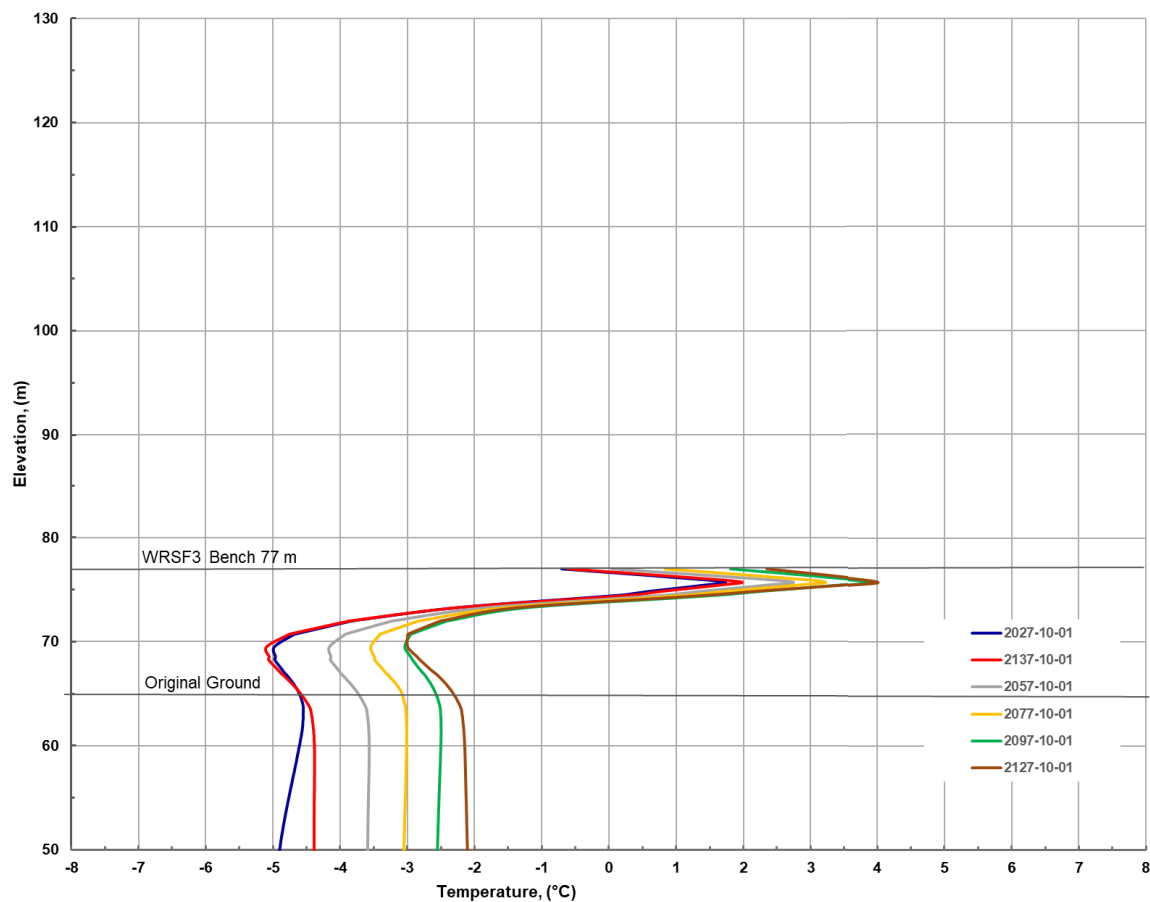


THERMAL ANALYSIS OF WRSF3 RAISE DESIGN MELIADINE GOLD MINE, NU

**PREDICTED TEMPERATURE PROFILES ON
OCTOBER 1 BELOW 97 M BENCH (ABOUT 120 M
FROM THE TOE OF WRSF3)**

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 15



LEGEND

NOTES

STATUS
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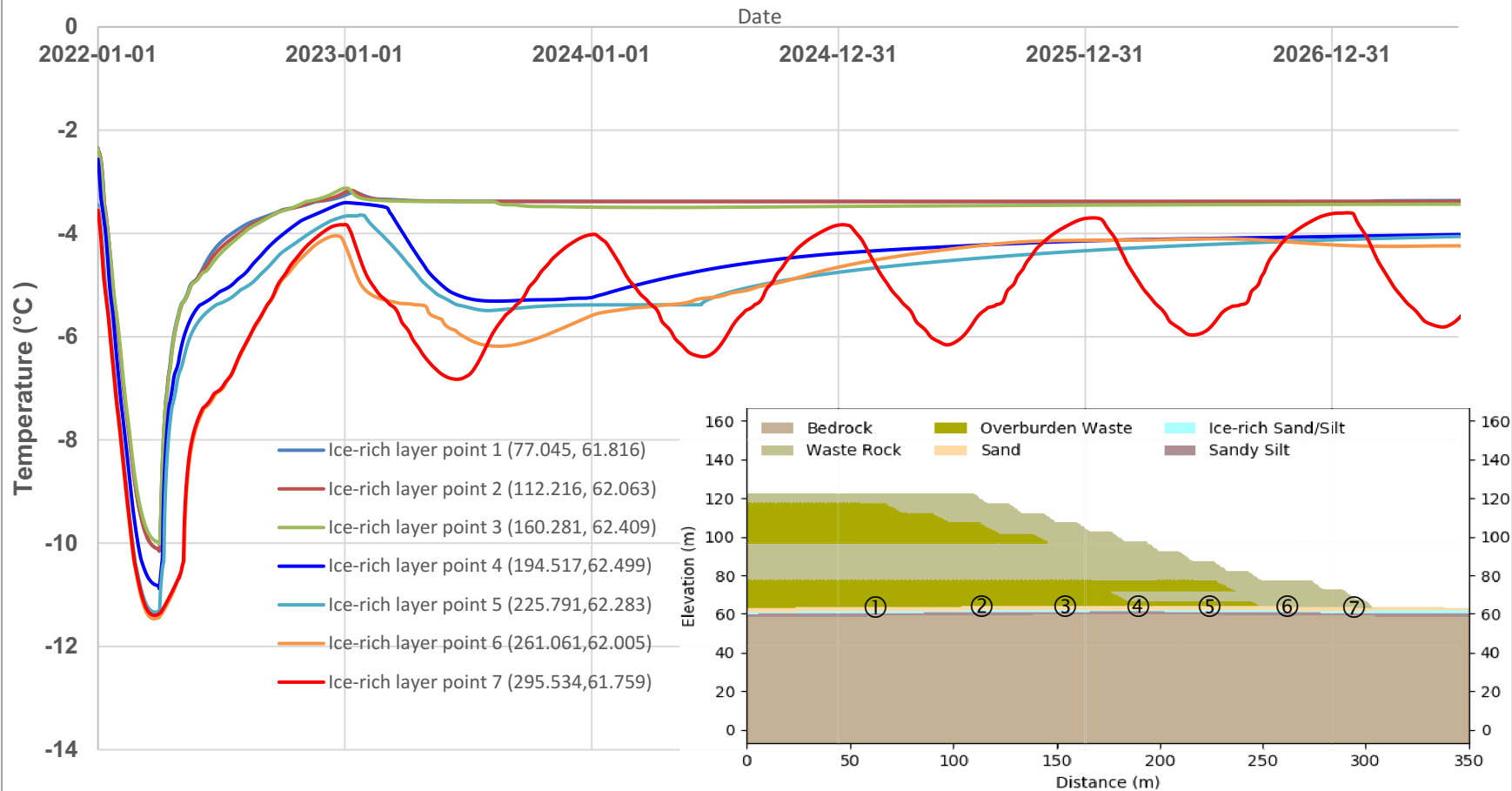


THERMAL ANALYSIS OF WRSF3 RAISE DESIGN MELIADINE GOLD MINE, NU

PREDICTED TEMPERATURE PROFILES ON OCTOBER 1 BELOW 77 M BENCH (ABOUT 70 M FROM THE TOE OF WRSF3)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 16



LEGEND

NOTES

CLIENT



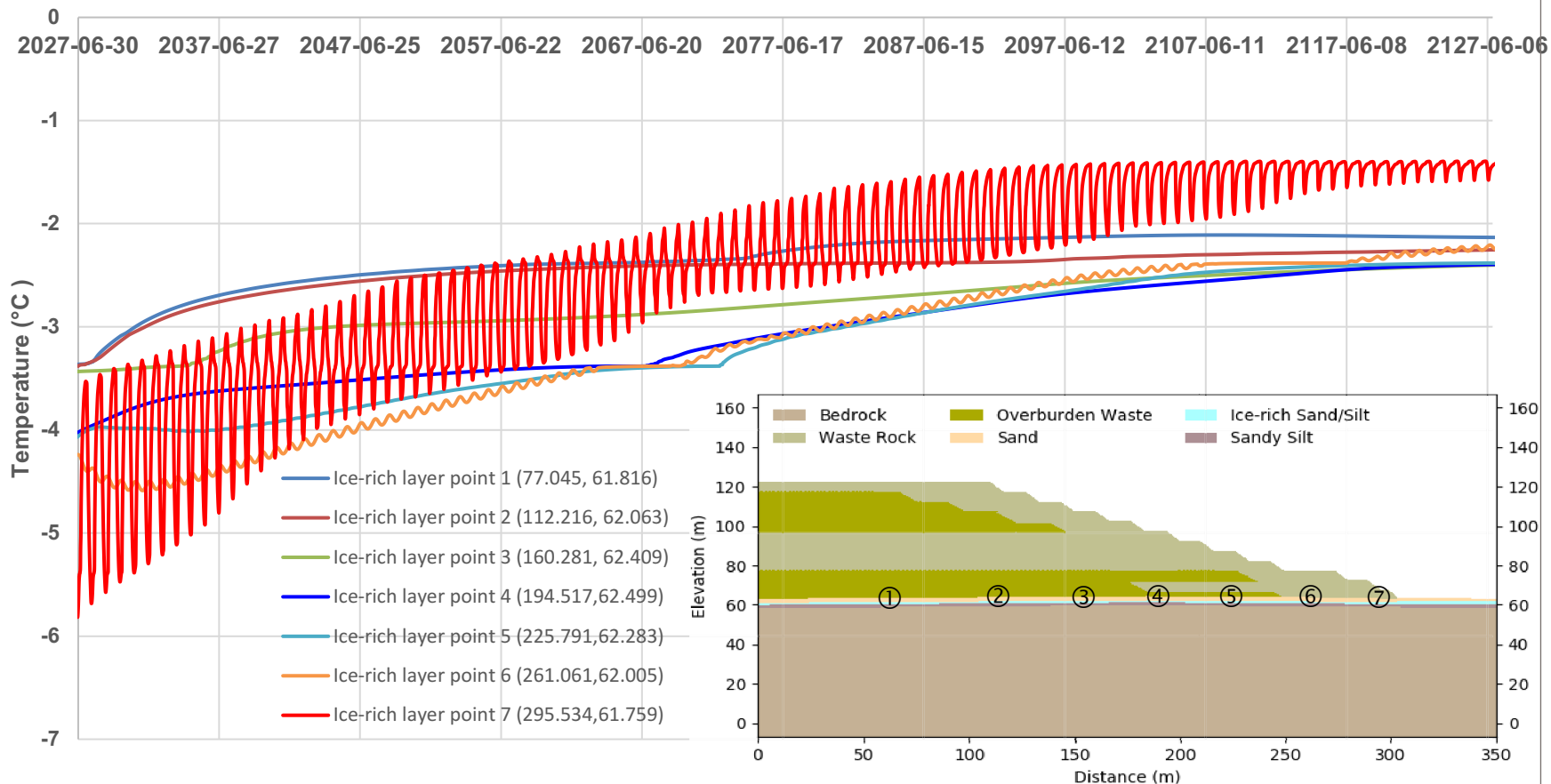
THERMAL ANALYSIS OF WRSF3 RAISE
MELIADINE GOLD MINE, NU

PREDICTED TEMPERATURE PROFILES AT
MID-DEPTH OF ICE-RICH LAYER
(FROM 2022 TO 2027)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 17

STATUS
ISSUED FOR USE



LEGEND

NOTES

CLIENT

**THERMAL ANALYSIS OF WRSF3 RAISE
MELIADINE GOLD MINE, NU**

**PREDICTED TEMPERATURE PROFILES AT
MID-DEPTH OF ICE-RICH LAYER
(FROM 2027 TO 2127)**

STATUS
ISSUED FOR USE



PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	ZZ	HX	HX	
OFFICE	DATE			
EDM	MAY 2026			

Figure 18

APPENDIX A

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or 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. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, 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.

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Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.

1.12 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.

1.13 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.

1.14 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.

1.15 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.

1.16 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.

1.17 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.

APPENDIX D

SLOPE STABILITY ASSESSMENT MEMO

To:	Justin Bieber, Agnico Eagle Marielle Limoges, Agnico Eagle	Date:	May 22, 2026
c:	Jawad Haloui, Agnico Eagle	Memo No.:	003
From:	Fai, Ndofor, P.Geo., Tetra Tech Hongwei Xia, P.Eng., Tetra Tech	File:	ENG.EARC03140-43
Subject:	Slope Stability Assessment for the Waste Rock Storage Facility 3 (WRSF3) Raise Design, Meliadine Gold Mine, Nunavut Agnico Eagle Document Number: 65-686-230-MEM-003		

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to undertake a detailed engineering design update for the Waste Rock Storage Facility 3 (WRSF3) at the Meliadine Gold Mine (Meliadine Mine), Nunavut. The WRSF3 design update aims to increase storage capacity by raising the currently approved WRSF3, which was approved by the Nunavut Water Board in 2022 under the Type A Water Licence (2AM-MEL1631).

In support of the design update, slope stability analyses were performed to assess the short- and long-term physical stability of the WRSF3 against slope instability under various loading conditions.

This technical memorandum summarizes the methodology, design criteria, input parameters, assumptions, and results of the slope stability analyses. Additional details on the overall methodology, input parameters, and design assumptions are documented in the Design Basis Memorandum (DBM) (Tetra Tech 2026a). This technical memorandum provides supplemental information specific to the slope stability analyses and should be read in conjunction with the DBM. It will be included as an appendix to the WRSF3 raise design report.

2.0 SLOPE STABILITY ANALYSES

2.1 Overall Methodology

Limit equilibrium analyses were conducted to determine the factor of safety (FoS) against slope failure during construction and in the long term after construction of the WRSF3 raise. All analyses were conducted using the two-dimensional, limit equilibrium software, Slope/W in GeoStudio (Seequent 2024). The Morgenstern-Price method with a half-sine interslice force assumption was adopted in the analyses. Potential post-construction seismic loading was modelled as pseudo-static with a design horizontal peak ground acceleration (PGA).

2.2 Stability Acceptance Criteria for Factors of Safety

The slope stability acceptance criteria for the WRSF3 raise design were developed in accordance with both the design guideline published by Hawley and Cuning (2017) – Guidelines for Mine Waste Dump and Stockpile Design.

Table 1 lists the selected slope stability criteria for the WRSF3 raise design. More details on the rationales for the criteria selection are documented in Section 4.0 of the DBM (Tetra Tech 2026a).

Table 1: Slope Stability Criteria for the WRSF3 Raise Design

Potential Failure Mode and Conditions	Loading Condition	Adopted FoS	Source Document
Surficial, shallow slips (during construction)	Static	1.3	Hawley and Cuning (2017)
Local deep-seated slips (during construction)	Static	1.5	
Long-term, global deep-seated slips for base cases (after construction)	Static	1.5	
Long-term, global deep-seated slips for base cases (after construction)	Pseudo-Static	1.1	
Long-term, global deep-seated slips for sensitivity cases with conservative assumptions (after construction)	Static	1.3	

The selected FoS presented in Table 1 for the WRSF3 raise design meets or exceeds the FoS recommended in Hawley and Cuning (2017).

3.0 STABILITY ANALYSIS INPUT DATA AND CASES

3.1 Cross Sections

Four representative cross-section locations, as shown in Figure 1, were selected for slope stability assessment. The selection considered subsurface conditions and the risk of slope failure. Rationales for selecting the cross-section locations are documented in Section 4.0 of the DBM (Tetra Tech 2026a).

3.2 Soil Profile

The generalized foundation soil profiles for each section, interpreted from nearby borehole logs, are summarized in Table 2. Details on the subsurface conditions for each section are provided in Section 2.6 of the DBM. Organic material is localized within the WRSF3 footprint, and some is expected to be removed during the snow-removal process prior to waste rock and overburden placement or to be compressed once the mine waste is placed. Therefore, the local presence of a compressed organic layer was not specifically considered and was represented by the equivalent underlying overburden soils.

The available borehole logs indicate that the thickness of localized ice-rich soil zones varies by location, generally ranging from 0.1 m to 0.9 m, with an average thickness of approximately 0.4 m. The thickness of the ice-rich soil layer adopted for the slope stability analyses was assumed to be 0.5 m.

Figures 2 to 5 present the typical cross-section geometry configurations and the adopted soil profiles at each section for the slope stability analyses.

Table 2: Foundation Soil Profile for Each Section

Section	Soil Type	Depth (m)	Boreholes Nearby
Section A	SAND	0-1.5	GT14-02 and GT19-12
	Ice-poor SILT	1.5-4.0	
	Bedrock	-	
Section B	SAND and GRAVEL	0-1.0	GT16-01, BH16-02, GT21-64, GT21-65, and GT21-66
	Ice-poor SAND	1.0-2.0	
	Ice-poor SILT and SAND with localized ice-rich SILT	2.0-2.5	
	Ice-poor GRAVEL AND SAND	2.5-5.0	
	Bedrock	-	
Section C	SAND and GRAVEL	0-1.0	GT19-10, GT19-11, BH16-01, and BH16-02
	Ice-poor SAND	1.0-1.5	
	Ice-poor SILT and SAND with localized ice-rich SILT	1.5-2.0	
	Ice-poor GRAVEL and SAND	2.0-3.0	
	Bedrock	-	
Section D	SAND	0-1.5	GT19-08 and GT19-11
	Ice-poor SAND with localized ICE and SAND	1.5-2.0	
	Ice-poor SAND	2.0-4.0	
	Bedrock	-	

3.3 Material Properties

Table 3 summarizes the material properties used in the stability analyses. The properties of all materials, except the ice-rich SILT, were estimated using available test results at the Meliadine Mine, a literature review, experience with similar materials, and engineering judgment. The long-term shear strength of the frozen ice-rich SILT across different temperature zones was estimated using predicted temperatures from the thermal analyses, the relationships presented by Weaver and Morgenstern (1981), and adjustments to account for porewater salinity conditions at the Meliadine Mine. Additional details on the selection of the material properties are documented in Section 5.3.4 of the DBM (Tetra Tech 2026a).

Table 3: Material Properties used in the Slope Stability Analyses

Material		Effective Angle of Internal Friction, ϕ , (°)	Cohesion, c , (kPa)	Bulk Density (kg/m ³)
Waste Rock		42 or non-linear relationship derived by Douglas (2002)	0	2,040
Overburden		28	0	1,960
GRAVEL (Ice-poor or Thawed)		35	0	2,000
SAND and GRAVEL		34	0	2,000
SAND (Ice-poor or Thawed)		32	0	1,800
SAND and SILT (Ice-poor or Thawed)		31	0	1,800
Thawed SILT		28	0	1,700
Ice-rich SILT or ICE and SAND ⁽¹⁾	-0.5°C to -1°C	0	60	1,600
	-1°C to -1.5°C	0	100	1,600
	-1.5°C to -2°C	0	120	1,600
Thawing ice-rich SILT		28	0	1,600
Thawed ice-rich SILT		28	0	1,700
Ice-poor SILT		28	0	1,700

Notes:

⁽¹⁾ Based on a porewater salinity of 7 ppt, temperatures warmer than -0.5°C are considered unfrozen due to the freezing point depression.

3.4 Other Input Parameters

3.4.1 Excess Pore Water Pressure

Excess pore water pressure generated by waste placement above the original ground is not expected when the foundation soils are frozen. Excess pore water pressure may be generated when foundation soils thaw due to waste placement in the summer or long-term climate change, if thawing occurs faster than the excess pore water pressure is produced. To consider the potential generation of excess pore water pressure, a pore pressure coefficient ($\bar{B}$) or pore-pressure ratio (R_u) was used together with an assumed piezometric line.

Morgenstern and Nixon studied the consolidation of thawing soils and concluded that the excess pore-water pressures and the degree of consolidation in thawing soils depend primarily on the thawing consolidation ratio (R) (Morgenstern and Nixon 1971). Closed-form solutions were developed to calculate the normalized pore-pressure distribution in the thawing layer for different thawing consolidation ratios. The thaw consolidation ratio, R , can be calculated using the following equation:

$$R = \frac{\alpha}{2\sqrt{C_v}}$$

where:

α denotes a constant, which can be determined through thermal analysis or measured ground temperature data; and C_v denotes the coefficient of consolidation of the thawing soil.

A R_u value of 0.15 was estimated using the ice-rich soil thawing rate predicted from the coupled thermal and seepage analyses conducted for the TSF design update (Tetra Tech 2026b) and average coefficient of consolidation (C_v) of 0.0117 cm²/s, determined from consolidation tests on a remolded sample collected during the 2024 drilling program (Tetra Tech 2024).

The thawing rate estimated for the TSF design update is expected to be of similar magnitude for WRSF3. Therefore, for the design of the WRSF3 raise, a sensitivity analysis with a R_u of 0.15 was conducted to assess the scenario in which excess pore water pressure is generated during the thawing of the ice-rich soils and does not fully dissipate over a reasonable time period.

For long-term static and seismic loading conditions, it is assumed that no excess pore water pressure is present.

