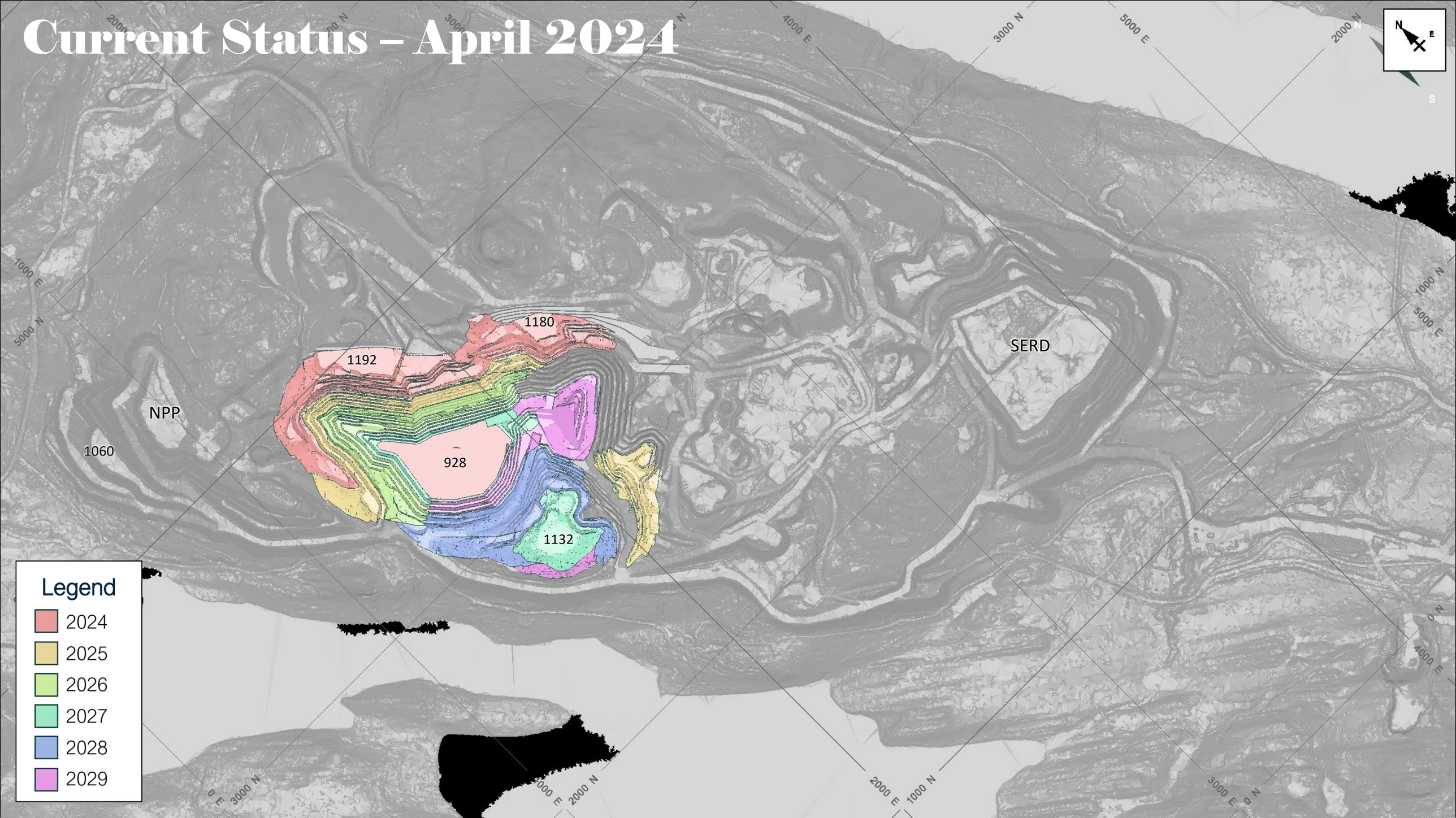
APPENDIX 4-1: LOM SEQUENCING

5-Year Sequencing

Current Status – April 2024



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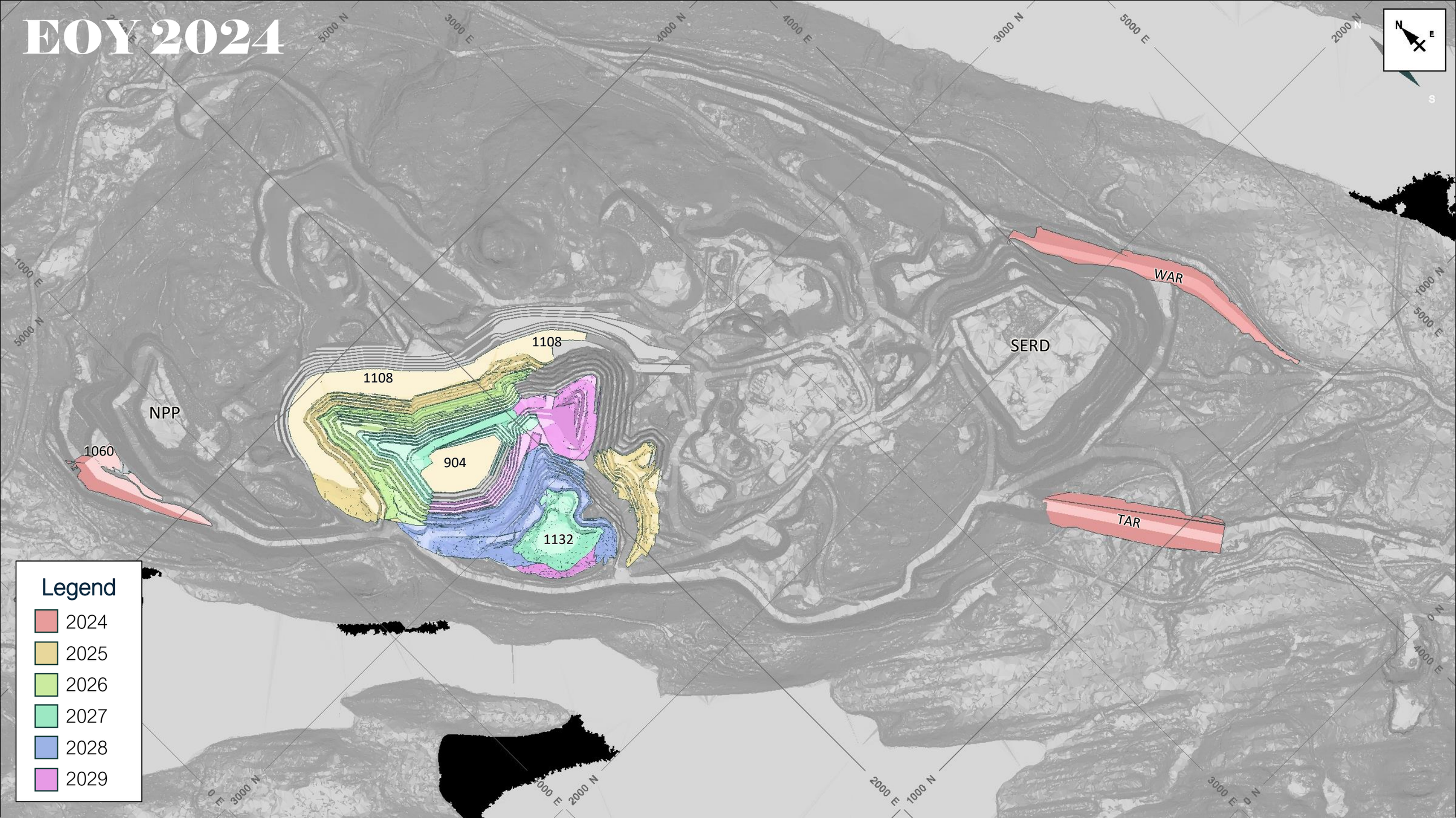
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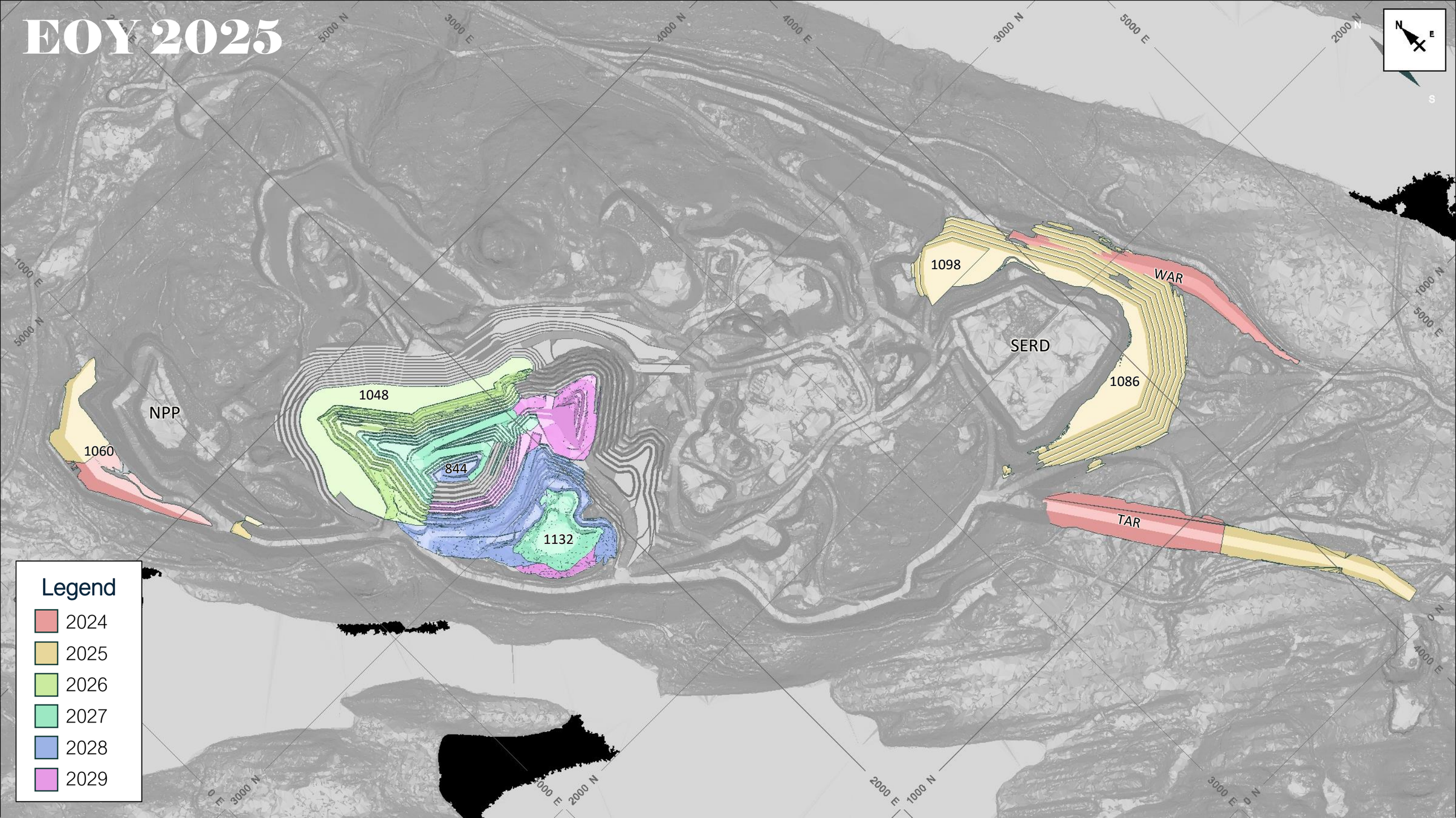
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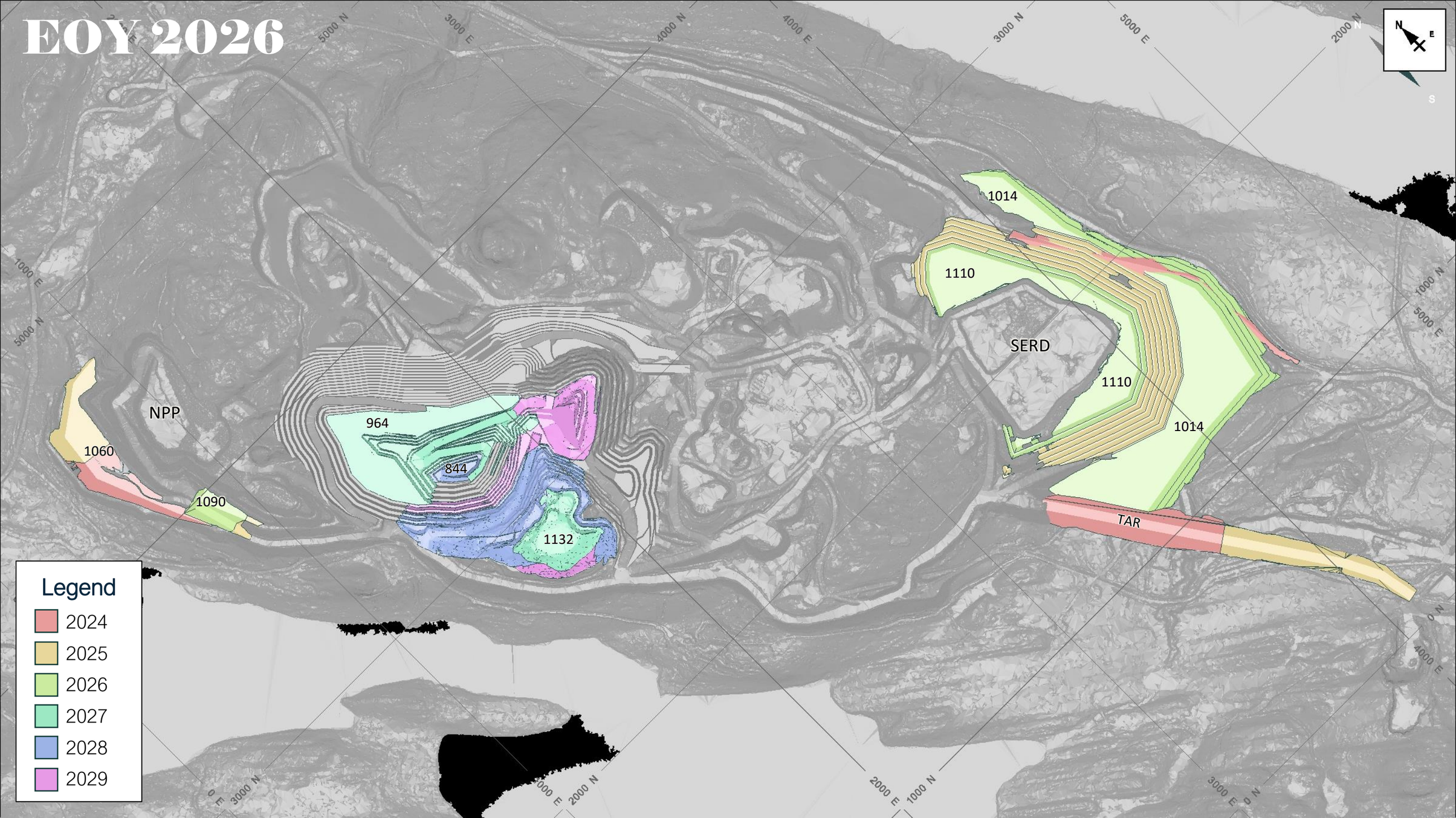
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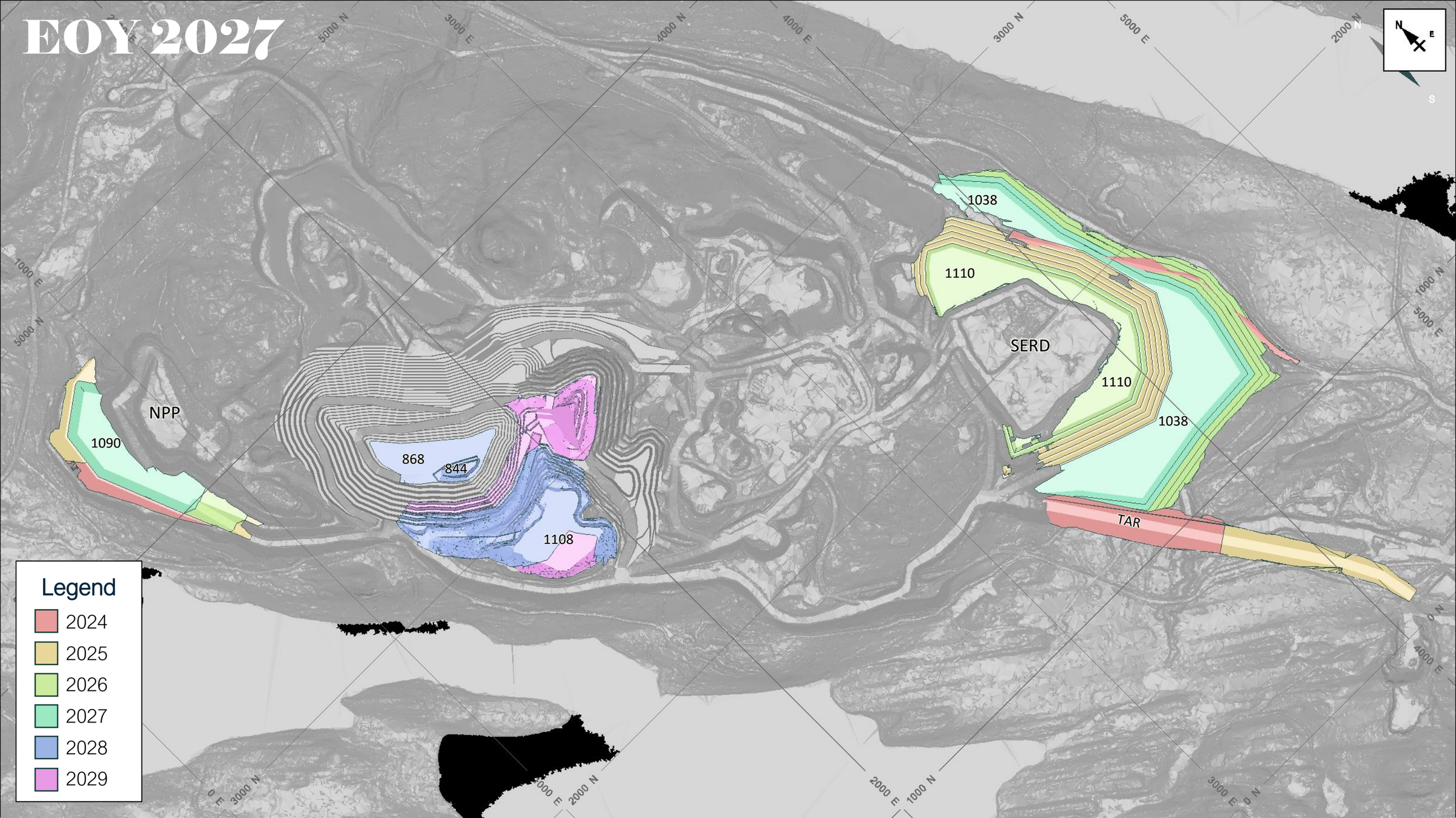
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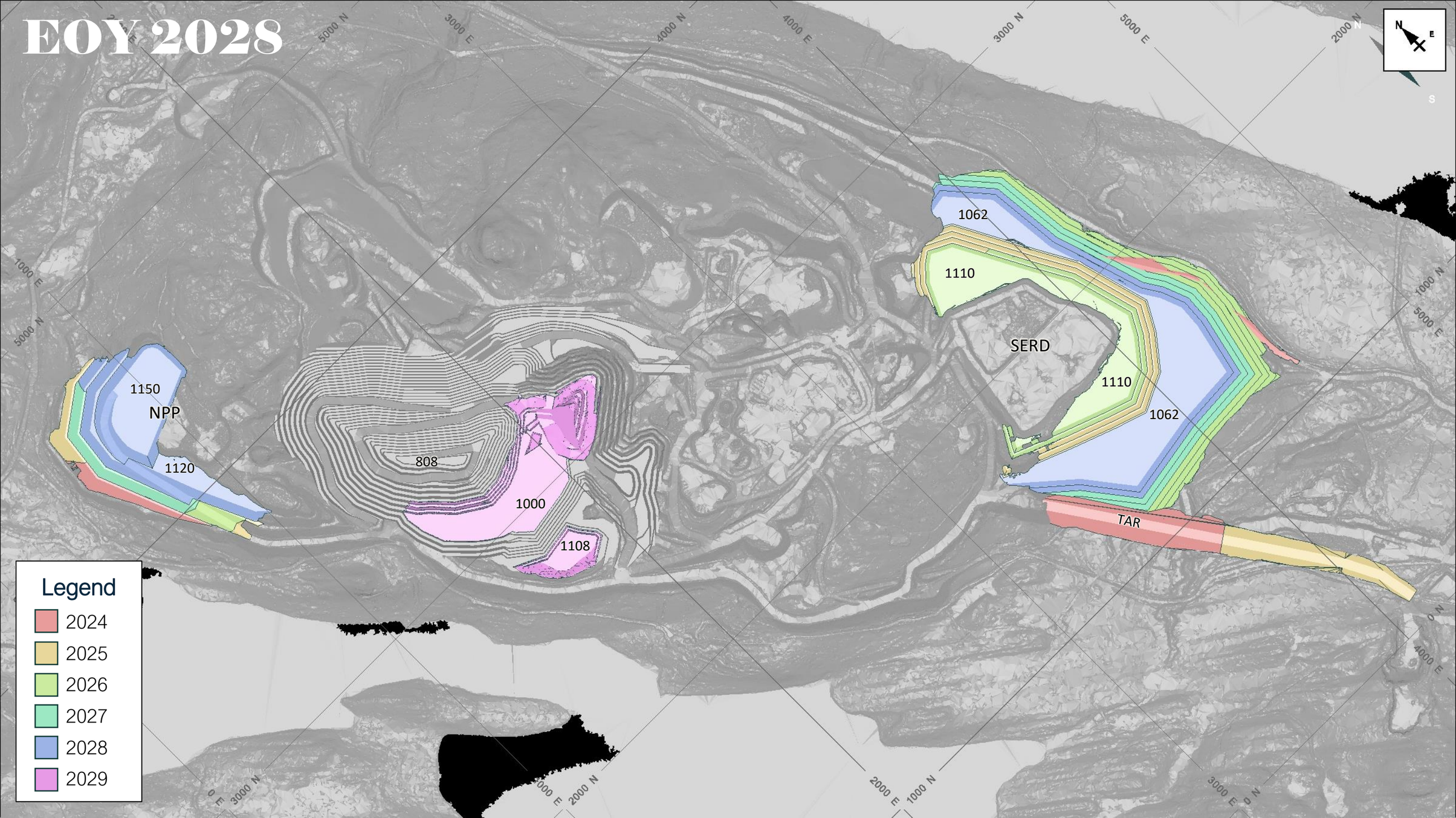
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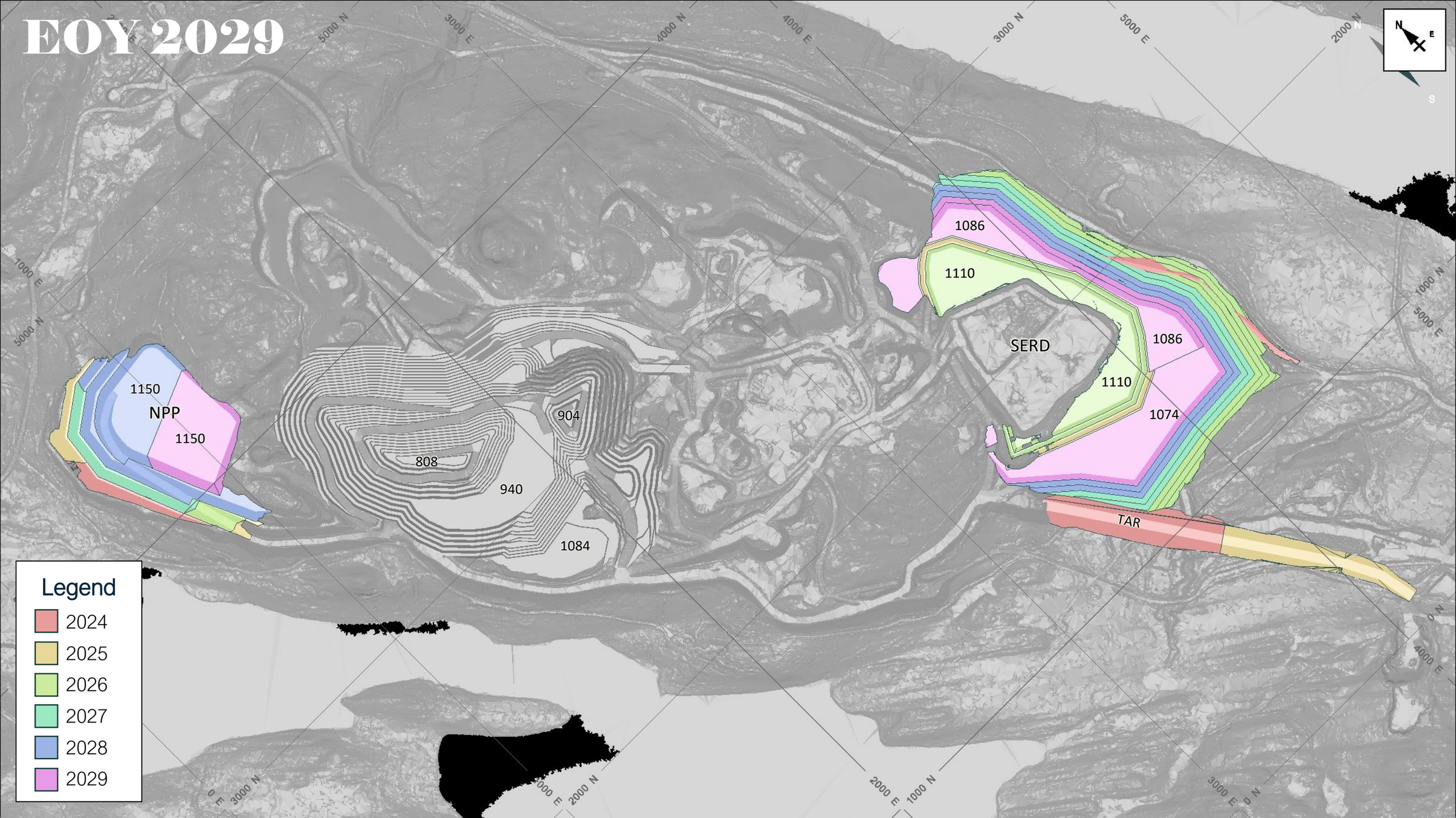
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APPENDIX 4-2: NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT LOM OPEN PIT DESIGN REVIEW

REPORT

Northwest Potentially Acid Generating Dump Geotechnical Assessment

Mount Polley Mine

Submitted to:

Mount Polley Mining Corporation

PO Box 12
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V0L 1N0

Attention: Richard Tuohey, Chief Engineer

Submitted by:

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Reference No. CA0020527.4505-037-R-Rev0-75192

May 7, 2024

Distribution List

Electronic Copy: Mount Polley Mining Corporation

Electronic Copy: WSP Canada Inc.

Executive Summary

Mount Polley Mining Corporation (MPMC) operates a copper/gold open pit mining operation located 8 km southwest of the town of Likely and 56 km northeast of Williams Lake in central British Columbia. Mining is currently being carried out in the Springer Pit, and non-acid generating (NAG) and potentially acid generating (PAG) waste rock excavated from the pit will be consigned to the Northwest PAG Dump (NW PAG Dump).

MPMC retained WSP Canada Inc. (WSP) to carry out a geotechnical assessment of an updated proposed ultimate design of the NW PAG Dump. In September 2023, December 2023, and January 2024, WSP carried out a test pit and drilling program for foundation investigations within and around the proposed footprint of the ultimate NW PAG Dump. A summary of the 2023/2024 investigation and laboratory testing results is presented in a field data report (WSP 2024b).

This report provides:

- a description of the existing NW PAG Dump and previous slope stability performance
- a description of the proposed ultimate NW PAG Dump
- a summary of previous geotechnical field investigations
- a description of the site foundation conditions, and of engineering geology of the expected foundation materials and waste rock
- the factors that are expected to control the stability of the proposed ultimate NW PAG Dump
- discussion of the results of the slope stability analyses
- discussion of the results of the runout analyses
- discussion of the results of the rollout assessment
- a summary of recommendations regarding construction and operational procedures that are intended to enhance the short and long-term stability of the proposed ultimate NW PAG Dump

Current Performance

The NW PAG Dump has been reviewed for slope stability performance annually since 2012 during the annual slope stability reviews completed by Golder/ WSP. In general, the NW PAG Dump has exhibited good slope stability performance over the years with minor areas of deformation that have been managed by MPMC.

Proposed Development

The proposed NW PAG Dump development includes construction of three 40 to 50 m lifts above the current north lobe of the NW PAG Dump. The NW PAG Dump will be constructed from the bottom-up with angle of repose waste rock lift faces, 10 m wide catch-benches, and an overall slope angle of 28 degrees. The ultimate haul ramp will enter the NW PAG Dump from the southern portion of the dump and ascend across the slope face.

Geotechnical Field Investigations

To date, five foundation investigation programs have been completed within and around the footprint of the NW PAG Dump. Test pits were excavated for geotechnical programs completed in 1999, 2010, and 2023, and boreholes drilled for geotechnical programs were completed in 2023 and 2024. Geotechnical laboratory testing was completed on samples from the 1999, 2023, and 2024 geotechnical field investigations.

Site Characterization and Engineering Geology

The local surficial geology consists of Quaternary glacial deposits overlain by fill/anthropogenic deposits. Based on the foundation materials and cross-section review the following summarizes the surficial geology interpretation:

- Colluvium is interpreted to be a thin veneer underlying the eastern slope of the NW PAG Dump, with localized areas of thicker colluvium layers to the southwest of the dump footprint.
- Till is interpreted to cover the majority of the NW PAG Dump footprint, with variable thickness.
- Glaciofluvial deposits are located in isolated areas at the north end of the dump and near the center. Till typically overlies the glaciofluvial deposits.
- Fine-grained material is interpreted to be present in an isolated area on the west side of the NW PAG Dump at depth and is overlain by till. This material has been modeled as part of the till. It is possible that fine-grained material could be located in other parts of the foundation of the NW PAG Dump that were not investigated.
- Clay material is interpreted to be present in an isolated area on the northeast side of the NW PAG Dump about 0.9 m below original ground surface and is discontinuous (interbedded with silty clay). This material has been modeled as a separate unit as a sensitivity analysis.

Summary and Recommendations

Based on the Hawley and Cunning (2017) waste rock dump slope stability rating and hazard classification system, the proposed ultimate NW PAG Dump is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III).

The slope stability analyses results for the proposed ultimate NW PAG Dump design indicate that the dump will meet the design acceptance criteria for slope stability under static and pseudo-static conditions, with the exception of analyses completed with low clay material strength parameters (a phi less than about 27 degrees). The clay material was encountered in an isolated “pocket” north of the current toe of the dump in DH-NW-02 and was not found in the adjacent boreholes and test pits (DH-NW-03, DH-NW-03A, TP-NW-01, TP-NW-02, and TP-NW-03). No investigations have been completed immediately beneath the toe of the NW PAG Dump in this area as access is limited. The material was inferred to be discontinuous/interbedded with silty clay. The area of the current NW PAG Dump near where the clay material was encountered is stable, and has been since construction, indicating that at least a FOS of 1.0 is being achieved. Recommendations for construction near the clay material include:

- Remove the clay material prior to dumping in this area (even though the toe of the proposed ultimate NW PAG Dump does not cover the area where DH-NW-02 was drilled). The clay material was encountered in an old borrow area, therefore, more material could be removed from the borrow area to key into the till material below.

- Use low lift heights (about 5 m) when constructing the lower NAG lift in this area to limit development of potential excess pore pressures and not rapidly load the clay material if it does exist further south beneath the proposed ultimate NW PAG Dump design toe.
    - When constructing the low lifts, advancement could be such that the borrow area is encapsulated (where the potential clay material exists if it extends as far south as the proposed ultimate NW PAG Dump footprint). Once the area is encapsulated, waste rock can then be dumped into the encircled area. This method provides lateral support from the surrounding topography and the dump prior to dumping on top of the borrow area.

The runout analyses results indicate that under wet foundation conditions, it is likely that failure debris would impact the Bootjack Access Road and settling ponds. Based on the slope stability performance of the NW PAG Dump over the past 12 years, and on the slope stability analyses carried out for the proposed ultimate NW PAG Dump design, there is a low probability that a failure would occur in the NW PAG Dump due to the relatively high FOS indicated by the slope stability analyses.

Rock rollout could impact the Bootjack Access Road.

Settlement of the NW PAG Dump is expected to be limited and manageable.

Recommendations for the proposed ultimate NW PAG Dump construction include:

- Controlled loading rates
    - Prism and VWP data along with visual inspections and daily loading rates can all be used to understand if loading rates are having an adverse affect on dump construction.
- While constructing the NW PAG Dump, dumping operations should avoid concentrated dumping at a single location and should use as wide a strike length along the slope face as possible while advancing a lift.
- Construct berms at the edge of each catch-bench and free dump along the entire lift prior to constructing the next lift to limit rock rollout.
- Follow Standard Operating Procedures at Mount Polley Mine for:
    - Grading the dump and avoid ponding water on platforms.
    - Controlling the placement of waste rock being used for construction. The waste rock type should be discussed and planned in collaboration with geology and short-range engineering, as required.
      The material consigned to the NW PAG Dump should be good quality waste rock that is hard, coarse rock. Poor-quality material such as fault or overburden materials should be dumped in a central location of the dump such that it can be encapsulated and covered with good quality waste rock.

The stability of the NW PAG Dump slopes is being monitored by prisms (MPMC 2021). The prisms should be measured by the MPMC survey team on approximately a monthly basis for the active NW PAG Dump. Survey personnel should continue to ensure consistency in readings and use the same setup and monitoring procedures for each set of measurements. This will improve the ability to detect localized and short-term displacements as well as develop more accurate interpretations of long-term settlement trends. If any significant storm events occur that exceeds a five-year return period or daily maximum precipitation, the prisms should be read. Daily temperature and barometric pressure corrections should be applied to the monitoring data, as rapid changes in temperature or barometric pressure can have a significant impact on the day-to-day accuracy of the data.

A key component to the safe operation of the proposed ultimate NW PAG Dump to mitigate instability will be regular visual inspections. The following operational procedures are recommended for the proposed ultimate NW PAG Dump:

- The proposed ultimate NW PAG Dump should be visually inspected and photo-documented on a regular basis during construction, on approximately a weekly basis. The pit shifter or the geotechnical engineer should be completing the formal visual inspections. The following information should be investigated and recorded:
  - The crests of the NW PAG Dump lifts should be examined for signs of cracking and localized settlement and ponding water.
  - The faces of the NW PAG Dump lifts should be examined for signs of oversteepening, bulging in the middle, seepage, erosion, and the toe of the dump if it can be observed for signs of deformation.
  - The type of material being placed on the NW PAG Dump lifts and the loading rates should be documented.
- Dozer and haul truck operators should be continuously observing the construction of the NW PAG Dump lifts for signs of instability and reporting their observations to their pit shifter.

Study Limitations

WSP Canada Inc. (WSP) has prepared this document in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this document. No warranty, express or implied, is made.

This document, including all text, data, tables, plans, figures, drawings, and other documents contained herein, has been prepared by WSP for the sole benefit of Mount Polley Mining Corporation (MPMC). It represents WSP's professional judgement based on the knowledge and information available at the time of completion. WSP is not responsible for any unauthorized use or modification of this document. All third parties relying on this document do so at their own risk.

The factual data, interpretations, suggestions, recommendations, and opinions expressed in this document pertain to the specific project, site conditions, design objective, development and purpose described to WSP by MPMC, and are not applicable to any other project or site location. In order to properly understand the factual data, interpretations, suggestions, recommendations and opinions expressed in this document, reference must be made to the entire document.

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Table of Contents

EXECUTIVE SUMMARY ..... **ii**

STUDY LIMITATIONS ..... **v**

1.0 INTRODUCTION **1**

2.0 EXISTING NORTHWEST POTENTIALLY ACID GENERATING DUMP AND PREVIOUS SLOPE STABILITY PERFORMANCE **2**

3.0 PROPOSED ULTIMATE NORTHWEST POTENTIALLY ACID GENERATING DUMP DESIGN **5**

4.0 SUMMARY OF GEOTECHNICAL FIELD INVESTIGATIONS **6**

4.1 1999 Geotechnical Field Investigation 6

4.2 2010 Geotechnical Field Investigation 7

4.3 2023 and 2024 Geotechnical Field Investigations 7

4.4 Geotechnical Laboratory Testing of Foundation Soils 10

5.0 SITE CHARACTERIZATION AND ENGINEERING GEOLOGY **11**

5.1 Regional Geomorphological Setting 11

5.2 Topography 11

5.3 Regional Surface Geology 11

5.4 Local Surficial Geology 12

5.4.1 Colluvium 13

5.4.2 Till 13

5.4.3 Glaciofluvial Deposits 15

5.4.4 Fine-Grained Material 15

5.4.5 Clay Material 17

5.4.6 Bedrock 18

5.5 Waste Rock 18

5.6 Groundwater 19

5.7 Site Seismicity 21

5.8 Cross-Section Review 21

5.9 Surficial Geology Interpretation 23

6.0 SLOPE STABILITY ASSESSMENT 24
6.1 Slope Stability Rating and Hazard Classification 24
6.2 Instability Mechanisms 25
6.3 Potential Liquefaction 26
6.4 Design Factors of Safety 27
6.5 Slope Stability Methodology and Assumptions 31
6.6 Material Strength Properties 33
6.7 Slope Stability Analyses Results 34
7.0 PREDICTIVE RUNOUT ASSESSMENT 38
7.1 Predictive Runout Assessment Methodology 38
7.2 Predictive Runout Assessment Failure Surfaces 38
7.3 Predictive Runout Assessment Material Properties 39
7.4 Predictive Runout Assessment Results 40
8.0 ROCK ROLLOUT ASSESSMENT 41
9.0 SETTLEMENT 42
10.0 CONSTRUCTION AND OPERATIONAL CONSIDERATIONS 43
10.1 Construction Recommendations 43
10.2 Topsoil Management 43
10.3 Slope Stability Monitoring 43
11.0 SUMMARY AND RECOMMENDATIONS 45
12.0 CLOSURE 47

TABLES

Table 1: Previous Slope Stability Performance of the NW PAG Dump 3
Table 2: 1999 Field Investigation Summary (after Golder 2010a) 6
Table 3: 2010 Field Investigation Summary (after Golder 2010b) 7
Table 4: Depth to Bedrock Logged During 2023 and 2024 Field Investigations (after WSP 2024b) 9
Table 5: Summary of Index Test Results for Colluvium (after WSP 2024b) 13
Table 6: Summary of Index Test Results for Till (after WSP 2024b) 14

Table 7: Summary of Index Test Results for Glaciofluvial Deposits 15
Table 8: Summary of Index Test Results for the Fine-Grained Material 16
Table 9: Summary of Index Test Results for Clay Material 17
Table 10: Shear Strength Functions for Waste Rock (after Hawley and Cunning 2017) 19
Table 11: Summary of Vibrating Wire Piezometers and Approximate Groundwater Elevations for NW PAG Dump 20
Table 12: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023) 21
Table 13: NW PAG Stability Rating and Hazard Classification Results 24
Table 14: BCMWRPRC (1991) Recommended Factors of Safety for Waste Rock Dumps 28
Table 15: Suggested Stability Criteria Factors of Safety (Hawley and Cunning 2017) 29
Table 16: Recommended Design Acceptance Criteria Factors of Safety for Proposed Ultimate NW PAG Dump 31
Table 17: Material Strength Properties Selected for Slope Stability Analyses 33
Table 18: Results of Slope Stability Analyses for the Proposed Ultimate NW PAG Dump Design 35
Table 19: Summary of Predictive Runout Models and Corresponding Slope Stability Models 39
Table 20: Material Properties for the Predictive Runout Analyses of the NW PAG Dump 39
Table 21: Summary of Predictive Runout Analyses Results for the NW PAG Dump 40

FIGURES

Figure 1: Mount Polley Mine NW PAG Dump Site Location 51
Figure 2: October 2023 Topography of NW PAG Dump 52
Figure 3: Proposed Ultimate NW PAG Dump Design 53
Figure 4: October 2023 Topography Field Investigation Locations 54
Figure 5: Foundation Slope Dip Showing Proposed Ultimate NW PAG Dump Footprint And Field Investigation Locations 55
Figure 6: Stratigraphic Column Mount Polley Mine Area 56
Figure 7: Non-Linear Shear Strength of Rockfill from Triaxial Tests After Leps (1970) 57
Figure 8: Surficial Geology Interpretation for Proposed Ultimate NW PAG Dump Design Area 58
Figure 9: Rock Rollout Shadow for Proposed Ultimate NW PAG Dump Design 59
Figure 10: Waste Rock Dump Prism Monitoring Data Interpretation Criteria 60

ILLUSTRATIONS

Illustration 1: Proposed Ultimate NW PAG Dump Slope Stability Rating and Hazard Classification.....25

Illustration 2: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Overall.....36

Illustration 3: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Lower Lift.....37

APPENDICES

APPENDIX A
Slope Stability Performance Photographs

APPENDIX B
Cross-Section Review

APPENDIX C
Particle Size Distribution and Atterberg Limits Summary

APPENDIX D
Cone Penetration Testing Data Review

APPENDIX E
Hydrogeology Summary and Vibrating Wire Piezometer Data

APPENDIX F
Hazard Classification

APPENDIX G
Slope Stability Analyses

APPENDIX H
Runout Analyses

1.0 INTRODUCTION

Mount Polley Mining Corporation (MPMC) operates a copper/gold open pit mining operation located 8 km southwest of the town of Likely and 56 km northeast of Williams Lake in central British Columbia (BC). Mining is currently being carried out in the Springer Pit, and non-acid generating (NAG) and potentially acid generating (PAG) waste rock excavated from the pit will be consigned to the Northwest PAG Dump (NW PAG Dump).

A waste rock dump on the west side of the property was originally permitted in 1995 (Imperial 1995). In 2012, MPMC submitted a permit amendment for this waste rock dump (at the time called the temporary West Stockpile for PAG waste), requesting an increase in capacity from 15 Mt to 45 Mt (MPMC 2012). In 2013, Golder Associates Ltd. (Golder) conducted a geotechnical review of an updated design provided by MPMC for the Northwest Dump (Golder 2013a). After Golder submitted the geotechnical review of the Northwest Dump, MPMC modified the configuration of the dump. Golder provided an addendum technical memorandum summarizing updated slope stability analyses of the modified dump configuration (Golder 2013b).

MPMC retained WSP Canada Inc. (WSP) to carry out a geotechnical assessment of an updated proposed ultimate design of the NW PAG Dump. In September 2023, December 2023, and January 2024, WSP carried out a test pit and drilling program for foundation investigations within and around the proposed footprint of the ultimate NW PAG Dump. A summary of the 2023/2024 investigation and laboratory testing results is presented in a field data report (WSP 2024b).

This report provides:

- a description of the existing NW PAG Dump and previous slope stability performance
- a description of the proposed ultimate NW PAG Dump
- a summary of previous geotechnical field investigations
- a description of the site foundation conditions, and of engineering geology of the expected foundation materials and waste rock
- the factors that are expected to control the stability of the proposed ultimate NW PAG Dump
- discussion of the results of the slope stability analyses
- discussion of the results of the runout analyses
- discussion of the results of the rollout assessment
- a summary of recommendations regarding construction and operational procedures that are intended to enhance the short and long-term stability of the proposed ultimate NW PAG Dump

This report is to be read with the Study Limitations Section, which precedes the text and forms an integral part of this report.

2.0 EXISTING NORTHWEST POTENTIALLY ACID GENERATING DUMP AND PREVIOUS SLOPE STABILITY PERFORMANCE

The NW PAG Dump is located at the northwest end of the mine property to the west of the Springer Pit (Figure 1). Figure 2 shows the October 2023 configuration of the NW PAG Dump.

Golder/WSP has not provided construction quality assurance for the NW PAG Dump, rather Golder/WSP has provided geotechnical slope stability reviews of proposed ultimate designs provided by MPMC and slope stability reviews as construction has progressed during annual inspections.

The dump is separated into two areas, the south and north lobes. The south lobe was constructed between 2012 and 2013. MPMC indicated that trees were logged, and the topsoil was stripped from the foundation prior to construction of three lifts of NAG rock (each approximately 5 m high) which were advanced to the north (Golder 2013c). PAG rock was end-dumped on top of the NAG lifts in four 25 m high lifts from the bottom up to elev. 1,135 m. The south lobe is founded on gently to moderately sloping terrain that is inclined at approximately 20 to 30 degrees to the southwest and west. The north lobe began construction in 2013 and is ongoing. Again, MPMC indicated that trees were logged, and the topsoil was stripped from the foundation prior to construction of three lifts of NAG rock (each about 5 m high), which were advanced to the north (Golder 2015c). PAG rock has been end-dumped on top of the NAG lifts in four to five 25 m high lifts from the bottom up to elev. 1,138 m.

The NW PAG Dump has been reviewed for slope stability performance annually since 2012 during the annual slope stability reviews completed by Golder/WSP. Slope stability performance observations and previous recommendations are summarized in Table 1 and photographs are presented in Appendix A. In general, the NW PAG Dump has exhibited good slope stability performance over the years with minor areas of deformation that have been managed by MPMC.

Table 1: Previous Slope Stability Performance of the NW PAG Dump

Year	Slope Stability Review Performance Observations	Recommendations Provided at Time of Observation	Recommendations Addressed by MPMC	Report	Appendix A, Figure No.
2012	▪ NW PAG Dump was being advanced towards the north over natural topography and the lower NAG lift (south lobe). ▪ Settlement cracks observed on the southwest side of the first NAG lift. Bulging in the toe area was also evident.	▪ Cracks should be filled with fine-grained material and continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Yes	Golder 2013c	A-1
2013	▪ North lobe of NW PAG Dump was being constructed to the north of the south lobe. ▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2015c	A-2
2014/2015	▪ A portion of a NAG lift was being placed adjacent to a soil stockpile at the base of the slope. ▪ Minor settlement cracks along some portions of the crest.	▪ Avoid advancing portions of the toe of the dump over the soil stockpiles and if required, move/remove the soil stockpiles.	Yes	Golder 2016b	A-3
2016	▪ Cracks observed near the crest of the lower lift and some bulging in the waste dump face and toe was observed suggesting displacement in the foundation soils. ▪ Ponded water was observed at the toe of the lower lifts towards the north end of the dump. Was noted to be seeping from the toe of the dump.	▪ The cracks should be filled with fine-grained material and continue visual inspection and monitoring. ▪ Ditches should be excavated to drain the ponded water away from the toe of the dump. ▪ Stability of the dump in the area of seepage to be visually monitored.	Yes	Golder 2017	A-4
2017	▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2018	A-5
2018	▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2019	A-6
2019	▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2020	A-7

Table 1: Previous Slope Stability Performance of the NW PAG Dump

Year	Slope Stability Review Performance Observations	Recommendations Provided at Time of Observation	Recommendations Addressed by MPMC	Report	Appendix A, Figure No.
2020	▪ Haul road along the north of the dump showing erosion channels. ▪ Evidence of water ponding along the lower lift haul road.	▪ A ditch should be maintained on the sides of the haul ramp and water bars can be implemented along the edges of the road to promote water moving into the ditches. ▪ The lower lift haul road should be graded with fill material to divert water away from the crest of the road.	Yes	Golder 2021	A-8
2021	▪ Evidence of water ponding along the lower lift haul road.	▪ The lower lift haul road should be graded with fill material to divert water away from the crest of the road.	Yes	Golder 2022a	A-9
2022	▪ Minor settlement cracks developing in lower lifts. ▪ Evidence of water ponding along the lower lift haul road.	▪ Monitor settlement cracks and doze to limit water infiltration into the dump crest. ▪ The lower lift haul road should be graded with fill material to divert water away from the crest of the road.	Yes	WSP 2023a	A-10
2023	▪ An area of the lower lift near the access road entrance was observed to be settling with about 30 to 40 cm of vertical displacement possibly due to foundation soil movement at the toe and ponding water at the crest.	▪ Windrow material at the toe should be removed and a low lift buttress should be advanced to limit further movement. The lower lift should be dozed and brought to grade such that water cannot pond at the crest of the lift.	To be addressed in 2024	WSP 2023c	A-11

3.0 PROPOSED ULTIMATE NORTHWEST POTENTIALLY ACID GENERATING DUMP DESIGN

MPMC have proposed a revised ultimate NW PAG Dump design shown in Figure 3. The development includes construction of three 40 to 50 m high lifts above the current north lobe of the NW PAG Dump. The dump will measure approximately 1,000 m in a north-south direction and will vary in width from 620 to 745 m. The top of the NW PAG Dump will be located at elev. 1,140 m. The elevation of the foundation topography (below the current north lobe of the NW PAG Dump) is approximately elev. 1,118 m along the east side to elev. 1,006 m along the west side. The maximum height of the NW PAG Dump will be approximately 140 m toe to crest. The NW PAG Dump will be constructed from the bottom-up with angle of repose waste rock lift faces, 10 m wide catch-benches, and an overall slope angle of 28 degrees. The ultimate haul ramp will enter the NW PAG Dump from the southern portion of the dump and ascend across the slope face.

The majority of the material to be placed on the NW PAG Dump will be on the north and west sides of the current NW PAG Dump north lobe. The footprint of the NW PAG Dump has already been stripped and the lower NAG lift has been constructed with approximately six PAG lifts at varying elevations above.

Cross-sections through the proposed ultimate NW PAG Dump design are shown in Appendix B and described in Section 5.8.

4.0 SUMMARY OF GEOTECHNICAL FIELD INVESTIGATIONS

To date, five foundation investigation programs have been completed within and around the footprint of the NW PAG Dump. Test pit locations for geotechnical programs completed in 1999, 2010, and 2023 as well as borehole locations for geotechnical programs completed in 2023 and 2024 are presented on Figure 4. The results of these geotechnical programs and their applicability to the proposed ultimate NW PAG Dump are discussed in the following sub-sections.

4.1 1999 Geotechnical Field Investigation

The 1999 field investigation program included nine test pit locations, four of which were within the proposed ultimate NW PAG Dump design footprint (Figure 4). The results of the field investigation indicate that the most consistent soil horizon encountered is a well-graded, silty sand till with some gravel and trace fines (Golder 2010b). A number of localized silt clay-rich deposits were encountered in TP14, TP15, and TP16. These deposits could correspond to localized wet to swampy areas (Golder 2010a).

Results of the 1999 test pit program are summarized in Table 2 and further detailed results are presented in Golder (2010a).

Table 2: 1999 Field Investigation Summary (after Golder 2010a)

Test Pit ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)	Excavation Depth (m)	Bedrock Encountered	Within Footprint of Proposed Ultimate NW PAG Dump	Foundation Soil Description
TP10	3,178	1,344	1,053	2.5	No	No	Clayey SILT with some sand and gravel (TILL)
TP11	3,368	1,205	1,042	2.4	Yes	No	Silty GRAVEL with some sand and cobbles (TILL)
TP12	3,199	1,181	1,034	3.3	No	No	Clayey-SILT with some sand, gravel, and cobbles (TILL)
TP13 (road cut)	3,504	994	1,023	1.0	No	No but near south lobe NW PAG Dump footprint	Silty GRAVEL with some sand and cobbles (TILL)
TP14	4,043	769	1,041	1.5	No	Yes	CLAY with some silt, sand, and gravel Clayey SILT with some sand, gravel, and cobbles (TILL)
TP15	3,920	928	1,062	1.5	No	Yes	CLAY with some silt, sand, and gravel Clayey SILT with some sand and gravel (TILL)
TP16	3,853	784	1,035	2.5	No	Yes	CLAY with some silt, sand, and gravel

Table 2: 1999 Field Investigation Summary (after Golder 2010a)

Test Pit ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)	Excavation Depth (m)	Bedrock Encountered	Within Footprint of Proposed Ultimate NW PAG Dump	Foundation Soil Description
TP16A	3,927	766	1,040	N/A	No	Yes	Clayey SILT with some sand, gravel, and cobbles
TP17	4,279	871	1,048	1.6	Yes	Yes	Clayey SILT with some sand and gravel Silty SAND with some gravel and cobbles (TILL)

(a) Test pit locations are presented in local mine grid.

4.2 2010 Geotechnical Field Investigation

The 2010 field investigation program included a total of two test pit locations that were both near the proposed ultimate NW PAG Dump footprint (Figure 4). Although these test pits are located outside the NW PAG Dump footprint they provide useful information regarding the interpretation of subsurface conditions for the general area of the NW PAG Dump. Both test pits encountered till overlying bedrock (Golder 2010b).

Results of the 2010 test pit program are presented in Table 3 and further detailed results are presented in Golder (2010b).

Table 3: 2010 Field Investigation Summary (after Golder 2010b)

Test Pit ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)	Excavation Depth (m)	Bedrock Encountered	Within Footprint of Proposed Ultimate NW PAG Dump	Foundation Soil Description
TP1	3,742	940	1,062	1.2	Yes	No but near south lobe NW PAG Dump footprint	TILL
TP2	3,304	1,158	992	2.0	Yes	No	Sand SILT SAND and GRAVEL (TILL)

(a) Test pit locations are presented in local mine grid.

4.3 2023 and 2024 Geotechnical Field Investigations

The 2023 and 2024 geotechnical field investigations for the NW PAG Dump included six test pits and 11 boreholes in and around the proposed ultimate NW PAG Dump design footprint (Figure 4). The following general stratigraphic units were encountered during the 2023 and 2024 investigations (WSP 2024b):

- Waste rock – 0.9 m to 33.4 m thick
- Colluvium – 0.8 m to 5.0 m thick

- Till – 3.2 m to 15.5 m thick
- Glaciofluvial deposits – 0.2 m to 3.5 m thick
- Fine-grained material – 1.4 m to 4.8 m thick
  - This material was initially interpreted as a Glaciolacustrine unit (GLU) during the 2023 geotechnical field investigation (WSP 2024b).
  - Clay material
    - 2.5 m thick interbedded material encountered during the 2023/2024 geotechnical field investigation.
- Bedrock – to depth

The results of the 2023 and 2024 geotechnical field investigations for the NW PAG Dump are summarized in Table 4 and further detailed results are presented in WSP (2024b).

Table 4: Depth to Bedrock Logged During 2023 and 2024 Field Investigations (after WSP 2024b)

Test Pit or Borehole ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)[(a)]	Thickness of Waste Rock (m)	Thickness of Colluvium (m)	Maximum Thickness of Glaciofluvial Deposits (m)[(b)]	Maximum Thickness of Fine-grained Material (m)[(b)]	Maximum Thickness of Till (m)[(b)]	Overall Thickness of Overburden (m)	Elevation of Bedrock surface (masl)
TP-NW-01	4,724.0	1,084.0	1,066.0	-	0.80	-	-	-	0.80	1,065.20
TP-NW-02[(d)]	4,745.0	894.0	1,055.0	-	-	1.50	-	4.00[(c)]	Bedrock not reached	
TP-NW-03[(d)]	4,737.0	738.0	1,023.0	-	2.00	-	-	4.00[(c)]	Bedrock not reached	
TP-NW-04[(d)]	4,645.0	572.0	1,003.0	-	1.00	-	-	4.00	5.00	998.00
TP-NW-09	3,831.0	753.0	1,030.0	-	2.30	-	-	3.20[(c)]	Bedrock not reached	
TP-NW-10	3,878.0	719.0	1,030.0	-	5.0[(c)]	-	-	-	Bedrock not reached	
DH-NW-02	4,745.4	893.6	1,051.8	-	-	3.53	-	5.08	8.61	1,043.19
DH-NW-03	4,750.1	709.5	1,021.7	-	1.98	-	-	4.06[(c)]	Bedrock not reached	
DH-NW-03A	4,755.7	703.8	1,021.6	0.91	-	2.44	-	13.34	15.78	1,004.91
DH-NW-05	3,920.0	774.1	1,055.1	12.55	-	1.16	-	5.49	6.65	992.17
DH-NW-06	4,496.2	530.1	1011.4	15.34	-	-	-	8.92	8.92	993.74
DH-NW-07	4,340.3	538.0	1,018.0	14.78	1.83	0.91	4.73	10.36	18.60	996.22
DH-NW-07B	4,219.8	604.8	1,029.6	14.81	1.95	-	4.84[(c)]	12.83	Bedrock not reached	
DH-NW-07C	4,224.3	604.0	1029.5	15.54	2.44	0.23	1.43[(c)]	9.66	Bedrock not reached	
DH-NW-08	4,217.1	603.7	1029.8	10.55	4.63	-	-	6.10	6.10	1,017.72
DH-NW-09	4,075.1	676.0	1,039.0	13.56	-	-	-	15.49	15.49	1,026.05
DH-NW-11	4,277.5	708.1	1059.7	33.38	0.80	0.84	-	8.59	24.02	1,002.30

(a) Test pit and borehole locations are presented in local mine grid
(b) Maximum logged thickness recorded in logs; thinner layers not included.
(c) End of unit not reached.
(d) Seepage observed in these test pits.

4.4 Geotechnical Laboratory Testing of Foundation Soils

Geotechnical laboratory testing was completed on samples from the 1999, 2023, and 2024 geotechnical field investigations. The testing was carried out at the WSP Burnaby and Calgary Laboratories, and included the following geotechnical tests:

- Water content
- Particle size distribution (sieve and hydrometer)
- Atterberg Limits
- Specific gravity
- Modified Proctor
- Large direct shear

Laboratory testing was completed on one sample collected in the area of the NW PAG Dump in 1999 (Golder 2010a); no samples were tested from the area of the NW PAG Dump in 2010 (Golder 2010b), and 41 samples were tested from the area of the NW PAG Dump in 2023 and 2024 (WSP 2024b).

A review of the laboratory test results for each material type encountered in and around the NW PAG Dump is described in Section 5.4.

5.0 SITE CHARACTERIZATION AND ENGINEERING GEOLOGY

The following sections provide:

- A summary of a literature review of the glacial history and the surficial geology of the Mount Polley Mine and NW PAG Dump area, including the topography setting.
- Descriptions of the foundation soils and bedrock observed in the area of the proposed ultimate NW PAG Dump based on the field investigations and laboratory testing results.
- A description of the waste rock to be consigned to the NW PAG Dump.
- A summary of the groundwater conditions around the NW PAG Dump.
- A discussion of the site seismicity.
- A summary of the surficial geology interpretation for the area of the proposed ultimate NW PAG Dump design.

5.1 Regional Geomorphological Setting

The terrain and geomorphology of the area consists of low mountains and hummocky bedrock exposures dissected by a network of streams and lakes (Holland 1976; McAndless and Taylor 2006). Surface drainage patterns are influenced by bedrock topography; most of the stream valleys in the region have a northwest orientation and drain southward toward the lowland area north of the western arm of Quesnel Lake (Bichler and Bobrowsky 2003).

During the late Pleistocene, the area of Mount Polley Mine was covered by the Cordilleran Ice Sheet (Clague 1987 and 1988). The gently undulating topography and surface expression of the lowland area at the head of the west arm of Quesnel Lake is the result of glacial erosion and deposition of Quaternary sediments in an environment that evolved initially as a result of glacial advance followed by glacial retreat and inundation by meltwater, creating a glacial lake environment (Bichler and Bobrowsky 2003). The glacial landforms within the region indicate a predominantly northwesterly ice flow direction for the Cordilleran Ice Sheet in the Quesnel region (Clague 1988; Bichler and Bobrowsky 2003; Hashmi et al 2015).

5.2 Topography

The NW PAG Dump is located on the west flank of Mount Polley ridge between Polley Lake and Bootjack Lake. A foundation slope map is presented in Figure 5. At the north end of the NW PAG Dump the foundation is near elev. 1,004 m and slopes towards the south to approximately elev. 1,050 m. The eastern portion of the NW PAG Dump is founded on ground with slopes of 18 to 29 degrees. The western portion of the NW PAG Dump is founded on ground with slopes of 5 to 13 degrees.

Prior to construction in 2012, there were no identified major streams or drainage courses within the footprint of the NW PAG Dump. The footprint area was well drained by small, ephemeral streams that flowed in the spring and late fall. However, localized wet and swampy flat-lying areas occurred within localized depressions.

5.3 Regional Surface Geology

The regional surficial geology in the area of Mount Polley Mine is dominantly the result of erosion and deposition associated with the late Pleistocene (Wisconsinan) glacial episode referred to as the Fraser Glaciation (Clague 1987 and 1988).

The regional surficial geology is dominated by till, glaciofluvial, and glaciolacustrine sediments of the Fraser Glaciation (Bichler and Bobrowsky 2003; McAndless and Taylor 2006). The glacial stratigraphy locally contains colluvial deposits derived from landslides initiated on valley walls during the late Pleistocene and Holocene. Holocene fluvial deposits overlie the glacial deposits in areas local to watercourses and water bodies throughout the region (Bichler and Bobrowsky 2003). A generalized interpretation of the local Quaternary stratigraphy is presented in Figure 6.

Morainal till deposits more than 1 m thick are widespread and typically comprise poorly sorted, moderately to well-compacted silty clay diamicton.

Glaciofluvial deposits are common within the major valleys, deposited in a succession of well-defined terraces (Clague 1988; Bichler and Bobrowsky 2003). Glaciofluvial sediments typically comprise moderately sorted, weakly to moderately compacted cobbles or boulder gravel with a sand matrix. Gravel is also present locally in the form of hummocky blankets at higher elevations. Glaciofluvial fan deposits occur within valleys, with a similar composition to that of the glaciofluvial sediments, but typically with a greater sand content (Bichler and Bobrowsky 2003).

5.4 Local Surficial Geology

The local surficial geology consists of Quaternary glacial deposits overlain by fill/anthropogenic deposits. Based on the geotechnical field investigations completed to date in the area of the NW PAG Dump, a simplified stratigraphic sequence with estimated thicknesses based on site observations is summarized as follows:

- Topsoil
- Colluvium – 1 m to 5 m
- Glacial deposits
  - Till: 3 m to at least 16 m
  - Glaciofluvial deposits: up to 4 m
  - Fine-grained material
    - One unit 5 m thick encountered during the 2023/2024 geotechnical field investigation
    - This material was initially interpreted as a GLU during the 2023 geotechnical field investigation (WSP 2024b)
  - Clay material
    - One unit 2.5 m thick encountered during the 2023/2024 geotechnical field investigation
- Bedrock (Mount Polley Intrusive Complex) – to depth

Topsoil has not been considered in this assessment as WSP understands that topsoil materials have been stripped from the foundation and stockpiled for reclamation purposes.

The local surficial geology is based on information at test pit and borehole locations only. Conditions between test pits/boreholes and the extents of geologic units are unknown and are subject to uncertainty. The local surficial geology has been interpreted based on the field observations, and further interpreted based on the laboratory

testing completed on select samples. Some units may differ from what was presented in the factual report for the 2023/2024 geotechnical field investigations based on the laboratory testing (WSP 2024b).

Further details on each material type are described in the following sub-sections.

5.4.1 Colluvium

Colluvium in the area of the NW PAG Dump ranged in thickness from 0.8 m to 5 m, and locally exhibits greater thickness along the lower slopes of the west flank of Mount Polley ridge. The colluvium is expected to be the foundation soil directly underlying the east side of the proposed ultimate NW PAG Dump design.

The results of index tests completed on colluvium samples collected in the area of the NW PAG Dump are summarized in Table 5 and in Appendix C, Figures C-1 and C-2.

Table 5: Summary of Index Test Results for Colluvium (after WSP 2024b)

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	11.8	9.0	16.9	4
Liquid Limit	32.0	26.0	42.0	4
Plastic Limit	17.5	12.0	28.0	4
Plasticity Index	14.5	14.0	16.0	4
Specific Gravity	-	-	-	0
% Gravel	43.8	33.0	56.0	4
% Sand	32.8	31.0	34.0	4
% Fines	23.5	13.0	33.0	4

The natural water content test results indicated an average of 12% and a range of 9% to 17%. It is noted that some samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the colluvium.

The particle size distribution test results indicated sand and gravel sized particles are present in all colluvium samples, with fines content raging from 13% to 33%. As indicated by the Atterberg Limit results, the fines component is generally intermediate plasticity, and range from silt to silty clay. The colluvium was typically described as very soft to stiff, and well-graded with trace organics.

Large direct shear testing was completed on a colluvium sample (WSP 2024b). The peak friction angle obtained was 35 degrees, with a cohesion of 30 kPa. The residual friction angle was 34.5 degrees, with a cohesion of 0 kPa.

5.4.2 Till

Till encountered in the area of the NW PAG Dump ranged in thickness from 3.2 m to 15.5 m. The till is expected to be the foundation soil underlying the majority of the west side of the proposed ultimate NW PAG Dump design.

The results of index tests completed on till samples collected in the area of the NW PAG Dump are summarized in Table 6 and in Appendix C, Figures C-3 and C-4.

Table 6: Summary of Index Test Results for Till (after WSP 2024b)

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	12.3	6.8	23.0	2
Liquid Limit[(a)]	26.7	19.0	54.0	20
Plastic Limit[(a)]	14.1	12.0	17.0	20
Plasticity Index[(a)]	12.6	5.0	37.0	20
Specific Gravity	2.73	2.68	2.76	4
% Gravel	29.4	7.0	61.5	19
% Sand	33.5	10.0	57.4	19
% Fines	37.1	11.3	83.0	19

(a) One “non-plastic” test included in test count but not test results statistics.

The natural water content results indicated an average of 12% and a range of 7% to 23%. It is noted that some samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the till. The ranges and average moisture content are similar to values observed for till samples collected at the Southeast Rock Disposal Site (SERDS) and the Tailings Storage Facility (TSF) (WSP 2023 and 2024a).

The particle size distribution test results indicated sand and gravel sized particles are present in all till samples, the fines content ranging from 11% to 83%. As indicated by the Atterberg Limit results, the fines component is generally low to medium plasticity, and ranges from clays to silty clays. The ranges and averages for the particle size distribution and Atterberg Limit tests are similar to values observed for till samples collected from the SERDS and the TSF (WSP 2023 and 2024a). The till was typically described as loose to very stiff, and well-graded.

One sample from the 2023/2024 geotechnical field investigation, TP-NW-04-03, appears to be an outlier in regard to test results for water content, particle size distribution, and Atterberg Limits. The water content for the till sample was the highest at 23%; however, this value is considered unreliable due to the method of sampling and the extended period of time between when sampling and testing were carried out. The fines content was 83% and behaved like a high plasticity clay. This sample was a grab sample from a test pit at the northwest corner of the current NW PAG Dump (Figure 4) and there was no indication in the test pit log as to where this high fines material may have occurred. It is possible that within the till there was a depositional period where materials with more fines were deposited in this localized area; however, this was not observed during the test pit logging as the sample was a similar colour to the surrounding till and the depositional area may have been relatively small

Large direct shear testing was completed on a till sample (WSP 2024b). The peak friction angle is 32.5 degrees with a cohesion of 55 kPa. The residual friction angle is 32.5 degrees with a cohesion of 0 kPa. Direct shear testing of samples of till collected from near the SERDS and the TSF were also completed on remoulded grab samples, and those results were compared to the current test results for till in the area of the NW PAG Dump. Direct shear test results for samples of till collected near the SERDS indicated an average residual friction angle of 34 degrees with a cohesion of 0 kPa (WSP 2024a). Direct shear test results for samples of till collected near the TSF indicate an average peak friction angle of 34.6 degrees with a cohesion of 0 kPa (WSP 2023).

The results of index testing and direct shear testing of till samples collected near the NW PAG Dump are similar to the test results for till encountered near the SERDS and TSF, with the exception of the direct shear testing. This is likely due to the sample size used for the direct shear testing. For the purposes of this geotechnical assessment, the results of the large direct shear test completed for the till sample collected in the area of the NW PAG Dump in 2023 may be considered to represent a lower bound.

5.4.3 Glaciofluvial Deposits

Glaciofluvial deposits encountered in the area of the NW PAG Dump ranged in thickness from 0.2 m to 3.5 m. The glaciofluvial deposits were typically interbedded with the till on the north end of the dump and on the western portion near the centre of the NW PAG Dump footprint.

A summary of index testing completed on glaciofluvial material in the area of the NW PAG Dump is presented in Table 7 and in Appendix C, Figures C-5 and C-6.

Table 7: Summary of Index Test Results for Glaciofluvial Deposits

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	7.1	5.2	9.7	5
Liquid Limit[(a)]	21.0	19.0	25.0	5
Plastic Limit[(a)]	13.8	12.0	17.0	5
Plasticity Index[(a)]	7.3	7.0	8.0	5
Specific Gravity	2.74	2.73	2.75	2
% Gravel	49.7	20.1	67.4	5
% Sand	38.2	21.0	65.4	5
% Fines	12.1	7.1	15.0	5

(a) One “non-plastic” test included in test count but not test results statistics.

The natural water content results indicated an average of 7% and a range of 5% to 10%. It is noted that some samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the glaciofluvial material. The ranges and average moisture contents were similar to values observed for glaciofluvial deposits encountered at the TSF (WSP 2023).

The particle size distribution testing indicated sand and gravel sized particles were present in all glaciofluvial samples and a fines content that ranged from 7% to 15%. The fines from these samples were generally identified as non-plastic to low plasticity. The glaciofluvial deposits were typically described as very loose to firm, low plasticity fines, and well-graded, which was generally supported by the laboratory test results. In general, the glaciofluvial deposits had a more granular nature and were less firm than the till. The ranges and averages for the particle size distribution tests and Atterberg Limits were similar to values obtained for samples of the glaciofluvial deposits collected at the TSF (WSP 2023).

No direct shear testing was completed on samples of glaciofluvial deposits collected near the NW PAG Dump. Shear strength testing was completed on samples of glaciofluvial deposits from the TSF and indicated a peak shear strength of 35 to 36 degrees with a cohesion of 0 kPa (WSP 2023).

5.4.4 Fine-Grained Material

Fine-grained material was encountered in what is inferred to be a localized “pocket” near DH-NW-07 in the central toe area on the west side of the NW PAG Dump footprint. The fine-grained material was encountered directly overlying bedrock at elev. 1,000 m. The vertical interval over which the fine-grained material was encountered was approximately 4.8 m.

A summary of index testing completed on the fine-grained material in the area of the NW PAG Dump is presented in Table 8 and in Appendix C, Figures C-7 and C-8.

Table 8: Summary of Index Test Results for the Fine-Grained Material

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	18.2	14.7	23.0	8
Liquid Limit	27.5	22.0	30.0	8
Plastic Limit	18.3	17.0	20.0	8
Plasticity Index	9.3	4.0	11.0	8
Specific Gravity	2.8	2.8	2.8	3
% Gravel	8.8	1.0	28.2	8
% Sand	13.6	5.0	24.3	8
% Fines	77.7	58.2	94.0	8

The natural water content results indicated an average of 18% and a range of 15% to 23%. It is noted that samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the fine-grained material.

The particle size distribution test results indicated minimal gravel and sand sized particles and a fines content that ranged from 58% to 94%. Atterberg Limit results indicated the fines component was generally low plasticity, and silty clays. The fine-grained material was typically described as stiff to hard, and well-graded. This was supported by the laboratory testing results. The ranges and averages from the particle size distribution and Atterberg Limit results were similar to values observed for samples of the fine-grained material collected at the SERDS and from the south embankment of the TSF (WSP 2023 and 2024a). The low plasticity and relatively low water content of the silty clay layer (index testing) encountered at this location was not considered representative of the intermediate or high plasticity GLU encountered within the footprint of the TSF (WSP 2023).

One Cone Penetration Test (CPT) was advanced in the fine-grained material at DH-NW-07B, which was located in the vicinity of DH-NW-07 where the fine-grained material was first encountered. Pore pressure dissipation testing (PPDT) was completed at three elevations within the CPT column. A report was prepared by Gregg Drilling and Testing Canada Ltd. (Gregg), which included a summary of the CPT and PPDT results along with test details (WSP 2024b).

Results of the CPT analysis carried out for the fine-grained layer in DH-NW-07B are presented as a series of depth profiles in Appendix D, Figure D-1, including profiles of the following parameters:

- Total cone tip resistance, q_t.
- Sleeve friction, fs.
- Porewater pressure that includes the penetration porewater pressure u_2, hydrostatic porewater pressure, piezometer data of vwp-07 at dh-nw-07, and the end of two PPDTs performed at a depth of 31.0 m and 31.42 m.
- Undrained shear strength, S_u. S_u was estimated from CPT data using Mayne (2001):

$$s_u = \frac{(q_t - \sigma_{v0})}{N_{KT}}$$

Where N_{KT} = 15 is a constant, σ_{v0} is the total stress acting on the soil layer.

- Preconsolidation stress, σ'_p, from the CPT data was estimated from Mayne (2001):

$$\sigma'_p = 0.33\ (q_t - \sigma_{v0})$$

- Over consolidation ratio, OCR, that is the ratio of σ'_p to the effective stress, σ'_V.

The peak undrained shear strength ratio (S_u-peak ratio) was calculated based on qc_{1Ncs} as recommended by Idriss and Boulanger (2008). Appendix D, Figure D-2 presents the S_u-peak ratio determined by the Idriss and Boulanger (2008) method. The 33rd percentile of the peak undrained shear strength ratio for the fine-grained layer is 0.83. The fine-grained layer is highly over consolidated with an average OCR equal to 17 as shown in Appendix D, Figure D-1. Robertson (2016) presents the CPT soil behaviour type (SBT) chart for liquefaction and cyclic softening potential. Appendix D, Figure D-3 presents the CPT SBT chart for the fine-grained layer. The material exhibits a sand-like dilative and transitional dilative behavior.

The proposed ultimate NW PAG Dump design will have approximately 5 to 10 m of additional material placed in the vertical column in the area of the fine-grained material. This is a minimal amount of vertical effective stress that will be applied to the fine-grained material.

Despite this material being interpreted as having deposited in a glaciolacustrine environment (WSP 2024b), the results of the laboratory testing and CPT indicate that it does not behave as the intermediate or high plasticity GLU encountered within the footprint of the TSF. The fine-grained material is interpreted to be a component of the till, generally lacking the clastic component of sand, gravel and cobbles that is present in other portions of the till unit. For the purposes of the slope stability analyses, this material will be assessed combined with the till material parameters.

5.4.5 Clay Material

Clay material was encountered in what was inferred to be a localized “pocket” near DH-NW-02 on the northeast side of the NW PAG Dump footprint. The clay material was encountered 0.9 m below original ground surface. The vertical interval over which the clay material was encountered was approximately 2.6 m.

A summary of index testing completed on clay material in the area of the NW PAG Dump is presented in Table 9 and in Appendix C, Figures C-9 and C-10.

Table 9: Summary of Index Test Results for Clay Material

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	48.4	38.4	58.3	2
Liquid Limit[(a)]	44.5	38.0	51.0	2
Plastic Limit[(a)]	18.5	16.0	21.0	2
Plasticity Index	26.0	22.0	30.0	2
Specific Gravity	2.69	2.69	2.69	1
% Gravel	5.3	1.6	8.9	2
% Sand	13.7	13.1	14.2	2
% Fines	81.1	76.9	85.3	2

The natural water content results indicated an average of 48% and a range of 38% to 58%. It is noted that samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the clay material.

The particle size distribution test results indicated minimal gravel and sand sized particles and a fines content that ranged from 77% to 85%. Atterberg Limit results indicated the fines component was generally intermediate to high plastic, silty clay to clay. The clay material was typically described as very soft to firm. The higher fines content in samples collected from the northeast side of the NW PAG Dump (DH-NW-02) may be indicative of an interval of lower energy deposition within the overall glaciofluvial environment.

No direct shear or advanced geotechnical laboratory testing has been completed on the clay material. The material was inferred to be interbedded (not continuous) and isolated to one borehole (DH-NW-02). The clay material was not encountered in TP-NW-01, TP-NW-02, DH-NW-03 or DH-NW-03A which are nearby (Figure 4). No test pit excavations or borehole drilling has been completed below the toe (within the footprint) of the NW PAG Dump near where the clay material was encountered due to the dump having already been constructed to the footprint extents in this area.

5.4.6 Bedrock

Bedrock in the area of the NW PAG Dump footprint is part of the Mount Polley Intrusive Complex, which is composed of several intrusive units including diorite, monzodiorite-monzonite, K-feldspar monzonite, and late dykes (Rees 2013). All of these rock types are considered to be medium strong to strong, with estimated uniaxial compressive strengths ranging from 25 to 100 MPa.

Bedrock was encountered in two test pits in 1999, two test pits in 2010, two test pits in 2023, and eight boreholes in 2023/2024. The test pits completed did not describe the bedrock other than observations indicating that it was weathered. Bedrock encountered in the sonic boreholes was typically pulverised and difficult to determine its particular compositional characteristics. The rock pieces were typically grey with brown staining (WSP 2024b).

5.5 Waste Rock

Waste rock from the Mount Polley pits generally consists of blasted intrusive rock that are observed to be hard and competent. Gradations of waste rock from the Mount Polley pits have not been assessed, but have been generally observed over a period of several years. Waste rock particle sizes are generally expected to range from a few centimetres up to 1 m, and consist predominantly of boulders and cobbles, with some gravel and sand based on observations of waste rock in the current NW PAG Dump and experience at the Mount Polley Mine.

From previous experience, waste rock at Mount Polley Mine has been observed to be good quality (with the exception of material from faulted areas and the upper bench in overburden). Slope stability performance at the current NW PAG Dump and in other waste rock dumps on site has been favorable in part due to the material quality. The existing waste rock dump slopes are generally at angle of repose (37 degrees) with no apparent indication of slope face or overall instability.

Waste rock fills typically exhibit a non-linear shear strength behaviour that is largely dependent upon the gradation, angularity, and degree of compaction of the particles (Leps 1970; Barton and Kjaernsli 1981). Research results from testing of rockfill shows that the measured friction angles are a function of applied normal stress for various rockfill gradations and densities. Figure 7 presents the non-linear shear strength of rockfill from triaxial tests after Leps (1970), which includes an upper bound for the shear strength behaviour for high density, well-graded strong particles and a lower bound for low density, poorly graded weak particles.

Selection of the appropriate shear strength function for waste rock is related to the material type to be placed. Table 10 presents a summary of the non-linear shear strength functions after Leps (1970) and Hawley and Cunning (2017) and provides recommended shear strength functions.

Table 10: Shear Strength Functions for Waste Rock (after Hawley and Cunning 2017)

Particle Strength – Based on Leps (1970) Curve (Graph 3)	Shear Strength Function
Lower bound – low density, poorly graded, weak particles.	$\tau = 1.446\sigma^{0.898}$
Lower quartile – between low and average rockfill.	$\tau = 1.576\sigma^{0.899}$
Average rockfill	$\tau = 1.726\sigma^{0.899}$
Upper quartile – between average and high rockfill.	$\tau = 1.899\sigma^{0.898}$
Upper bound – high density, well-graded, strong particles, generally not suitable for sedimentary rockfill.	$\tau = 2.067\sigma^{0.899}$

τ=$shear\ strength$; $\sigma = normal\ stress$.

5.6 Groundwater

Groundwater levels around the NW PAG Dump are generally expected to be at or near the contact between the waste rock and the underlying foundation soil and can be expected to fluctuate seasonally due to variations in precipitation and runoff from Mount Polley ridge.

During the December 2023 geotechnical investigation, artesian conditions were encountered in DH-NW-03A at 14.25 m depth in a layer of glaciofluvial deposits. Flow from the borehole was measured at approximately 0.1 gallon per second (about 0.4 L/s), with approximately 3.5 m of hydraulic head above ground surface before the borehole was grouted. No seepage from the borehole has been observed since grouting and the cause of the artesian conditions has not been investigated further. There is an area to the northeast of the NW PAG Dump and DH-NW-03A along Bootjack Road where MPMC staff have noted water flows continuously throughout the year indicating a potential seep in the area (an exact location was not provided to WSP).

Seeps and ponding water have also been observed along the toe of the current NW PAG Dump (Appendix E, Figures E-1 to E-3). This is likely due to the fine-grained material that has been stripped from the footprint of the dump and piled near the toe of the dump. Seepage from the NW PAG Dump is collected in a sump near the south end of the dump via a seepage collection pipe (Appendix E, Figure E-4) and in seepage collection ponds on the west side of the NW PAG Dump (Appendix E, Figure E-5).

A total of four vibrating wire piezometers (VWP) were installed in four boreholes during the 2023 geotechnical investigation to monitor the hydraulic heads in the different subsurface units. Seven rounds of hydraulic head readings have been collected by MPMC since installation of the VWPs to monitor the groundwater table in the dump area. A summary of the VWP installation details and latest reading of the corresponding hydraulic heads are presented in Table 11. Due to the relatively shallow depths of the piezometers, it has been assumed that the hydraulic head readings represent water table elevations at those locations. Cross-sections and graphs of hydraulic head data over time are presented in Appendix E.

Table 11: Summary of Vibrating Wire Piezometers and Approximate Groundwater Elevations for NW PAG Dump

Borehole ID	VWP Serial No.	Unit	Tip Elevation (m)	Original Ground Elevation (m)	Reading Date	Hydraulic Head (m)	Groundwater Elevation (m)
DH-NW-02	VW165268	Glaciofluvial	1,048.6	1,051.7	April 8, 2024	2.3	1,050.8
DH-NW-06	VW170541	Till/bedrock contact	994.0	1,002.6		10.7	1,004.7*
DH-NW-07	VW162321	Fine-grained material	998.5	1,014.8		19.7	1,018.2*
DH-NW-09	VW169440	Bedrock	1,025.9	1,041.5		14.0	1,040.0

*Hydraulic head is reading above original ground elevation.