3.4.2 Seismic Loading

Pseudo-static analysis was used to simulate seismic loading. This method typically applies a horizontal acceleration coefficient to represent the seismic loading induced by an earthquake.

The estimated PGA is 0.0285 g for a 5% in 50-year probability of exceedance (0.001 per annum or 1 in 1,000 year return) and 0.0498 g for a 2% in 50-year probability of exceedance (0.000404 per annum or 1 in 2,475 year return) at the Meliadine Mine site. A horizontal PGA of 0.0498 g was used in the pseudo-static analysis.

3.5 Cases Evaluated

Slope stability along the four selected representative cross-sections was assessed under the following loading conditions:

- Slope stability under static loading during construction;
- Slope stability under long-term static loading conditions after construction;
- Slope stability under seismic (pseudo-static) loading after construction; and
- Sensitivity cases under long-term static loading conditions at the selected critical cross-sections.

The sensitivity analyses were conducted at the critical cross-sections (Sections B and D) and include the following scenarios:

- Elevated water table in WRSF3, assuming that the water table is located on top of Bench 87 m.
- Continuous ice-rich SILT or ICE and SAND layer present.
- Excess pore-water pressure generation due to thawing of the ice-rich SILT, with a R_u of 0.15.
- Fully thawed ice-rich SILT layer in long term.

The potential consequences of slope instability vary with the depth and extent of failure. Accordingly, the following three types of slope slip failure were considered:

- **Surficial, shallow slip failure:** A shallow failure involving the side slopes of WRSF3 with a failure depth not exceeding 5 m.
- **Local deep-seated slip failure:** A slip failure occurring within the side slopes of WRSF3 without extending into the foundation soils, with a failure depth of up to 15 m.

- **Global deep-seated slip failure:** A large-scale slip failure that extends through the mine waste and potentially into the foundation soils, with a failure depth typically exceeding 15 m. The runout associated with the failure may impact adjacent mining infrastructure, water management systems, or the surrounding watershed.

4.0 STABILITY ANALYSES RESULTS AND DISCUSSION

The calculated FoS for the stability analyses of the WRSF3 design update are summarized in Table 4, along with the required minimum FoS. Figures A1 to D8 in Appendix A present the selected slope stability analysis cases and results.

The results in Table 4 indicate that the calculated FoS for all assessed loading conditions meets or exceeds the adopted stability criteria as outlined in Section 2.2.

Table 4: Summary of Slope Stability Analyses Results

Section	Condition		Required Minimum Factor of Safety	Calculated Minimum Factor of Safety	Figure No.
A	During construction	Shallow slip	1.3	3.1	A1
		Local deep-seated slip	1.5	2.4	A2
	Long-term after construction	Static loading	1.5	2.3	A3
		Pseudo-static loading	1.1	1.9	A4
B	During construction	Shallow slip	1.3	3.2	B1
		Local deep-seated slip	1.5	2.6	B2
	Long-term after construction	Static loading	1.5	1.5	B3
		Pseudo-static loading	1.1	1.2	B4
	Long-term after construction, sensitivity case	Static loading with water table at Bench 82 m	1.3	1.4	B5
		Continuous ice-rich SILT layer in the foundation	1.3	1.4	B6
		Excess pore water pressure due to thawing ice-rich SILT ($R_u=0.15$)	1.3	1.4	B7
		Fully thawed ice-rich SILT layer in long term	1.3	2.1	B8
C	During construction	Shallow slip	1.3	2.5	C1
		Local deep-seated slip	1.5	2.1	C2
	Long-term after construction	Static loading	1.5	2.1	C3
		Pseudo-static loading	1.1	1.7	C4
D	During construction	Shallow slip	1.3	3.1	D1
		Local deep-seated slip	1.5	2.7	D2
	Long-term after construction	Static loading	1.5	2.6	D3
		Pseudo-static loading	1.1	2.2	D4
	Long-term after construction, sensitivity case	Static loading with water table at Bench 82 m	1.3	2.1	D5
		Continuous ice-rich SILT layer in the foundation	1.3	1.5	D6
		Excess pore water pressure due to thawing ice-rich SILT ($R_u=0.15$)	1.3	2.3	D7
		Fully thawed ice-rich SILT layer in long term	1.3	2.5	D8

5.0 LIMITATIONS OF MEMO

This memo and its contents are intended for the sole use of Agnico Eagle Mines Limited 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 Agnico Eagle Mines Limited, 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 document is subject to the Limitations on Use of this Document attached in Appendix B or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



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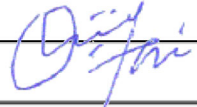
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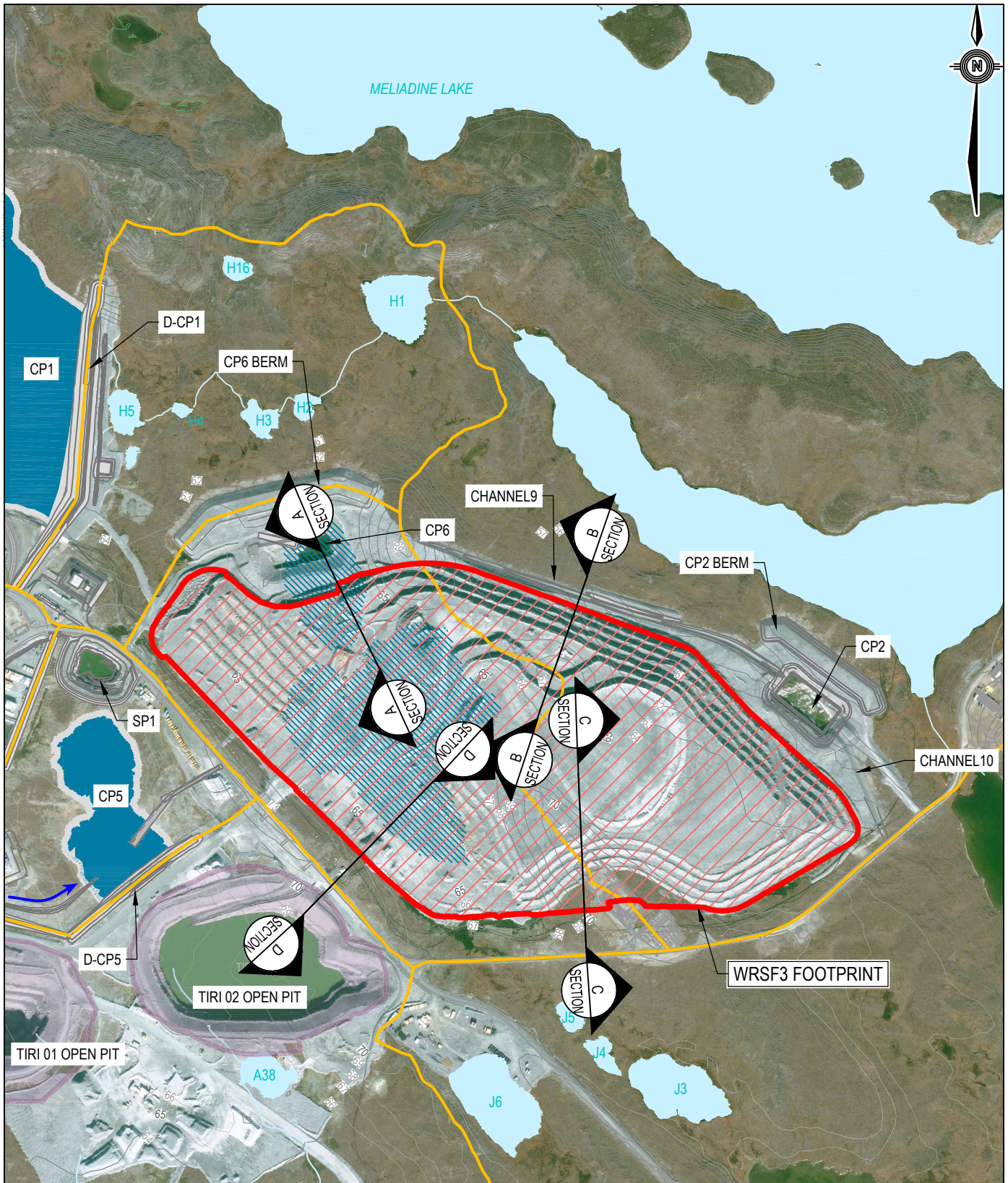
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FIGURES

Figure 1	Location of Sections for Slope Stability Analyses
Figure 2	Section A – WRSF3 Raise Slope Stability Analysis
Figure 3	Section B – WRSF3 Raise Slope Stability Analysis
Figure 4	Section C – WRSF3 Raise Slope Stability Analysis
Figure 5	Section D – WRSF3 Raise Slope Stability Analysis

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NOTE:

SATELLITE IMAGE PROVIDED BY AGNICO EAGLE
TAKEN ON SEPTEMBER 22, 2025

0 500m
Scale: 1:10,000 @ 8.5"x11"

CLIENT



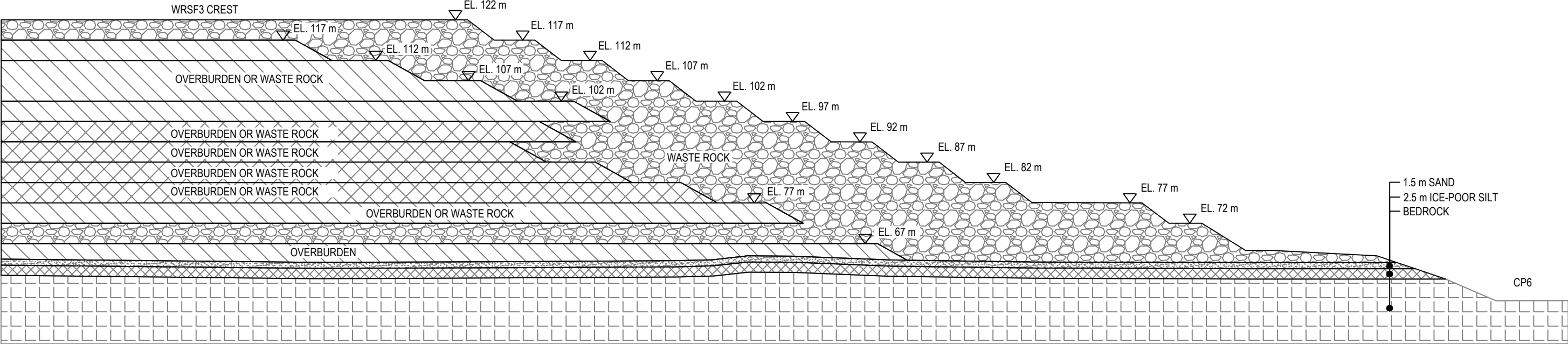
**WASTE ROCK STORAGE FACILITY 3 (WRSF3)
RAISE DESIGN, MELIADINE GOLD MINE, NU**

**LOCATION OF SECTIONS FOR
SLOPE STABILITY ANALYSES**

PROJECT NO.	DWN	CKD	REV
ENG.EARC03140-43	EL/DBD	GZ/HX	A
OFFICE	DATE		
EDM	APRIL 29, 2026		

FIGURE 1

Q:\Edmonton\Engineering\E141\Projects\MELIADINE\ENG.EARC03140-43\WRSF3 Raise Design\Figures - Slope Stability\ENG.EARC03140-43_Figures 3-6 - Stability Analysis.dwg [FIGURE 2] May 21, 2026 - 10:22:56 am (BY: XIA, HONGWEI)



A SECTION
Fig 2 SCALE: N.T.S.

- LEGEND:
- WASTE ROCK
 - OVERBURDEN
 - SAND
 - ICE-POOR SILT
 - BEDROCK

CLIENT



AGNICO EAGLE



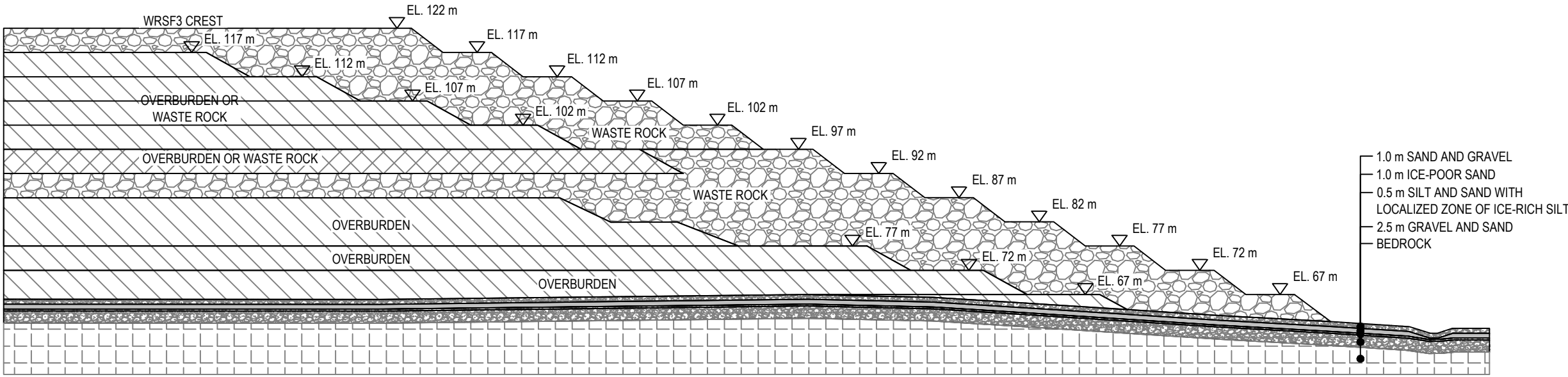
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STABILITY ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD PROJECT, NU

SECTION A - WRSF3
RAISE SLOPE STABILITY ANALYSIS

PROJECT NO. ENG.EARC03140-43	DWN MT/DBD	CKD HX	REV 0	FIGURE 2
OFFICE EDM	DATE MAY 21, 2026			

Q:\Edmonton\Engineering\141\Projects - MELIADINE\ENG.EARC03140-43 WRSF3 Raise Design\Figures - Slope Stability\ENG.EARC03140-43_Figures 3-6 - Stability Analysis.dwg [FIGURE 3] May 21, 2026 - 10:33:51 am (BY: XIA, HONGWEI)



B SECTION
Fig 2 SCALE: N.T.S.

- LEGEND:
- WASTE ROCK
 - OVERBURDEN
 - ICE-POOR SAND
 - SILT AND SAND
 - BEDROCK
 - SAND AND GRAVEL

CLIENT



STABILITY ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD PROJECT, NU

SECTION B - WRSF3
RAISE SLOPE STABILITY ANALYSIS

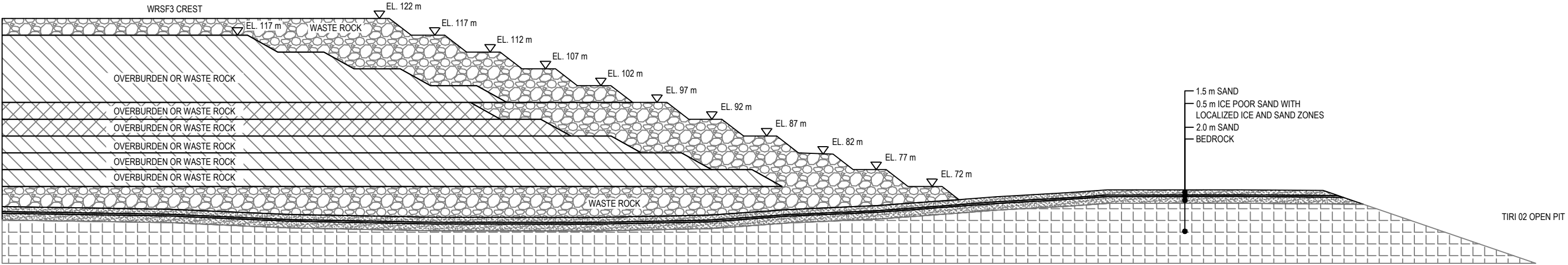
PROJECT NO. ENG.EARC03140-43	DWN MT/DBD	CKD HX	REV 0
OFFICE EDM	DATE MAY 21, 2026		

FIGURE 3

LEGEND:

	- WASTE ROCK		- SAND AND GRAVEL
	- OVERBURDEN		
	- ICE-POOR SAND		
	- SILT AND SAND		
	- BEDROCK		

Q:\Edmonton\Engineering\141\Projects\ MELIADINE\ENG.EARC03140-43 WRSF3 Raise Design\Figures - Slope Stability\ENG.EARC03140-43_Figures 3-6 - Stability Analysis.dwg [FIGURE 5] May 21, 2026 - 10:48:35 am (BY: XIA, HONGWEI)



D SECTION
Fig 2 SCALE: N.T.S.

- LEGEND:
- WASTE ROCK
 - OVERBURDEN
 - SAND
 - ICE-POOR SAND
 - BEDROCK

CLIENT



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STABILITY ANALYSIS OF WRSF3 RAISE DESIGN
MELIADINE GOLD PROJECT, NU

SECTION D - WRSF3
RAISE SLOPE STABILITY ANALYSIS

PROJECT NO.
ENG.EARC03140-43

DWN
MT/DBD

CKD
HX

REV
0

OFFICE

EDM

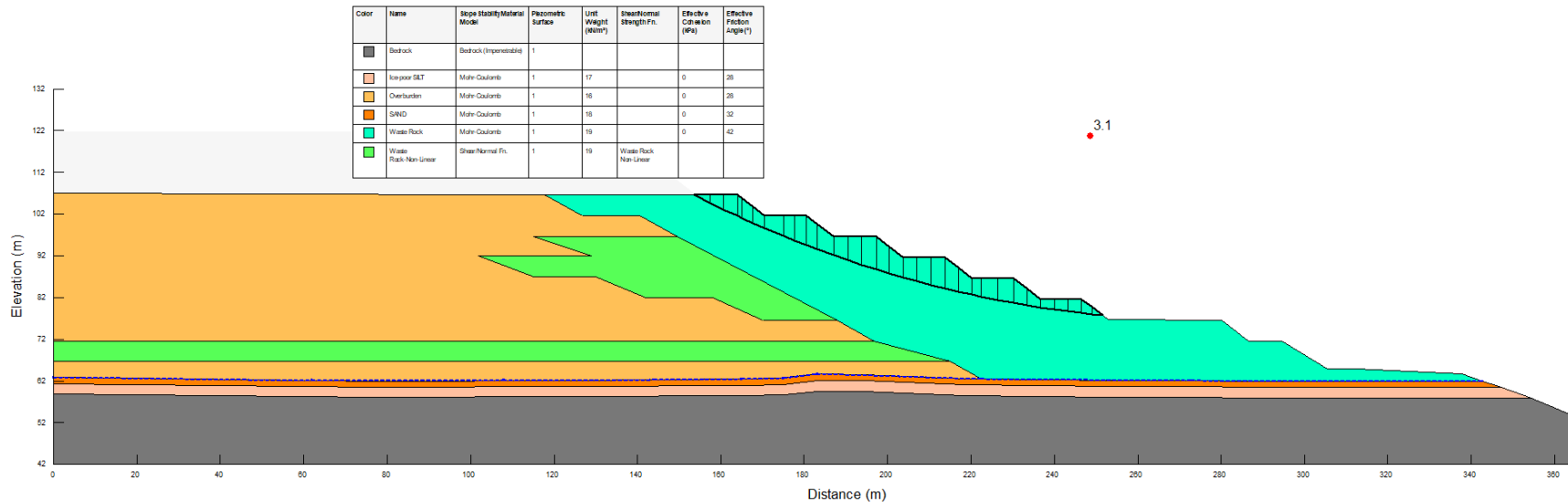
DATE

MAY 21, 2026

FIGURE 5

APPENDIX A

STABILITY ANALYSIS RESULTS



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 2.5 thick layer of ice-poor SILT over bedrock

NOTES

STATUS
ISSUED FOR USE

CLIENT

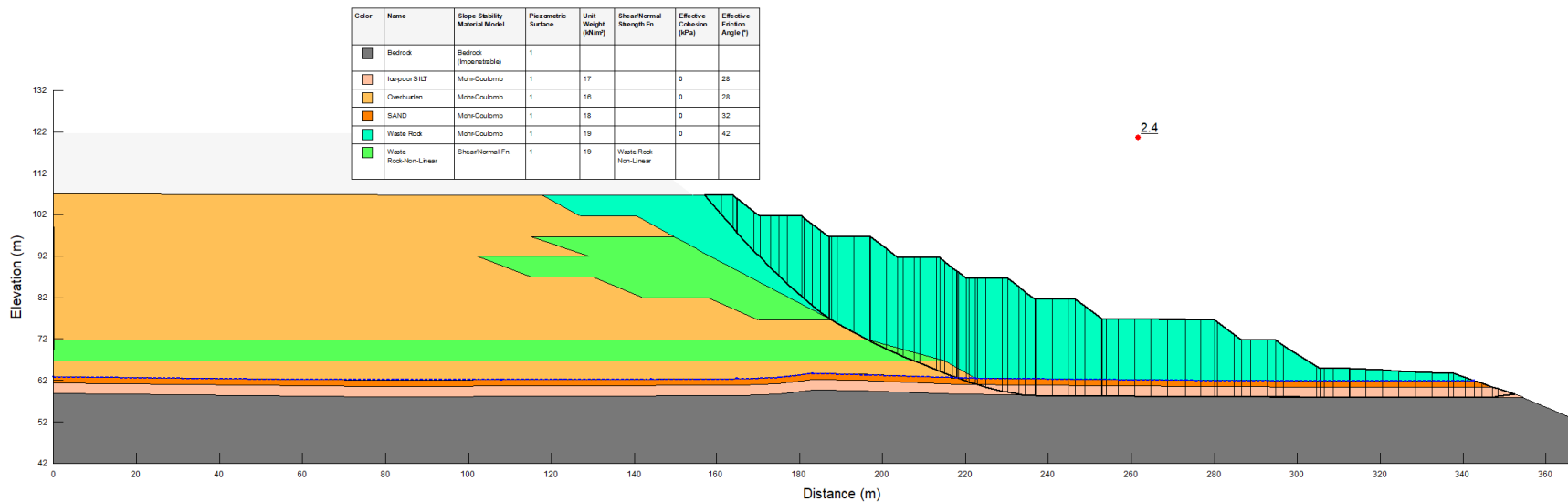


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section A: Static Short-term Analysis during Construction (Shallow Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure A1