Observations from the VWPs installed in the NW PAG Dump area are as follows:

- DH-NW-02 (Appendix E, Figures E-7 and E-8)
  - The VWP is installed in glaciofluvial material at the northeast toe of the NW PAG Dump, and the hydraulic head data collected fluctuate from elev. 1,050 to 1,051 m below original ground elevation.
- DH-NW-06 (Appendix E, Figures E-9 and E-10)
  - The VWP is installed at the till/bedrock contact below the current northwest toe of the NW PAG Dump, and the hydraulic head has been steadily reading about 2 m above original ground elevation.
- DH-NW-07 (Appendix E, Figures E-11 and E-12)
  - The VWP is installed in fine-grained material below the current west toe of the NW PAG Dump, and the hydraulic head has been steadily reading about 3 m above original ground elevation.
- DH-NW-09 (Appendix E, Figures E-13 and E-14)
  - The VWP is installed in bedrock below the current toe of the NW PAG Dump on the south end, and the hydraulic head has remained below original ground elevation around elev. 1,040 m.

During the 2023 test pit investigation, seepage was observed in the following test pits and depths:

- TP-NW-02 at a depth of 1 m in glaciofluvial material
- TP-NW-03 at a depth of 1 m in colluvium
- TP-NW-04 at a depth of 1.4 m in till

All of these test pits are located at the north to northwest end of the current NW PAG Dump.

Groundwater information collected to date indicates the following conceptual flow regime:

- Groundwater in the area of the NW PAG Dump flows largely from east to west with recharge at the Mount Polley ridge and discharge to the Bootjack Lake.

- The data collected during the field investigation indicate the groundwater below the NW PAG Dump is relatively shallow varying from about 1 m below ground surface up to 3 m above ground surface.
- Water ponding has been observed near the toe of the NW PAG Dump in the area of fine-grained material piles that likely limit infiltration.

Artesian conditions have been encountered in the fine-grained materials in DH-NW-07 (hydraulic head is 3 m above original ground in the dump). The localized condition could be the result of an elevated water table within the dump and poor drainage of the underlying fine-grained materials. No seepage face on the lower lift of the dump in this area has been observed.

The artesian conditions encountered in borehole DH-NW-06 at the till - bedrock contact may be the result of a regional flow within the bedrock aquifer under confined conditions due to the overlying till “capping” and preventing the upward flow of groundwater across the till – bedrock contact.

Assumptions regarding groundwater for the slope stability assessment are described further in Section 6.5.

5.7 Site Seismicity

Mount Polley Mine is located in an area of relatively low seismicity in British Columbia. WSP developed a site-specific seismic hazard model for the Mount Polley Mine based on historical seismicity and a review of geological and paleo-seismological features (WSP USA 2023). Earthquake ground motion parameters calculated from the site-specific hazard model are presented in Table 12.

Table 12: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023)

Exceedance Probability	Return Period (years)	Peak Ground Acceleration (g)
5% in 50 years	1,000	0.026
2% in 50 years	2,475	0.048
1% in 50 years	5,000	0.076
0.5% in 50 years	10,000	0.116

Return periods are not exact representations of annual exceedance probabilities.

These values were compared to the National Building Code (NBC) of Canada seismic hazard tool for the latitude and longitude location of the NW PAG Dump. The peak ground acceleration (PGA) values are similar, therefore, the assessment completed by WSP USA (2023) were used for the pseudo-static slope stability analyses.

5.8 Cross-Section Review

The original topography in the area of the NW PAG Dump (from 2006), a LiDAR drone scan of the dump completed in October 2023, and the proposed NW PAG Dump design provided by MPMC were reviewed using the Seequent 3D modelling software Leapfrog Works (© 2023 Seequent). Several cross-sections were cut through the surfaces of the 3D model to identify critical cross-sections for the slope stability and runout analyses.

A description of each of the cross-sections is provided below:

- Cross-section A (Appendix B, Figure B-2): This cross-section was cut to review topography below the southern portion of the NW PAG Dump and through DH-NW-09, TP-NW-09, and TP-NW-10. The topography slopes at about 20 degrees on the east side, to a shallow slope of about 8 degrees below the majority of the NW PAG Dump and steepens past the toe of the dump to Bootjack Lake. The cross-section indicates that the NW PAG Dump is near its ultimate configuration in this area with an overall height of 107 m (toe to crest). The field investigation information indicates colluvium in the area with till at depth over bedrock. The bedrock elevation at the south end of the dump is typically around elev. 1,026 m or higher towards the south.
- Cross-sections B and C (Appendix B, Figures B-3 and B-4): These cross-sections were cut to review topography below the southern portion of the NW PAG Dump and through DH-NW-08 and DH-NW-09. The topography is shallow to moderate in this area, sloping at approximately 8 degrees. The cross-sections indicate that the NW PAG Dump is at its ultimate height in this area with an overall height of 111 m (toe to crest) and available storage to the west. The field investigation information indicates colluvium overlying till with bedrock between elev. 1,017 m and elev. 1,026 m.
- Cross-sections D, E, and F (Appendix B, Figures B-5 to B-7): These cross-sections were cut to review topography below the central portion of the NW PAG Dump and through DH-NW-06, DH-NW-07, DH-NW-07B, DH-NW-07C, DH-NW-08, and DH-NW-11. The topography is moderately sloping at approximately 22 degrees on the east side, to a shallow slope of about 7 degrees below the majority of the NW PAG Dump. The cross-sections indicate that the NW PAG Dump is at its ultimate height in this area with an overall height of 133 m (toe to crest) and available storage to the west. The field investigation information indicates a thin veneer of colluvium over till interbedded with some glaciofluvial material, with a pocket of fine-grained material near the toe of the dump (interpreted to be a component of the till), overlying bedrock between elev. 993 m to elev. 1,002 m.
- Cross-sections G and H (Appendix B, Figures B-8 to B-9): These cross-sections were cut to review topography below the northwest portion of the NW PAG Dump and through DH-NW-05 and DH-NW-06. The topography is moderately sloping at approximately 25 degrees on the east side, to a shallow slope of about 9 degrees below the majority of the NW PAG Dump. The cross-sections indicate that the NW PAG Dump is at its ultimate height in this area with an overall height of 141 m (toe to crest) and available storage to the west. The field investigation information indicates till interbedded with some glaciofluvial material overlying bedrock around elev. 992 m.
- Cross-section I (Appendix B, Figure B-10): This cross-section was cut to review topography below the northern portion of the NW PAG Dump and through TP-NW-04. The cross-section is oblique to the slope of the topography and indicates a shallow slope of about 6 degrees on the north side, to a steep slope of about 17 degrees on the south end where the dump ties into original topography. The cross-section indicates that the NW PAG Dump is at its ultimate configuration in this area with an overall height of 128 m (toe to crest) with available storage to the north. The field investigation information indicates colluvium in the area with till at depth over bedrock.

- Cross-section J (Appendix B, Figure B-11): This cross-section is two separate sections with different orientations stitched together to review topography below the northeast portion of the NW PAG Dump and through DH-NW-03A and TP-NW-03. The topography is moderately sloping at approximately 16 degrees on the east side, to a shallow slope of about 5 degrees below the majority of the NW PAG Dump. The cross-section indicates that the NW PAG Dump is not at its ultimate configuration in this area with approximately 19 m of height for storage. The field investigation information indicates a thin veneer of colluvium in the area with till interbedded with glaciofluvial material overlying bedrock at about elev. 1,004 m.
  - This cross-section is near DH-NW-03 where artesian conditions were encountered when drilling intersected the glaciofluvial deposits at depth.
  - This cross-section is near DH-NW-02 where clay material was encountered near the toe of the dump, outside the footprint of the proposed ultimate NW PAG Dump design in what is interpreted to be an isolated area.

5.9 Surficial Geology Interpretation

Based on the foundation materials and cross-section review, a surficial geology interpretation is shown in Figure 8 for the area of the proposed ultimate NW PAG Dump design. The following summarizes the interpretation:

- Colluvium is interpreted to be a thin veneer underlying the eastern slope of the NW PAG Dump, with localized areas of thicker colluvium layers to the southwest of the dump footprint.
- Till is interpreted to cover the majority of the NW PAG Dump footprint, with variable thickness.
- Glaciofluvial deposits are located in isolated areas at the north end of the dump and near the center. Till typically overlies the glaciofluvial deposits.
- Fine-grained material is interpreted to be present in an isolated area on the west side of the NW PAG Dump at depth and is overlain by till. This material has been modeled as part of the till. It is possible that fine-grained material could be located in other parts of the foundation of the NW PAG Dump that were not investigated.
- Clay material is interpreted to be present in an isolated area on the northeast side of the NW PAG Dump about 0.9 m below original ground surface and is discontinuous (interbedded with silty clay). This material has been modeled as a separate unit as a sensitivity analysis.

6.0 SLOPE STABILITY ASSESSMENT

The following sections provide:

- A description of the slope stability rating and hazard classifications for the proposed ultimate NW PAG Dump using the Waste Dump Stockpile Stability Rating and Hazard Classification (WSRHC) system (Hawley and Cunning 2017).
- Rationale used to select the design acceptance criteria (BCMWRPRC 1991 and Hawley and Cunning 2017).
- Identification of the potential instability mechanisms for the proposed ultimate NW PAG Dump design.
- A discussion regarding the slope stability modeling methodology and assumptions.
- A description of the selected material strength parameters and assumptions.
- A discussion of the slope stability model scenarios and slope stability results.

6.1 Slope Stability Rating and Hazard Classification

The WSRHC system is based on Hawley and Cunning (2017) and incorporates many concepts that were used in the B.C. Mines Ministry 1991 dump slope stability classification guidelines (BCMWRPRC 1991). The WSRHC system requires evaluation of 22 key factors or attributes that affect slope stability of a waste rock dump. Numerical ratings are assigned to each factor, and the sum of these ratings defines the waste rock dump slope stability rating.

The WSRHC results for the proposed ultimate NW PAG Dump design are summarized in Table 13 and presented in Illustration 1.

Table 13: NW PAG Stability Rating and Hazard Classification Results

WSRHC Factors	Rating
Engineering Geology Index	26.5
Design Performance Index	30.5
Waste Rock and Stockpile Stability Rating	57
Waste Rock and Stockpile Hazard Class	III
Instability Hazard	Moderate Hazard

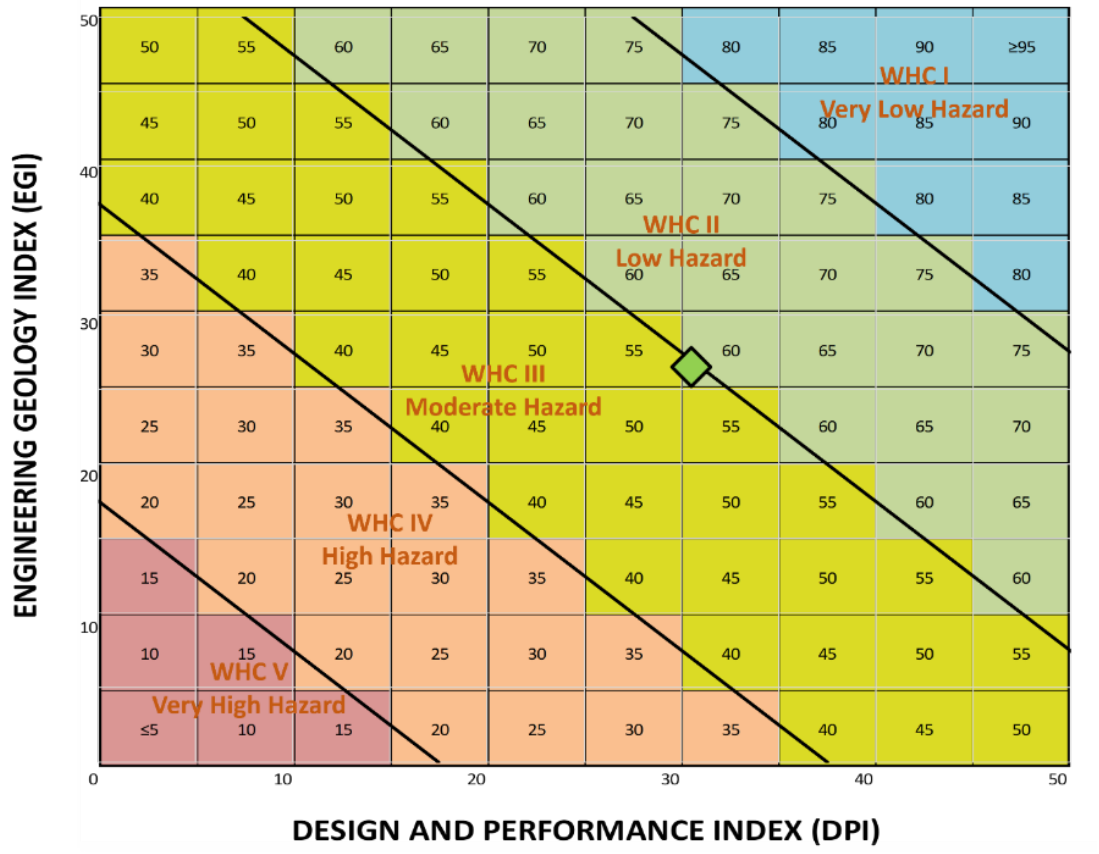

Illustration 1: Proposed Ultimate NW PAG Dump Design Slope Stability Rating and Hazard Classification

The proposed ultimate NW PAG Dump design is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III). Further details of the WSRHC are presented in Appendix F.

6.2 Instability Mechanisms

The site topography was reviewed with respect to the proposed ultimate NW PAG Dump design to identify areas with adverse combinations of foundation slope angles, foundation soils, and overall waste rock dump height. The cross-section review presented in Section 5.8 and Appendix B supported the selection of cross-sections for slope stability analyses.

The following two potential slope failure mechanisms were assessed in the slope stability analyses:

- **Dump lift/face stability (shallow-seated):** Failure surfaces either pass through the NW PAG Dump face, or local failure occurs at the toe (no effect on overall slope stability of the dump).
- **Overall stability (deep-seated):** Deep failure surfaces pass through the NW PAG Dump body and/or the foundation contact and affect the overall slope stability of the dump.

6.3 Potential Liquefaction

Soils that are susceptible to static or dynamic liquefaction are generally loose, uniform to poorly graded clean sands that are susceptible to collapse of structure under rapid loading. The proposed ultimate NW PAG Dump design is underlain by colluvium, till, glaciofluvial, fine-grained material, and clay material deposits. The particle size distribution curves and Atterberg Limit results from laboratory testing for these materials are presented in Appendix C. A uniformity coefficient can be calculated from the particle size distribution curves to determine whether the soil is well-graded or uniform, as shown by Equation 1.0 (Budhu 2009).

$$C_u = \frac{D_{60}}{D_{10}} \quad (1.0)$$

A soil that has a uniformity coefficient less than 4 contains particles of uniform size and a uniformity coefficient greater than 4 indicates a wider assortment of particles sizes and is described as well-graded soil. This relationship has been used to support justification as to whether or not the materials are susceptible to liquefaction.

Colluvium in the area of the NW PAG Dump consists of well-graded gravels, sands, and fines in varying proportions with trace cobbles. The colluvium is typically very soft to stiff with trace organics. The particle size distribution curve (Appendix C, Figure C-11) indicates a high coefficient of uniformity (above 4) which aligns with descriptions of the material being well-graded. Due to voids being filled with fines, the well-graded colluvium is typically not susceptible to structure collapse and liquefaction upon loading.

Till in the area of the NW PAG Dump is typically a loose to stiff, well-graded material with abundant fines based on observations and laboratory testing completed. The particle size distribution curve (Appendix C, Figure C-12) indicates a high coefficient of uniformity (above 4) which aligns with descriptions of the material being well-graded. Due to the voids between the coarser fraction of the till being filled with fines, based on the descriptions of the till and the resulting particle size distribution curves, the till is not susceptible to liquefaction.

Glaciofluvial deposits in the area of the NW PAG Dump are typically a thin layer (interbedded with till) composed of gravels and sands, with lower percentages of fines. The glaciofluvial deposits were described as loose to stiff. The glaciofluvial deposits were observed and tested to be more granular and less firm than the till found in the area of the NW PAG Dump. There is one sample of glaciofluvial material from DH-NW-11 (GS-08) that has a particle size distribution curve that lies within a potential liquefiable soils envelope (Appendix C, Figure C-13). However, this sample has a high uniformity coefficient (above 4) and is considered to be a well-graded soil. Based on the descriptions of the glaciofluvial deposits, the majority of the resulting particle size distribution curves (Appendix C, Figure C-13), the uniformity coefficients, and the proposed construction methodology for the proposed ultimate NW PAG Dump (low lift heights over a large area), the glaciofluvial material is unlikely to be susceptible to liquefaction.

A pocket of fine-grained material was encountered near the toe of the current NW PAG Dump on the west side in DH-NW-07. The material was logged as clay with trace gravel and sand, and generally stiff to hard. The uniformity coefficients based on the particle size distribution curves (Appendix C, Figure C-14) of the fine-grained material are high (above 4). Due to the voids between the coarser fraction of the fine-grained materials being filled with fines, based on the descriptions of the material and the resulting particle size distribution curves, the fine-grained material is not susceptible to structure collapse and liquefaction.

Clay material was found interbedded with coarser glaciofluvial deposits in DH-NW-02 and was described as very soft to firm with a high fines content. Uniformity coefficients were not calculated for the clay material as a D_{10} value is not achieved in the laboratory testing (the material has a very high fines content). However, based on the descriptions of the material and the particle size distribution curves (Appendix C, Figure C-15), the clay material is not susceptible to liquefaction.

The Mount Polley Mine area is in a low seismicity area. The likelihood of dynamic loading due to an earthquake is relatively low for the area.

Based on experience at Mount Polley Mine, the waste rock is typically coarse grained and free-draining. It will exist in a relatively loose state due to the construction methodology (bottom-up construction) and is unlikely to exhibit a significant loss of shear strength when subject to cyclical external forces. The waste rock will generally be unsaturated and would be expected to settle during earthquakes, but not be susceptible to liquefaction due to absence of water. Fine-grained material that could be mined (i.e. overburden, weathered, or altered rock, or fault gouge) should be placed within the center or east side of the NW PAG Dump such that it can be encapsulated with better quality material. This construction methodology will contain any potentially liquefiable material within the dump such that it is unlikely to cause slope stability issues near the face/edges of the dump.

6.4 Design Factors of Safety

In keeping with the current state of practice, WSP has used Hawley and Cunning (2017) in conjunction with the British Columbia Mine Rock and Overburden Piles Research Committee (BCMWRPRC) Investigation and Design Manual, Interim Guidelines (BCMWRPRC 1991) to determine the slope stability design acceptability criteria for the proposed ultimate NW PAG Dump design.

The BCMWRPRC (1991) recommended factors of safety (FOS) are presented in Table 14.

Table 14: BCMWRPRC (1991) Recommended Factors of Safety for Waste Rock Dumps

Stability Condition	Factor of Safety	
Stability of Dump Face	**Case A**	**Case B**
Short-term	1.0	1.0
Long-term	1.2	1.1
Overall Stability (Deep-seated Stability)		
Short-term (Static)	1.3–1.5	1.1–1.3
Long-term (Static)	1.5	1.3
Long-term (Pseudo-static)	1.1–1.3	1.0
Case A ▪ low level of confidence in critical analysis parameters ▪ possibly unconservative interpretation of conditions, assumptions ▪ severe consequences of failure ▪ simplified stability analyses method (chart, simplified method of slices) ▪ stability analyses method poorly simulates physical conditions ▪ poor understanding of potential failure mechanisms		
Case B ▪ high level of confidence in critical analyses parameters ▪ conservative interpretation of conditions, assumptions ▪ minimal consequences of failure ▪ rigorous stability analysis method ▪ stability analysis method simulates physical conditions well ▪ high level of confidence in critical failure mechanism(s)		

The Hawley and Cunning (2017) suggested FOS based on the consequence of failure and the confidence in the factors that will control stability are shown in Table 15.

Table 15: Suggested Stability Criteria Factors of Safety (Hawley and Cunning 2017)

Consequence	Confidence	Minimum Static FOS	Minimum Pseudo-static FOS
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

FOS = factor of safety.

Notes (abridged; for the complete stability acceptance criteria, refer to Hawley and Cunning 2017).

Consequence:

Low—Waste rock dumps and stockpiles with overall fill slopes less than 25 degrees 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 250 mm) annual precipitation.

Moderate— Waste rock dumps with overall fill slopes less than 30 degrees and less than 250 m high or response 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 (less than 250-1000 mm) annual precipitation.

High— Waste rock dumps with overall fill slopes more than 30 degrees 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 (more than 5 years) exposure for sites subject to high (1000-2000 mm) annual precipitation or intensive rainy season(s).

Confidence:

Low—limited confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Poorly defined or optimistic input parameters; high data variability.

Moderate—moderate confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Input parameters adequately defined, moderate data variability.

High—high confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Well-defined, conservative input parameters adequately defined, low data variability.

The choice of a design FOS involves consideration of the level of confidence in the understanding of the factors that will control slope stability, the input parameters, the analysis methods, and the consequences of failure. The guidelines summarized in Table 14 and Table 15 provide a range of suggested FOS to account for the consideration of these various factors. The following observations are provided regarding considerations and assumptions for consequence and confidence of the proposed ultimate NW PAG Dump design:

Consequence:

- The proposed ultimate NW PAG Dump design height is moderate (140 m toe to crest at its highest point) with angle of repose waste rock lift faces about 40 m high, 10 m wide catch-benches, and an overall slope angle of 28 degrees. A low consequence (Hawley and Cunning 2017) criterion with respect to waste rock dump construction is considered appropriate.
- MPMC have a monitoring plan (MPMC 2021) and access requirements when entering the runout zone and active mining area of the NW PAG Dump. There is signage in place and gates such that public access is also

restricted. A low consequence (Hawley and Cunning 2017) criterion with respect to access in and around the NW PAG Dump is considered appropriate.

- The NW PAG Dump is located near the Bootjack Access Road to the north (public access road and access road to Mount Polley Mine), near Bootjack Lake to the west, and settling ponds to the west. If failure were to occur on the NW PAG Dump slopes, a runout could impact one of these areas and has a severe consequence of failure. This presents a high consequence (Hawley and Cunning 2017) and Case A (BCMWRPRC 1991) criterion.
- Long-term exposure (over five years) for the NW PAG Dump will be subject to moderate annual precipitation at 612 mm/year. This presents a moderate consequence (Hawley and Cunning 2017).

Confidence:

- Past experience with waste rock dump construction at the Mount Polley Mine has provided a good understanding of the geologic and hydrogeologic conditions at the mine site, and the probable range of foundation material strength parameters. Consequently, there is a reasonable degree of confidence in the design strength parameters used in the analyses. Several field investigations and laboratory testing programs have been carried out for the property which also increases the degree of confidence in the foundation conditions and the design strength parameters. A high confidence (Hawley and Cunning 2017) and Case B (BCMWRPRC 1991) criterion with respect to material properties is considered appropriate since laboratory testing has been completed on the foundation materials and field investigations have been completed in the NW PAG Dump footprint area.
- Good quality waste rock is expected to be prioritized in the NW PAG Dump, with poorer quality waste rock being contained within the center of the dump or close to the eastern edge. No laboratory testing has been completed on waste rock at Mount Polley Mine; however, the behaviour of waste rock on site is well understood due to the favorable slope stability performance of other waste rock dumps at Mount Polley Mine and the observed gradations of the material. It has been assumed that the material is similar to other good quality waste rock encountered on site. Based on the gradations observed on site of the waste rock, the average rockfill Leps shear strength function applied to the slope stability analyses is appropriate (Table 10). A high confidence (Hawley and Cunning 2017) and Case B (BCMWRPRC 1991) criterion with respect to material properties for the waste rock is considered appropriate.
- Groundwater conditions are currently being monitored by VWPs in four locations in different geologic units. Readings from the VWPs and an understanding of the conceptual groundwater model satisfies a moderate confidence criterion from Hawley and Cunning (2017) and Case B from BCMWRPRC (1991).
- Limit equilibrium analyses methods have been used for the slope stability assessment and are considered to be sufficiently rigorous. This satisfies a high confidence criterion from Hawley and Cunning (2017) and Case B from BCMWRPRC (1991).
- Past mining and construction experience at the Mount Polley Mine and other mines in British Columbia has provided many opportunities to observe and understand the types of failure mechanism that develop at the mines. Consequently, there is a reasonable to high level of confidence in the understanding of the potential failure mechanisms. This satisfies a high confidence criterion from Hawley and Cunning (2017) and Case B from BCMWRPRC (1991).

Following the suggested design criteria by BCMWRPRC (1991) and Hawley and Cunning (2017), the proposed ultimate NW PAG Dump design is considered to have a moderate to high consequence of failure and high confidence of understanding the factors that control slope stability. On this basis, Table 16 presents the design FOS selected for the slope stability assessment.

Table 16: Recommended Design Acceptance Criteria Factors of Safety for Proposed Ultimate NW PAG Dump

Stability Condition	Static or Pseudo-static Condition	Minimum Design Factor of Safety	Source
Shallow-Seated Slope Stability of Dump Face	Static – short-term	1.0	BCMWRPRC (1991) Case A
	Static – long-term	1.2	BCMWRPRC (1991) Case A
	Pseudo-static – long-term	1.0	BCMWRPRC (1991) Case A
Overall Deep-Seated Stability	Static – short-term	1.4	Hawley and Cunning (2017) and BCMWRPRC (1991) Case A
	Static – long-term	1.5	BCMWRPRC (1991) Case A
	Pseudo-static – long-term	1.3	Hawley and Cunning (2017)

6.5 Slope Stability Methodology and Assumptions

The 2D slope stability analyses were carried out using the Slope/W limit equilibrium analysis software (© 2023 Seequent). The Morgenstern-Price method of slices was employed to find potential failure surfaces and their corresponding FOS. The slope stability of the NW PAG Dump was assessed for both static and pseudo-static (seismic) loading conditions, with fully saturated foundation soils.

The following methodology and assumptions were considered for the slope stability analyses:

- Based on the cross-section review completed (Appendix B and Section 5.8) the following cross-sections were selected for the slope stability analyses:
  - Cross-section E
    - representing the isolated fine-grained material identified in DH-NW-07/DH-NW-07B/DH-NW-07C which has been interpreted to be a component of the till.
  - Cross-section G
    - representing the highest overall waste rock dump height from the cross-section review.
  - Cross-section J
    - representing artesian conditions encountered at the north end of the proposed ultimate NW PAG Dump design in the glaciofluvial unit. Based on field observations a +3.5 m hydraulic head above the foundation soils was modelled, only applying to the glaciofluvial material.
    - representing the isolated clay material identified in DH-NW-02. Based on field observations, the unit has been modeled as a 2.5 m thick layer.

- The existing and new waste rock at the NW PAG Dump are considered free-draining and likely will not have excess pore pressures build up within the blasted rock. This is based on observations of other waste rock dumps on site, the performance to date of the NW PAG Dump, the proposed construction methodology of 40 m lifts bottom-up, the relatively small increase in overall height of the proposed ultimate NW PAG Dump, and on the conditions of the waste rock consigned to the dump.
- Organics and topsoil were not considered in the slope stability models as this material has been stripped from the foundation footprint of the NW PAG Dump (WSP 2023b).
- The foundation materials generally consist of colluvium, till, and glaciofluvial deposits, in addition to the pocket of fine-grained material and clay material in the area of the proposed ultimate NW PAG Dump design. The laboratory testing indicates that the till and colluvium have similar geotechnical properties, and these materials comprise the majority of the foundation materials. As such, for the purposes of slope stability modeling, till/colluvium was assumed as the major foundation material. Based on the 2023 and 2024 field investigations, the following approximate till/colluvium thicknesses were assumed:
  - Cross-section E: approximately 12 m thick till/colluvium layer at the NW PAG Dump toe, transitioning to a 29 m thick layer below the second and third lifts of the dump.
  - Cross-section G: approximately 9 m thick till/colluvium layer below the NW PAG Dump.
  - Cross-section J
    - approximately 14 m thick till/colluvium layer with a 7 m thick glaciofluvial layer below.
    - approximately 2.5 m thick clay layer near the toe of the dump, into a 11.5 m thick layer of till/colluvium, then a 7 m thick glaciofluvial layer.
- Due to no advance testing having been completed on the clay material to be modeled along cross-section J, a sensitivity analysis was completed for the isolated pocket of material by varying the shear strength to understand its impact on slope stability.
- The foundation materials were assumed to be saturated to original ground surface for the slope stability analyses. To model saturated conditions, a water table was included at the top of the foundation soils. These groundwater conditions are considered to be representative of periods of heavy precipitation, as occurs in the spring and fall. The proposed model conditions are also consistent with the VWP readings which indicate that groundwater is likely near or above original ground surface (Section 5.6), and are based on observations of water seepage at the toe of the current NW PAG Dump (Appendix E, Figures E-4 and E-5).
  - A sensitivity analysis was completed for cross-section J with an elevated hydraulic head applied to the glaciofluvial deposit to assess artesian conditions.
- The bedrock below the foundation soils within the area of the proposed ultimate NW PAG Dump consists of hard and competent intrusive rock. The bedrock is expected to exhibit sufficient strength to prevent a foundation failure through the bedrock. As well, the bedrock has not been characterized for faults or weak layers at orientations that could result in instability. Therefore, the bedrock has been modeled as a hard, infinite strength layer in the slope stability analyses, which prevents the automated search routine from searching for potential failure surfaced below this hard layer.

- To model seismic conditions, the pseudo-static method of analysis was used. This method of analysis applies a horizontal force to the failure mass proportional to the design horizontal acceleration. To account for the non-rigid response of the foundation soils and waste rock, the horizontal seismic loading considered in the assessment was one-half the peak ground acceleration (Hynes-Griffin and Franklin 1984). A 2% in 50 years or a 1-in-2,475-year return period earthquake event was used to assess long-term stability of the NW PAG Dump, to satisfy guidelines provided in industry (Hawley and Cunning 2017, BCMWRPRC 1991). The design PGA is 0.048 for the 2,745-year return period.
- No reduction has been applied to the strength parameters for the foundation materials. The foundation materials are expected to generally be dense. Due to the relatively low lift heights proposed to be constructed, pore water pressure generation is not anticipated (Hynes-Griffin and Franklin 1984), and the waste rock is expected to be free-draining.
    - Due to the uncertainty regarding the strength of the clay material, the sensitivity analysis was deemed sufficient to review strength reduction for the material.

6.6 Material Strength Properties

The material strength properties used in the slope stability analyses of the proposed ultimate NW PAG Dump are based on the glacial deposit review, previous field investigations and laboratory testing, and previous experience at the Mount Polley Mine. The material strength properties for the slope stability assessment of the proposed ultimate NW PAG Dump design are summarized in Table 17.

Table 17: Material Strength Properties Selected for Slope Stability Analyses

Material	Unit Weight (kN/m^3)	Strength Model Type	Strength Parameters	Reference
Waste Rock	19.6	Non-linear strength curve	$\tau = 1.726\sigma^{0.899}$	Strength function of Leps (1970) for average quality rockfill which matches observations of waste rock placed in the NW PAG Dump to date.
Colluvium/Till	22	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = 34º	Average peak and residual shear strength parameters from laboratory testing on till and colluvium material at Mount Polley Mine (WSP 2023b and 2024a)
			Cohesion = 0 kPa Friction angle = 32.5º	Lower bound of direct shear testing on till near the NW PAG Dump (WSP 2024b).
Glaciofluvial	22	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = 34º	Triaxial testing of undisturbed glaciofluvial samples (Golder 2015b)
Fine-grained Material	20	Mohr-Coulomb	Same parameters as colluvium/till	Discussed in Section 5.4.4
Clay Material	20	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = varied from 20 to 35º	Discussed in Section 5.4.5
Bedrock	26	Impenetrable		Did not model failure surfaces through bedrock

τ=*shear strength*; σ = *normal stress*.

6.7 Slope Stability Analyses Results

The following slope stability modelling scenarios were completed for the proposed ultimate NW PAG Dump cross-sections:

- Base Case – Lower lift configuration slope stability (static and pseudo-static)
- Base Case – Ultimate configuration slope stability (static and pseudo-static)
- Sensitivity analyses (static and pseudo-static)
  - Cross-section G – till lower bound strength
  - Cross-section J – artesian conditions
  - Cross-section J – clay material strength varied

The results of the slope stability analyses are presented in Appendix G and are summarized in Table 18.

Table 18: Results of Slope Stability Analyses for the Proposed Ultimate NW PAG Dump Design

Cross-section	Slope Stability Condition	Target Static FOS (short- and long-term)	Indicated FOS	Target Pseudo-Static FOS (long-term)	Indicated FOS	Appendix G, Figure No.
Cross-section E	Overall	1.4 - 1.5	1.6	1.3	1.5	G-1
	Lower Lift	1.0 - 1.2	1.4	1.0	1.3	G-2
Cross-section G	Overall	1.4 - 1.5	1.6	1.3	1.5	G-3
	Lower Lift	1.0 - 1.2	1.5	1.0	1.4	G-4
Cross-section G (*till sensitivity*)	Overall	1.4 - 1.5	1.6	1.3	1.5	G-5
	Lower Lift	1.0 - 1.2	1.4	1.0	1.3	G-6
Cross-section J (*artesian conditions*)	Overall	1.4 - 1.5	1.6	1.3	1.5	G-7
	Lower Lift	1.0 - 1.2	1.5	1.0	1.5	G-8
Cross-section J *Clay material: phi = 35 degrees*	Overall	1.4 - 1.5	1.7	Did not complete pseudo-static analyses for sensitivity analysis		G-9 and G-10
	Lower Lift	1.0 - 1.2	1.5			
Cross-section J *Clay material: phi = 30 degrees*	Overall	1.4 - 1.5	1.7			
	Lower Lift	1.0 - 1.2	1.3			
Cross-section J *Clay material: phi = 25 degrees*	Overall	1.4 - 1.5	1.5			
	Lower Lift	1.0 - 1.2	1.1			
Cross-section J *Clay material: phi = 20 degrees*	Overall	1.4 - 1.5	1.5			
	Lower Lift	1.0 - 1.2	1.0			

The results of the slope stability analyses indicate that the proposed ultimate NW PAG Dump design is expected to exhibit adequate stability with respect to shallow-seated rock lift face and overall deep-seated foundation instability for short and long-term, static and pseudo-static conditions. This is largely due to the good quality foundation soil material (well-graded, generally dense material), the angle of repose waste rock lift faces with wide catch-benches at each lift (giving an overall slope of 28 degrees), and the good quality waste rock that is expected to be placed in the NW PAG Dump.

Sensitivity analyses were completed for the following scenarios:

- **Lower bound till strength parameters:** the results for the slope stability analyses indicate that for a lower bound till strength, the NW PAG Dump is expected to exhibit adequate slope stability.
- **Artesian conditions:** the results for the slope stability analyses indicate that for artesian conditions in the glaciofluvial deposits, the NW PAG Dump is expected to exhibit adequate slope stability.
- **Clay material strength parameters:** the results for the slope stability analyses indicate that when varying the strength of the clay material, the NW PAG Dump is expected to exhibit adequate overall slope stability for a phi ranging from 20 to 35 degrees for the clay material. The results of the lower lift clay strength sensitivity analyses indicate that the design criteria is met for a phi of 35 and 30 degrees; however, for a phi of 25 and 20 degrees the design criteria is not met. Graphs of the results for the overall and lower lift slope stability comparing FOS and strength (phi) are presented in Illustrations 2 and 3.

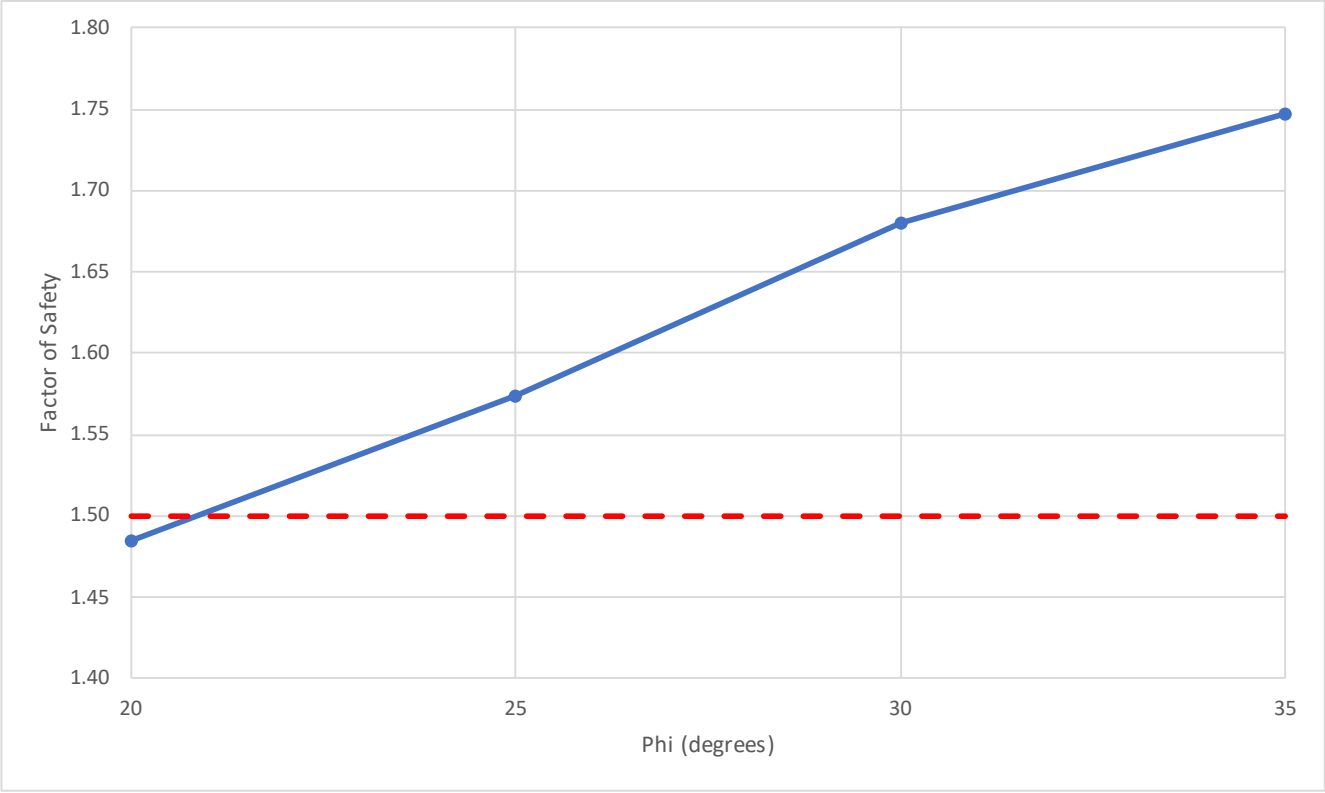

Illustration 2: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Overall

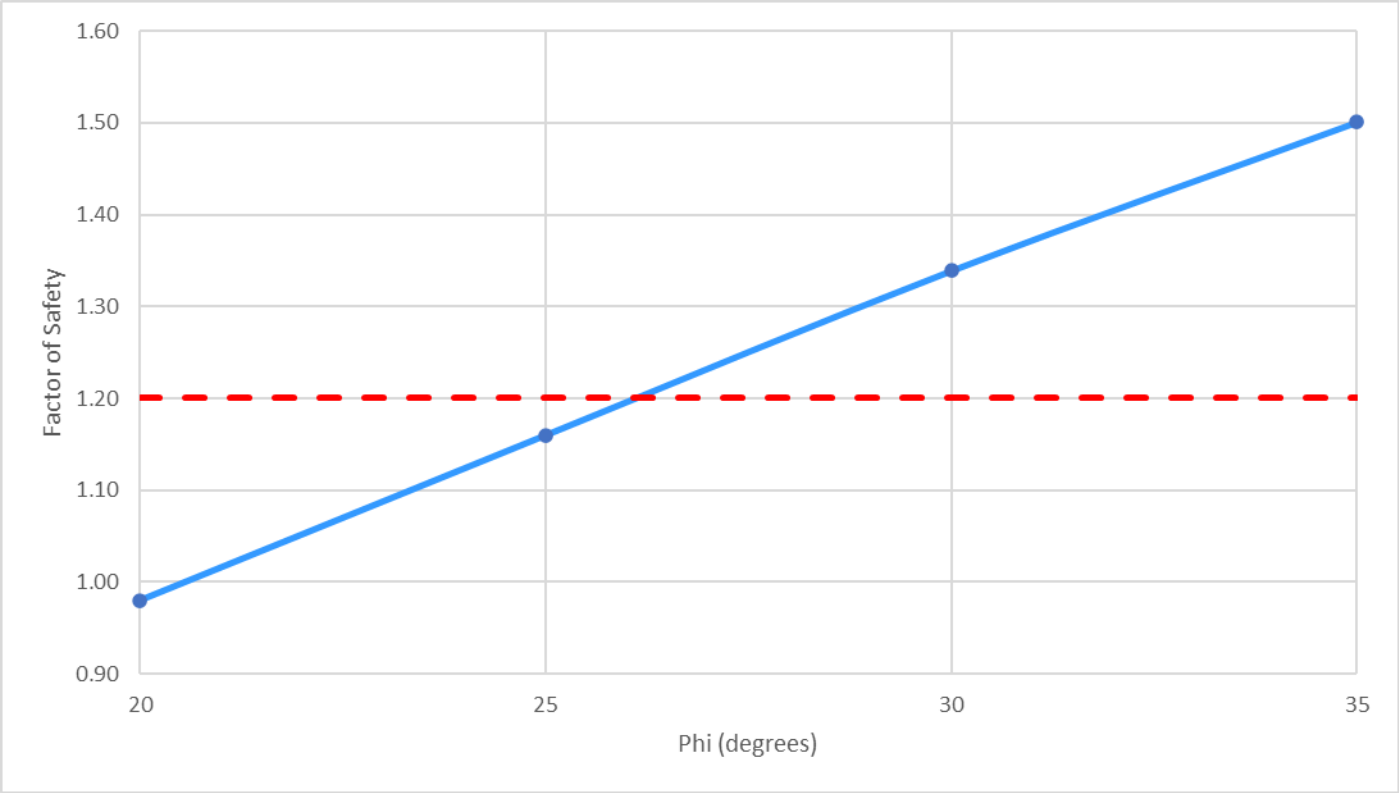

Illustration 3: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Lower Lift

7.0 PREDICTIVE RUNOUT ASSESSMENT

Predictive runout analyses have been carried out for the proposed ultimate NW PAG Dump design to determine if potential failure debris may reach infrastructure around the dump. The following sections detail the methodology and results of the predictive runout analyses, including the rationale for the selected failure surfaces modelled based on hazards and consequences of failure identified.

7.1 Predictive Runout Assessment Methodology

The predictive runout assessments for the proposed waste rock dumps were completed using the 2D software DAN-W (Release 8) (Hungr Geotechnical Research Inc. 2008). This software is based on solving hydrodynamic equations which are applied to conservation of momentum for thin slices of a flowing mass.

The runout models considered a frictional rheology for the foundation soils beneath the proposed ultimate NW PAG Dump. With a frictional rheology, the analysis results are dictated primarily by the dynamic friction angle between the failed waste rock mass and the foundation material the failed mass is moving over. The dynamic friction angle comprises the basal friction angle that is modified by pore pressure, which can reach values much lower than the static friction angle of the material (as measured in direct shear or triaxial type tests). The dynamic friction angle is used in calculating the flow resistance term in the frictional model, in which the flow is controlled by the effective normal stress on the base of the sliding mass.

An internal friction angle is used in the models which defines the internal friction acting within the waste rock dump.

The waste rock within the proposed ultimate NW PAG Dump was modelled using a frictional rheology given that the waste rock is relatively well-drained and composed of generally good quality material.

The 2D DAN-W runout models are run with 50 elements (default), no energy loss in the failed material, and with vertical slices.

7.2 Predictive Runout Assessment Failure Surfaces

Predictive runout models have been constructed to represent critical failure surfaces for potential deep-seated (overall) and shallow-seated (toe) failures through the proposed ultimate NW PAG Dump. By analyzing both failure mechanisms, the predictive runout assessment will provide a hazard area for the NW PAG Dump and determine if potential failure debris could runout and reach infrastructure around the dump.

The predictive runout assessment failure surfaces are based on the slope stability assessment results. The failure surfaces have been chosen based on the slip surfaces generated in the Slope/W software for the slope stability models, and a best-fit failure surface was created in DAN-W to represent shallow and deep-seated failures for each scenario.

The predictive runout models and their corresponding slope stability models are presented in Table 19.

Table 19: Summary of Predictive Runout Models and Corresponding Slope Stability Models

Cross-Section	Scenario	Slope Stability Model	Cross-Section Appendix B, Figure No.	Slope Stability Appendix G, Figure No.	Runout Analyses Appendix H, Figure No.
E	Overall	Overall failure through till/colluvium and fine-grained material, saturated	B-6	G-1	H-2
	Lower Lift	Lower lift failure through till/colluvium and fine-grained material, saturated		G-2	H-3
G	Overall	Overall failure through till/colluvium, saturated	B-8	G-3	H-4
	Lower Lift	Lower lift failure through till/colluvium, saturated		G-4	H-5

Runout modelling was not completed on cross-section J since this cross-section does not represent a critical geometry for the dump. The stability modeling was completed on cross-section J to investigate the slope stability of the potential clay material at the toe. The results of the stability assessment indicated that a potential failure through the clay material would likely develop in the lower lift and, therefore, would not have a significant runout distance.

7.3 Predictive Runout Assessment Material Properties

Material properties for the predictive runout analyses were determined using typical values based on previous runout analyses on waste rock failures and typical values determined from case studies compiled by Golder & Hungr (1994).

An internal friction angle of 37 degrees for the waste rock is used in the analyses based on the results of a review of shear strength data of the material. The internal friction angle is only applied to the slide mass. A dynamic or basal friction angle of 33.5 degrees was assigned for the waste rock and is based on back analyses of waste rock dump failures (Golder & Hungr 1994, Hawley and Cunning 2017).

For the foundation materials, two conditions were considered in the runout analyses:

- Dry conditions – typical friction value of 19 degrees (Golder & Hungr 1994).
- Wet conditions – typical friction value of 14 degrees (Golder & Hungr 1994).

Frictional material properties considered for the NW PAG runout assessment are summarized in Table 20.

Table 20: Material Properties for the Predictive Runout Analyses of the NW PAG Dump

Material	Rheology Type	Model Condition	Unit Weight (kN/m^3)	Dynamic Friction Angle (degrees)	Internal Friction Angle (degrees)
Waste Rock	Frictional	Dry (internal)	19.6	33.5	37
Foundation Soils		Dry (basal)	22	19	N/A
		Wet (basal)		14	

N/A = Internal friction angle is only applied to the failed mass.

7.4 Predictive Runout Assessment Results

The overall and lower lift failure models were run with a frictional rheology for the waste rock and foundation materials. The model was run under both dry and wet foundation conditions to determine a hazard zone for potential runout towards infrastructure. The results of the runout analyses are presented in Appendix H and summarized in Table 21.

Table 21: Summary of Predictive Runout Analyses Results for the NW PAG Dump

Cross-section ID	Failure Mode	Runout Distance (m)	Appendix H, Figure No.
Cross-section E	Overall	Dry: 55	H-2
		Wet: 115 (reaches settling ponds and Bootjack Access Road)	
	Lower Lift	Dry: 35	H-3
		Wet: 55	
Cross-section G	Overall	Dry: 50	H-4
		Wet: 80 (reaches Bootjack Access Road)	
	Lower Lift	Dry: 15	H-5
		Wet: 30	

The results of the runout analyses indicate that failure debris from an overall slope failure under wet foundation conditions is likely to reach the settling ponds and access road used by MPMC personnel on the west side of the NW PAG Dump.

Based on the slope stability performance of the waste rock dumps at the Mount Polley Mine over the past 25 years, and on the slope stability analyses carried out for the proposed ultimate NW PAG Dump design, there is a low probability that a failure would occur in the dump due to the relatively high FOS indicated by the slope stability analyses. The results of the runout analyses indicate that if a failure were to occur, there is a high likelihood that a runout would reach the settling ponds and access road under wet conditions. To help reduce the potential for failure debris to runout to infrastructure, it is recommended that only good quality rock be placed on the outside face of the dump, and that all poor-quality material be placed in the centre of the dump. While constructing the NW PAG Dump there should be two areas of operation at all times, the center of the dump for poor-quality material and the outside edge of the active dump lift faces for good quality material. Another way to help reduce the potential for failure to occur is to control loading rates such that excess pore pressure generation is minimized in the foundation materials.

8.0 ROCK ROLLOUT ASSESSMENT

The rock rollout assessment was completed for the proposed ultimate NW PAG Dump design along the west and north sides located above infrastructure such as the Bootjack Access Road, the settling ponds, and Bootjack Lake. The rock rollout assessment calculation considers rocks originating from the crest of the lower lift of the dump. It is expected that rock rollout will not be an issue for the subsequent lifts as free dump piles will be established along the top of each lift. Experience has shown that free dump piles are likely to contain rocks that roll down the face of subsequent lifts as they are constructed.

The predicted rollout distances are based on projecting a 23-degree shadow from the crest of the lowest lift to the topography below the lift (Golder & Hungr 1994). The rollout shadow for the proposed ultimate NW PAG Dump design is plotted over topography in Figure 9.

The rock rollout assessment for the proposed ultimate NW PAG Dump design indicates the Bootjack Access Road in the northwest corner of the dump is at risk of being struck by rock rollout during construction/advance of the first lower PAG lift over the smaller NAG lift. It is recommended that during the construction of the lowest PAG lift that access to the Bootjack Access Road in this area be restricted/closed.

Experience with the other waste rock dumps at the mine indicate that free dump piles on the top of each lift will retain rock rollout from the lift above, and that the infrastructure will not be at risk from the lifts located above the first lift.

The rock rollout potential of the proposed ultimate NW PAG Dump should be monitored as the dump is being constructed. If rocks reach the Bootjack Access Road or other infrastructure despite the efforts of constructing free dump piles and crest berms on the benches of the individual lifts, it may be necessary to consider additional rock rollout mitigation structures or to adjust the design of the dump.

9.0 SETTLEMENT

Potential settlement issues related to site conditions include:

- Settlement of the foundation materials resulting in potential slope failure.
  - Materials in the foundation may consolidate in response to loading by waste rock, resulting in settlement of the foundation.
    - The foundation materials below the existing waste rock in the NW PAG Dump have been loaded with 30 to 140 m of waste rock for several years, and by glaciers prior to that.
    - Loading by the proposed ultimate NW PAG Dump will induce further settlement, but settlements are anticipated to be small, because no soft or unconsolidated deposits were encountered in the footprint of the NW PAG Dump. Preconsolidation pressures in the isolated fine-grained material were estimated at over 5,000 kPa (Appendix D, Figure D-1).
    - Loading of the NW PAG Dump will induce settlement that will be taken up by successive placement of lifts of waste rock by the bottom-up method. The rate of loading is controlled by operational procedures.
  - Differential settlement may occur due to the presence of existing waste rock in the NW PAG Dump, due to differences in soil thickness and compressibility, and due to changes in loading across the dump.
    - The design does not include a liner or filter, or other elements that are sensitive to differential settlements.
  - Settlements of bedrock that would impact the performance of the NW PAG Dump are not considered credible. There are no known underground workings below the NW PAG Dump that could result in subsidence.

10.0 CONSTRUCTION AND OPERATIONAL CONSIDERATIONS

10.1 Construction Recommendations

The proposed ultimate NW PAG Dump is expected to exhibit adequate slope stability during construction. To help reduce the potential for failure material to runout as far as the Bootjack Access Road if failure of the proposed ultimate NW PAG Dump were to occur, it is recommended that only good quality rock be placed on the outside face of the waste dump, and that all poor-quality material be placed in the center or east side of the NW PAG Dump. While constructing the NW PAG Dump there should be two areas of operation at all times, the center or eastern side of the dump for poor-quality material and the outside edge of the active dump lift faces for good quality material.

The wide catch-benches around the proposed ultimate NW PAG Dump should be free-dumped on prior to constructing the next lift to help contain rock rollout as the dump is constructed higher. As well, berms should be constructed at the edge of each lift to help contain rock rollout.

10.2 Topsoil Management

WSP understands that all topsoil and reclamation suitable materials have been stripped from the footprint of the proposed ultimate NW PAG Dump. Windrow material that has been stockpiled at the toe of the current NW PAG Dump should be relocated such that it does not affect the overall slope stability of the dump or impede drainage from the dump.

10.3 Slope Stability Monitoring

The waste rock that will be consigned to the proposed ultimate NW PAG Dump will be an essentially cohesionless material. When a cohesionless material is at its angle of repose, the FOS of shallow potential failure surfaces in the face of a lift is close to 1.0. Under these conditions, shear strains occur within the zone located at shallow depths below the face of the dump, which results in down-slope displacement of the crest. Compaction settlement of material in the bottom of the dump also contributes to this downward displacement of the face of the dump. Displacement of the face and the crest of the dump can also occur when the dump face is advanced over weak foundation materials that can initiate somewhat deeper-seated instability along the waste rock/foundation interface.

If the down-slope movements occur rapidly, they can pose a hazard to people and equipment operating at the crest and near the toe of the dump. However, such shear failures at the crest of dumps do not occur without warning. Rather, they are preceded by the development of cracks, deformation and a period of accelerating displacement rates. Furthermore, larger failures that involve shear strains along or within the foundations are preceded by deep-seated displacements at the dump crest. These crest displacements can be monitored to provide advance warning of impending crest failures and deeper-seated overall failures.

The stability of the NW PAG Dump slopes is being monitored by prisms (MPMC 2021). The prisms should be measured by the MPMC survey team on approximately a monthly basis for the active NW PAG Dump. Survey personnel should continue to ensure consistency in readings and use the same setup and monitoring procedures for each set of measurements. This will improve the ability to detect localized and short-term displacements as well as develop more accurate interpretations of long-term settlement trends. If any significant storm events occur that exceeds a five-year return period or daily maximum precipitation, the prisms should be read. Daily temperature and barometric pressure corrections should be applied to the monitoring data, as rapid changes in temperature or barometric pressure can have a significant impact on the day-to-day accuracy of the data.

The following general guidelines should be used in collecting and interpreting the monitoring data (MPMC 2021):

- Slope distance should be recorded in the waste rock dump monitoring spreadsheets.
  - Slope distance data should be used with caution. It is possible for a portion of the slope to move a significant distance perpendicular to the line of sight with very little change in the slope distance measurement. Therefore, the 3D displacements must also be reviewed for signs of long-term displacement.
- Velocity threshold criteria have been established for the waste rock dumps based on previous experience. However, these data must also be reviewed for signs of acceleration. If a prism is showing acceleration—regardless of the measured velocity—access should be restricted to the area and the source of the displacement should be investigated (Figure 10).
- If prisms are moved or reset, the prism should be renamed, and a new data collection sheet should be completed. The old prism should become inactive in the data collection sheet.

A major part of the slope stability monitoring program will be the regular visual inspections of the waste rock dump crests, platforms, and slope faces for early evidence of slope instability. The waste rock dumps should be inspected once per quarter and during periods of high precipitation that may cause additional infiltration into the dump or additional erosion. These regular inspections should ideally be carried out by the same individual to maintain continuity of the observations. The observations should be recorded so that a record of the stability performance is available should it be required in the event of instability.

The visual reviews should include the following:

- inspecting the crests for signs of cracking and localized settlement and ponding water
- inspecting the faces of the waste rock dumps for signs of over-steepening, bulging in the middle or at the toe of the face, seepage, and erosion
- inspecting the foundation, or toe of the waste rock dump, for signs of deformation

Visual observations should be documented on inspection forms.

11.0 SUMMARY AND RECOMMENDATIONS

Based on the Hawley and Cunning (2017) WSRHC system, the proposed ultimate NW PAG Dump design is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III).

The slope stability analyses results for the proposed ultimate NW PAG Dump design indicate that the dump will meet the design acceptance criteria for slope stability under static and pseudo-static conditions, with the exception of analyses completed with low clay material strength parameters (a phi less than about 27 degrees). The clay material was encountered in an isolated “pocket” north of the current toe of the dump in DH-NW-02 and was not found in the adjacent boreholes and test pits (DH-NW-03, DH-NW-03A, TP-NW-01, TP-NW-02, and TP-NW-03). No investigations have been completed immediately beneath the toe of the NW PAG Dump in this area as access is limited. The material was also interpreted to be discontinuous/interbedded with silty clay. The area of the current NW PAG Dump near where the clay material was encountered is stable, and has been since construction, indicating that at least a FOS of 1.0 is being achieved. Recommendations for construction near the clay material include:

- Remove the clay material prior to dumping in this area (even though the toe of the proposed ultimate NW PAG Dump does not cover the area where DH-NW-02 was drilled). The clay material was encountered in an old borrow area, therefore, more material could be removed from the borrow area to key into the till material below.
- Use low lift heights (about 5 m) when constructing the lower NAG lift in this area to limit development of potential excess pore pressures and not rapidly load the clay material if it does exist further south beneath the proposed ultimate NW PAG Dump design toe.
    - When constructing the low lifts, advancement could be such that the borrow area is encapsulated (where the potential clay material exists if it extends as far south as the proposed ultimate NW PAG Dump footprint). Once the area is encapsulated, waste rock can then be dumped into the encircled area. This method provides lateral support from the surrounding topography and the dump prior to dumping on top of the borrow area.

The runout analyses results indicate that under wet foundation conditions, it is likely that failure debris would impact the Bootjack Access Road and settling ponds. Based on the slope stability performance of the NW PAG Dump over the past 12 years, and on the slope stability analyses carried out for the proposed ultimate NW PAG Dump design, there is a low probability that a failure would occur in the NW PAG Dump due to the relatively high FOS indicated by the slope stability analyses.

Rock rollout could impact the Bootjack Access Road.

Settlement of the NW PAG Dump is expected to be limited and manageable.

Recommendations for the proposed ultimate NW PAG Dump construction include:

- Controlled loading rates
    - Prism and VWP data along with visual inspections and daily loading rates can all be used to understand if loading rates are having an adverse affect on dump construction.

- While constructing the NW PAG Dump, dumping operations should avoid concentrated dumping at a single location and should use as wide a strike length along the slope face as possible while advancing a lift.
- Construct berms at the edge of each catch-bench and free dump along the entire lift prior to constructing the next lift to limit rock rollout.
- Follow Standard Operating Procedures at Mount Polley Mine for:
  - Grading the dump and avoid ponding water on platforms.
  - Controlling the placement of waste rock being used for construction. The waste rock type should be discussed and planned in collaboration with geology and short-range engineering, as required. The material consigned to the NW PAG Dump should be good quality waste rock that is hard, coarse rock. Poor-quality material such as faults or overburden materials should be dumped in a central location of the dump such that it can be encapsulated and covered with good quality waste rock.

The stability of the NW PAG Dump slopes is being monitored by prisms (MPMC 2021). The prisms should be measured by the MPMC survey team on approximately a monthly basis for the active NW PAG Dump. Survey personnel should continue to ensure consistency in readings and use the same setup and monitoring procedures for each set of measurements. This will improve the ability to detect localized and short-term displacements as well as develop more accurate interpretations of long-term settlement trends. If any significant storm events occur that exceeds a five-year return period or daily maximum precipitation, the prisms should be read. Daily temperature and barometric pressure corrections should be applied to the monitoring data, as rapid changes in temperature or barometric pressure can have a significant impact on the day-to-day accuracy of the data.

A key component to the safe operation of the proposed ultimate NW PAG Dump to mitigate instability will be regular visual inspections. The following operational procedures are recommended for the proposed ultimate NW PAG Dump:

- The proposed ultimate NW PAG Dump should be visually inspected and photo-documented on a regular basis during construction, on approximately a weekly basis. The pit shifter or the geotechnical engineer should be completing the formal visual inspections. The following information should be investigated and recorded:
  - The crests of the NW PAG Dump lifts should be examined for signs of cracking and localized settlement and ponding water.
  - The faces of the NW PAG Dump lifts should be examined for signs of oversteepening, bulging in the middle, seepage, erosion, and the toe of the dump, if it can be observed, for signs of deformation.
  - The type of material being placed on the NW PAG Dump lifts and the loading rates should be documented.
- Dozer and haul truck operators should be continuously observing the construction of the NW PAG Dump lifts for signs of instability and reporting their observations to their pit shifter.

12.0 CLOSURE

We trust this report satisfies your current requirements. If you have any questions or require further assistance, please do not hesitate to contact the undersigned.

WSP Canada Inc.

Jeremy Huber, P.Eng.
Geological Engineer

Yogendran Arunachellan
Geotechnical Specialist

Michael Kraitman, P.Eng.
Geological Engineer

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Lead Senior Geological Engineer

AGH/YA/MVK/JH/GP/MD/JF/anr/na

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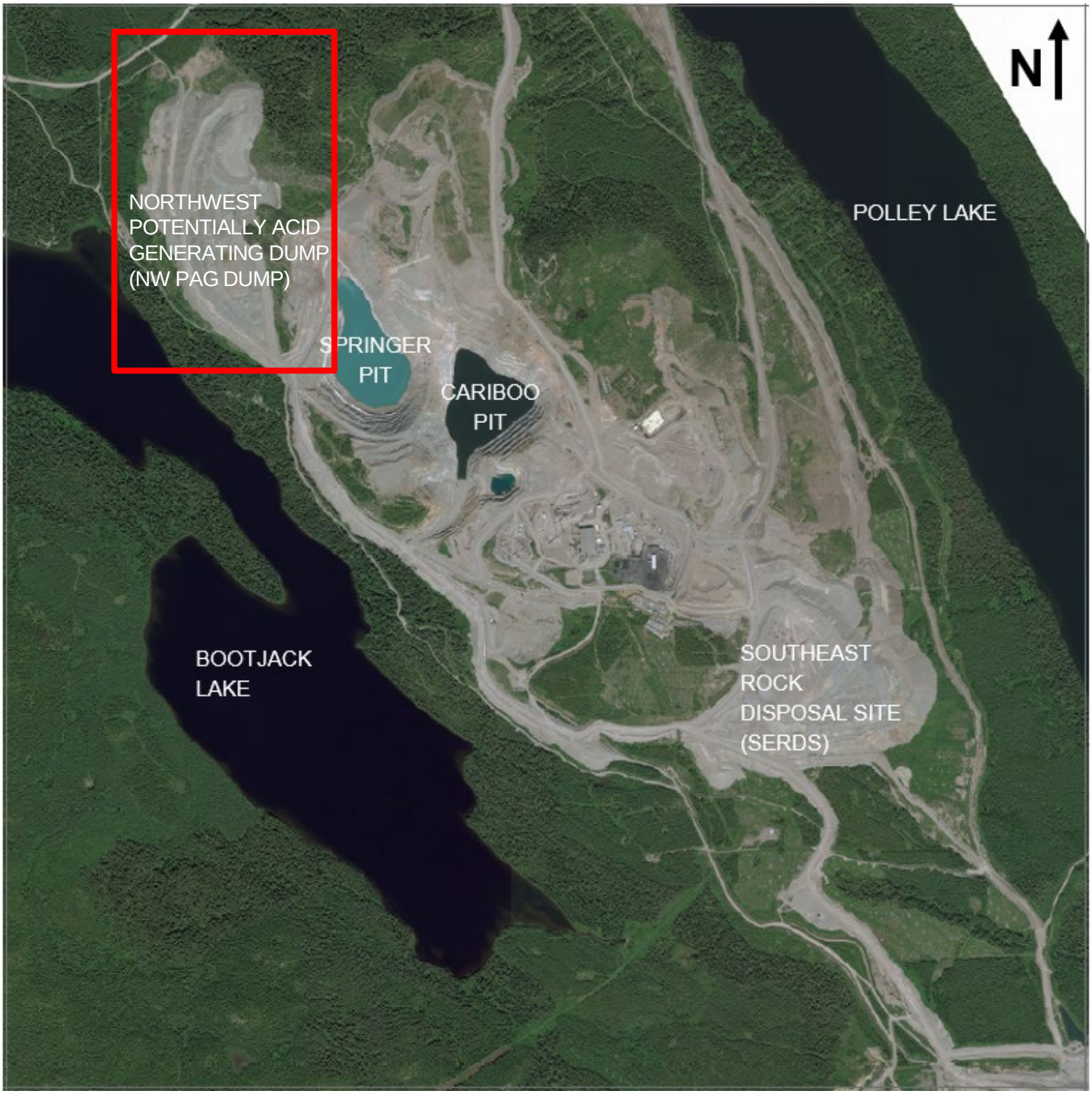

REFERENCES AND NOTES

1. SATELLITE ORTHOPHOTO PROVIDED BY MPMC JUNE 21, 2021.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
MOUNT POLLEY MINE
NW PAG DUMP
SITE LOCATION

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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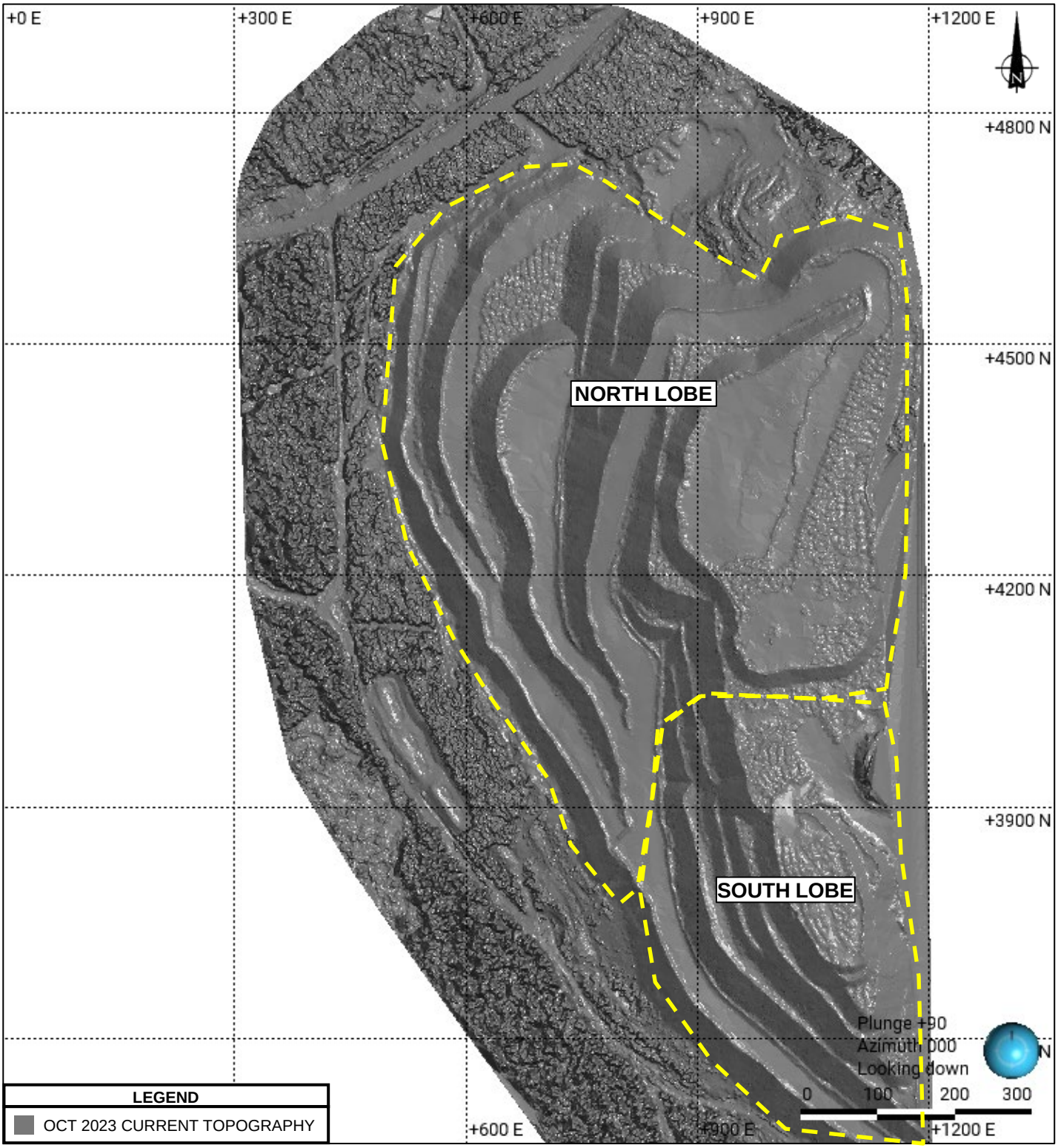

REFERENCES AND NOTES

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CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
OCTOBER 2023 TOPOGRAPHY OF NW PAG DUMP

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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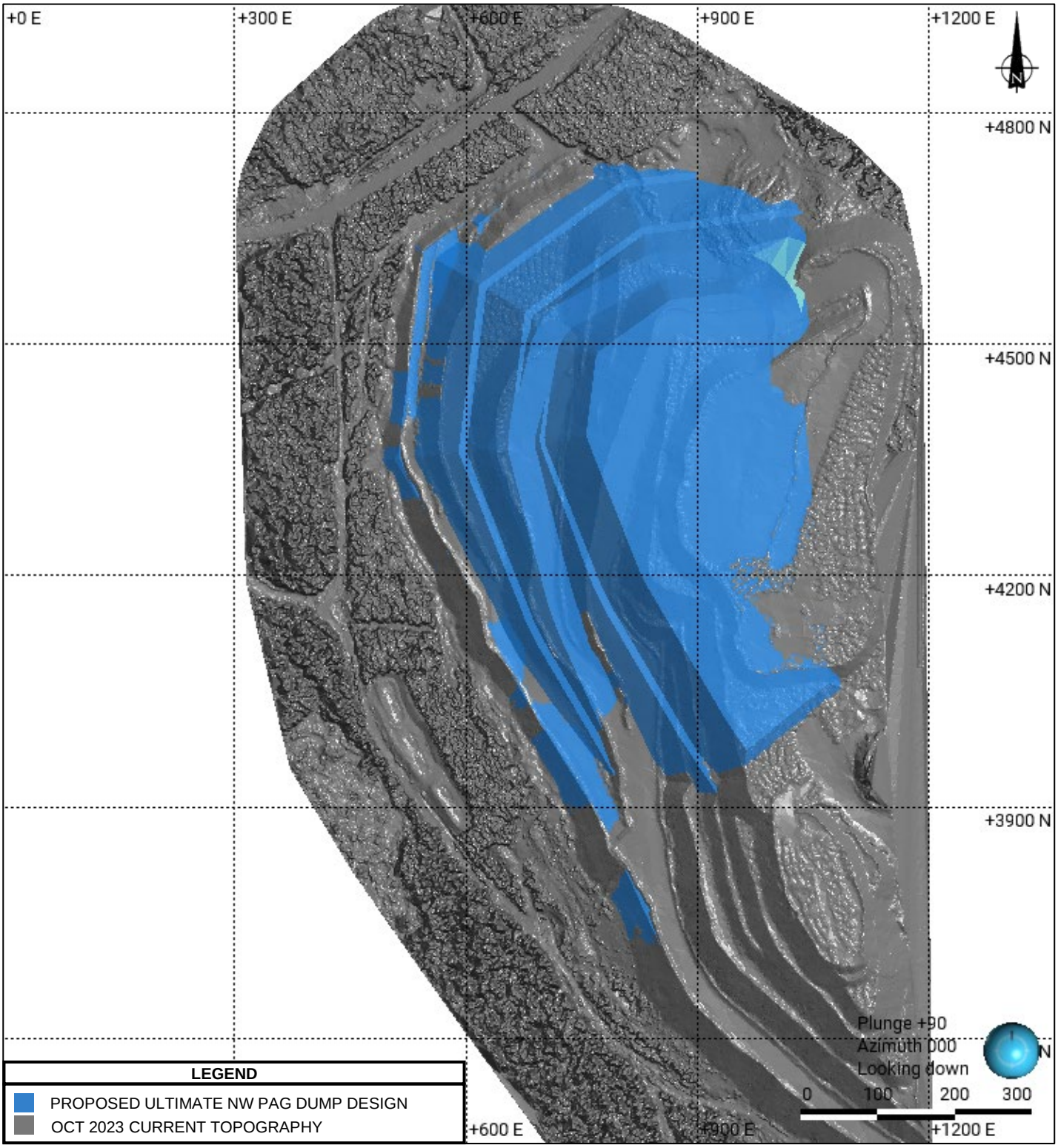

LEGEND

- PROPOSED ULTIMATE NW PAG DUMP DESIGN
- OCT 2023 CURRENT TOPOGRAPHY

REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

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LIKELY, BC

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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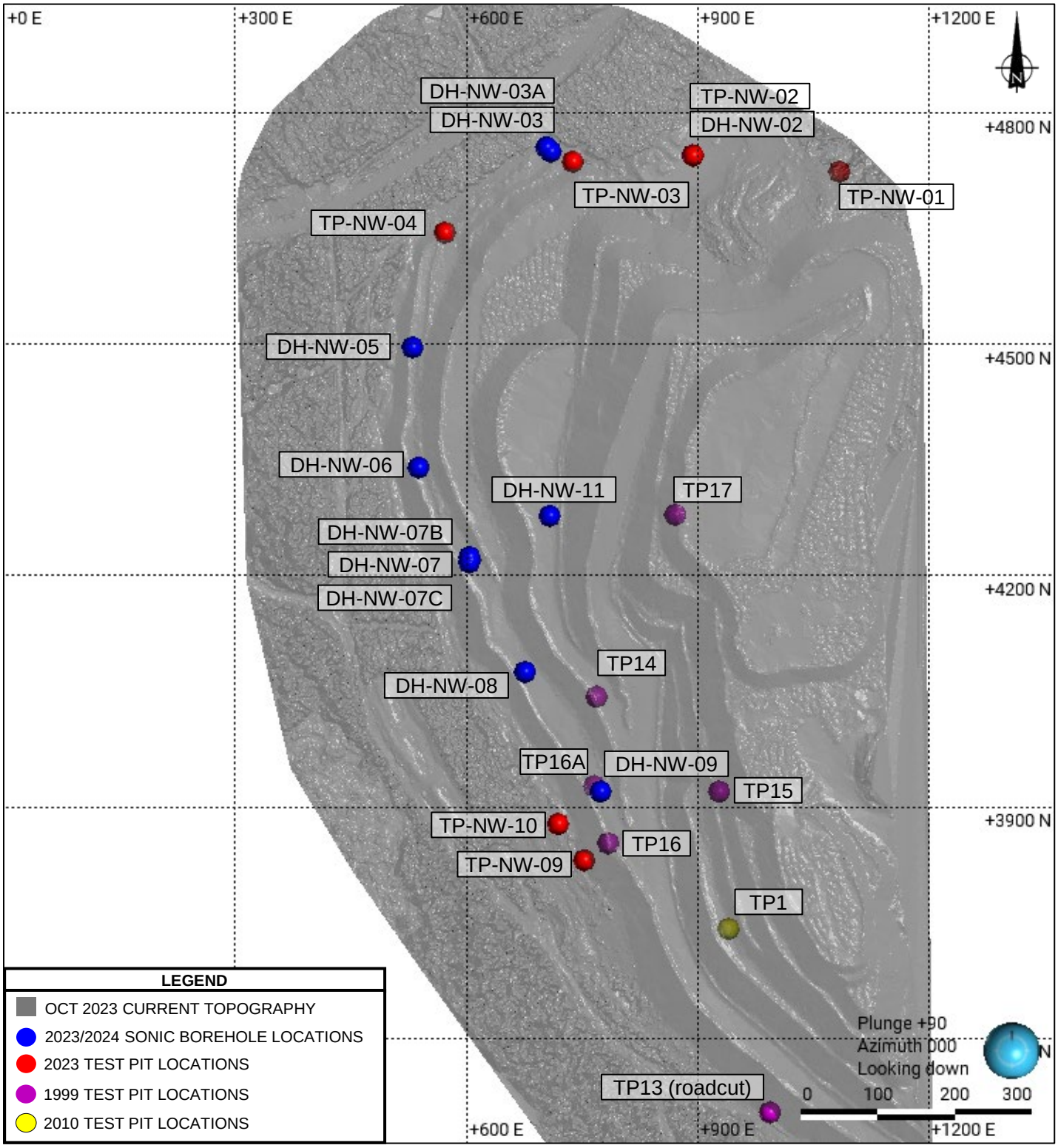

REFERENCES AND NOTES

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CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

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PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
OCTOBER 2023 TOPOGRAPHY
FIELD INVESTIGATION LOCATIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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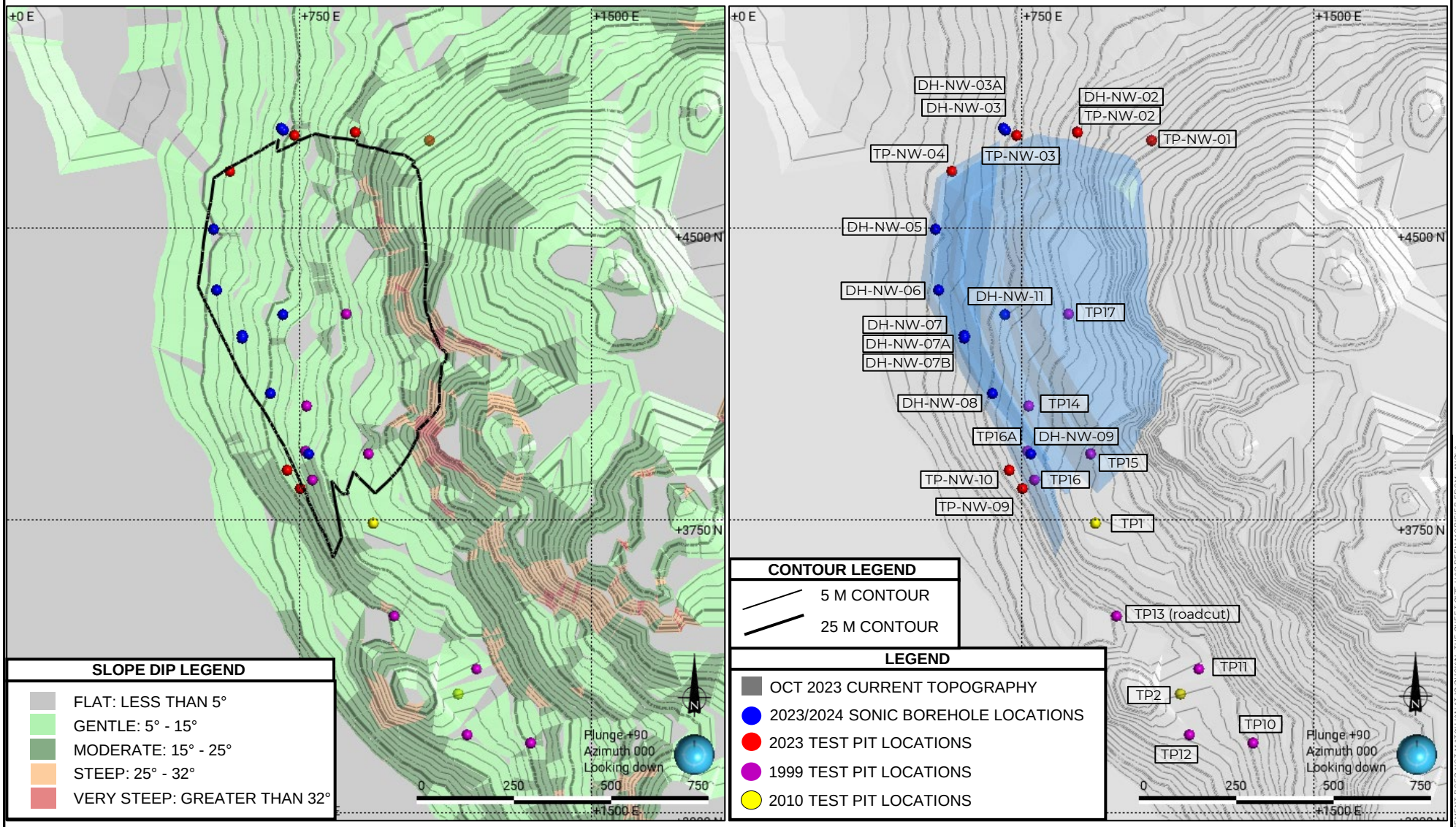

REFERENCES AND NOTES

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CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
FOUNDATION SLOPE DIP
SHOWING PROPOSED ULTIMATE NW PAG DUMP FOOTPRINT
AND FIELD INVESTIGATION LOCATIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	5

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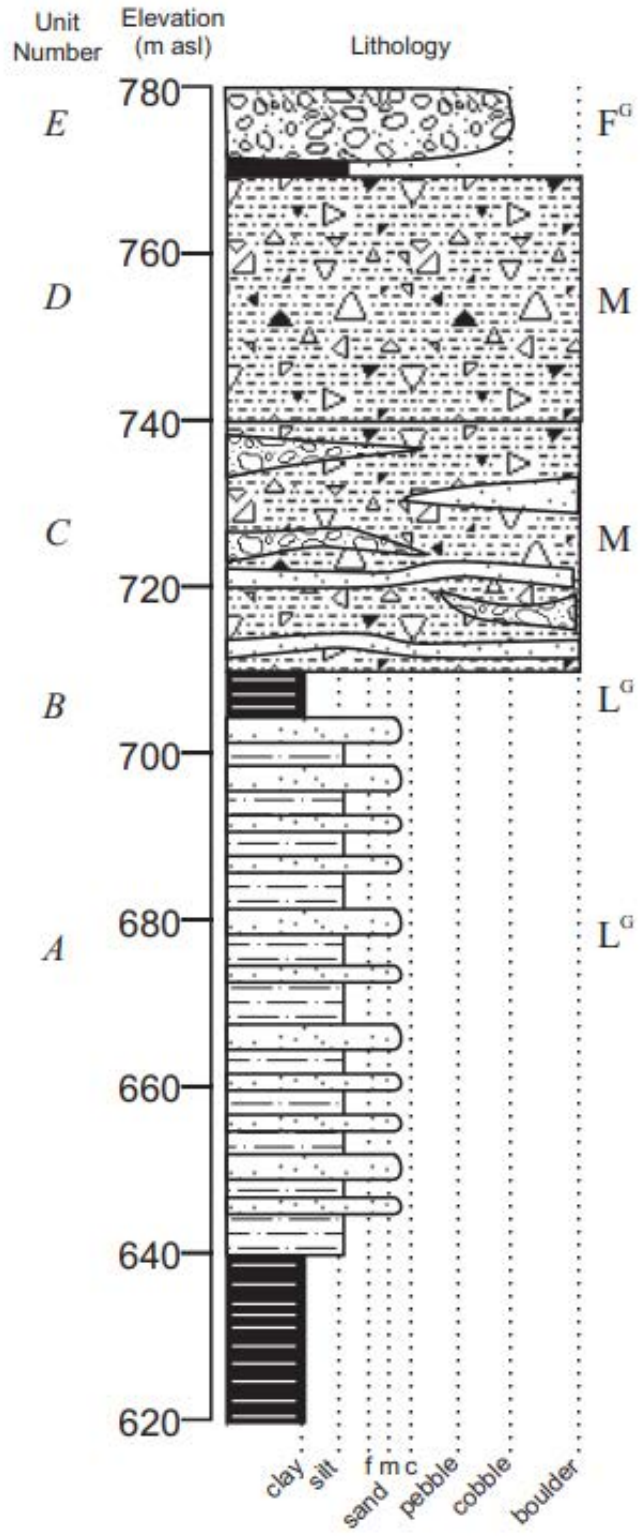

asl = above sea level; F^G = glaciofluvial deposits; M = basal till; L^G = glaciolacustrine deposits.

CLIENT
MOUNT POLLEY MINE CORPORATION
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LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
STRATIGRAPHIC COLUMN
MOUNT POLLEY MINE AREA
SOURCE: BICHLER AND BOBROWSKY 2003

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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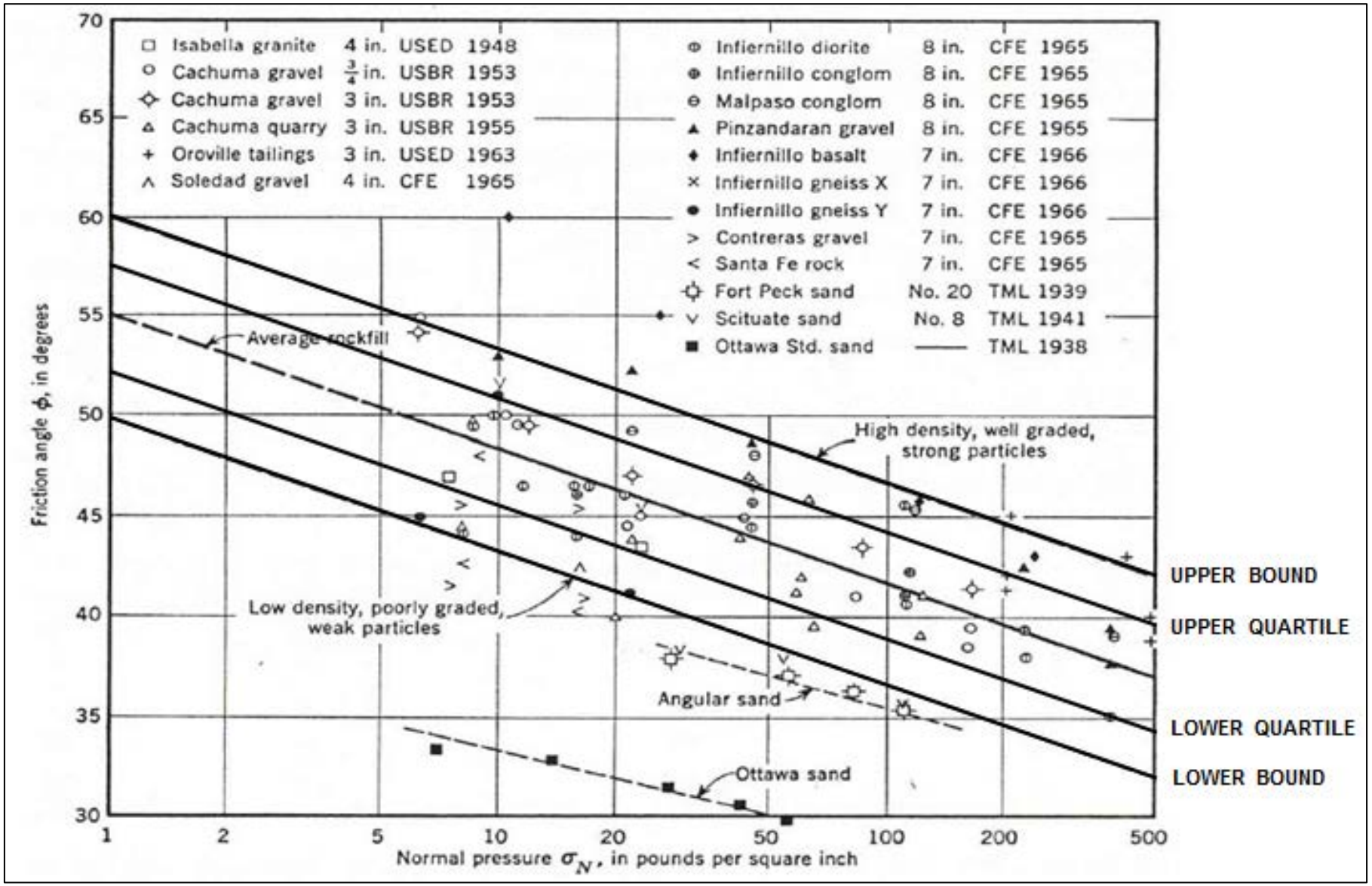

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
NON-LINEAR SHEAR STRENGTH OF ROCKFILL FROM TRIAXIAL TESTS AFTER LEPS (1970)

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	7

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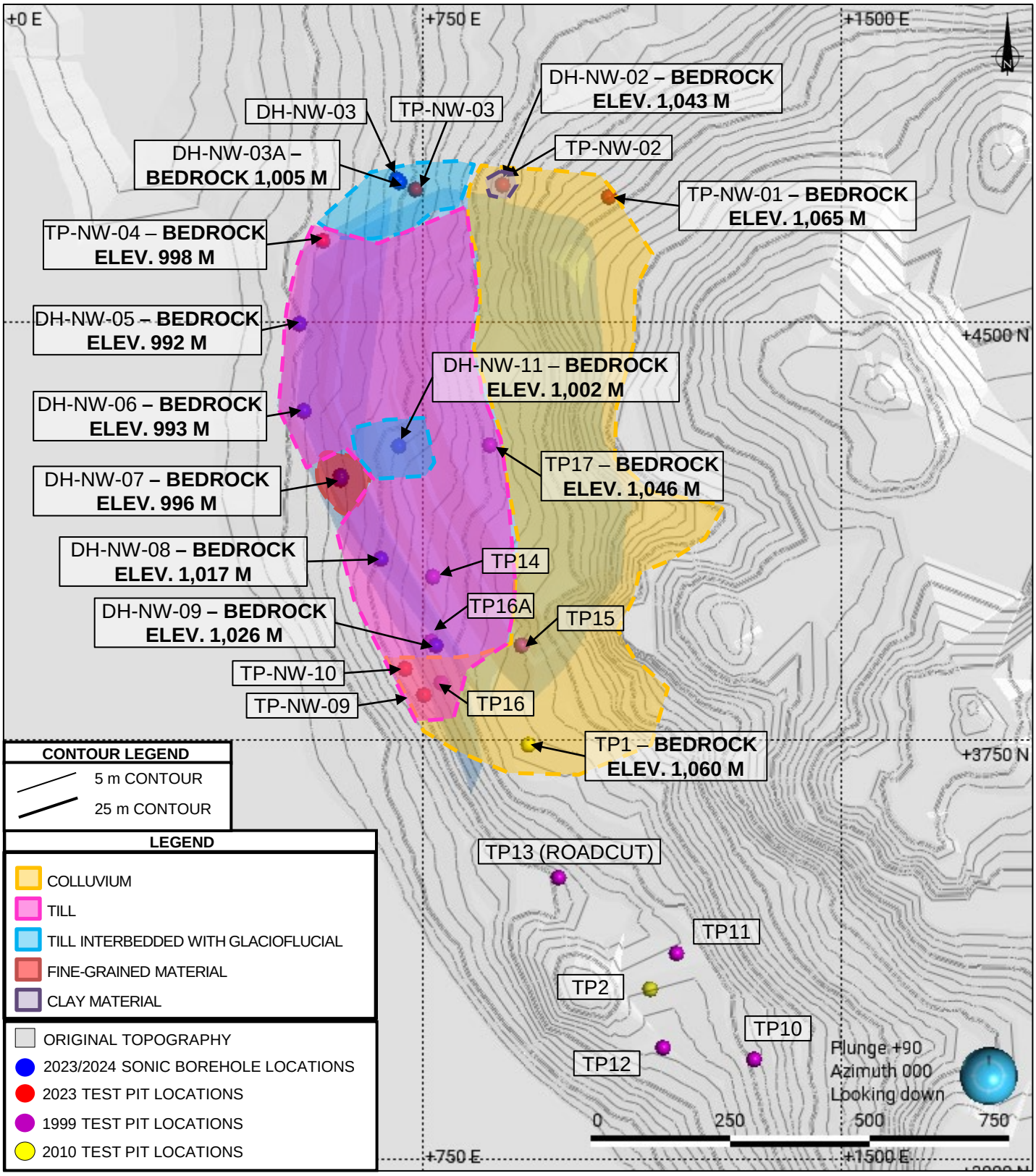

REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

TITLE
SURFICIAL GEOLOGY INTERPRETATION FOR PROPOSED ULTIMATE NW PAG DUMP DESIGN AREA

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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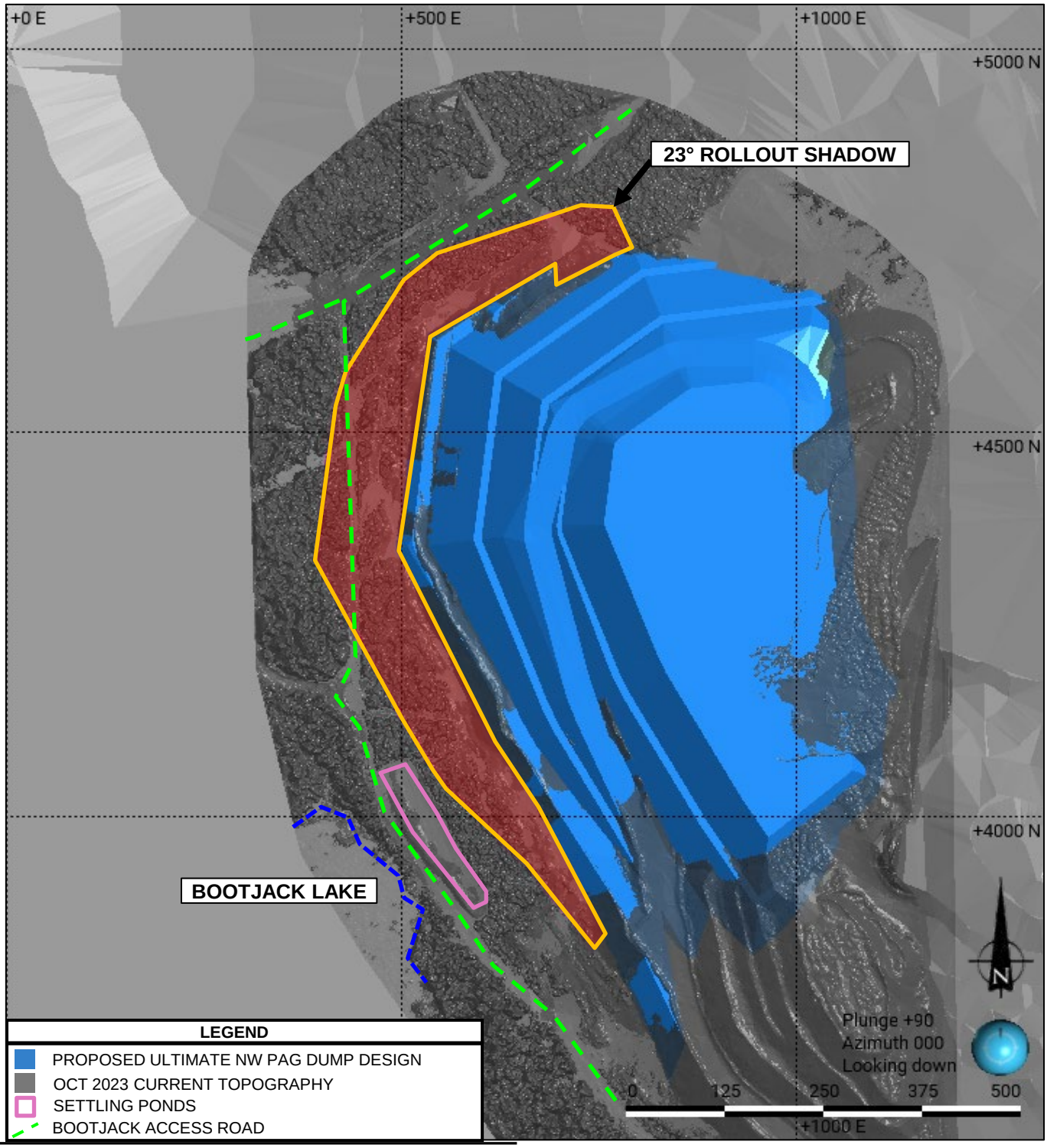


REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.
2. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
3. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

TITLE
ROCK ROLLOUT SHADOW FOR PROPOSED ULTIMATE NW PAG DUMP DESIGN

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	9

Path: WSP SharePoint>CA0020527.4505, Mount Polley Mine> Deliverables> Issue4 | File Name: Figures 1 and 7.pptx

Prism Data Interpretation Procedures

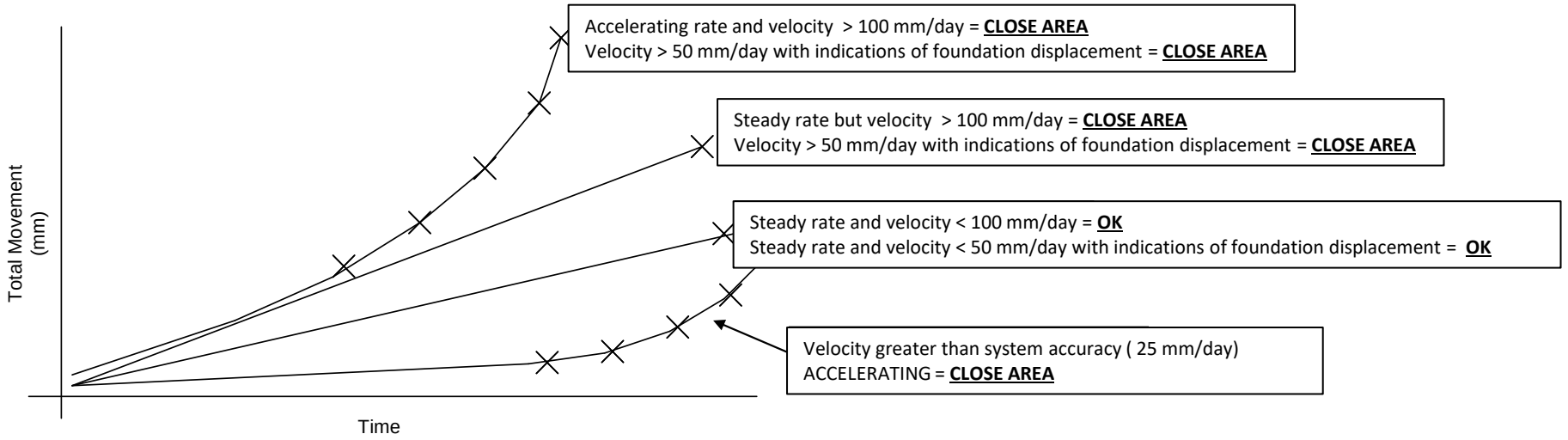
A) Daily displacement (mm)
(How many millimetres did it move? Was this less than or more than the monitoring system accuracy?)

B) Daily velocity (mm/day)
(How fast is it moving?)

C) Direction of movement (azimuth)
(Does the direction of movement make sense? Is it moving away from the dump face, parallel to the dump face, or into the dump?)

D) Direction of movement (vertical)
(Are all of the psirms moving upward? If so, is it possible that the base station or back-sight is settling?)

E) Total displacement graph
(Is it accelerating?)



CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
WASTE ROCK DUMP PRISM MONITORING DATA INTERPRETATION CRITERIA

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	10

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

APPENDIX A

Slope Stability Performance Photographs

REFERENCES AND NOTES

1. PHOTOGRAPH FROM GOLDER 2013C.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2012 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPH LOOKING NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-1

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

REFERENCES AND NOTES

1. PHOTOGRAPH FROM GOLDER 2015B.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2013 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPH LOOKING NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2016.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2014 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING WEST AND NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-3

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2017.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

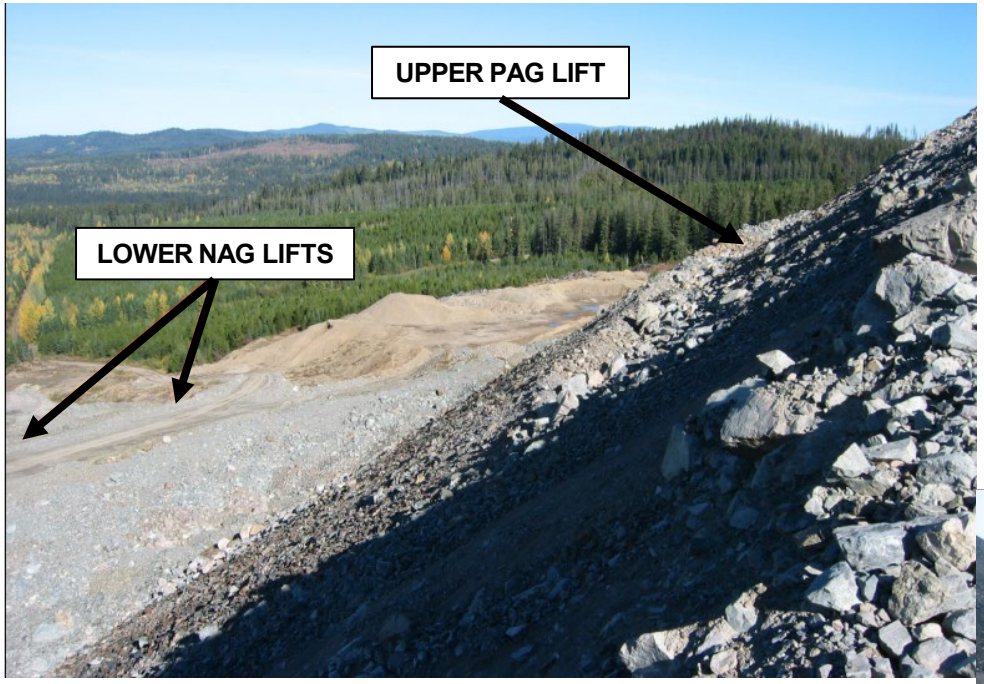
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2016 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING WEST AND NORTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-4

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2018.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2017 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH AND SOUTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2019.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

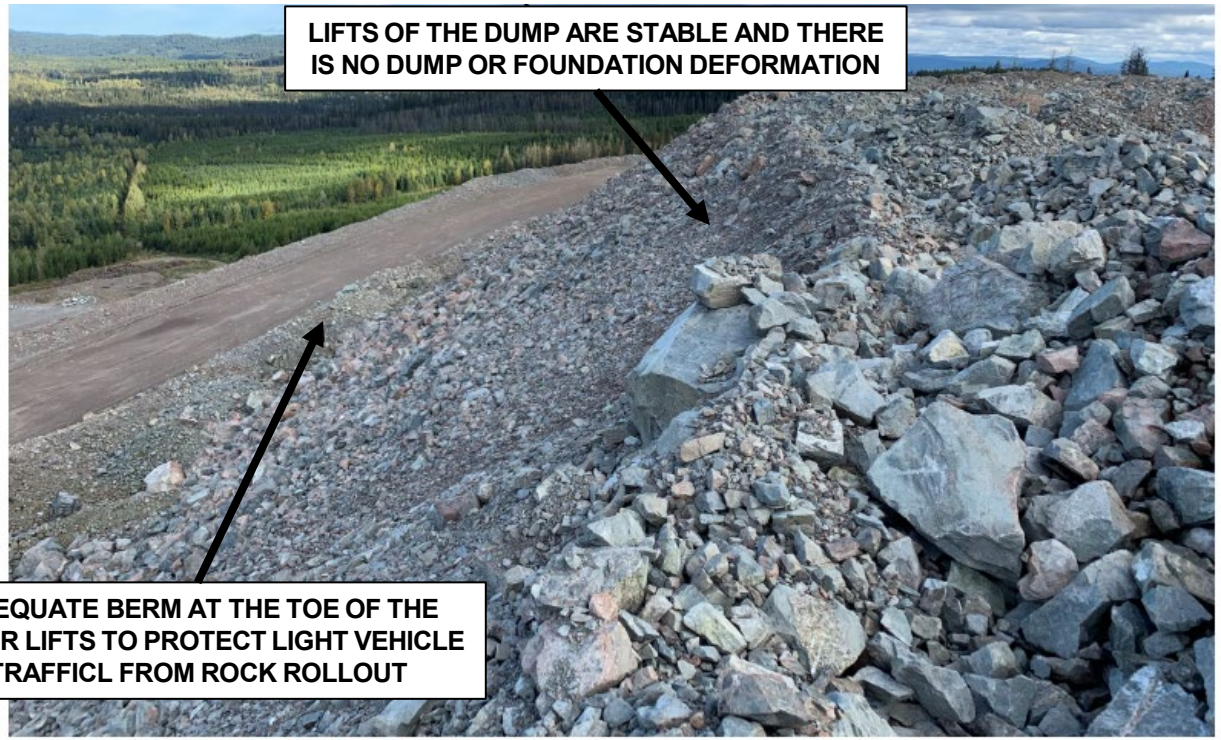
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2018 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH AND SOUTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-6

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2020.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

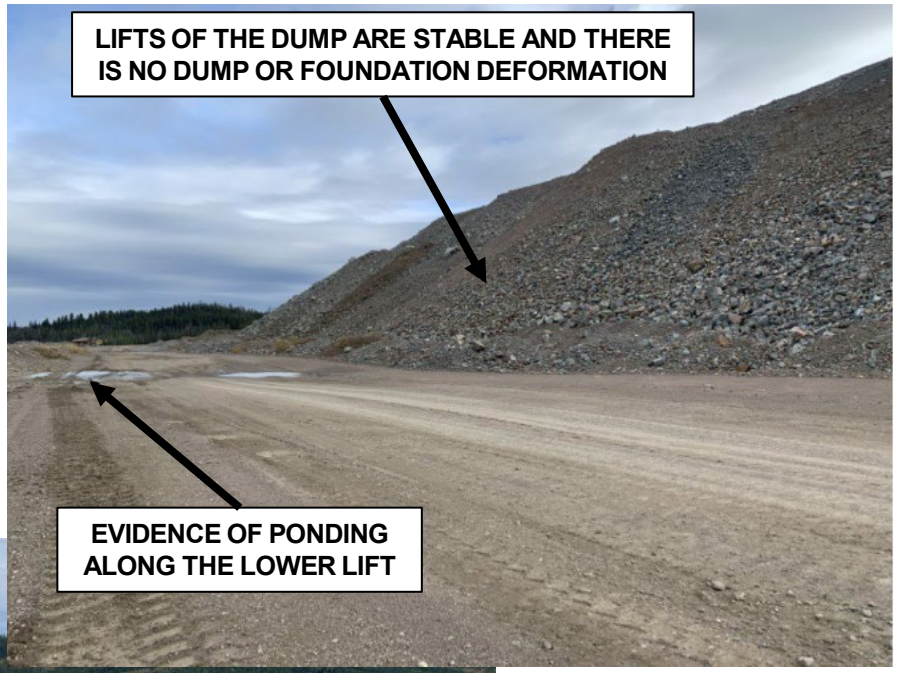
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2019 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING SOUTH AND NORTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-7

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2021.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

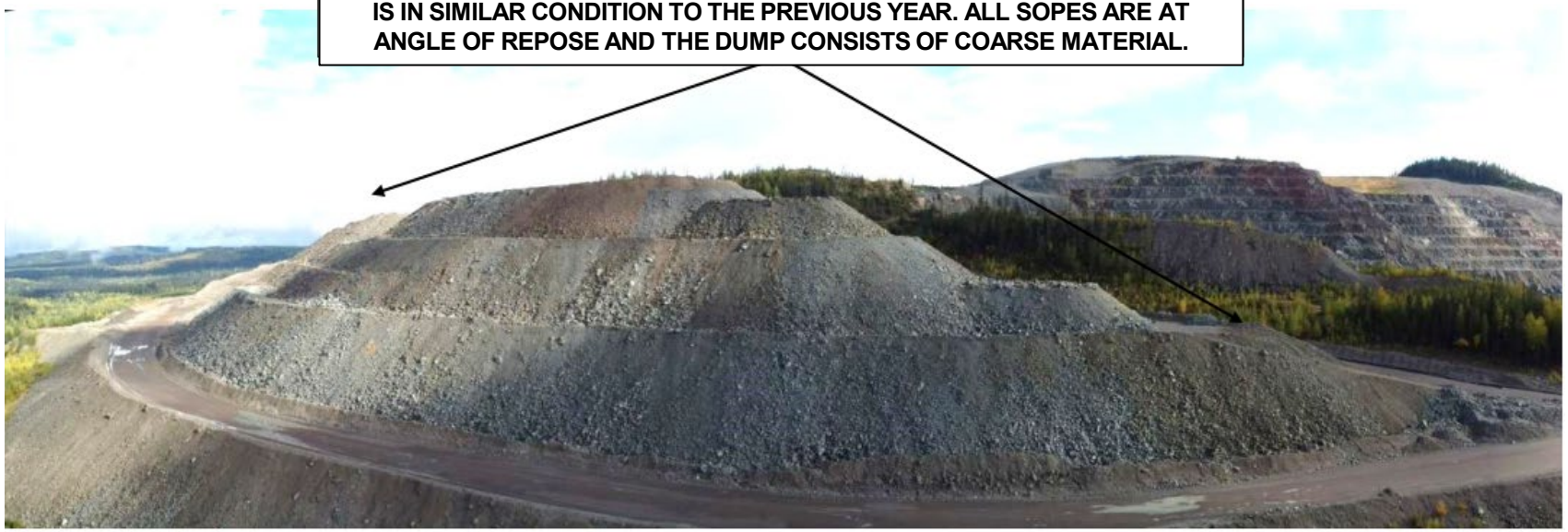
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2020 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTHWEST, SOUTHEAST AND SOUTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2022.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2021 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTHEAST AND WEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM WSP 2023A.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2022 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH AND SOUTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-10

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

AREA OF SETTLEMENT ON LOWER LIFT LIKELY INFLUENCED BY WATER AND THE FOUNDATION SOILS.

LOWER LIFT ON NORTH END OF DUMP PERFORMING ADEQUATELY FOR SLOPE STABILITY.

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM WSP 2023C.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

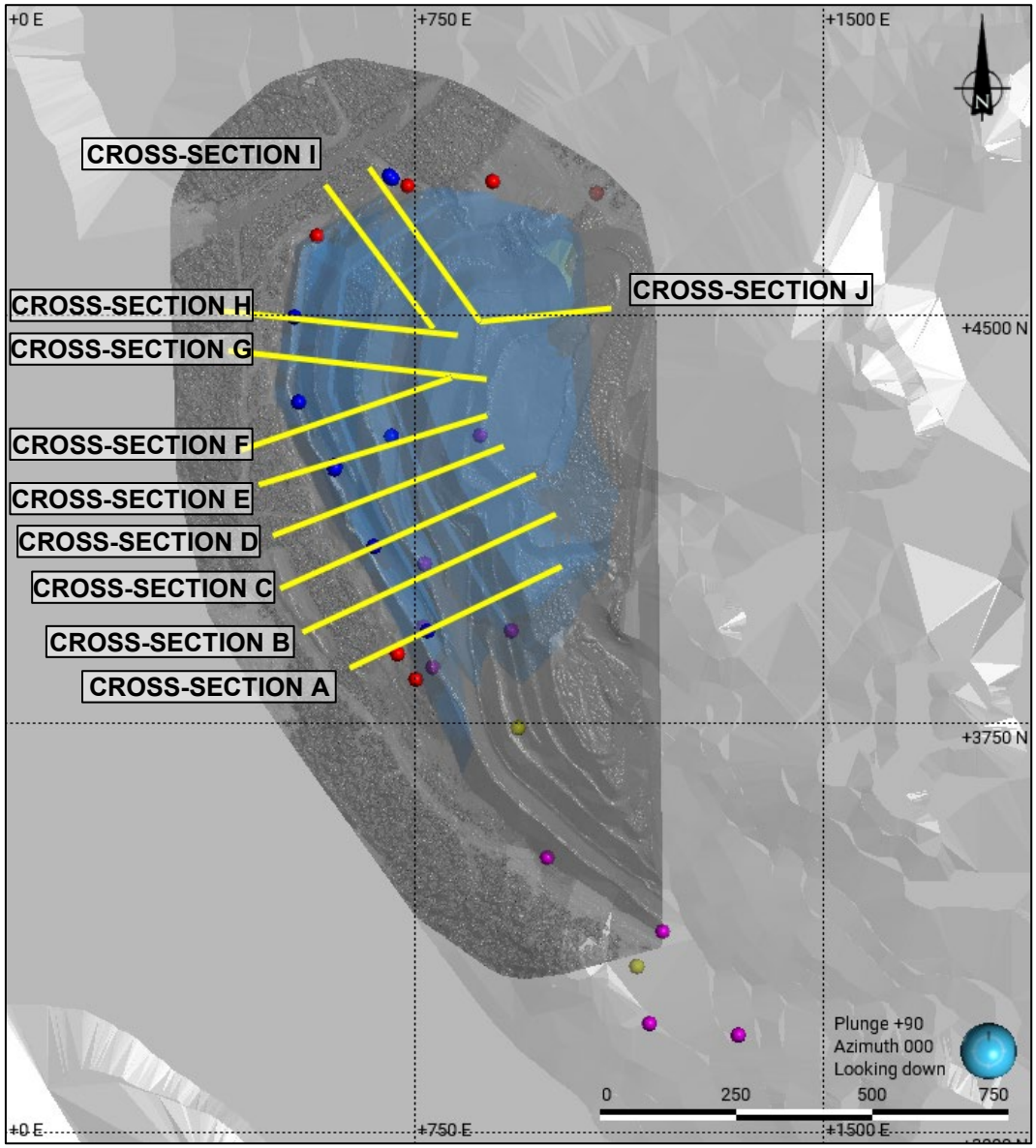
TITLE
2023 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-11

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

APPENDIX B

Cross-Section Review



LEGEND

- ORIGINAL TOPOGRAPHY
- PROPOSED ULTIMATE NW PAG DUMP DESIGN
- OCT 2023 CURRENT TOPOGRAPHY
- 2023/2024 SONIC BOREHOLE LOCATIONS
- 2023 TEST PIT LOCATIONS
- 1999 TEST PIT LOCATIONS
- 2010 TEST PIT LOCATIONS

REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.
2. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
3. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION LOCATIONS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-1**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

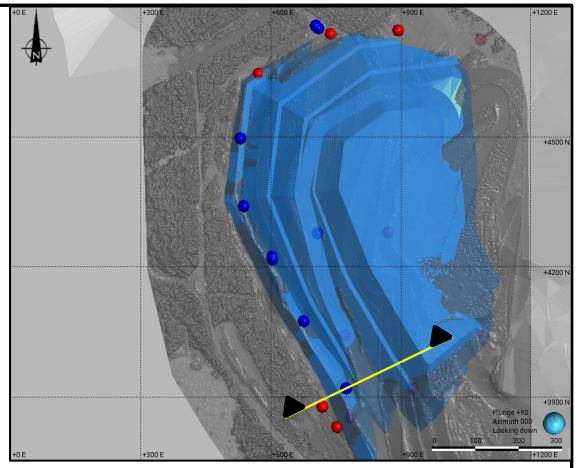
VWP - Water Table

- VWP - Water Table

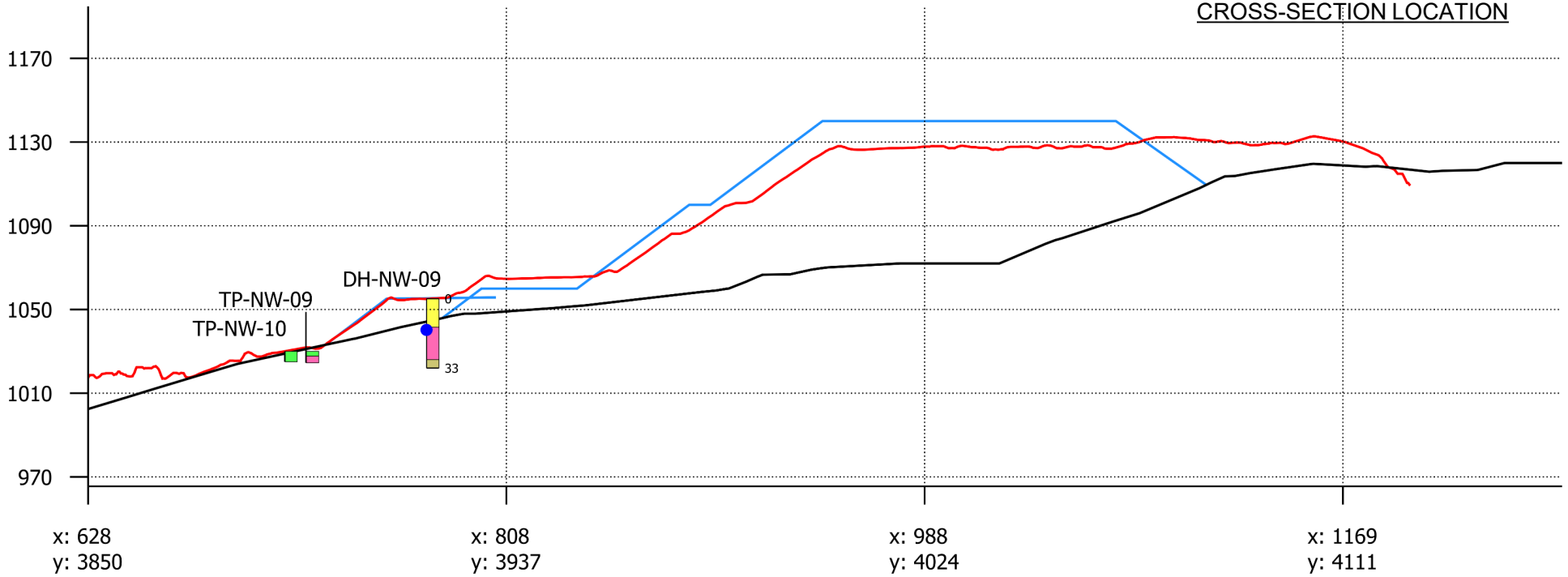
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION A

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-2**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

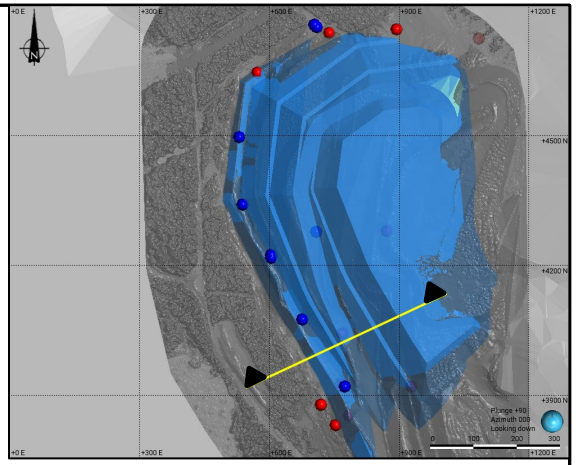
VWP - Water Table

- VWP - Water Table

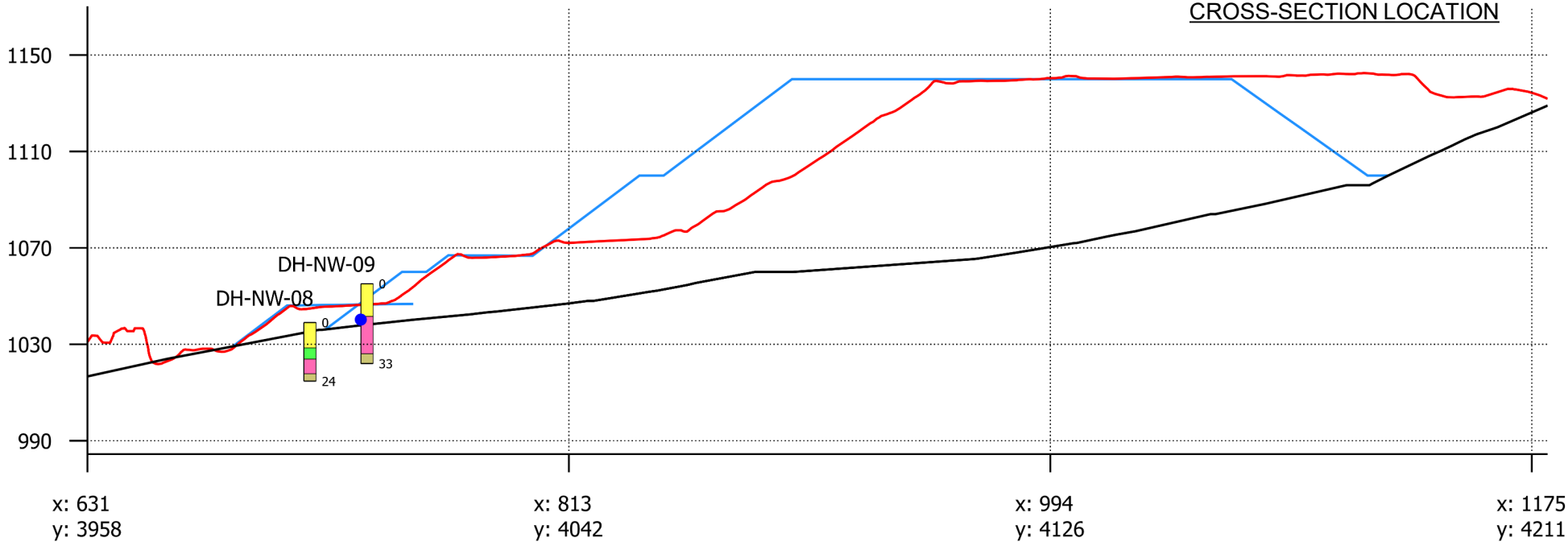
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION B

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-3**

Legend

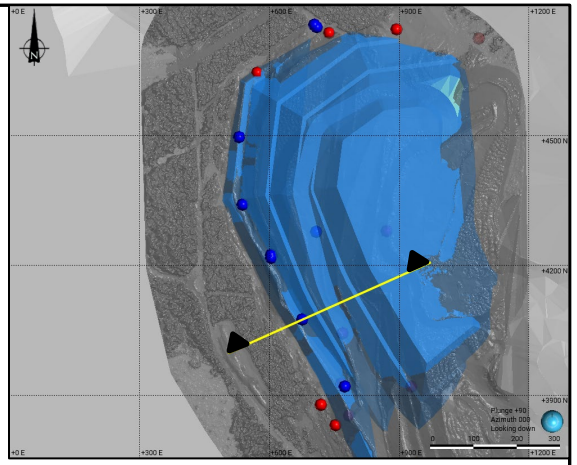
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

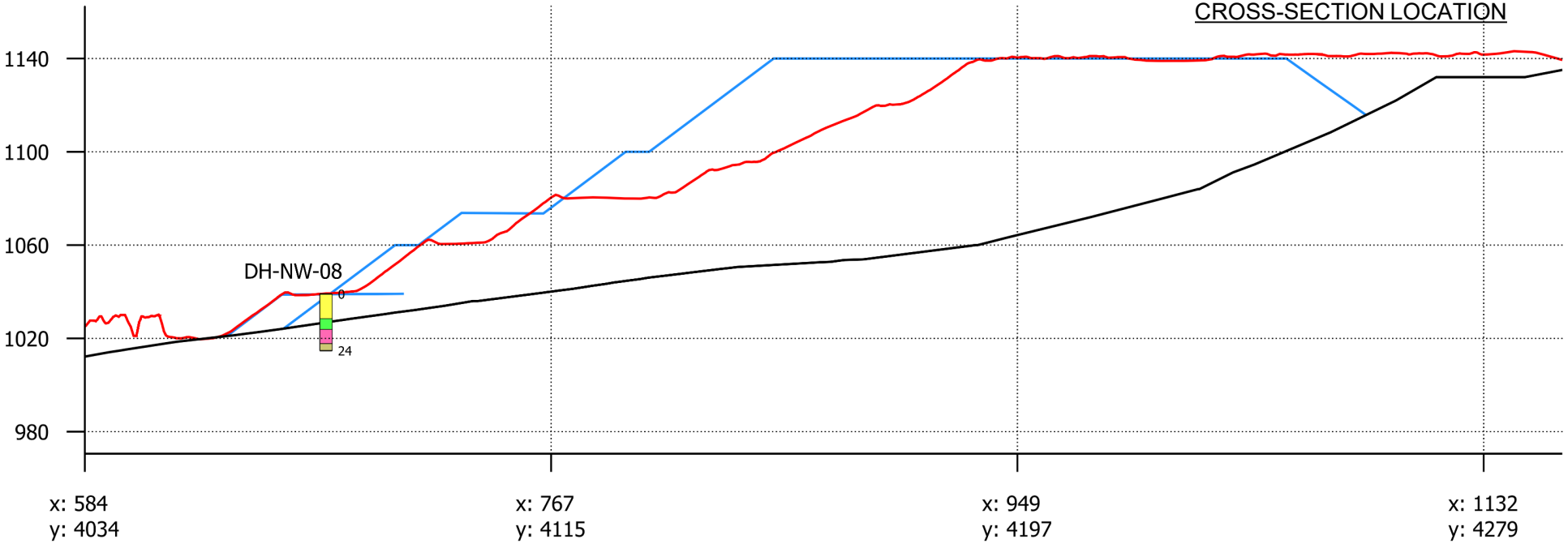
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION C

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-4**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

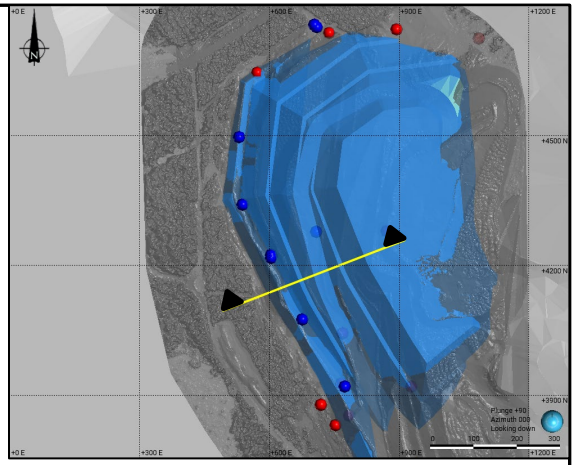
VWP - Water Table

- VWP - Water Table

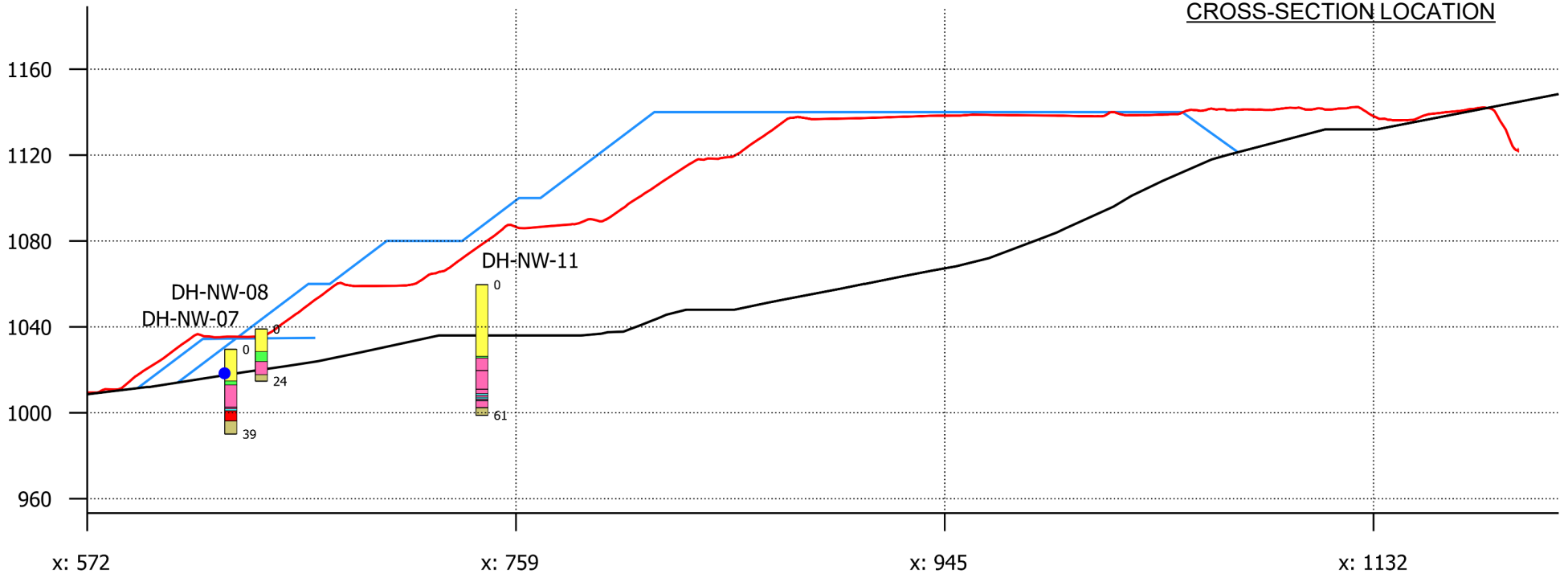
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION D

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-5**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

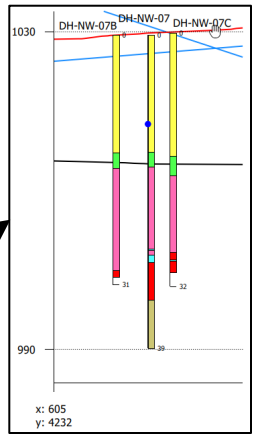
VWP - Water Table

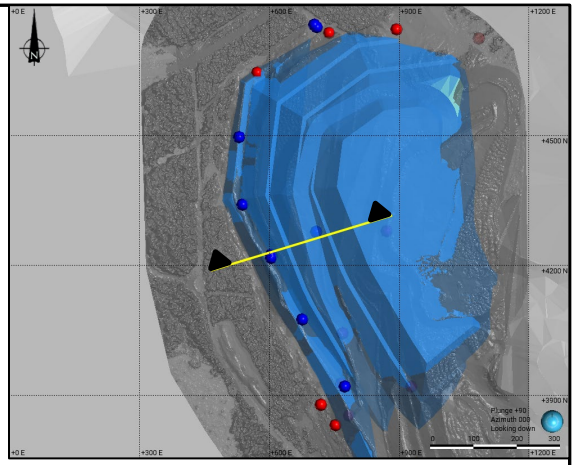
- VWP - Water Table

BH_Unit

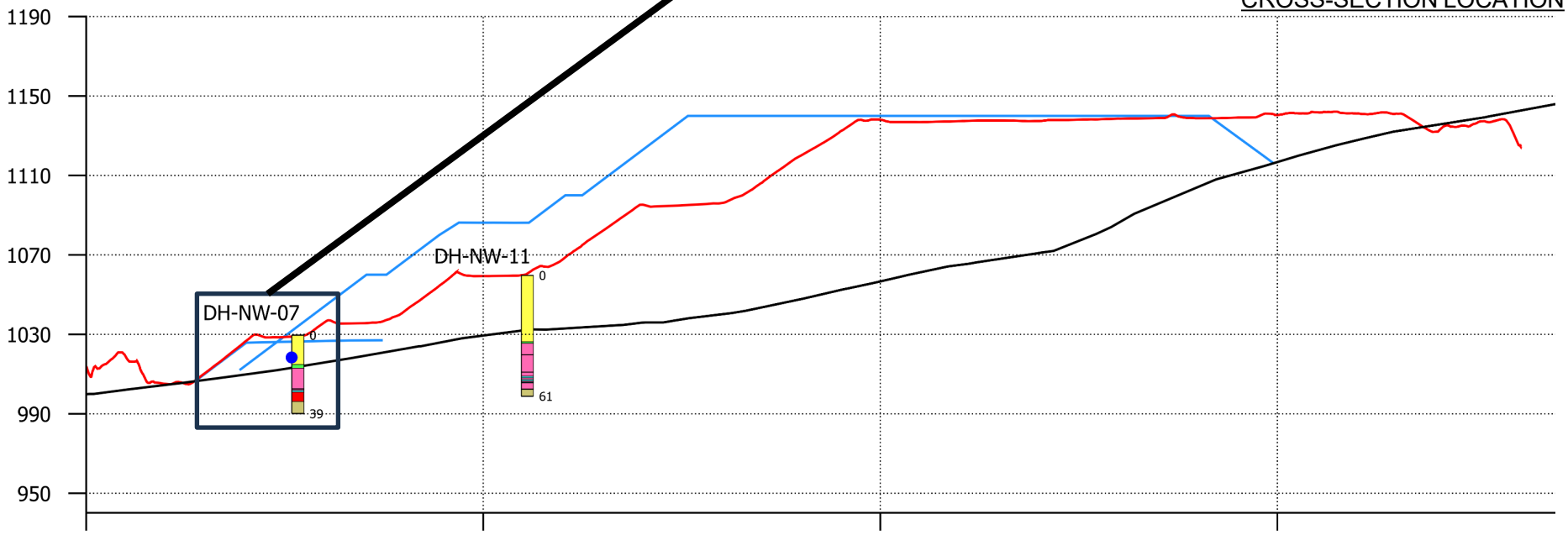
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m





CROSS-SECTION LOCATION



x: 503
y: 4199

x: 694
y: 4257

x: 886
y: 4316

x: 1077
y: 4374

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION E

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-6**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

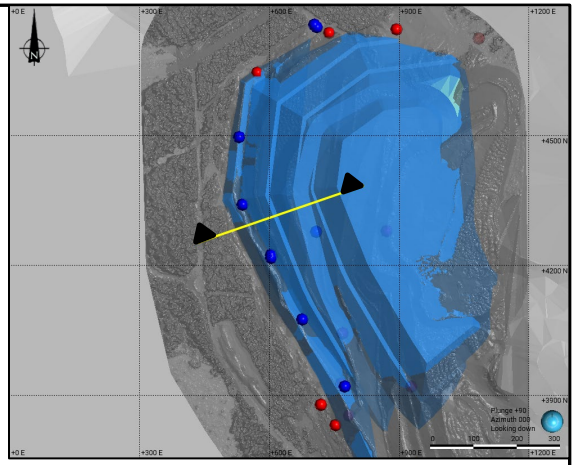
VWP - Water Table

- VWP - Water Table

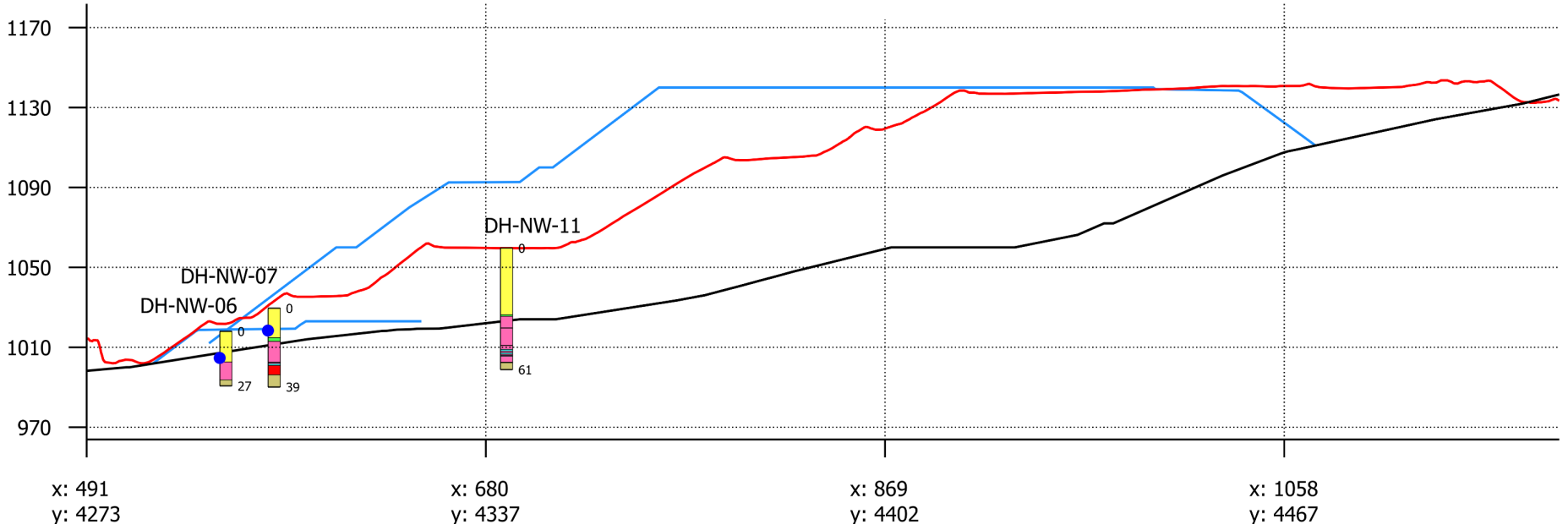
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION F

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-7**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

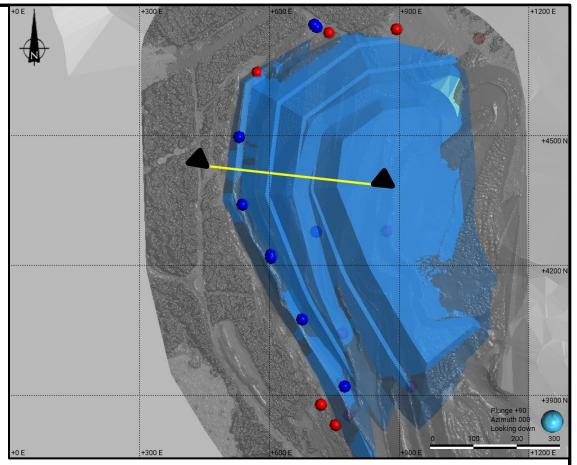
VWP - Water Table

- VWP - Water Table

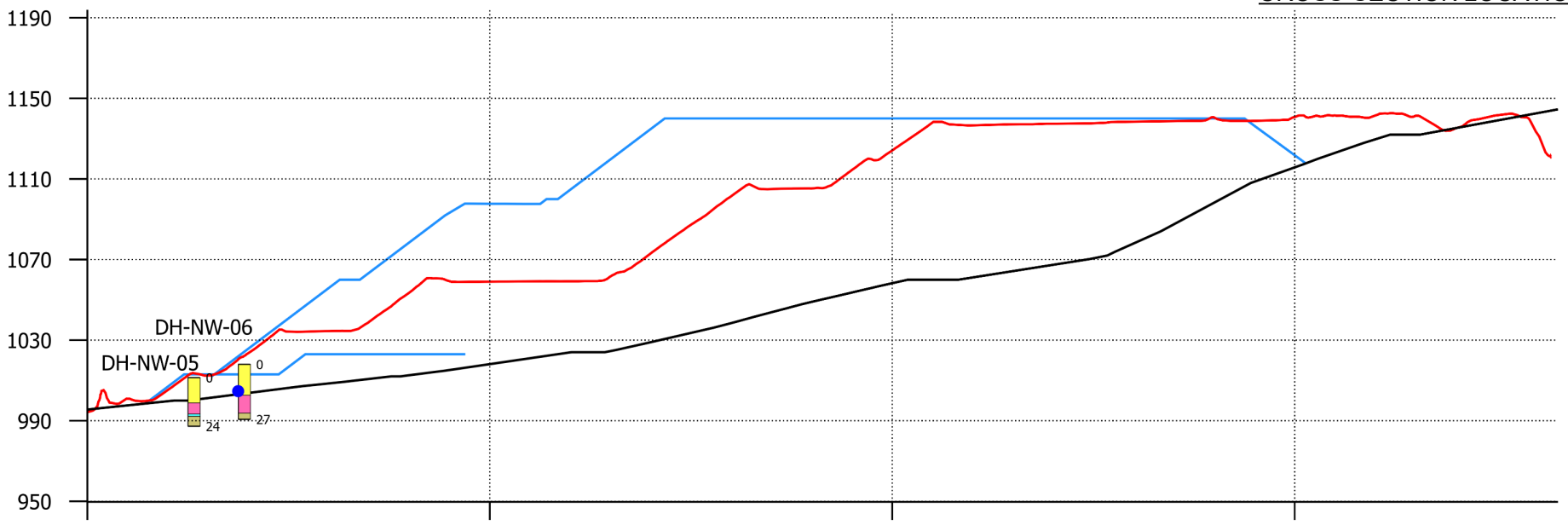
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



x: 472
y: 4427

x: 671
y: 4405

x: 870
y: 4383

x: 1069
y: 4361

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION G

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-8**

Legend

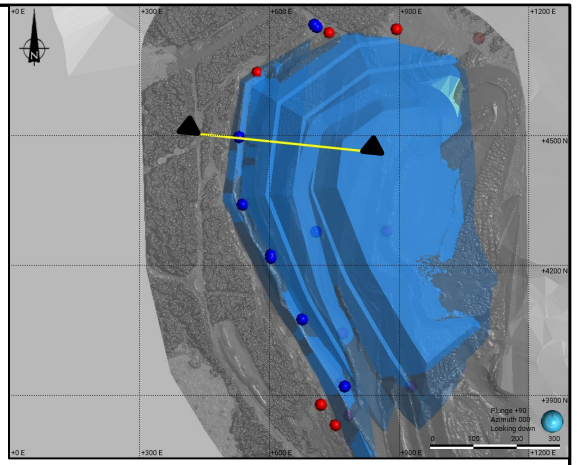
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

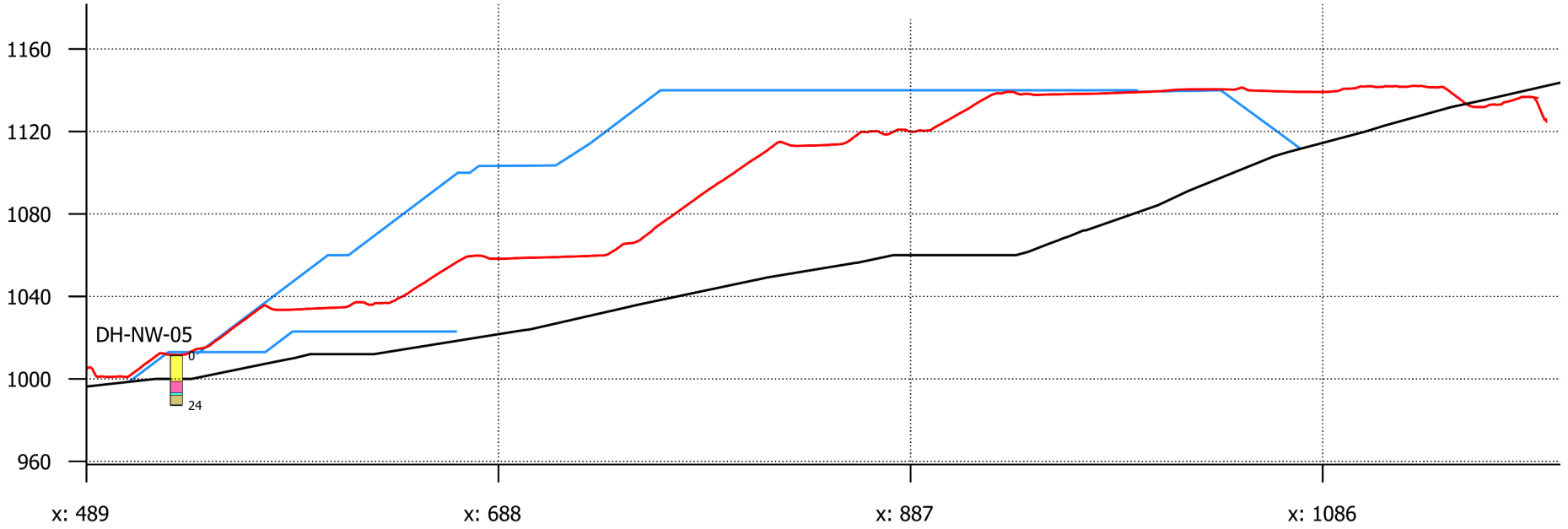
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION H

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-9**

Legend

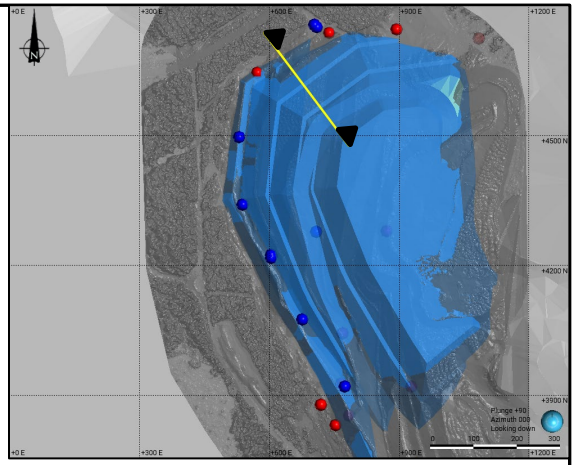
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

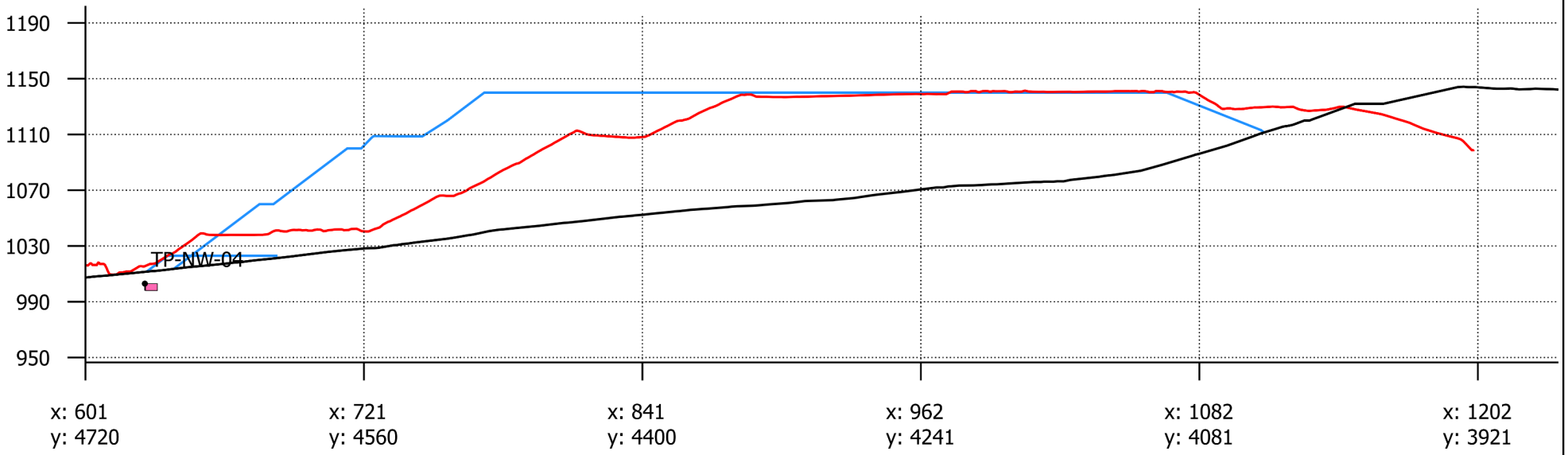
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION I

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-10**

Legend

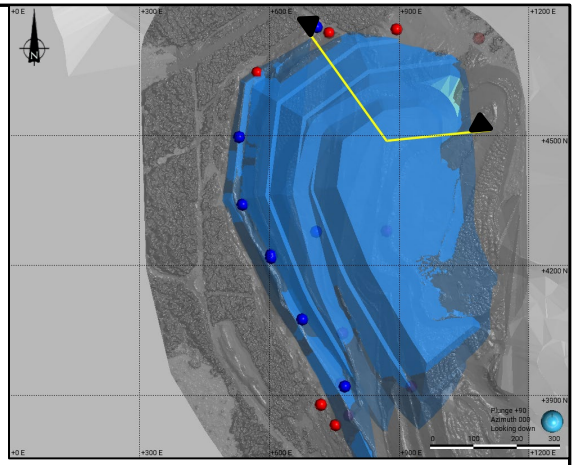
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

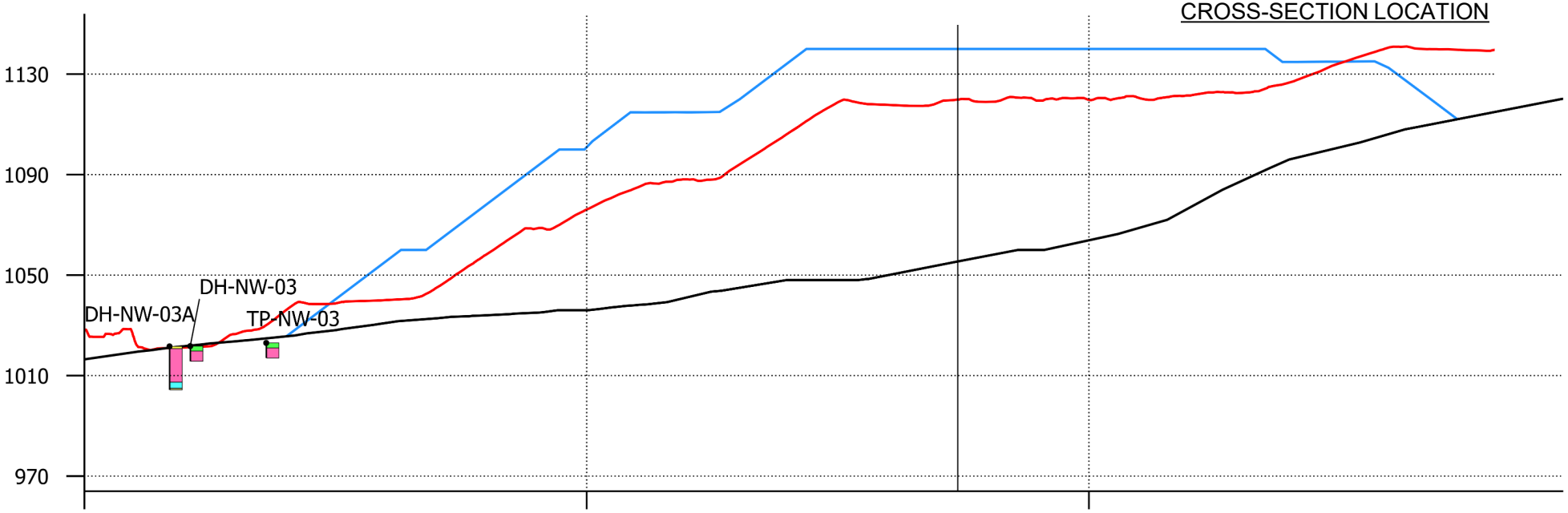
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



x: 668
y: 4770

x: 784
y: 4608

x: 923
y: 4493

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

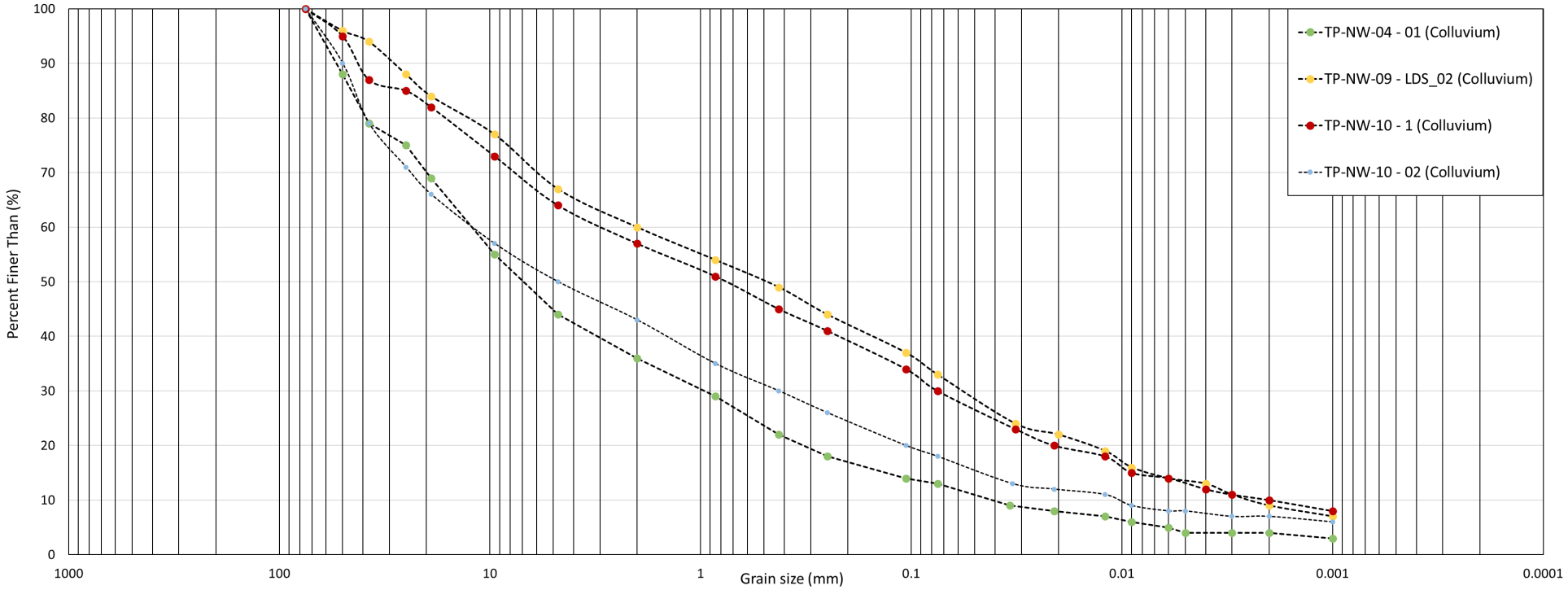
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION J

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-11**

APPENDIX C

Particle Size Distribution and Atterberg Limits Summary



Cobble size	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay size
	Gravel size		Sand size			

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

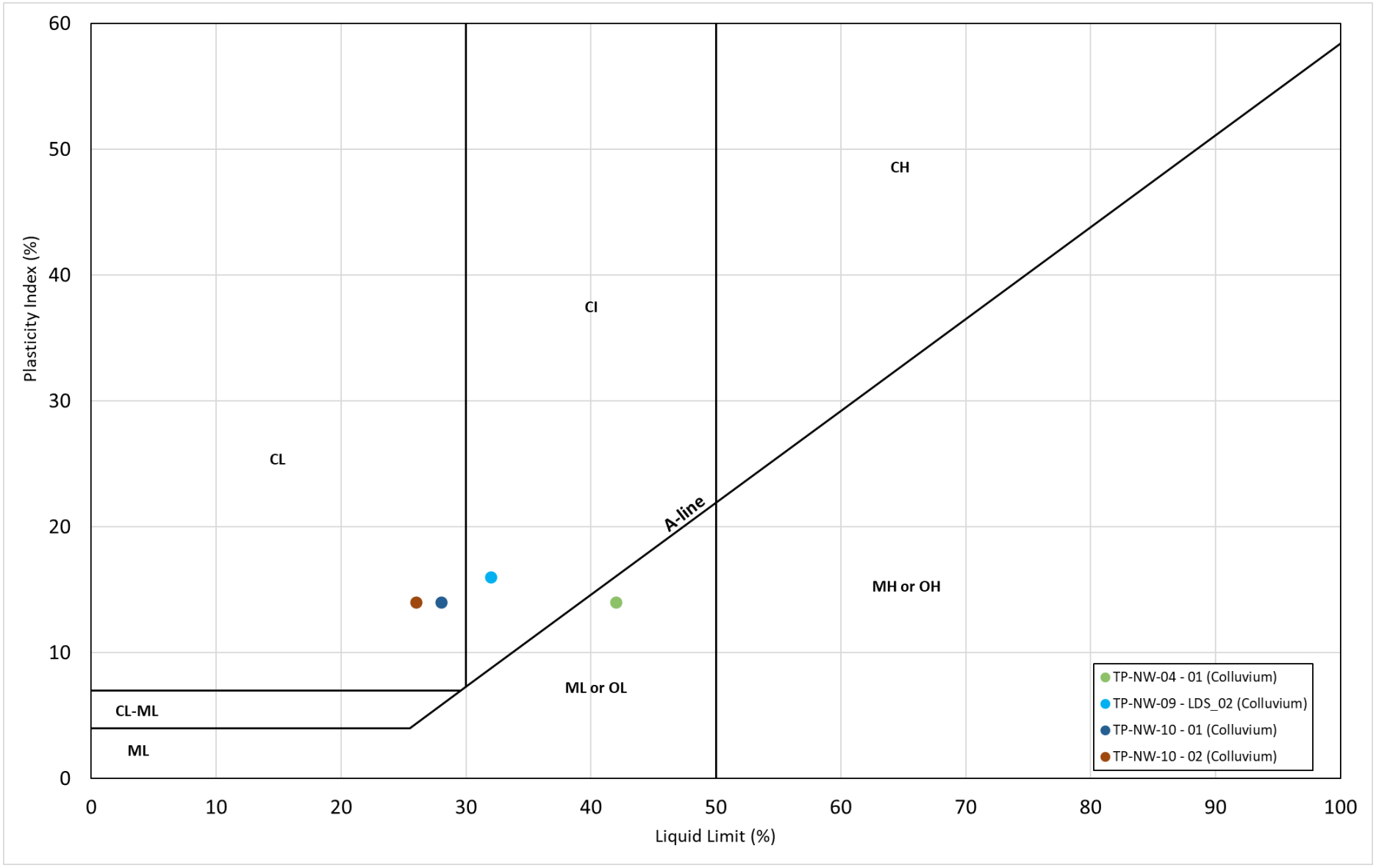
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
COLLUVIUM RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

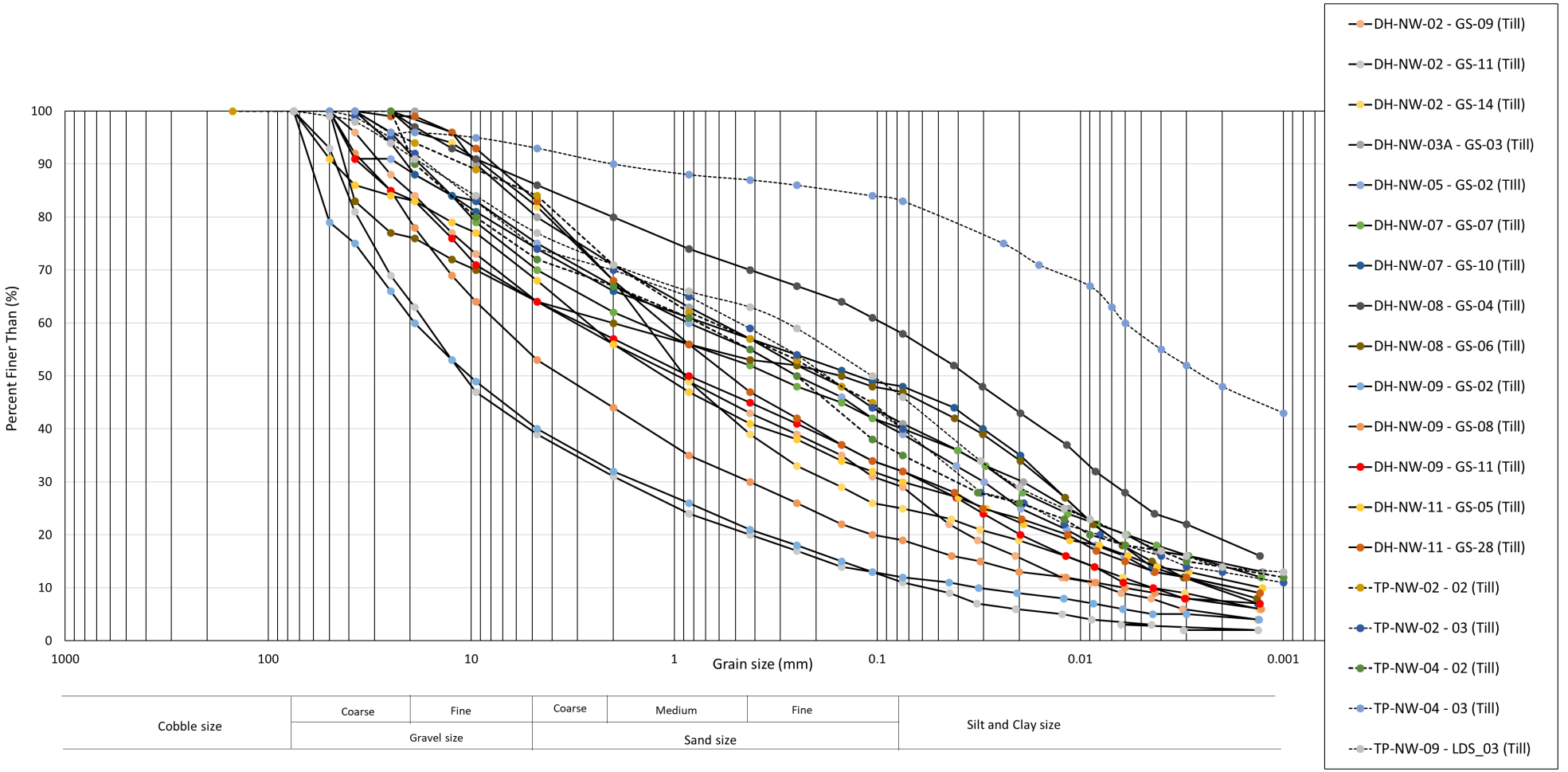
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
COLLUVIUM RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

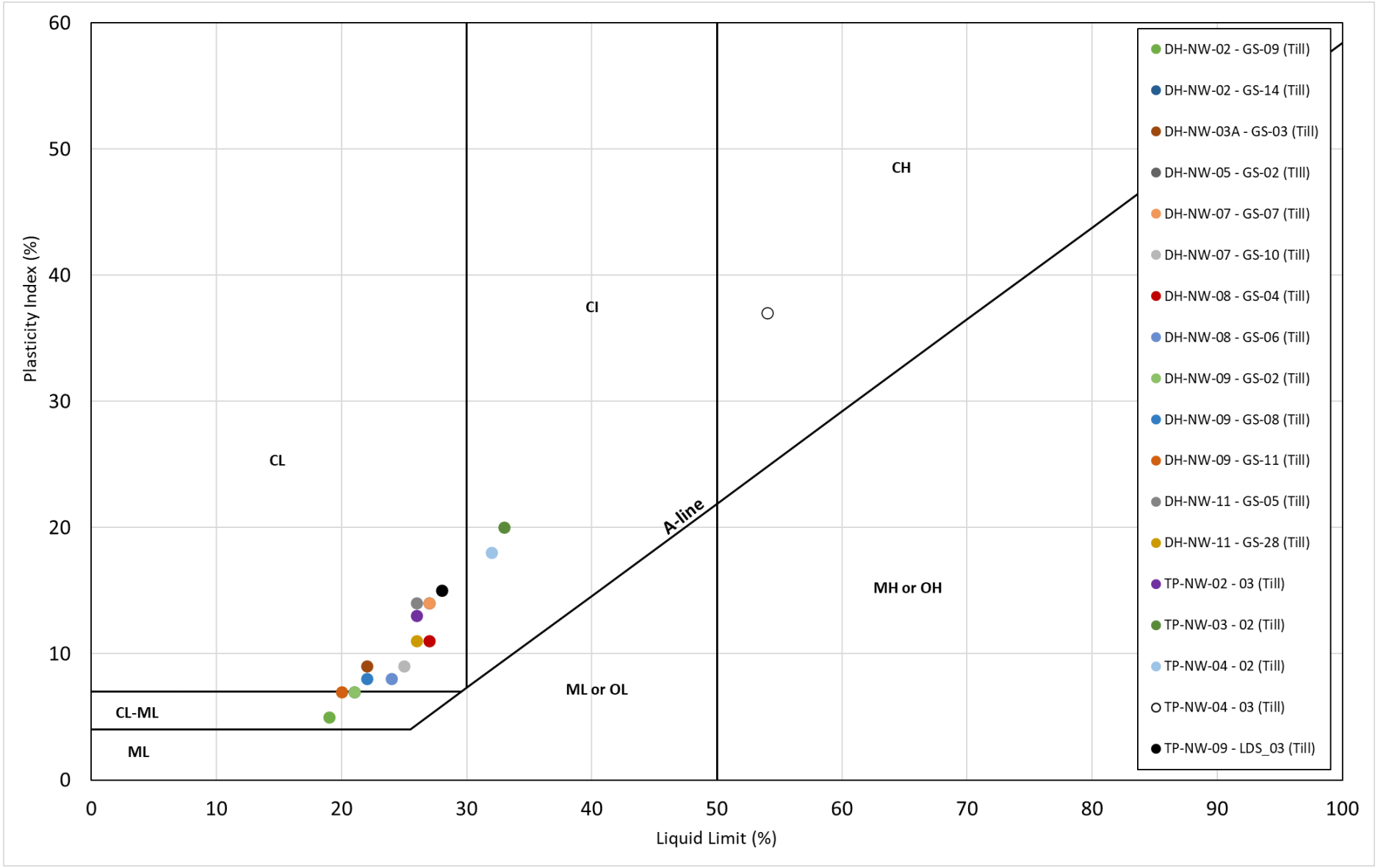
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
TILL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-3