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 2.5 thick layer of ice-poor SILT over bedrock

NOTES

STATUS
ISSUED FOR USE

CLIENT

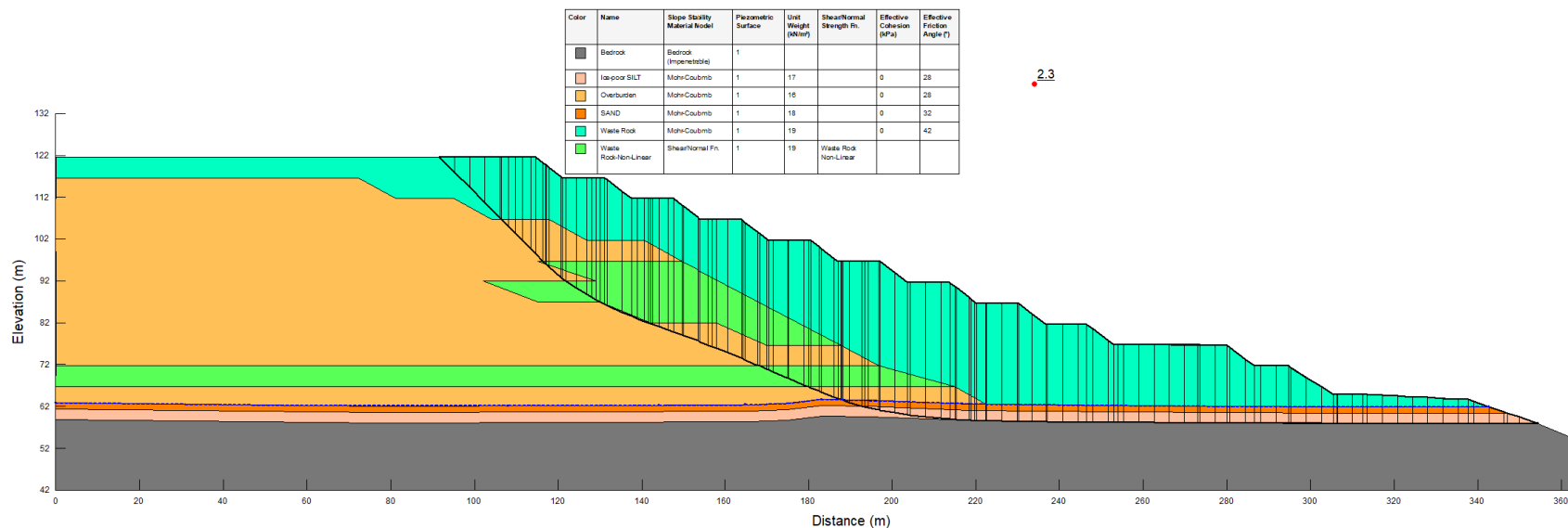


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section A: Static Short-term Analysis during Construction (Local Deep-seated Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure A2



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 2.5 thick layer of ice-poor SILT over bedrock

NOTES

STATUS
ISSUED FOR USE

CLIENT

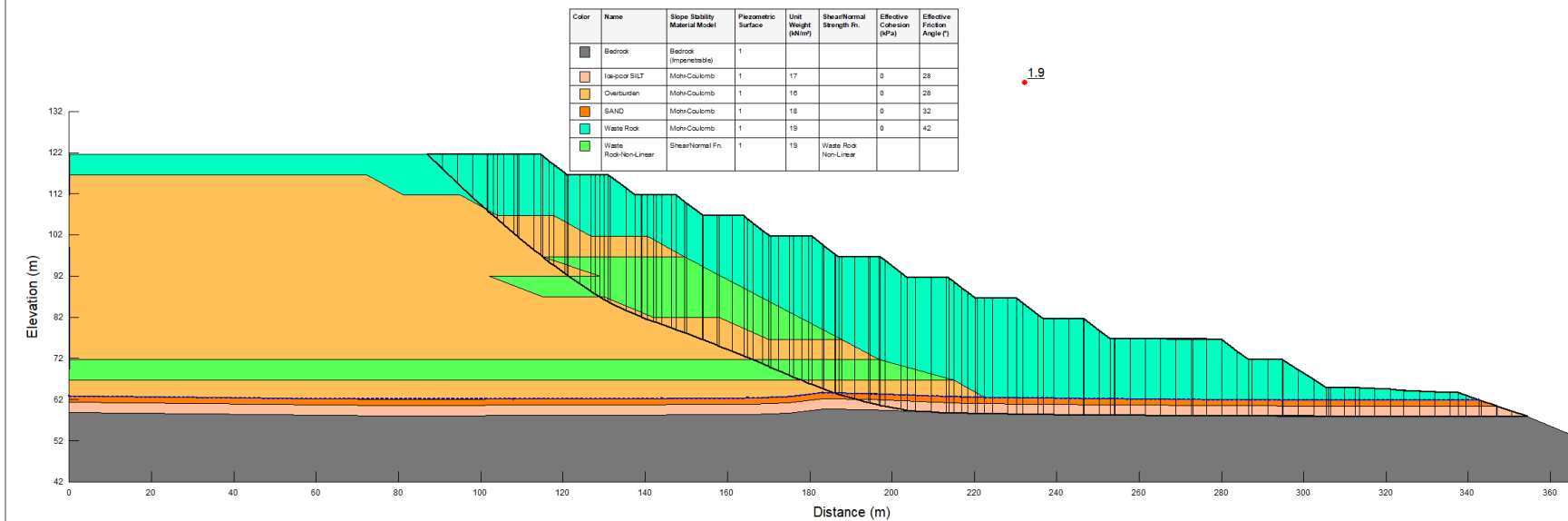


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section A: Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure A3



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 2.5 thick layer of ice-poor SILT over bedrock

NOTES

PGA=0.0498 g

STATUS
ISSUED FOR USE

CLIENT

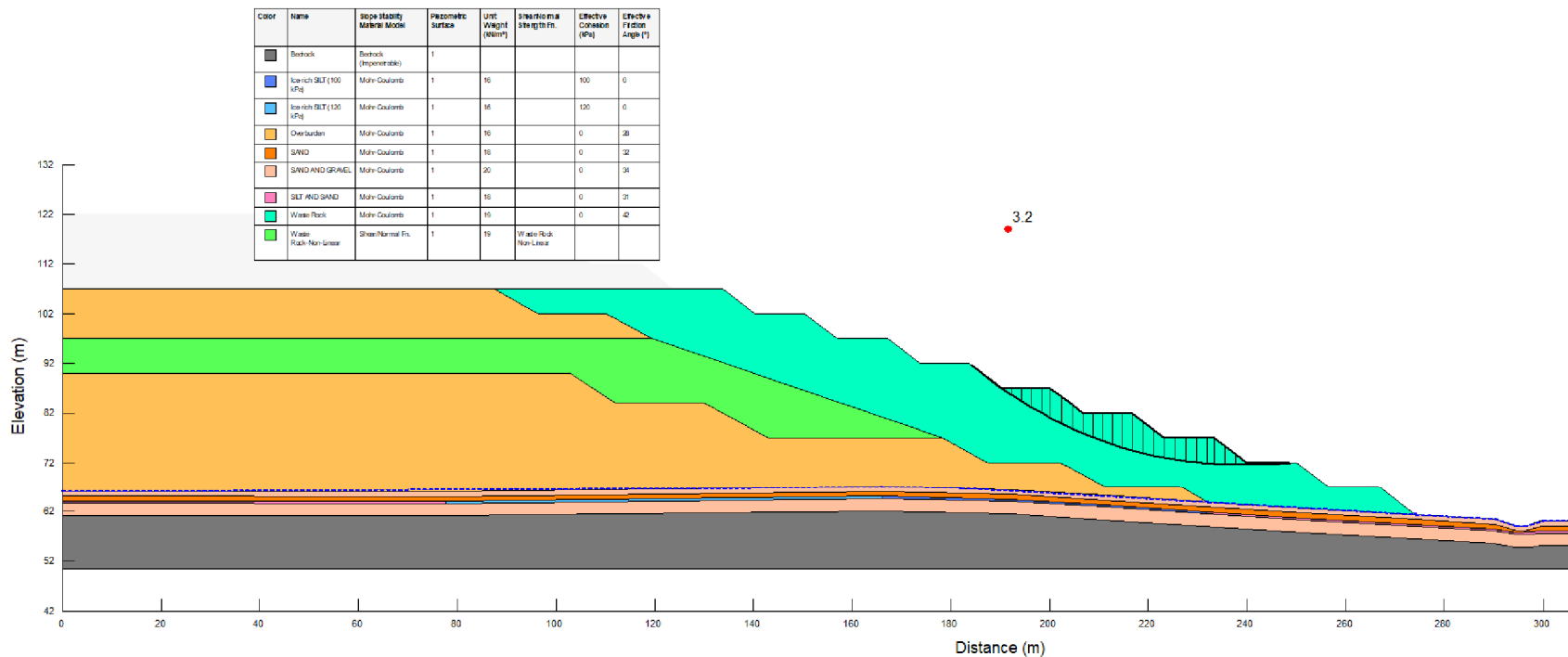


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section A: Pseudo-Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure A4



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

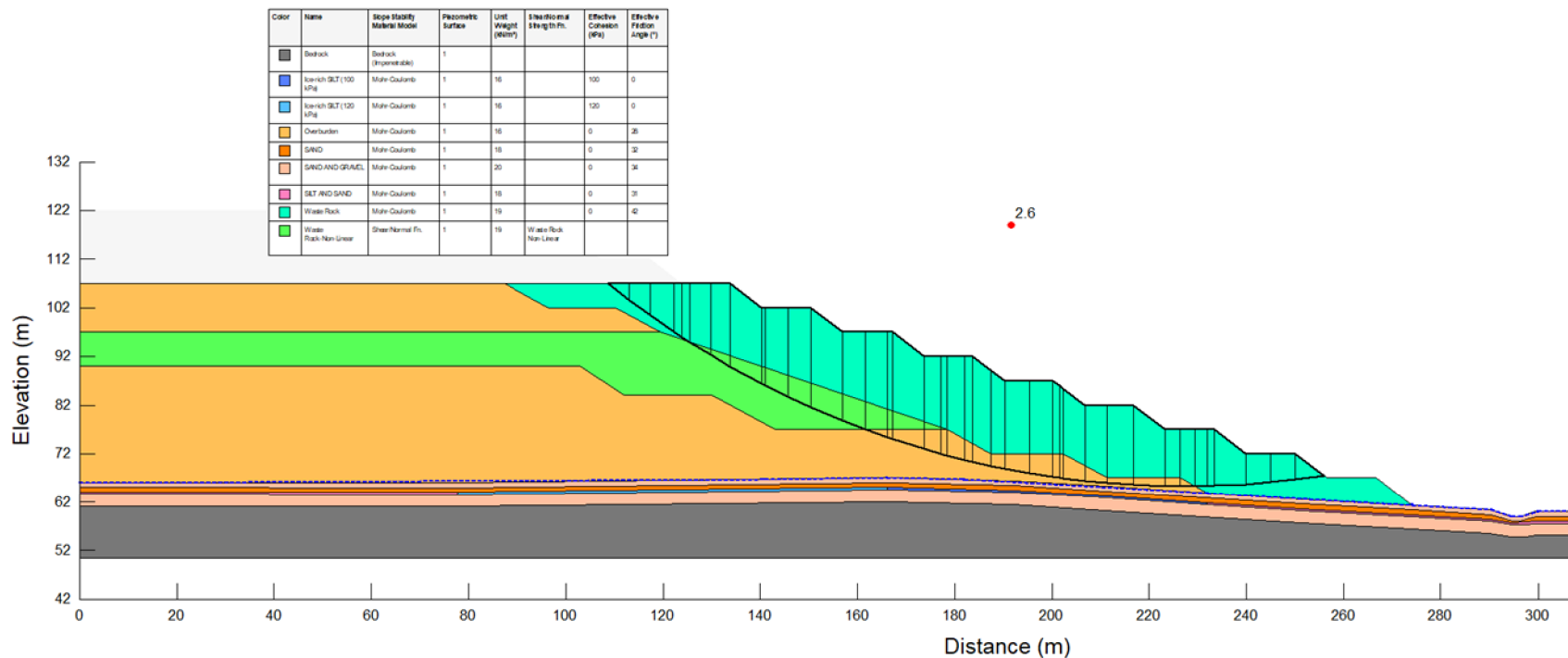


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Short-term Analysis during Construction (Shallow Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B1



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

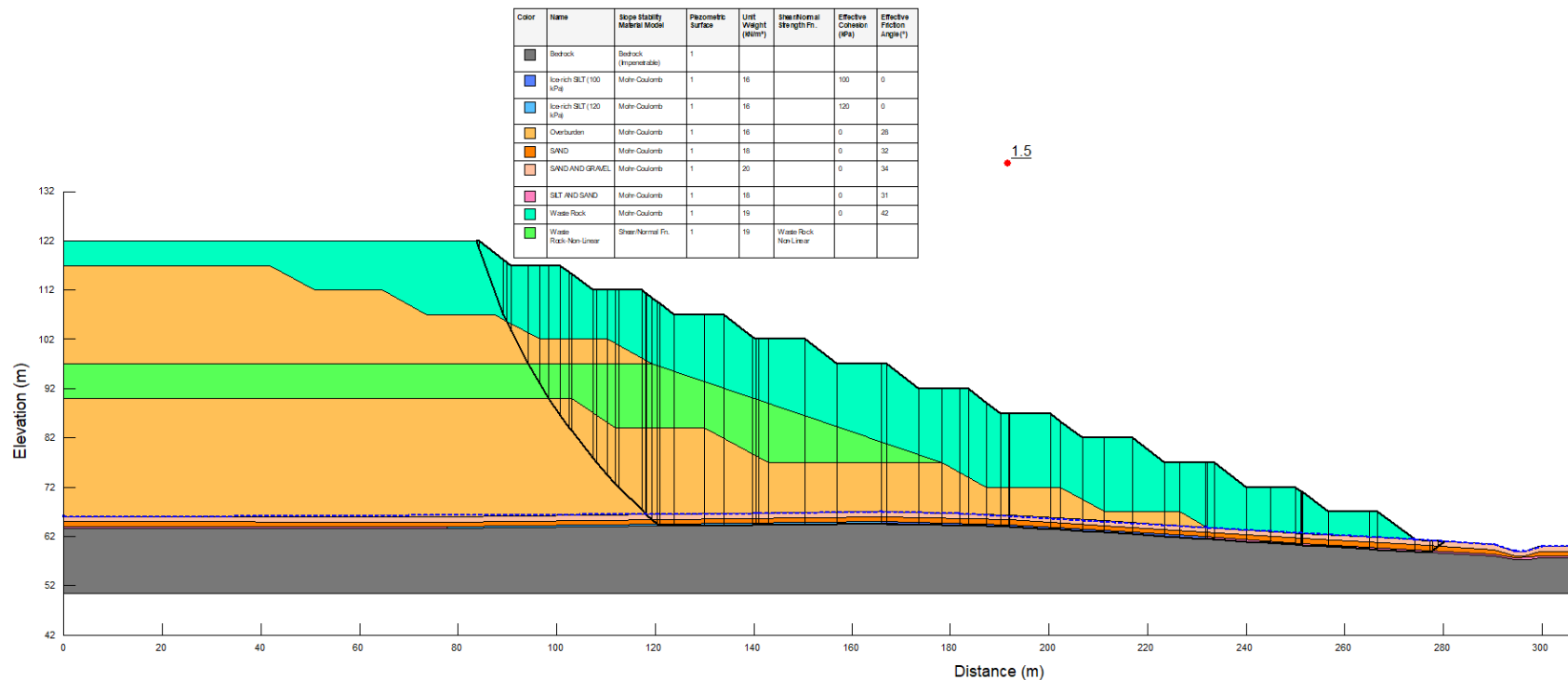


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Short-term Analysis during Construction (Local Deep-seated Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B2



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

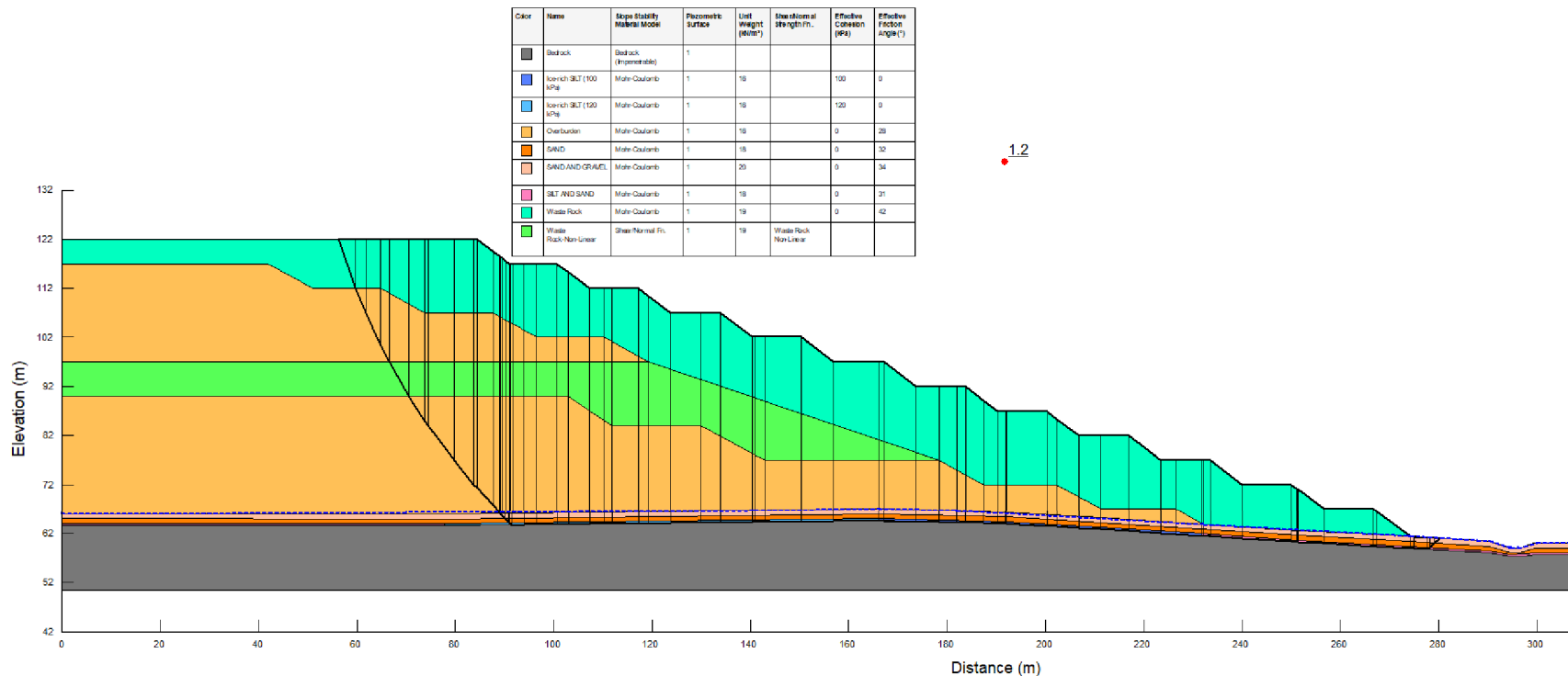


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B3



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

PGA=0.0498 g

STATUS

ISSUED FOR USE

CLIENT

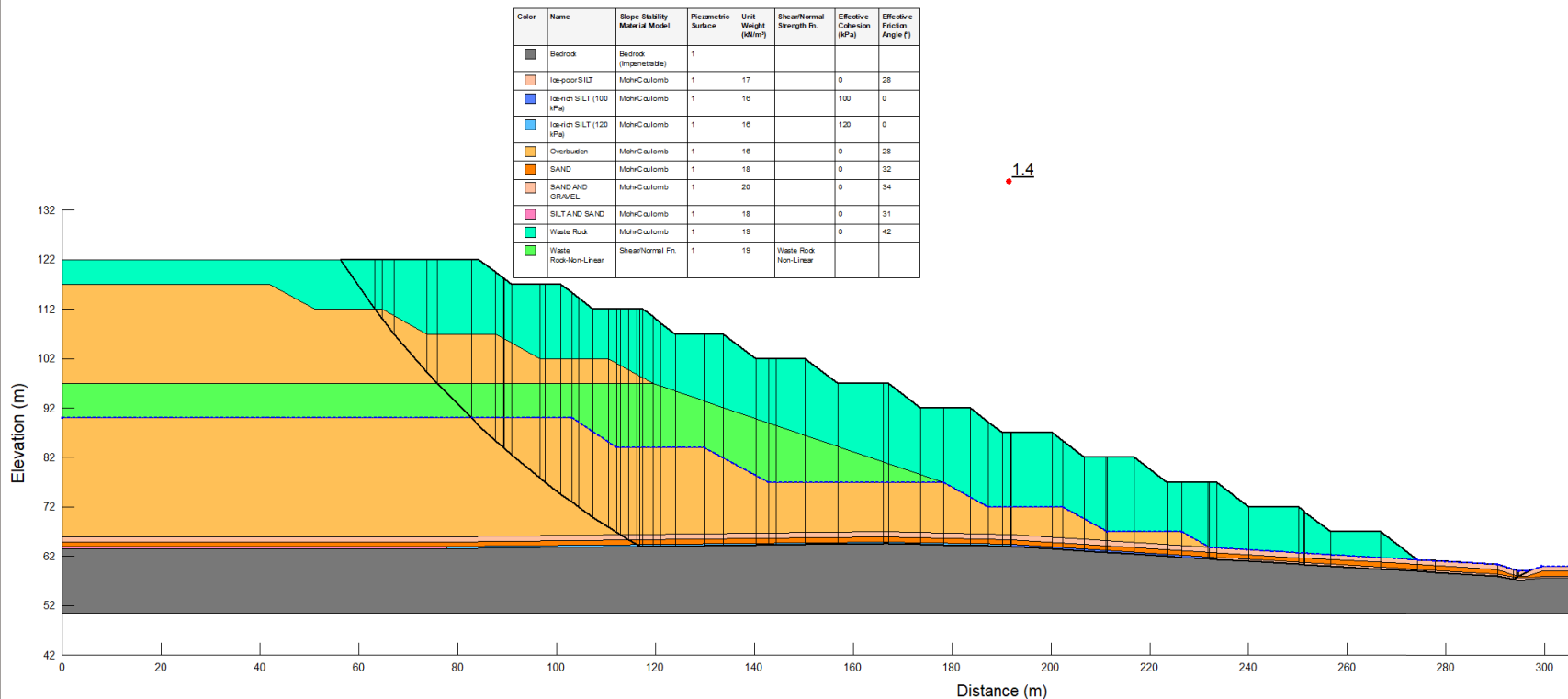


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Pseudo-Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B4