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

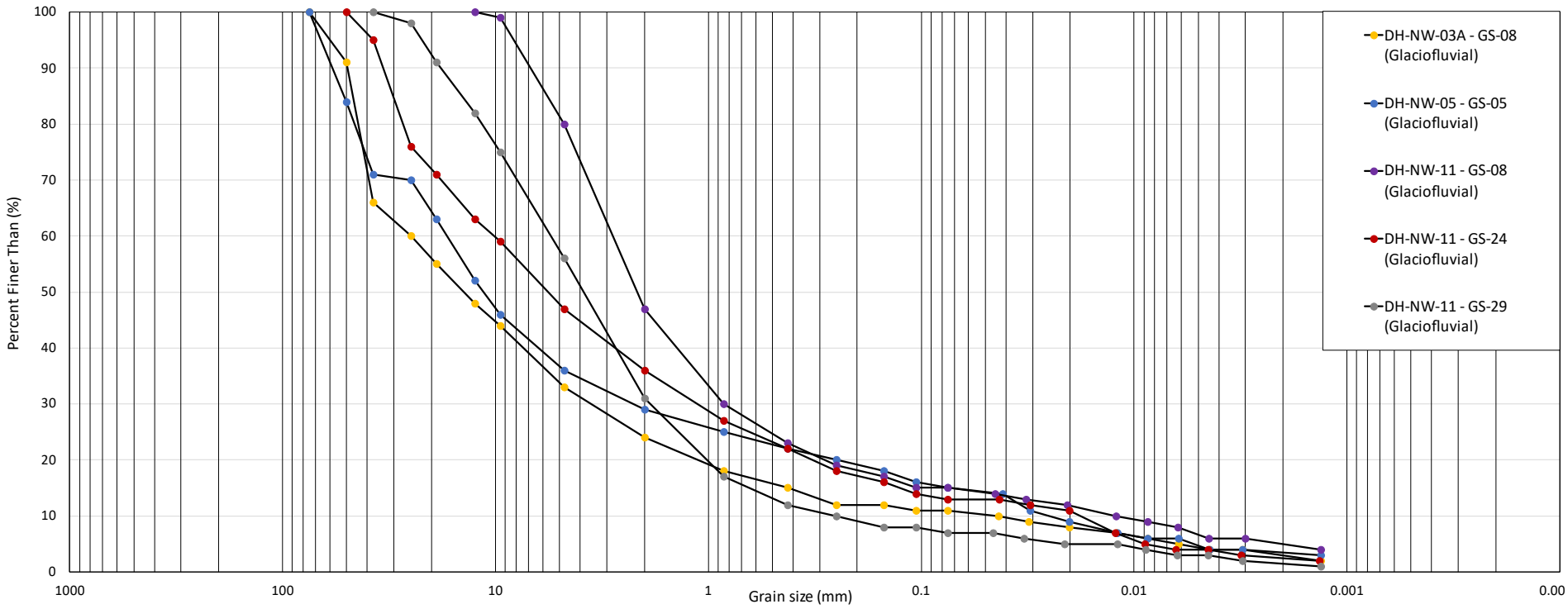
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
TILL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

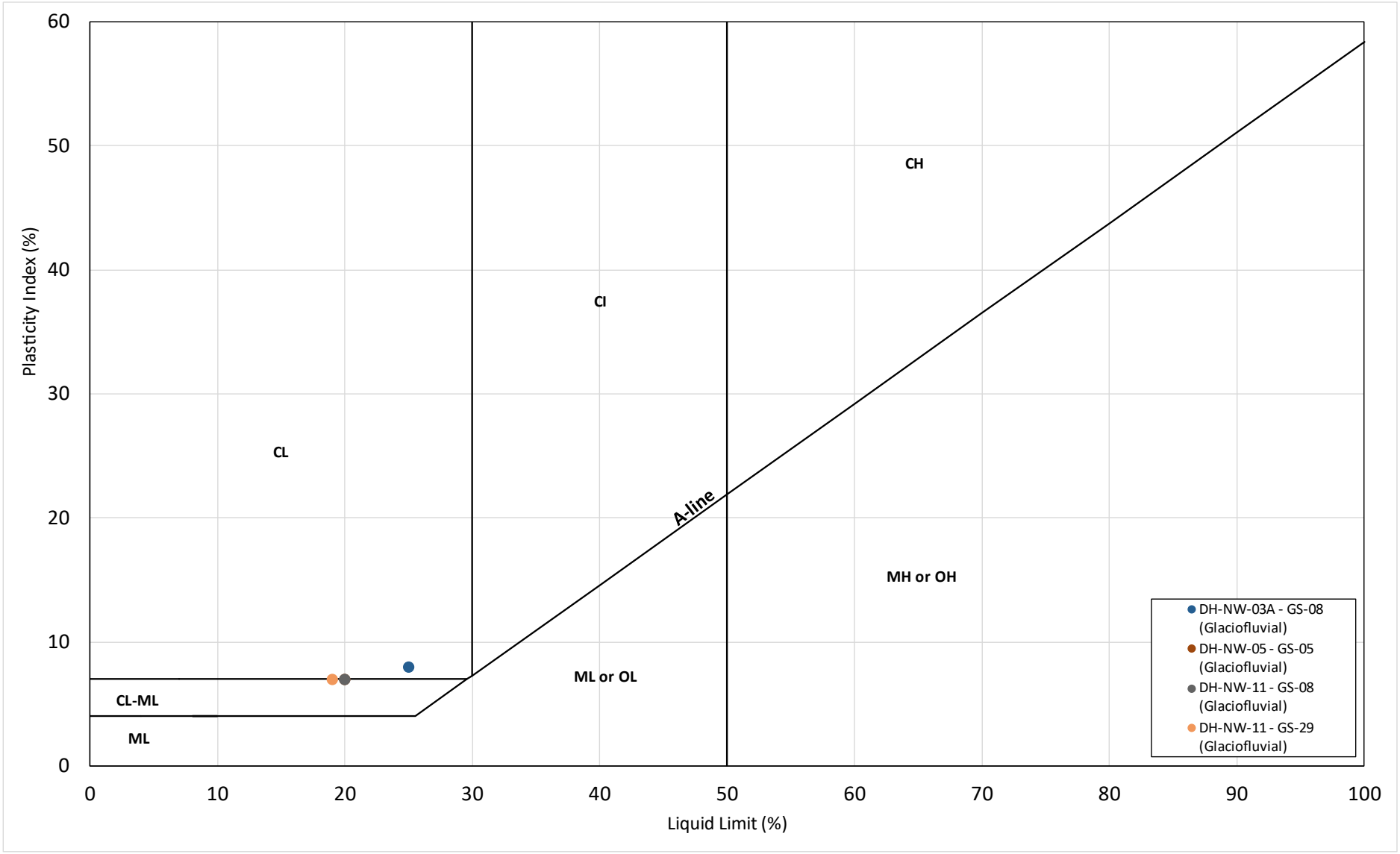
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
GLACIOFLUVIAL DEPOSITS RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-5**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

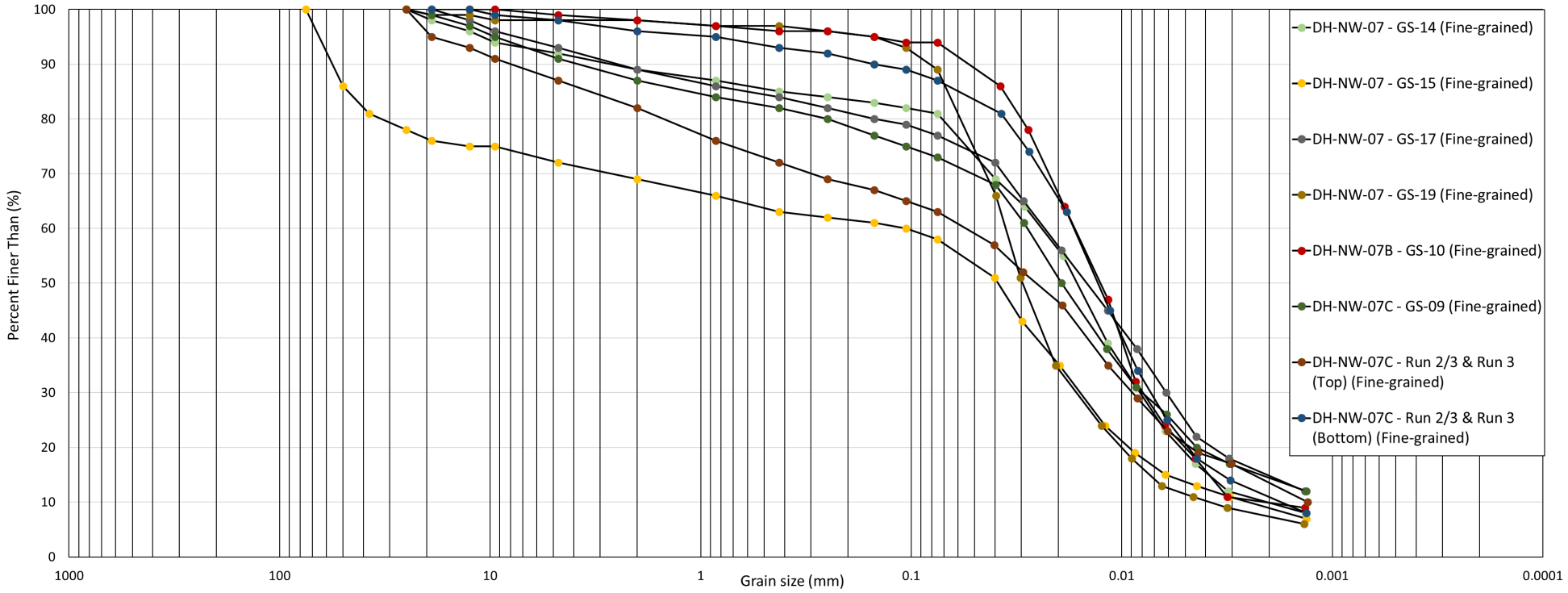
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
GLACIOFLUVIAL DEPOSITS RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



Cobble size	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay size
	Gravel size		Sand size			

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

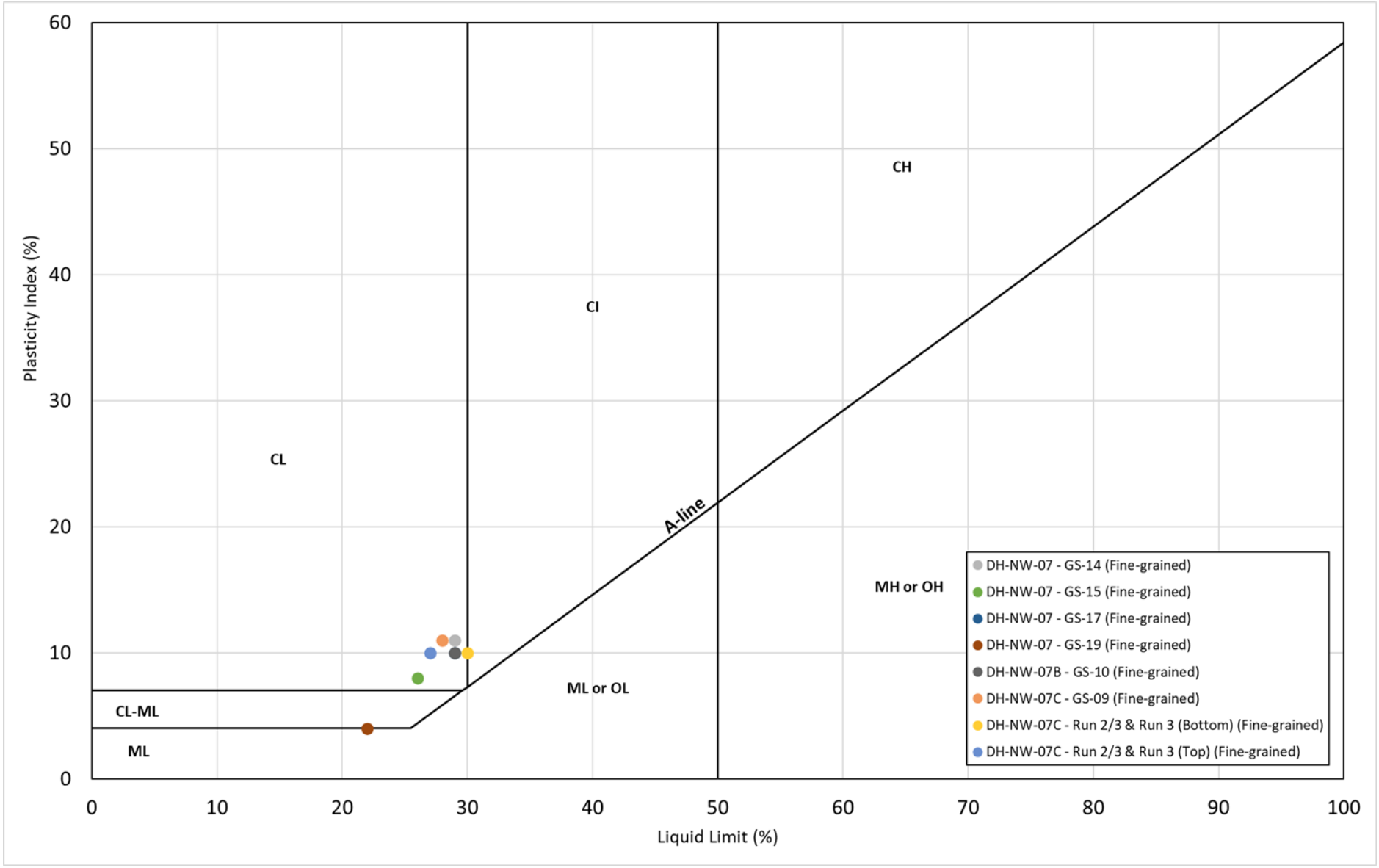
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
FINE-GRAINED MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-7**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

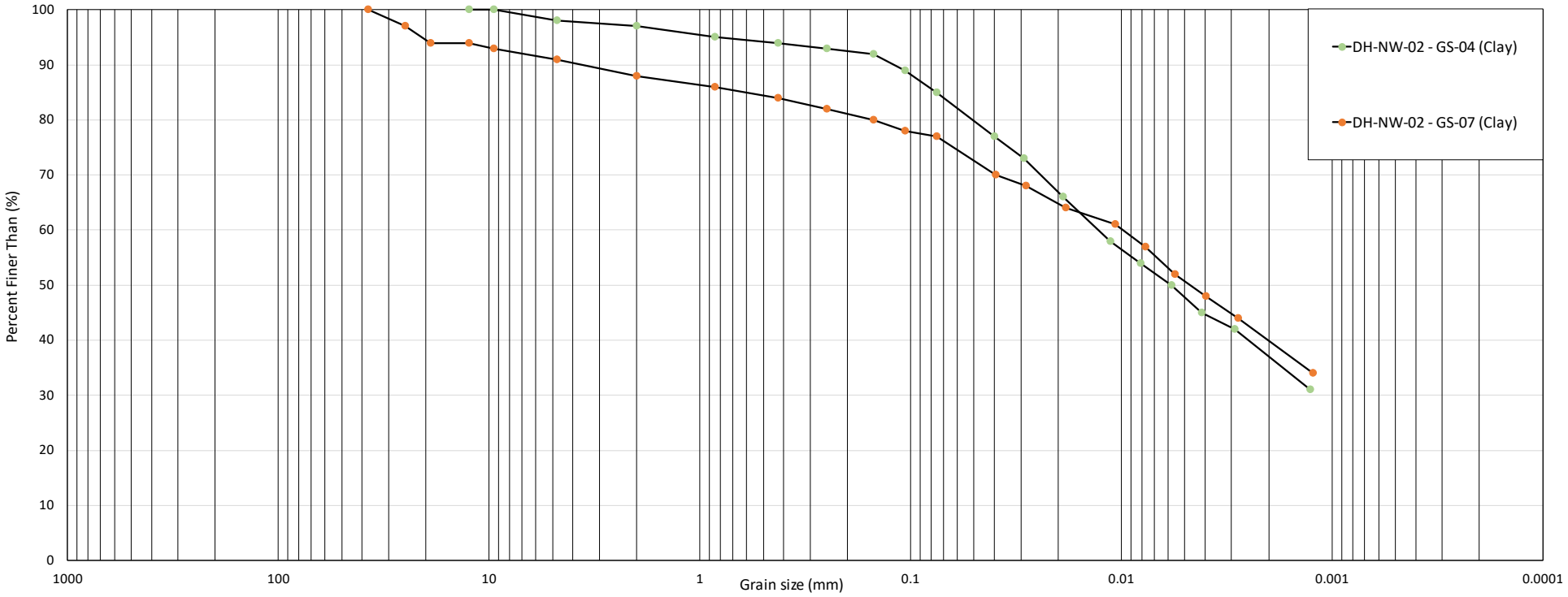
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
FINE-GRAINED MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-8**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



Cobble size	Gravel size		Sand size			Silt and Clay size
	Coarse	Fine	Coarse	Medium	Fine	

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

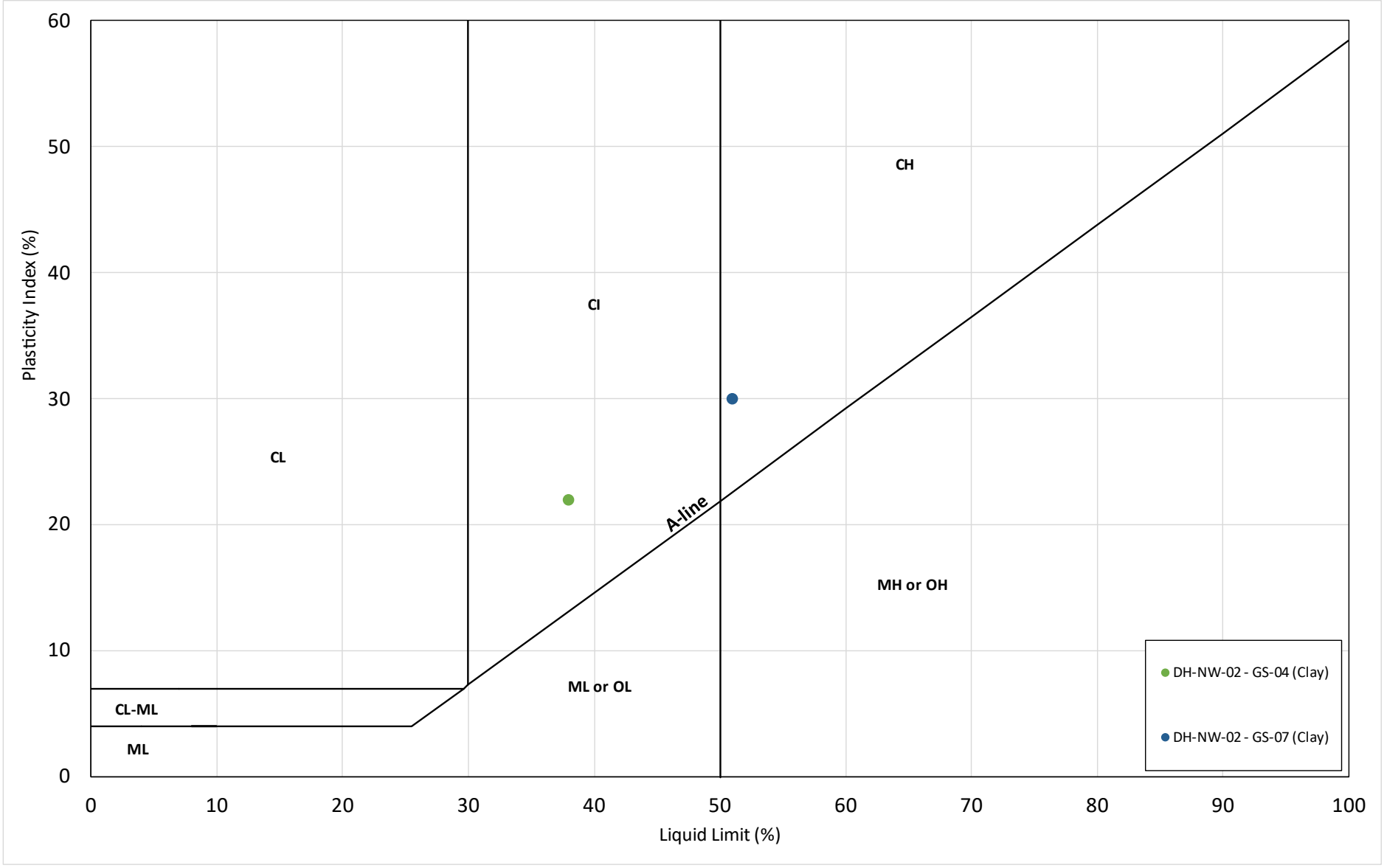
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
CLAY MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-9**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

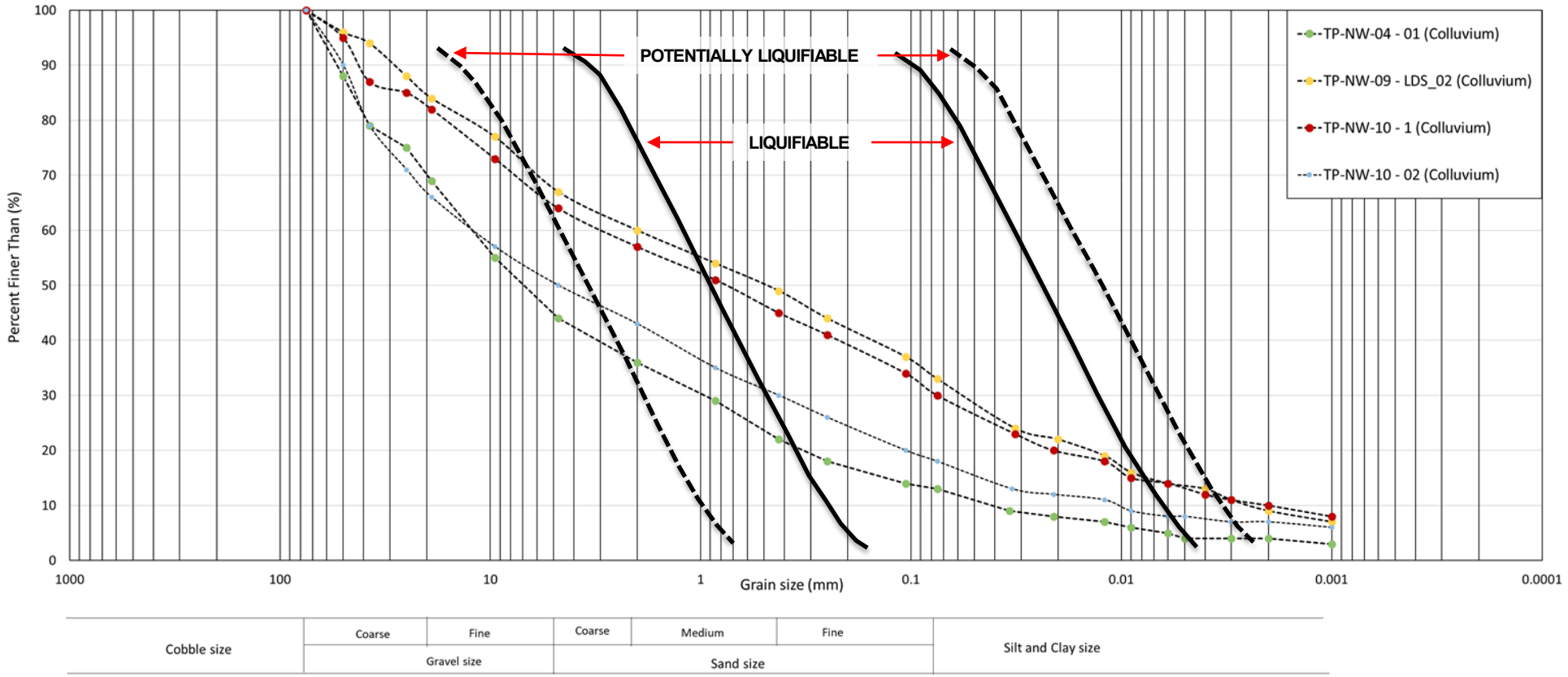
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
CLAY MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

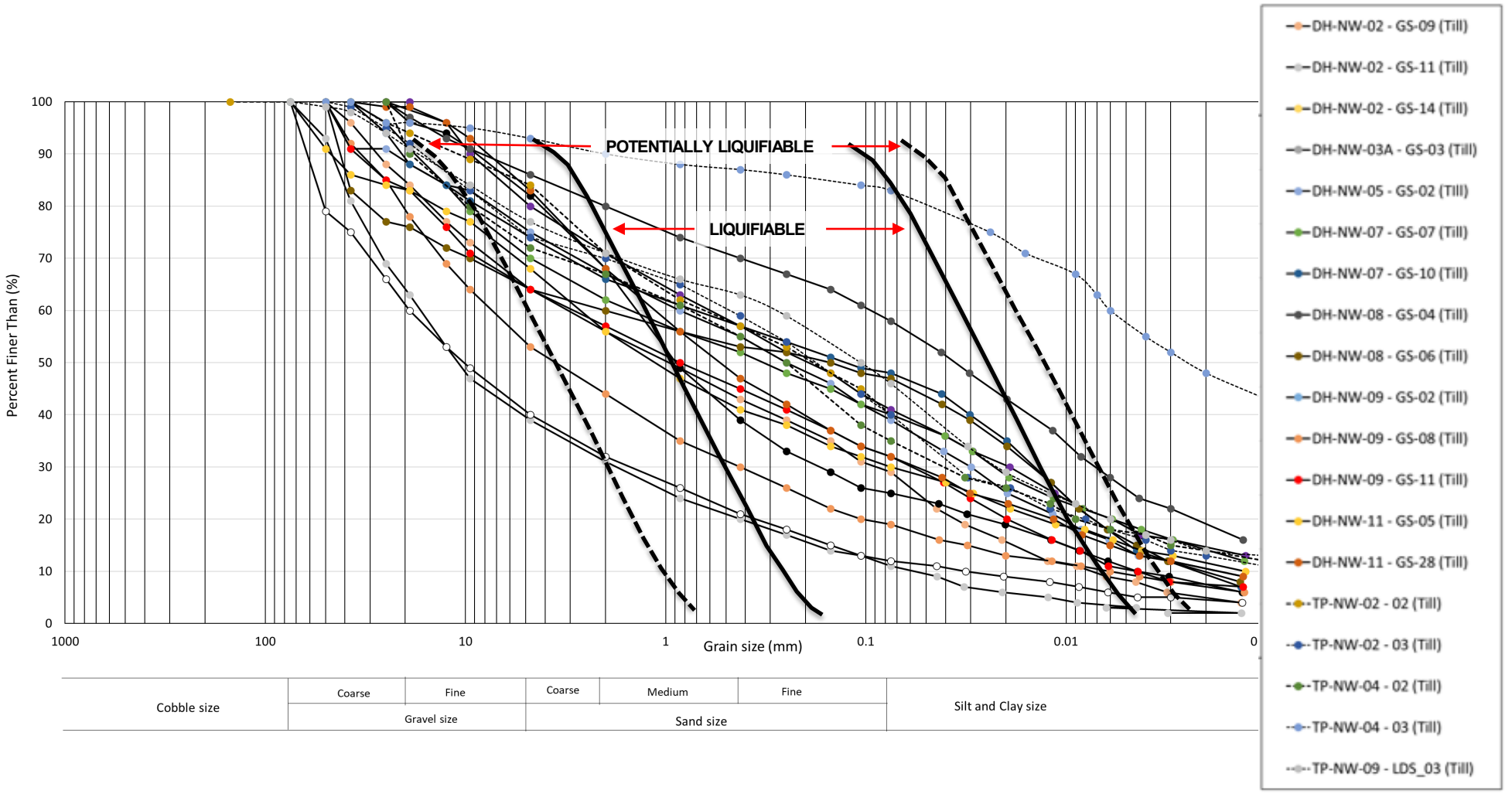
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
COLLUVIUM RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-11**

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

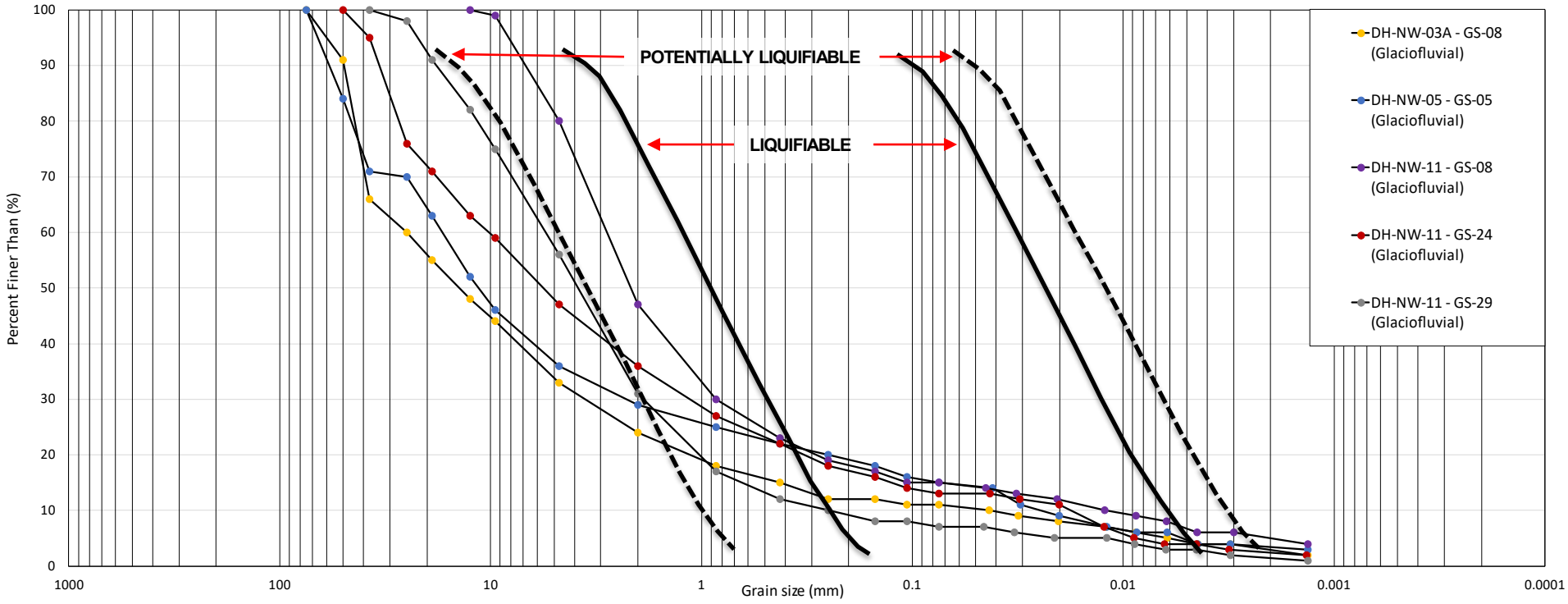
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
TILL RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-12**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



Cobble size	Gravel size		Sand size			Silt and Clay size
	Coarse	Fine	Coarse	Medium	Fine	

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

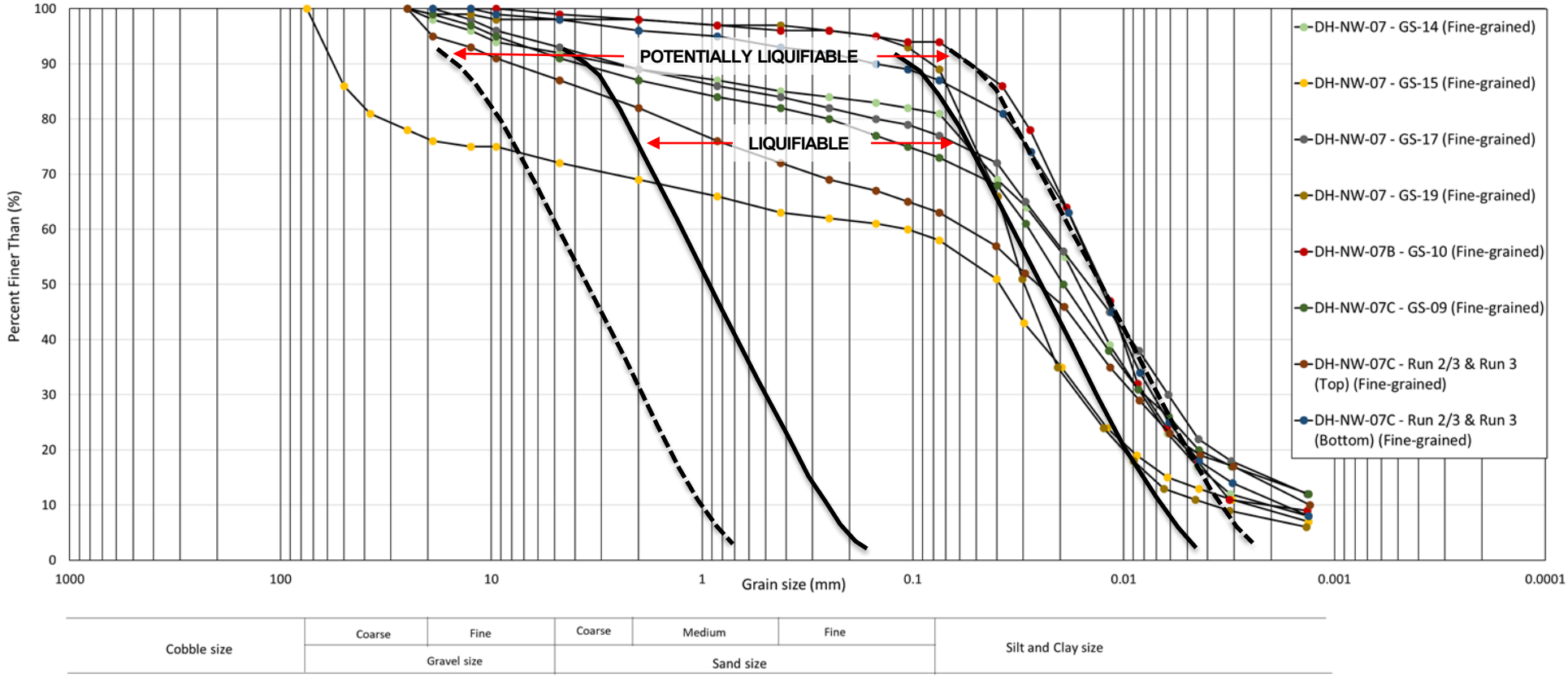
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
GLACIOFLUVIAL DEPOSITS RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-13

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
WSP

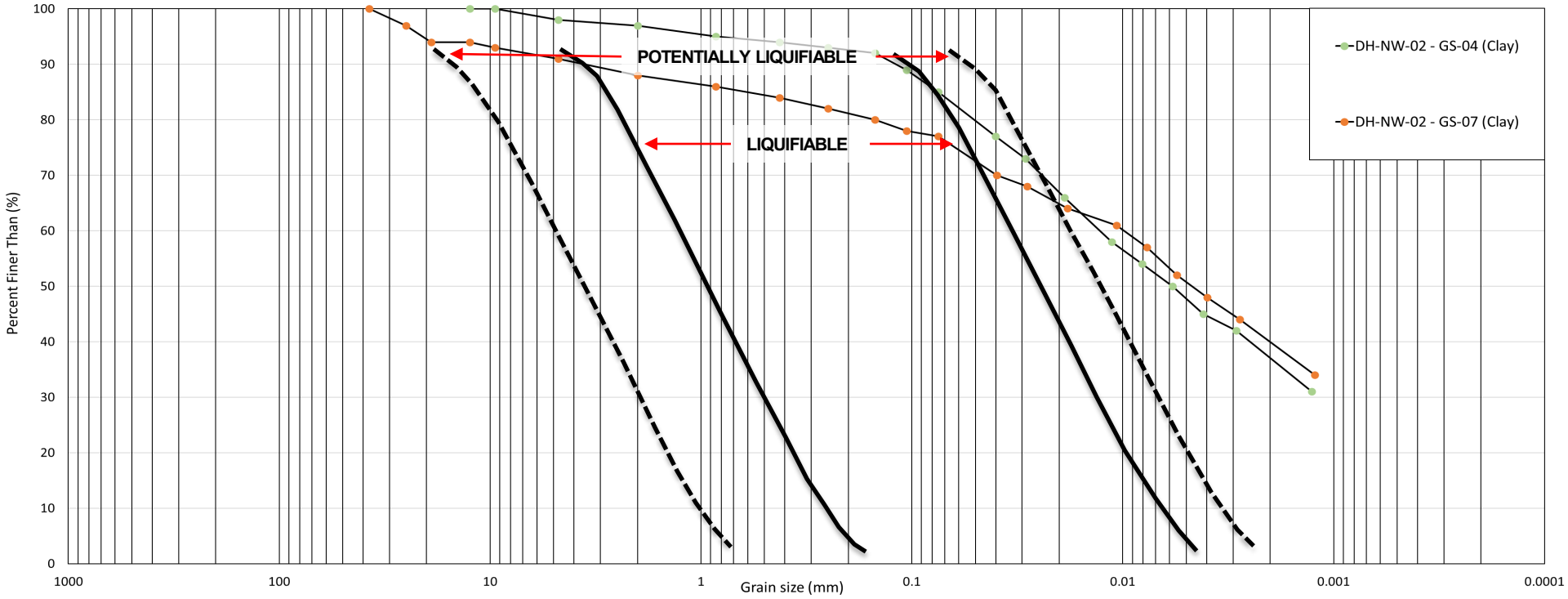
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
FINE-GRAINED MATERIAL RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-14**

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

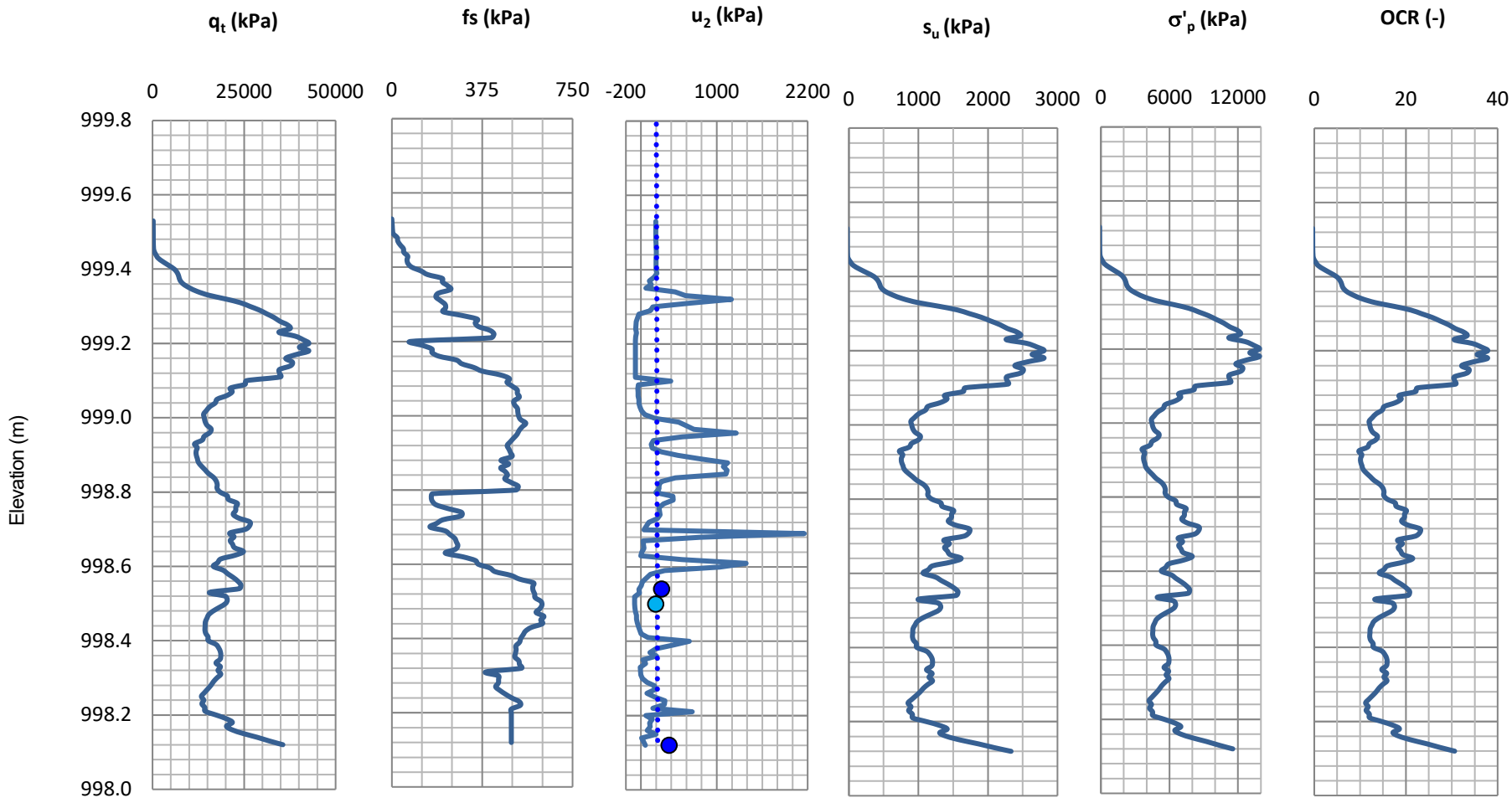
TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
CLAY MATERIAL RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-15**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

APPENDIX D

Cone Penetration Testing Data Review



Piezometer Data Points
End of Dissipation Test (Extrapolated)
Hydrostatic Pore Pressure

$$S_u = \frac{q_t - \sigma_0}{N_{kt}}$$

$$\sigma'_p = 0.33\,(q_t - \sigma_{v0})$$

REFERENCES/NOTES

Notes:
1- q_t = Tip Resistance
2- f_s = Sleeve Friction
3- U_2 = Pore Pressure
4- S_u =Undrained Shear Strength
5- σ'_p= Preconsolidation Stress
6- OCR= Overconsolidation Ratio
7- σ'_v = Effective Stress

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINELIKELY, BC

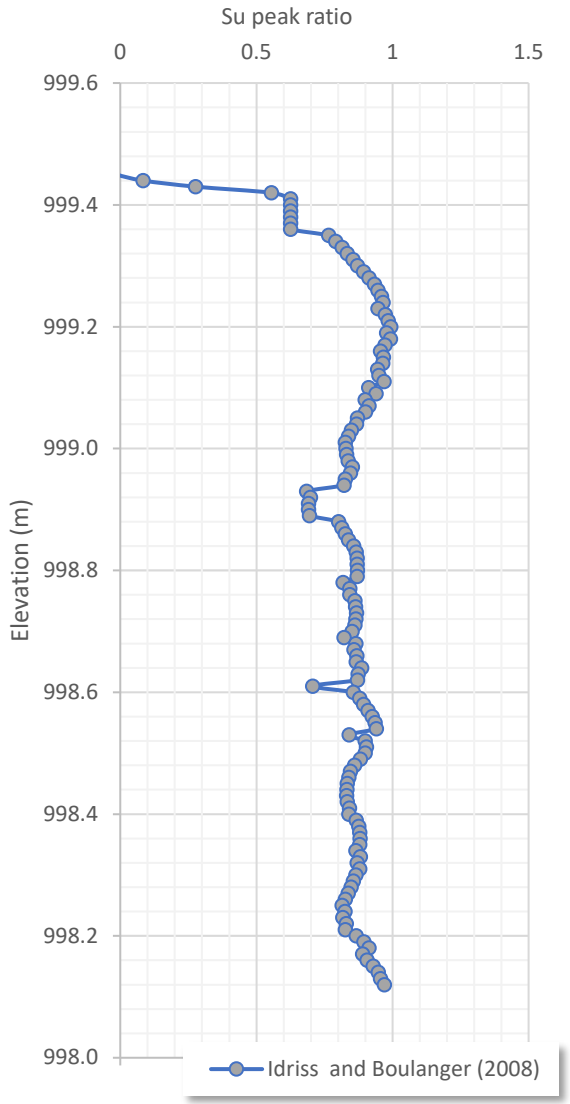
CONSULTANT

YYYY-MM-DD	2024-04-05
PREPARED	AB
DESIGNED	AB
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-07B CPT INTERPRETATION
FINE-GRAINED MATERIAL LAYER

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**D-1**



CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINELIKELY, BC

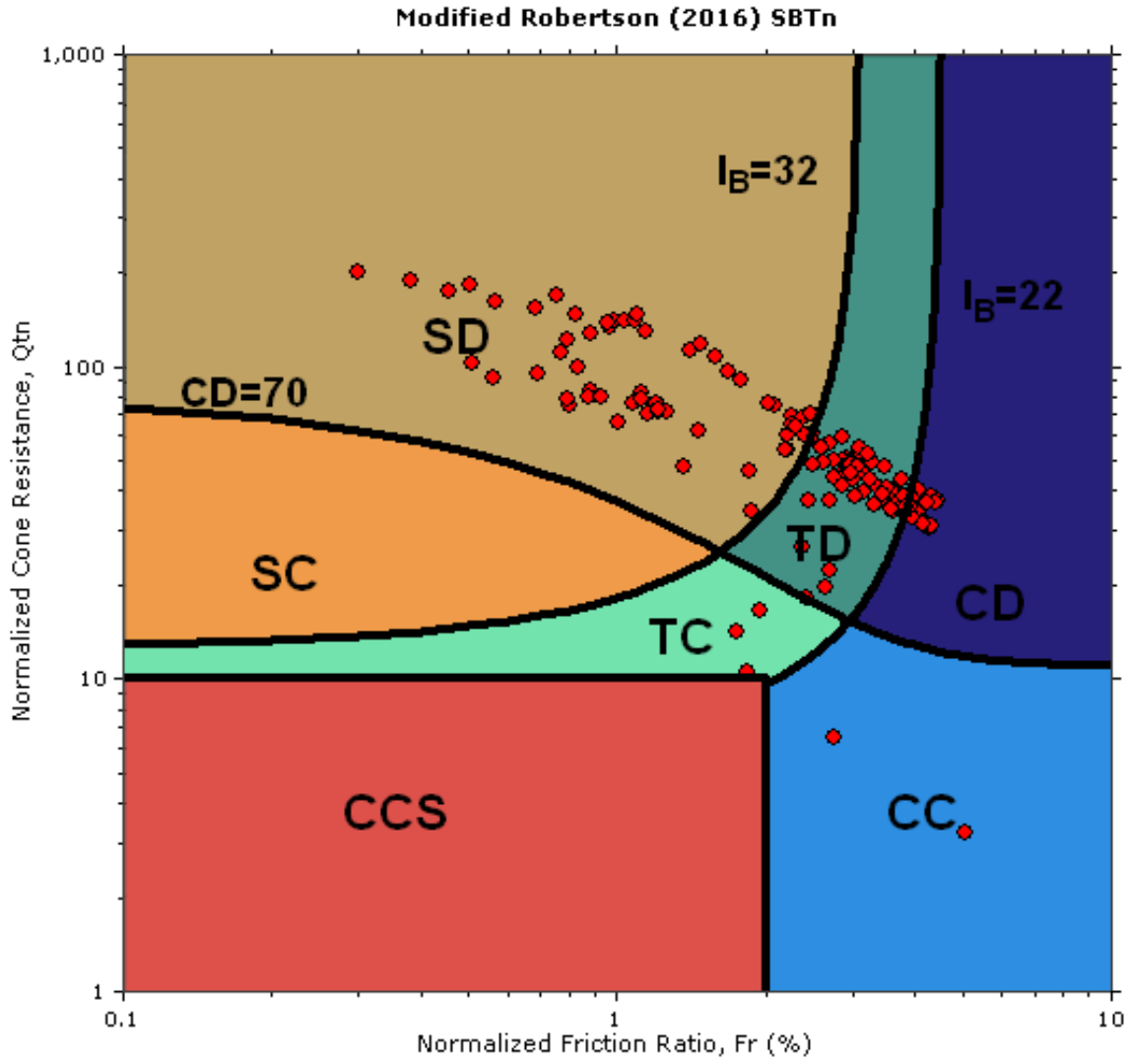
CONSULTANT

YYYY-MM-DD	2024-04-05
PREPARED	AB
DESIGNED	AB
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PEAK UNDRAINED SHEAR STRENGTH RATIO (S_U PEAK) DETERMINED USING IDRISS AND BOULANGER (2008) METHOD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**D-2**



Soil Behaviour Type

CCS Clay-like - Contractive - Sensitive
CC Clay-like - Contractive
CD Clay-like - Dilative
TC Transitional - Contractive
TD Transitional - Dilative
SC Sand-like - Contractive
SD Sand-like - Dilative

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINELIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-05
PREPARED	AB
DESIGNED	AB
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
SOIL BEHAVIOUR TYPE
DH-NW-07B CHART

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**D-3**

APPENDIX E

Hydrogeology Summary and Vibrating Wire Piezometer Data

REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE LOCATION AT TOE OF DUMP
PHOTOGRAPH LOOKING WEST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-1**

REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

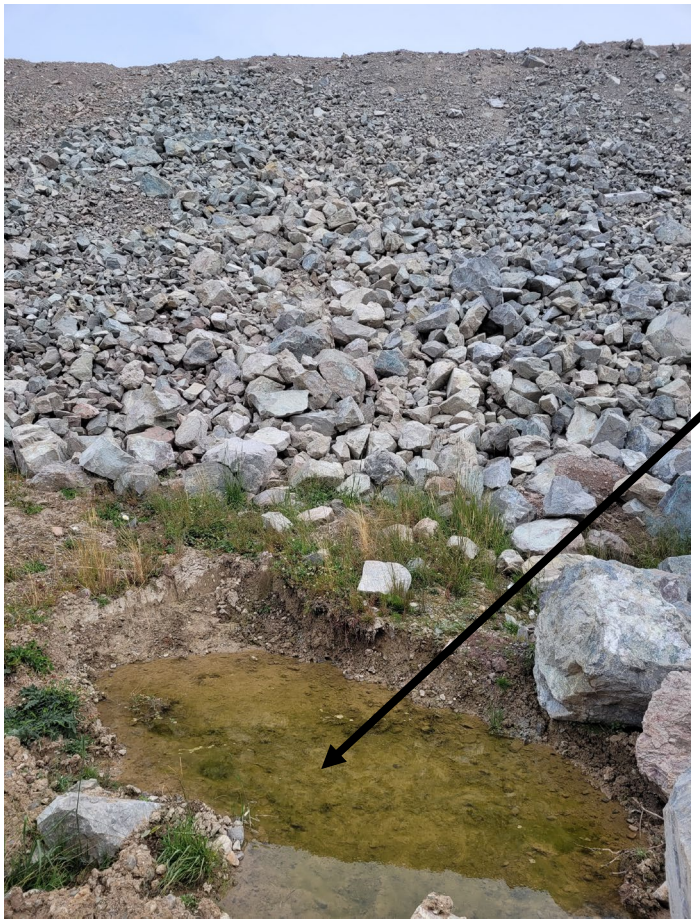
CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE/PONDING LOCATION AT TOE OF DUMP
PHOTOGRAPH LOOKING SOUTHWEST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-2**



REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE/PONDING LOCATION AT TOE OF DUMP
PHOTOGRAPHS LOOKING EAST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-3**

REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE COLLECTION LOCATION AT SOUTH END OF DUMP
PHOTOGRAPHS LOOKING SOUTHEAST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-4**

REFERENCES AND NOTES

1. GOOGLE EARTH IMAGE FROM 2022.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

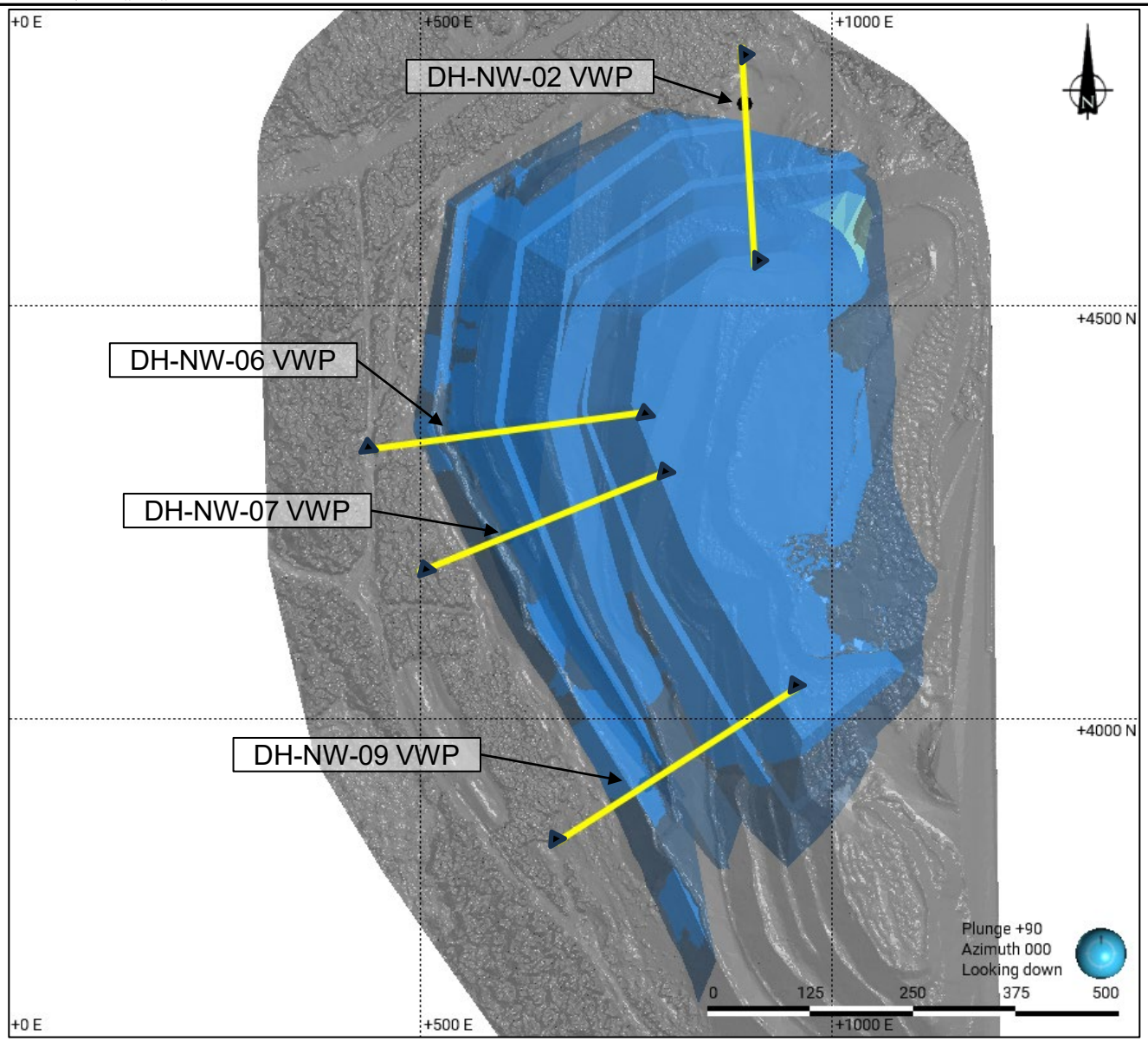
CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
GOOGLE EARTH IMAGE OF NORTHWEST PAG DUMP SEEPAGE COLLECTION SUMP AND SETTLING PONDS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-5**



REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
ULTIMATE NORTHWEST PAG DUMP DESIGN
CROSS-SECTION OVERVIEW
VIBRATING WIRE PIEZOMETER LOCATIONS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-6**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

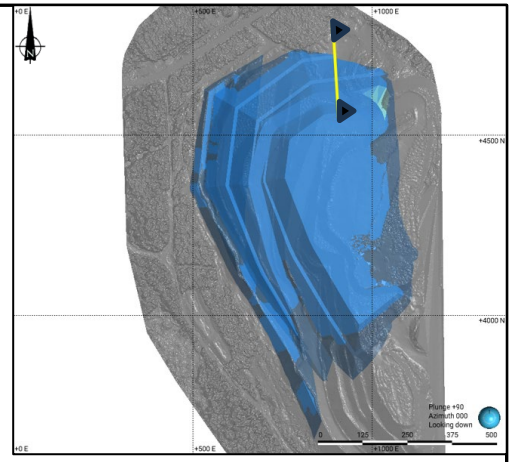
Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

VWP Data
- Head Elevation

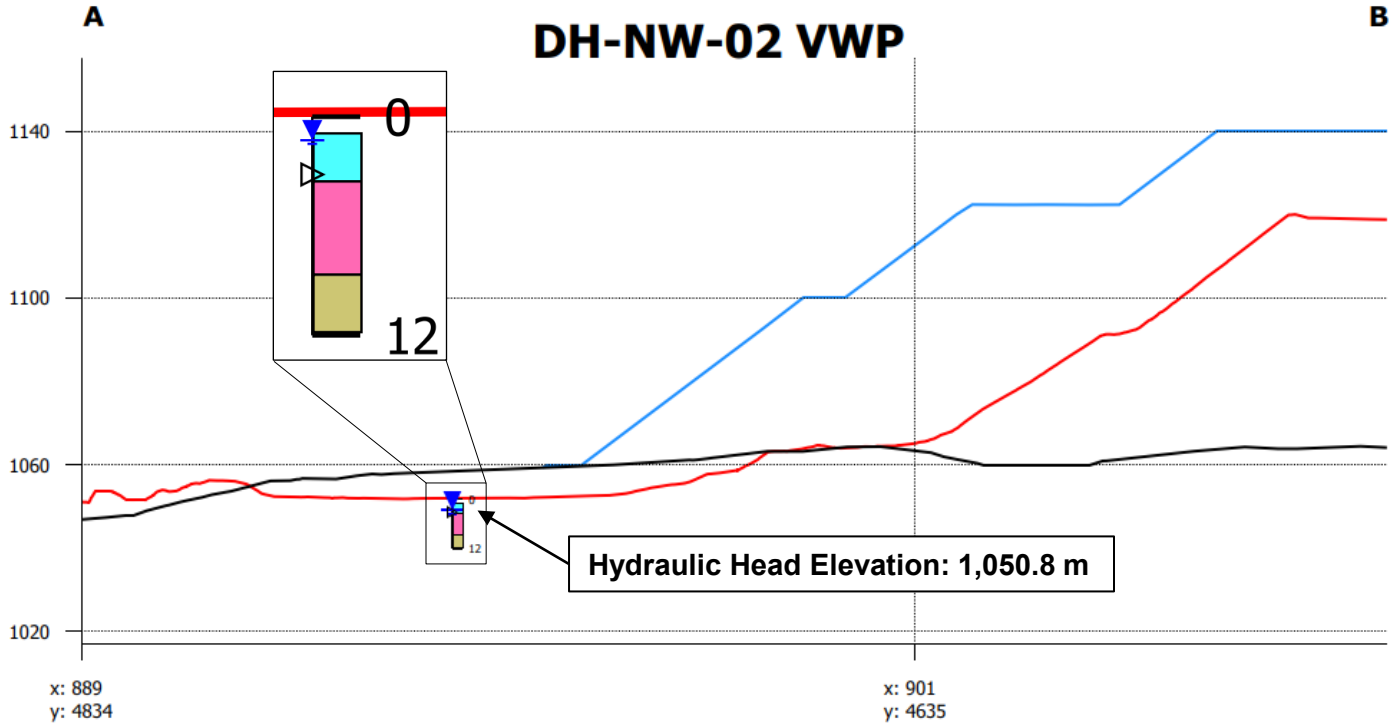
VWP Install Elevation
- VWP Install Elevation

Scale: 1:1,300
Vertical exaggeration: 1x

0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

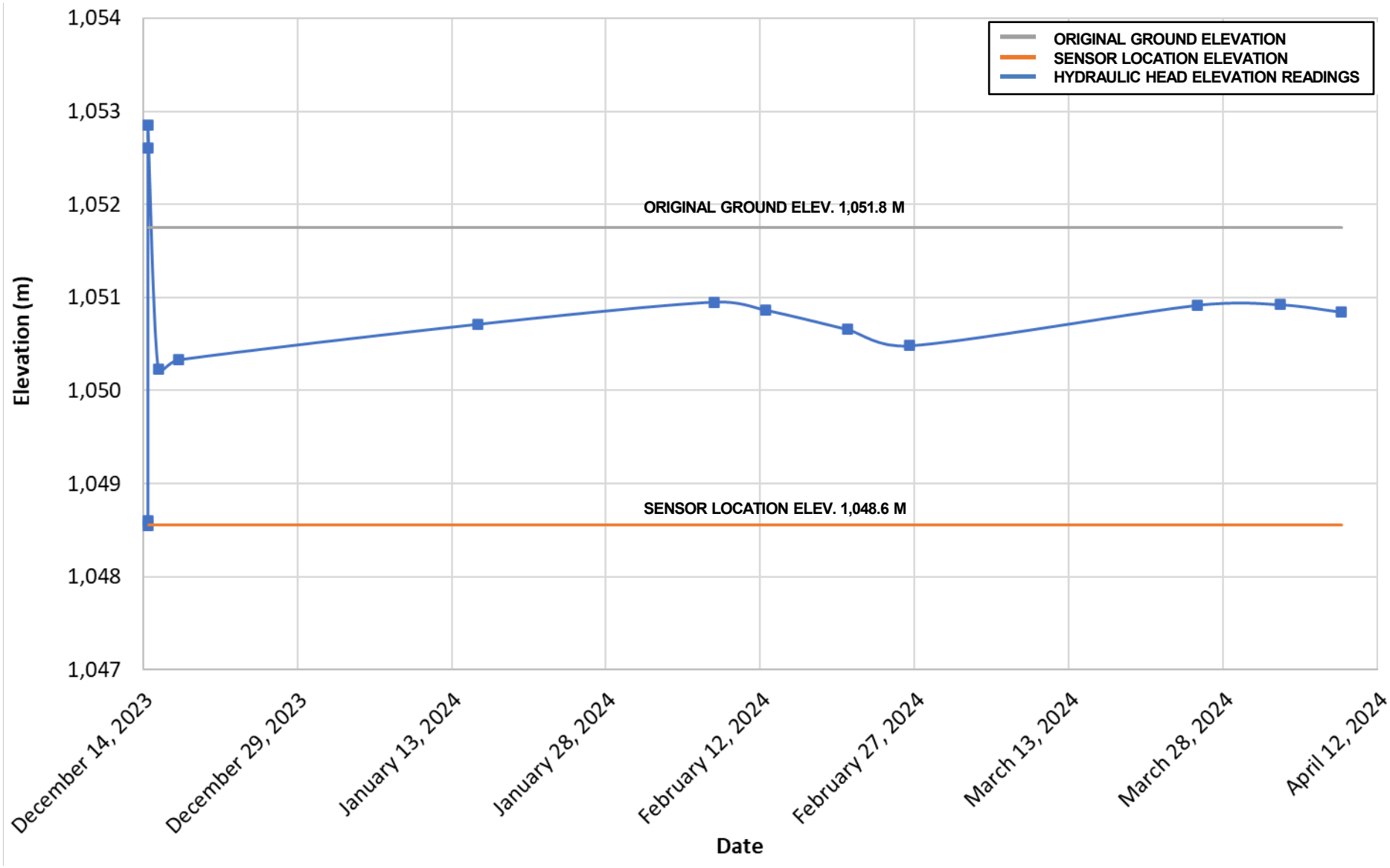
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-02 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-7**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-02 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-8**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

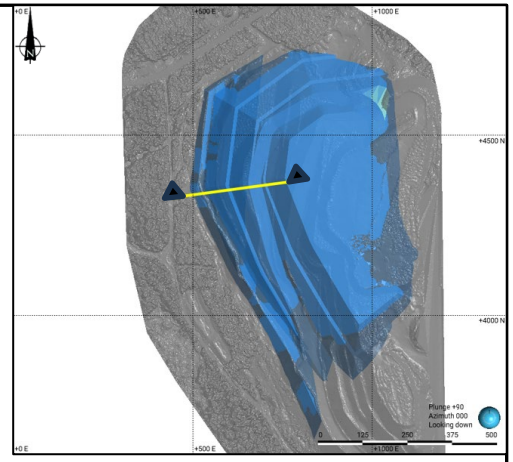
Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

VWP Data
- Head Elevation

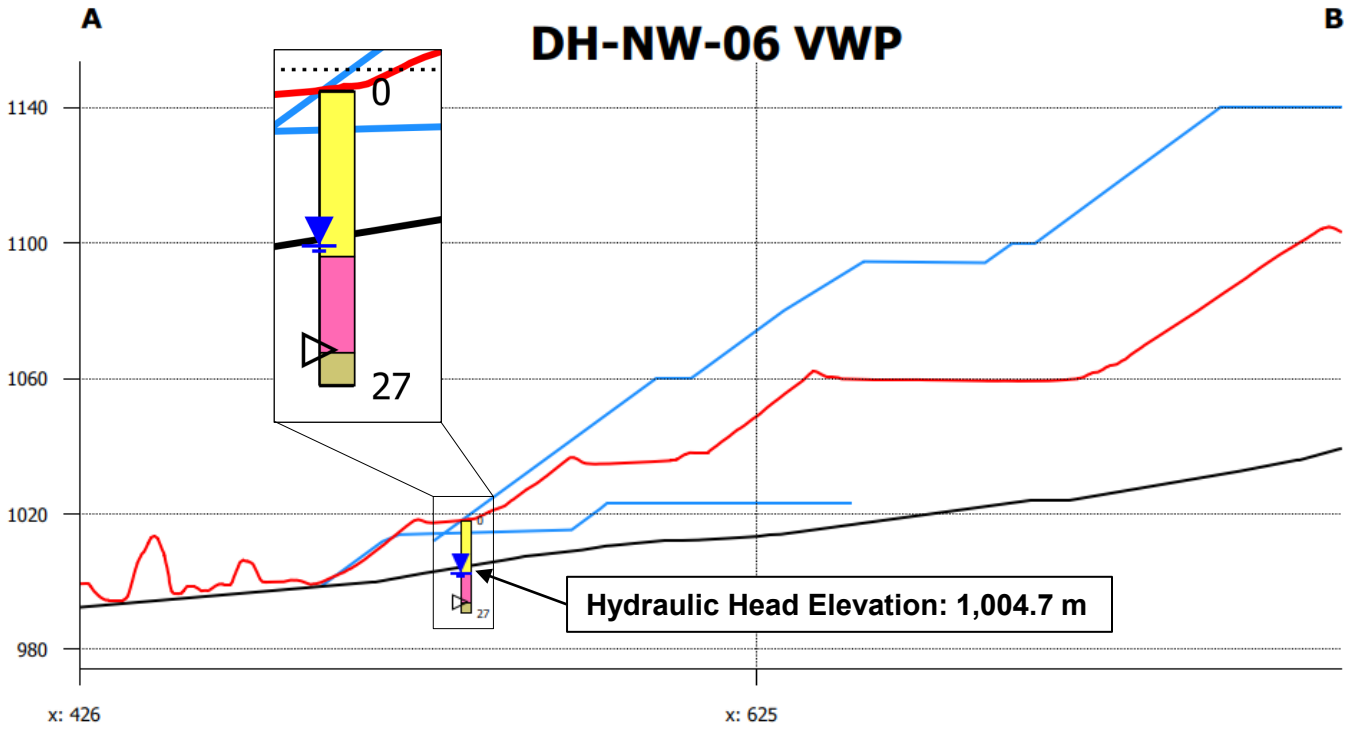
VWP Install Elevation
- VWP Install Elevation

Scale: 1:1,300
Vertical exaggeration: 1x

0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

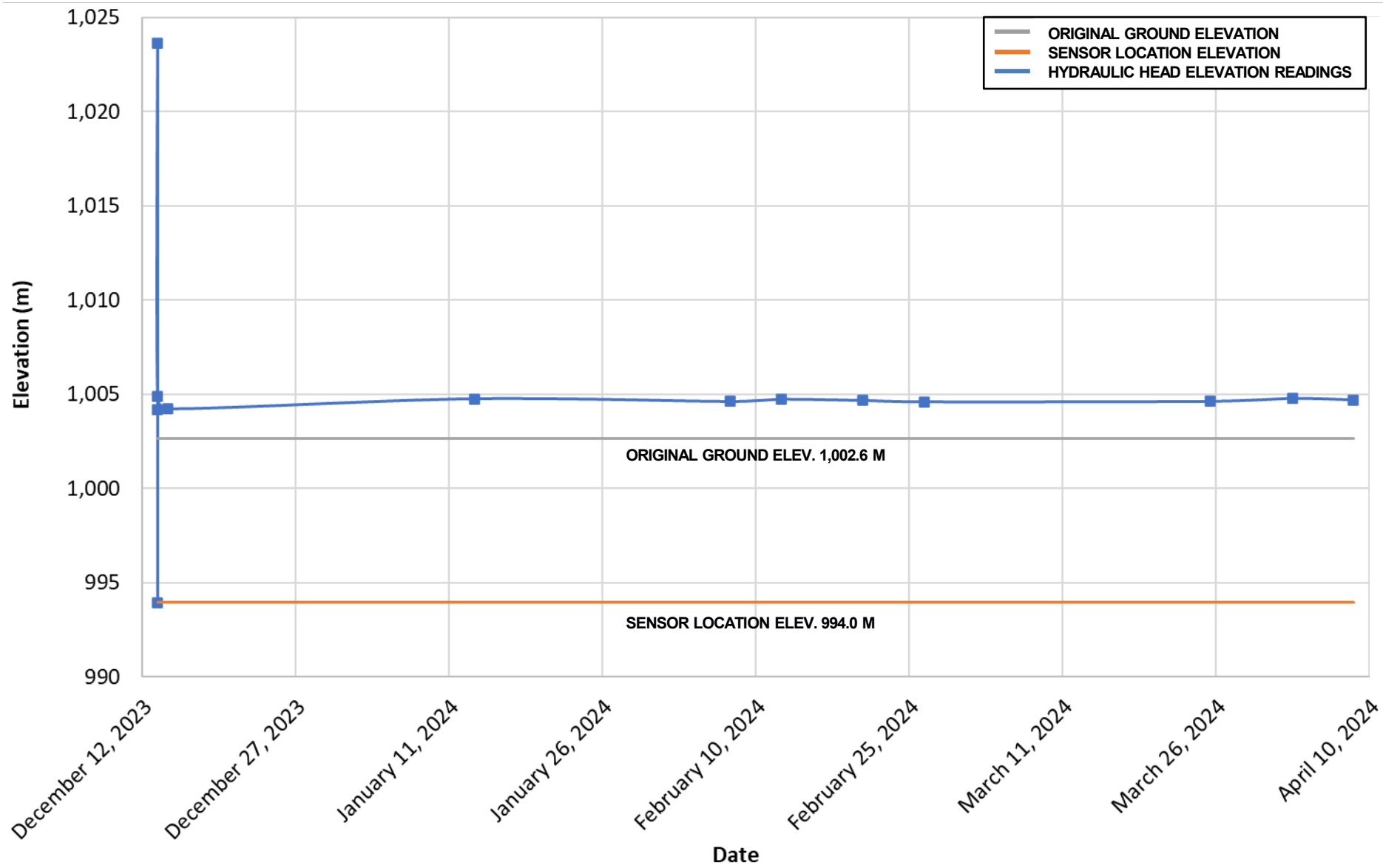
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-06 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-9**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-06 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-10**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

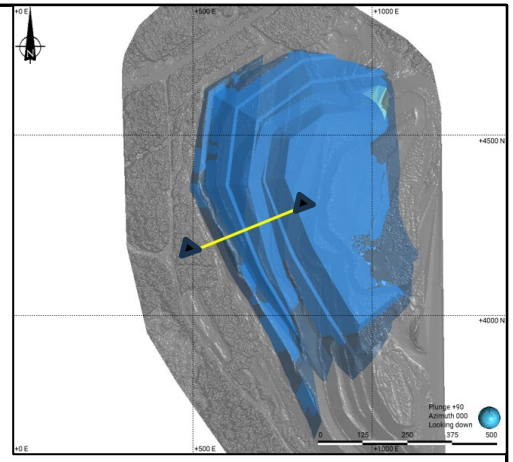
VWP Data
- Head Elevation

VWP Install Elevation
- VWP Install Elevation

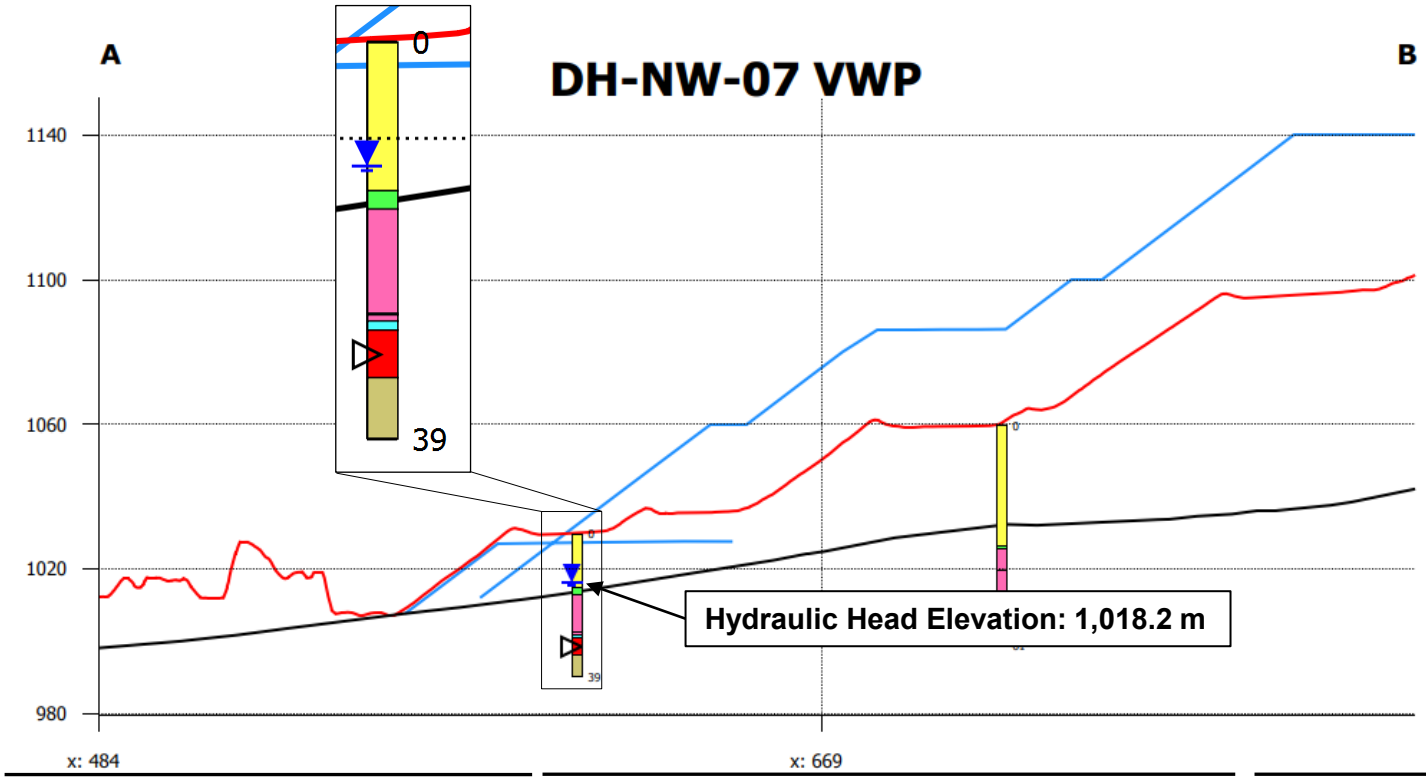
Scale: 1:1,300

Vertical exaggeration: 1x

0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

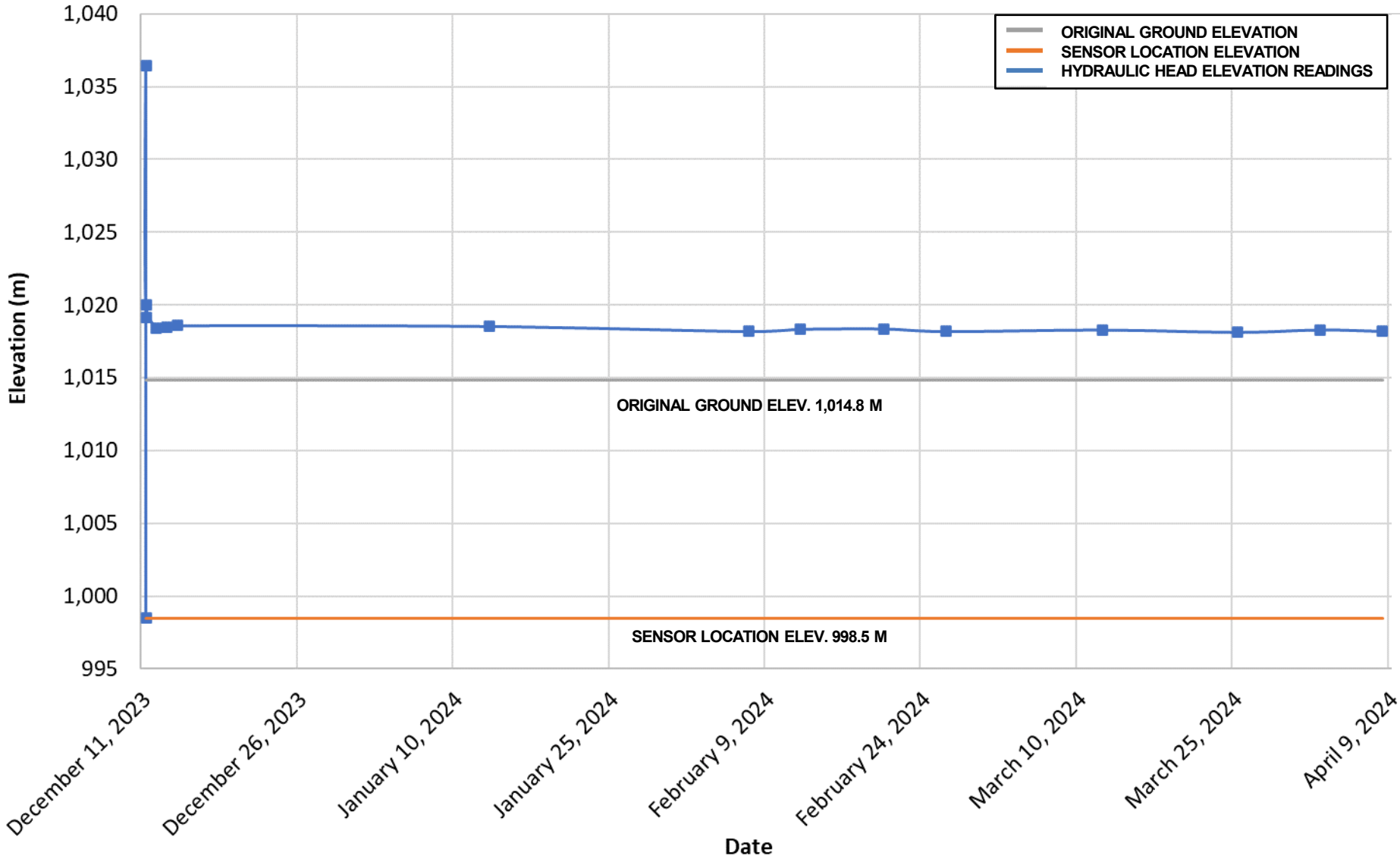
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-07 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-11**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-07 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-12**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

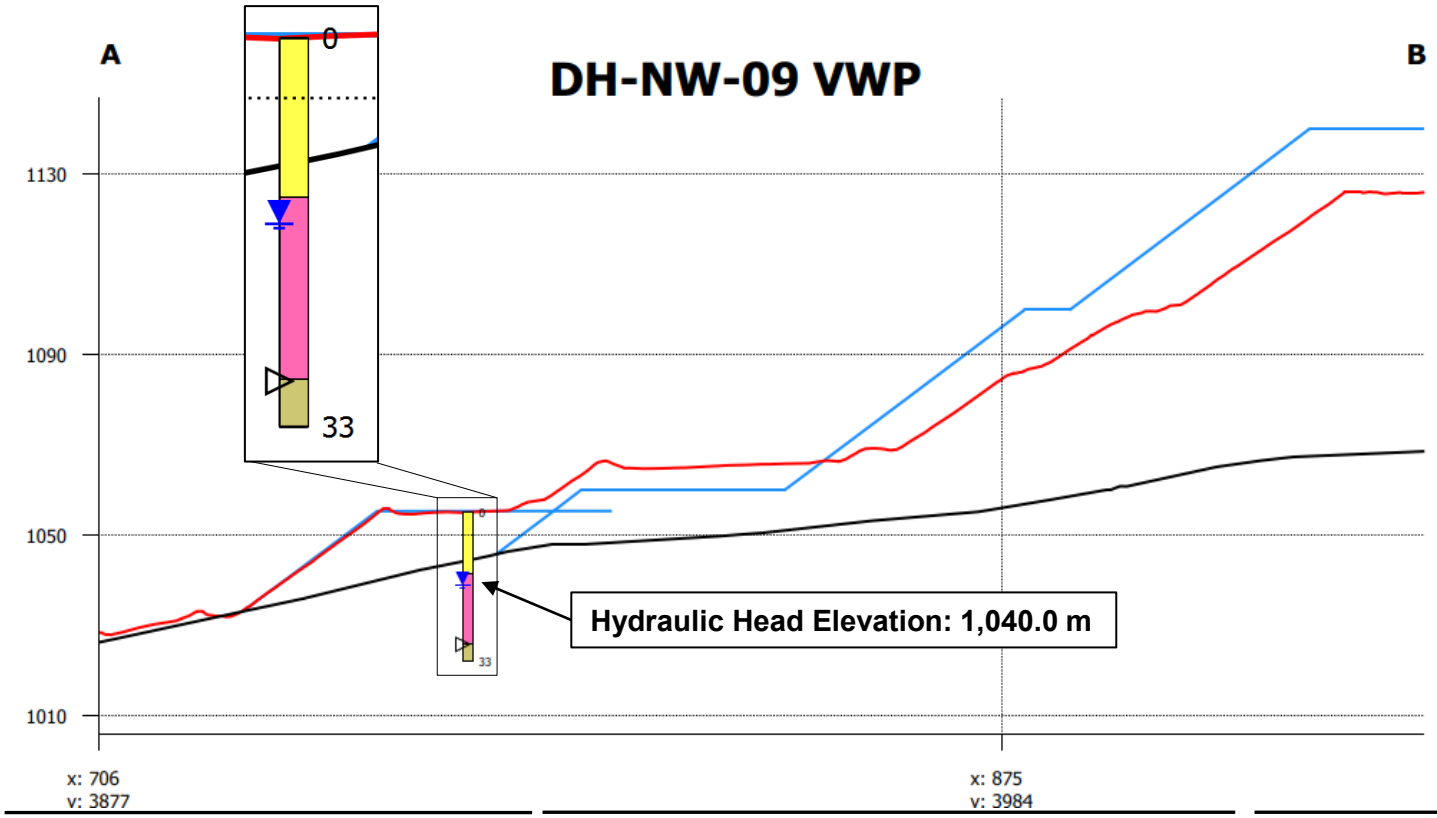
VWP Data
- Head Elevation

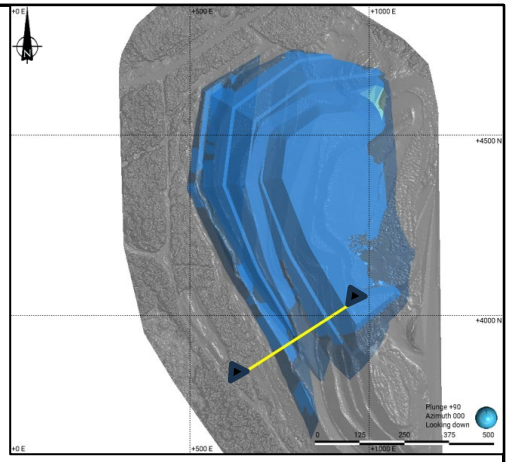
VWP Install Elevation
- VWP Install Elevation

Scale: 1:1,300

Vertical exaggeration: 1x

0m 100m





CROSS-SECTION LOCATION

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

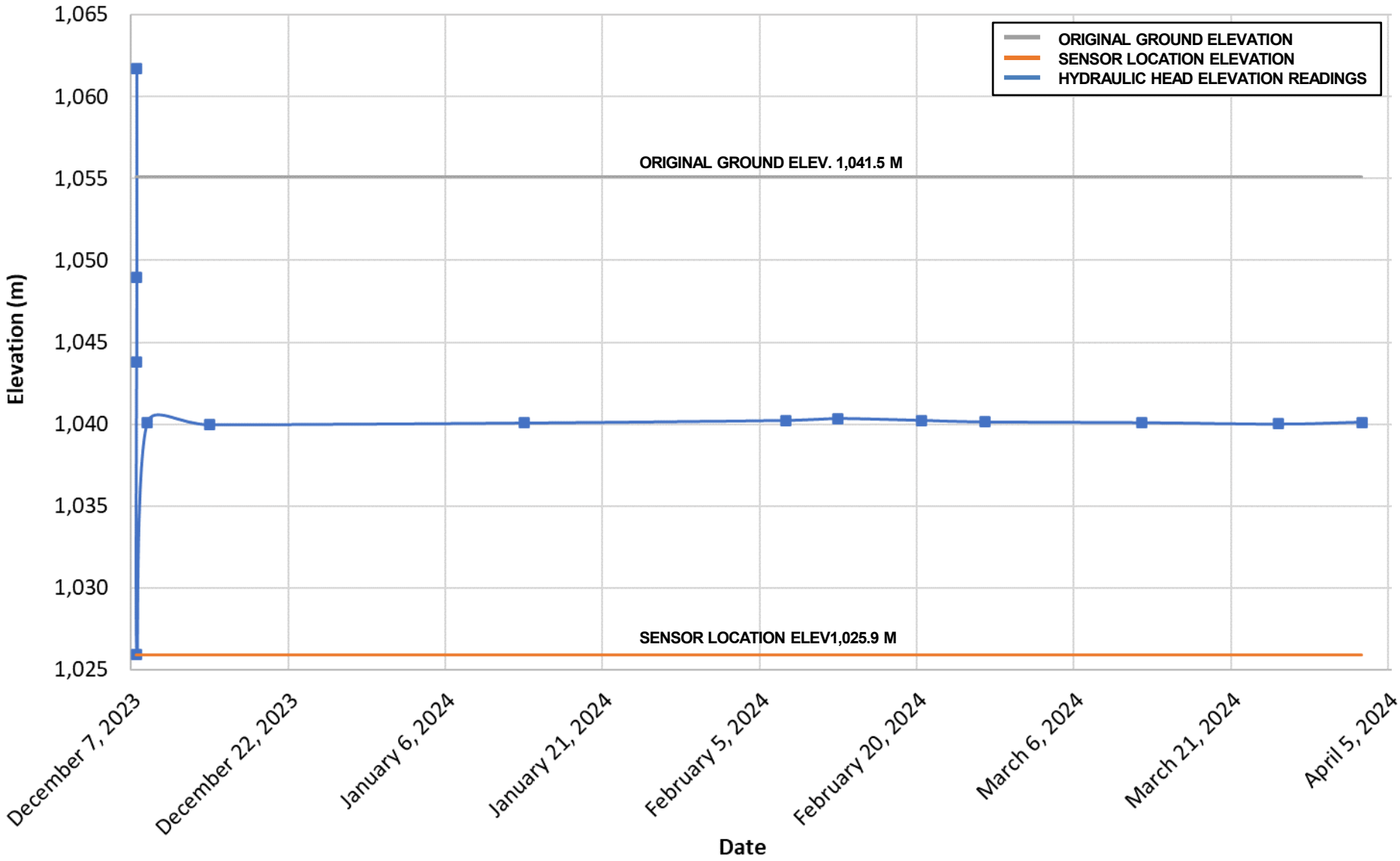
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-09 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-13**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-09 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-14**

APPENDIX F

Hazard Classification

Waste Rock Dump Stability Rating and Hazard Classification

A stability rating and hazard classification for the proposed ultimate NW PAG Dump was carried out using the Waste Dump and Stockpile Stability Rating and Hazard Classification (WSRHC) method (Hawley and Cunning 2017). This system evaluates 22 factors and attributes that are thought to affect waste dump and stockpile stability. The following general steps are carried out in a WSRHC assessment:

1) The regional setting, foundation conditions, and material quality of the stockpile are assessed and assigned values. The individual values are summed, and a numerical Engineering Geology Index (EGI) is determined.

2) The geometry and mass, stability analyses, construction, and performance attributes are assessed and assigned values. The values are summed, and a Design and Performance Index (DPI) is determined.

Table F-1: Waste Dump and Stockpile Stability Rating Breakdown (Hawley and Cunning 2017)

Engineering Geology Index (EGI)	Design and Performance Index (DPI)
Regional setting (max 10 pts.) ▪ Seismicity (0-2) ▪ Precipitation (0-8)	Geometry and mass (max 10 pts.) ▪ Height (0-4) ▪ Slope (0-4) ▪ Volume and mass (0-2)
Foundation conditions (max 20 pts.) ▪ Foundation slope (0-5) ▪ Foundation shape (0-2) ▪ Overburden type (0-4) ▪ Overburden thickness (0-2) ▪ Undrained failure potential (-20-0) ▪ Foundation liquefaction potential (-20-0) ▪ Bedrock (0-4) ▪ Groundwater (0-3)	Stability Analysis (max 10 pts.) ▪ Static stability (0-7) ▪ Dynamic stability (0-3) Construction (max. 15 pts.) ▪ Construction method (0-8) ▪ Loading rate (0-7)
Material quality (max 20 pts.) ▪ Gradation (0-7) ▪ Intact strength and durability (0-8) ▪ Material liquefaction potential (-20-0) ▪ Chemical stability (-5 to +5)	Performance (max 15pts.) ▪ Stability performance (-15 to +15)

3) The EGI and DPI are summed to establish a Waste Rock and Stockpile Stability Rating (WSR). The WSR is then classified within one of five Waste Rock and Stockpile Hazard Classes (WHC). Higher values of WSR indicate relatively low instability hazards.

Table F-2: Summary of Waste Dump and Stockpile Stability Rating and Hazard Classification System (Hawley and Cunning 2017)

Waste Rock and Stockpile Stability Rating (WSR)	Waste Rock and Stockpile Hazard Class (WHC)	Instability Hazard
80 – 100	I	Very Low Hazard
60 – 80	II	Low Hazard
40 – 60	III	Moderate Hazard
20 – 40	IV	High Hazard
0 – 20	V	Very High Hazard

Additional details on the WSRHC methodology, including a detailed explanation of each of the indices and the sub-parameters can be found in Chapter 3 of Hawley and Cunning (2017).

The classification for the proposed ultimate NW PAG Dump is presented in Table F-3.

Table F-3: Waste Dump and Stockpile Stability Rating and Hazard Classification Rating Summary for the Proposed Ultimate NW PAG Dump

Index	Group	Factor	Rating	Description	Notes	Source
Engineering Geology Index (EGI)	Regional Setting	Seismicity	1.5	Low	Maximum Credible Earthquake PGA=0.116g, based on 1 in 10,000 return period	WSP USA 2023
		Precipitation	4	350-1000 mm	Average precipitation = 612 mm	Golder 2022b
	Foundation Conditions	Foundation Slope	4	5 – 15 º (Gentle)	Based on topographic assessment	Original site topography
		Foundation Shape	1	Gentle slope	Planar slope with no lateral confinement	Original site topography
		Overburden Type	3	Type IV	Variable till	WSP 2024b
		Overburden Thickness	0	>5 m	Overburden thicknesses measured up to approximately 24 m deep	WSP 2024b
		Undrained Failure Potential	-2.5	Low	Based on dense till foundation	WSP 2024b
		Foundation Liquefaction Potential	0	Negligible	Dense till	Assessment in this geotechnical report for the foundation soils.
		Bedrock	2	Type C	Moderately competent; GSI/RMR 40-60	WSP 2024b
		Groundwater	0	High	Groundwater table at surface; artesian conditions encountered	WSP 2024b
	Material Quantity	Gradation	5	Coarse	Based on SERDS and expectation of fines mixed in waste rock	WSP 2024a
		Intact Strength and Durability	6	Type 4	Strong to very strong rock	Golder 2016a
		Material Liquefaction Potential	0	Negligible	Well graded materials	WSP 2024b
		Chemical Stability	2.5	Mildly reactive	PAG rock	-
Design and Performance Index (DPI)	Geometry & Mass	Height	2.5	Low-Moderate	25 to 50 m high lifts	Based on proposed ultimate NW PAG Dump design and October 2023 current topography
		Slope Angle	2	Moderate	27-degree slope	Based on proposed ultimate NW PAG Dump design
		Volume and Mass	1	Medium	2.07e7	Based on proposed ultimate NW PAG Dump design
	Stability Analysis	Static Stability	5	1.3 – 1.5	Slope Stability Analyses Results	-
		Dynamic Stability	3	>1.15	Slope Stability Analyses Results	-
	Construction	Construction Method	6	Method IV	Lifts are at a maximum height of 40 m	Based on proposed ultimate NW PAG Dump design
		Loading Rate	3.5	Moderate	Assumed	-
	Performance	Stability Performance	7.5	Good	Minor settlement has occurred along access haul ramp to lifts	Golder 2013c, Golder 2016a, Golder 2017, WSP 2023a, WSP 2023c
Engineering Geology Index Subtotal			**26.5**			
Design and Performance Index Subtotal			**30.5**			
Waste Dump Stability Rating (WSR)			**57**			
Waste Dump Hazard Class (WHC)			**III**			

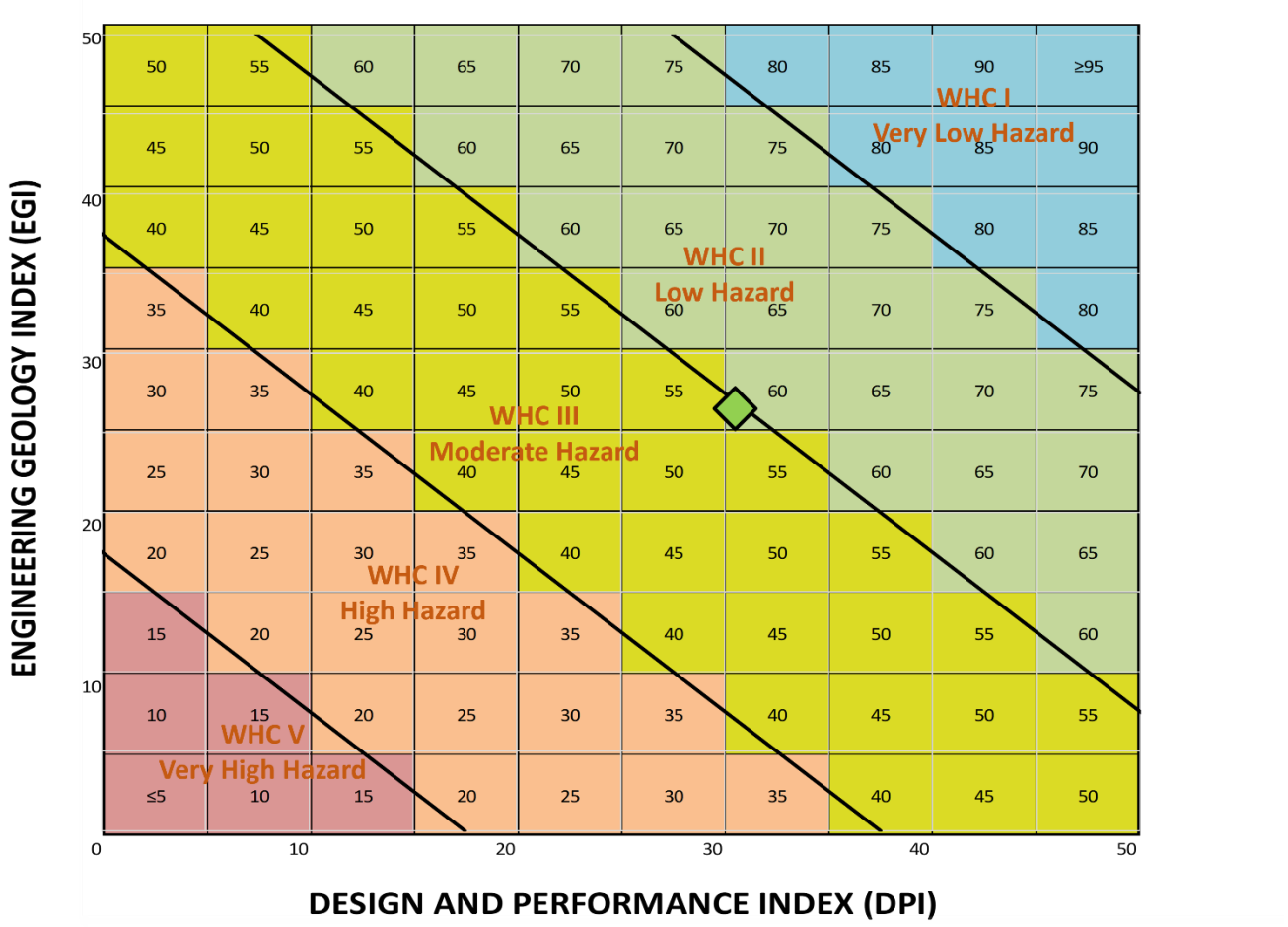


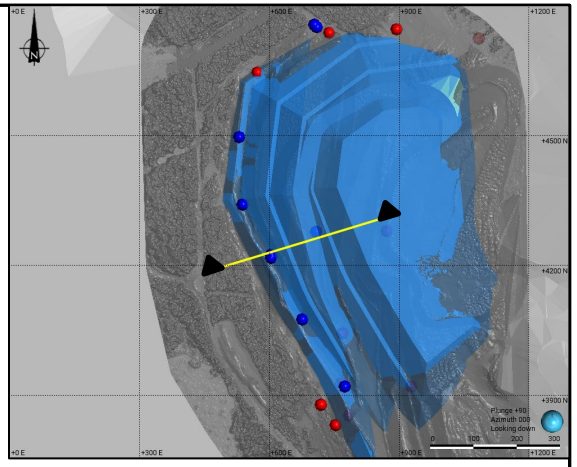
Illustration F-1: Proposed Ultimate NW PAG Dump WSRHC Chart

APPENDIX G

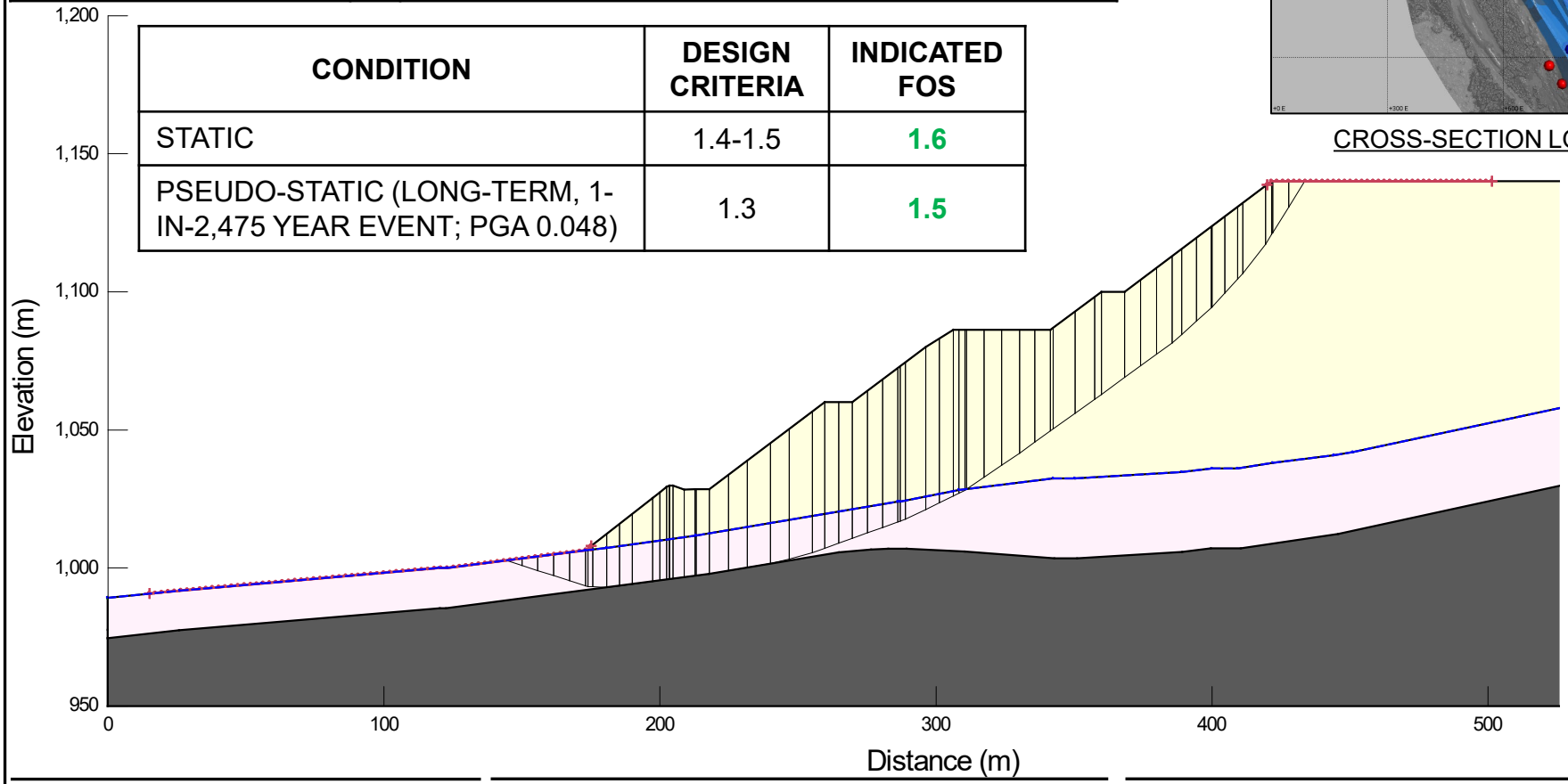
Slope Stability Analyses

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.5**



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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MOUNT POLLEY MINE
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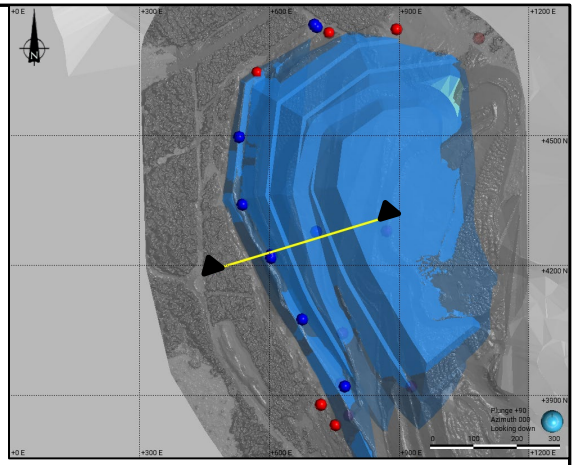
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E OVERALL SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-1**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	



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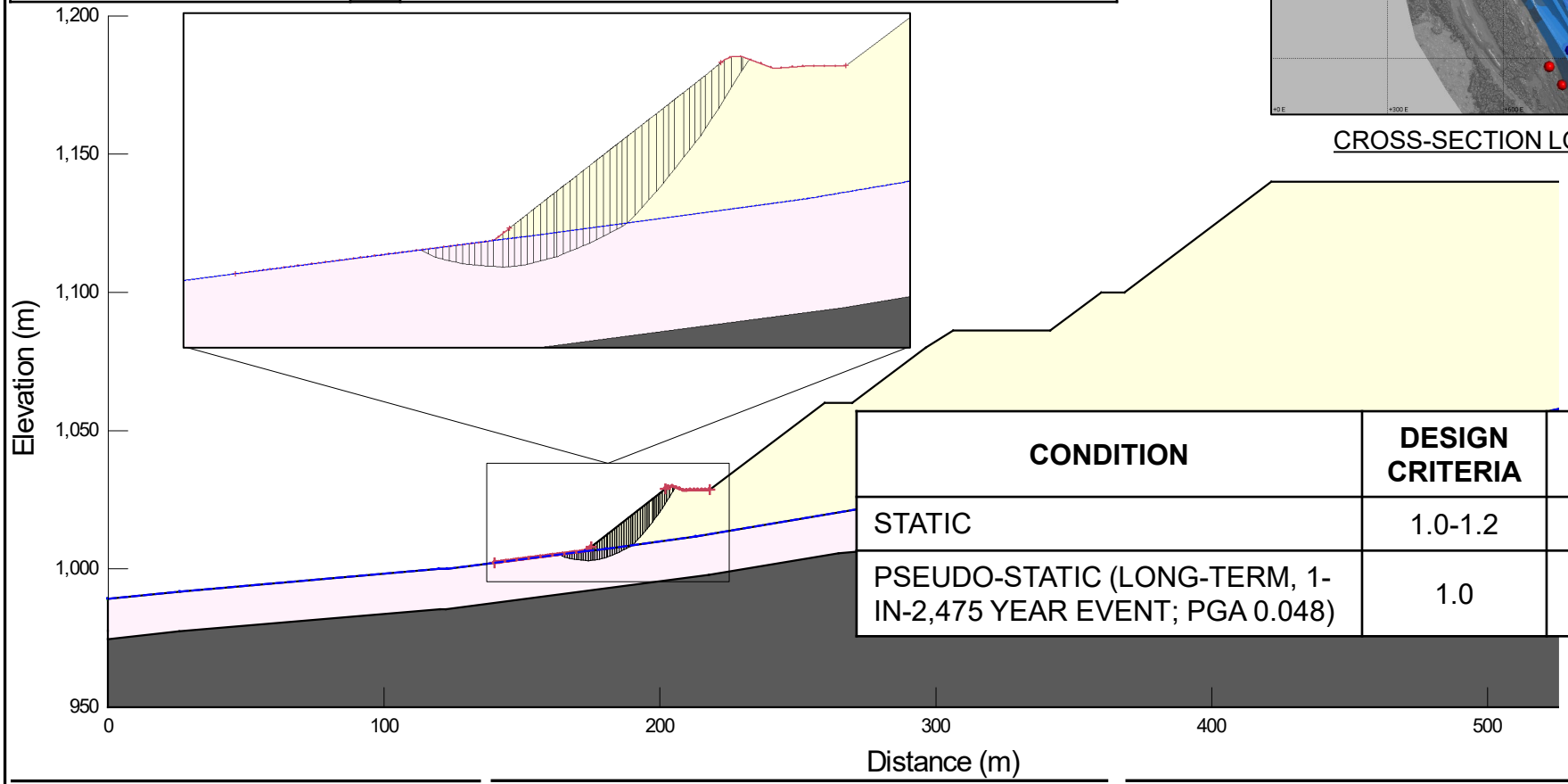

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.4
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.3

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
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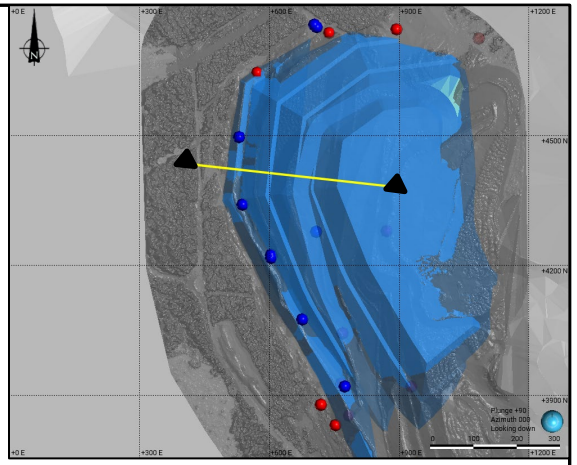
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E LOWER LIFT SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-2**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.5**



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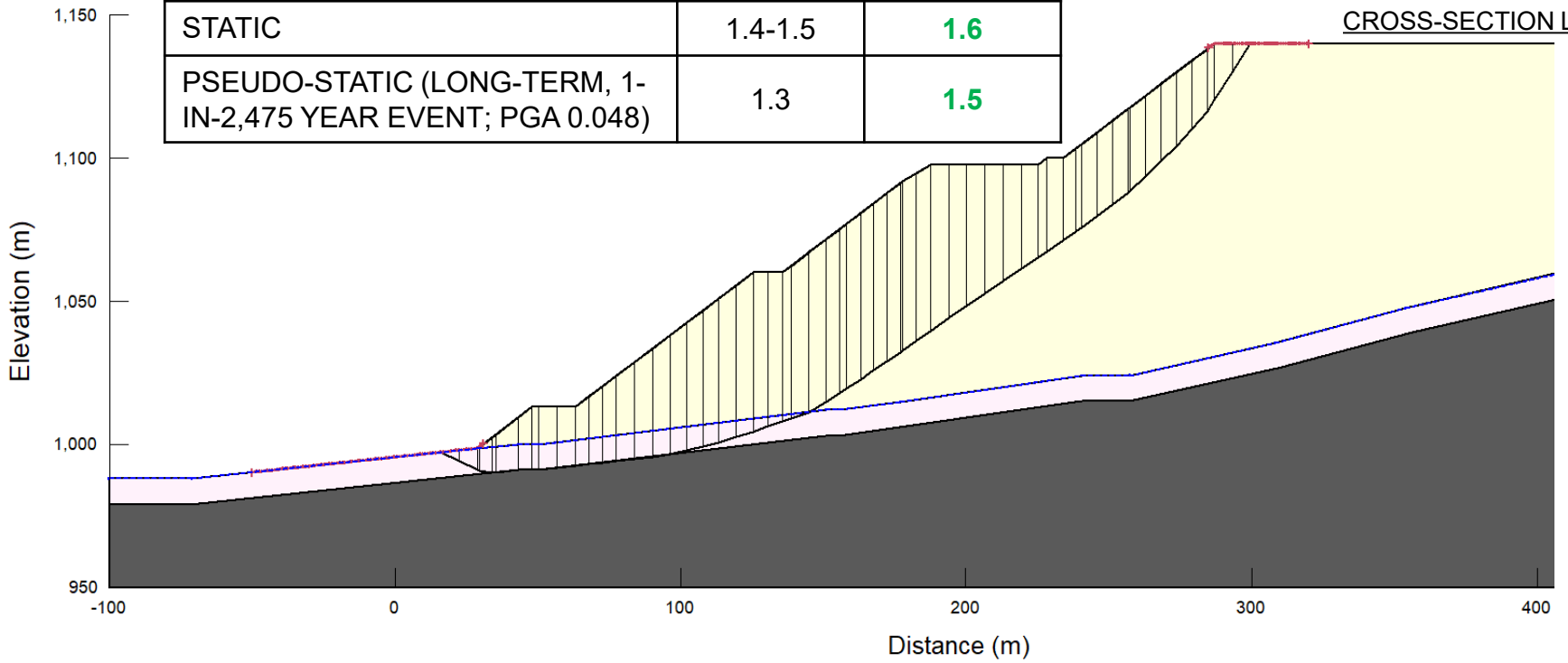

REFERENCES AND NOTES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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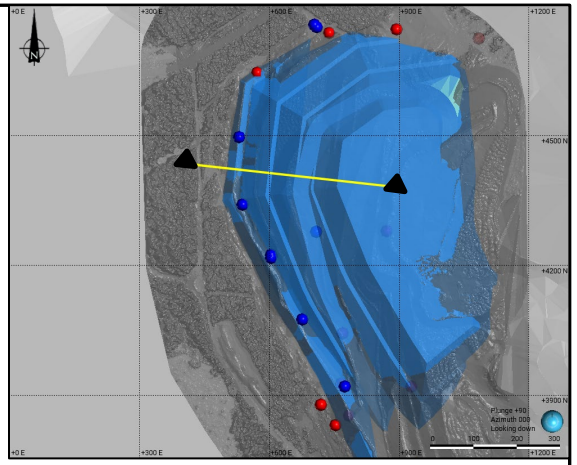
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-3**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



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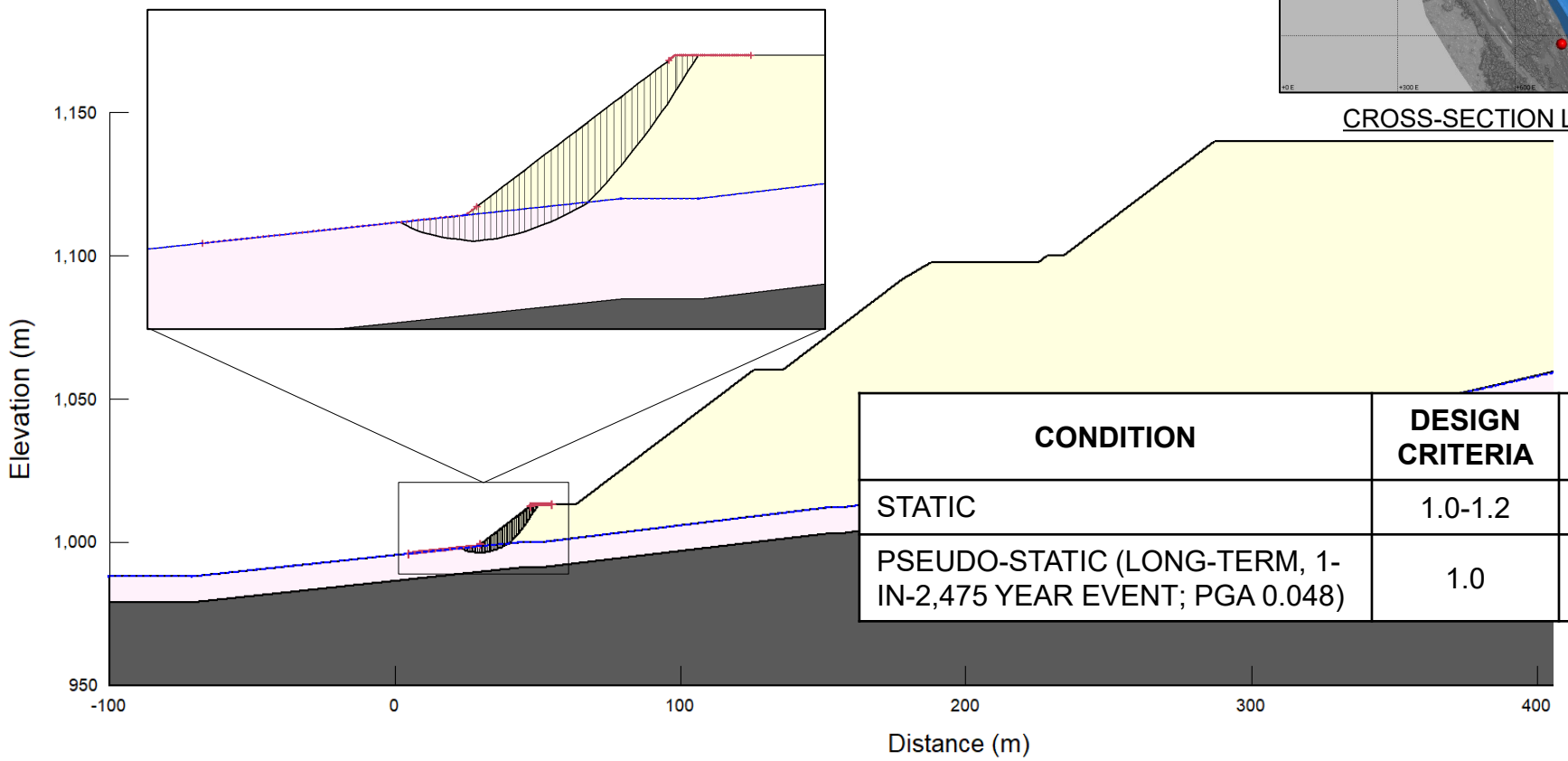

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.5
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.4

REFERENCES AND NOTES

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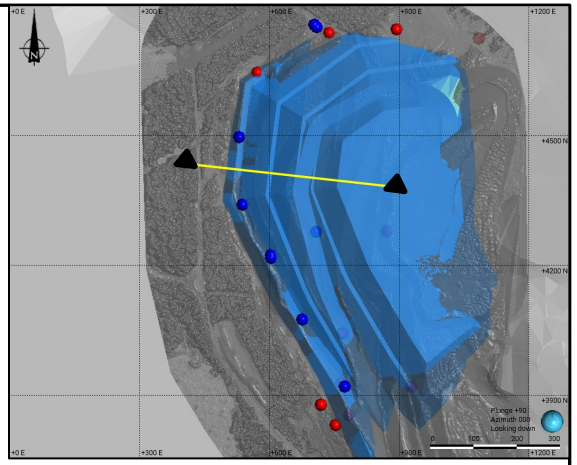
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G LOWER LIFT SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-4**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	1.6
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	1.5



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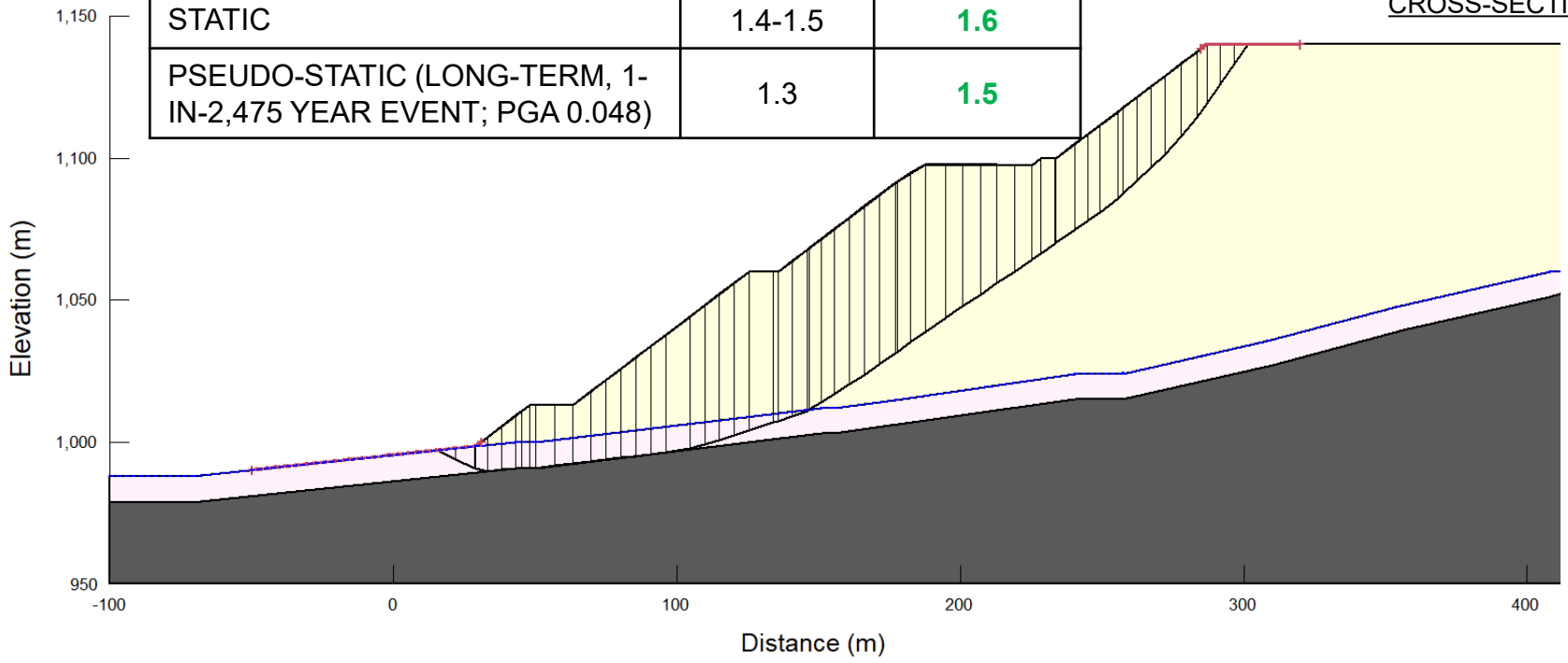

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3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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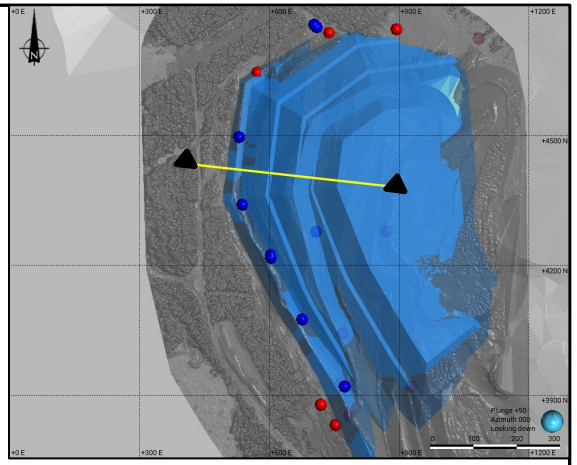
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-5**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



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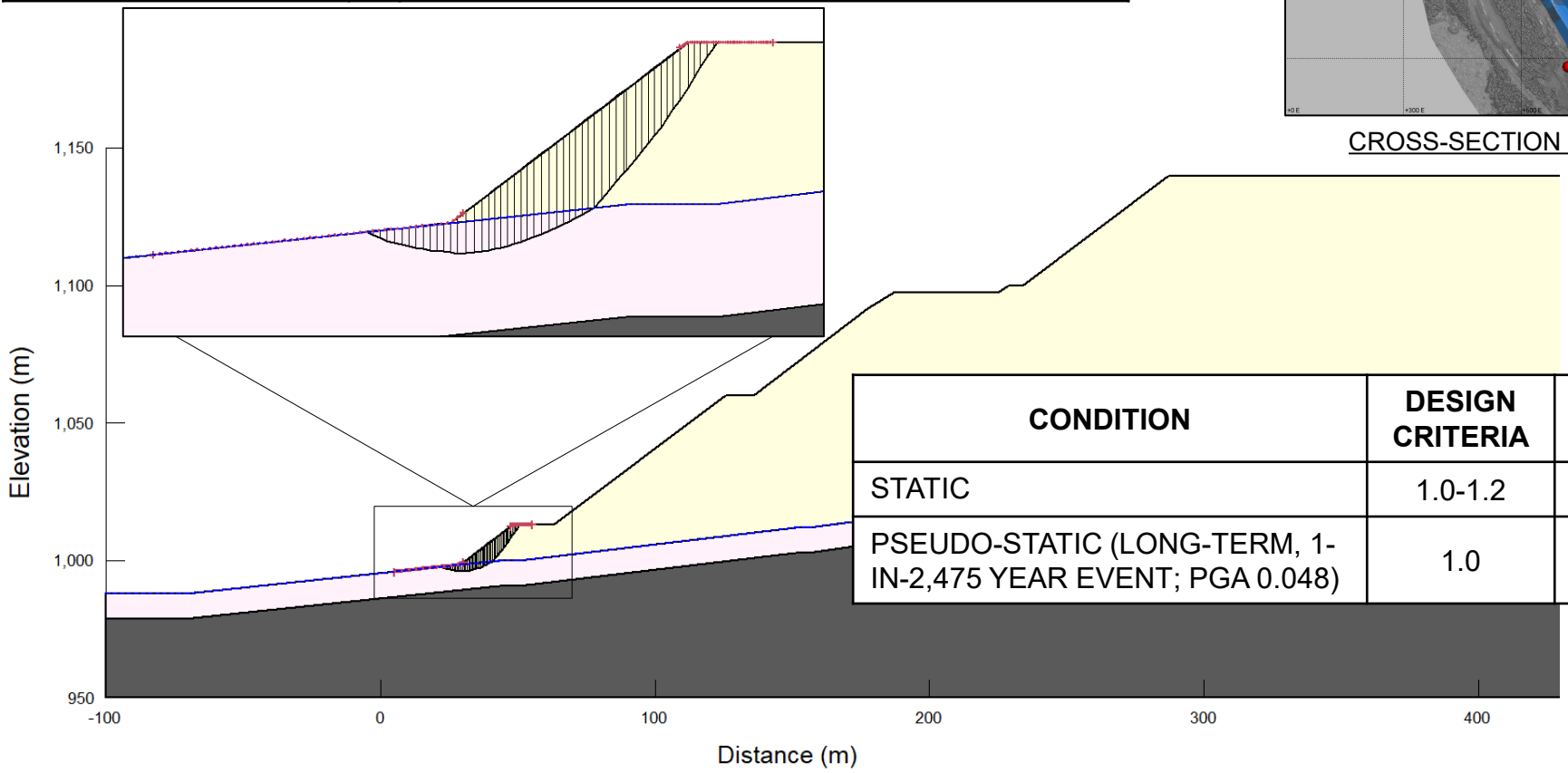

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	**1.4**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	**1.3**

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
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3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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MOUNT POLLEY MINE
LIKELY, BC

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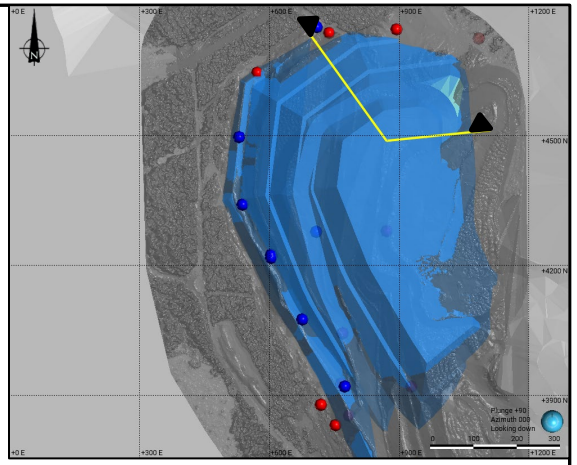
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G LOWER LIFT SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

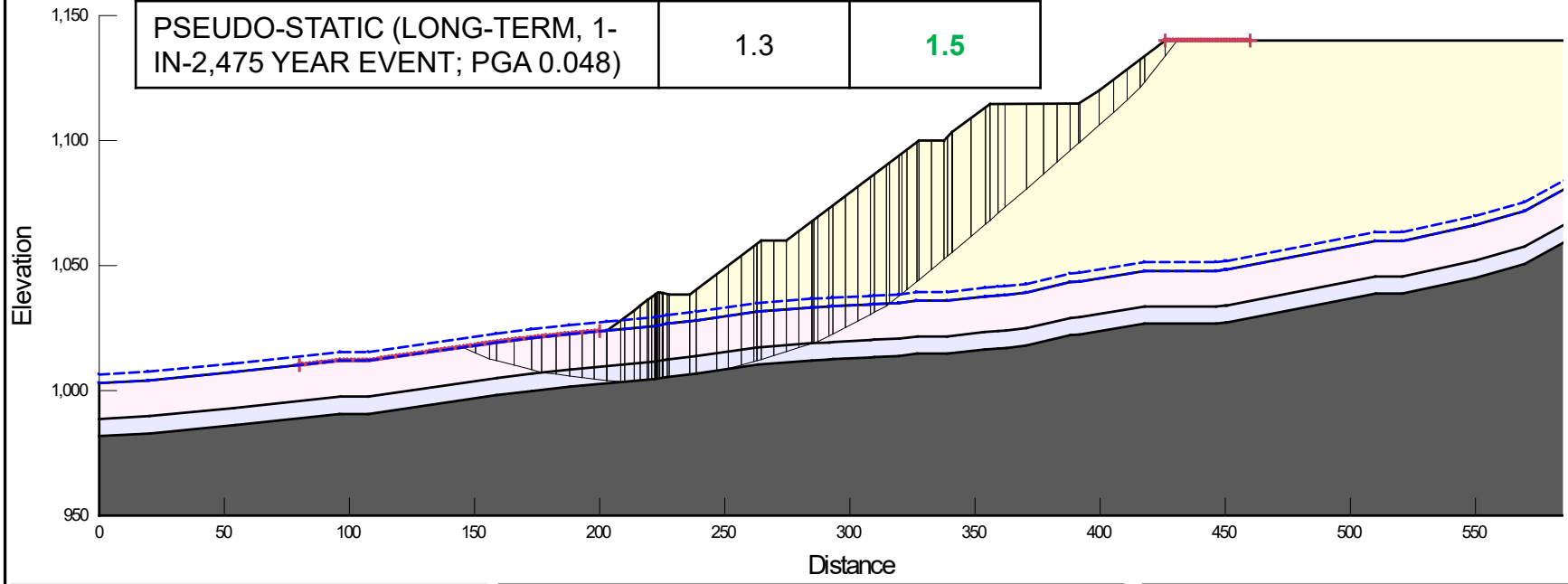
PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-6**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.5**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

CLIENT
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MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
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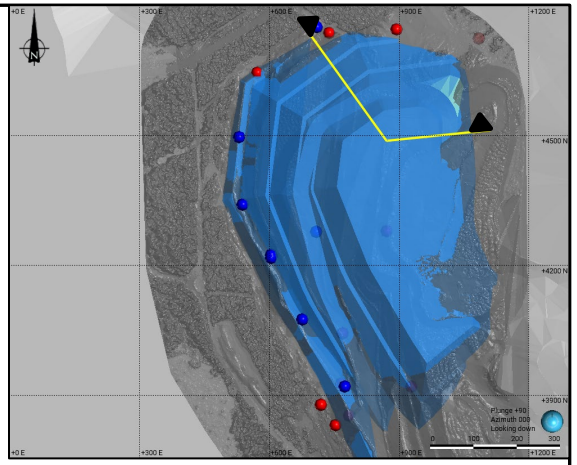
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

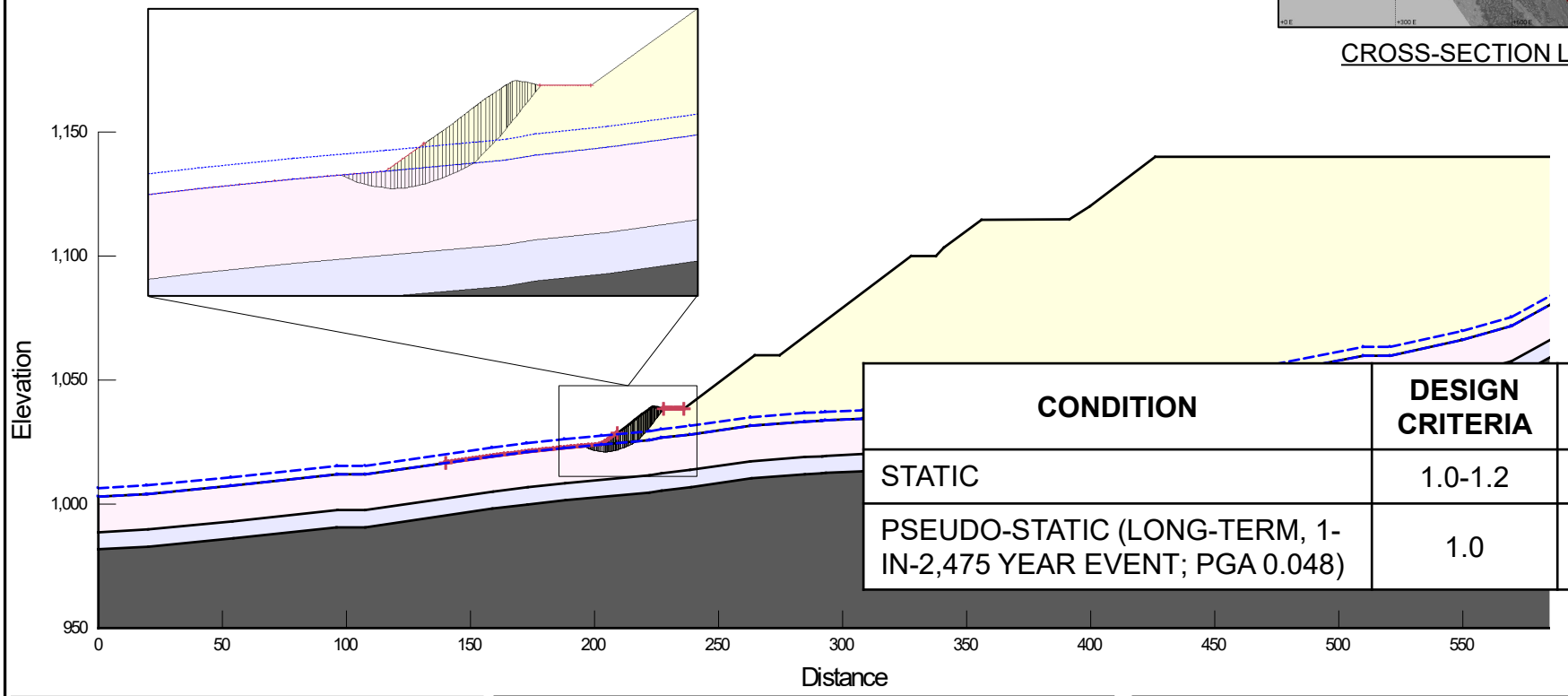
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-7**

MATERIAL PROPERTIES		
MATERIAL TYPE	**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK	19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)	22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL	22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK	IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.5
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.5

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

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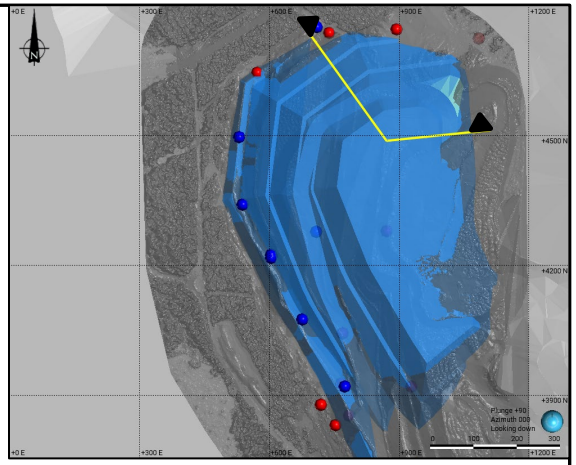
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J LOWER LIFT SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

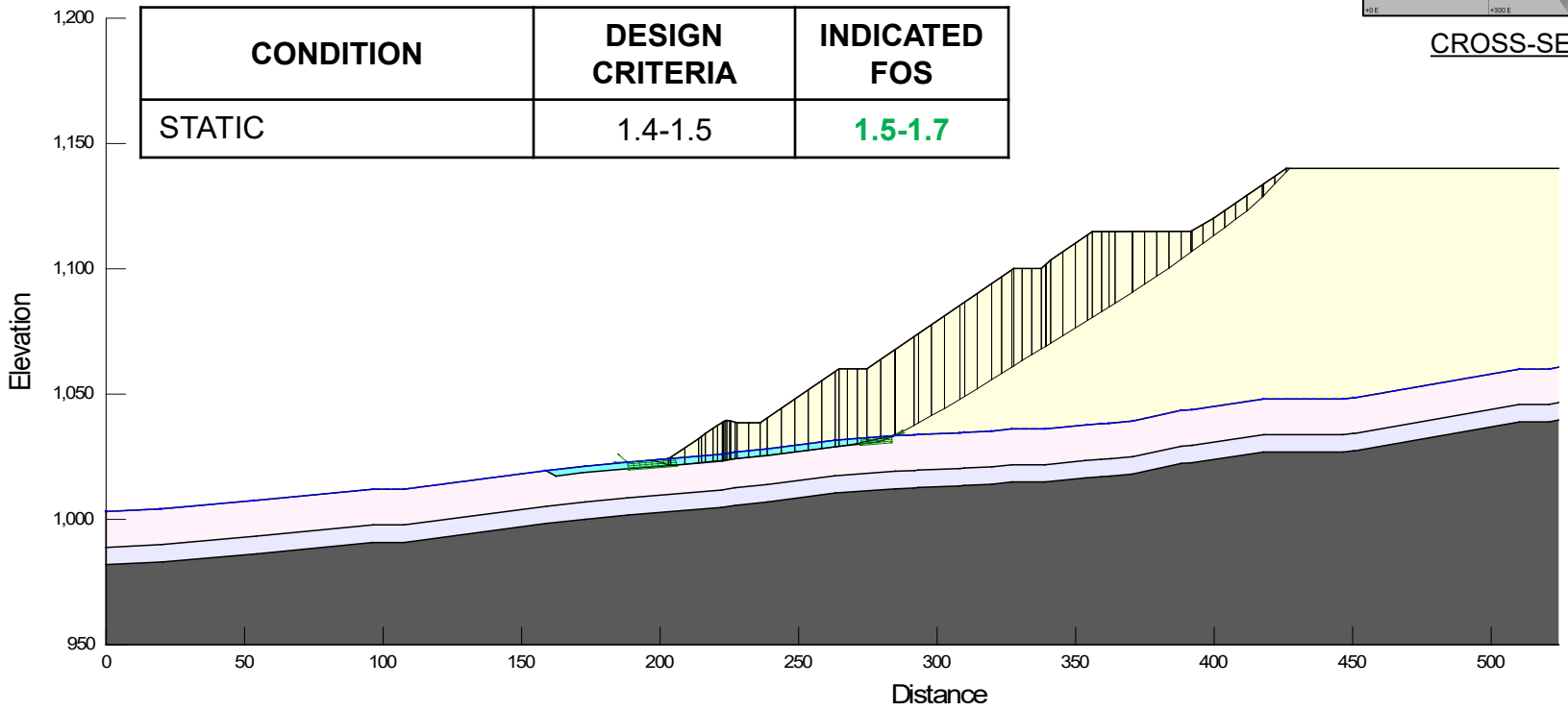
PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-8**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL		20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.5-1.7**



REFERENCES AND NOTES

1. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

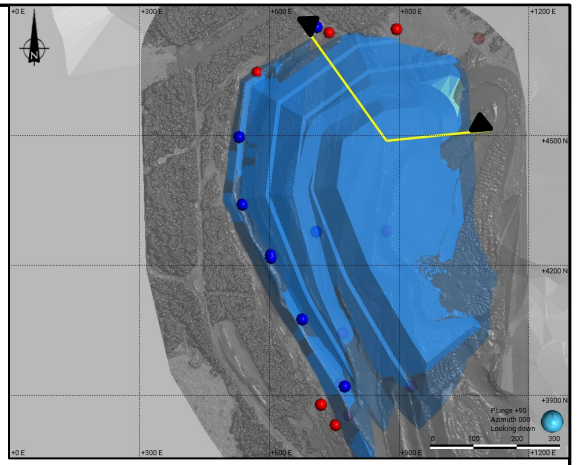
YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

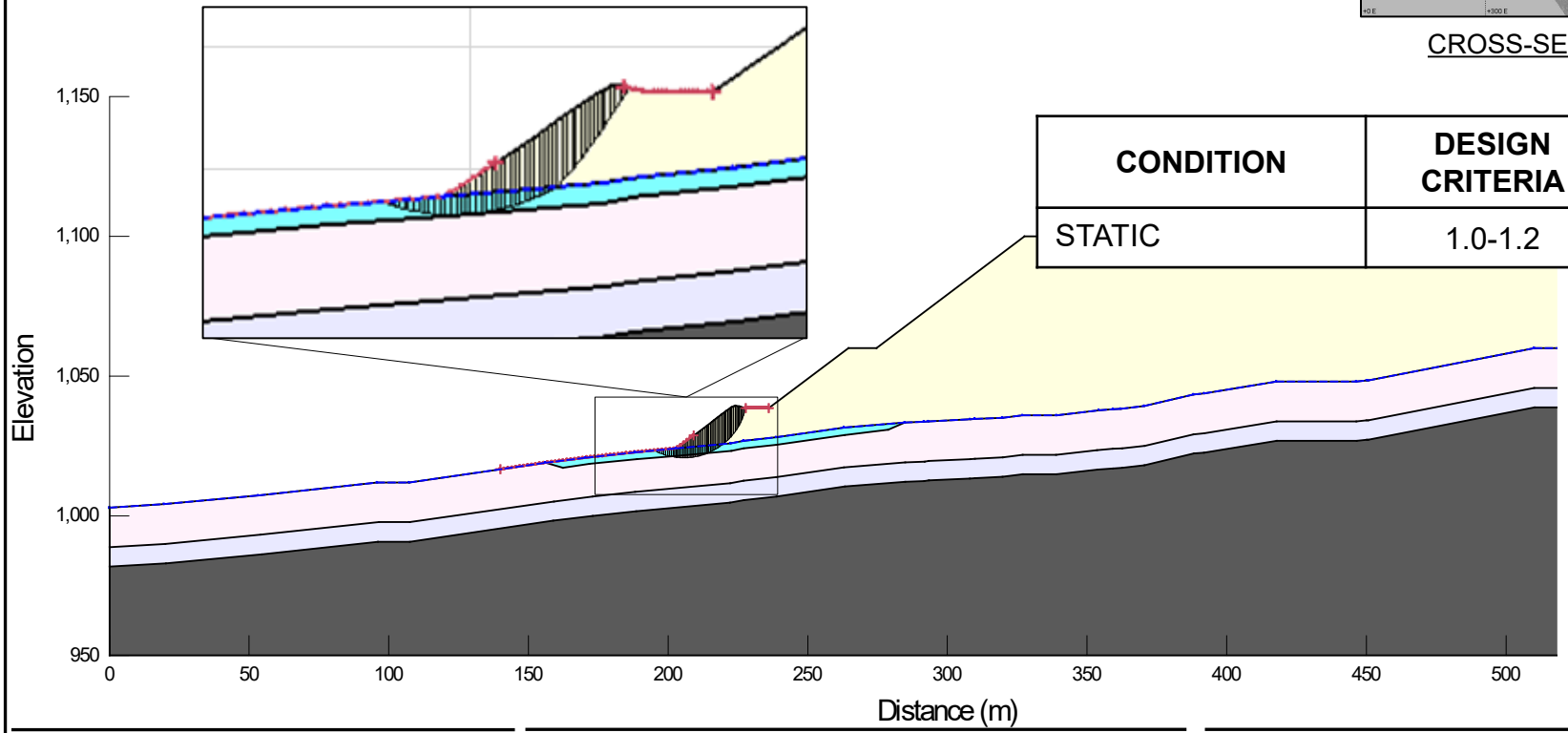
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-9**

MATERIAL PROPERTIES		
MATERIAL TYPE	**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK	19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL	20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM	22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL	22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK	IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.0-1.5

REFERENCES AND NOTES

1. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

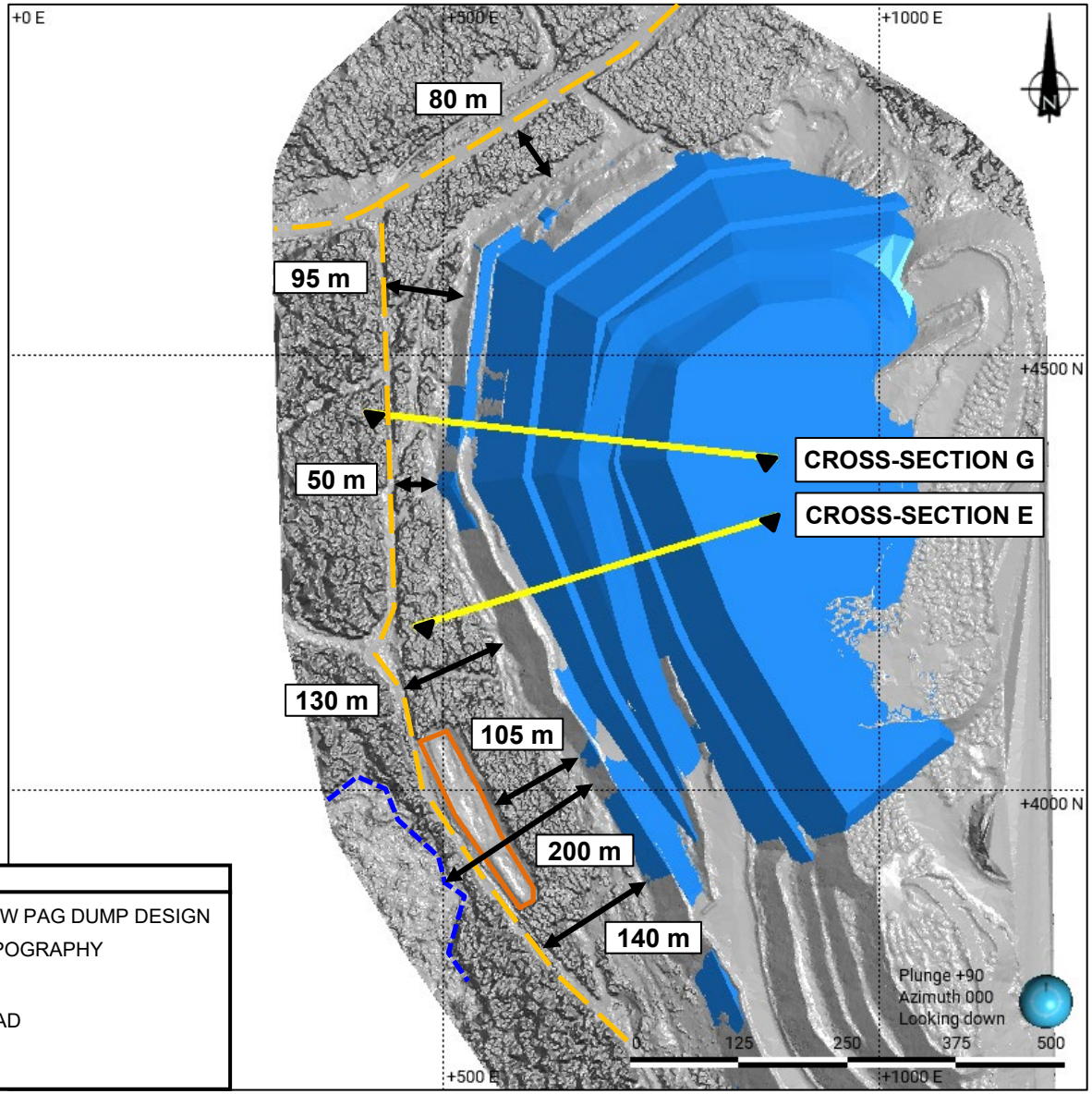
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J LOWER LIFT SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-10**

APPENDIX H

Runout Analyses



LEGEND

- PROPOSED ULTIMATE NW PAG DUMP DESIGN
- OCT 2023 CURRENT TOPOGRAPHY
- SETTLING PONDS
- BOOTJACK ACCESS ROAD
- BOOTJACK LAKE

REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

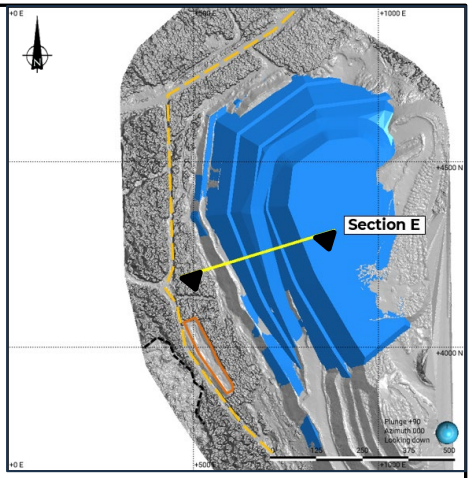
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CRITICAL INFRASTRUCTURE

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**H-1**

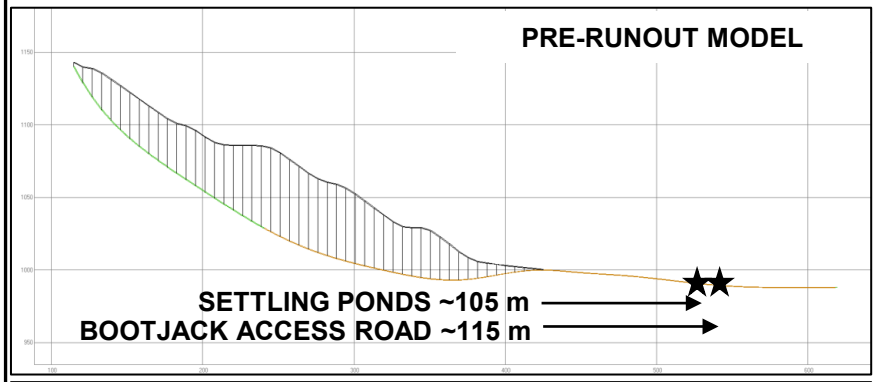
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

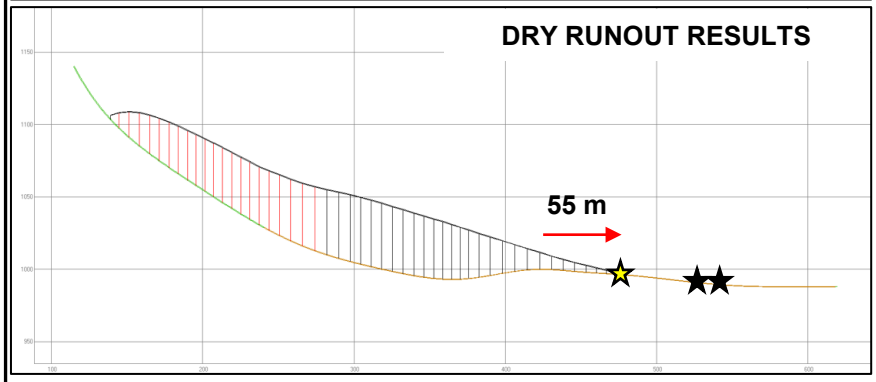
LEGEND

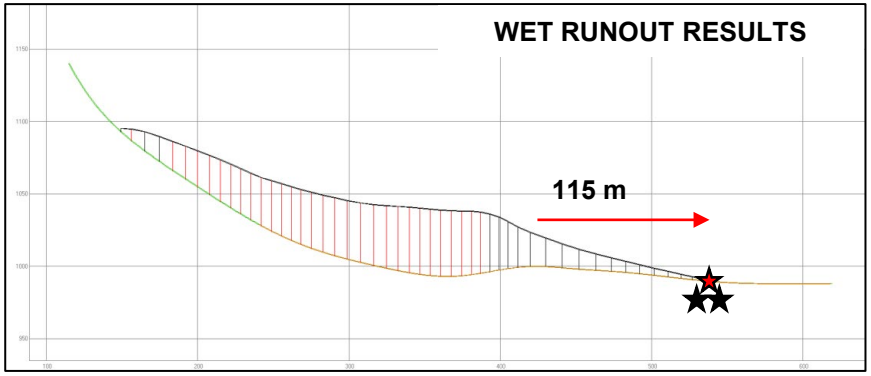
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

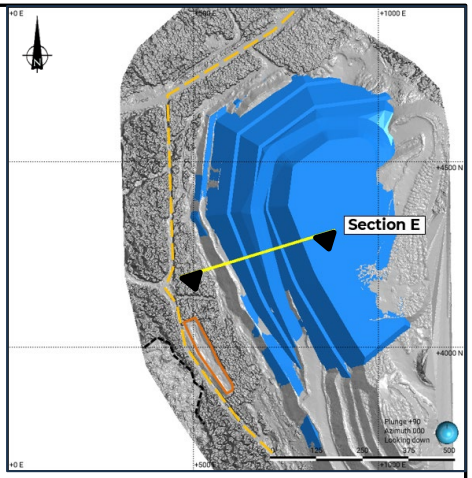
TITLE
CROSS-SECTION E
RUNOUT MODEL OVERALL SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	H-2

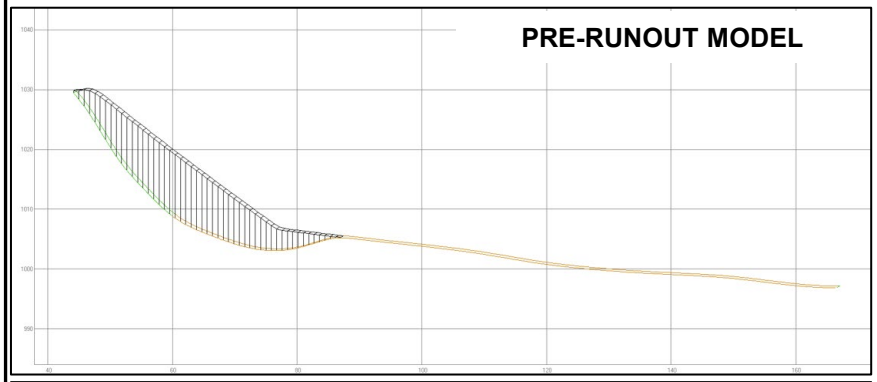
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

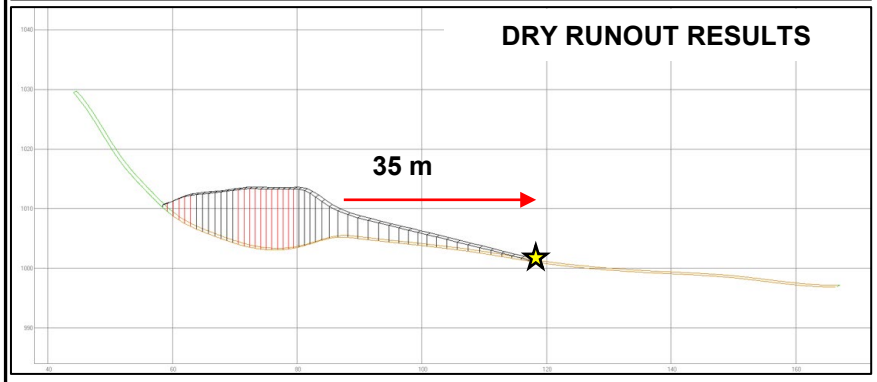
LEGEND

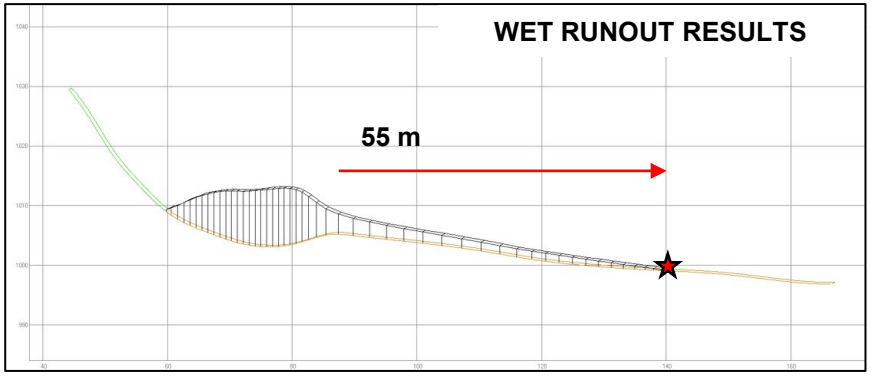
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

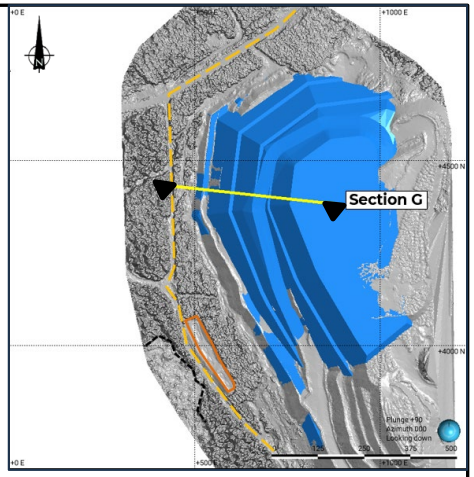
TITLE
CROSS-SECTION E
RUNOUT MODEL LOWER LIFT SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	H-3

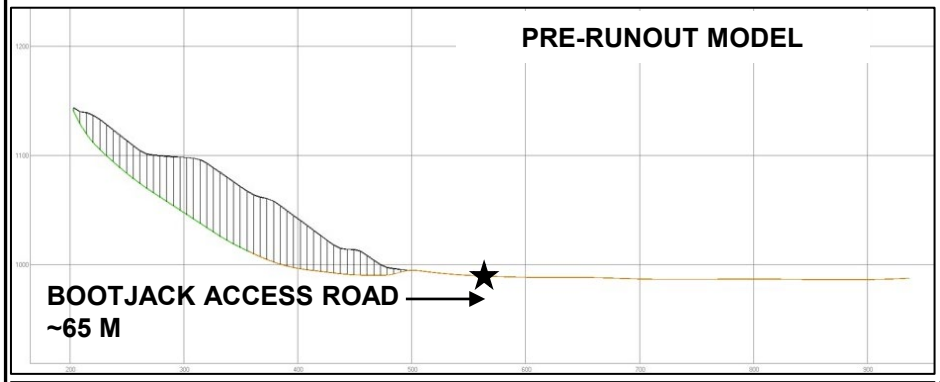
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

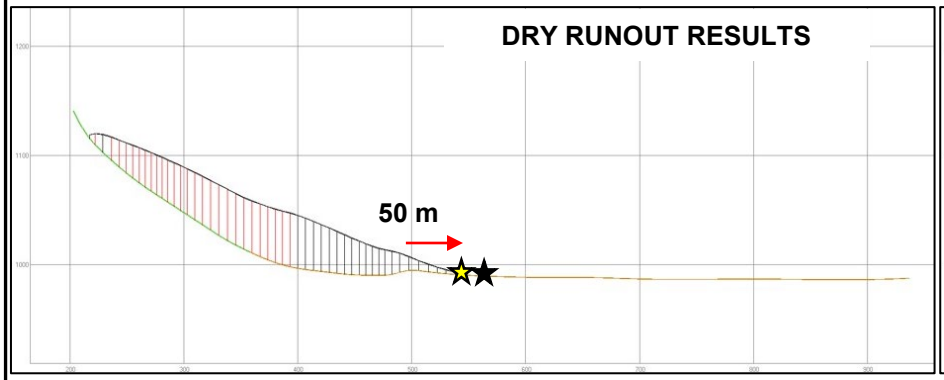
LEGEND

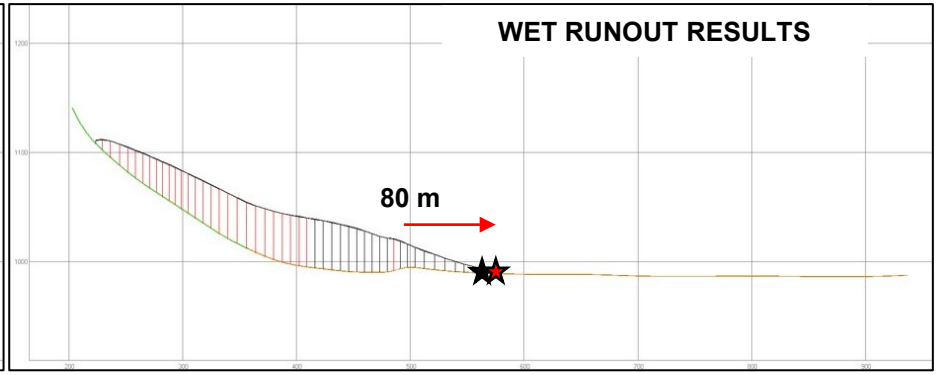
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

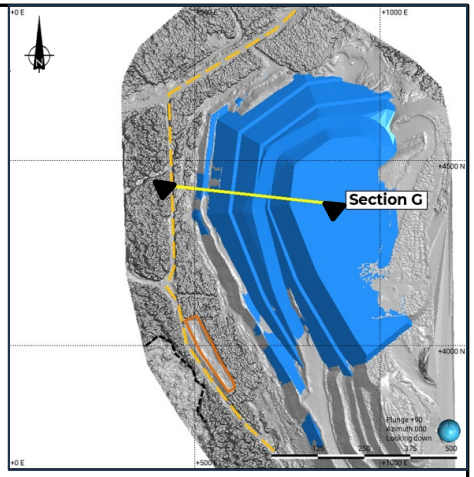
TITLE
CROSS-SECTION G
RUNOUT MODEL OVERALL SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	H-4

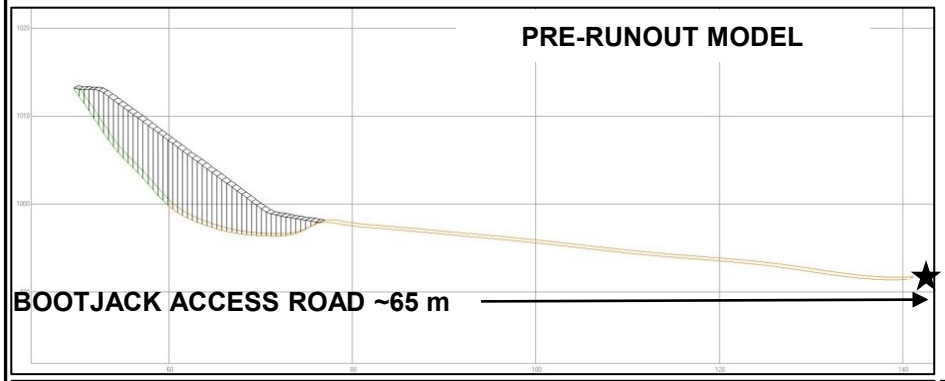
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

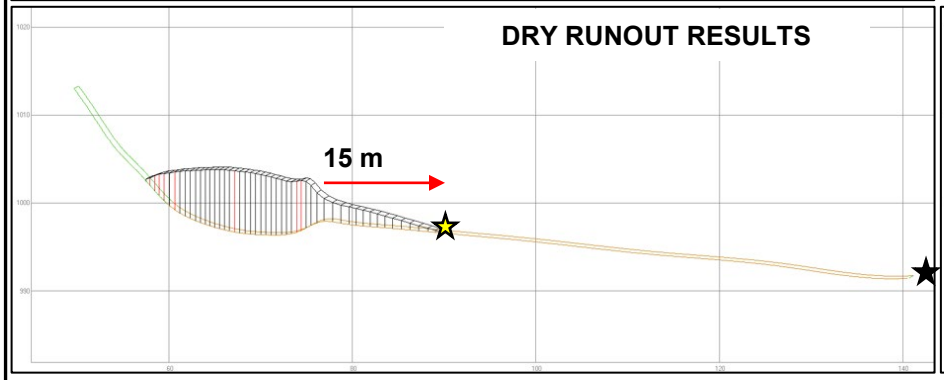
LEGEND

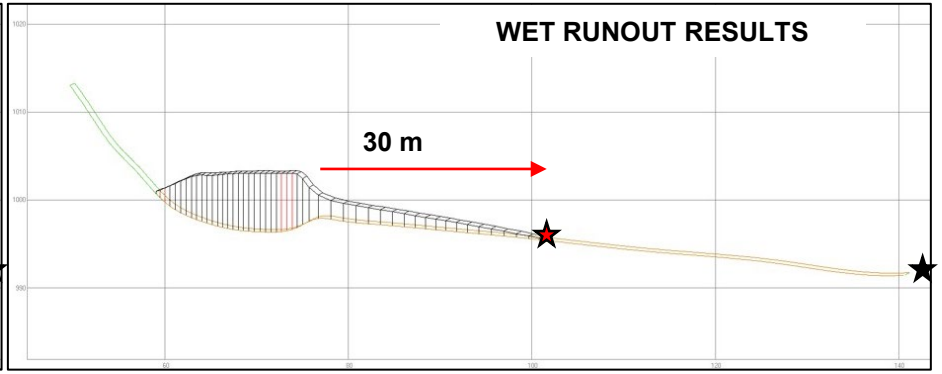
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION G
RUNOUT MODEL LOWER LIFT SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**H-5**

wsp.com

APPENDIX 4-3: NW PAG DUMP ADDENDUM

TECHNICAL MEMORANDUM

DATE February 13, 2025 **Reference No.** CA0020527.4505-099-TM-Rev0-75192

TO Richard Tuohey, Chief Engineer
Mount Polley Mining Corporation

FROM Jeremy Huber, P.Eng. and Marc Rougier, P.Eng. **EMAIL jeremy.huber@wsp.com; marc.rougier@wsp.com**

NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT ADDENDUM

1.0 INTRODUCTION

In November 2024, Mount Polley Mining Corporation (MPMC) issued WSP Canada Inc. (WSP) an updated design for the Northwest Potentially Acid Generating Dump (NW PAG), herein referred to as the updated design. This memorandum presents WSP's geotechnical assessment of the updated design and should be considered an addendum to the previous geotechnical assessment completed in May 2024 (WSP 2024b).

2.0 BACKGROUND

MPMC operate a copper / gold open pit mining operation located 8 km southwest of the town of Likely and 56 km northeast of Williams Lake in central British Columbia (BC). Mining is currently being carried out in the Springer Pit, and non-acid generating (NAG) and potentially acid generating (PAG) waste rock excavated from the pit is consigned to the NW PAG Dump.

The previous geotechnical assessment completed in May 2024 (WSP 2024b) was completed on a now superseded design, herein referred to as the superseded design. For convenience to the reader, the geotechnical assessment of the May 2024 NW PAG design (WSP 2024b) is provided in Attachment 1. The assessment presented in this memorandum is considered the relevant geotechnical assessment for the NW PAG Dump moving forwards.

3.0 DESIGN REVIEW

In the updated design, MPMC propose to increase the volume of material in the dump by increasing the height of the facility and by expanding the facility to the west and south. A comparison of the previous Design and the updated design is provided in Figure 1.