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

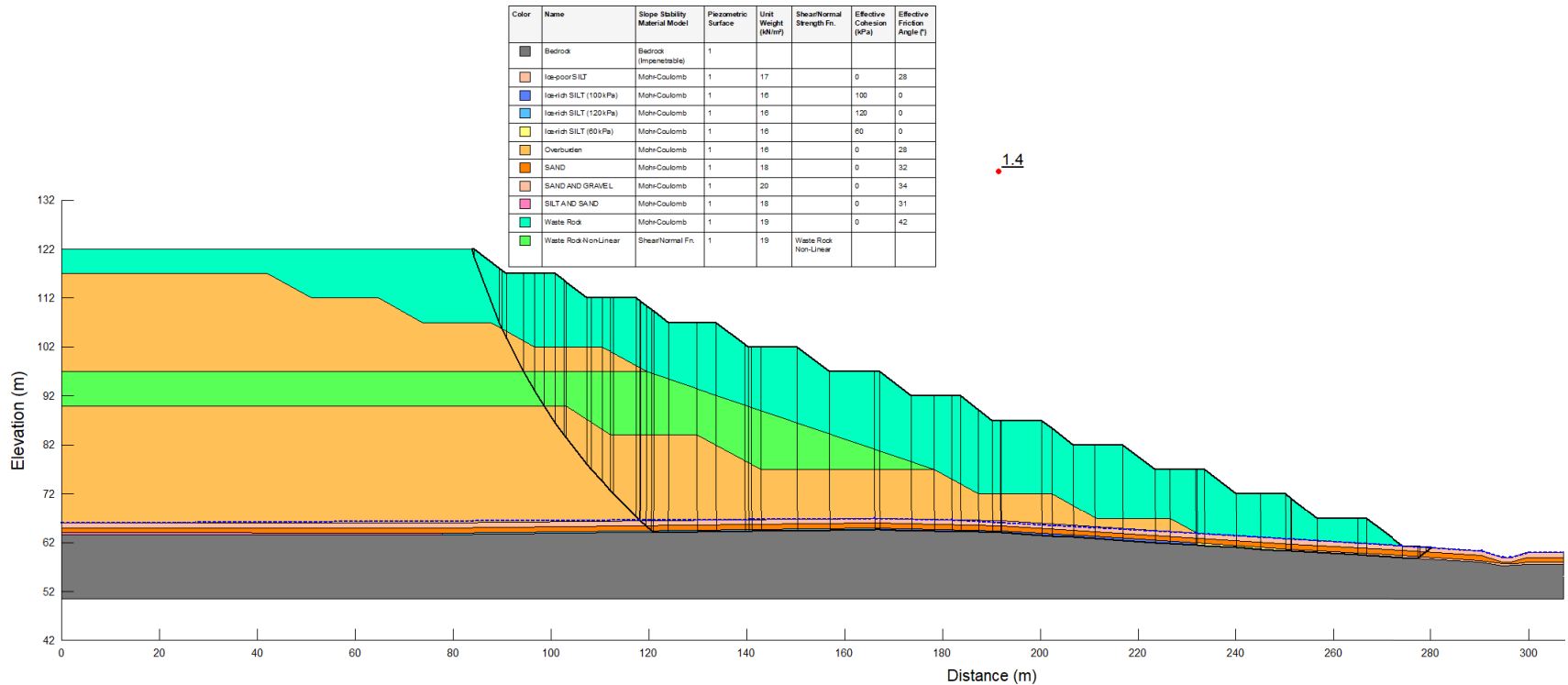


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Elevated Water Table at Bench 87 m

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B5



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

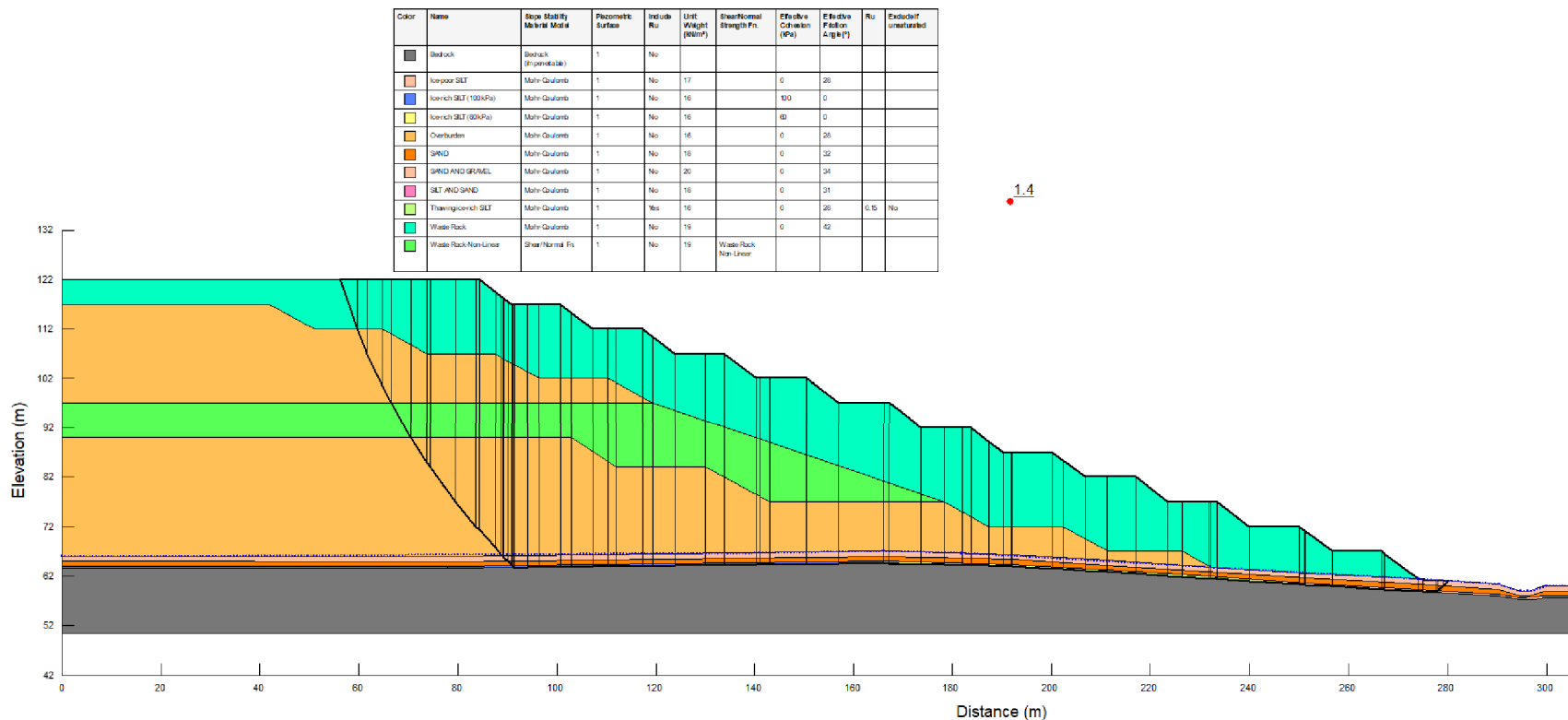


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Continuous ice-rich SILT Layer

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B6



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

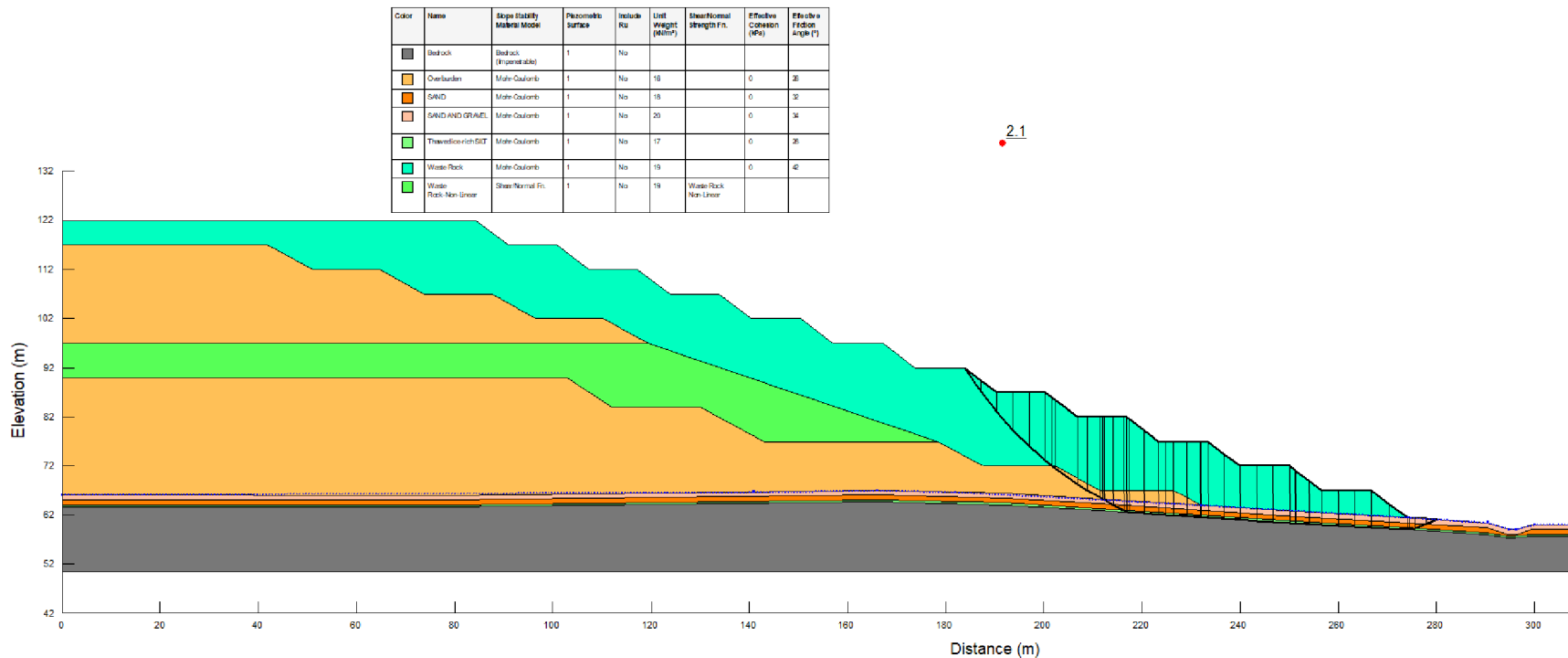


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Excess Porewater Pressure with Ru of 0.15

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B7



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 1.0 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 2.5 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

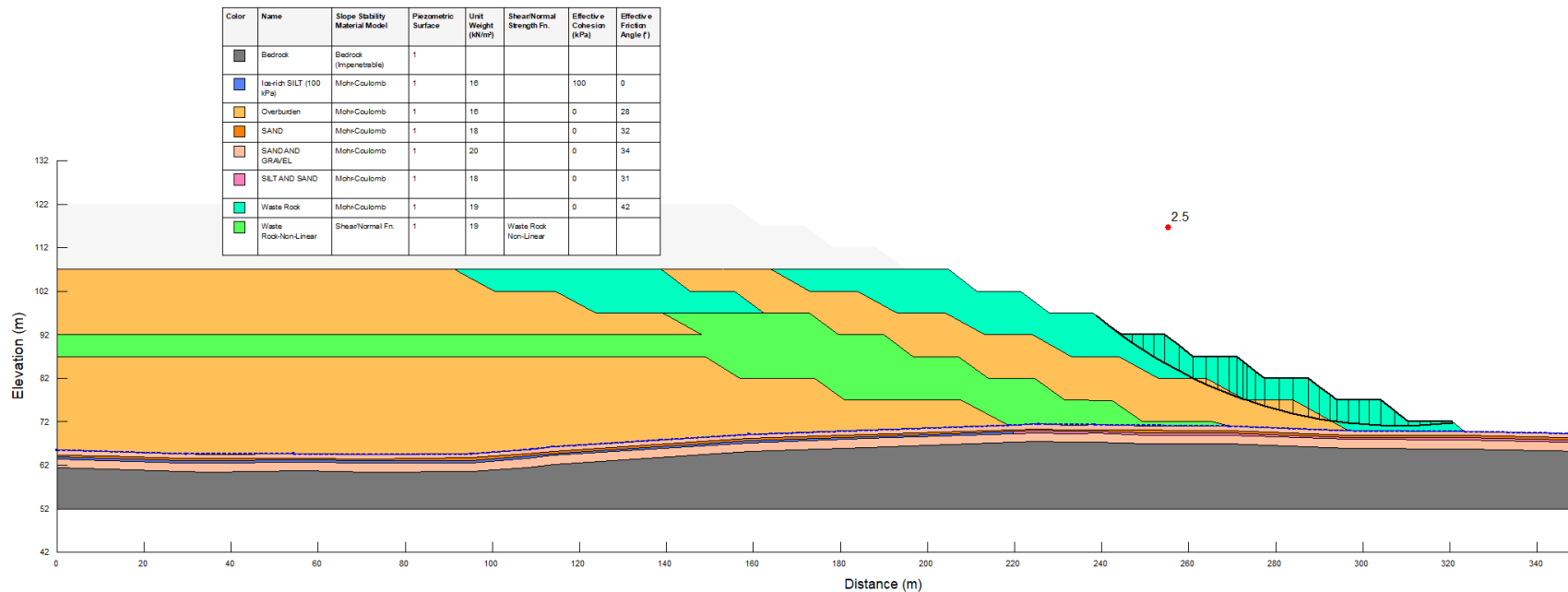


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section B: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Fully Thawed ice-rich Layer in Long Term

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure B8



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 0.5 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 1.0 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

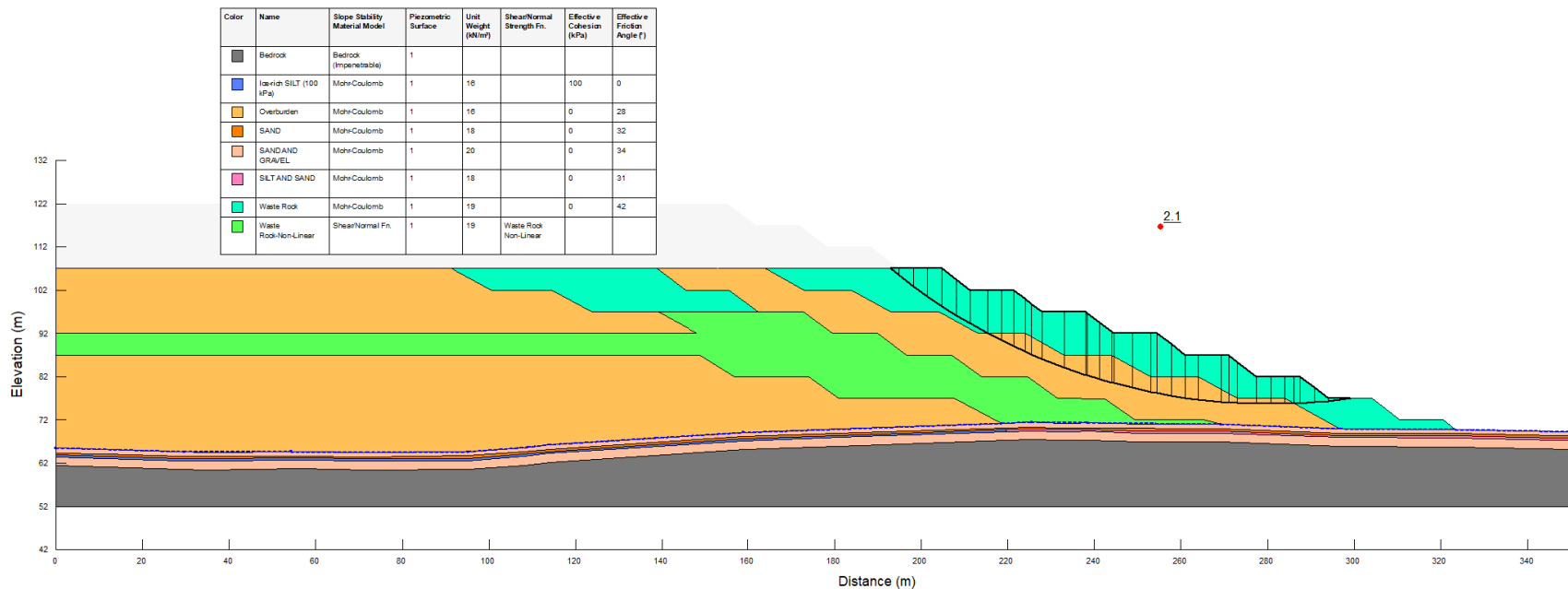


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section C: Static Short-term Analysis during Construction (Shallow Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure C1



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 0.5 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 1.0 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

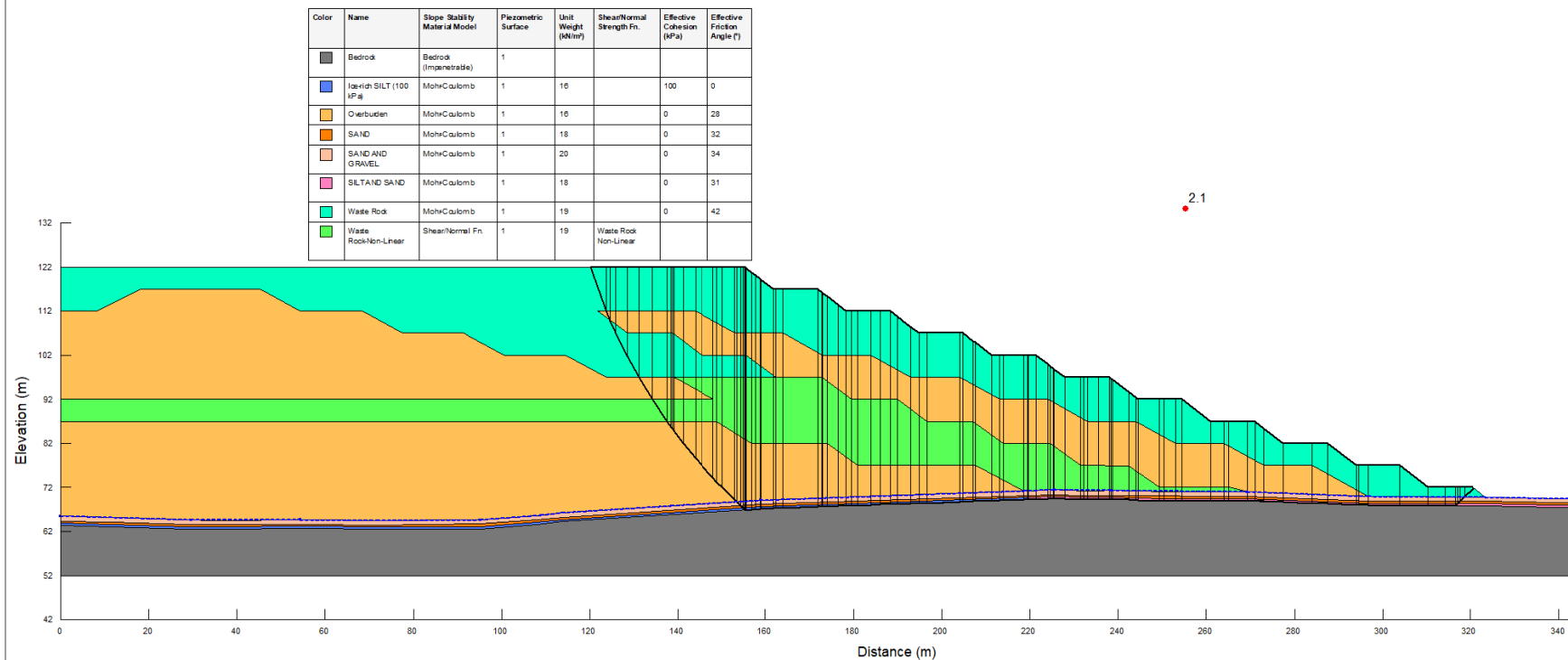


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section C: Static Short-term Analysis during Construction (Local Deep-seated Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure C2