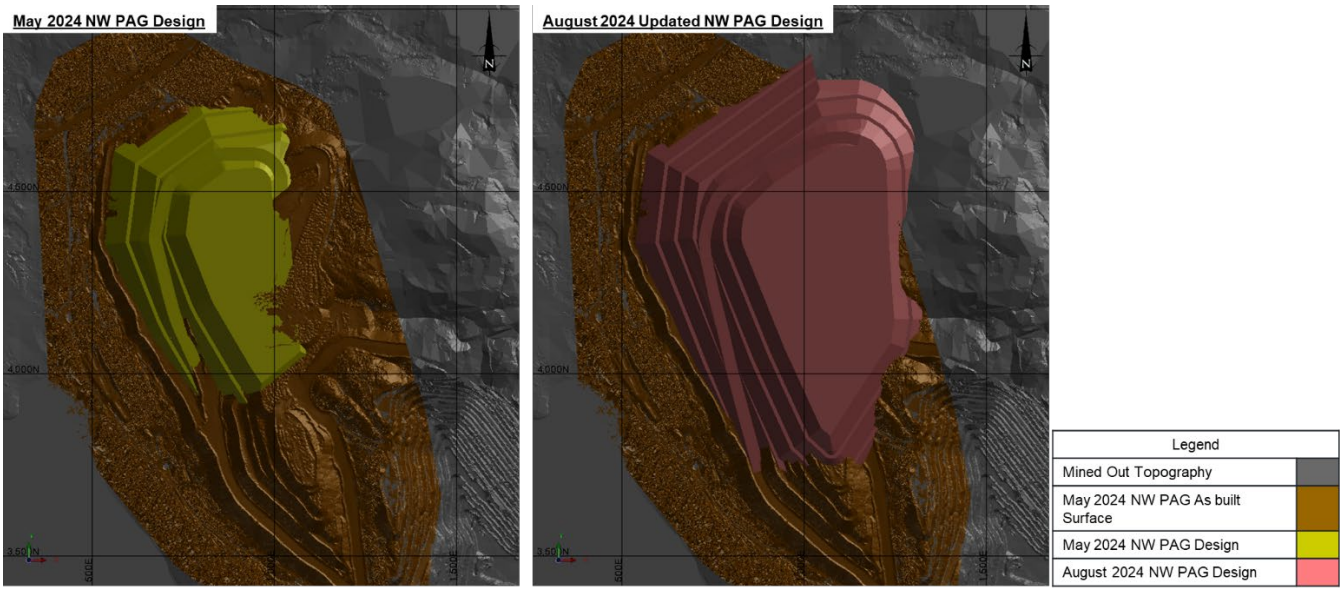


Figure 1: Comparison Between May 2024 NW PAG Design and August 2024 Updated NW PAG Design

The updated design includes the construction of five 30 – 40 m high benches to an ultimate height of 160 m. The updated design is approximately 1,250 m in the north to south and 875 m in the east to west direction. The crest of the design is located at an elev. of 1,180 m. The NW PAG Dump will be constructed from the bottom-up with angle of repose waste rock lift faces, 10 m wide catch-benches, and an overall slope angle of 30 degrees. The ultimate haul ramp will enter the NW PAG Dump from the southern portion of the dump and ascend across the slope face.

As compared to the previous design, the updated design includes a 30 m increase in height and an expansion to the east and south by up to 150 m.

A cross-section review of the updated design, including the previous design is included in Attachment 2.

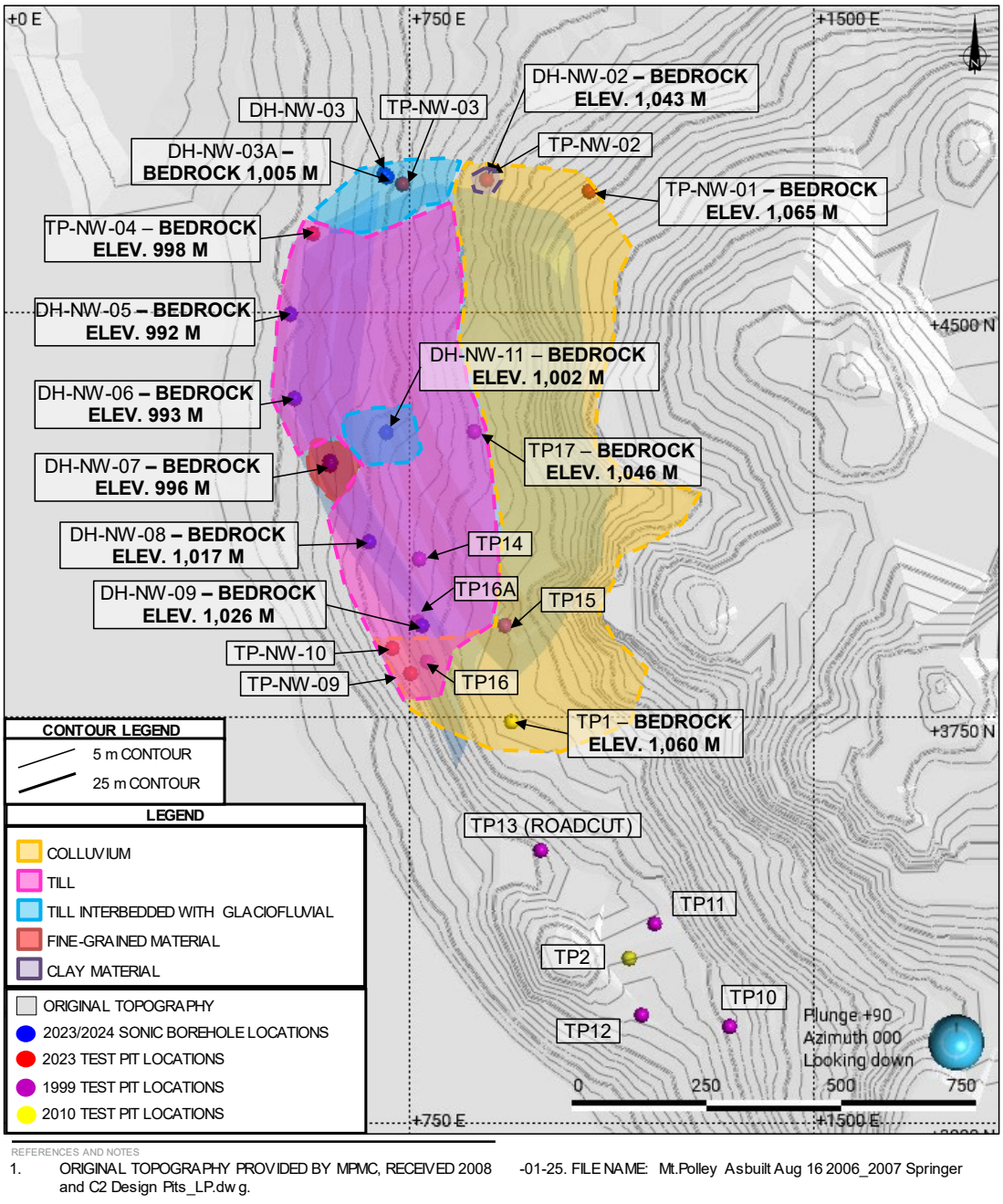
4.0 SITE FOUNDATION SUMMARY

To date, five foundation investigation programs have been completed within and around the footprint of the NW PAG Dump. As part of the May 2024 Geotechnical Assessment, the foundation in the area of the NW PAG Dump was interpreted using the available data. A detailed description of the interpretation can be found in WSP (2024b) and a brief summary of the expected stratigraphic sequence in the area of the NW PAG Dump is presented below:

- Topsoil.
- Colluvium – 1 m to 5 m.

- Glacial deposits.
  - Till: 3 m to at least 16 m.
  - Glaciofluvial deposits: up to 4 m.
  - Fine-grained material.
    - One unit 5 m thick encountered during the 2023/2024 geotechnical field investigation.
  - Clay material.
    - One unit 2.5 m thick encountered during the 2023/2024 geotechnical field investigation.
- Bedrock (Mount Polley Intrusive Complex) – to depth.

The surficial geology interpretation (WSP 2024b) is presented in Figure 2.



REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008 -01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.

Figure 2: Surficial Geology Interpretation in the Area of the Proposed NW PAG Dump (WSP 2024b)

As stated in Section 3.0, the Updated Dump Design includes an extension of the dump by approximately 150 m to the east and south. The previous foundation investigations have focused along the western toe of the proposed designs. Figure 3 shows the foundation investigation locations with the superseded design, the updated design, and the current extents of the as-built dump in the area.

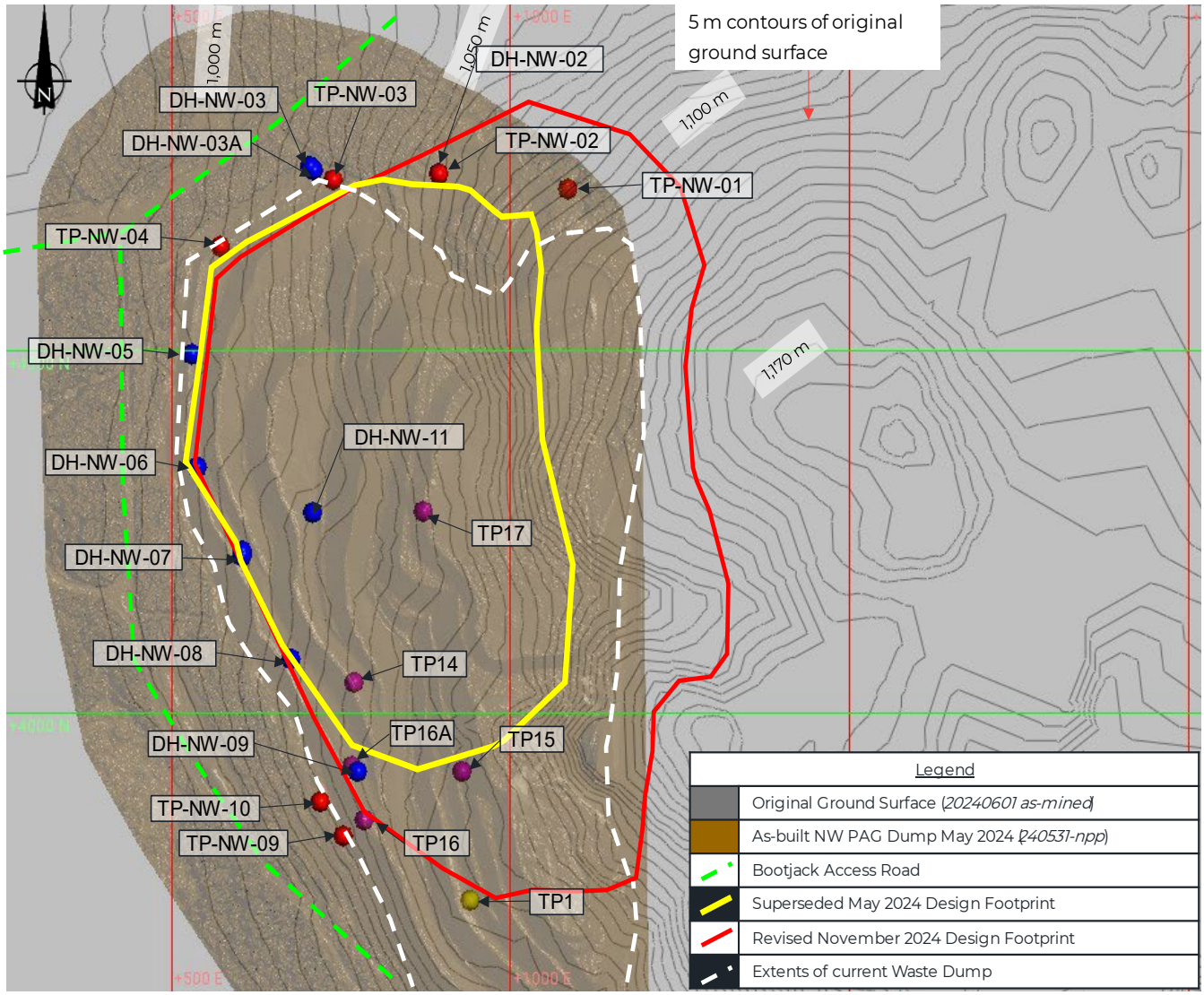


Figure 3: Foundation Investigations with As-built Configurations and Footprints of Superseded May 2024 Dump Design and Revised November 2024 Dump Design

As shown in the above figure, the eastern portion of the updated design includes an expansion to the east and south, into areas where there are no previous foundation investigations. The area to the west of the dump is located on a ridge that slopes to the west and in WSP (2024b) this ridge was interpreted to be composed of a thin layer of colluvium over bedrock, as logged in TP-NW-01. The dump foundation on the east side of the dump is similarly assumed to be colluvium as logged in TP-NW-01 due to the similar elevation and sloped topography.

In the surficial geology interpretation, presented in Figure 2, an isolated pocket of clay material was interpreted near TP-NW-02 and DH-NW-02 at the north end of the dump. The clay pocket was interpreted as isolated since it was not encountered in nearby test pits and the existing dump slope adjacent to the area has not shown signs of poor stability performance. The footprint comparison between the superseded design and the updated design in Figure 3 shows that the toe in the updated design is proposed to be advanced to the north, over the clay pocket, in the area. A discussion on how this locally may affect the stability of the dump is included in Section 7.0.

5.0 SLOPE STABILITY ASSESSMENT

The following sub-sections present the stability analyses considering the updated August 2024 NW PAG Dump design. Since these analyses are presented as an update to the May 2024 NW PAG Dump design, the stability analyses presented in WSP (2024b) are used as a starting point the assessment.

5.1 Slope Stability Rating and Hazard Classification

The Waste Rock Hazard Classification (WSRHC) system is based on Hawley and Cunning (2017) and incorporates many concepts that were used in the B.C. Mines Ministry 1991 dump slope stability classification guidelines (BCMWRPRC 1991). The WSRHC system requires evaluation of 22 key factors or attributes that affect slope stability of a waste rock dump. Numerical ratings are assigned to each factor, and the sum of these ratings defines the waste rock dump slope stability rating. The WSRHC is used to define the appropriate design acceptance criteria.

In WSP (2024b), the superseded design was classified as presenting a moderate potential for instability and was therefore considered to be a moderate hazard waste rock dump (Class III). WSP compared the updated design to the WSRHC and found no material change to the classification, as compared to WSP (2024b). As such, a moderate rating was used in the subsequent stability analyses.

5.2 Design Factors of Safety

In WSP (2024b) the design acceptance criteria were established using Hawley and Cunning (2017) in conjunction with the British Columbia Mine Rock and Overburden Piles Research Committee (BCMWRPRC) Investigation and Design Manual, Interim Guidelines (BCMWRPRC 1991). Since the updated design does not present a change in the hazard rating (Section 5.1), WSP considers design acceptance criteria in WSP (2024b) to be satisfactory for the updated stability assessment presented in Section 5.6. The design acceptance criteria are summarized in Table 1.

Table 1: Recommended Design Acceptance Criteria Factors of Safety for Proposed NW PAG Dump

Stability Condition	Static or Pseudo-static Condition	Minimum Design Factor of Safety	Source
Shallow-Seated Slope Stability of Dump Face.	Static – short-term	1.0	BCMWRPRC (1991) Case A
	Static – long-term	1.2	BCMWRPRC (1991) Case A
	Pseudo-static – long-term	1.0	BCMWRPRC (1991) Case A
Overall Deep-Seated Stability.	Static – short-term	1.4	Hawley and Cunning (2017) and BCMWRPRC (1991) Case A
	Static – long-term	1.5	BCMWRPRC (1991) Case A
	Pseudo-static – long-term	1.3	Hawley and Cunning (2017)

5.3 Site Seismicity

Mount Polley Mine is located in an area of relatively low seismicity in British Columbia. WSP developed a site-specific seismic hazard model for the Mount Polley Mine based on historical seismicity and a review of geological and paleo-seismological features (WSP USA 2023). Earthquake ground motion parameters calculated from the site-specific hazard model were adopted from WSP (2024b) and are presented in Table 2.

Table 2: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023)

Exceedance Probability	Return Period (years)	Peak Ground Acceleration (g)
5% in 50 years	1,000	0.026
2% in 50 years	2,475	0.048
1% in 50 years	5,000	0.076
0.5% in 50 years	10,000	0.116

Return periods are not exact representations of the annual exceedance probabilities.

5.4 Methodology and Assumptions

The 2D slope stability analyses were carried out using the Slope/W limit equilibrium analysis software (© 2023 Seequent). The Morgenstern-Price method of slices was employed to find potential failure surfaces and their corresponding FOS. The slope stability of the NW PAG Dump was assessed for both static and pseudo-static (seismic) loading conditions, with fully saturated foundation soils.

The following methodology and assumptions were considered for the slope stability analyses:

- In the stability analyses for the updated design, the same cross-sections were used as assessed in WSP (2024b). A summary of the cross-sections is provided below:
  - Cross-section E
    - Representing a high cross-sectional height with proximity to the Bootjack Access Road, the Settling Ponds, and Bootjack Lake.
  - Cross-section G
    - Representing the highest overall waste rock dump height from the cross-section review.
  - Cross-section J
    - Representing artesian conditions encountered at the north end of the proposed ultimate NW PAG Dump design in the glaciofluvial unit. Based on field observations a +3.5 m hydraulic head above the foundation soils was modelled, only applying to the glaciofluvial material.
    - Representing the isolated clay material identified in DH-NW-02. Based on field observations, the unit has been modeled as a 2.5 m thick layer.
- Each stability cross-section was assessed for the following conditions:
  - Overall deep-seated stability. Due to the position of the ramp on the dump slope, FOS results are presented for both overall failure modes (crest to toe) as well as failure modes starting at the ramp and ending at the toe (referred to as overall lower slopes).

  - Shallow-seated stability through the lower lift.
  - A shallow-seated inter-ramp stability model was completed for Cross-section E to show the internal stability of the design. This was not replicated for each cross-section as the inter-ramp angle is the same for each model.
- As per the analyses in WSP (2024b), the following sensitivity analyses were completed:
  - Cross-section G – till lower bound strength.
  - Cross-section J – clay material strength varied.
- The existing and new waste rock at the NW PAG Dump are considered free-draining and likely will not have excess pore pressures build up within the blasted rock. This is based on observations of other waste rock dumps on site, the performance to date of the NW PAG Dump, the proposed construction methodology of 40 m lifts bottom-up, the relatively small increase in overall height of the proposed ultimate NW PAG Dump, and on the conditions of the waste rock consigned to the dump.
- Organics and topsoil were not considered in the slope stability models as this material has been stripped from the foundation footprint of the NW PAG Dump (WSP 2023b).
- The foundation materials generally consist of colluvium, till, and glaciofluvial deposits, in addition to the pocket of fine-grained material and clay material in the area of the proposed ultimate NW PAG Dump design. The laboratory testing indicates that the till and colluvium have similar geotechnical properties, and these materials comprise the majority of the foundation materials. As such, for the purposes of slope stability modeling, till / colluvium was assumed as the major foundation material. Based on the 2023 and 2024 field investigations, the following approximate till / colluvium thicknesses were assumed:
  - Cross-section E: approximately 12 m thick till / colluvium layer at the NW PAG Dump toe, transitioning to a 29 m thick layer below the second and third lifts of the dump.
  - Cross-section G: approximately 9 m thick till / colluvium layer below the NW PAG Dump.
  - Cross-section J:
    - approximately 14 m thick till / colluvium layer with a 7 m thick glaciofluvial layer below.
    - approximately 2.5 m thick clay layer under the toe of the dump, into a 11.5 m thick layer of till / colluvium, then a 7 m thick glaciofluvial layer.
- Due to no advance testing having been completed on the clay material to be modeled along Cross-section J, a sensitivity analysis was completed for the isolated pocket of material by varying the shear strength to understand its impact on slope stability.
- The foundation materials were assumed to be saturated to original ground surface for the slope stability analyses. To model saturated conditions, a water table was included at the top of the foundation soils. These groundwater conditions are considered to be representative of periods of heavy precipitation, as occurs in the spring and fall. The proposed model conditions are also consistent with the VWP readings which indicate that groundwater is likely near or above original ground surface (WSP 2024b) and are based on observations of water seepage at the toe of the current NW PAG Dump.
- A sensitivity analysis was completed for Cross-section J with an elevated hydraulic head applied to the glaciofluvial deposit to assess artesian conditions.

- The bedrock below the foundation soils within the area of the proposed ultimate NW PAG Dump consists of hard and competent intrusive rock. The bedrock is expected to exhibit sufficient strength to prevent a foundation failure through the bedrock. As well, the bedrock has not been characterized for faults or weak layers at orientations that could result in instability. Therefore, the bedrock has been modeled as a hard, infinite strength layer in the slope stability analyses, which prevents the automated search routine from searching for potential failure surfaced below this hard layer.
- To model seismic conditions, the pseudo-static method of analysis was used. This method of analysis applies a horizontal force to the failure mass proportional to the design horizontal acceleration. To account for the non-rigid response of the foundation soils and waste rock, the horizontal seismic loading considered in the assessment was one-half the peak ground acceleration (Hynes-Griffin and Franklin 1984). A 2% in 50 years or a 1-in 2,475-year return period earthquake event was used to assess long-term stability of the NW PAG Dump, to satisfy guidelines provided in industry (Hawley and Cunning 2017, BCMWRPRC 1991). The design PGA is 0.048 for the 2,745-year return period.
- No reduction has been applied to the strength parameters for the foundation materials. The foundation materials are expected to generally be dense. Due to the relatively low lift heights proposed to be constructed, pore water pressure generation is not anticipated (Hynes-Griffin and Franklin 1984), and the waste rock is expected to be free-draining.
- Due to the uncertainty regarding the strength of the clay material, the sensitivity analysis was deemed sufficient to review strength reduction for the material.

5.5 Material Strength Properties

The material strength properties used in the slope stability analyses of the proposed updated design are based on parameters used in WSP (2024b) and are summarized in Table 3.

Table 3: Material Strength Properties Selected for Slope Stability Analyses

Material	Unit Weight (kN/m^3)	Strength Model Type	Strength Parameters
Waste Rock	19.6	Non-linear strength curve	$\tau = 1.726\sigma^{0.899}$
Colluvium / Till	22	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = 34º
			Cohesion = 0 kPa Friction angle = 32.5º
Glaciofluvial	22	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = 34º
Fine-grained Material	20	Mohr-Coulomb	Same parameters as colluvium / till.
Clay Material	20	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = varied from 20 to 35º
Bedrock	26	Impenetrable / Infinite Strength	Did not model failure surfaces through bedrock.

τ = shear strength, σ = normal stress.

5.6 Slope Stability Analysis Results

The following slope stability modelling scenarios were completed for the proposed ultimate NW PAG Dump cross-sections:

- Base Case – Lower lift configuration slope stability (static and pseudo-static).
- Base Case – Ultimate configuration slope stability (static and pseudo-static).
- Sensitivity analyses (static and pseudo-static):
  - Cross-section G – till lower bound strength.
  - Cross-section J – artesian conditions.
  - Cross-section J – clay material strength varied.

The results of the slope stability analyses are presented in Attachment 3 and are summarized in Table 4.

Table 4: Results of Slope Stability Analyses for the Proposed August 2024 NW PAG Dump Design Update

Cross-section	Slope Stability Condition	Target Static FOS (short- and long-term)	Indicated FOS	Target Pseudo-static FOS (long-term)	Indicated FOS	Attachment 3, Figure Number
Cross-section E	Overall	1.5	1.58	1.3	1.49	3-1
	Overall – Lower		1.52		1.47	3-2
	Shallow-seated	1.2	1.70	1.0	1.65	3-3
	Lower Lift		1.44		1.37	3-4
Cross-section G	Overall	1.5	1.62	1.3	1.54	3-5
	Overall – Lower		1.49		1.46	3-6
	Lower Lift	1.2	1.51	1.0	1.44	3-7
Cross-section G (*till sensitivity*)	Overall	1.5	1.57	1.3	1.49	3-8
	Overall – Lower		1.46		1.38	3-9
	Lower Lift	1.2	1.46	1.0	1.38	3-10
Cross-section J (*artesian conditions*)	Overall	1.5	1.54	1.3	1.46	3-11
	Overall – Lower		1.50		1.41	3-12
	Lower Lift	1.2	1.51	1.0	1.43	3-13
Cross-section J *Clay material: phi = 35 degrees*	Overall	1.5	1.72	Did not complete pseudo-static analyses for sensitivity analysis.		3-14, 3-15, 3-16
	Overall – Lower		1.54			
	Lower Lift	1.2	1.48			
Cross-section J *Clay material: phi = 30 degrees*	Overall	1.5	1.60			
	Overall – Lower		1.53			
	Lower Lift	1.2	1.33			
Cross-section J *Clay material: phi = 25 degrees*	Overall	1.5	1.52			
	Overall – Lower		1.4			
	Lower Lift	1.2	1.15			
Cross-section J *Clay material: phi = 20 degrees*	Overall	1.5	1.46			
	Overall – Lower		1.23			
	Lower Lift	1.2	0.95			

The results of the stability analyses show that the updated design is expected to achieve the target factors of safety for all three assessed cross-sections for both deep-seated and shallow failure modes.

The results show that the increase in dump height proposed in the updated design does not significantly change the expected performance of the dump. This is likely due to the assumed good quality soils in the foundation and the proposed catch benches between each angle of repose lift, as concluded in WSP (2024b). analyses.

The sensitivity analyses completed in WSP (2024b) were also assessed for the updated design to assess if the increased spoil height significantly impacts the expected results. The results of the sensitivity analyses are summarized below:

- **Lower bound till strength parameters:** the results for the slope stability analyses indicate that for a lower bound till strength, the achieved FOS for the updated design is 1.46 in the overall lower slope which is below the target FOS of 1.50.
- **Artesian conditions:** the results for the slope stability analyses indicate that for artesian conditions in the glaciofluvial deposits, the updated design is expected to exhibit adequate slope stability.
- **Clay material strength parameters:** the results for the slope stability analyses indicate that when varying the strength of the clay material, the design criteria is met for both overall and lower lift stability at a phi of 30 and 35 degrees. For a phi of 20 and 25 degrees, the FOS values calculated in the sensitivity analyses are below the target FOS for both overall and lower lift scenarios. Graphs of the results for the overall and lower lift slope stability comparing FOS and strength (phi) are presented in Figures 4 and 5.

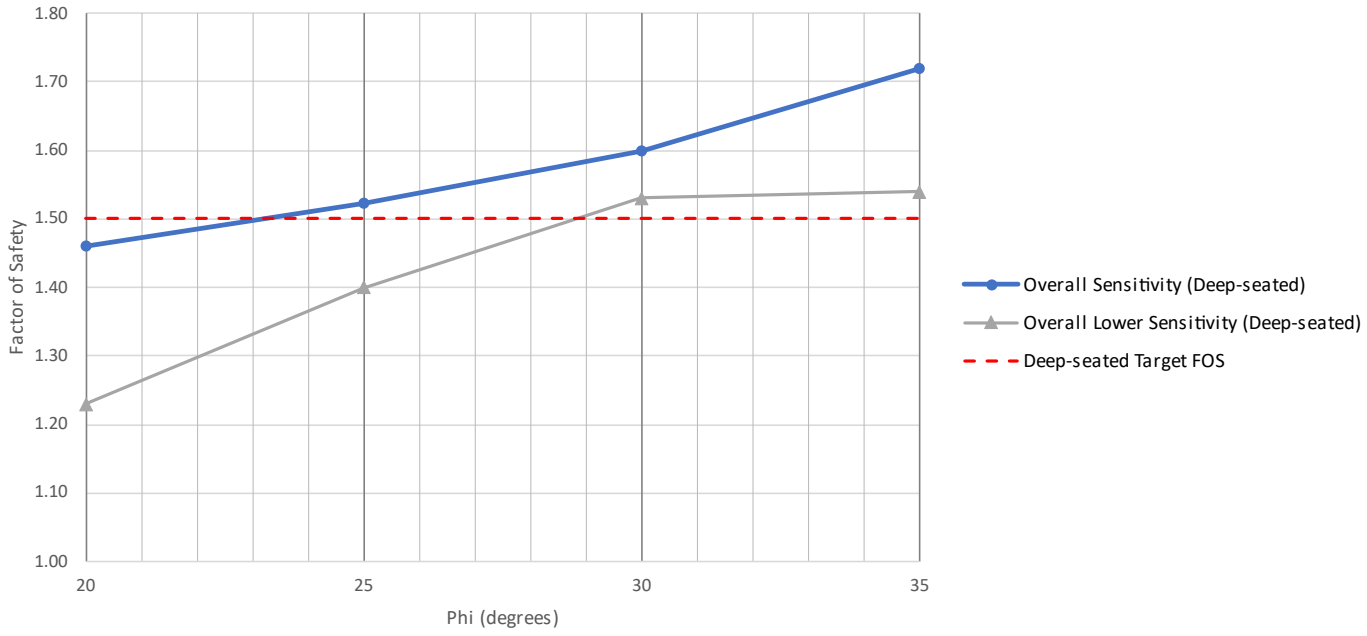


Figure 4: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis – Overall

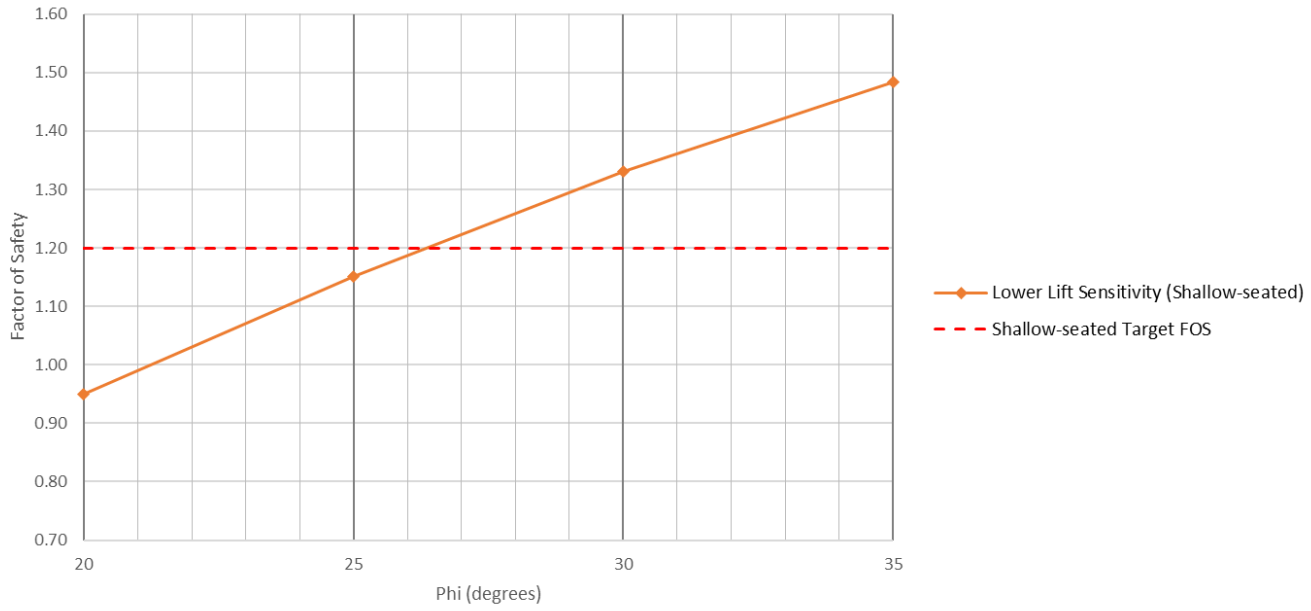


Figure 5: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis – Lower Lift

6.0 ROCK ROLL OUT ASSESSMENT

A rock rollout assessment was completed for the updated design using the crest of the lower lift of the dump. The predicted rollout distances are based on projecting a 23-degree shadow from the crest of the lowest lift to the topography below the lift (Golder & Hungr 1994). The rollout shadow for the proposed updated design is plotted over the May 2024 As-built topography Figure 6 and over the as-mined topography, including the ultimate proposed Springer Pit design, in Figure 7.

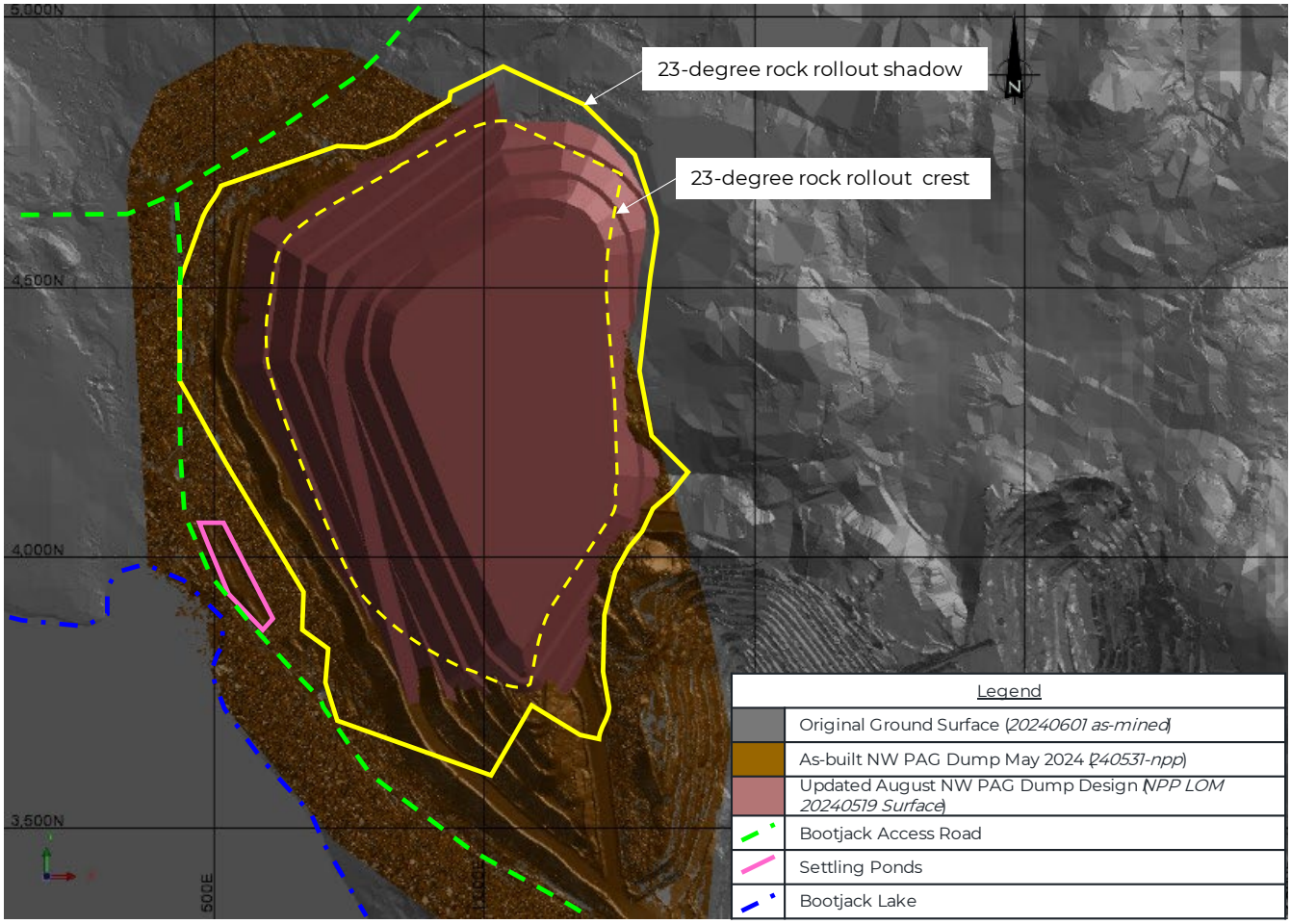


Figure 6: Rock Rollout Shadow for the Updated November 2024 NW PAG Updated Dump Design

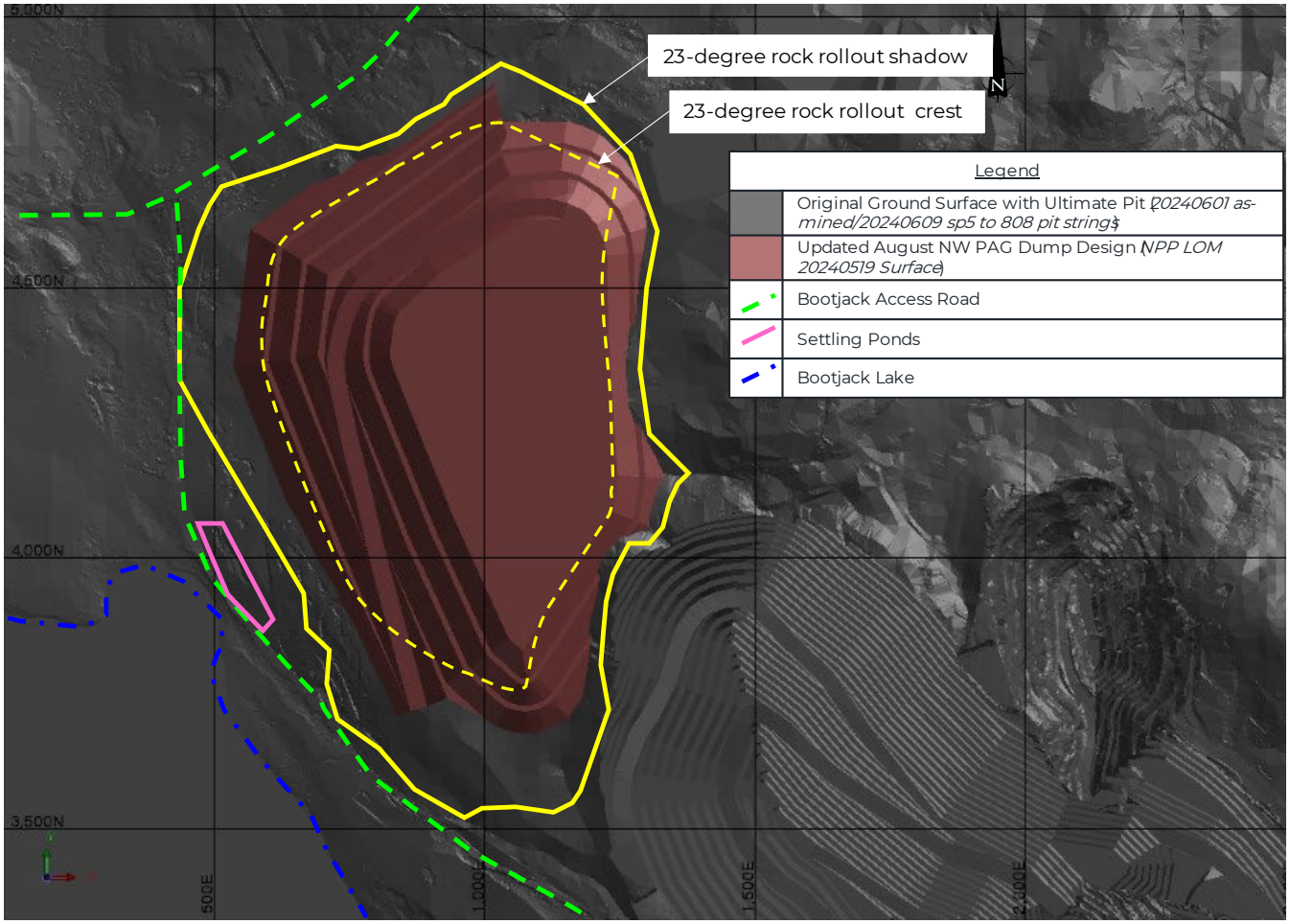


Figure 7: Rock Rollout Shadow for Updated November 2024 NW PAG Updated Dump Design Including Ultimate Springer Pit Design

The rock rollout assessment for the proposed updated design indicates the Bootjack Access Road in the northwest corner of the dump is at risk of being struck by rock rollout during construction / advance of the first lower PAG lift over the smaller NAG lift.

The rock rollout assessment considering the Ultimate Springer Pit Crest shows that the pit crest encroaches on the expected rock rollout distance at the southeast end of the dump. For recommendations on the dump / pit interaction, refer to Section 7.0.

It is expected that rock rollout will not be an issue for the subsequent lifts as free dump piles will be established along the top of each lift. Experience has shown that free dump piles are likely to contain rocks that roll down the face of subsequent lifts as they are constructed.

The rock rollout potential of the proposed ultimate NW PAG Dump should be monitored as the dump is being constructed. If rocks reach the Bootjack Access Road, Springer Pit, or other infrastructure despite the efforts of constructing free dump piles and crest berms on the benches of the individual lifts, it may be necessary to consider additional rock rollout mitigation structures or to adjust the design of the dump.

7.0 RECOMMENDATIONS AND CONCLUSIONS

This geotechnical assessment was completed on the updated design which was provided by MPMC as an updated design to the geotechnical assessment completed by WSP in May 2024 (WSP 2024b). The November updated design includes an increase of the overall dump height by approximately 30 m and an expansion of the dump to the east and south by approximately 150 m. On the western and northern end of the dump, the location of the toe is not expected to change with the updated design.

In the area of the western expansion of the updated design, the foundation is a local high point in topography which has been interpreted to be composed of a relatively thin layer of colluvium over bedrock, as per TP_NW-01 (WSP 2024a). During construction of the spoil, it is understood that MPMC plans to prepare the foundation in this area by stripping the topsoil and colluvium. During the site preparation activities, MPMC should note if any significant deviations from this interpretation are encountered, especially with regards to fine-grained, clay layers in the foundation.

Based on the Hawley and Cunning (2017) WSRHC system, the proposed updated design is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III).

The slope stability analyses results for the proposed ultimate updated design indicate that the dump will meet the design acceptance criteria for slope stability under static and pseudo-static conditions with the exception of the sensitivity analyses completed on the reduced till strength and on the low clay strength parameters.

The results of the lower bound till strength sensitivity analysis suggests that areas of the dump may exhibit FOS slightly less than the stated design acceptance criteria of FOS = 1.5 where the till exhibits lower bound strengths. Further investigation, testing, and interpretation would be required to effectively delineate areas where lower bound weaker materials may exist and to determine remedial design requirements, if any.

The low clay strength sensitivity analyses indicates that the dump may not meet the required design acceptance criteria in the area where the clay pocket is interpreted to exist. Since the updated design includes an expansion of the dump toe into an area with the clay material, the recommendations stated in WSP (2024b) should be followed. These recommendations include the following:

- Remove the clay material prior to dumping in this area.
  - The current NW PAG Dump does not cover the area where DH-NW-02 was drilled. The clay material was encountered in an old borrow area, therefore, more material could be removed from the borrow area to key into the till material below.
- Add a buttress to the toe of the slope in this area to increase the FOS above the clay material.
- When constructing in the area of the clay, use low lift heights (about 5 m) when constructing the lower NAG lift in this area to limit development of potential excess pore pressures and not rapidly load the clay material.
  - When constructing the low lifts, advancement could be such that the borrow area is encapsulated . Once the area is encapsulated, waste rock can then be dumped into the encircled area. This method provides lateral support from the surrounding topography and the dump prior to dumping on top of the borrow area.

The rock rollout assessment indicated that the bootjack access road my be impacted by rolling rocks during construction. It is therefore recommended that access to the Bootjack Access Road in this area be restricted / closed during the construction of the lowest PAG lift and free-dump piles be used at the crest of subsequent lifts to limit further rollout.

A runout assessment was not completed in these updated analyses as the runout assessment completed in WSP (2024b) found that a runout style failure could impact the Bootjack Access Road and the Settling Ponds. As such, all provided construction recommendations in WSP (2024b) are considered relevant for the updated design.

The interaction of the NW PAG Dump and the Springer Pit will be critical during the construction of the dump as the ultimate Springer Pit crest is proposed to be approximately 40 m from the toe of the NW PAG Dump. The rock rollout assessment (Section 6.0) showed that the ultimate pit crest is located right at the edge of the impact zone at the toe of the southeast slope. As recommended in the Life of Mine Open Pit Design Review (WSP 2024c), a rock rollout catchment berm should be constructed at the toe of the dump as well as along the inside edge of the haul road that will enter the proposed pit form the west side of the pit to provide additional catchment.

Furthermore, a runout assessment was not completed for runout style failure into the ultimate Springer Pit but due to the proximity of the pit to the dump, a runout style failure is considered likely to enter the pit. As a result, it is also recommended that MPMC follow a robust safe work procedure for pit operations when dumping is occurring directly above the pit crest (i.e., no personnel in the pit when dumping is occurring directly above the pits) and that the pit slope in this area is monitored frequently when operations are occurring below.

As stated in Section 1.0, this memorandum presented a geotechnical analysis of the updated design and should be considered the working design document for the NW PAG Dump. However, many of the other aspects of the dump design are not covered in this memorandum and should be referenced in WSP (2024b) when constructing the design. These items include:

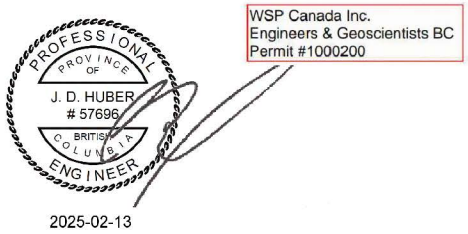
- Description of available data and previous site investigations.
- In depth interpretation of the foundation and regional geology.
- Review of possible instability mechanisms.
- Assessment for the liquefaction potential of the foundation materials.
- Potential settlement issues.
- Construction and operation recommendations.
- Topsoil management.
- Monitoring and surveillance.

8.0 CLOSURE

The reader is referred to the Study Limitations section, which follows the text and forms an integral part of this memorandum.

We trust this report satisfies your current requirements. If you have any questions or require further assistance, please do not hesitate to contact the undersigned.

WSP Canada Inc.



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Attachments: Attachment 1: May 2024 Northwest Potentially Acid Generating Dump Geotechnical Assessment
Attachment 2: Cross-sections Review
Attachment 3: Slope Stability Analyses

https://wsponline.sharepoint.com/sites/gld-10023g/ca00205274505 deliverables/002_issued/099-tm-75192-nwpag dump geotech assessment/rev0/ca0020527.4505-099-tm-rev0-75192-nwpag dump geotech assessment 13feb_25.docx

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STUDY LIMITATIONS

WSP Canada Inc.(“WSP”) prepared this report solely for the use of the intended recipient, Mount Polley Mining Corporation, in accordance with the professional services agreement between the parties. In the event a contract has not been executed, the parties agree that the WSP General Terms for Consultant shall govern their business relationship which was provided to you prior to the preparation of this report.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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In preparing this report, WSP has relied in good faith on information provided by others, as noted in the report. WSP has reasonably assumed that the information provided is correct and WSP is not responsible for the accuracy or completeness of such information.

Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. The number of testing and/or sampling locations may not be sufficient to determine all the factors that may affect construction methods and costs. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

Overall conditions can only be extrapolated to an undefined limited area around these testing and sampling locations. The conditions that WSP interprets to exist between testing and sampling points may differ from those that actually exist. The accuracy of any extrapolation and interpretation beyond the sampling locations will depend on natural conditions, the history of Site development and changes through construction and other activities.

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This limitations statement is considered an integral part of this report.

ATTACHMENT 1

May 2024 Northwest Potentially Acid Generating Dump Geotechnical Assessment

REPORT

Northwest Potentially Acid Generating Dump Geotechnical Assessment

Mount Polley Mine

Submitted to:

Mount Polley Mining Corporation

PO Box 12
Likely, BC
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Attention: Richard Tuohey, Chief Engineer

Submitted by:

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840 Howe Street, Suite #1000,
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Reference No. CA0020527.4505-037-R-Rev0-75192

May 7, 2024

Distribution List

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Executive Summary

Mount Polley Mining Corporation (MPMC) operates a copper/gold open pit mining operation located 8 km southwest of the town of Likely and 56 km northeast of Williams Lake in central British Columbia. Mining is currently being carried out in the Springer Pit, and non-acid generating (NAG) and potentially acid generating (PAG) waste rock excavated from the pit will be consigned to the Northwest PAG Dump (NW PAG Dump).

MPMC retained WSP Canada Inc. (WSP) to carry out a geotechnical assessment of an updated proposed ultimate design of the NW PAG Dump. In September 2023, December 2023, and January 2024, WSP carried out a test pit and drilling program for foundation investigations within and around the proposed footprint of the ultimate NW PAG Dump. A summary of the 2023/2024 investigation and laboratory testing results is presented in a field data report (WSP 2024b).

This report provides:

- a description of the existing NW PAG Dump and previous slope stability performance
- a description of the proposed ultimate NW PAG Dump
- a summary of previous geotechnical field investigations
- a description of the site foundation conditions, and of engineering geology of the expected foundation materials and waste rock
- the factors that are expected to control the stability of the proposed ultimate NW PAG Dump
- discussion of the results of the slope stability analyses
- discussion of the results of the runout analyses
- discussion of the results of the rollout assessment
- a summary of recommendations regarding construction and operational procedures that are intended to enhance the short and long-term stability of the proposed ultimate NW PAG Dump

Current Performance

The NW PAG Dump has been reviewed for slope stability performance annually since 2012 during the annual slope stability reviews completed by Golder/ WSP. In general, the NW PAG Dump has exhibited good slope stability performance over the years with minor areas of deformation that have been managed by MPMC.

Proposed Development

The proposed NW PAG Dump development includes construction of three 40 to 50 m lifts above the current north lobe of the NW PAG Dump. The NW PAG Dump will be constructed from the bottom-up with angle of repose waste rock lift faces, 10 m wide catch-benches, and an overall slope angle of 28 degrees. The ultimate haul ramp will enter the NW PAG Dump from the southern portion of the dump and ascend across the slope face.

Geotechnical Field Investigations

To date, five foundation investigation programs have been completed within and around the footprint of the NW PAG Dump. Test pits were excavated for geotechnical programs completed in 1999, 2010, and 2023, and boreholes drilled for geotechnical programs were completed in 2023 and 2024. Geotechnical laboratory testing was completed on samples from the 1999, 2023, and 2024 geotechnical field investigations.

Site Characterization and Engineering Geology

The local surficial geology consists of Quaternary glacial deposits overlain by fill/anthropogenic deposits. Based on the foundation materials and cross-section review the following summarizes the surficial geology interpretation:

- Colluvium is interpreted to be a thin veneer underlying the eastern slope of the NW PAG Dump, with localized areas of thicker colluvium layers to the southwest of the dump footprint.
- Till is interpreted to cover the majority of the NW PAG Dump footprint, with variable thickness.
- Glaciofluvial deposits are located in isolated areas at the north end of the dump and near the center. Till typically overlies the glaciofluvial deposits.
- Fine-grained material is interpreted to be present in an isolated area on the west side of the NW PAG Dump at depth and is overlain by till. This material has been modeled as part of the till. It is possible that fine-grained material could be located in other parts of the foundation of the NW PAG Dump that were not investigated.
- Clay material is interpreted to be present in an isolated area on the northeast side of the NW PAG Dump about 0.9 m below original ground surface and is discontinuous (interbedded with silty clay). This material has been modeled as a separate unit as a sensitivity analysis.

Summary and Recommendations

Based on the Hawley and Cunning (2017) waste rock dump slope stability rating and hazard classification system, the proposed ultimate NW PAG Dump is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III).

The slope stability analyses results for the proposed ultimate NW PAG Dump design indicate that the dump will meet the design acceptance criteria for slope stability under static and pseudo-static conditions, with the exception of analyses completed with low clay material strength parameters (a phi less than about 27 degrees). The clay material was encountered in an isolated “pocket” north of the current toe of the dump in DH-NW-02 and was not found in the adjacent boreholes and test pits (DH-NW-03, DH-NW-03A, TP-NW-01, TP-NW-02, and TP-NW-03). No investigations have been completed immediately beneath the toe of the NW PAG Dump in this area as access is limited. The material was inferred to be discontinuous/interbedded with silty clay. The area of the current NW PAG Dump near where the clay material was encountered is stable, and has been since construction, indicating that at least a FOS of 1.0 is being achieved. Recommendations for construction near the clay material include:

- Remove the clay material prior to dumping in this area (even though the toe of the proposed ultimate NW PAG Dump does not cover the area where DH-NW-02 was drilled). The clay material was encountered in an old borrow area, therefore, more material could be removed from the borrow area to key into the till material below.

- Use low lift heights (about 5 m) when constructing the lower NAG lift in this area to limit development of potential excess pore pressures and not rapidly load the clay material if it does exist further south beneath the proposed ultimate NW PAG Dump design toe.
    - When constructing the low lifts, advancement could be such that the borrow area is encapsulated (where the potential clay material exists if it extends as far south as the proposed ultimate NW PAG Dump footprint). Once the area is encapsulated, waste rock can then be dumped into the encircled area. This method provides lateral support from the surrounding topography and the dump prior to dumping on top of the borrow area.

The runout analyses results indicate that under wet foundation conditions, it is likely that failure debris would impact the Bootjack Access Road and settling ponds. Based on the slope stability performance of the NW PAG Dump over the past 12 years, and on the slope stability analyses carried out for the proposed ultimate NW PAG Dump design, there is a low probability that a failure would occur in the NW PAG Dump due to the relatively high FOS indicated by the slope stability analyses.

Rock rollout could impact the Bootjack Access Road.

Settlement of the NW PAG Dump is expected to be limited and manageable.

Recommendations for the proposed ultimate NW PAG Dump construction include:

- Controlled loading rates
    - Prism and VWP data along with visual inspections and daily loading rates can all be used to understand if loading rates are having an adverse affect on dump construction.
- While constructing the NW PAG Dump, dumping operations should avoid concentrated dumping at a single location and should use as wide a strike length along the slope face as possible while advancing a lift.
- Construct berms at the edge of each catch-bench and free dump along the entire lift prior to constructing the next lift to limit rock rollout.
- Follow Standard Operating Procedures at Mount Polley Mine for:
    - Grading the dump and avoid ponding water on platforms.
    - Controlling the placement of waste rock being used for construction. The waste rock type should be discussed and planned in collaboration with geology and short-range engineering, as required.
      The material consigned to the NW PAG Dump should be good quality waste rock that is hard, coarse rock. Poor-quality material such as fault or overburden materials should be dumped in a central location of the dump such that it can be encapsulated and covered with good quality waste rock.

The stability of the NW PAG Dump slopes is being monitored by prisms (MPMC 2021). The prisms should be measured by the MPMC survey team on approximately a monthly basis for the active NW PAG Dump. Survey personnel should continue to ensure consistency in readings and use the same setup and monitoring procedures for each set of measurements. This will improve the ability to detect localized and short-term displacements as well as develop more accurate interpretations of long-term settlement trends. If any significant storm events occur that exceeds a five-year return period or daily maximum precipitation, the prisms should be read. Daily temperature and barometric pressure corrections should be applied to the monitoring data, as rapid changes in temperature or barometric pressure can have a significant impact on the day-to-day accuracy of the data.

A key component to the safe operation of the proposed ultimate NW PAG Dump to mitigate instability will be regular visual inspections. The following operational procedures are recommended for the proposed ultimate NW PAG Dump:

- The proposed ultimate NW PAG Dump should be visually inspected and photo-documented on a regular basis during construction, on approximately a weekly basis. The pit shifter or the geotechnical engineer should be completing the formal visual inspections. The following information should be investigated and recorded:
  - The crests of the NW PAG Dump lifts should be examined for signs of cracking and localized settlement and ponding water.
  - The faces of the NW PAG Dump lifts should be examined for signs of oversteepening, bulging in the middle, seepage, erosion, and the toe of the dump if it can be observed for signs of deformation.
  - The type of material being placed on the NW PAG Dump lifts and the loading rates should be documented.
- Dozer and haul truck operators should be continuously observing the construction of the NW PAG Dump lifts for signs of instability and reporting their observations to their pit shifter.

Study Limitations

WSP Canada Inc. (WSP) has prepared this document in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this document. No warranty, express or implied, is made.

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Table of Contents

EXECUTIVE SUMMARY ..... **ii**

STUDY LIMITATIONS ..... **v**

1.0 INTRODUCTION **1**

2.0 EXISTING NORTHWEST POTENTIALLY ACID GENERATING DUMP AND PREVIOUS SLOPE STABILITY PERFORMANCE **2**

3.0 PROPOSED ULTIMATE NORTHWEST POTENTIALLY ACID GENERATING DUMP DESIGN **5**

4.0 SUMMARY OF GEOTECHNICAL FIELD INVESTIGATIONS **6**

4.1 1999 Geotechnical Field Investigation 6

4.2 2010 Geotechnical Field Investigation 7

4.3 2023 and 2024 Geotechnical Field Investigations 7

4.4 Geotechnical Laboratory Testing of Foundation Soils 10

5.0 SITE CHARACTERIZATION AND ENGINEERING GEOLOGY **11**

5.1 Regional Geomorphological Setting 11

5.2 Topography 11

5.3 Regional Surface Geology 11

5.4 Local Surficial Geology 12

5.4.1 Colluvium 13

5.4.2 Till 13

5.4.3 Glaciofluvial Deposits 15

5.4.4 Fine-Grained Material 15

5.4.5 Clay Material 17

5.4.6 Bedrock 18

5.5 Waste Rock 18

5.6 Groundwater 19

5.7 Site Seismicity 21

5.8 Cross-Section Review 21

5.9 Surficial Geology Interpretation 23

6.0 SLOPE STABILITY ASSESSMENT 24
6.1 Slope Stability Rating and Hazard Classification 24
6.2 Instability Mechanisms 25
6.3 Potential Liquefaction 26
6.4 Design Factors of Safety 27
6.5 Slope Stability Methodology and Assumptions 31
6.6 Material Strength Properties 33
6.7 Slope Stability Analyses Results 34
7.0 PREDICTIVE RUNOUT ASSESSMENT 38
7.1 Predictive Runout Assessment Methodology 38
7.2 Predictive Runout Assessment Failure Surfaces 38
7.3 Predictive Runout Assessment Material Properties 39
7.4 Predictive Runout Assessment Results 40
8.0 ROCK ROLLOUT ASSESSMENT 41
9.0 SETTLEMENT 42
10.0 CONSTRUCTION AND OPERATIONAL CONSIDERATIONS 43
10.1 Construction Recommendations 43
10.2 Topsoil Management 43
10.3 Slope Stability Monitoring 43
11.0 SUMMARY AND RECOMMENDATIONS 45
12.0 CLOSURE 47

TABLES

Table 1: Previous Slope Stability Performance of the NW PAG Dump 3
Table 2: 1999 Field Investigation Summary (after Golder 2010a) 6
Table 3: 2010 Field Investigation Summary (after Golder 2010b) 7
Table 4: Depth to Bedrock Logged During 2023 and 2024 Field Investigations (after WSP 2024b) 9
Table 5: Summary of Index Test Results for Colluvium (after WSP 2024b) 13
Table 6: Summary of Index Test Results for Till (after WSP 2024b) 14

Table 7: Summary of Index Test Results for Glaciofluvial Deposits 15
Table 8: Summary of Index Test Results for the Fine-Grained Material 16
Table 9: Summary of Index Test Results for Clay Material 17
Table 10: Shear Strength Functions for Waste Rock (after Hawley and Cunning 2017) 19
Table 11: Summary of Vibrating Wire Piezometers and Approximate Groundwater Elevations for NW PAG Dump 20
Table 12: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023) 21
Table 13: NW PAG Stability Rating and Hazard Classification Results 24
Table 14: BCMWRPRC (1991) Recommended Factors of Safety for Waste Rock Dumps 28
Table 15: Suggested Stability Criteria Factors of Safety (Hawley and Cunning 2017) 29
Table 16: Recommended Design Acceptance Criteria Factors of Safety for Proposed Ultimate NW PAG Dump 31
Table 17: Material Strength Properties Selected for Slope Stability Analyses 33
Table 18: Results of Slope Stability Analyses for the Proposed Ultimate NW PAG Dump Design 35
Table 19: Summary of Predictive Runout Models and Corresponding Slope Stability Models 39
Table 20: Material Properties for the Predictive Runout Analyses of the NW PAG Dump 39
Table 21: Summary of Predictive Runout Analyses Results for the NW PAG Dump 40

FIGURES

Figure 1: Mount Polley Mine NW PAG Dump Site Location 51
Figure 2: October 2023 Topography of NW PAG Dump 52
Figure 3: Proposed Ultimate NW PAG Dump Design 53
Figure 4: October 2023 Topography Field Investigation Locations 54
Figure 5: Foundation Slope Dip Showing Proposed Ultimate NW PAG Dump Footprint And Field Investigation Locations 55
Figure 6: Stratigraphic Column Mount Polley Mine Area 56
Figure 7: Non-Linear Shear Strength of Rockfill from Triaxial Tests After Leps (1970) 57
Figure 8: Surficial Geology Interpretation for Proposed Ultimate NW PAG Dump Design Area 58
Figure 9: Rock Rollout Shadow for Proposed Ultimate NW PAG Dump Design 59
Figure 10: Waste Rock Dump Prism Monitoring Data Interpretation Criteria 60

ILLUSTRATIONS

Illustration 1: Proposed Ultimate NW PAG Dump Slope Stability Rating and Hazard Classification.....25

Illustration 2: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Overall.....36

Illustration 3: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Lower Lift.....37

APPENDICES

APPENDIX A
Slope Stability Performance Photographs

APPENDIX B
Cross-Section Review

APPENDIX C
Particle Size Distribution and Atterberg Limits Summary

APPENDIX D
Cone Penetration Testing Data Review

APPENDIX E
Hydrogeology Summary and Vibrating Wire Piezometer Data

APPENDIX F
Hazard Classification

APPENDIX G
Slope Stability Analyses

APPENDIX H
Runout Analyses

1.0 INTRODUCTION

Mount Polley Mining Corporation (MPMC) operates a copper/gold open pit mining operation located 8 km southwest of the town of Likely and 56 km northeast of Williams Lake in central British Columbia (BC). Mining is currently being carried out in the Springer Pit, and non-acid generating (NAG) and potentially acid generating (PAG) waste rock excavated from the pit will be consigned to the Northwest PAG Dump (NW PAG Dump).

A waste rock dump on the west side of the property was originally permitted in 1995 (Imperial 1995). In 2012, MPMC submitted a permit amendment for this waste rock dump (at the time called the temporary West Stockpile for PAG waste), requesting an increase in capacity from 15 Mt to 45 Mt (MPMC 2012). In 2013, Golder Associates Ltd. (Golder) conducted a geotechnical review of an updated design provided by MPMC for the Northwest Dump (Golder 2013a). After Golder submitted the geotechnical review of the Northwest Dump, MPMC modified the configuration of the dump. Golder provided an addendum technical memorandum summarizing updated slope stability analyses of the modified dump configuration (Golder 2013b).

MPMC retained WSP Canada Inc. (WSP) to carry out a geotechnical assessment of an updated proposed ultimate design of the NW PAG Dump. In September 2023, December 2023, and January 2024, WSP carried out a test pit and drilling program for foundation investigations within and around the proposed footprint of the ultimate NW PAG Dump. A summary of the 2023/2024 investigation and laboratory testing results is presented in a field data report (WSP 2024b).

This report provides:

- a description of the existing NW PAG Dump and previous slope stability performance
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- discussion of the results of the rollout assessment
- a summary of recommendations regarding construction and operational procedures that are intended to enhance the short and long-term stability of the proposed ultimate NW PAG Dump

This report is to be read with the Study Limitations Section, which precedes the text and forms an integral part of this report.

2.0 EXISTING NORTHWEST POTENTIALLY ACID GENERATING DUMP AND PREVIOUS SLOPE STABILITY PERFORMANCE

The NW PAG Dump is located at the northwest end of the mine property to the west of the Springer Pit (Figure 1). Figure 2 shows the October 2023 configuration of the NW PAG Dump.

Golder/WSP has not provided construction quality assurance for the NW PAG Dump, rather Golder/WSP has provided geotechnical slope stability reviews of proposed ultimate designs provided by MPMC and slope stability reviews as construction has progressed during annual inspections.

The dump is separated into two areas, the south and north lobes. The south lobe was constructed between 2012 and 2013. MPMC indicated that trees were logged, and the topsoil was stripped from the foundation prior to construction of three lifts of NAG rock (each approximately 5 m high) which were advanced to the north (Golder 2013c). PAG rock was end-dumped on top of the NAG lifts in four 25 m high lifts from the bottom up to elev. 1,135 m. The south lobe is founded on gently to moderately sloping terrain that is inclined at approximately 20 to 30 degrees to the southwest and west. The north lobe began construction in 2013 and is ongoing. Again, MPMC indicated that trees were logged, and the topsoil was stripped from the foundation prior to construction of three lifts of NAG rock (each about 5 m high), which were advanced to the north (Golder 2015c). PAG rock has been end-dumped on top of the NAG lifts in four to five 25 m high lifts from the bottom up to elev. 1,138 m.

The NW PAG Dump has been reviewed for slope stability performance annually since 2012 during the annual slope stability reviews completed by Golder/WSP. Slope stability performance observations and previous recommendations are summarized in Table 1 and photographs are presented in Appendix A. In general, the NW PAG Dump has exhibited good slope stability performance over the years with minor areas of deformation that have been managed by MPMC.

Table 1: Previous Slope Stability Performance of the NW PAG Dump

Year	Slope Stability Review Performance Observations	Recommendations Provided at Time of Observation	Recommendations Addressed by MPMC	Report	Appendix A, Figure No.
2012	▪ NW PAG Dump was being advanced towards the north over natural topography and the lower NAG lift (south lobe). ▪ Settlement cracks observed on the southwest side of the first NAG lift. Bulging in the toe area was also evident.	▪ Cracks should be filled with fine-grained material and continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Yes	Golder 2013c	A-1
2013	▪ North lobe of NW PAG Dump was being constructed to the north of the south lobe. ▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2015c	A-2
2014/2015	▪ A portion of a NAG lift was being placed adjacent to a soil stockpile at the base of the slope. ▪ Minor settlement cracks along some portions of the crest.	▪ Avoid advancing portions of the toe of the dump over the soil stockpiles and if required, move/remove the soil stockpiles.	Yes	Golder 2016b	A-3
2016	▪ Cracks observed near the crest of the lower lift and some bulging in the waste dump face and toe was observed suggesting displacement in the foundation soils. ▪ Ponded water was observed at the toe of the lower lifts towards the north end of the dump. Was noted to be seeping from the toe of the dump.	▪ The cracks should be filled with fine-grained material and continue visual inspection and monitoring. ▪ Ditches should be excavated to drain the ponded water away from the toe of the dump. ▪ Stability of the dump in the area of seepage to be visually monitored.	Yes	Golder 2017	A-4
2017	▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2018	A-5
2018	▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2019	A-6
2019	▪ No cracks along the crest or bulging in the toe area were observed.	▪ Continue visual inspections and monitoring, particularly during spring and fall when precipitation rates are higher.	Ongoing	Golder 2020	A-7

Table 1: Previous Slope Stability Performance of the NW PAG Dump

Year	Slope Stability Review Performance Observations	Recommendations Provided at Time of Observation	Recommendations Addressed by MPMC	Report	Appendix A, Figure No.
2020	▪ Haul road along the north of the dump showing erosion channels. ▪ Evidence of water ponding along the lower lift haul road.	▪ A ditch should be maintained on the sides of the haul ramp and water bars can be implemented along the edges of the road to promote water moving into the ditches. ▪ The lower lift haul road should be graded with fill material to divert water away from the crest of the road.	Yes	Golder 2021	A-8
2021	▪ Evidence of water ponding along the lower lift haul road.	▪ The lower lift haul road should be graded with fill material to divert water away from the crest of the road.	Yes	Golder 2022a	A-9
2022	▪ Minor settlement cracks developing in lower lifts. ▪ Evidence of water ponding along the lower lift haul road.	▪ Monitor settlement cracks and doze to limit water infiltration into the dump crest. ▪ The lower lift haul road should be graded with fill material to divert water away from the crest of the road.	Yes	WSP 2023a	A-10
2023	▪ An area of the lower lift near the access road entrance was observed to be settling with about 30 to 40 cm of vertical displacement possibly due to foundation soil movement at the toe and ponding water at the crest.	▪ Windrow material at the toe should be removed and a low lift buttress should be advanced to limit further movement. The lower lift should be dozed and brought to grade such that water cannot pond at the crest of the lift.	To be addressed in 2024	WSP 2023c	A-11

3.0 PROPOSED ULTIMATE NORTHWEST POTENTIALLY ACID GENERATING DUMP DESIGN

MPMC have proposed a revised ultimate NW PAG Dump design shown in Figure 3. The development includes construction of three 40 to 50 m high lifts above the current north lobe of the NW PAG Dump. The dump will measure approximately 1,000 m in a north-south direction and will vary in width from 620 to 745 m. The top of the NW PAG Dump will be located at elev. 1,140 m. The elevation of the foundation topography (below the current north lobe of the NW PAG Dump) is approximately elev. 1,118 m along the east side to elev. 1,006 m along the west side. The maximum height of the NW PAG Dump will be approximately 140 m toe to crest. The NW PAG Dump will be constructed from the bottom-up with angle of repose waste rock lift faces, 10 m wide catch-benches, and an overall slope angle of 28 degrees. The ultimate haul ramp will enter the NW PAG Dump from the southern portion of the dump and ascend across the slope face.

The majority of the material to be placed on the NW PAG Dump will be on the north and west sides of the current NW PAG Dump north lobe. The footprint of the NW PAG Dump has already been stripped and the lower NAG lift has been constructed with approximately six PAG lifts at varying elevations above.

Cross-sections through the proposed ultimate NW PAG Dump design are shown in Appendix B and described in Section 5.8.

4.0 SUMMARY OF GEOTECHNICAL FIELD INVESTIGATIONS

To date, five foundation investigation programs have been completed within and around the footprint of the NW PAG Dump. Test pit locations for geotechnical programs completed in 1999, 2010, and 2023 as well as borehole locations for geotechnical programs completed in 2023 and 2024 are presented on Figure 4. The results of these geotechnical programs and their applicability to the proposed ultimate NW PAG Dump are discussed in the following sub-sections.

4.1 1999 Geotechnical Field Investigation

The 1999 field investigation program included nine test pit locations, four of which were within the proposed ultimate NW PAG Dump design footprint (Figure 4). The results of the field investigation indicate that the most consistent soil horizon encountered is a well-graded, silty sand till with some gravel and trace fines (Golder 2010b). A number of localized silt clay-rich deposits were encountered in TP14, TP15, and TP16. These deposits could correspond to localized wet to swampy areas (Golder 2010a).

Results of the 1999 test pit program are summarized in Table 2 and further detailed results are presented in Golder (2010a).

Table 2: 1999 Field Investigation Summary (after Golder 2010a)

Test Pit ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)	Excavation Depth (m)	Bedrock Encountered	Within Footprint of Proposed Ultimate NW PAG Dump	Foundation Soil Description
TP10	3,178	1,344	1,053	2.5	No	No	Clayey SILT with some sand and gravel (TILL)
TP11	3,368	1,205	1,042	2.4	Yes	No	Silty GRAVEL with some sand and cobbles (TILL)
TP12	3,199	1,181	1,034	3.3	No	No	Clayey-SILT with some sand, gravel, and cobbles (TILL)
TP13 (road cut)	3,504	994	1,023	1.0	No	No but near south lobe NW PAG Dump footprint	Silty GRAVEL with some sand and cobbles (TILL)
TP14	4,043	769	1,041	1.5	No	Yes	CLAY with some silt, sand, and gravel Clayey SILT with some sand, gravel, and cobbles (TILL)
TP15	3,920	928	1,062	1.5	No	Yes	CLAY with some silt, sand, and gravel Clayey SILT with some sand and gravel (TILL)
TP16	3,853	784	1,035	2.5	No	Yes	CLAY with some silt, sand, and gravel

Table 2: 1999 Field Investigation Summary (after Golder 2010a)

Test Pit ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)	Excavation Depth (m)	Bedrock Encountered	Within Footprint of Proposed Ultimate NW PAG Dump	Foundation Soil Description
TP16A	3,927	766	1,040	N/A	No	Yes	Clayey SILT with some sand, gravel, and cobbles
TP17	4,279	871	1,048	1.6	Yes	Yes	Clayey SILT with some sand and gravel Silty SAND with some gravel and cobbles (TILL)

(a) Test pit locations are presented in local mine grid.

4.2 2010 Geotechnical Field Investigation

The 2010 field investigation program included a total of two test pit locations that were both near the proposed ultimate NW PAG Dump footprint (Figure 4). Although these test pits are located outside the NW PAG Dump footprint they provide useful information regarding the interpretation of subsurface conditions for the general area of the NW PAG Dump. Both test pits encountered till overlying bedrock (Golder 2010b).

Results of the 2010 test pit program are presented in Table 3 and further detailed results are presented in Golder (2010b).

Table 3: 2010 Field Investigation Summary (after Golder 2010b)

Test Pit ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)	Excavation Depth (m)	Bedrock Encountered	Within Footprint of Proposed Ultimate NW PAG Dump	Foundation Soil Description
TP1	3,742	940	1,062	1.2	Yes	No but near south lobe NW PAG Dump footprint	TILL
TP2	3,304	1,158	992	2.0	Yes	No	Sand SILT SAND and GRAVEL (TILL)

(a) Test pit locations are presented in local mine grid.

4.3 2023 and 2024 Geotechnical Field Investigations

The 2023 and 2024 geotechnical field investigations for the NW PAG Dump included six test pits and 11 boreholes in and around the proposed ultimate NW PAG Dump design footprint (Figure 4). The following general stratigraphic units were encountered during the 2023 and 2024 investigations (WSP 2024b):

- Waste rock – 0.9 m to 33.4 m thick
- Colluvium – 0.8 m to 5.0 m thick

- Till – 3.2 m to 15.5 m thick
- Glaciofluvial deposits – 0.2 m to 3.5 m thick
- Fine-grained material – 1.4 m to 4.8 m thick
  - This material was initially interpreted as a Glaciolacustrine unit (GLU) during the 2023 geotechnical field investigation (WSP 2024b).
  - Clay material
    - 2.5 m thick interbedded material encountered during the 2023/2024 geotechnical field investigation.
- Bedrock – to depth

The results of the 2023 and 2024 geotechnical field investigations for the NW PAG Dump are summarized in Table 4 and further detailed results are presented in WSP (2024b).

Table 4: Depth to Bedrock Logged During 2023 and 2024 Field Investigations (after WSP 2024b)

Test Pit or Borehole ID	Northing (m)[(a)]	Easting (m)[(a)]	Ground Elevation (m)[(a)]	Thickness of Waste Rock (m)	Thickness of Colluvium (m)	Maximum Thickness of Glaciofluvial Deposits (m)[(b)]	Maximum Thickness of Fine-grained Material (m)[(b)]	Maximum Thickness of Till (m)[(b)]	Overall Thickness of Overburden (m)	Elevation of Bedrock surface (masl)
TP-NW-01	4,724.0	1,084.0	1,066.0	-	0.80	-	-	-	0.80	1,065.20
TP-NW-02[(d)]	4,745.0	894.0	1,055.0	-	-	1.50	-	4.00[(c)]	Bedrock not reached	
TP-NW-03[(d)]	4,737.0	738.0	1,023.0	-	2.00	-	-	4.00[(c)]	Bedrock not reached	
TP-NW-04[(d)]	4,645.0	572.0	1,003.0	-	1.00	-	-	4.00	5.00	998.00
TP-NW-09	3,831.0	753.0	1,030.0	-	2.30	-	-	3.20[(c)]	Bedrock not reached	
TP-NW-10	3,878.0	719.0	1,030.0	-	5.0[(c)]	-	-	-	Bedrock not reached	
DH-NW-02	4,745.4	893.6	1,051.8	-	-	3.53	-	5.08	8.61	1,043.19
DH-NW-03	4,750.1	709.5	1,021.7	-	1.98	-	-	4.06[(c)]	Bedrock not reached	
DH-NW-03A	4,755.7	703.8	1,021.6	0.91	-	2.44	-	13.34	15.78	1,004.91
DH-NW-05	3,920.0	774.1	1,055.1	12.55	-	1.16	-	5.49	6.65	992.17
DH-NW-06	4,496.2	530.1	1011.4	15.34	-	-	-	8.92	8.92	993.74
DH-NW-07	4,340.3	538.0	1,018.0	14.78	1.83	0.91	4.73	10.36	18.60	996.22
DH-NW-07B	4,219.8	604.8	1,029.6	14.81	1.95	-	4.84[(c)]	12.83	Bedrock not reached	
DH-NW-07C	4,224.3	604.0	1029.5	15.54	2.44	0.23	1.43[(c)]	9.66	Bedrock not reached	
DH-NW-08	4,217.1	603.7	1029.8	10.55	4.63	-	-	6.10	6.10	1,017.72
DH-NW-09	4,075.1	676.0	1,039.0	13.56	-	-	-	15.49	15.49	1,026.05
DH-NW-11	4,277.5	708.1	1059.7	33.38	0.80	0.84	-	8.59	24.02	1,002.30

(a) Test pit and borehole locations are presented in local mine grid
(b) Maximum logged thickness recorded in logs; thinner layers not included.
(c) End of unit not reached.
(d) Seepage observed in these test pits.

4.4 Geotechnical Laboratory Testing of Foundation Soils

Geotechnical laboratory testing was completed on samples from the 1999, 2023, and 2024 geotechnical field investigations. The testing was carried out at the WSP Burnaby and Calgary Laboratories, and included the following geotechnical tests:

- Water content
- Particle size distribution (sieve and hydrometer)
- Atterberg Limits
- Specific gravity
- Modified Proctor
- Large direct shear

Laboratory testing was completed on one sample collected in the area of the NW PAG Dump in 1999 (Golder 2010a); no samples were tested from the area of the NW PAG Dump in 2010 (Golder 2010b), and 41 samples were tested from the area of the NW PAG Dump in 2023 and 2024 (WSP 2024b).

A review of the laboratory test results for each material type encountered in and around the NW PAG Dump is described in Section 5.4.

5.0 SITE CHARACTERIZATION AND ENGINEERING GEOLOGY

The following sections provide:

- A summary of a literature review of the glacial history and the surficial geology of the Mount Polley Mine and NW PAG Dump area, including the topography setting.
- Descriptions of the foundation soils and bedrock observed in the area of the proposed ultimate NW PAG Dump based on the field investigations and laboratory testing results.
- A description of the waste rock to be consigned to the NW PAG Dump.
- A summary of the groundwater conditions around the NW PAG Dump.
- A discussion of the site seismicity.
- A summary of the surficial geology interpretation for the area of the proposed ultimate NW PAG Dump design.

5.1 Regional Geomorphological Setting

The terrain and geomorphology of the area consists of low mountains and hummocky bedrock exposures dissected by a network of streams and lakes (Holland 1976; McAndless and Taylor 2006). Surface drainage patterns are influenced by bedrock topography; most of the stream valleys in the region have a northwest orientation and drain southward toward the lowland area north of the western arm of Quesnel Lake (Bichler and Bobrowsky 2003).

During the late Pleistocene, the area of Mount Polley Mine was covered by the Cordilleran Ice Sheet (Clague 1987 and 1988). The gently undulating topography and surface expression of the lowland area at the head of the west arm of Quesnel Lake is the result of glacial erosion and deposition of Quaternary sediments in an environment that evolved initially as a result of glacial advance followed by glacial retreat and inundation by meltwater, creating a glacial lake environment (Bichler and Bobrowsky 2003). The glacial landforms within the region indicate a predominantly northwesterly ice flow direction for the Cordilleran Ice Sheet in the Quesnel region (Clague 1988; Bichler and Bobrowsky 2003; Hashmi et al 2015).

5.2 Topography

The NW PAG Dump is located on the west flank of Mount Polley ridge between Polley Lake and Bootjack Lake. A foundation slope map is presented in Figure 5. At the north end of the NW PAG Dump the foundation is near elev. 1,004 m and slopes towards the south to approximately elev. 1,050 m. The eastern portion of the NW PAG Dump is founded on ground with slopes of 18 to 29 degrees. The western portion of the NW PAG Dump is founded on ground with slopes of 5 to 13 degrees.

Prior to construction in 2012, there were no identified major streams or drainage courses within the footprint of the NW PAG Dump. The footprint area was well drained by small, ephemeral streams that flowed in the spring and late fall. However, localized wet and swampy flat-lying areas occurred within localized depressions.

5.3 Regional Surface Geology

The regional surficial geology in the area of Mount Polley Mine is dominantly the result of erosion and deposition associated with the late Pleistocene (Wisconsinan) glacial episode referred to as the Fraser Glaciation (Clague 1987 and 1988).

The regional surficial geology is dominated by till, glaciofluvial, and glaciolacustrine sediments of the Fraser Glaciation (Bichler and Bobrowsky 2003; McAndless and Taylor 2006). The glacial stratigraphy locally contains colluvial deposits derived from landslides initiated on valley walls during the late Pleistocene and Holocene. Holocene fluvial deposits overlie the glacial deposits in areas local to watercourses and water bodies throughout the region (Bichler and Bobrowsky 2003). A generalized interpretation of the local Quaternary stratigraphy is presented in Figure 6.

Morainal till deposits more than 1 m thick are widespread and typically comprise poorly sorted, moderately to well-compacted silty clay diamicton.

Glaciofluvial deposits are common within the major valleys, deposited in a succession of well-defined terraces (Clague 1988; Bichler and Bobrowsky 2003). Glaciofluvial sediments typically comprise moderately sorted, weakly to moderately compacted cobbles or boulder gravel with a sand matrix. Gravel is also present locally in the form of hummocky blankets at higher elevations. Glaciofluvial fan deposits occur within valleys, with a similar composition to that of the glaciofluvial sediments, but typically with a greater sand content (Bichler and Bobrowsky 2003).

5.4 Local Surficial Geology

The local surficial geology consists of Quaternary glacial deposits overlain by fill/anthropogenic deposits. Based on the geotechnical field investigations completed to date in the area of the NW PAG Dump, a simplified stratigraphic sequence with estimated thicknesses based on site observations is summarized as follows:

- Topsoil
- Colluvium – 1 m to 5 m
- Glacial deposits
  - Till: 3 m to at least 16 m
  - Glaciofluvial deposits: up to 4 m
  - Fine-grained material
    - One unit 5 m thick encountered during the 2023/2024 geotechnical field investigation
    - This material was initially interpreted as a GLU during the 2023 geotechnical field investigation (WSP 2024b)
  - Clay material
    - One unit 2.5 m thick encountered during the 2023/2024 geotechnical field investigation
- Bedrock (Mount Polley Intrusive Complex) – to depth

Topsoil has not been considered in this assessment as WSP understands that topsoil materials have been stripped from the foundation and stockpiled for reclamation purposes.

The local surficial geology is based on information at test pit and borehole locations only. Conditions between test pits/boreholes and the extents of geologic units are unknown and are subject to uncertainty. The local surficial geology has been interpreted based on the field observations, and further interpreted based on the laboratory

testing completed on select samples. Some units may differ from what was presented in the factual report for the 2023/2024 geotechnical field investigations based on the laboratory testing (WSP 2024b).

Further details on each material type are described in the following sub-sections.

5.4.1 Colluvium

Colluvium in the area of the NW PAG Dump ranged in thickness from 0.8 m to 5 m, and locally exhibits greater thickness along the lower slopes of the west flank of Mount Polley ridge. The colluvium is expected to be the foundation soil directly underlying the east side of the proposed ultimate NW PAG Dump design.

The results of index tests completed on colluvium samples collected in the area of the NW PAG Dump are summarized in Table 5 and in Appendix C, Figures C-1 and C-2.

Table 5: Summary of Index Test Results for Colluvium (after WSP 2024b)

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	11.8	9.0	16.9	4
Liquid Limit	32.0	26.0	42.0	4
Plastic Limit	17.5	12.0	28.0	4
Plasticity Index	14.5	14.0	16.0	4
Specific Gravity	-	-	-	0
% Gravel	43.8	33.0	56.0	4
% Sand	32.8	31.0	34.0	4
% Fines	23.5	13.0	33.0	4

The natural water content test results indicated an average of 12% and a range of 9% to 17%. It is noted that some samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the colluvium.

The particle size distribution test results indicated sand and gravel sized particles are present in all colluvium samples, with fines content raging from 13% to 33%. As indicated by the Atterberg Limit results, the fines component is generally intermediate plasticity, and range from silt to silty clay. The colluvium was typically described as very soft to stiff, and well-graded with trace organics.

Large direct shear testing was completed on a colluvium sample (WSP 2024b). The peak friction angle obtained was 35 degrees, with a cohesion of 30 kPa. The residual friction angle was 34.5 degrees, with a cohesion of 0 kPa.

5.4.2 Till

Till encountered in the area of the NW PAG Dump ranged in thickness from 3.2 m to 15.5 m. The till is expected to be the foundation soil underlying the majority of the west side of the proposed ultimate NW PAG Dump design.

The results of index tests completed on till samples collected in the area of the NW PAG Dump are summarized in Table 6 and in Appendix C, Figures C-3 and C-4.

Table 6: Summary of Index Test Results for Till (after WSP 2024b)

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	12.3	6.8	23.0	2
Liquid Limit[(a)]	26.7	19.0	54.0	20
Plastic Limit[(a)]	14.1	12.0	17.0	20
Plasticity Index[(a)]	12.6	5.0	37.0	20
Specific Gravity	2.73	2.68	2.76	4
% Gravel	29.4	7.0	61.5	19
% Sand	33.5	10.0	57.4	19
% Fines	37.1	11.3	83.0	19

(a) One “non-plastic” test included in test count but not test results statistics.

The natural water content results indicated an average of 12% and a range of 7% to 23%. It is noted that some samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the till. The ranges and average moisture content are similar to values observed for till samples collected at the Southeast Rock Disposal Site (SERDS) and the Tailings Storage Facility (TSF) (WSP 2023 and 2024a).

The particle size distribution test results indicated sand and gravel sized particles are present in all till samples, the fines content ranging from 11% to 83%. As indicated by the Atterberg Limit results, the fines component is generally low to medium plasticity, and ranges from clays to silty clays. The ranges and averages for the particle size distribution and Atterberg Limit tests are similar to values observed for till samples collected from the SERDS and the TSF (WSP 2023 and 2024a). The till was typically described as loose to very stiff, and well-graded.

One sample from the 2023/2024 geotechnical field investigation, TP-NW-04-03, appears to be an outlier in regard to test results for water content, particle size distribution, and Atterberg Limits. The water content for the till sample was the highest at 23%; however, this value is considered unreliable due to the method of sampling and the extended period of time between when sampling and testing were carried out. The fines content was 83% and behaved like a high plasticity clay. This sample was a grab sample from a test pit at the northwest corner of the current NW PAG Dump (Figure 4) and there was no indication in the test pit log as to where this high fines material may have occurred. It is possible that within the till there was a depositional period where materials with more fines were deposited in this localized area; however, this was not observed during the test pit logging as the sample was a similar colour to the surrounding till and the depositional area may have been relatively small

Large direct shear testing was completed on a till sample (WSP 2024b). The peak friction angle is 32.5 degrees with a cohesion of 55 kPa. The residual friction angle is 32.5 degrees with a cohesion of 0 kPa. Direct shear testing of samples of till collected from near the SERDS and the TSF were also completed on remoulded grab samples, and those results were compared to the current test results for till in the area of the NW PAG Dump. Direct shear test results for samples of till collected near the SERDS indicated an average residual friction angle of 34 degrees with a cohesion of 0 kPa (WSP 2024a). Direct shear test results for samples of till collected near the TSF indicate an average peak friction angle of 34.6 degrees with a cohesion of 0 kPa (WSP 2023).

The results of index testing and direct shear testing of till samples collected near the NW PAG Dump are similar to the test results for till encountered near the SERDS and TSF, with the exception of the direct shear testing. This is likely due to the sample size used for the direct shear testing. For the purposes of this geotechnical assessment, the results of the large direct shear test completed for the till sample collected in the area of the NW PAG Dump in 2023 may be considered to represent a lower bound.

5.4.3 Glaciofluvial Deposits

Glaciofluvial deposits encountered in the area of the NW PAG Dump ranged in thickness from 0.2 m to 3.5 m. The glaciofluvial deposits were typically interbedded with the till on the north end of the dump and on the western portion near the centre of the NW PAG Dump footprint.

A summary of index testing completed on glaciofluvial material in the area of the NW PAG Dump is presented in Table 7 and in Appendix C, Figures C-5 and C-6.

Table 7: Summary of Index Test Results for Glaciofluvial Deposits

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	7.1	5.2	9.7	5
Liquid Limit[(a)]	21.0	19.0	25.0	5
Plastic Limit[(a)]	13.8	12.0	17.0	5
Plasticity Index[(a)]	7.3	7.0	8.0	5
Specific Gravity	2.74	2.73	2.75	2
% Gravel	49.7	20.1	67.4	5
% Sand	38.2	21.0	65.4	5
% Fines	12.1	7.1	15.0	5

(a) One “non-plastic” test included in test count but not test results statistics.

The natural water content results indicated an average of 7% and a range of 5% to 10%. It is noted that some samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the glaciofluvial material. The ranges and average moisture contents were similar to values observed for glaciofluvial deposits encountered at the TSF (WSP 2023).

The particle size distribution testing indicated sand and gravel sized particles were present in all glaciofluvial samples and a fines content that ranged from 7% to 15%. The fines from these samples were generally identified as non-plastic to low plasticity. The glaciofluvial deposits were typically described as very loose to firm, low plasticity fines, and well-graded, which was generally supported by the laboratory test results. In general, the glaciofluvial deposits had a more granular nature and were less firm than the till. The ranges and averages for the particle size distribution tests and Atterberg Limits were similar to values obtained for samples of the glaciofluvial deposits collected at the TSF (WSP 2023).

No direct shear testing was completed on samples of glaciofluvial deposits collected near the NW PAG Dump. Shear strength testing was completed on samples of glaciofluvial deposits from the TSF and indicated a peak shear strength of 35 to 36 degrees with a cohesion of 0 kPa (WSP 2023).

5.4.4 Fine-Grained Material

Fine-grained material was encountered in what is inferred to be a localized “pocket” near DH-NW-07 in the central toe area on the west side of the NW PAG Dump footprint. The fine-grained material was encountered directly overlying bedrock at elev. 1,000 m. The vertical interval over which the fine-grained material was encountered was approximately 4.8 m.

A summary of index testing completed on the fine-grained material in the area of the NW PAG Dump is presented in Table 8 and in Appendix C, Figures C-7 and C-8.

Table 8: Summary of Index Test Results for the Fine-Grained Material

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	18.2	14.7	23.0	8
Liquid Limit	27.5	22.0	30.0	8
Plastic Limit	18.3	17.0	20.0	8
Plasticity Index	9.3	4.0	11.0	8
Specific Gravity	2.8	2.8	2.8	3
% Gravel	8.8	1.0	28.2	8
% Sand	13.6	5.0	24.3	8
% Fines	77.7	58.2	94.0	8

The natural water content results indicated an average of 18% and a range of 15% to 23%. It is noted that samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the fine-grained material.

The particle size distribution test results indicated minimal gravel and sand sized particles and a fines content that ranged from 58% to 94%. Atterberg Limit results indicated the fines component was generally low plasticity, and silty clays. The fine-grained material was typically described as stiff to hard, and well-graded. This was supported by the laboratory testing results. The ranges and averages from the particle size distribution and Atterberg Limit results were similar to values observed for samples of the fine-grained material collected at the SERDS and from the south embankment of the TSF (WSP 2023 and 2024a). The low plasticity and relatively low water content of the silty clay layer (index testing) encountered at this location was not considered representative of the intermediate or high plasticity GLU encountered within the footprint of the TSF (WSP 2023).

One Cone Penetration Test (CPT) was advanced in the fine-grained material at DH-NW-07B, which was located in the vicinity of DH-NW-07 where the fine-grained material was first encountered. Pore pressure dissipation testing (PPDT) was completed at three elevations within the CPT column. A report was prepared by Gregg Drilling and Testing Canada Ltd. (Gregg), which included a summary of the CPT and PPDT results along with test details (WSP 2024b).

Results of the CPT analysis carried out for the fine-grained layer in DH-NW-07B are presented as a series of depth profiles in Appendix D, Figure D-1, including profiles of the following parameters:

- Total cone tip resistance, q_t.
- Sleeve friction, fs.
- Porewater pressure that includes the penetration porewater pressure u_2, hydrostatic porewater pressure, piezometer data of vwp-07 at dh-nw-07, and the end of two PPDTs performed at a depth of 31.0 m and 31.42 m.
- Undrained shear strength, S_u. S_u was estimated from CPT data using Mayne (2001):

$$s_u = \frac{(q_t - \sigma_{v0})}{N_{KT}}$$

Where N_{KT} = 15 is a constant, σ_{v0} is the total stress acting on the soil layer.

- Preconsolidation stress, σ'_p, from the CPT data was estimated from Mayne (2001):

$$\sigma'_p = 0.33\ (q_t - \sigma_{v0})$$

- Over consolidation ratio, OCR, that is the ratio of σ'_p to the effective stress, σ'_V.

The peak undrained shear strength ratio (S_u-peak ratio) was calculated based on qc_{1Ncs} as recommended by Idriss and Boulanger (2008). Appendix D, Figure D-2 presents the S_u-peak ratio determined by the Idriss and Boulanger (2008) method. The 33rd percentile of the peak undrained shear strength ratio for the fine-grained layer is 0.83. The fine-grained layer is highly over consolidated with an average OCR equal to 17 as shown in Appendix D, Figure D-1. Robertson (2016) presents the CPT soil behaviour type (SBT) chart for liquefaction and cyclic softening potential. Appendix D, Figure D-3 presents the CPT SBT chart for the fine-grained layer. The material exhibits a sand-like dilative and transitional dilative behavior.

The proposed ultimate NW PAG Dump design will have approximately 5 to 10 m of additional material placed in the vertical column in the area of the fine-grained material. This is a minimal amount of vertical effective stress that will be applied to the fine-grained material.

Despite this material being interpreted as having deposited in a glaciolacustrine environment (WSP 2024b), the results of the laboratory testing and CPT indicate that it does not behave as the intermediate or high plasticity GLU encountered within the footprint of the TSF. The fine-grained material is interpreted to be a component of the till, generally lacking the clastic component of sand, gravel and cobbles that is present in other portions of the till unit. For the purposes of the slope stability analyses, this material will be assessed combined with the till material parameters.

5.4.5 Clay Material

Clay material was encountered in what was inferred to be a localized “pocket” near DH-NW-02 on the northeast side of the NW PAG Dump footprint. The clay material was encountered 0.9 m below original ground surface. The vertical interval over which the clay material was encountered was approximately 2.6 m.

A summary of index testing completed on clay material in the area of the NW PAG Dump is presented in Table 9 and in Appendix C, Figures C-9 and C-10.

Table 9: Summary of Index Test Results for Clay Material

Test	Average	Minimum	Maximum	Number of Tests
Water Content (%)	48.4	38.4	58.3	2
Liquid Limit[(a)]	44.5	38.0	51.0	2
Plastic Limit[(a)]	18.5	16.0	21.0	2
Plasticity Index	26.0	22.0	30.0	2
Specific Gravity	2.69	2.69	2.69	1
% Gravel	5.3	1.6	8.9	2
% Sand	13.7	13.1	14.2	2
% Fines	81.1	76.9	85.3	2

The natural water content results indicated an average of 48% and a range of 38% to 58%. It is noted that samples were not tested immediately at the WSP Laboratory, therefore, the natural water contents may not reliably represent actual in-situ moisture conditions of the clay material.

The particle size distribution test results indicated minimal gravel and sand sized particles and a fines content that ranged from 77% to 85%. Atterberg Limit results indicated the fines component was generally intermediate to high plastic, silty clay to clay. The clay material was typically described as very soft to firm. The higher fines content in samples collected from the northeast side of the NW PAG Dump (DH-NW-02) may be indicative of an interval of lower energy deposition within the overall glaciofluvial environment.

No direct shear or advanced geotechnical laboratory testing has been completed on the clay material. The material was inferred to be interbedded (not continuous) and isolated to one borehole (DH-NW-02). The clay material was not encountered in TP-NW-01, TP-NW-02, DH-NW-03 or DH-NW-03A which are nearby (Figure 4). No test pit excavations or borehole drilling has been completed below the toe (within the footprint) of the NW PAG Dump near where the clay material was encountered due to the dump having already been constructed to the footprint extents in this area.

5.4.6 Bedrock

Bedrock in the area of the NW PAG Dump footprint is part of the Mount Polley Intrusive Complex, which is composed of several intrusive units including diorite, monzodiorite-monzonite, K-feldspar monzonite, and late dykes (Rees 2013). All of these rock types are considered to be medium strong to strong, with estimated uniaxial compressive strengths ranging from 25 to 100 MPa.

Bedrock was encountered in two test pits in 1999, two test pits in 2010, two test pits in 2023, and eight boreholes in 2023/2024. The test pits completed did not describe the bedrock other than observations indicating that it was weathered. Bedrock encountered in the sonic boreholes was typically pulverised and difficult to determine its particular compositional characteristics. The rock pieces were typically grey with brown staining (WSP 2024b).

5.5 Waste Rock

Waste rock from the Mount Polley pits generally consists of blasted intrusive rock that are observed to be hard and competent. Gradations of waste rock from the Mount Polley pits have not been assessed, but have been generally observed over a period of several years. Waste rock particle sizes are generally expected to range from a few centimetres up to 1 m, and consist predominantly of boulders and cobbles, with some gravel and sand based on observations of waste rock in the current NW PAG Dump and experience at the Mount Polley Mine.

From previous experience, waste rock at Mount Polley Mine has been observed to be good quality (with the exception of material from faulted areas and the upper bench in overburden). Slope stability performance at the current NW PAG Dump and in other waste rock dumps on site has been favorable in part due to the material quality. The existing waste rock dump slopes are generally at angle of repose (37 degrees) with no apparent indication of slope face or overall instability.

Waste rock fills typically exhibit a non-linear shear strength behaviour that is largely dependent upon the gradation, angularity, and degree of compaction of the particles (Leps 1970; Barton and Kjaernsli 1981). Research results from testing of rockfill shows that the measured friction angles are a function of applied normal stress for various rockfill gradations and densities. Figure 7 presents the non-linear shear strength of rockfill from triaxial tests after Leps (1970), which includes an upper bound for the shear strength behaviour for high density, well-graded strong particles and a lower bound for low density, poorly graded weak particles.

Selection of the appropriate shear strength function for waste rock is related to the material type to be placed. Table 10 presents a summary of the non-linear shear strength functions after Leps (1970) and Hawley and Cunning (2017) and provides recommended shear strength functions.

Table 10: Shear Strength Functions for Waste Rock (after Hawley and Cunning 2017)

Particle Strength – Based on Leps (1970) Curve (Graph 3)	Shear Strength Function
Lower bound – low density, poorly graded, weak particles.	$\tau = 1.446\sigma^{0.898}$
Lower quartile – between low and average rockfill.	$\tau = 1.576\sigma^{0.899}$
Average rockfill	$\tau = 1.726\sigma^{0.899}$
Upper quartile – between average and high rockfill.	$\tau = 1.899\sigma^{0.898}$
Upper bound – high density, well-graded, strong particles, generally not suitable for sedimentary rockfill.	$\tau = 2.067\sigma^{0.899}$

τ=$shear\ strength$; $\sigma = normal\ stress$.

5.6 Groundwater

Groundwater levels around the NW PAG Dump are generally expected to be at or near the contact between the waste rock and the underlying foundation soil and can be expected to fluctuate seasonally due to variations in precipitation and runoff from Mount Polley ridge.

During the December 2023 geotechnical investigation, artesian conditions were encountered in DH-NW-03A at 14.25 m depth in a layer of glaciofluvial deposits. Flow from the borehole was measured at approximately 0.1 gallon per second (about 0.4 L/s), with approximately 3.5 m of hydraulic head above ground surface before the borehole was grouted. No seepage from the borehole has been observed since grouting and the cause of the artesian conditions has not been investigated further. There is an area to the northeast of the NW PAG Dump and DH-NW-03A along Bootjack Road where MPMC staff have noted water flows continuously throughout the year indicating a potential seep in the area (an exact location was not provided to WSP).

Seeps and ponding water have also been observed along the toe of the current NW PAG Dump (Appendix E, Figures E-1 to E-3). This is likely due to the fine-grained material that has been stripped from the footprint of the dump and piled near the toe of the dump. Seepage from the NW PAG Dump is collected in a sump near the south end of the dump via a seepage collection pipe (Appendix E, Figure E-4) and in seepage collection ponds on the west side of the NW PAG Dump (Appendix E, Figure E-5).

A total of four vibrating wire piezometers (VWP) were installed in four boreholes during the 2023 geotechnical investigation to monitor the hydraulic heads in the different subsurface units. Seven rounds of hydraulic head readings have been collected by MPMC since installation of the VWPs to monitor the groundwater table in the dump area. A summary of the VWP installation details and latest reading of the corresponding hydraulic heads are presented in Table 11. Due to the relatively shallow depths of the piezometers, it has been assumed that the hydraulic head readings represent water table elevations at those locations. Cross-sections and graphs of hydraulic head data over time are presented in Appendix E.

Table 11: Summary of Vibrating Wire Piezometers and Approximate Groundwater Elevations for NW PAG Dump

Borehole ID	VWP Serial No.	Unit	Tip Elevation (m)	Original Ground Elevation (m)	Reading Date	Hydraulic Head (m)	Groundwater Elevation (m)
DH-NW-02	VW165268	Glaciofluvial	1,048.6	1,051.7	April 8, 2024	2.3	1,050.8
DH-NW-06	VW170541	Till/bedrock contact	994.0	1,002.6		10.7	1,004.7*
DH-NW-07	VW162321	Fine-grained material	998.5	1,014.8		19.7	1,018.2*
DH-NW-09	VW169440	Bedrock	1,025.9	1,041.5		14.0	1,040.0

*Hydraulic head is reading above original ground elevation.

Observations from the VWPs installed in the NW PAG Dump area are as follows:

- DH-NW-02 (Appendix E, Figures E-7 and E-8)
  - The VWP is installed in glaciofluvial material at the northeast toe of the NW PAG Dump, and the hydraulic head data collected fluctuate from elev. 1,050 to 1,051 m below original ground elevation.
- DH-NW-06 (Appendix E, Figures E-9 and E-10)
  - The VWP is installed at the till/bedrock contact below the current northwest toe of the NW PAG Dump, and the hydraulic head has been steadily reading about 2 m above original ground elevation.
- DH-NW-07 (Appendix E, Figures E-11 and E-12)
  - The VWP is installed in fine-grained material below the current west toe of the NW PAG Dump, and the hydraulic head has been steadily reading about 3 m above original ground elevation.
- DH-NW-09 (Appendix E, Figures E-13 and E-14)
  - The VWP is installed in bedrock below the current toe of the NW PAG Dump on the south end, and the hydraulic head has remained below original ground elevation around elev. 1,040 m.

During the 2023 test pit investigation, seepage was observed in the following test pits and depths:

- TP-NW-02 at a depth of 1 m in glaciofluvial material
- TP-NW-03 at a depth of 1 m in colluvium
- TP-NW-04 at a depth of 1.4 m in till

All of these test pits are located at the north to northwest end of the current NW PAG Dump.

Groundwater information collected to date indicates the following conceptual flow regime:

- Groundwater in the area of the NW PAG Dump flows largely from east to west with recharge at the Mount Polley ridge and discharge to the Bootjack Lake.

- The data collected during the field investigation indicate the groundwater below the NW PAG Dump is relatively shallow varying from about 1 m below ground surface up to 3 m above ground surface.
- Water ponding has been observed near the toe of the NW PAG Dump in the area of fine-grained material piles that likely limit infiltration.

Artesian conditions have been encountered in the fine-grained materials in DH-NW-07 (hydraulic head is 3 m above original ground in the dump). The localized condition could be the result of an elevated water table within the dump and poor drainage of the underlying fine-grained materials. No seepage face on the lower lift of the dump in this area has been observed.

The artesian conditions encountered in borehole DH-NW-06 at the till - bedrock contact may be the result of a regional flow within the bedrock aquifer under confined conditions due to the overlying till “capping” and preventing the upward flow of groundwater across the till – bedrock contact.

Assumptions regarding groundwater for the slope stability assessment are described further in Section 6.5.

5.7 Site Seismicity

Mount Polley Mine is located in an area of relatively low seismicity in British Columbia. WSP developed a site-specific seismic hazard model for the Mount Polley Mine based on historical seismicity and a review of geological and paleo-seismological features (WSP USA 2023). Earthquake ground motion parameters calculated from the site-specific hazard model are presented in Table 12.

Table 12: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023)

Exceedance Probability	Return Period (years)	Peak Ground Acceleration (g)
5% in 50 years	1,000	0.026
2% in 50 years	2,475	0.048
1% in 50 years	5,000	0.076
0.5% in 50 years	10,000	0.116

Return periods are not exact representations of annual exceedance probabilities.

These values were compared to the National Building Code (NBC) of Canada seismic hazard tool for the latitude and longitude location of the NW PAG Dump. The peak ground acceleration (PGA) values are similar, therefore, the assessment completed by WSP USA (2023) were used for the pseudo-static slope stability analyses.

5.8 Cross-Section Review

The original topography in the area of the NW PAG Dump (from 2006), a LiDAR drone scan of the dump completed in October 2023, and the proposed NW PAG Dump design provided by MPMC were reviewed using the Seequent 3D modelling software Leapfrog Works (© 2023 Seequent). Several cross-sections were cut through the surfaces of the 3D model to identify critical cross-sections for the slope stability and runout analyses.

A description of each of the cross-sections is provided below:

- Cross-section A (Appendix B, Figure B-2): This cross-section was cut to review topography below the southern portion of the NW PAG Dump and through DH-NW-09, TP-NW-09, and TP-NW-10. The topography slopes at about 20 degrees on the east side, to a shallow slope of about 8 degrees below the majority of the NW PAG Dump and steepens past the toe of the dump to Bootjack Lake. The cross-section indicates that the NW PAG Dump is near its ultimate configuration in this area with an overall height of 107 m (toe to crest). The field investigation information indicates colluvium in the area with till at depth over bedrock. The bedrock elevation at the south end of the dump is typically around elev. 1,026 m or higher towards the south.
- Cross-sections B and C (Appendix B, Figures B-3 and B-4): These cross-sections were cut to review topography below the southern portion of the NW PAG Dump and through DH-NW-08 and DH-NW-09. The topography is shallow to moderate in this area, sloping at approximately 8 degrees. The cross-sections indicate that the NW PAG Dump is at its ultimate height in this area with an overall height of 111 m (toe to crest) and available storage to the west. The field investigation information indicates colluvium overlying till with bedrock between elev. 1,017 m and elev. 1,026 m.
- Cross-sections D, E, and F (Appendix B, Figures B-5 to B-7): These cross-sections were cut to review topography below the central portion of the NW PAG Dump and through DH-NW-06, DH-NW-07, DH-NW-07B, DH-NW-07C, DH-NW-08, and DH-NW-11. The topography is moderately sloping at approximately 22 degrees on the east side, to a shallow slope of about 7 degrees below the majority of the NW PAG Dump. The cross-sections indicate that the NW PAG Dump is at its ultimate height in this area with an overall height of 133 m (toe to crest) and available storage to the west. The field investigation information indicates a thin veneer of colluvium over till interbedded with some glaciofluvial material, with a pocket of fine-grained material near the toe of the dump (interpreted to be a component of the till), overlying bedrock between elev. 993 m to elev. 1,002 m.
- Cross-sections G and H (Appendix B, Figures B-8 to B-9): These cross-sections were cut to review topography below the northwest portion of the NW PAG Dump and through DH-NW-05 and DH-NW-06. The topography is moderately sloping at approximately 25 degrees on the east side, to a shallow slope of about 9 degrees below the majority of the NW PAG Dump. The cross-sections indicate that the NW PAG Dump is at its ultimate height in this area with an overall height of 141 m (toe to crest) and available storage to the west. The field investigation information indicates till interbedded with some glaciofluvial material overlying bedrock around elev. 992 m.
- Cross-section I (Appendix B, Figure B-10): This cross-section was cut to review topography below the northern portion of the NW PAG Dump and through TP-NW-04. The cross-section is oblique to the slope of the topography and indicates a shallow slope of about 6 degrees on the north side, to a steep slope of about 17 degrees on the south end where the dump ties into original topography. The cross-section indicates that the NW PAG Dump is at its ultimate configuration in this area with an overall height of 128 m (toe to crest) with available storage to the north. The field investigation information indicates colluvium in the area with till at depth over bedrock.

- Cross-section J (Appendix B, Figure B-11): This cross-section is two separate sections with different orientations stitched together to review topography below the northeast portion of the NW PAG Dump and through DH-NW-03A and TP-NW-03. The topography is moderately sloping at approximately 16 degrees on the east side, to a shallow slope of about 5 degrees below the majority of the NW PAG Dump. The cross-section indicates that the NW PAG Dump is not at its ultimate configuration in this area with approximately 19 m of height for storage. The field investigation information indicates a thin veneer of colluvium in the area with till interbedded with glaciofluvial material overlying bedrock at about elev. 1,004 m.
  - This cross-section is near DH-NW-03 where artesian conditions were encountered when drilling intersected the glaciofluvial deposits at depth.
  - This cross-section is near DH-NW-02 where clay material was encountered near the toe of the dump, outside the footprint of the proposed ultimate NW PAG Dump design in what is interpreted to be an isolated area.

5.9 Surficial Geology Interpretation

Based on the foundation materials and cross-section review, a surficial geology interpretation is shown in Figure 8 for the area of the proposed ultimate NW PAG Dump design. The following summarizes the interpretation:

- Colluvium is interpreted to be a thin veneer underlying the eastern slope of the NW PAG Dump, with localized areas of thicker colluvium layers to the southwest of the dump footprint.
- Till is interpreted to cover the majority of the NW PAG Dump footprint, with variable thickness.
- Glaciofluvial deposits are located in isolated areas at the north end of the dump and near the center. Till typically overlies the glaciofluvial deposits.
- Fine-grained material is interpreted to be present in an isolated area on the west side of the NW PAG Dump at depth and is overlain by till. This material has been modeled as part of the till. It is possible that fine-grained material could be located in other parts of the foundation of the NW PAG Dump that were not investigated.
- Clay material is interpreted to be present in an isolated area on the northeast side of the NW PAG Dump about 0.9 m below original ground surface and is discontinuous (interbedded with silty clay). This material has been modeled as a separate unit as a sensitivity analysis.

6.0 SLOPE STABILITY ASSESSMENT

The following sections provide:

- A description of the slope stability rating and hazard classifications for the proposed ultimate NW PAG Dump using the Waste Dump Stockpile Stability Rating and Hazard Classification (WSRHC) system (Hawley and Cunning 2017).
- Rationale used to select the design acceptance criteria (BCMWRPRC 1991 and Hawley and Cunning 2017).
- Identification of the potential instability mechanisms for the proposed ultimate NW PAG Dump design.
- A discussion regarding the slope stability modeling methodology and assumptions.
- A description of the selected material strength parameters and assumptions.
- A discussion of the slope stability model scenarios and slope stability results.

6.1 Slope Stability Rating and Hazard Classification

The WSRHC system is based on Hawley and Cunning (2017) and incorporates many concepts that were used in the B.C. Mines Ministry 1991 dump slope stability classification guidelines (BCMWRPRC 1991). The WSRHC system requires evaluation of 22 key factors or attributes that affect slope stability of a waste rock dump. Numerical ratings are assigned to each factor, and the sum of these ratings defines the waste rock dump slope stability rating.

The WSRHC results for the proposed ultimate NW PAG Dump design are summarized in Table 13 and presented in Illustration 1.

Table 13: NW PAG Stability Rating and Hazard Classification Results

WSRHC Factors	Rating
Engineering Geology Index	26.5
Design Performance Index	30.5
Waste Rock and Stockpile Stability Rating	57
Waste Rock and Stockpile Hazard Class	III
Instability Hazard	Moderate Hazard

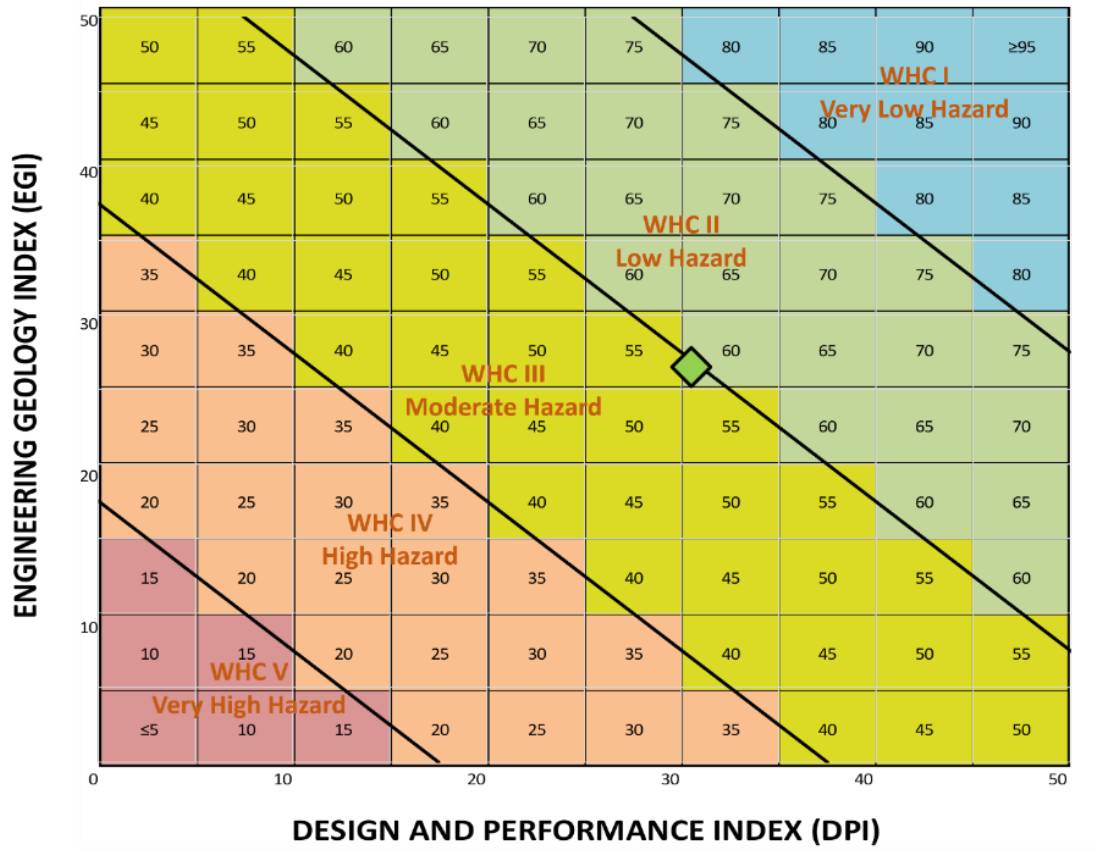

Illustration 1: Proposed Ultimate NW PAG Dump Design Slope Stability Rating and Hazard Classification

The proposed ultimate NW PAG Dump design is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III). Further details of the WSRHC are presented in Appendix F.

6.2 Instability Mechanisms

The site topography was reviewed with respect to the proposed ultimate NW PAG Dump design to identify areas with adverse combinations of foundation slope angles, foundation soils, and overall waste rock dump height. The cross-section review presented in Section 5.8 and Appendix B supported the selection of cross-sections for slope stability analyses.

The following two potential slope failure mechanisms were assessed in the slope stability analyses:

- **Dump lift/face stability (shallow-seated):** Failure surfaces either pass through the NW PAG Dump face, or local failure occurs at the toe (no effect on overall slope stability of the dump).
- **Overall stability (deep-seated):** Deep failure surfaces pass through the NW PAG Dump body and/or the foundation contact and affect the overall slope stability of the dump.

6.3 Potential Liquefaction

Soils that are susceptible to static or dynamic liquefaction are generally loose, uniform to poorly graded clean sands that are susceptible to collapse of structure under rapid loading. The proposed ultimate NW PAG Dump design is underlain by colluvium, till, glaciofluvial, fine-grained material, and clay material deposits. The particle size distribution curves and Atterberg Limit results from laboratory testing for these materials are presented in Appendix C. A uniformity coefficient can be calculated from the particle size distribution curves to determine whether the soil is well-graded or uniform, as shown by Equation 1.0 (Budhu 2009).

$$C_u = \frac{D_{60}}{D_{10}} \quad (1.0)$$

A soil that has a uniformity coefficient less than 4 contains particles of uniform size and a uniformity coefficient greater than 4 indicates a wider assortment of particles sizes and is described as well-graded soil. This relationship has been used to support justification as to whether or not the materials are susceptible to liquefaction.

Colluvium in the area of the NW PAG Dump consists of well-graded gravels, sands, and fines in varying proportions with trace cobbles. The colluvium is typically very soft to stiff with trace organics. The particle size distribution curve (Appendix C, Figure C-11) indicates a high coefficient of uniformity (above 4) which aligns with descriptions of the material being well-graded. Due to voids being filled with fines, the well-graded colluvium is typically not susceptible to structure collapse and liquefaction upon loading.

Till in the area of the NW PAG Dump is typically a loose to stiff, well-graded material with abundant fines based on observations and laboratory testing completed. The particle size distribution curve (Appendix C, Figure C-12) indicates a high coefficient of uniformity (above 4) which aligns with descriptions of the material being well-graded. Due to the voids between the coarser fraction of the till being filled with fines, based on the descriptions of the till and the resulting particle size distribution curves, the till is not susceptible to liquefaction.

Glaciofluvial deposits in the area of the NW PAG Dump are typically a thin layer (interbedded with till) composed of gravels and sands, with lower percentages of fines. The glaciofluvial deposits were described as loose to stiff. The glaciofluvial deposits were observed and tested to be more granular and less firm than the till found in the area of the NW PAG Dump. There is one sample of glaciofluvial material from DH-NW-11 (GS-08) that has a particle size distribution curve that lies within a potential liquefiable soils envelope (Appendix C, Figure C-13). However, this sample has a high uniformity coefficient (above 4) and is considered to be a well-graded soil. Based on the descriptions of the glaciofluvial deposits, the majority of the resulting particle size distribution curves (Appendix C, Figure C-13), the uniformity coefficients, and the proposed construction methodology for the proposed ultimate NW PAG Dump (low lift heights over a large area), the glaciofluvial material is unlikely to be susceptible to liquefaction.

A pocket of fine-grained material was encountered near the toe of the current NW PAG Dump on the west side in DH-NW-07. The material was logged as clay with trace gravel and sand, and generally stiff to hard. The uniformity coefficients based on the particle size distribution curves (Appendix C, Figure C-14) of the fine-grained material are high (above 4). Due to the voids between the coarser fraction of the fine-grained materials being filled with fines, based on the descriptions of the material and the resulting particle size distribution curves, the fine-grained material is not susceptible to structure collapse and liquefaction.

Clay material was found interbedded with coarser glaciofluvial deposits in DH-NW-02 and was described as very soft to firm with a high fines content. Uniformity coefficients were not calculated for the clay material as a D_{10} value is not achieved in the laboratory testing (the material has a very high fines content). However, based on the descriptions of the material and the particle size distribution curves (Appendix C, Figure C-15), the clay material is not susceptible to liquefaction.

The Mount Polley Mine area is in a low seismicity area. The likelihood of dynamic loading due to an earthquake is relatively low for the area.

Based on experience at Mount Polley Mine, the waste rock is typically coarse grained and free-draining. It will exist in a relatively loose state due to the construction methodology (bottom-up construction) and is unlikely to exhibit a significant loss of shear strength when subject to cyclical external forces. The waste rock will generally be unsaturated and would be expected to settle during earthquakes, but not be susceptible to liquefaction due to absence of water. Fine-grained material that could be mined (i.e. overburden, weathered, or altered rock, or fault gouge) should be placed within the center or east side of the NW PAG Dump such that it can be encapsulated with better quality material. This construction methodology will contain any potentially liquefiable material within the dump such that it is unlikely to cause slope stability issues near the face/edges of the dump.

6.4 Design Factors of Safety

In keeping with the current state of practice, WSP has used Hawley and Cunning (2017) in conjunction with the British Columbia Mine Rock and Overburden Piles Research Committee (BCMWRPRC) Investigation and Design Manual, Interim Guidelines (BCMWRPRC 1991) to determine the slope stability design acceptability criteria for the proposed ultimate NW PAG Dump design.

The BCMWRPRC (1991) recommended factors of safety (FOS) are presented in Table 14.

Table 14: BCMWRPRC (1991) Recommended Factors of Safety for Waste Rock Dumps

Stability Condition	Factor of Safety	
Stability of Dump Face	**Case A**	**Case B**
Short-term	1.0	1.0
Long-term	1.2	1.1
Overall Stability (Deep-seated Stability)		
Short-term (Static)	1.3–1.5	1.1–1.3
Long-term (Static)	1.5	1.3
Long-term (Pseudo-static)	1.1–1.3	1.0
Case A ▪ low level of confidence in critical analysis parameters ▪ possibly unconservative interpretation of conditions, assumptions ▪ severe consequences of failure ▪ simplified stability analyses method (chart, simplified method of slices) ▪ stability analyses method poorly simulates physical conditions ▪ poor understanding of potential failure mechanisms		
Case B ▪ high level of confidence in critical analyses parameters ▪ conservative interpretation of conditions, assumptions ▪ minimal consequences of failure ▪ rigorous stability analysis method ▪ stability analysis method simulates physical conditions well ▪ high level of confidence in critical failure mechanism(s)		

The Hawley and Cunning (2017) suggested FOS based on the consequence of failure and the confidence in the factors that will control stability are shown in Table 15.

Table 15: Suggested Stability Criteria Factors of Safety (Hawley and Cunning 2017)

Consequence	Confidence	Minimum Static FOS	Minimum Pseudo-static FOS
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

FOS = factor of safety.

Notes (abridged; for the complete stability acceptance criteria, refer to Hawley and Cunning 2017).

Consequence:

Low—Waste rock dumps and stockpiles with overall fill slopes less than 25 degrees 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 250 mm) annual precipitation.

Moderate— Waste rock dumps with overall fill slopes less than 30 degrees and less than 250 m high or response 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 (less than 250-1000 mm) annual precipitation.

High— Waste rock dumps with overall fill slopes more than 30 degrees 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 (more than 5 years) exposure for sites subject to high (1000-2000 mm) annual precipitation or intensive rainy season(s).

Confidence:

Low—limited confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Poorly defined or optimistic input parameters; high data variability.

Moderate—moderate confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Input parameters adequately defined, moderate data variability.

High—high confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Well-defined, conservative input parameters adequately defined, low data variability.

The choice of a design FOS involves consideration of the level of confidence in the understanding of the factors that will control slope stability, the input parameters, the analysis methods, and the consequences of failure. The guidelines summarized in Table 14 and Table 15 provide a range of suggested FOS to account for the consideration of these various factors. The following observations are provided regarding considerations and assumptions for consequence and confidence of the proposed ultimate NW PAG Dump design:

Consequence:

- The proposed ultimate NW PAG Dump design height is moderate (140 m toe to crest at its highest point) with angle of repose waste rock lift faces about 40 m high, 10 m wide catch-benches, and an overall slope angle of 28 degrees. A low consequence (Hawley and Cunning 2017) criterion with respect to waste rock dump construction is considered appropriate.
- MPMC have a monitoring plan (MPMC 2021) and access requirements when entering the runout zone and active mining area of the NW PAG Dump. There is signage in place and gates such that public access is also

restricted. A low consequence (Hawley and Cunning 2017) criterion with respect to access in and around the NW PAG Dump is considered appropriate.

- The NW PAG Dump is located near the Bootjack Access Road to the north (public access road and access road to Mount Polley Mine), near Bootjack Lake to the west, and settling ponds to the west. If failure were to occur on the NW PAG Dump slopes, a runout could impact one of these areas and has a severe consequence of failure. This presents a high consequence (Hawley and Cunning 2017) and Case A (BCMWRPRC 1991) criterion.
- Long-term exposure (over five years) for the NW PAG Dump will be subject to moderate annual precipitation at 612 mm/year. This presents a moderate consequence (Hawley and Cunning 2017).

Confidence:

- Past experience with waste rock dump construction at the Mount Polley Mine has provided a good understanding of the geologic and hydrogeologic conditions at the mine site, and the probable range of foundation material strength parameters. Consequently, there is a reasonable degree of confidence in the design strength parameters used in the analyses. Several field investigations and laboratory testing programs have been carried out for the property which also increases the degree of confidence in the foundation conditions and the design strength parameters. A high confidence (Hawley and Cunning 2017) and Case B (BCMWRPRC 1991) criterion with respect to material properties is considered appropriate since laboratory testing has been completed on the foundation materials and field investigations have been completed in the NW PAG Dump footprint area.
- Good quality waste rock is expected to be prioritized in the NW PAG Dump, with poorer quality waste rock being contained within the center of the dump or close to the eastern edge. No laboratory testing has been completed on waste rock at Mount Polley Mine; however, the behaviour of waste rock on site is well understood due to the favorable slope stability performance of other waste rock dumps at Mount Polley Mine and the observed gradations of the material. It has been assumed that the material is similar to other good quality waste rock encountered on site. Based on the gradations observed on site of the waste rock, the average rockfill Leps shear strength function applied to the slope stability analyses is appropriate (Table 10). A high confidence (Hawley and Cunning 2017) and Case B (BCMWRPRC 1991) criterion with respect to material properties for the waste rock is considered appropriate.
- Groundwater conditions are currently being monitored by VWPs in four locations in different geologic units. Readings from the VWPs and an understanding of the conceptual groundwater model satisfies a moderate confidence criterion from Hawley and Cunning (2017) and Case B from BCMWRPRC (1991).
- Limit equilibrium analyses methods have been used for the slope stability assessment and are considered to be sufficiently rigorous. This satisfies a high confidence criterion from Hawley and Cunning (2017) and Case B from BCMWRPRC (1991).
- Past mining and construction experience at the Mount Polley Mine and other mines in British Columbia has provided many opportunities to observe and understand the types of failure mechanism that develop at the mines. Consequently, there is a reasonable to high level of confidence in the understanding of the potential failure mechanisms. This satisfies a high confidence criterion from Hawley and Cunning (2017) and Case B from BCMWRPRC (1991).

Following the suggested design criteria by BCMWRPRC (1991) and Hawley and Cunning (2017), the proposed ultimate NW PAG Dump design is considered to have a moderate to high consequence of failure and high confidence of understanding the factors that control slope stability. On this basis, Table 16 presents the design FOS selected for the slope stability assessment.

Table 16: Recommended Design Acceptance Criteria Factors of Safety for Proposed Ultimate NW PAG Dump

Stability Condition	Static or Pseudo-static Condition	Minimum Design Factor of Safety	Source
Shallow-Seated Slope Stability of Dump Face	Static – short-term	1.0	BCMWRPRC (1991) Case A
	Static – long-term	1.2	BCMWRPRC (1991) Case A
	Pseudo-static – long-term	1.0	BCMWRPRC (1991) Case A
Overall Deep-Seated Stability	Static – short-term	1.4	Hawley and Cunning (2017) and BCMWRPRC (1991) Case A
	Static – long-term	1.5	BCMWRPRC (1991) Case A
	Pseudo-static – long-term	1.3	Hawley and Cunning (2017)

6.5 Slope Stability Methodology and Assumptions

The 2D slope stability analyses were carried out using the Slope/W limit equilibrium analysis software (© 2023 Seequent). The Morgenstern-Price method of slices was employed to find potential failure surfaces and their corresponding FOS. The slope stability of the NW PAG Dump was assessed for both static and pseudo-static (seismic) loading conditions, with fully saturated foundation soils.

The following methodology and assumptions were considered for the slope stability analyses:

- Based on the cross-section review completed (Appendix B and Section 5.8) the following cross-sections were selected for the slope stability analyses:
  - Cross-section E
    - representing the isolated fine-grained material identified in DH-NW-07/DH-NW-07B/DH-NW-07C which has been interpreted to be a component of the till.
  - Cross-section G
    - representing the highest overall waste rock dump height from the cross-section review.
  - Cross-section J
    - representing artesian conditions encountered at the north end of the proposed ultimate NW PAG Dump design in the glaciofluvial unit. Based on field observations a +3.5 m hydraulic head above the foundation soils was modelled, only applying to the glaciofluvial material.
    - representing the isolated clay material identified in DH-NW-02. Based on field observations, the unit has been modeled as a 2.5 m thick layer.

- The existing and new waste rock at the NW PAG Dump are considered free-draining and likely will not have excess pore pressures build up within the blasted rock. This is based on observations of other waste rock dumps on site, the performance to date of the NW PAG Dump, the proposed construction methodology of 40 m lifts bottom-up, the relatively small increase in overall height of the proposed ultimate NW PAG Dump, and on the conditions of the waste rock consigned to the dump.
- Organics and topsoil were not considered in the slope stability models as this material has been stripped from the foundation footprint of the NW PAG Dump (WSP 2023b).
- The foundation materials generally consist of colluvium, till, and glaciofluvial deposits, in addition to the pocket of fine-grained material and clay material in the area of the proposed ultimate NW PAG Dump design. The laboratory testing indicates that the till and colluvium have similar geotechnical properties, and these materials comprise the majority of the foundation materials. As such, for the purposes of slope stability modeling, till/colluvium was assumed as the major foundation material. Based on the 2023 and 2024 field investigations, the following approximate till/colluvium thicknesses were assumed:
  - Cross-section E: approximately 12 m thick till/colluvium layer at the NW PAG Dump toe, transitioning to a 29 m thick layer below the second and third lifts of the dump.
  - Cross-section G: approximately 9 m thick till/colluvium layer below the NW PAG Dump.
  - Cross-section J
    - approximately 14 m thick till/colluvium layer with a 7 m thick glaciofluvial layer below.
    - approximately 2.5 m thick clay layer near the toe of the dump, into a 11.5 m thick layer of till/colluvium, then a 7 m thick glaciofluvial layer.
- Due to no advance testing having been completed on the clay material to be modeled along cross-section J, a sensitivity analysis was completed for the isolated pocket of material by varying the shear strength to understand its impact on slope stability.
- The foundation materials were assumed to be saturated to original ground surface for the slope stability analyses. To model saturated conditions, a water table was included at the top of the foundation soils. These groundwater conditions are considered to be representative of periods of heavy precipitation, as occurs in the spring and fall. The proposed model conditions are also consistent with the VWP readings which indicate that groundwater is likely near or above original ground surface (Section 5.6), and are based on observations of water seepage at the toe of the current NW PAG Dump (Appendix E, Figures E-4 and E-5).
  - A sensitivity analysis was completed for cross-section J with an elevated hydraulic head applied to the glaciofluvial deposit to assess artesian conditions.
- The bedrock below the foundation soils within the area of the proposed ultimate NW PAG Dump consists of hard and competent intrusive rock. The bedrock is expected to exhibit sufficient strength to prevent a foundation failure through the bedrock. As well, the bedrock has not been characterized for faults or weak layers at orientations that could result in instability. Therefore, the bedrock has been modeled as a hard, infinite strength layer in the slope stability analyses, which prevents the automated search routine from searching for potential failure surfaced below this hard layer.

- To model seismic conditions, the pseudo-static method of analysis was used. This method of analysis applies a horizontal force to the failure mass proportional to the design horizontal acceleration. To account for the non-rigid response of the foundation soils and waste rock, the horizontal seismic loading considered in the assessment was one-half the peak ground acceleration (Hynes-Griffin and Franklin 1984). A 2% in 50 years or a 1-in-2,475-year return period earthquake event was used to assess long-term stability of the NW PAG Dump, to satisfy guidelines provided in industry (Hawley and Cunning 2017, BCMWRPRC 1991). The design PGA is 0.048 for the 2,745-year return period.
- No reduction has been applied to the strength parameters for the foundation materials. The foundation materials are expected to generally be dense. Due to the relatively low lift heights proposed to be constructed, pore water pressure generation is not anticipated (Hynes-Griffin and Franklin 1984), and the waste rock is expected to be free-draining.
    - Due to the uncertainty regarding the strength of the clay material, the sensitivity analysis was deemed sufficient to review strength reduction for the material.

6.6 Material Strength Properties

The material strength properties used in the slope stability analyses of the proposed ultimate NW PAG Dump are based on the glacial deposit review, previous field investigations and laboratory testing, and previous experience at the Mount Polley Mine. The material strength properties for the slope stability assessment of the proposed ultimate NW PAG Dump design are summarized in Table 17.

Table 17: Material Strength Properties Selected for Slope Stability Analyses

Material	Unit Weight (kN/m^3)	Strength Model Type	Strength Parameters	Reference
Waste Rock	19.6	Non-linear strength curve	$\tau = 1.726\sigma^{0.899}$	Strength function of Leps (1970) for average quality rockfill which matches observations of waste rock placed in the NW PAG Dump to date.
Colluvium/Till	22	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = 34º	Average peak and residual shear strength parameters from laboratory testing on till and colluvium material at Mount Polley Mine (WSP 2023b and 2024a)
			Cohesion = 0 kPa Friction angle = 32.5º	Lower bound of direct shear testing on till near the NW PAG Dump (WSP 2024b).
Glaciofluvial	22	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = 34º	Triaxial testing of undisturbed glaciofluvial samples (Golder 2015b)
Fine-grained Material	20	Mohr-Coulomb	Same parameters as colluvium/till	Discussed in Section 5.4.4
Clay Material	20	Mohr-Coulomb	Cohesion = 0 kPa Friction angle = varied from 20 to 35º	Discussed in Section 5.4.5
Bedrock	26	Impenetrable		Did not model failure surfaces through bedrock

τ=*shear strength*; σ = *normal stress*.

6.7 Slope Stability Analyses Results

The following slope stability modelling scenarios were completed for the proposed ultimate NW PAG Dump cross-sections:

- Base Case – Lower lift configuration slope stability (static and pseudo-static)
- Base Case – Ultimate configuration slope stability (static and pseudo-static)
- Sensitivity analyses (static and pseudo-static)
  - Cross-section G – till lower bound strength
  - Cross-section J – artesian conditions
  - Cross-section J – clay material strength varied

The results of the slope stability analyses are presented in Appendix G and are summarized in Table 18.

Table 18: Results of Slope Stability Analyses for the Proposed Ultimate NW PAG Dump Design

Cross-section	Slope Stability Condition	Target Static FOS (short- and long-term)	Indicated FOS	Target Pseudo-Static FOS (long-term)	Indicated FOS	Appendix G, Figure No.
Cross-section E	Overall	1.4 - 1.5	1.6	1.3	1.5	G-1
	Lower Lift	1.0 - 1.2	1.4	1.0	1.3	G-2
Cross-section G	Overall	1.4 - 1.5	1.6	1.3	1.5	G-3
	Lower Lift	1.0 - 1.2	1.5	1.0	1.4	G-4
Cross-section G (*till sensitivity*)	Overall	1.4 - 1.5	1.6	1.3	1.5	G-5
	Lower Lift	1.0 - 1.2	1.4	1.0	1.3	G-6
Cross-section J (*artesian conditions*)	Overall	1.4 - 1.5	1.6	1.3	1.5	G-7
	Lower Lift	1.0 - 1.2	1.5	1.0	1.5	G-8
Cross-section J *Clay material: phi = 35 degrees*	Overall	1.4 - 1.5	1.7	Did not complete pseudo-static analyses for sensitivity analysis		G-9 and G-10
	Lower Lift	1.0 - 1.2	1.5			
Cross-section J *Clay material: phi = 30 degrees*	Overall	1.4 - 1.5	1.7			
	Lower Lift	1.0 - 1.2	1.3			
Cross-section J *Clay material: phi = 25 degrees*	Overall	1.4 - 1.5	1.5			
	Lower Lift	1.0 - 1.2	1.1			
Cross-section J *Clay material: phi = 20 degrees*	Overall	1.4 - 1.5	1.5			
	Lower Lift	1.0 - 1.2	1.0			

The results of the slope stability analyses indicate that the proposed ultimate NW PAG Dump design is expected to exhibit adequate stability with respect to shallow-seated rock lift face and overall deep-seated foundation instability for short and long-term, static and pseudo-static conditions. This is largely due to the good quality foundation soil material (well-graded, generally dense material), the angle of repose waste rock lift faces with wide catch-benches at each lift (giving an overall slope of 28 degrees), and the good quality waste rock that is expected to be placed in the NW PAG Dump.

Sensitivity analyses were completed for the following scenarios:

- **Lower bound till strength parameters:** the results for the slope stability analyses indicate that for a lower bound till strength, the NW PAG Dump is expected to exhibit adequate slope stability.
- **Artesian conditions:** the results for the slope stability analyses indicate that for artesian conditions in the glaciofluvial deposits, the NW PAG Dump is expected to exhibit adequate slope stability.
- **Clay material strength parameters:** the results for the slope stability analyses indicate that when varying the strength of the clay material, the NW PAG Dump is expected to exhibit adequate overall slope stability for a phi ranging from 20 to 35 degrees for the clay material. The results of the lower lift clay strength sensitivity analyses indicate that the design criteria is met for a phi of 35 and 30 degrees; however, for a phi of 25 and 20 degrees the design criteria is not met. Graphs of the results for the overall and lower lift slope stability comparing FOS and strength (phi) are presented in Illustrations 2 and 3.

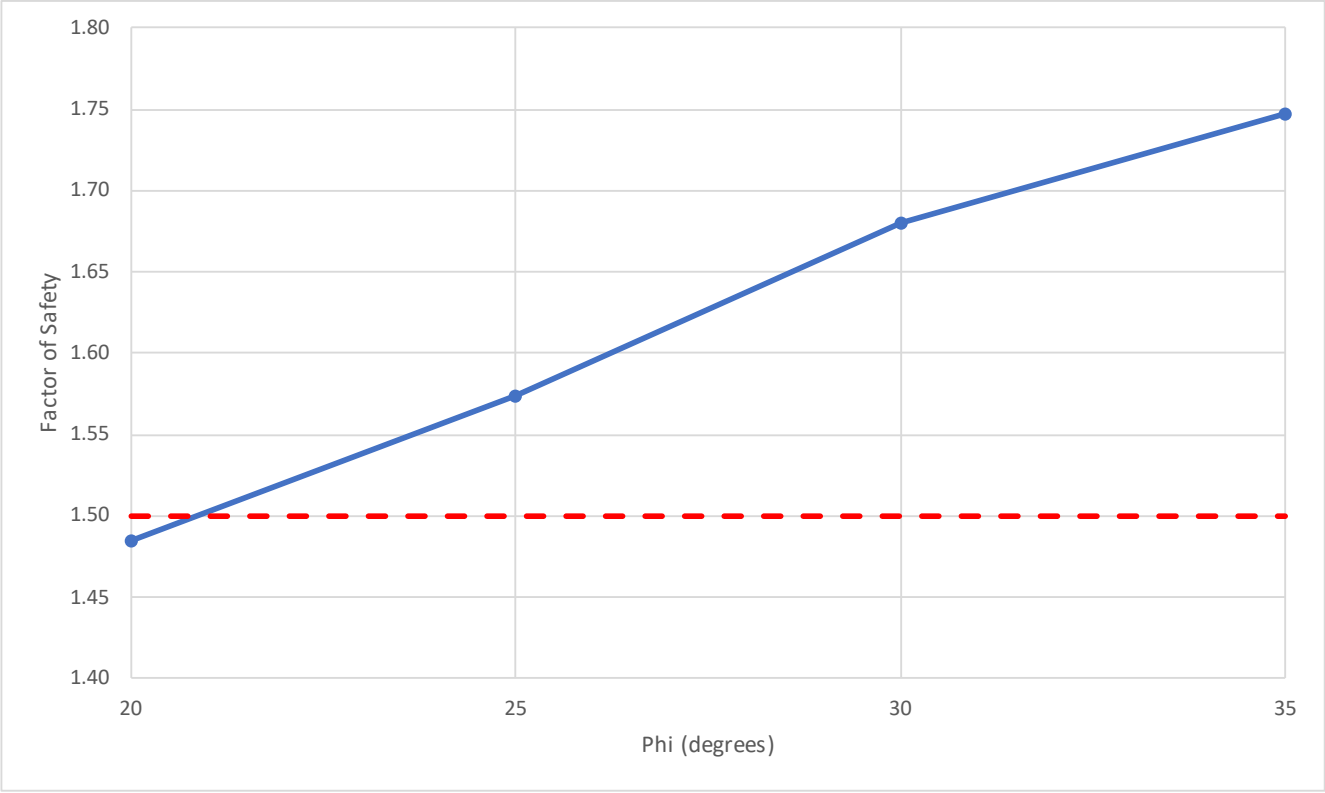

Illustration 2: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Overall

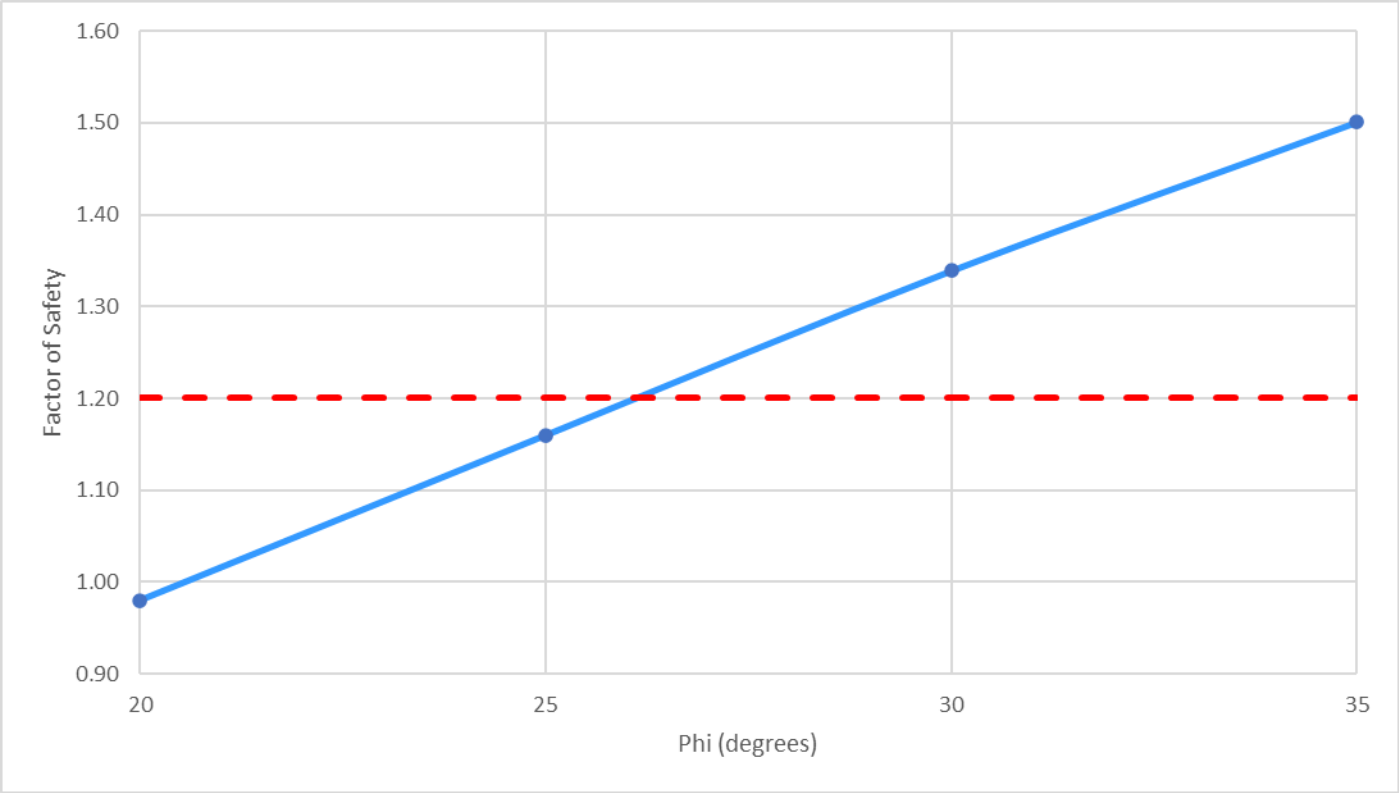

Illustration 3: Factor of Safety vs. Phi (degrees) for Clay Material Strength Sensitivity Analysis - Lower Lift

7.0 PREDICTIVE RUNOUT ASSESSMENT

Predictive runout analyses have been carried out for the proposed ultimate NW PAG Dump design to determine if potential failure debris may reach infrastructure around the dump. The following sections detail the methodology and results of the predictive runout analyses, including the rationale for the selected failure surfaces modelled based on hazards and consequences of failure identified.

7.1 Predictive Runout Assessment Methodology

The predictive runout assessments for the proposed waste rock dumps were completed using the 2D software DAN-W (Release 8) (Hungr Geotechnical Research Inc. 2008). This software is based on solving hydrodynamic equations which are applied to conservation of momentum for thin slices of a flowing mass.

The runout models considered a frictional rheology for the foundation soils beneath the proposed ultimate NW PAG Dump. With a frictional rheology, the analysis results are dictated primarily by the dynamic friction angle between the failed waste rock mass and the foundation material the failed mass is moving over. The dynamic friction angle comprises the basal friction angle that is modified by pore pressure, which can reach values much lower than the static friction angle of the material (as measured in direct shear or triaxial type tests). The dynamic friction angle is used in calculating the flow resistance term in the frictional model, in which the flow is controlled by the effective normal stress on the base of the sliding mass.

An internal friction angle is used in the models which defines the internal friction acting within the waste rock dump.

The waste rock within the proposed ultimate NW PAG Dump was modelled using a frictional rheology given that the waste rock is relatively well-drained and composed of generally good quality material.

The 2D DAN-W runout models are run with 50 elements (default), no energy loss in the failed material, and with vertical slices.

7.2 Predictive Runout Assessment Failure Surfaces

Predictive runout models have been constructed to represent critical failure surfaces for potential deep-seated (overall) and shallow-seated (toe) failures through the proposed ultimate NW PAG Dump. By analyzing both failure mechanisms, the predictive runout assessment will provide a hazard area for the NW PAG Dump and determine if potential failure debris could runout and reach infrastructure around the dump.

The predictive runout assessment failure surfaces are based on the slope stability assessment results. The failure surfaces have been chosen based on the slip surfaces generated in the Slope/W software for the slope stability models, and a best-fit failure surface was created in DAN-W to represent shallow and deep-seated failures for each scenario.

The predictive runout models and their corresponding slope stability models are presented in Table 19.

Table 19: Summary of Predictive Runout Models and Corresponding Slope Stability Models

Cross-Section	Scenario	Slope Stability Model	Cross-Section Appendix B, Figure No.	Slope Stability Appendix G, Figure No.	Runout Analyses Appendix H, Figure No.
E	Overall	Overall failure through till/colluvium and fine-grained material, saturated	B-6	G-1	H-2
	Lower Lift	Lower lift failure through till/colluvium and fine-grained material, saturated		G-2	H-3
G	Overall	Overall failure through till/colluvium, saturated	B-8	G-3	H-4
	Lower Lift	Lower lift failure through till/colluvium, saturated		G-4	H-5

Runout modelling was not completed on cross-section J since this cross-section does not represent a critical geometry for the dump. The stability modeling was completed on cross-section J to investigate the slope stability of the potential clay material at the toe. The results of the stability assessment indicated that a potential failure through the clay material would likely develop in the lower lift and, therefore, would not have a significant runout distance.

7.3 Predictive Runout Assessment Material Properties

Material properties for the predictive runout analyses were determined using typical values based on previous runout analyses on waste rock failures and typical values determined from case studies compiled by Golder & Hungr (1994).

An internal friction angle of 37 degrees for the waste rock is used in the analyses based on the results of a review of shear strength data of the material. The internal friction angle is only applied to the slide mass. A dynamic or basal friction angle of 33.5 degrees was assigned for the waste rock and is based on back analyses of waste rock dump failures (Golder & Hungr 1994, Hawley and Cunning 2017).

For the foundation materials, two conditions were considered in the runout analyses:

- Dry conditions – typical friction value of 19 degrees (Golder & Hungr 1994).
- Wet conditions – typical friction value of 14 degrees (Golder & Hungr 1994).

Frictional material properties considered for the NW PAG runout assessment are summarized in Table 20.

Table 20: Material Properties for the Predictive Runout Analyses of the NW PAG Dump

Material	Rheology Type	Model Condition	Unit Weight (kN/m^3)	Dynamic Friction Angle (degrees)	Internal Friction Angle (degrees)
Waste Rock	Frictional	Dry (internal)	19.6	33.5	37
Foundation Soils		Dry (basal)	22	19	N/A
		Wet (basal)		14	

N/A = Internal friction angle is only applied to the failed mass.

7.4 Predictive Runout Assessment Results

The overall and lower lift failure models were run with a frictional rheology for the waste rock and foundation materials. The model was run under both dry and wet foundation conditions to determine a hazard zone for potential runout towards infrastructure. The results of the runout analyses are presented in Appendix H and summarized in Table 21.

Table 21: Summary of Predictive Runout Analyses Results for the NW PAG Dump

Cross-section ID	Failure Mode	Runout Distance (m)	Appendix H, Figure No.
Cross-section E	Overall	Dry: 55	H-2
		Wet: 115 (reaches settling ponds and Bootjack Access Road)	
	Lower Lift	Dry: 35	H-3
		Wet: 55	
Cross-section G	Overall	Dry: 50	H-4
		Wet: 80 (reaches Bootjack Access Road)	
	Lower Lift	Dry: 15	H-5
		Wet: 30	

The results of the runout analyses indicate that failure debris from an overall slope failure under wet foundation conditions is likely to reach the settling ponds and access road used by MPMC personnel on the west side of the NW PAG Dump.

Based on the slope stability performance of the waste rock dumps at the Mount Polley Mine over the past 25 years, and on the slope stability analyses carried out for the proposed ultimate NW PAG Dump design, there is a low probability that a failure would occur in the dump due to the relatively high FOS indicated by the slope stability analyses. The results of the runout analyses indicate that if a failure were to occur, there is a high likelihood that a runout would reach the settling ponds and access road under wet conditions. To help reduce the potential for failure debris to runout to infrastructure, it is recommended that only good quality rock be placed on the outside face of the dump, and that all poor-quality material be placed in the centre of the dump. While constructing the NW PAG Dump there should be two areas of operation at all times, the center of the dump for poor-quality material and the outside edge of the active dump lift faces for good quality material. Another way to help reduce the potential for failure to occur is to control loading rates such that excess pore pressure generation is minimized in the foundation materials.

8.0 ROCK ROLLOUT ASSESSMENT

The rock rollout assessment was completed for the proposed ultimate NW PAG Dump design along the west and north sides located above infrastructure such as the Bootjack Access Road, the settling ponds, and Bootjack Lake. The rock rollout assessment calculation considers rocks originating from the crest of the lower lift of the dump. It is expected that rock rollout will not be an issue for the subsequent lifts as free dump piles will be established along the top of each lift. Experience has shown that free dump piles are likely to contain rocks that roll down the face of subsequent lifts as they are constructed.

The predicted rollout distances are based on projecting a 23-degree shadow from the crest of the lowest lift to the topography below the lift (Golder & Hungr 1994). The rollout shadow for the proposed ultimate NW PAG Dump design is plotted over topography in Figure 9.

The rock rollout assessment for the proposed ultimate NW PAG Dump design indicates the Bootjack Access Road in the northwest corner of the dump is at risk of being struck by rock rollout during construction/advance of the first lower PAG lift over the smaller NAG lift. It is recommended that during the construction of the lowest PAG lift that access to the Bootjack Access Road in this area be restricted/closed.

Experience with the other waste rock dumps at the mine indicate that free dump piles on the top of each lift will retain rock rollout from the lift above, and that the infrastructure will not be at risk from the lifts located above the first lift.

The rock rollout potential of the proposed ultimate NW PAG Dump should be monitored as the dump is being constructed. If rocks reach the Bootjack Access Road or other infrastructure despite the efforts of constructing free dump piles and crest berms on the benches of the individual lifts, it may be necessary to consider additional rock rollout mitigation structures or to adjust the design of the dump.

9.0 SETTLEMENT

Potential settlement issues related to site conditions include:

- Settlement of the foundation materials resulting in potential slope failure.
  - Materials in the foundation may consolidate in response to loading by waste rock, resulting in settlement of the foundation.
    - The foundation materials below the existing waste rock in the NW PAG Dump have been loaded with 30 to 140 m of waste rock for several years, and by glaciers prior to that.
    - Loading by the proposed ultimate NW PAG Dump will induce further settlement, but settlements are anticipated to be small, because no soft or unconsolidated deposits were encountered in the footprint of the NW PAG Dump. Preconsolidation pressures in the isolated fine-grained material were estimated at over 5,000 kPa (Appendix D, Figure D-1).
    - Loading of the NW PAG Dump will induce settlement that will be taken up by successive placement of lifts of waste rock by the bottom-up method. The rate of loading is controlled by operational procedures.
  - Differential settlement may occur due to the presence of existing waste rock in the NW PAG Dump, due to differences in soil thickness and compressibility, and due to changes in loading across the dump.
    - The design does not include a liner or filter, or other elements that are sensitive to differential settlements.
  - Settlements of bedrock that would impact the performance of the NW PAG Dump are not considered credible. There are no known underground workings below the NW PAG Dump that could result in subsidence.

10.0 CONSTRUCTION AND OPERATIONAL CONSIDERATIONS

10.1 Construction Recommendations

The proposed ultimate NW PAG Dump is expected to exhibit adequate slope stability during construction. To help reduce the potential for failure material to runout as far as the Bootjack Access Road if failure of the proposed ultimate NW PAG Dump were to occur, it is recommended that only good quality rock be placed on the outside face of the waste dump, and that all poor-quality material be placed in the center or east side of the NW PAG Dump. While constructing the NW PAG Dump there should be two areas of operation at all times, the center or eastern side of the dump for poor-quality material and the outside edge of the active dump lift faces for good quality material.

The wide catch-benches around the proposed ultimate NW PAG Dump should be free-dumped on prior to constructing the next lift to help contain rock rollout as the dump is constructed higher. As well, berms should be constructed at the edge of each lift to help contain rock rollout.

10.2 Topsoil Management

WSP understands that all topsoil and reclamation suitable materials have been stripped from the footprint of the proposed ultimate NW PAG Dump. Windrow material that has been stockpiled at the toe of the current NW PAG Dump should be relocated such that it does not affect the overall slope stability of the dump or impede drainage from the dump.

10.3 Slope Stability Monitoring

The waste rock that will be consigned to the proposed ultimate NW PAG Dump will be an essentially cohesionless material. When a cohesionless material is at its angle of repose, the FOS of shallow potential failure surfaces in the face of a lift is close to 1.0. Under these conditions, shear strains occur within the zone located at shallow depths below the face of the dump, which results in down-slope displacement of the crest. Compaction settlement of material in the bottom of the dump also contributes to this downward displacement of the face of the dump. Displacement of the face and the crest of the dump can also occur when the dump face is advanced over weak foundation materials that can initiate somewhat deeper-seated instability along the waste rock/foundation interface.

If the down-slope movements occur rapidly, they can pose a hazard to people and equipment operating at the crest and near the toe of the dump. However, such shear failures at the crest of dumps do not occur without warning. Rather, they are preceded by the development of cracks, deformation and a period of accelerating displacement rates. Furthermore, larger failures that involve shear strains along or within the foundations are preceded by deep-seated displacements at the dump crest. These crest displacements can be monitored to provide advance warning of impending crest failures and deeper-seated overall failures.

The stability of the NW PAG Dump slopes is being monitored by prisms (MPMC 2021). The prisms should be measured by the MPMC survey team on approximately a monthly basis for the active NW PAG Dump. Survey personnel should continue to ensure consistency in readings and use the same setup and monitoring procedures for each set of measurements. This will improve the ability to detect localized and short-term displacements as well as develop more accurate interpretations of long-term settlement trends. If any significant storm events occur that exceeds a five-year return period or daily maximum precipitation, the prisms should be read. Daily temperature and barometric pressure corrections should be applied to the monitoring data, as rapid changes in temperature or barometric pressure can have a significant impact on the day-to-day accuracy of the data.

The following general guidelines should be used in collecting and interpreting the monitoring data (MPMC 2021):

- Slope distance should be recorded in the waste rock dump monitoring spreadsheets.
  - Slope distance data should be used with caution. It is possible for a portion of the slope to move a significant distance perpendicular to the line of sight with very little change in the slope distance measurement. Therefore, the 3D displacements must also be reviewed for signs of long-term displacement.
- Velocity threshold criteria have been established for the waste rock dumps based on previous experience. However, these data must also be reviewed for signs of acceleration. If a prism is showing acceleration—regardless of the measured velocity—access should be restricted to the area and the source of the displacement should be investigated (Figure 10).
- If prisms are moved or reset, the prism should be renamed, and a new data collection sheet should be completed. The old prism should become inactive in the data collection sheet.

A major part of the slope stability monitoring program will be the regular visual inspections of the waste rock dump crests, platforms, and slope faces for early evidence of slope instability. The waste rock dumps should be inspected once per quarter and during periods of high precipitation that may cause additional infiltration into the dump or additional erosion. These regular inspections should ideally be carried out by the same individual to maintain continuity of the observations. The observations should be recorded so that a record of the stability performance is available should it be required in the event of instability.

The visual reviews should include the following:

- inspecting the crests for signs of cracking and localized settlement and ponding water
- inspecting the faces of the waste rock dumps for signs of over-steepening, bulging in the middle or at the toe of the face, seepage, and erosion
- inspecting the foundation, or toe of the waste rock dump, for signs of deformation

Visual observations should be documented on inspection forms.

11.0 SUMMARY AND RECOMMENDATIONS

Based on the Hawley and Cunning (2017) WSRHC system, the proposed ultimate NW PAG Dump design is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III).

The slope stability analyses results for the proposed ultimate NW PAG Dump design indicate that the dump will meet the design acceptance criteria for slope stability under static and pseudo-static conditions, with the exception of analyses completed with low clay material strength parameters (a phi less than about 27 degrees). The clay material was encountered in an isolated “pocket” north of the current toe of the dump in DH-NW-02 and was not found in the adjacent boreholes and test pits (DH-NW-03, DH-NW-03A, TP-NW-01, TP-NW-02, and TP-NW-03). No investigations have been completed immediately beneath the toe of the NW PAG Dump in this area as access is limited. The material was also interpreted to be discontinuous/interbedded with silty clay. The area of the current NW PAG Dump near where the clay material was encountered is stable, and has been since construction, indicating that at least a FOS of 1.0 is being achieved. Recommendations for construction near the clay material include:

- Remove the clay material prior to dumping in this area (even though the toe of the proposed ultimate NW PAG Dump does not cover the area where DH-NW-02 was drilled). The clay material was encountered in an old borrow area, therefore, more material could be removed from the borrow area to key into the till material below.
- Use low lift heights (about 5 m) when constructing the lower NAG lift in this area to limit development of potential excess pore pressures and not rapidly load the clay material if it does exist further south beneath the proposed ultimate NW PAG Dump design toe.
    - When constructing the low lifts, advancement could be such that the borrow area is encapsulated (where the potential clay material exists if it extends as far south as the proposed ultimate NW PAG Dump footprint). Once the area is encapsulated, waste rock can then be dumped into the encircled area. This method provides lateral support from the surrounding topography and the dump prior to dumping on top of the borrow area.

The runout analyses results indicate that under wet foundation conditions, it is likely that failure debris would impact the Bootjack Access Road and settling ponds. Based on the slope stability performance of the NW PAG Dump over the past 12 years, and on the slope stability analyses carried out for the proposed ultimate NW PAG Dump design, there is a low probability that a failure would occur in the NW PAG Dump due to the relatively high FOS indicated by the slope stability analyses.

Rock rollout could impact the Bootjack Access Road.

Settlement of the NW PAG Dump is expected to be limited and manageable.

Recommendations for the proposed ultimate NW PAG Dump construction include:

- Controlled loading rates
    - Prism and VWP data along with visual inspections and daily loading rates can all be used to understand if loading rates are having an adverse affect on dump construction.

- While constructing the NW PAG Dump, dumping operations should avoid concentrated dumping at a single location and should use as wide a strike length along the slope face as possible while advancing a lift.
- Construct berms at the edge of each catch-bench and free dump along the entire lift prior to constructing the next lift to limit rock rollout.
- Follow Standard Operating Procedures at Mount Polley Mine for:
  - Grading the dump and avoid ponding water on platforms.
  - Controlling the placement of waste rock being used for construction. The waste rock type should be discussed and planned in collaboration with geology and short-range engineering, as required. The material consigned to the NW PAG Dump should be good quality waste rock that is hard, coarse rock. Poor-quality material such as faults or overburden materials should be dumped in a central location of the dump such that it can be encapsulated and covered with good quality waste rock.

The stability of the NW PAG Dump slopes is being monitored by prisms (MPMC 2021). The prisms should be measured by the MPMC survey team on approximately a monthly basis for the active NW PAG Dump. Survey personnel should continue to ensure consistency in readings and use the same setup and monitoring procedures for each set of measurements. This will improve the ability to detect localized and short-term displacements as well as develop more accurate interpretations of long-term settlement trends. If any significant storm events occur that exceeds a five-year return period or daily maximum precipitation, the prisms should be read. Daily temperature and barometric pressure corrections should be applied to the monitoring data, as rapid changes in temperature or barometric pressure can have a significant impact on the day-to-day accuracy of the data.

A key component to the safe operation of the proposed ultimate NW PAG Dump to mitigate instability will be regular visual inspections. The following operational procedures are recommended for the proposed ultimate NW PAG Dump:

- The proposed ultimate NW PAG Dump should be visually inspected and photo-documented on a regular basis during construction, on approximately a weekly basis. The pit shifter or the geotechnical engineer should be completing the formal visual inspections. The following information should be investigated and recorded:
  - The crests of the NW PAG Dump lifts should be examined for signs of cracking and localized settlement and ponding water.
  - The faces of the NW PAG Dump lifts should be examined for signs of oversteepening, bulging in the middle, seepage, erosion, and the toe of the dump, if it can be observed, for signs of deformation.
  - The type of material being placed on the NW PAG Dump lifts and the loading rates should be documented.
- Dozer and haul truck operators should be continuously observing the construction of the NW PAG Dump lifts for signs of instability and reporting their observations to their pit shifter.

12.0 CLOSURE

We trust this report satisfies your current requirements. If you have any questions or require further assistance, please do not hesitate to contact the undersigned.