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 0.5 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 1.0 m thick layer of GRAVEL and SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

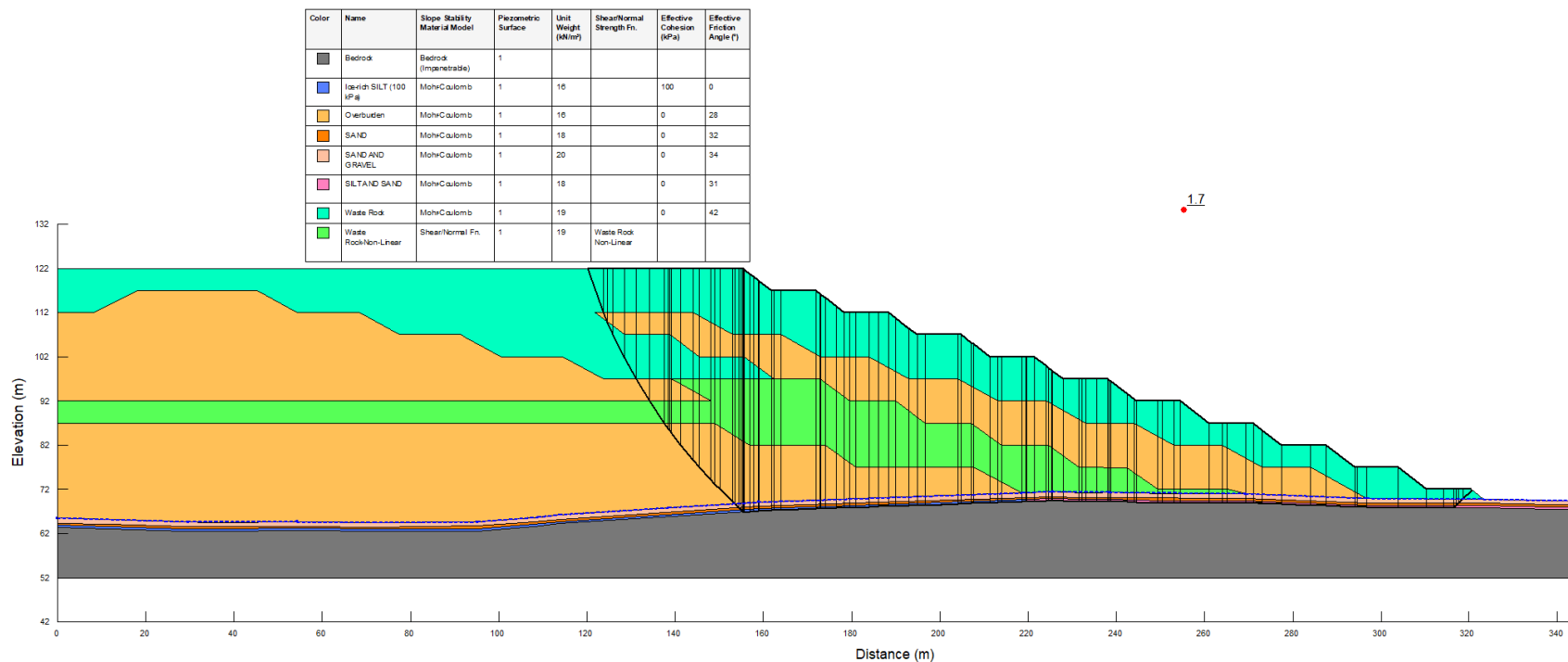


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section C: Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure C3



LEGEND

The foundation soils comprise a 1.0 m thick layer of SAND and GRAVEL, a 0.5 m thick layer of ice-poor SAND, a 0.5 m thick layer of SILT and SAND with a localized zone of ice-rich SILT, a 1.0 m thick layer of GRAVEL and SAND over bedrock.

NOTES

PGA=0.0498 g

STATUS
ISSUED FOR USE

CLIENT

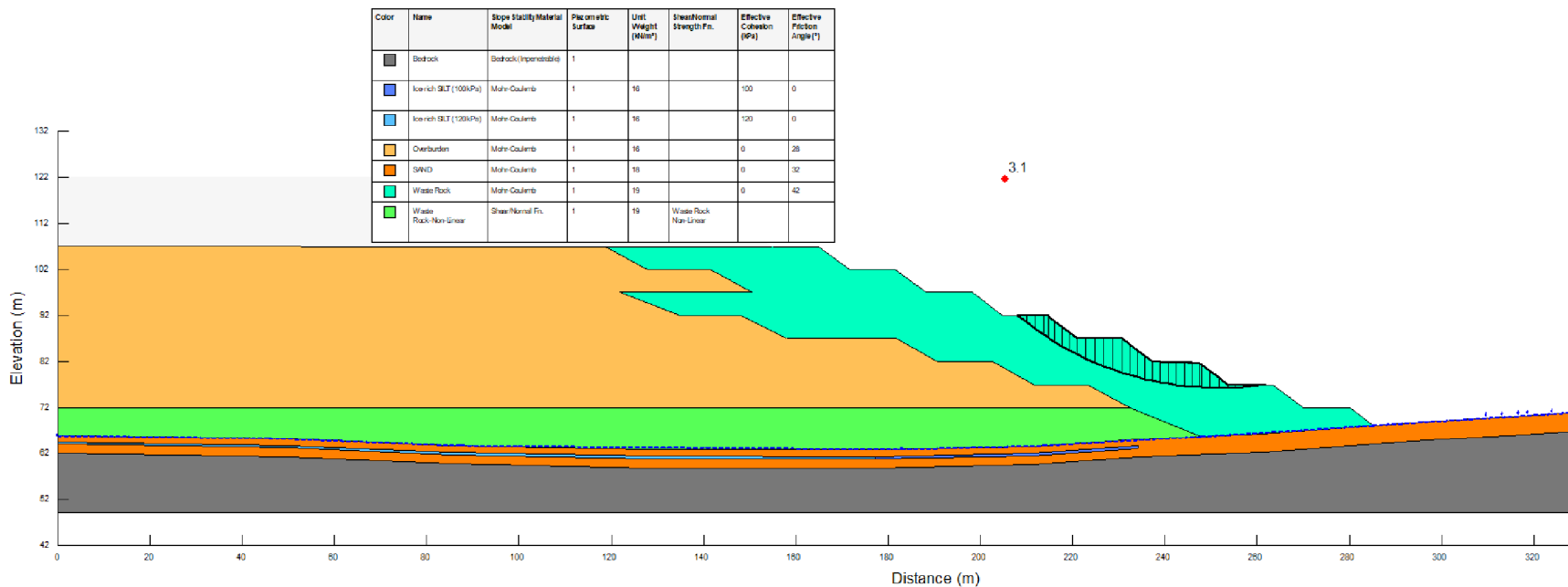


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section C: Pseudo-Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure C4



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

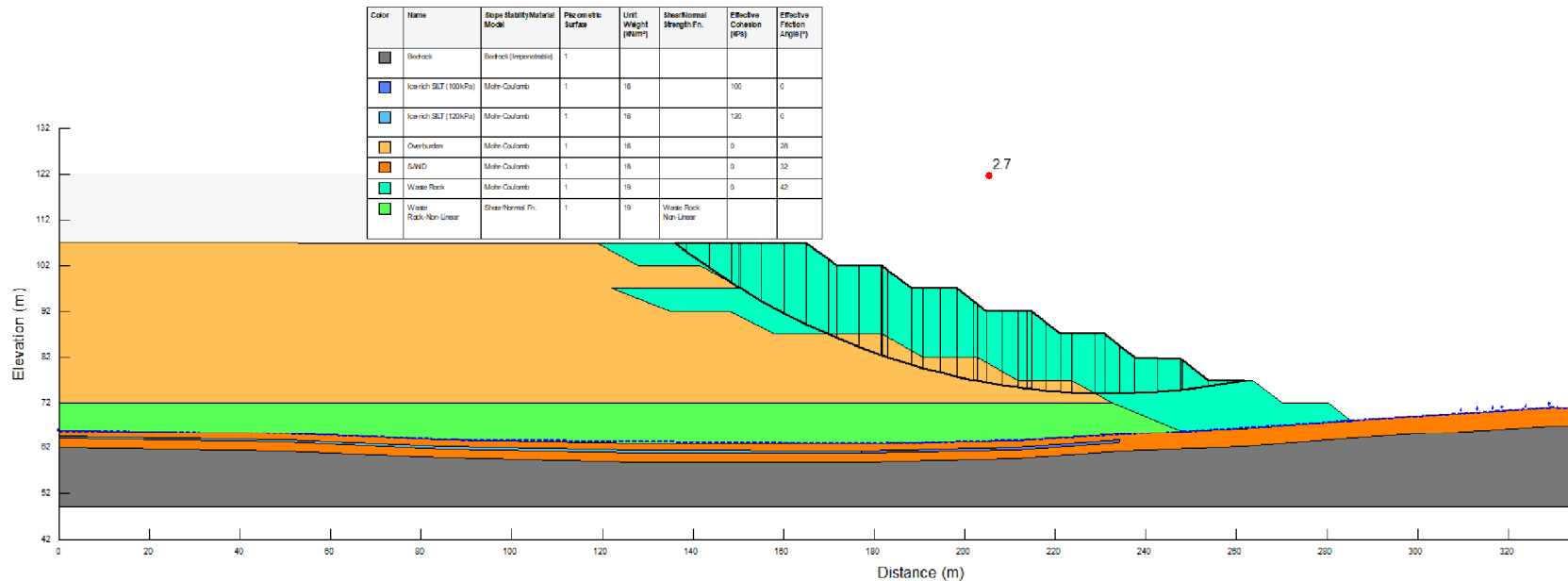


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Short-term Analysis during Construction (Shallow Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D1



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

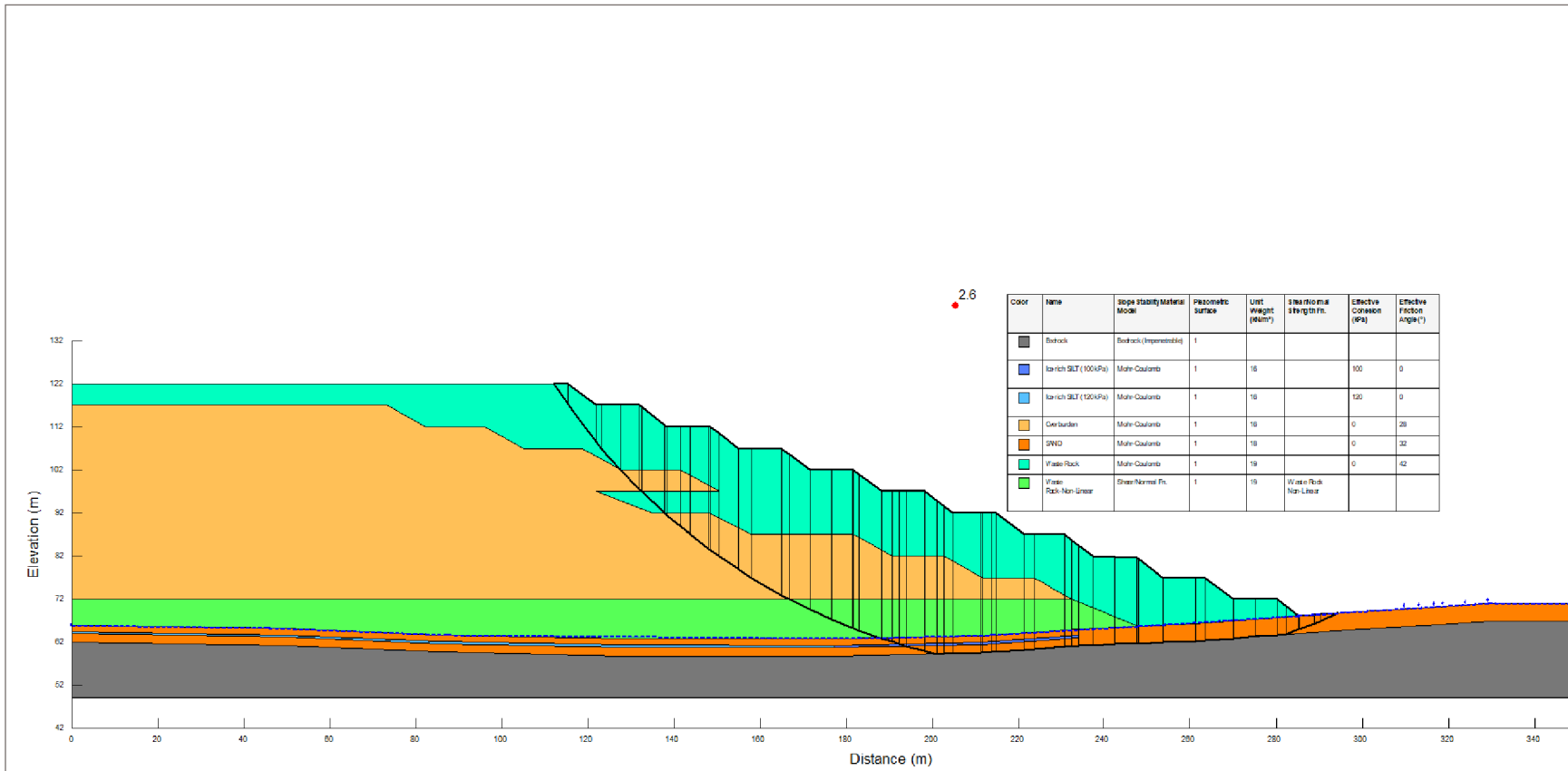


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Short-term Analysis during Construction (Local Deep-seated Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D2



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

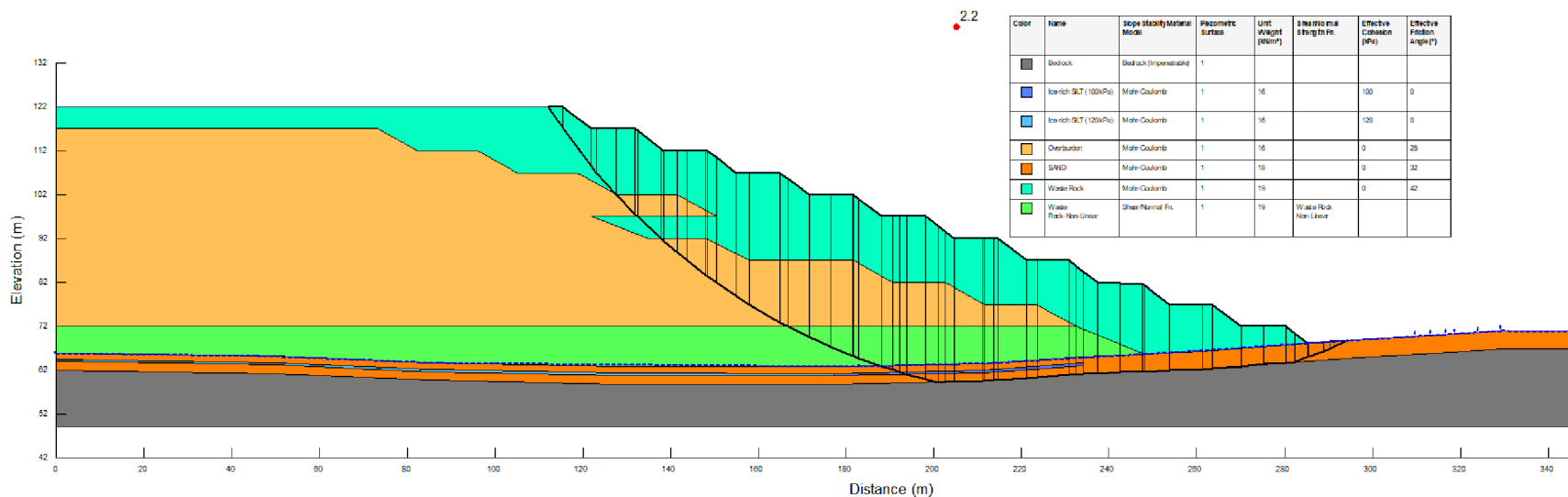


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D3



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

PGA=0.0498 g

STATUS

ISSUED FOR USE

CLIENT



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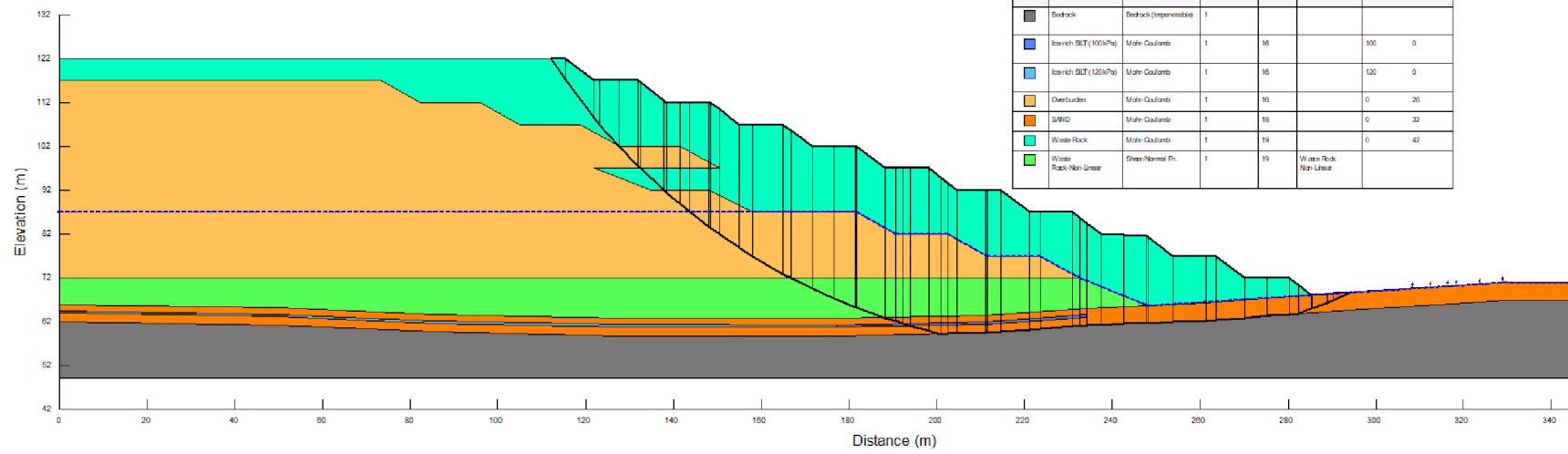
SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Pseudo-Static Long-term Analysis after Construction (Global Slip Failure)

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D4

2.1



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

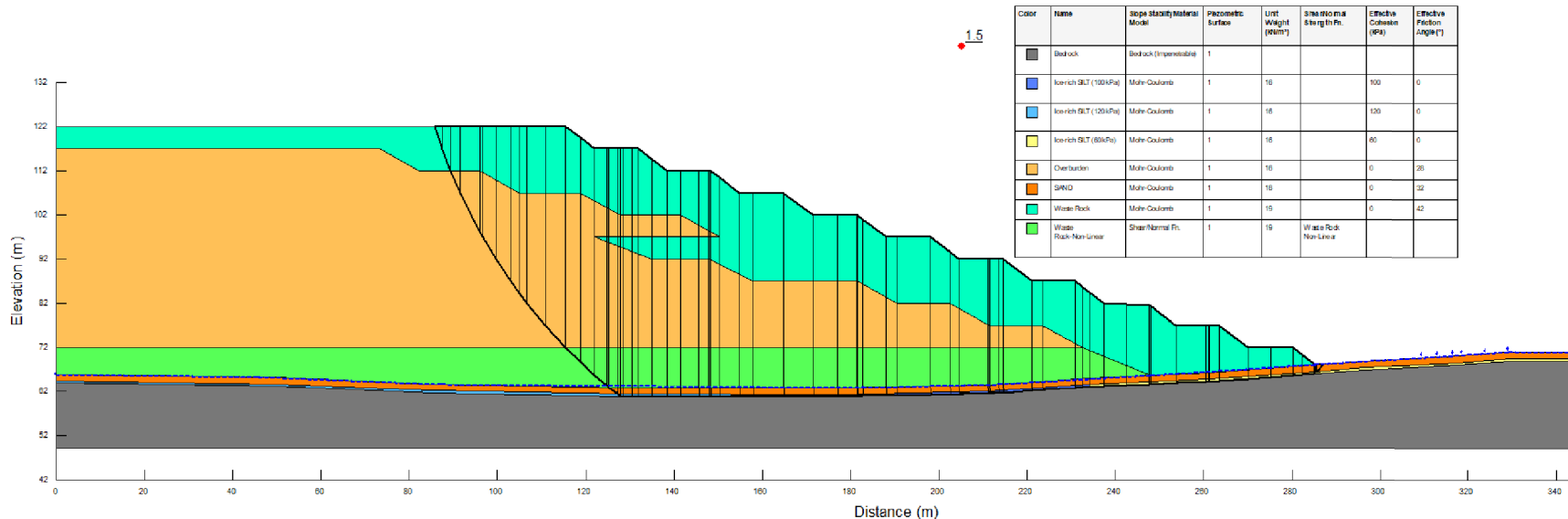


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Elevated Water Table at Bench 87 m

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D5



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

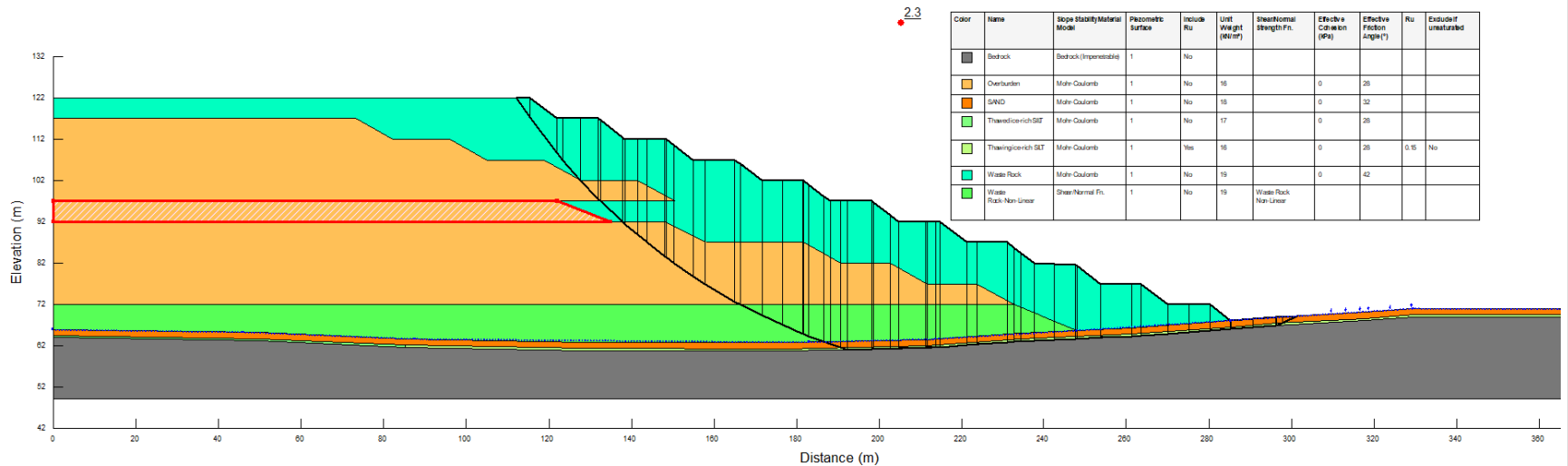


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Continuous ice-rich SILT Layer

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D6



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT

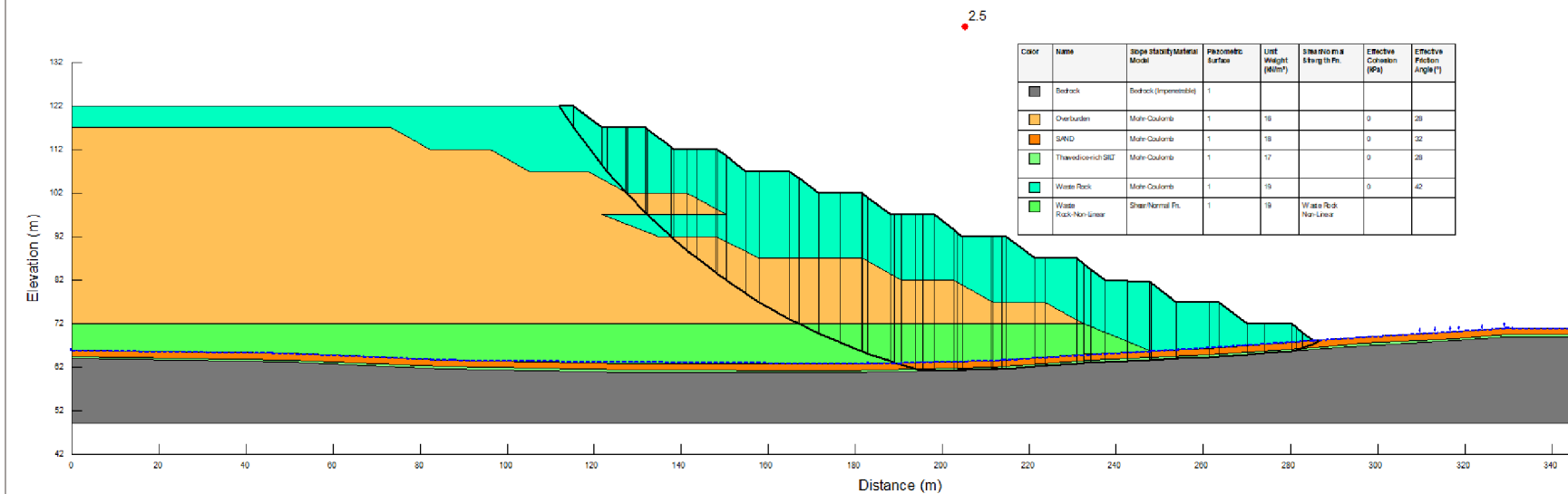


SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Excess Porewater Pressure with Ru of 0.15

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D7



LEGEND

The foundation soils comprise a 1.5 m thick layer of SAND, a 0.5 m thick layer of ice-poor SAND with localized ICE and SAND zone, a 2.0 m thick layer of SAND over bedrock.

NOTES

STATUS
ISSUED FOR USE

CLIENT



SLOPE STABILITY ANALYSES OF WRSF3 RAISE DESIGN, MELIADINE GOLD MINE, NU

Section D: Static Long-term Analysis after Construction (Global Slip Failure), Sensitivity, Fully Thawed ice-rich Layer in Long Term

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.EARC03140-43	HX	HX	HX	
OFFICE	DATE			
EDM	APRIL 2026			

Figure D8

APPENIDX B

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

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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 STANDARD OF CARE

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.

1.12 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.

1.13 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.

1.14 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.

1.15 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.

1.16 BEARING CAPACITY

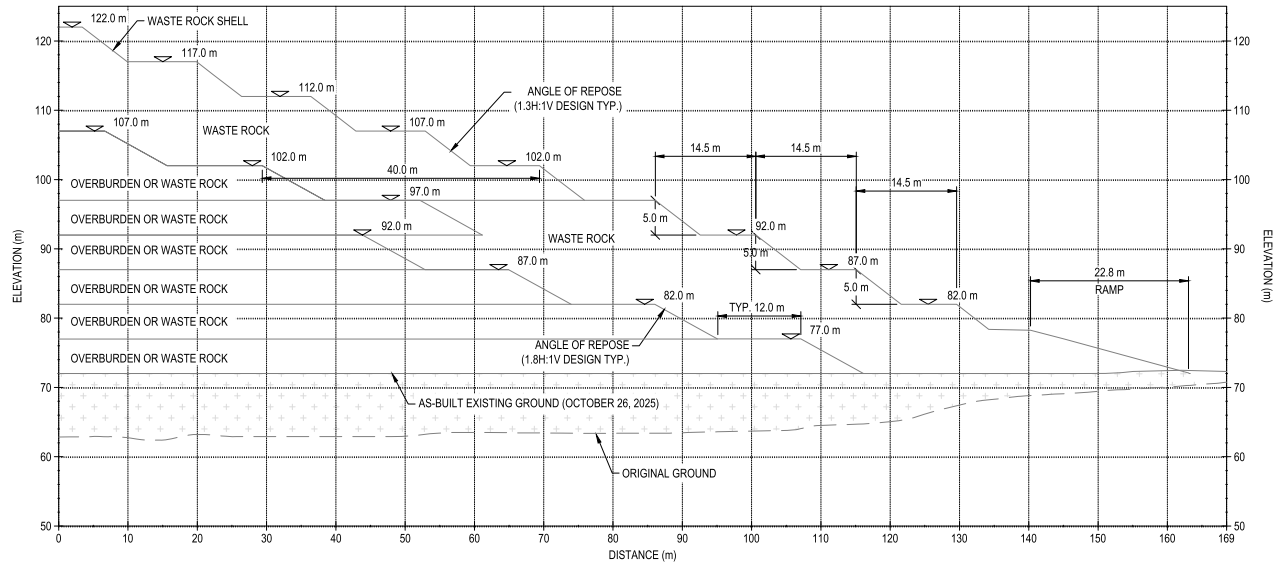
Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. 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.

1.17 SAMPLES

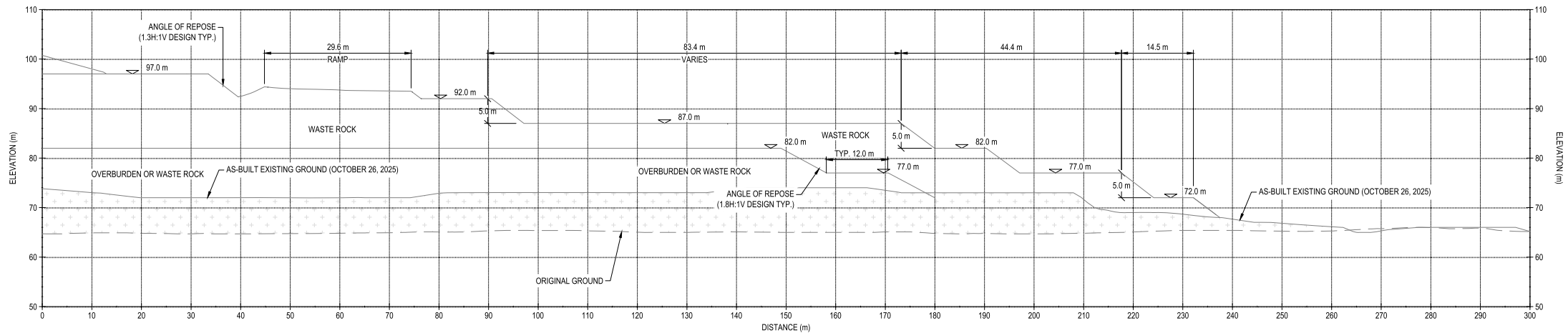
TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

APPENDIX E

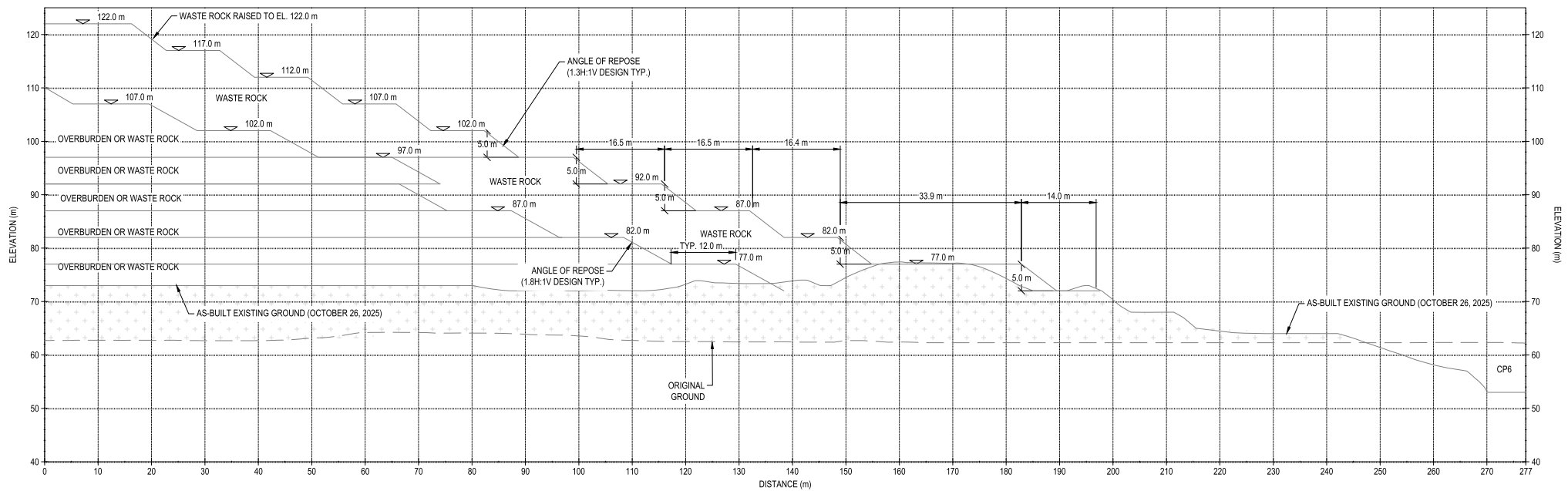
ISSUED FOR CONSTRUCTION DRAWINGS



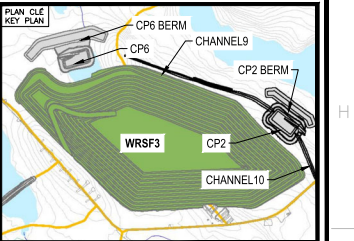
A SECTION
SCALE: 1:500



B SECTION
SCALE: 1:500



C SECTION
SCALE: 1:750



NOTES GÉNÉRALES / GENERAL NOTES

1. THE WRSF3 RAISE DESIGN PRESENTED HEREIN IS BASED ON THE WASTE ROCK AND OVERBURDEN PRODUCTION PLAN PROVIDED BY AGNICO EAGLE AND THE AS-BUILT WRSF3 SURVEY COMPLETED ON OCTOBER 26, 2025. THE DESIGN SHOULD BE REVIEWED AND UPDATED IF REQUIRED AS ADDITIONAL OPERATIONAL INFORMATION BECOMES AVAILABLE.
2. THE MAXIMUM LIFT THICKNESS FOR WRSF3 PLACEMENT SHALL BE LIMITED TO 2.5 M FOR OVERBURDEN WASTE AND TO 5.0 M FOR WASTE ROCK.
3. ANY SNOW WITHIN THE FOOTPRINT OR ON THE TOP SURFACE OF THE PILE SHALL BE REMOVED PRIOR TO PLACEMENT OF OVERBURDEN AND WASTE ROCK DURING WINTER OPERATIONS.
4. WASTE ROCK IDENTIFIED AS PAG SHALL BE ENCAPSULATED WITHIN THE CENTER OF WRSF3. PAG STORAGE AREAS SHALL BE LOCATED AT MINIMUM 20 M, IN A HORIZONTAL DISTANCE, FROM THE OUTER EDGE OF WRSF3.
5. THE NUMBER AND EXACT LOCATIONS OF LANDFILL CELLS WILL BE DETERMINED DURING OPERATIONS. NO LANDFILL SHALL BE CONSTRUCTED ABOVE BENCH 117 M.
6. TO REDUCE THE RISK OF DEPRESSION ZONES FORMATION AND POTENTIAL WATER PONDING, THE FINAL LIFT OF THE OVERBURDEN MAY BE GRADED TO PROVIDED A MINIMUM 4% SLOPE FROM THE CENTER OF THE PILE TOWARD THE PERIMETER.

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Date: [Date]
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PRODIGES. © AGNICO EAGLE, 2025
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PRODIGES. © AGNICO EAGLE, 2025

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

3	2026-05-22	ISSUED FOR CONSTRUCTION	HX	HX
2	2021-11-12	ISSUED FOR CONSTRUCTION	HX	WTH
1	2021-10-24	WRSF3 EXPANSION - ISSUED FOR REVIEW	HX	WTH
0	2020-02-21	ISSUED FOR CONSTRUCTION	OZ	WTH
A	2020-02-14	ISSUED FOR REVIEW	OZ	WTH
REV.	DATE	DESCRIPTION	PAR/REV	APP. CLIENT

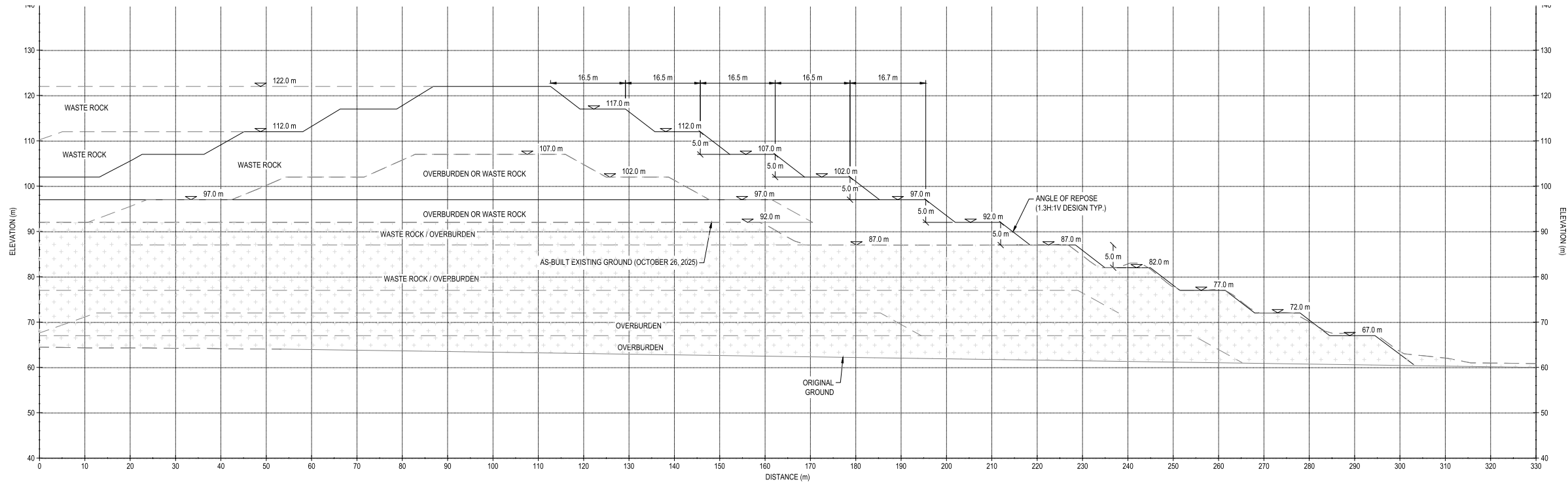
REVISIONS

TITRE / TITLE
AGNICO EAGLE MELADINE GOLD MINE
WASTE ROCK STORAGE FACILITY No. 3
MELADINE WRSF3 RAISE DESIGN:
SECTIONS A TO C

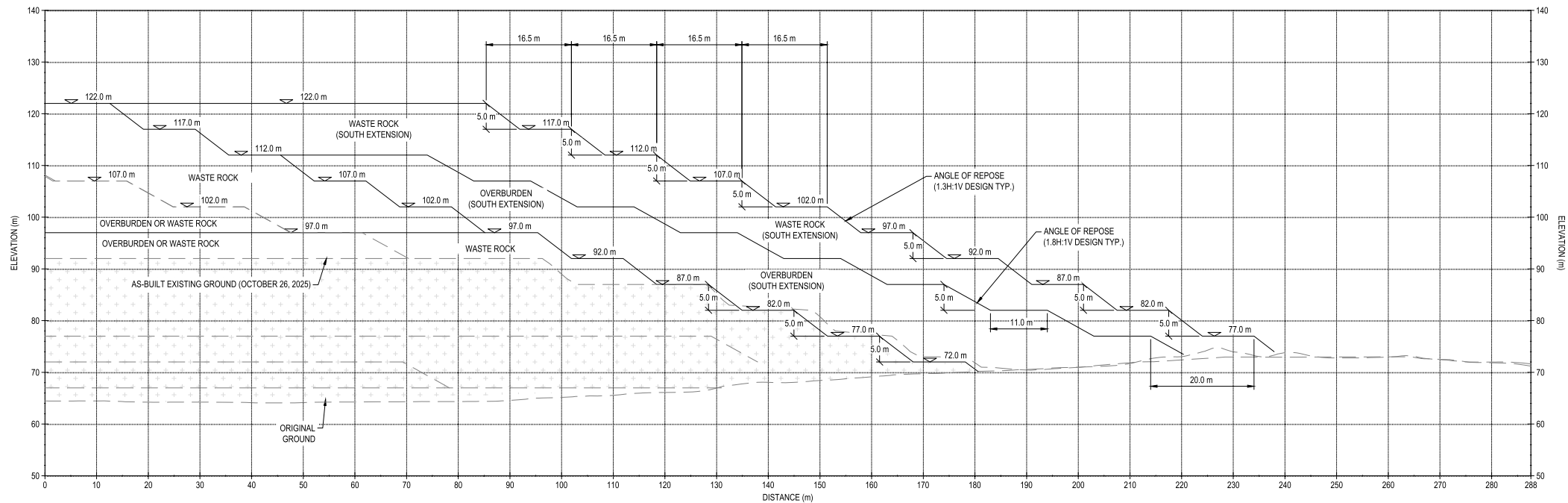
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VÉRIFIÉ PAR CHECKED BY	HX	2026-05-04
APPROUVÉ PAR APPROVED BY	HX	2026-05-04

ÉCHELLE
SCALE 1:2000
DATE 2026-05-04
NO. DESSIN
DRAWING NO. 65-686-230-017

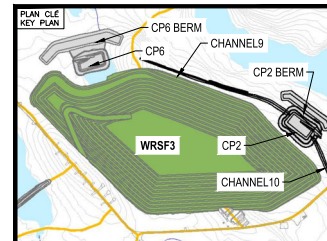
NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHEET
6515	3	2 / 8



D SECTION
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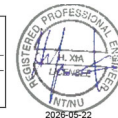
E SECTION
SCALE: 1:500



NOTES GÉNÉRALES / GENERAL NOTES

1. THE WRSF3 RAISE DESIGN PRESENTED HEREIN IS BASED ON THE WASTE ROCK AND OVERBURDEN PRODUCTION PLAN PROVIDED BY AGNICO EAGLE AND THE AS-BUILT WRSF3 SURVEY COMPLETED ON OCTOBER 26, 2025. THE DESIGN SHOULD BE REVIEWED AND UPDATED IF REQUIRED AS ADDITIONAL OPERATIONAL INFORMATION BECOMES AVAILABLE.
2. THE MAXIMUM LIFT THICKNESS FOR WRSF3 PLACEMENT SHALL BE LIMITED TO 2.5 M FOR OVERBURDEN WASTE AND TO 5.0 M FOR WASTE ROCK.
3. ANY SNOW WITHIN THE FOOTPRINT OR ON THE TOP SURFACE OF THE PILE SHALL BE REMOVED PRIOR TO PLACEMENT OF OVERBURDEN AND WASTE ROCK DURING WINTER OPERATIONS.
4. WASTE ROCK IDENTIFIED AS PAG SHALL BE ENCAPSULATED WITHIN THE CENTER OF WRSF3. PAG STORAGE AREAS SHALL BE LOCATED AT MINIMUM 20 M, IN A HORIZONTAL DISTANCE, FROM THE OUTER EDGE OF WRSF3.
5. THE NUMBER AND EXACT LOCATIONS OF LANDFILL CELLS WILL BE DETERMINED DURING OPERATIONS. NO LANDFILL SHALL BE CONSTRUCTED ABOVE BENCH 117 M, TO REDUCE THE RISK OF DEPRESSION ZONES FORMATION AND POTENTIAL WATER PONDING. THE FINAL LIFT OF THE OVERBURDEN MAY BE GRADED TO PROVIDED A MINIMUM 4% SLOPE FROM THE CENTER OF THE PILE TOWARD THE PERIMETER.

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Date: [Date]
PERMIT NUMBER: P 018
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Engineers and Geoscientists



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DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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2	2021-11-12	ISSUED FOR CONSTRUCTION	HX	WITH
1	2021-10-24	FOR REVIEW	HX	WITH
0	2020-02-21	ISSUED FOR CONSTRUCTION	GZ	WITH
A	2020-02-14	ISSUED FOR REVIEW	GZ	WITH
REV.	DATE	DESCRIPTION	PAR/REV	APP. CLIENT

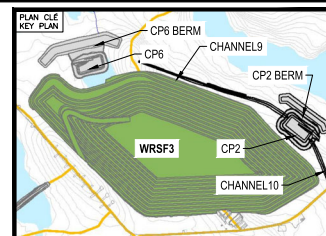
REVISIONS

TITRE / TITLE
AGNICO EAGLE MELADINE GOLD MINE
WASTE ROCK STORAGE FACILITY No. 3

MELADINE WRSF3 RAISE DESIGN:
SECTIONS D AND E

DESSINÉ PAR DRAWN BY	DBD	DATE 2026-05-04
VÉRIFIÉ PAR CHECKED BY	HX	2026-05-04
APPROUVÉ PAR APPROVED BY	HX	2026-05-04

ECHELLE SCALE		1:500	DATE		2026-05-04
NO. DESSIN DRAWING NO.					
65-686-230-018					
NO. PROJET PROJECT NO.			REVISION	FEUILLE / SHEET	
6515			3	3 / 8	



NOTES GÉNÉRALES / GENERAL NOTES

1. THE WRSF3 RAISE DESIGN PRESENTED HEREIN IS BASED ON THE WASTE ROCK AND OVERBURDEN PRODUCTION PLAN PROVIDED BY AGNICO AELE AND THE AS-BUILT WRSF3 SURVEY COMPLETED ON OCTOBER 20, 2025. THE DESIGN SHOULD BE REVIEWED AND UPDATED IF REQUIRED AS ADDITIONAL OPERATIONAL INFORMATION BECOMES AVAILABLE.
2. THE MAXIMUM LIFT THICKNESS FOR WRSF3 PLACEMENT SHALL BE LIMITED TO 2.5 M FOR OVERBURDEN WASTE AND TO 5.0 M FOR WASTE ROCK.
3. ANY SNOW WITHIN THE FOOTPRINT OR ON THE TOP SURFACE OF THE PILE SHALL BE REMOVED PRIOR TO PLACEMENT OF OVERBURDEN WASTE OR WASTE ROCK DURING RAISE OPERATIONS.
4. WASTE ROCK IDENTIFIED AS P40 SHALL BE ENCAPSULATED WITHIN THE CENTER OF WRSF3. P40 STORAGE AREAS SHALL BE LOCATED AT MINIMUM 100 M, IN A HORIZONTAL, DISTANCE FROM THE OUTER EDGE OF WRSF3.
5. THE NUMBER AND EXACT LOCATIONS OF LANDFILL CELLS WILL BE DETERMINED DURING OPERATIONS. NO LANDFILL SHALL BE CONSTRUCTED ABOVE BENCH ELEVATIONS.
6. TO REDUCE THE RISK OF DEPRESSION ZONES FORMATION AND POTENTIAL WATER PONDING, THE FINAL LIFT OF THE OVERBURDEN SHOULD BE PROTECTED BY A 400 M WIDE RAMP FROM THE CENTER OF THE PILE TOWARD THE PERMUTE.
7. ACCESS RAMP DESIGNED FOR HAUL TRUCK TYPE OF CAT 7750 OR SMALL EQUIPMENT.
8. A SAFETY BERM ON THE SIDE OF A HAUL ROAD IS REQUIRED IF A DROFF GREATER THAN 3 M EXISTS.

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Date _____

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TITRE / TITLE	# DWG
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**AGNICO EAGLE**

3	2026-05-22	ISSUED FOR CONSTRUCTION	HX	HX	
2	2021-11-12	ISSUED FOR CONSTRUCTION	HX	WTH	
1	2021-10-24	WRSF3 EXPANSION - ISSUED FOR REVIEW	HX	WTH	
0	2020-02-21	ISSUED FOR CONSTRUCTION	GZ	WTH	
A	2020-02-14	ISSUED FOR REVIEW	GZ	WTH	
REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT

REVISIONS

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TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD MINE
WASTE ROCK STORAGE FACILITY No. 3

MELIADINE WRSF3 RAISE DESIGN:
TYPICAL SECTION AND ACCESS RAMP

DESSINÉ PAR DRAWN BY	DBD	DATE 2026-05-0
VÉRIFIÉ PAR CHECKED BY	HX	2026-05-0
APPROUVÉ PAR APPROVED BY	HX	2026-05-0

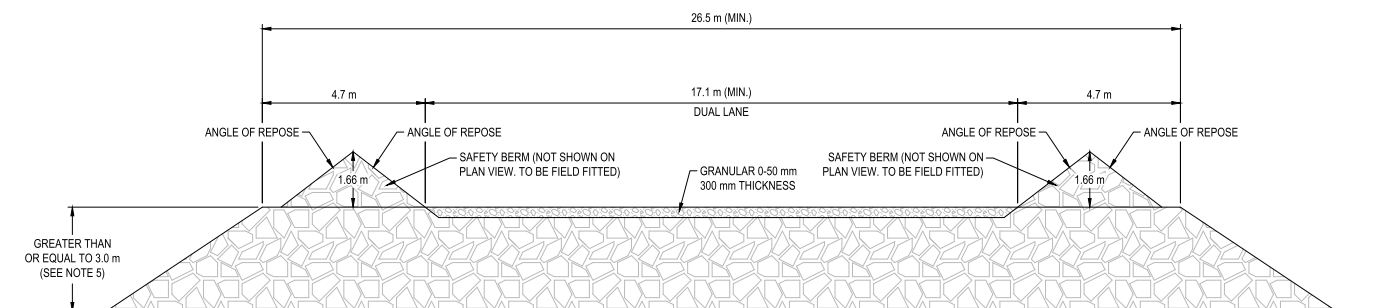
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NO. DESSIN
DRAWING NO. 65-686-230-019

NO. PROJ PROJECT NO. 6515	REVISION	FEUILLE / SHT
	3	4 / 8

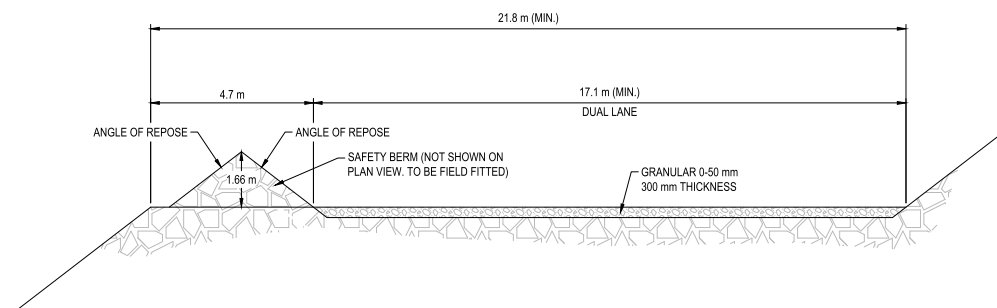
(F) TYPICAL SECTION WITHOUT ACCESS RAMP

205 SCALE: 1:500



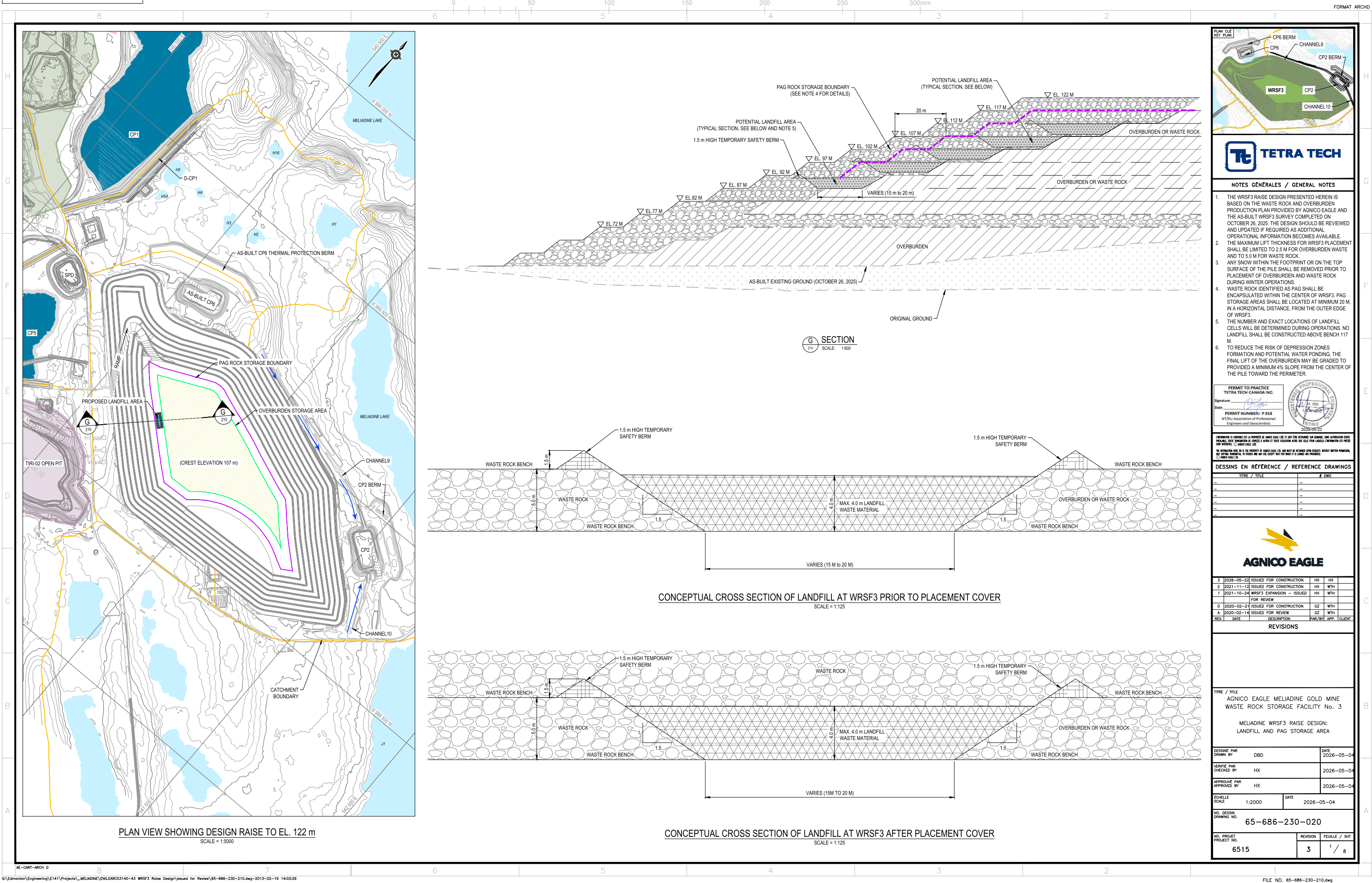
TYPICAL ACCESS RAMP FOR HAUL ROAD WITH TWO SIDE SAFETY BERMS

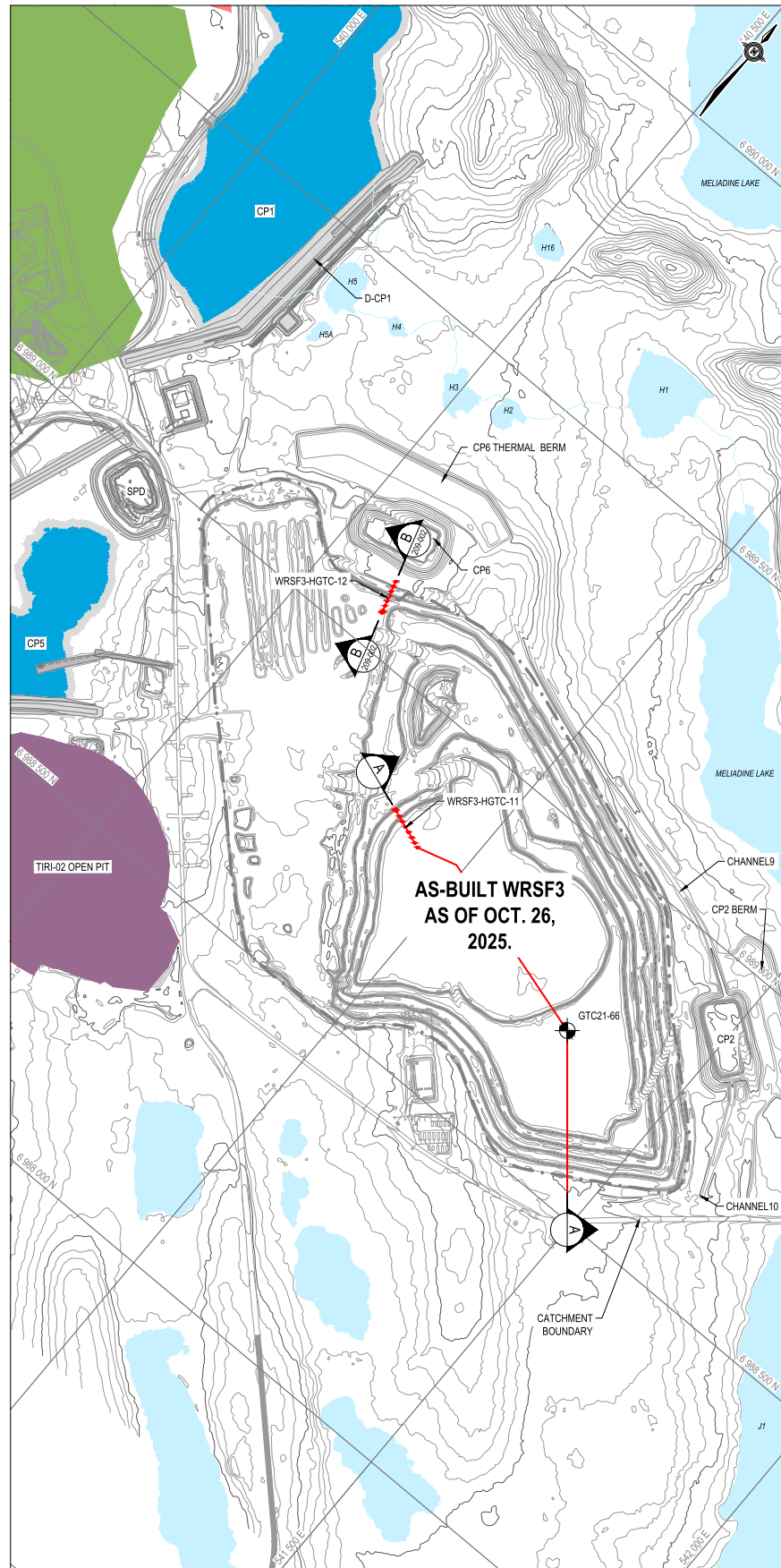
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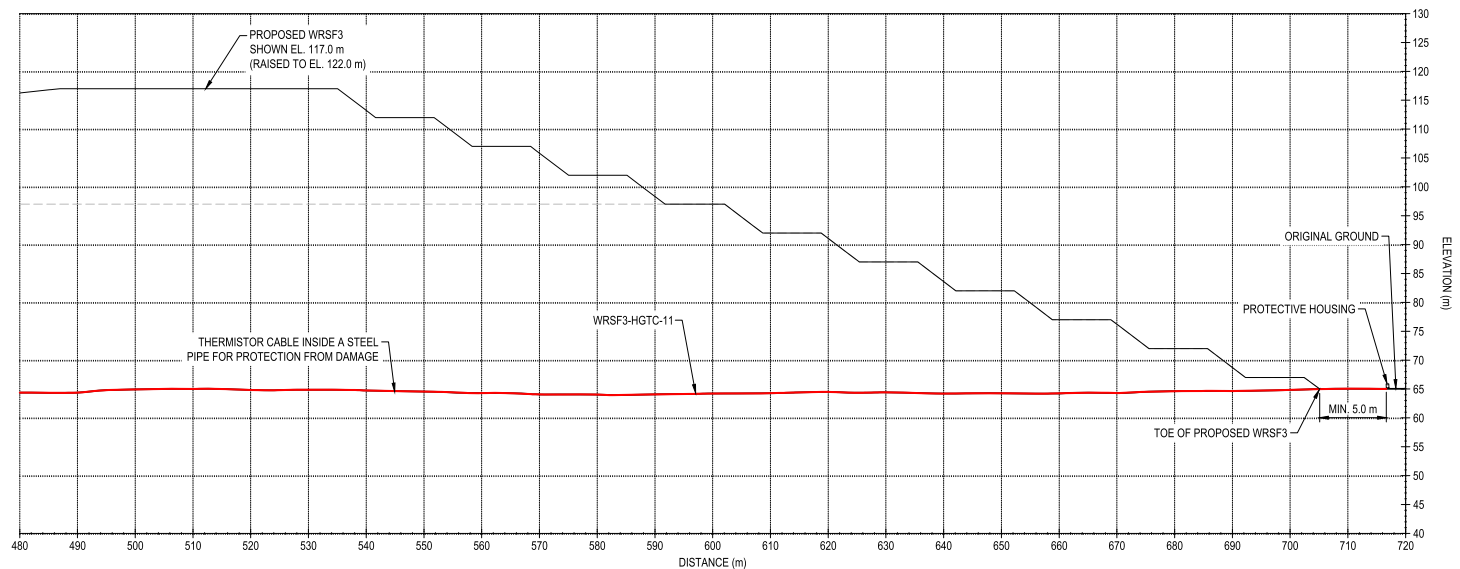
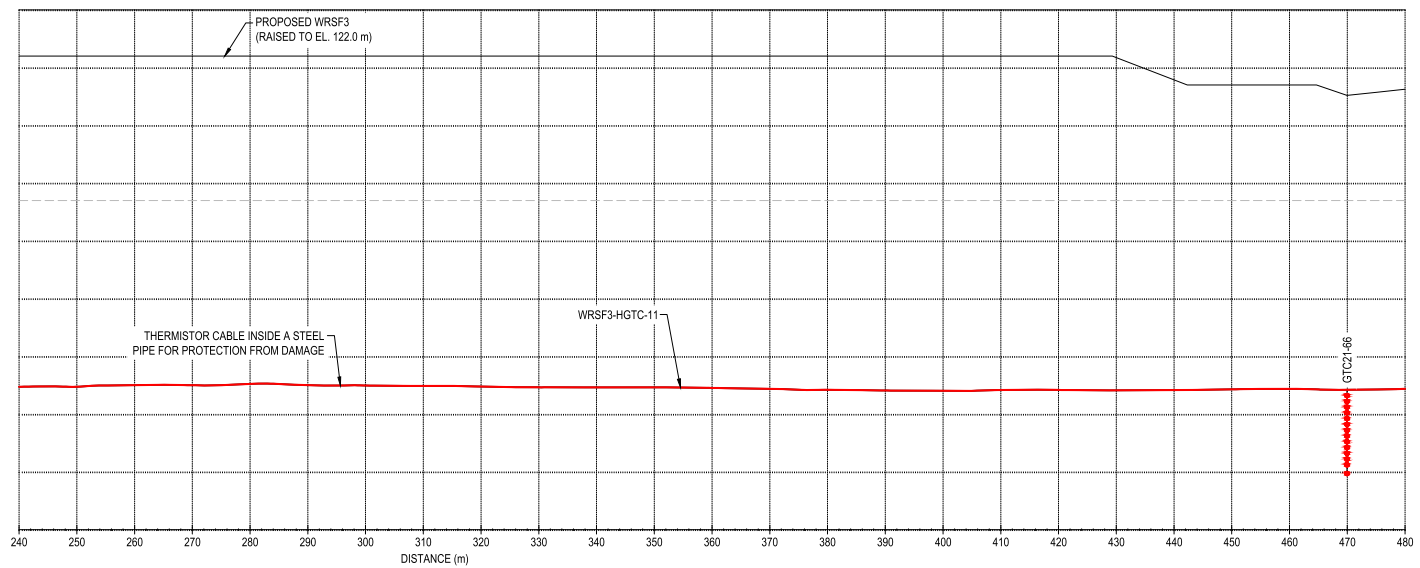
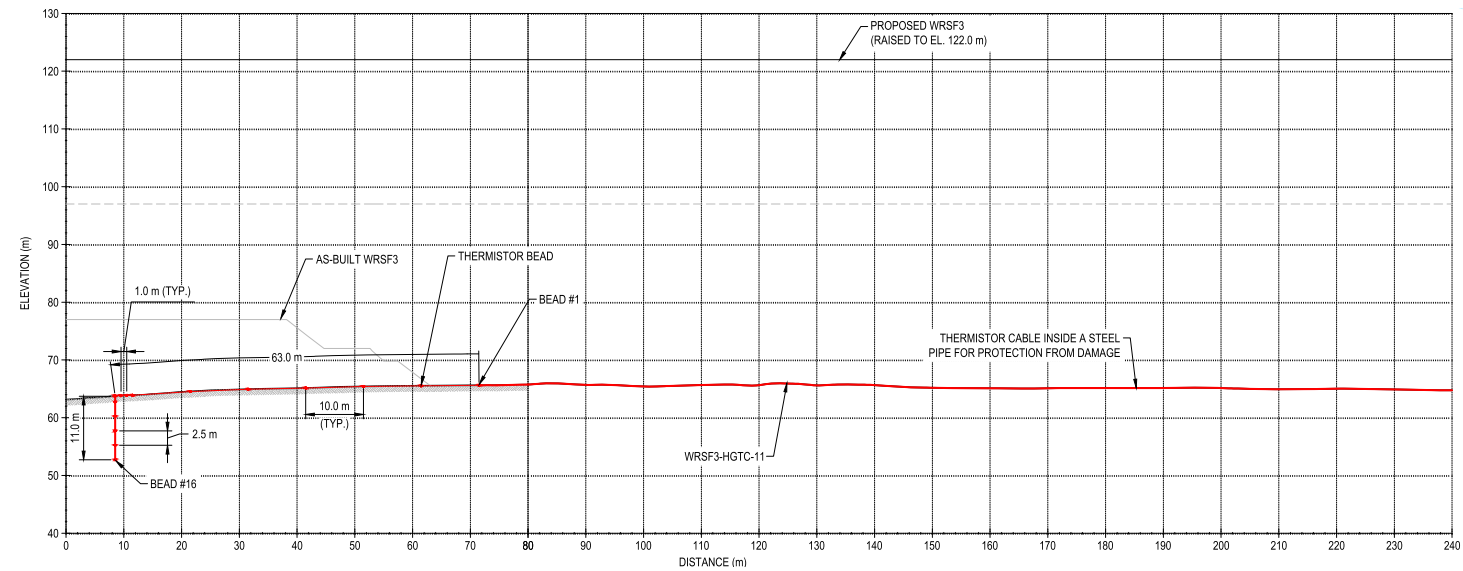
TYPICAL ACCESS RAMP FOR HAUL ROAD WITH ONE SIDE SAFETY BERM

N.T.S.

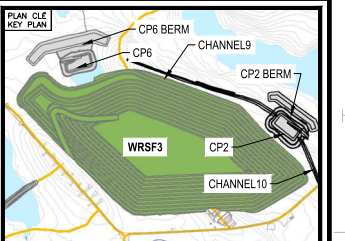




PLAN VIEW SHOWING LOCATIONS OF GROUND TEMPERATURE CABLES FOR WRSF3




WRSF3-HGTC-11
 SCALE: 1:600



NOTES GÉNÉRALES / GENERAL NOTES

1. A TOTAL OF 16 THERMISTOR BEADS FOR EACH GROUND TEMPERATURE CABLE.
2. THE THERMISTOR CABLES FOR WRSF3-HGTC-11 AND WRSF3-HGTC-12 WERE MANUFACTURED BEFORE THE DESIGN OF WRSF3. THESE CABLES WERE INSTALLED ON JANUARY 25 AND 26, 2020 DURING THE SITE INVESTIGATION. DUE TO HOLE SLOUGHING ISSUE, THE BOTTOMS OF BOTH CABLES WERE NOT INSTALLED TO THE DESIGN DEPTH. THE AS-INSTALLED BEAD LOCATIONS INSIDE THE HOLES ARE SHOWN ON THIS DRAWING.

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
 Signature _____
 Date _____
PERMIT NUMBER: P 018
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REGISTERED PROFESSIONAL ENGINEER
 M. H. XIA
 L.P. 123456
 INTNU
 2026-05-22

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[illegible]

3	2026-05-22	ISSUED FOR CONSTRUCTION	HX	HX	
2	2021-11-12	ISSUED FOR CONSTRUCTION	HX	WTH	
1	2021-10-24	WRSF3 EXPANSION - ISSUED FOR REVIEW	HX	WTH	
0	2020-02-21	ISSUED FOR CONSTRUCTION	GZ	WTH	
A	2020-02-14	ISSUED FOR REVIEW	GZ	WTH	
REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT

REVISIONS

TITLE / TITLE

AGNICO EAGLE MELIADINE GOLD MINE
WASTE ROCK STORAGE FACILITY No. 3

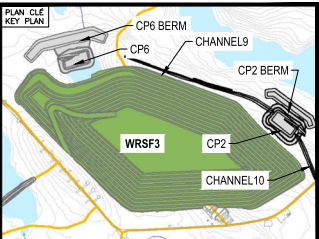
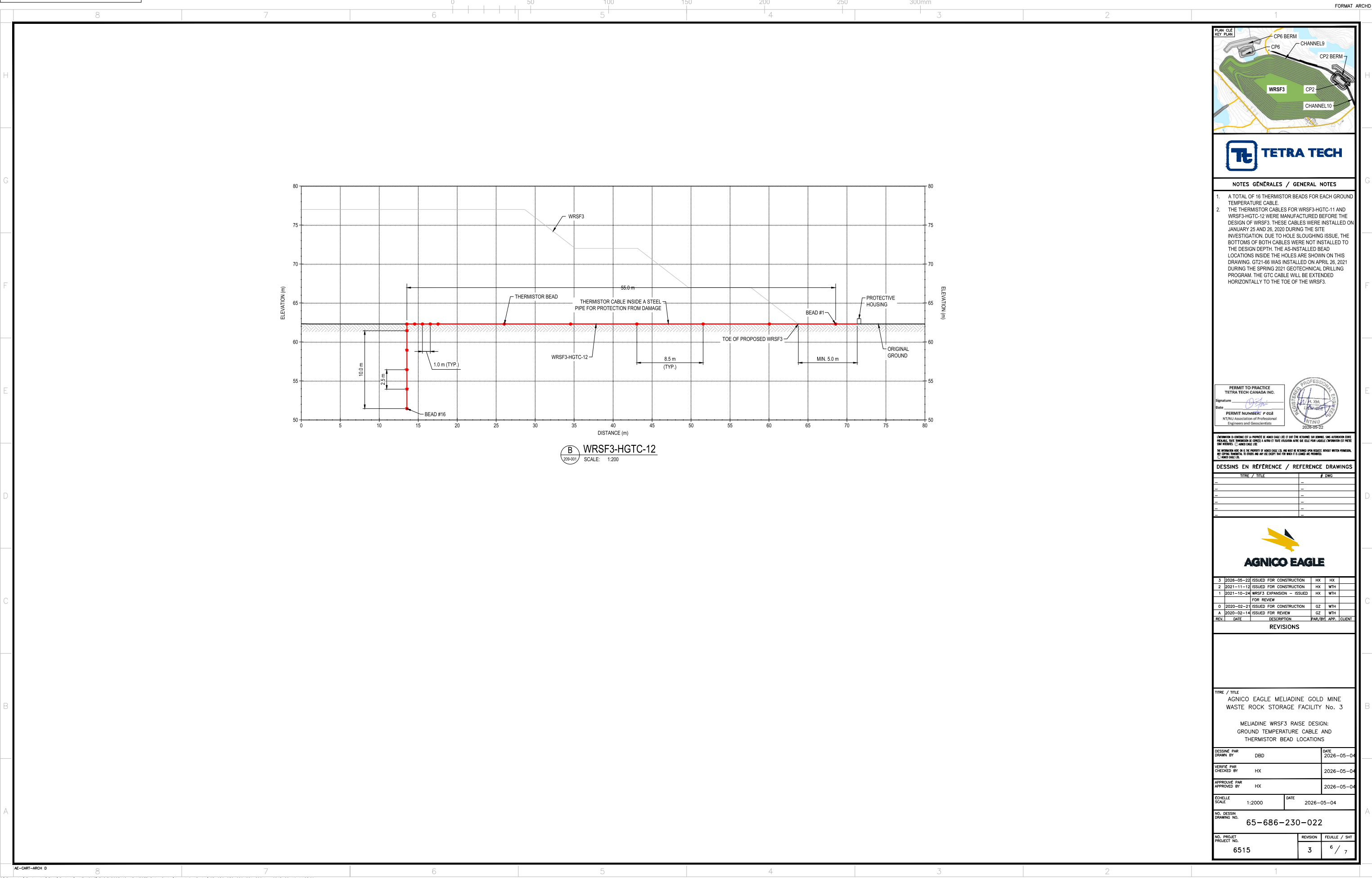
MELIADINE WRSF3 RAISE DESIGN:
GROUND TEMPERATURE CABLE AND
THERMISTOR BEAD LOCATIONS

DESSINÉ PAR DRAWN BY	DBD	DATE 2026-05-04
VÉRIFIÉ PAR CHECKED BY	HX	2026-05-04
APPROUVÉ PAR APPROVED BY	HX	2026-05-04

ECHELLE SCALE	1:2000	DATE	2026-05-04
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65-686-230-021

NO. PROJ PROJECT NO.	REVISION	FEUILLE / SHT
6515	3	5 / 7



NOTES GÉNÉRALES / GENERAL NOTES

1. A TOTAL OF 16 THERMISTOR BEADS FOR EACH GROUND TEMPERATURE CABLE.
2. THE THERMISTOR CABLES FOR WRSF3-HGTC-11 AND WRSF3-HGTC-12 WERE MANUFACTURED BEFORE THE DESIGN OF WRSF3. THESE CABLES WERE INSTALLED ON JANUARY 25 AND 26, 2020 DURING THE SITE INVESTIGATION. DUE TO HOLE SLOUGHING ISSUE, THE BOTTOMS OF BOTH CABLES WERE NOT INSTALLED TO THE DESIGN DEPTH. THE AS-INSTALLED BEAD LOCATIONS INSIDE THE HOLES ARE SHOWN ON THIS DRAWING. GT21-66 WAS INSTALLED ON APRIL 26, 2021 DURING THE SPRING 2021 GEOTECHNICAL DRILLING PROGRAM. THE GTC CABLE WILL BE EXTENDED HORIZONTALLY TO THE TOE OF THE WRSF3.

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Date: [Date]
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NTNU Association of Professional
Engineers and Geoscientists



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DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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3	2026-05-22	ISSUED FOR CONSTRUCTION	HX	HX	
2	2021-11-12	ISSUED FOR CONSTRUCTION	HX	WTH	
1	2021-10-24	WRSF3 EXPANSION - ISSUED FOR REVIEW	HX	WTH	
0	2020-02-21	ISSUED FOR CONSTRUCTION	GZ	WTH	
A	2020-02-14	ISSUED FOR REVIEW	GZ	WTH	
REV.	DATE	DESCRIPTION	PAR/REV	APP.	CLIENT

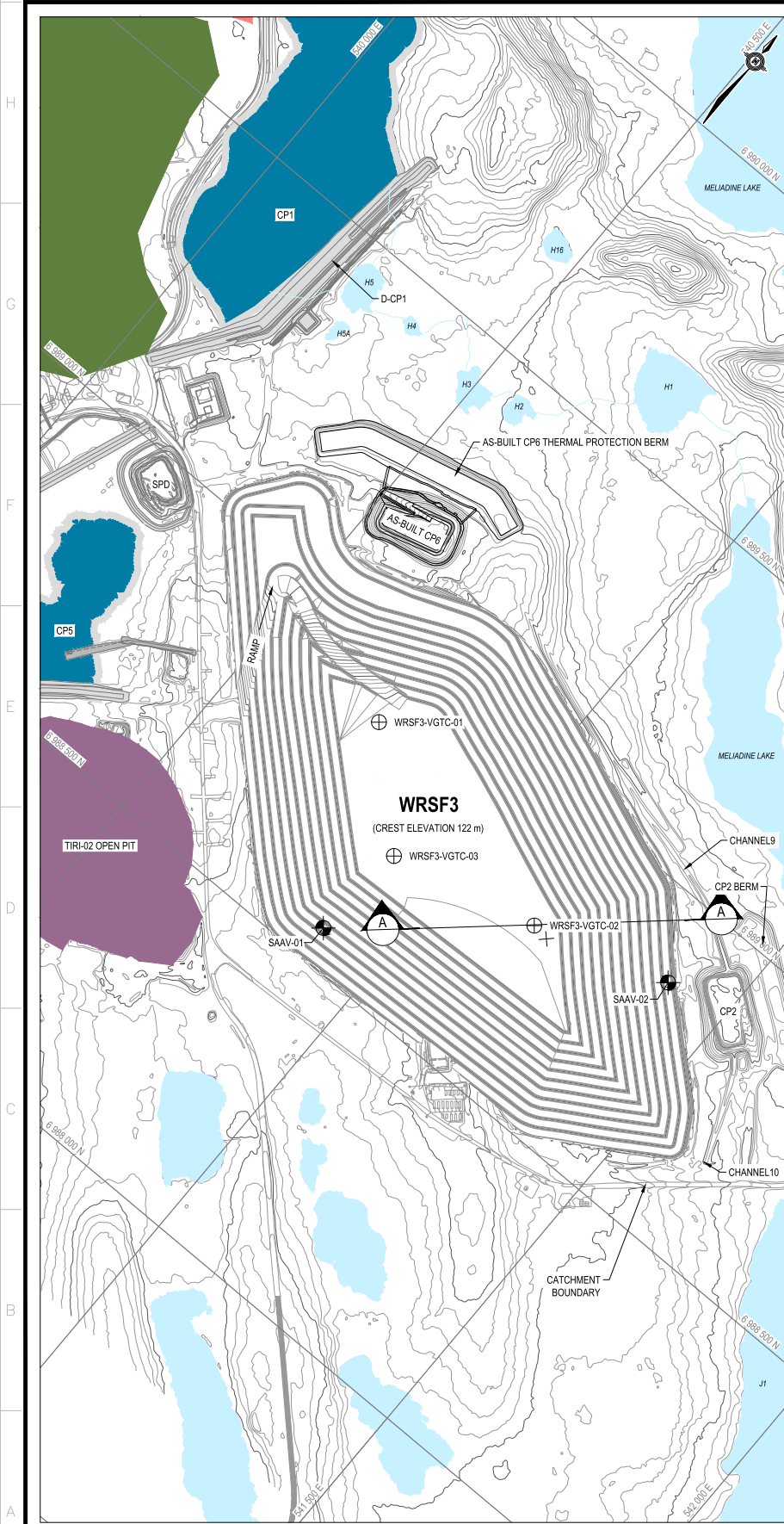
REVISIONS

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD MINE
WASTE ROCK STORAGE FACILITY No. 3

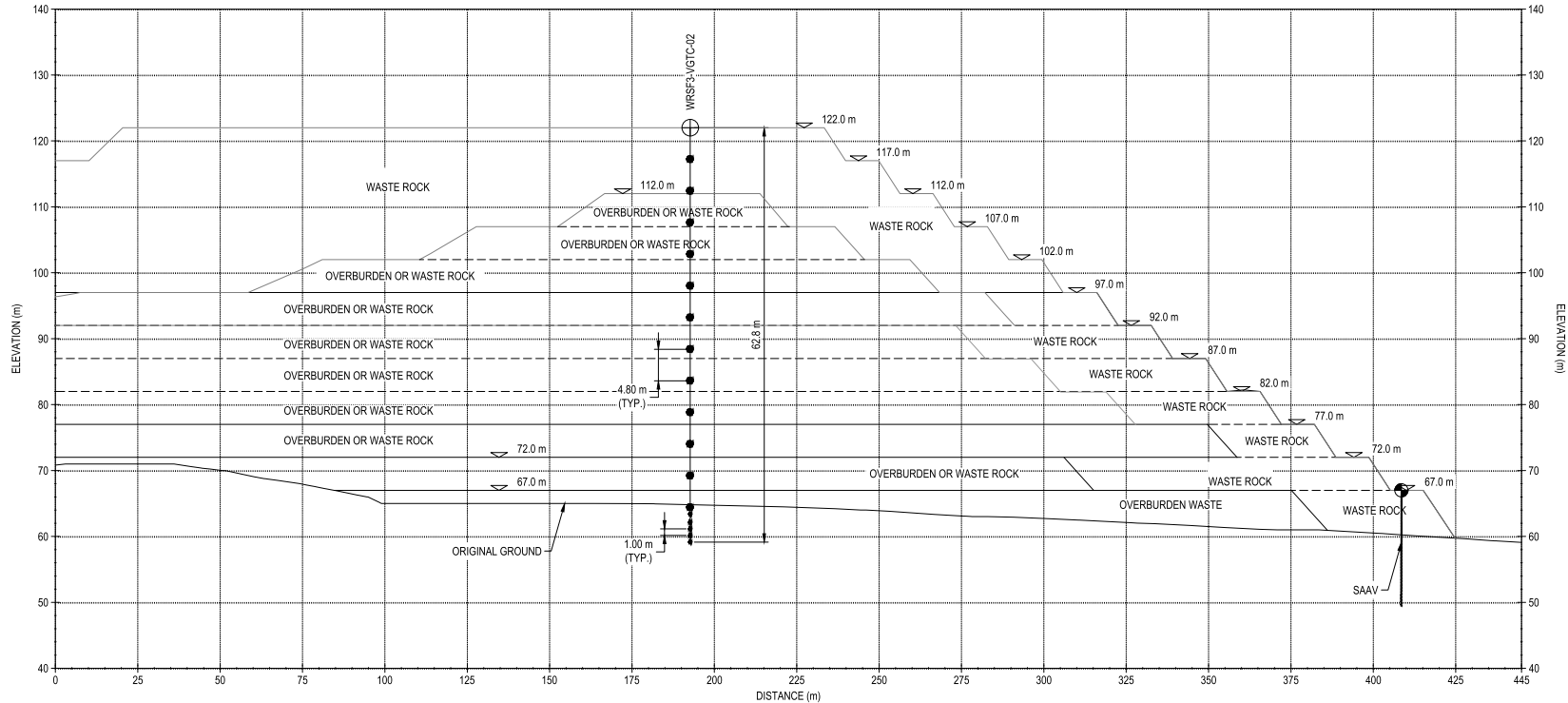
MELIADINE WRSF3 RAISE DESIGN:
GROUND TEMPERATURE CABLE AND
THERMISTOR BEAD LOCATIONS

DESSINÉ PAR DRAWN BY	DBD	DATE 2026-05-04
VÉRIFIÉ PAR CHECKED BY	HX	2026-05-04
APPROUVÉ PAR APPROVED BY	HX	2026-05-04

ECHELLE SCALE	1:2000	DATE 2026-05-04
NO. DESSIN DRAWING NO.	65-686-230-022	
NO. PROJET PROJECT NO.	6515	REVISION FEUILLE / SHEET 3 / 7

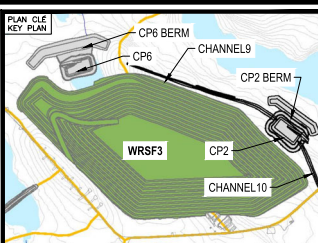


PLAN VIEW SHOWING LOCATIONS OF GROUND TEMPERATURE CABLES FOR WRSF3
SCALE = 1:5000



INSTRUMENTATION
SCALE: 1:500

VGTC AND SAAV CO-ORDINATES		
ID	NORTHING (m)	EASTING (m)
VGTC-01	6,988,884.7	540,739.6
VGTC-02	6,988,791.1	541,158.3
VGTC-03	6,988,729.1	540,903.1
SAAV-01	6,988,560.4	540,890.1
SAAV-02	6,988,861.7	541,391.6



NOTES GÉNÉRALES / GENERAL NOTES

- A TOTAL OF 16 THERMISTOR BEADS FOR EACH GROUND TEMPERATURE CABLE. THE DETAILED BEAD SPACING TO BE FURTHER DETERMINED PRIOR TO CABLE MANUFACTURING.
- THE TOTAL LENGTH OF EACH SAAV WILL BE DETERMINED PRIOR TO ORDERING.

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature: [Signature]
Date: [Date]
PERMIT NUMBER: P 018
INTNU Association of Professional
Engineers and Geoscientists



INFORMATION D-CONTENUE EST LA PROPRIÉTÉ DE AGNICO EAGLE INC. ET NE DOIT ÊTRE RÉVÉLÉE À UN TIERS, NI ÊTRE REPRODUITE, NI ÊTRE UTILISÉE À D'AUTRES FINS QUE CELLES POUR LESQUELLES ELLE A ÉTÉ FOURNIE. © AGNICO EAGLE INC. 2026-05-22

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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3	2026-05-22	ISSUED FOR CONSTRUCTION	HX	HX
2	2021-11-12	ISSUED FOR CONSTRUCTION	HX	WITH
1	2021-10-24	WRSF3 EXPANSION - ISSUED FOR REVIEW	HX	WITH
0	2020-02-21	ISSUED FOR CONSTRUCTION	OZ	WITH
A	2020-02-14	ISSUED FOR REVIEW	OZ	WITH
REV.	DATE	DESCRIPTION	PAR/BY	APP. CLIENT

REVISIONS

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD MINE
WASTE ROCK STORAGE FACILITY No. 3
MELIADINE WRSF3 RAISE DESIGN:
GROUND TEMPERATURE CABLE AND
SAAV LOCATIONS

DESSINÉ PAR DRAWN BY	DBD	DATE 2026-05-04
VÉRIFIÉ PAR CHECKED BY	HX	2026-05-04
APPROUVÉ PAR APPROVED BY	HX	2026-05-04

ÉCHELLE SCALE	1:2000	DATE 2026-05-04
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NO. DESSIN
DRAWING NO. 65-686-230-023

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHEET
6515	3	8 / 8