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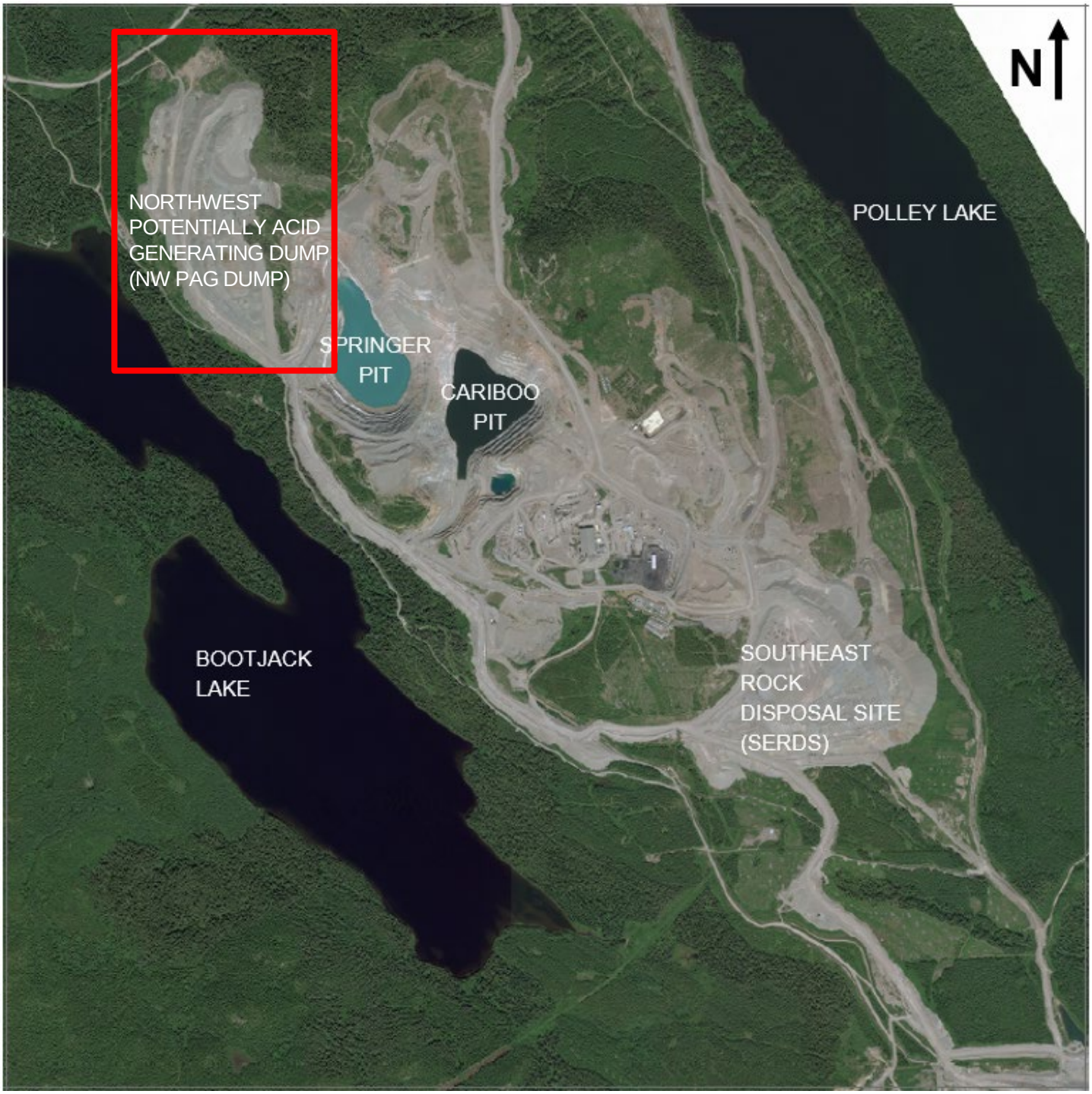

REFERENCES AND NOTES

1. SATELLITE ORTHOPHOTO PROVIDED BY MPMC JUNE 21, 2021.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
MOUNT POLLEY MINE
NW PAG DUMP
SITE LOCATION

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**1**

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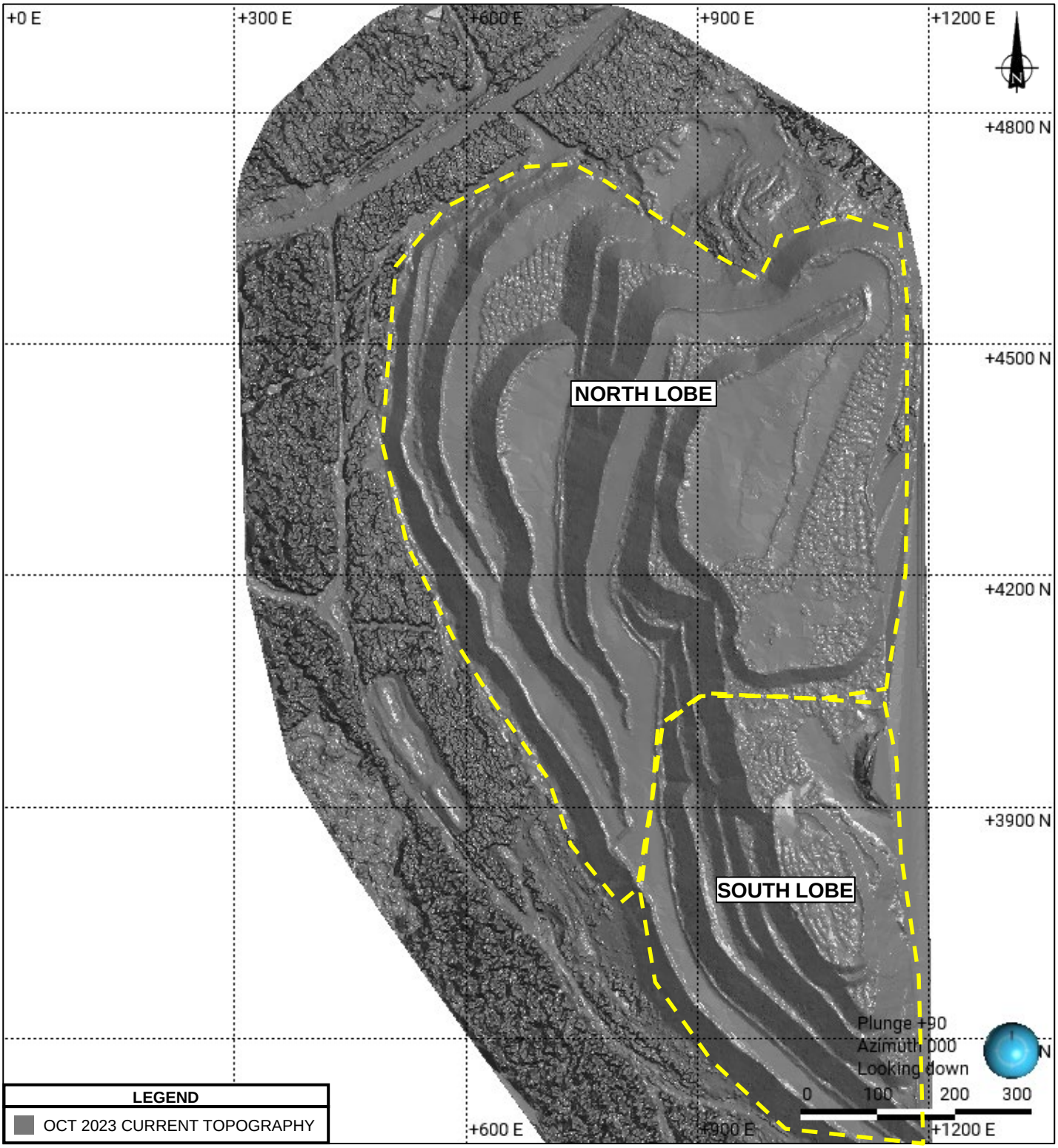


REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

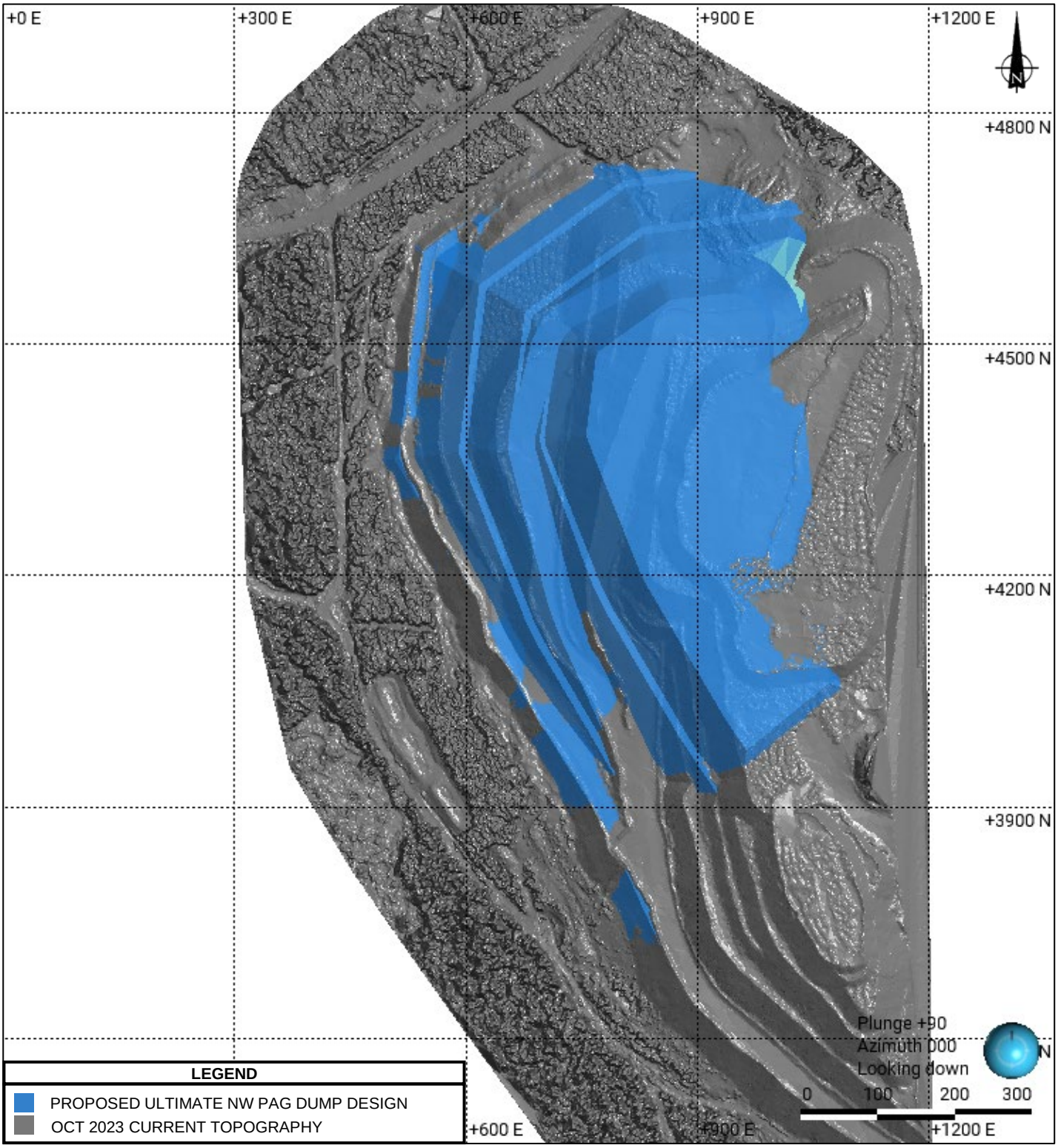
YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
OCTOBER 2023 TOPOGRAPHY OF NW PAG DUMP

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	2

Path: WSP SharePoint>CA0020527.4505, Mount Polley Mine> Deliverables> Issued | File Name: Figures 1 and 7.pptx



LEGEND

- PROPOSED ULTIMATE NW PAG DUMP DESIGN
- OCT 2023 CURRENT TOPOGRAPHY

REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

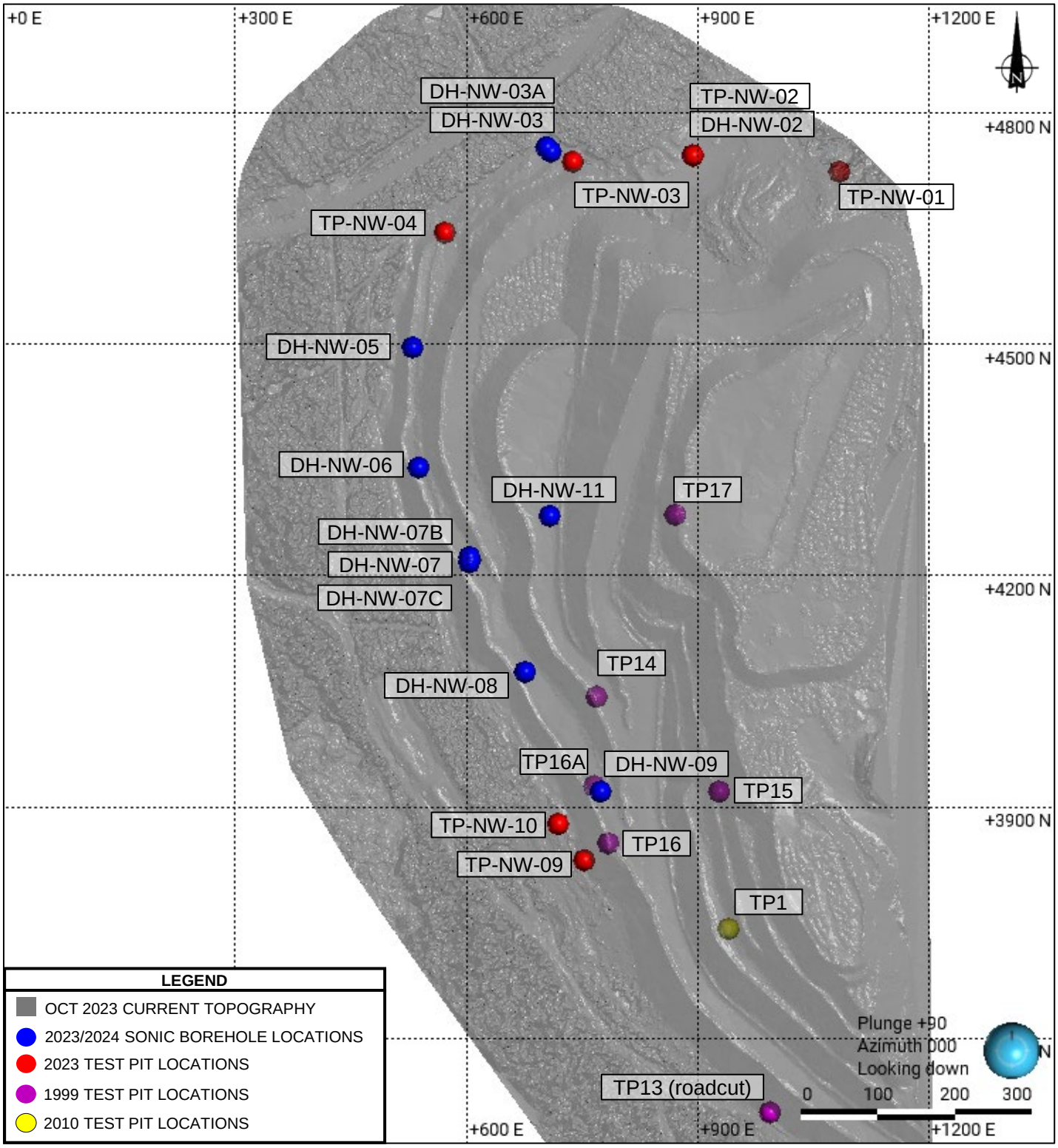
CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3**

Path: WSP SharePoint>CA0020527.4505, Mount Polley Mine> Deliverables> Issued | File Name: Figures 1 and 7.pptx



REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
OCTOBER 2023 TOPOGRAPHY
FIELD INVESTIGATION LOCATIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	4

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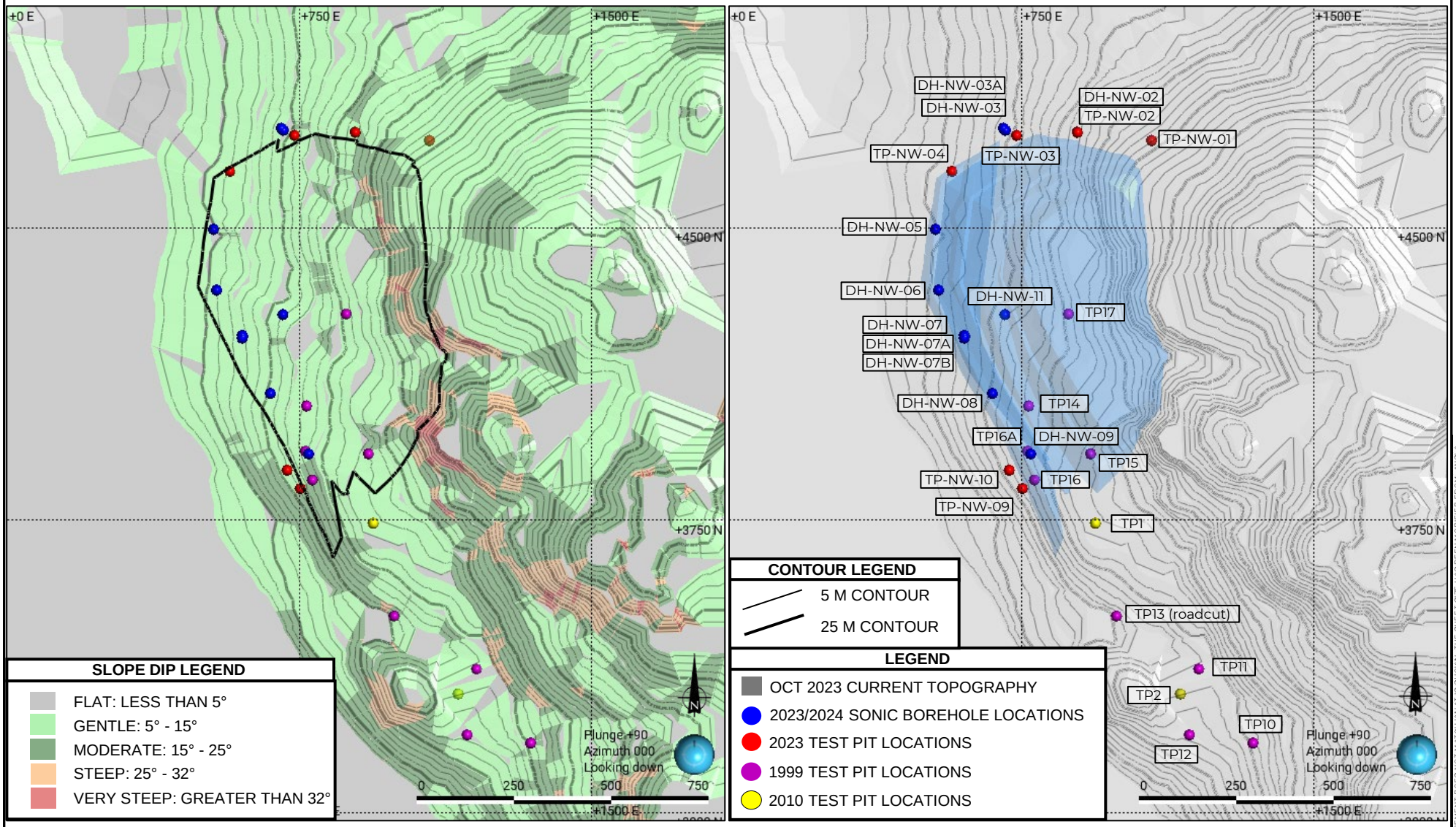

REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
FOUNDATION SLOPE DIP
SHOWING PROPOSED ULTIMATE NW PAG DUMP FOOTPRINT
AND FIELD INVESTIGATION LOCATIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	5

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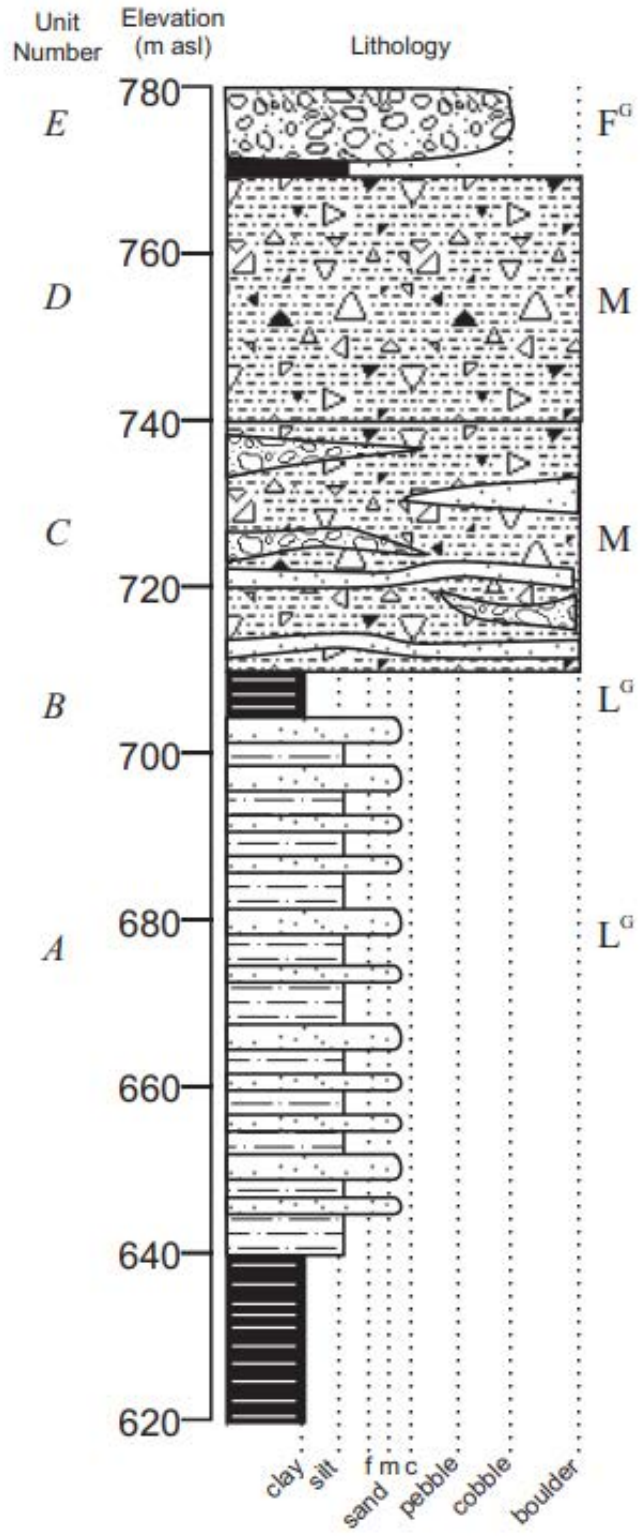
0 25 mm



asl = above sea level; F^G = glaciofluvial deposits; M = basal till; L^G = glaciolacustrine deposits.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
STRATIGRAPHIC COLUMN
MOUNT POLLEY MINE AREA
SOURCE: BICHLER AND BOBROWSKY 2003

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**6**

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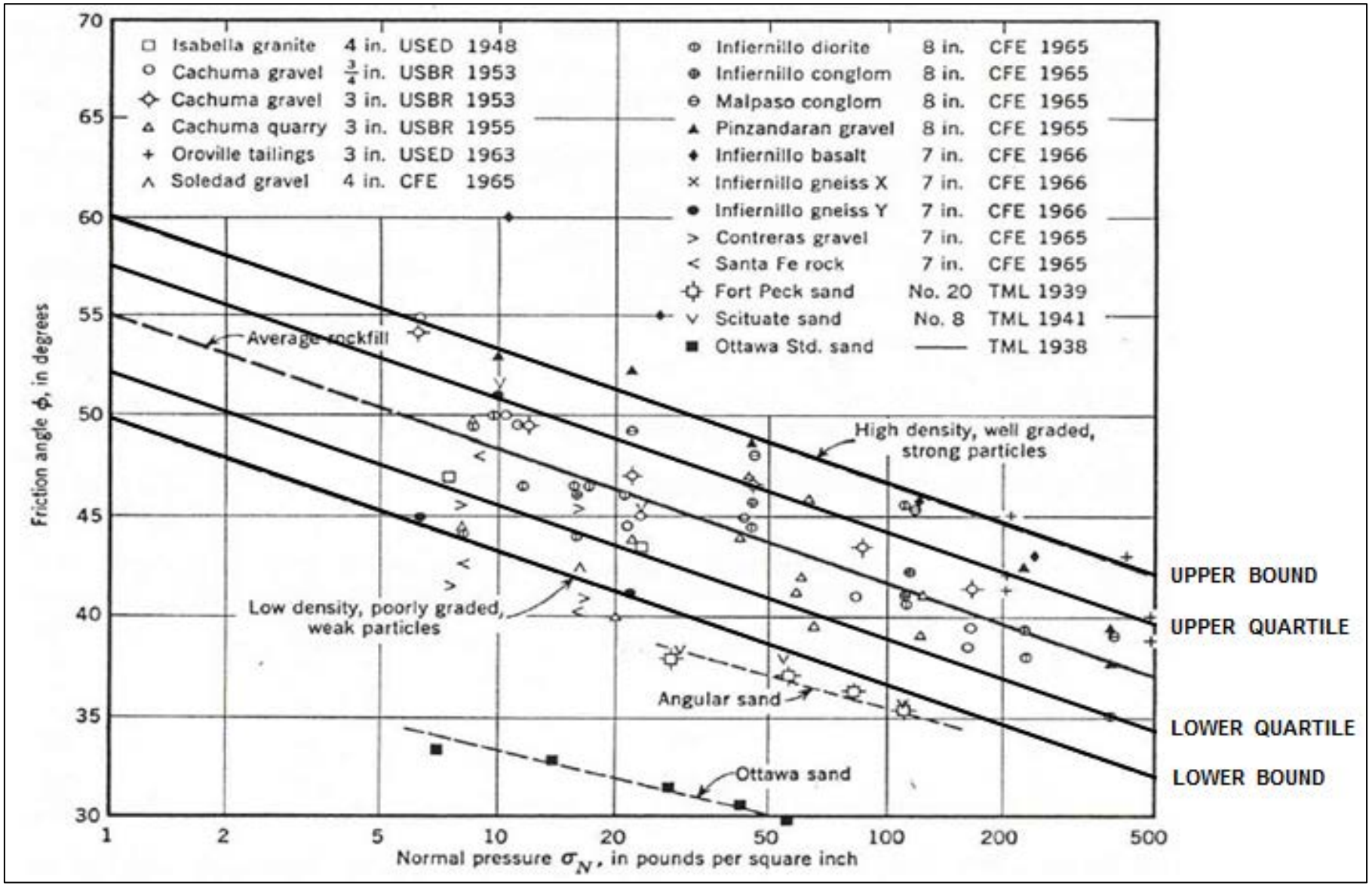


CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

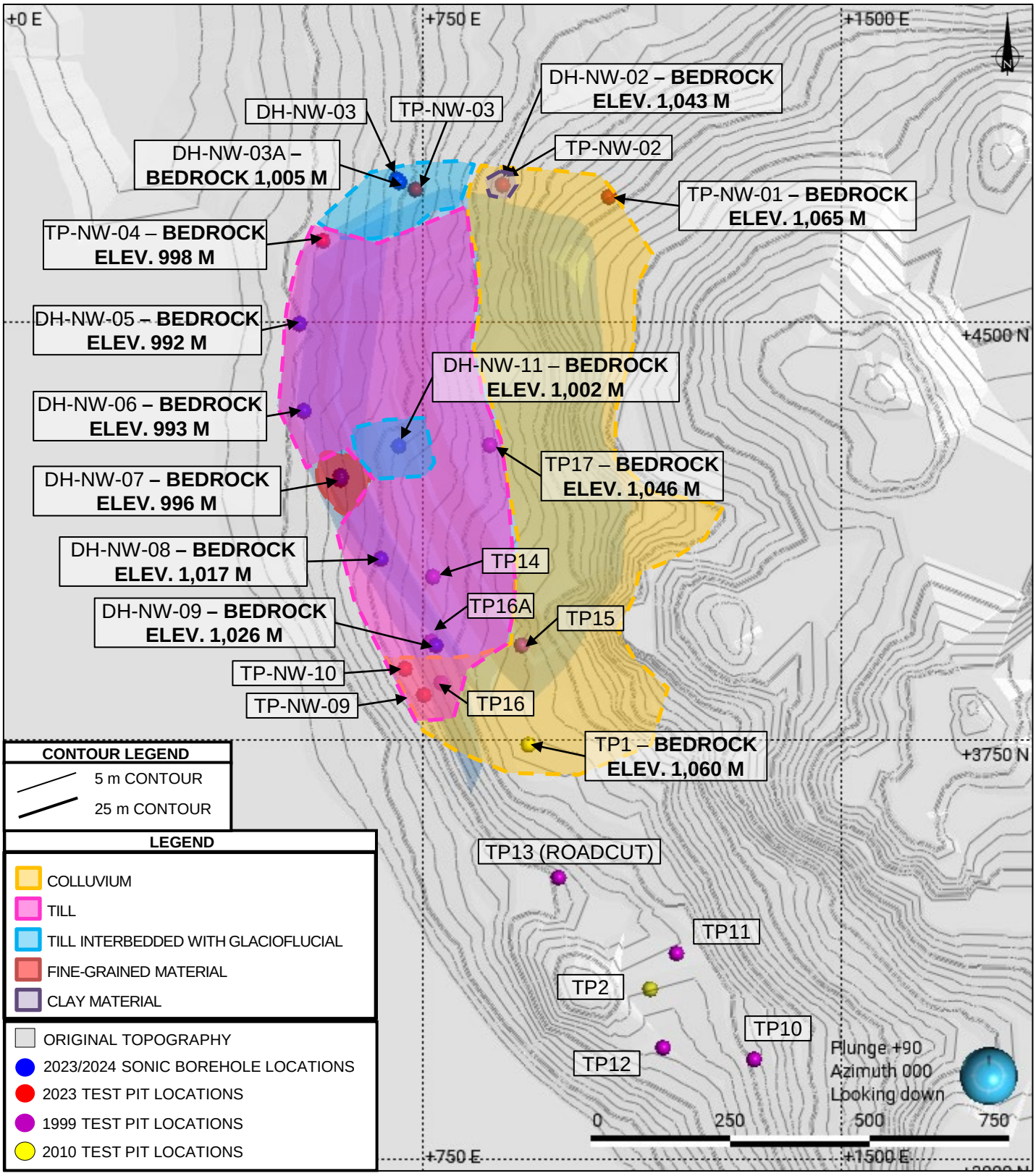
YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
NON-LINEAR SHEAR STRENGTH OF ROCKFILL FROM TRIAXIAL TESTS AFTER LEPS (1970)

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	7

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

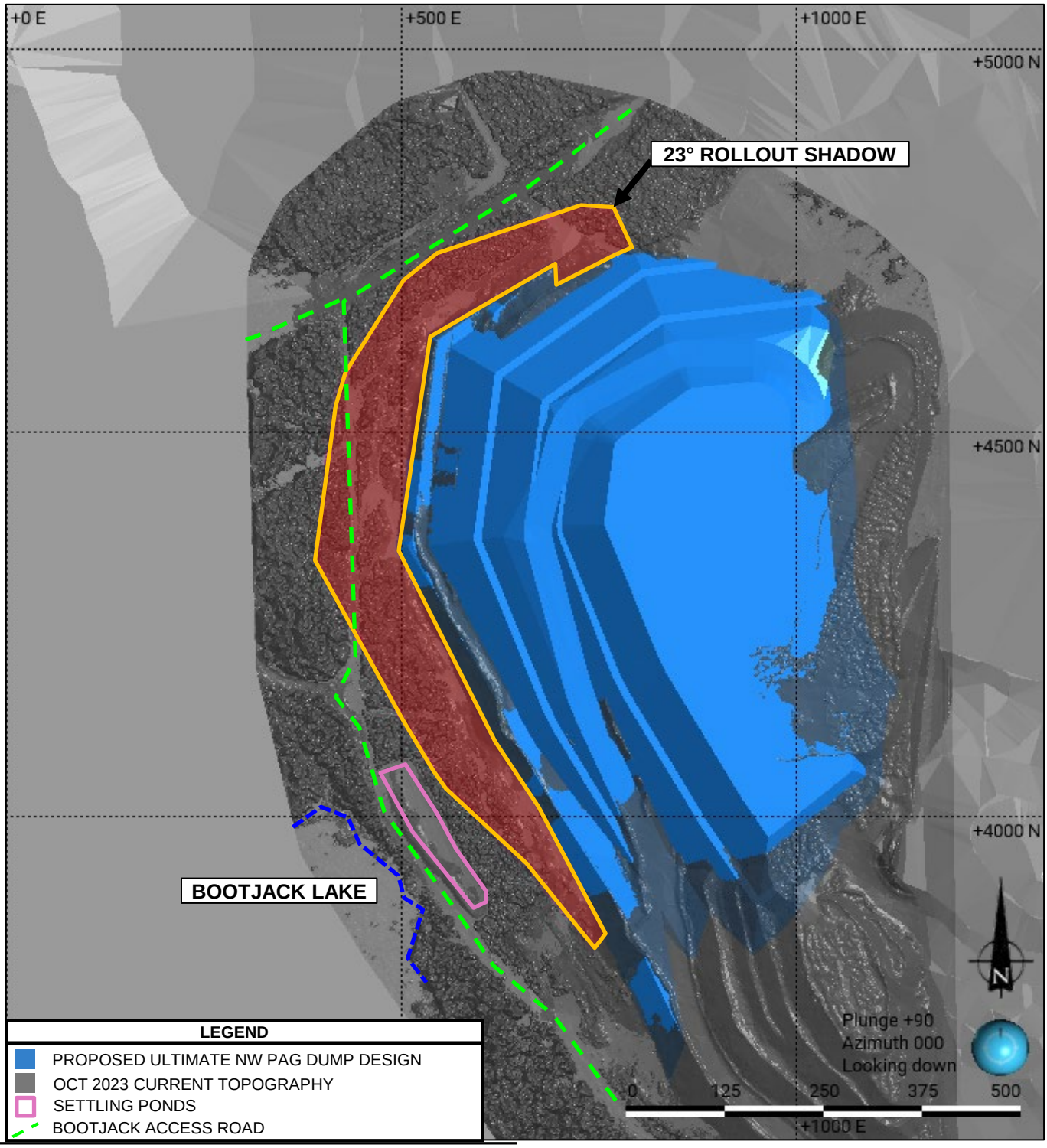
CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

TITLE
SURFICIAL GEOLOGY INTERPRETATION FOR PROPOSED ULTIMATE NW PAG DUMP DESIGN AREA

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	8

Path: WSP SharePoint>CA0020527.4505, Mount Polley Mine> Deliverables> Issued | File Name: Figures 1 and 7.pptx



REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.
2. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
3. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

CONSULTANT

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

TITLE
ROCK ROLLOUT SHADOW FOR PROPOSED ULTIMATE NW PAG DUMP DESIGN

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	9

Path: WSP SharePoint>CA0020527.4505, Mount Polley Mine> Deliverables> Issue4 | File Name: Figures 1 and 7.pptx

Prism Data Interpretation Procedures

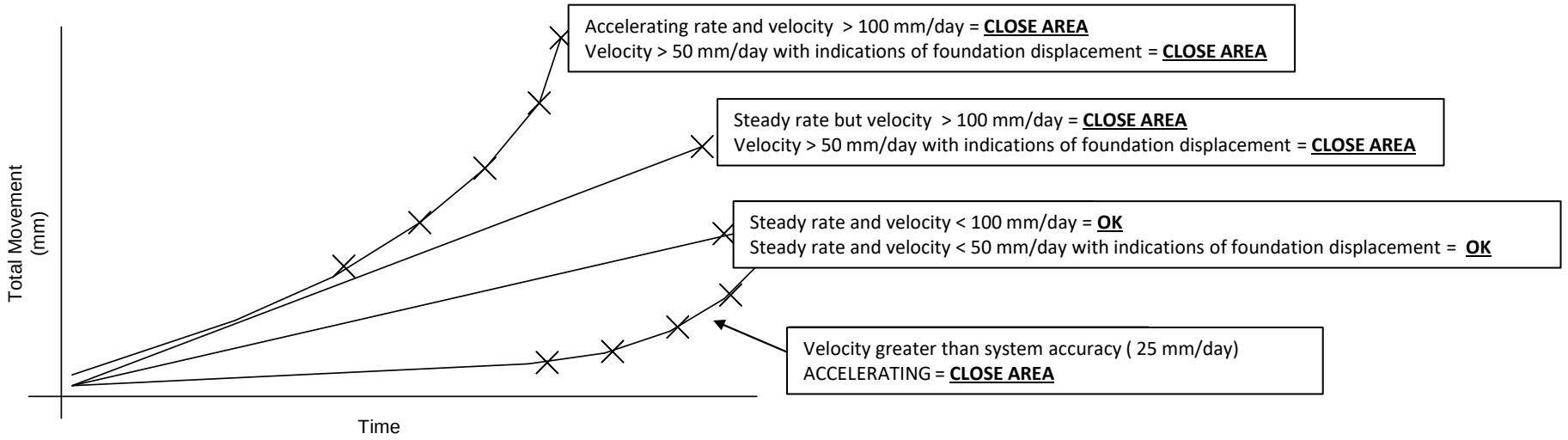
A) Daily displacement (mm)
(How many millimetres did it move? Was this less than or more than the monitoring system accuracy?)

B) Daily velocity (mm/day)
(How fast is it moving?)

C) Direction of movement (azimuth)
(Does the direction of movement make sense? Is it moving away from the dump face, parallel to the dump face, or into the dump?)

D) Direction of movement (vertical)
(Are all of the psirms moving upward? If so, is it possible that the base station or back-sight is settling?)

E) Total displacement graph
(Is it accelerating?)



CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-11
PREPARED	MVK
DESIGNED	AGH
REVIEWED	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
WASTE ROCK DUMP PRISM MONITORING DATA INTERPRETATION CRITERIA

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	10

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

APPENDIX A

Slope Stability Performance Photographs

REFERENCES AND NOTES

1. PHOTOGRAPH FROM GOLDER 2013C.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2012 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPH LOOKING NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-1

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

REFERENCES AND NOTES

1. PHOTOGRAPH FROM GOLDER 2015B.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2013 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPH LOOKING NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2016.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2014 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING WEST AND NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-3

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2017.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2016 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING WEST AND NORTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-4

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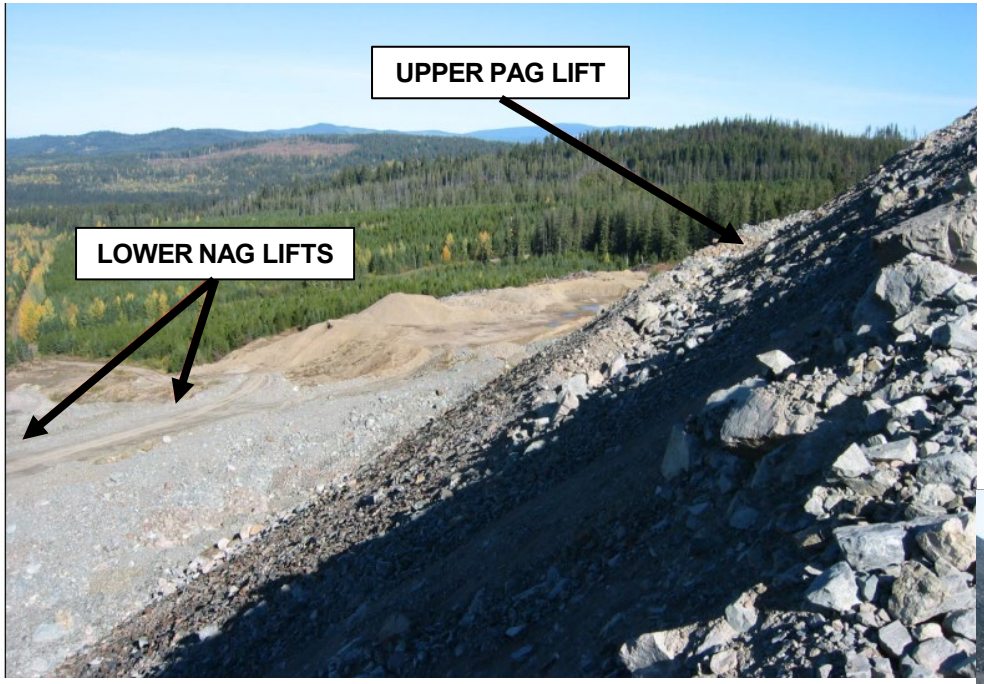


REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2018.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2017 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH AND SOUTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2019.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

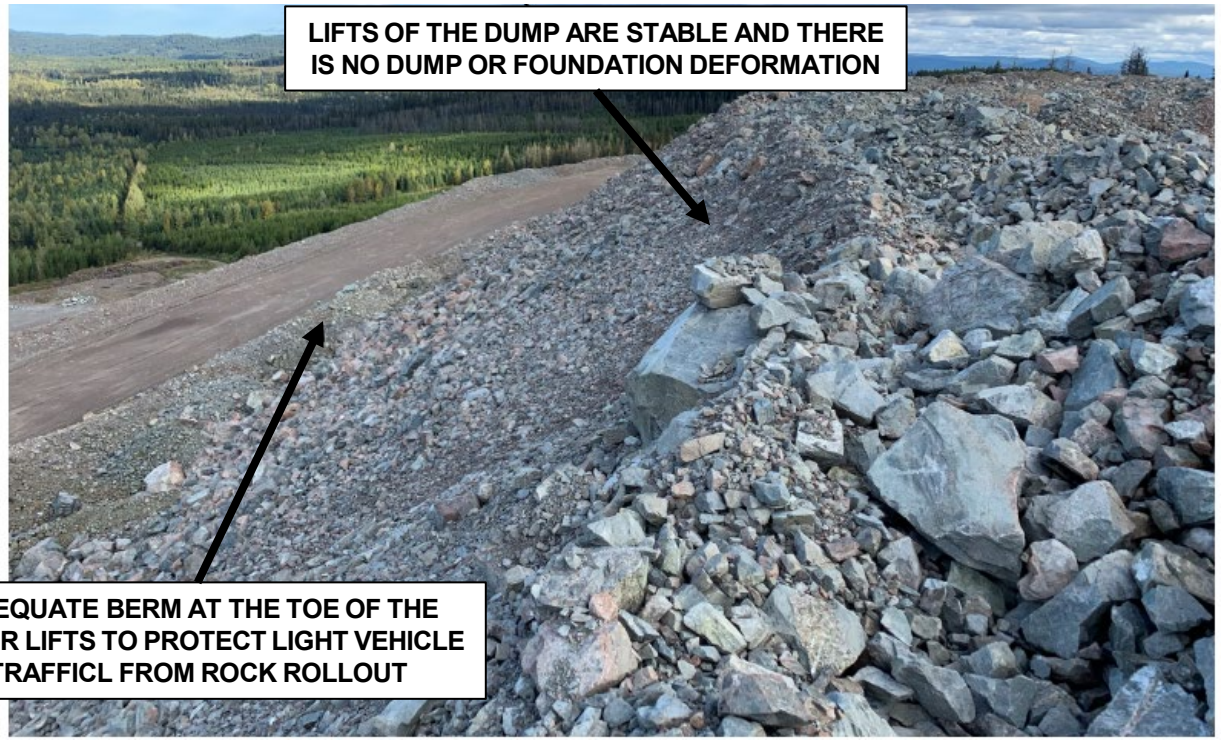
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2018 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH AND SOUTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-6

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2020.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

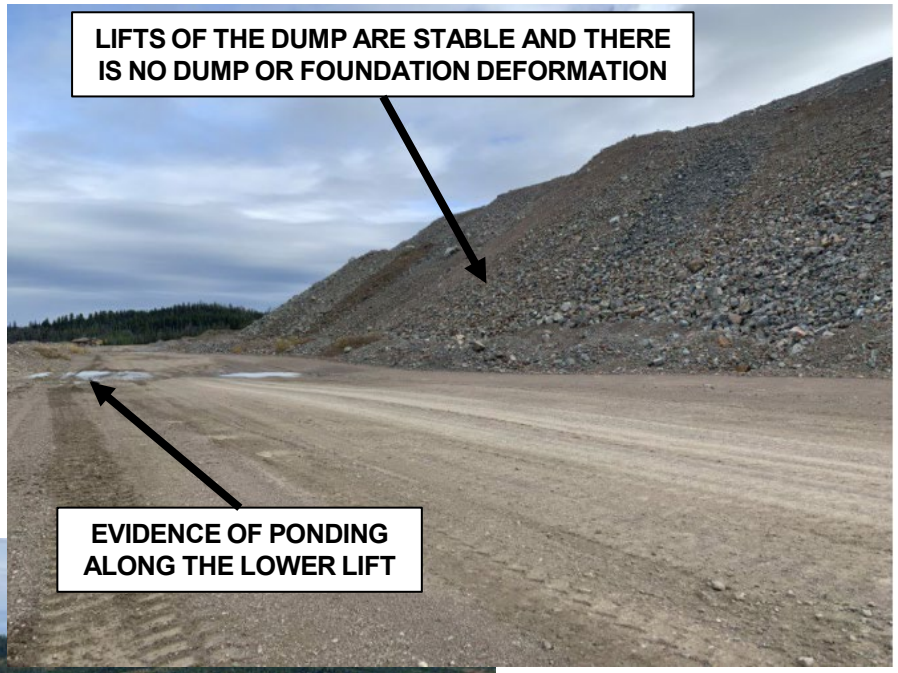
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2019 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING SOUTH AND NORTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-7

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2021.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

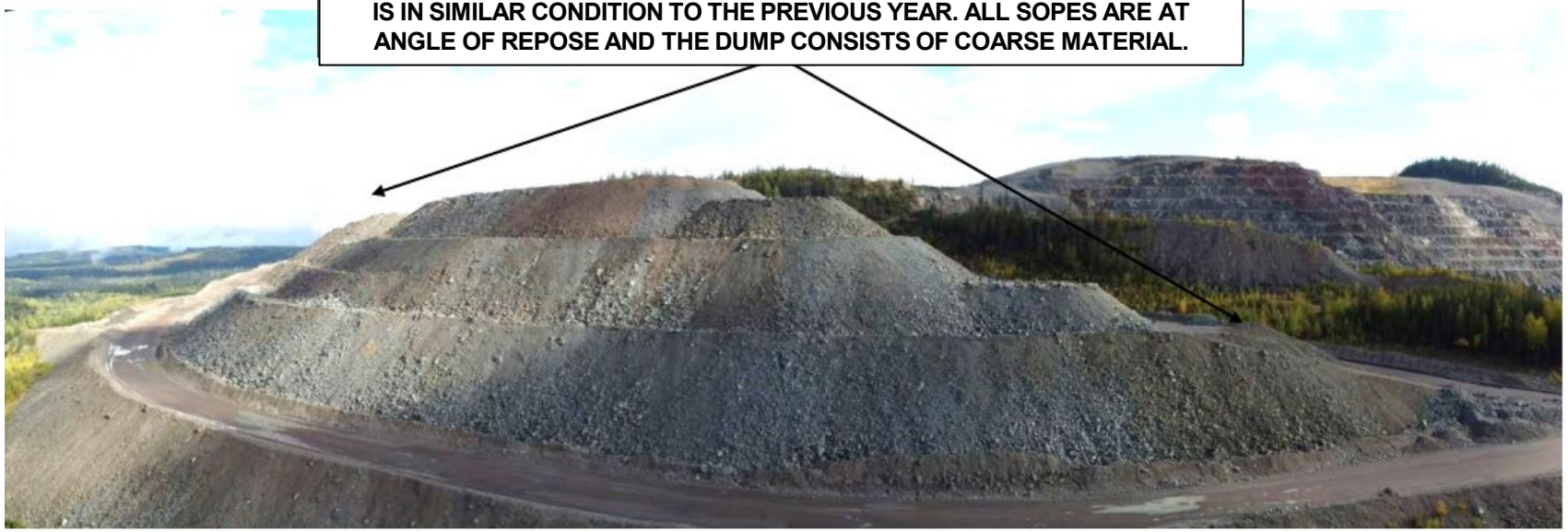
YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2020 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTHWEST, SOUTHEAST AND SOUTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. PHOTOGRAPHS FROM GOLDER 2022.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2021 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTHEAST AND WEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM WSP 2023A.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
2022 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH AND SOUTHWEST

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-10

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

AREA OF SETTLEMENT ON LOWER LIFT LIKELY INFLUENCED BY WATER AND THE FOUNDATION SOILS.

LOWER LIFT ON NORTH END OF DUMP PERFORMING ADEQUATELY FOR SLOPE STABILITY.

REFERENCES AND NOTES

1. PHOTOGRAPHS FROM WSP 2023C.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-03
PREPARED	AGH
DESIGNED	AGH
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

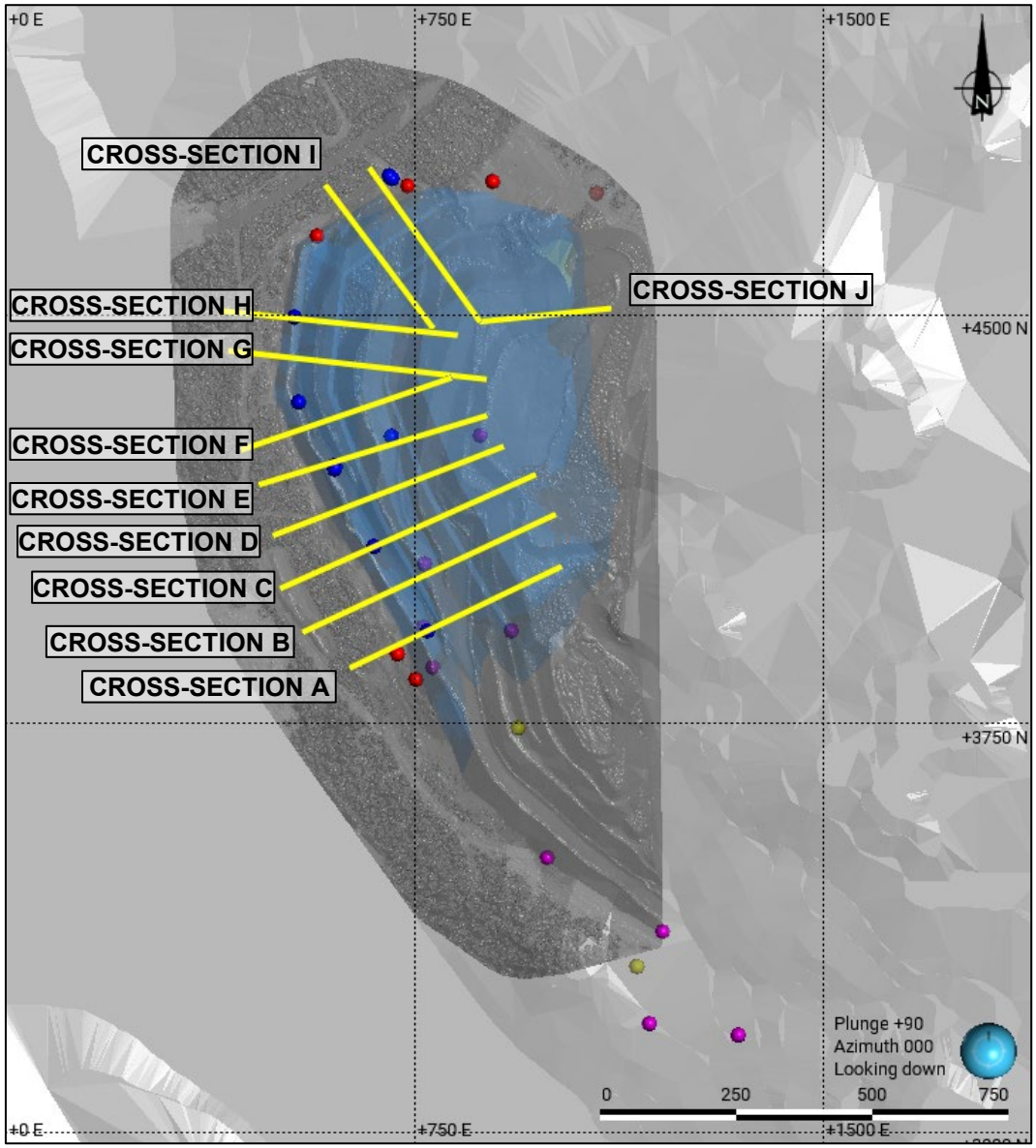
TITLE
2023 SLOPE STABILITY REVIEW
NORTHWEST POTENTIALLY ACID GENERATING DUMP
PHOTOGRAPHS LOOKING NORTH

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	A-11

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

APPENDIX B

Cross-Section Review



LEGEND

- ORIGINAL TOPOGRAPHY
- PROPOSED ULTIMATE NW PAG DUMP DESIGN
- OCT 2023 CURRENT TOPOGRAPHY
- 2023/2024 SONIC BOREHOLE LOCATIONS
- 2023 TEST PIT LOCATIONS
- 1999 TEST PIT LOCATIONS
- 2010 TEST PIT LOCATIONS

REFERENCES AND NOTES

1. ORIGINAL TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2008-01-25. FILE NAME: Mt.Polley Asbuilt Aug 16 2006_2007 Springer and C2 Design Pits_LP.dwg.
2. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
3. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION LOCATIONS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-1**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

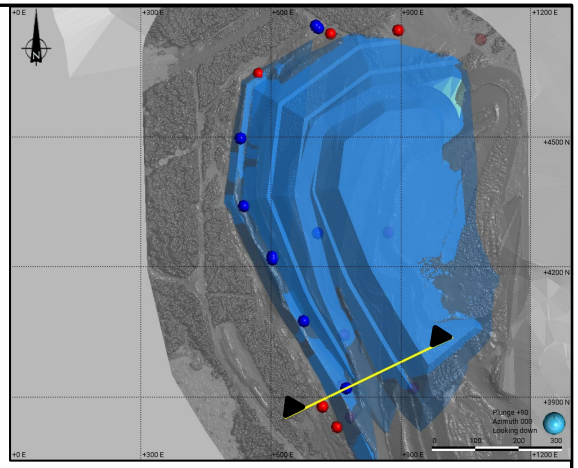
VWP - Water Table

- VWP - Water Table

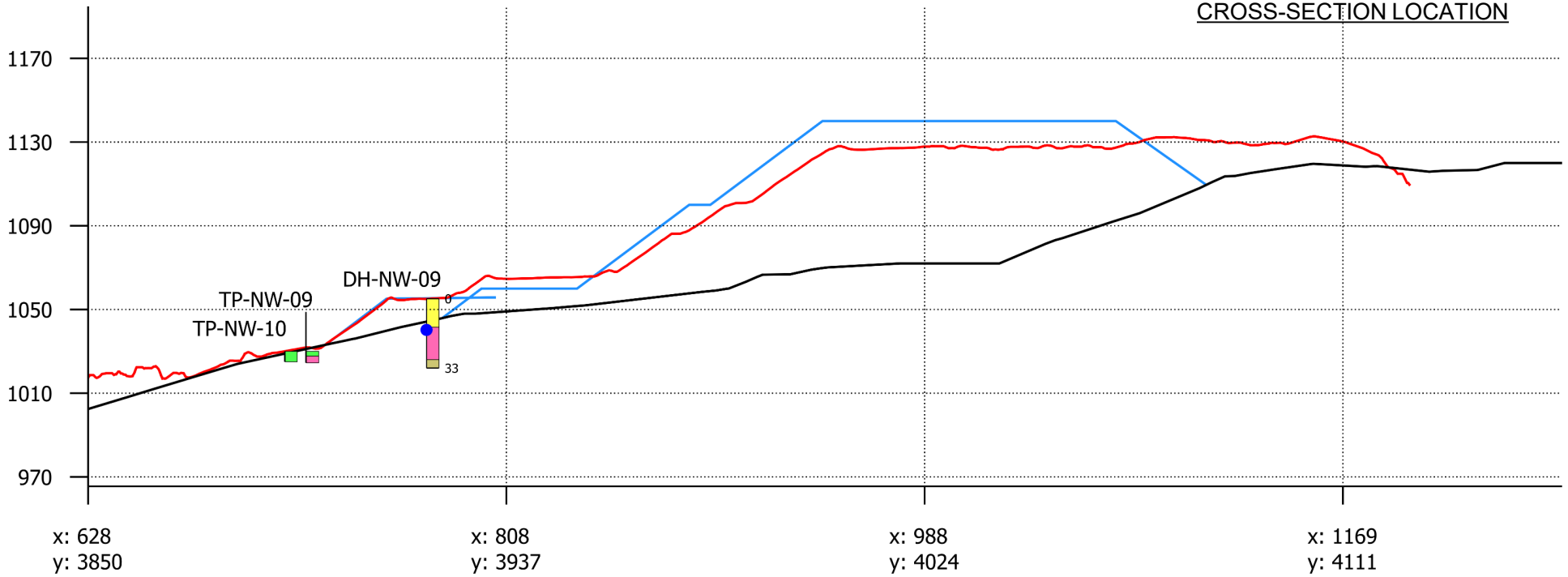
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION A

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-2**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

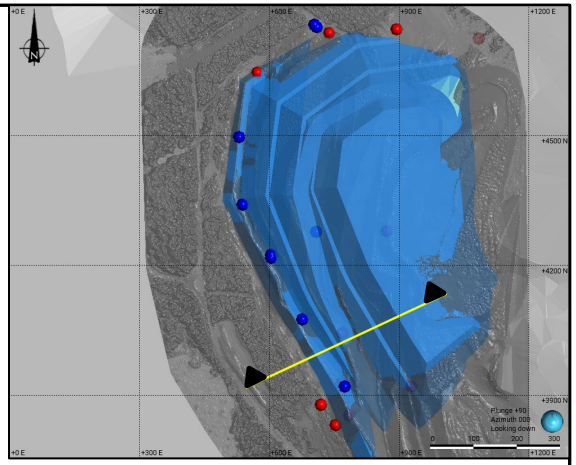
VWP - Water Table

- VWP - Water Table

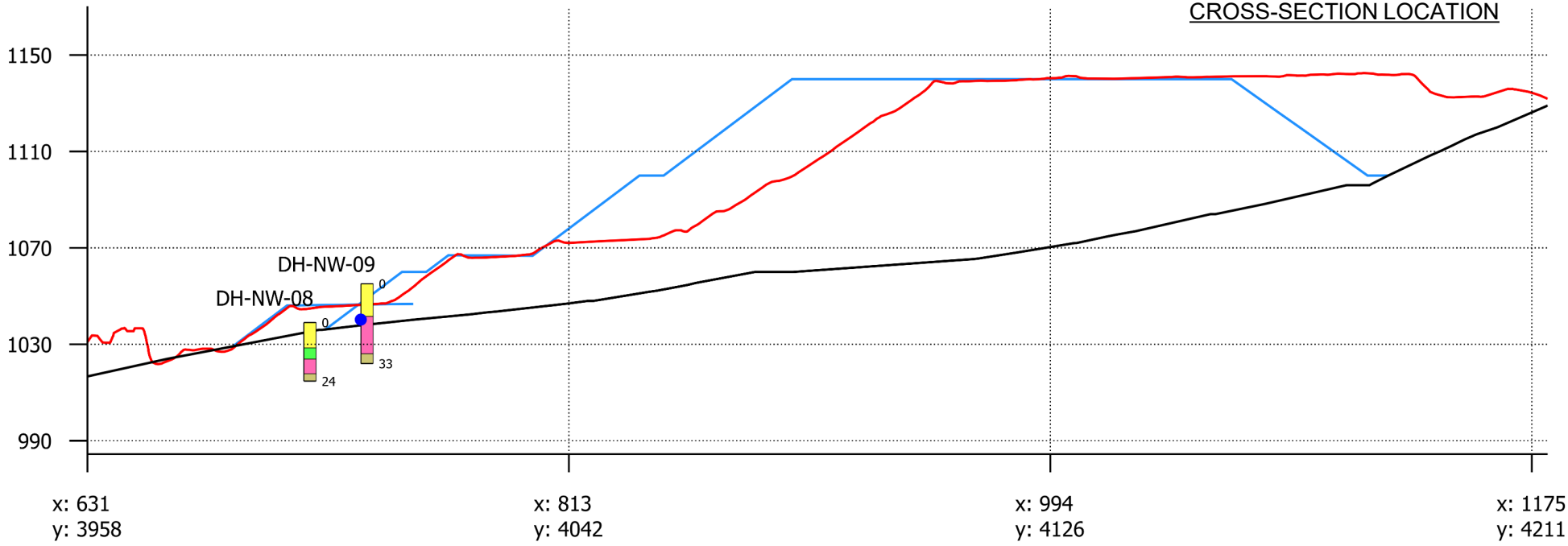
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION B

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-3**

Legend

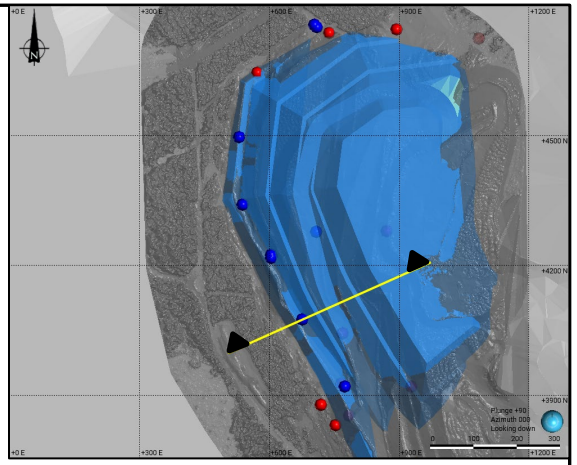
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

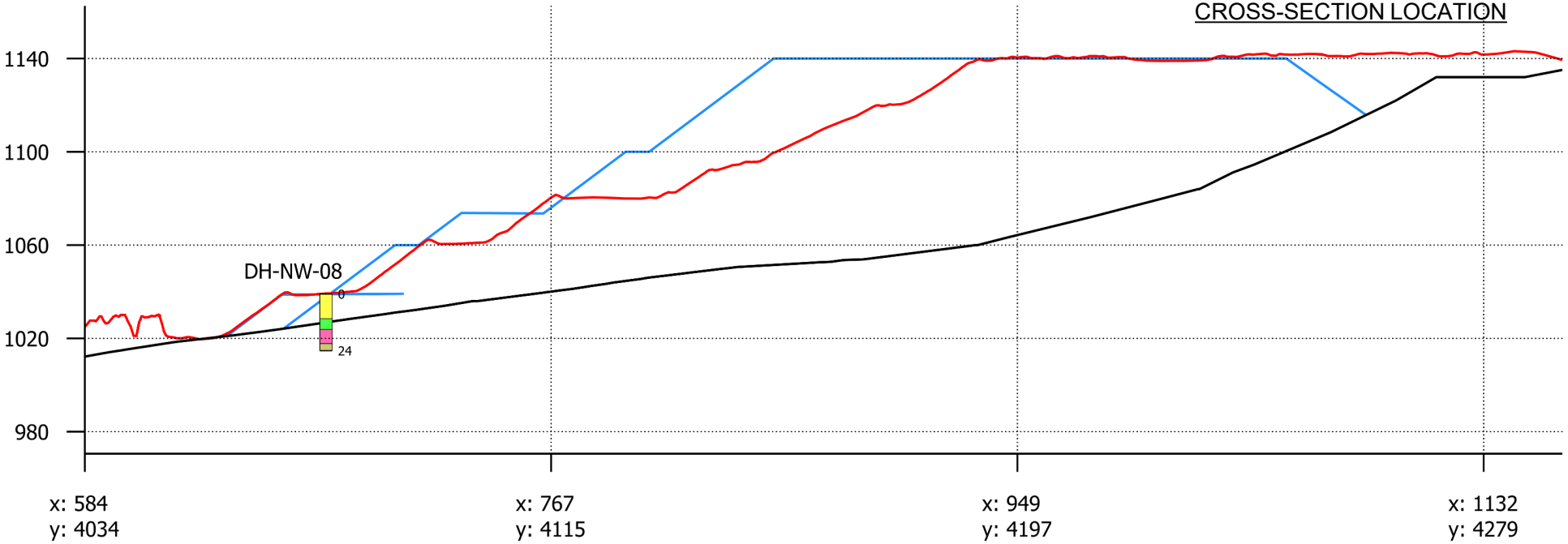
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION C

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-4**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

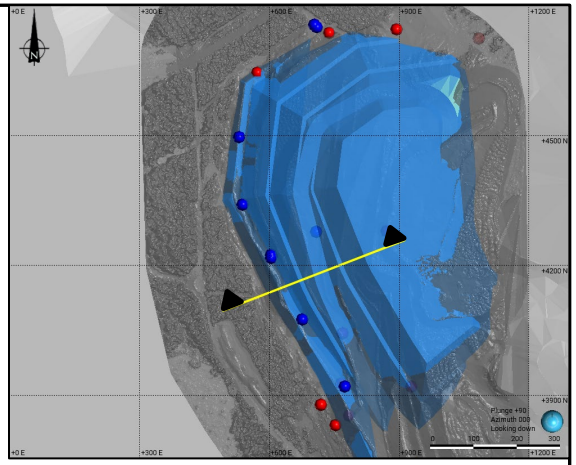
VWP - Water Table

- VWP - Water Table

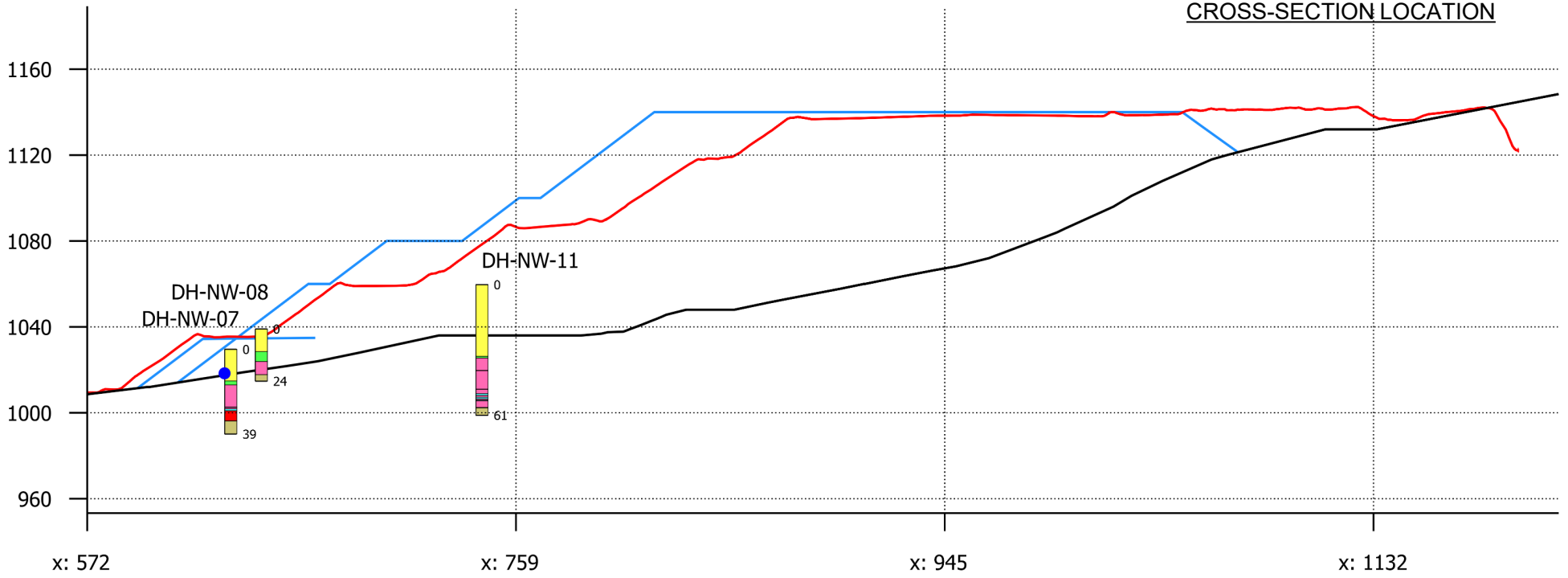
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION D

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-5**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

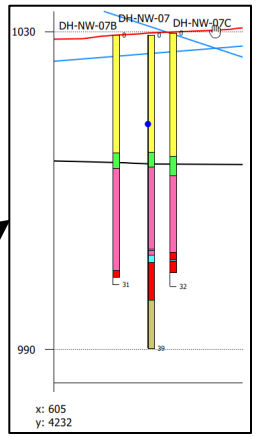
VWP - Water Table

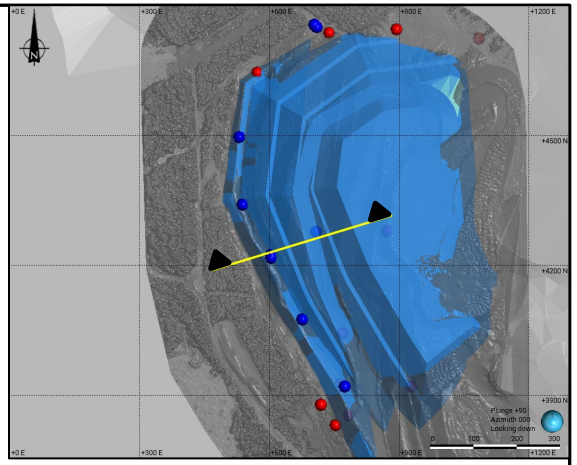
- VWP - Water Table

BH_Unit

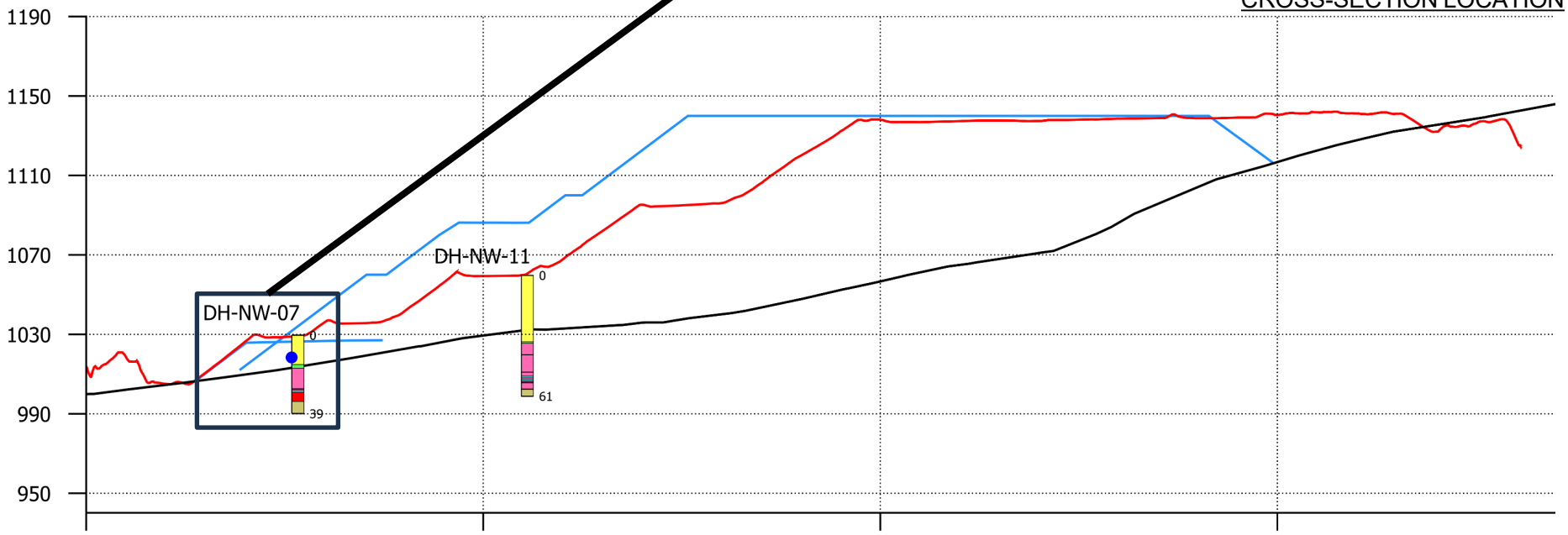
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m





CROSS-SECTION LOCATION



x: 503
y: 4199

x: 694
y: 4257

x: 886
y: 4316

x: 1077
y: 4374

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION E

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-6**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

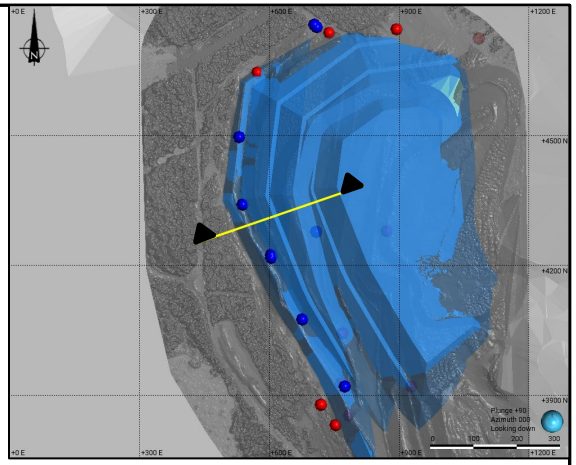
VWP - Water Table

- VWP - Water Table

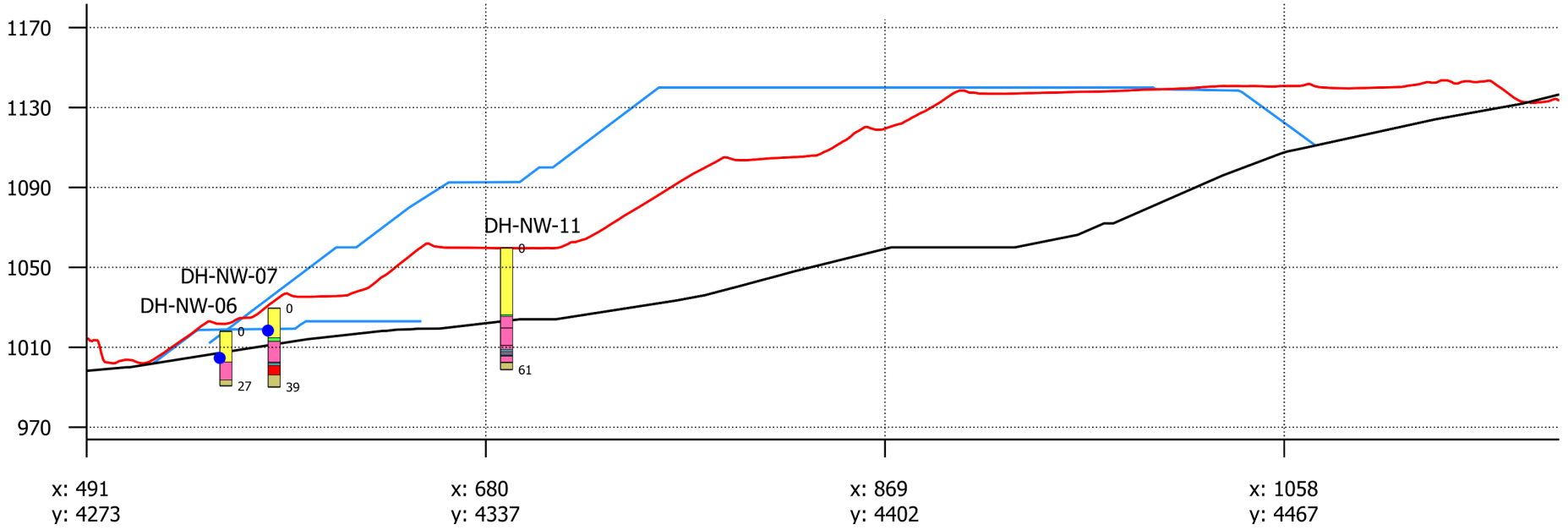
Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION F

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-7**

Legend

Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

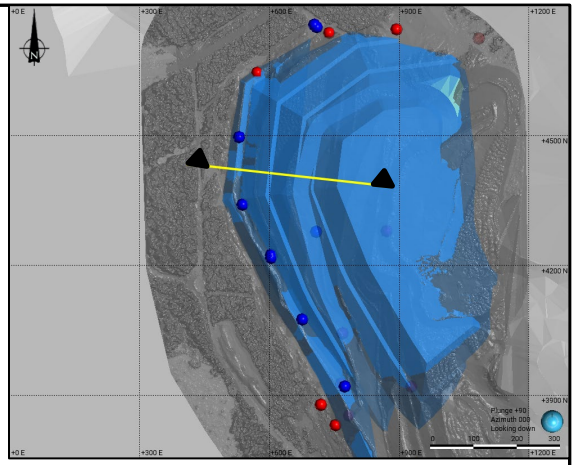
VWP - Water Table

- VWP - Water Table

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m

BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock



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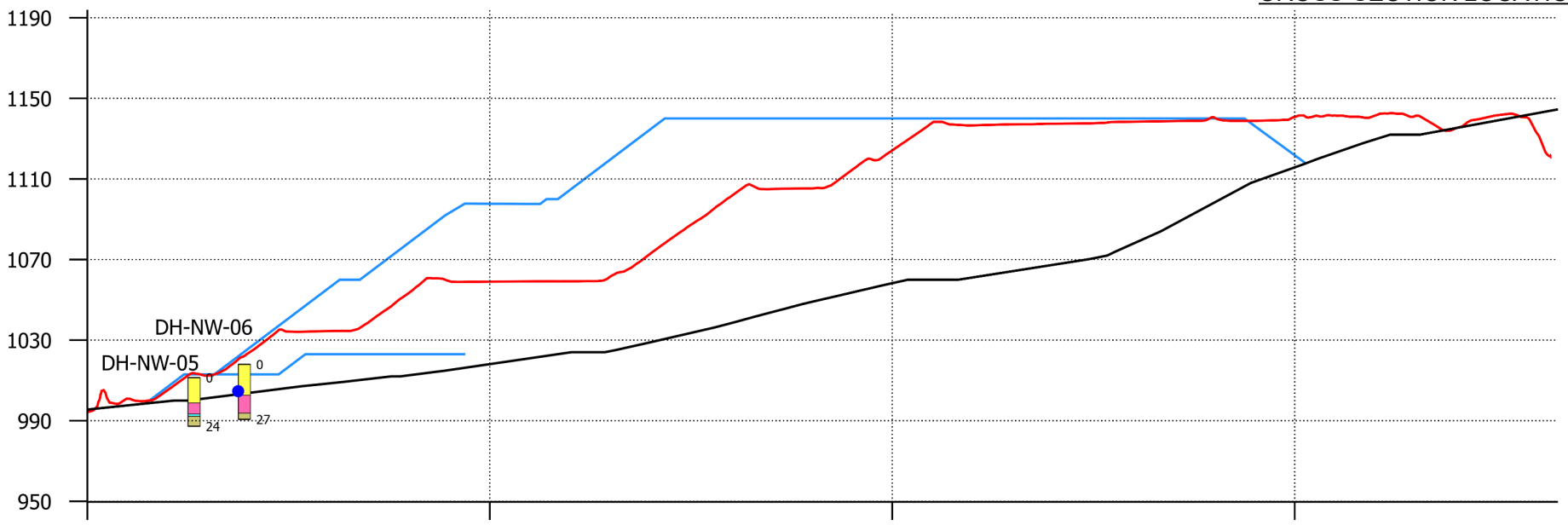


x: 472
y: 4427

x: 671
y: 4405

x: 870
y: 4383

x: 1069
y: 4361

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION G

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-8**

Legend

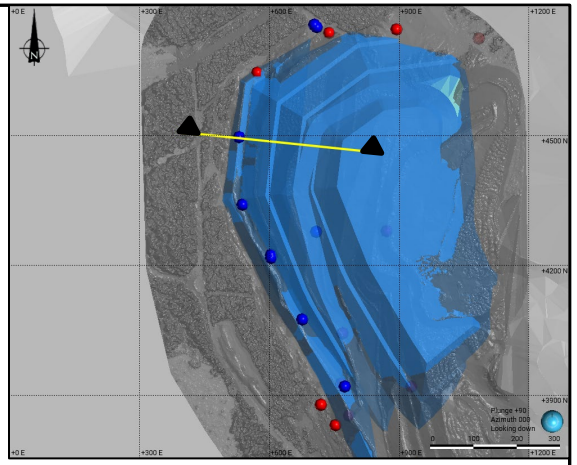
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

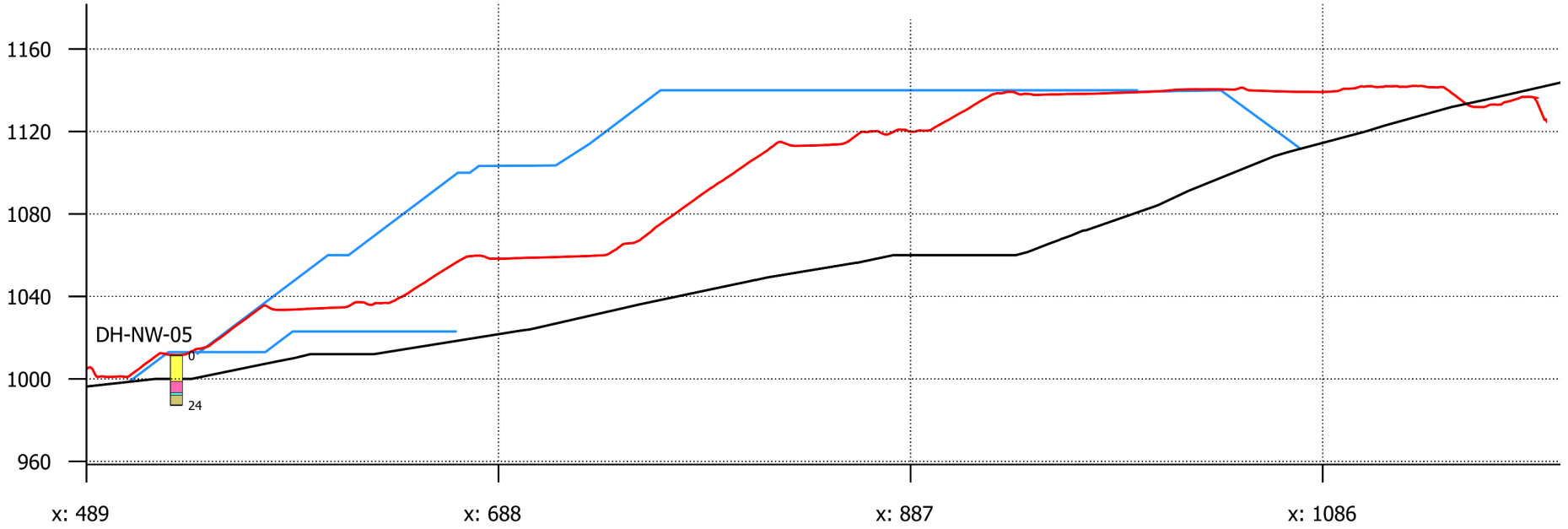
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION H

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-9**

Legend

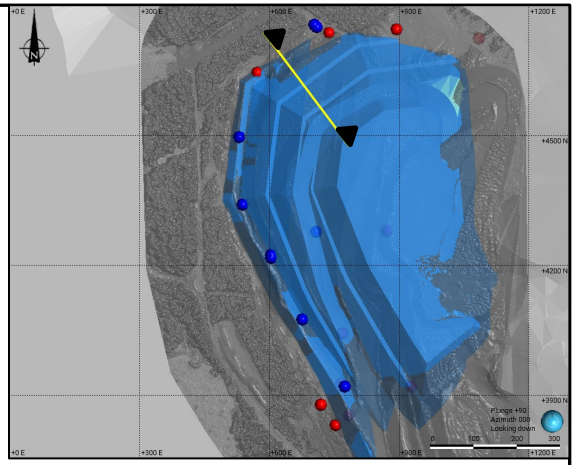
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

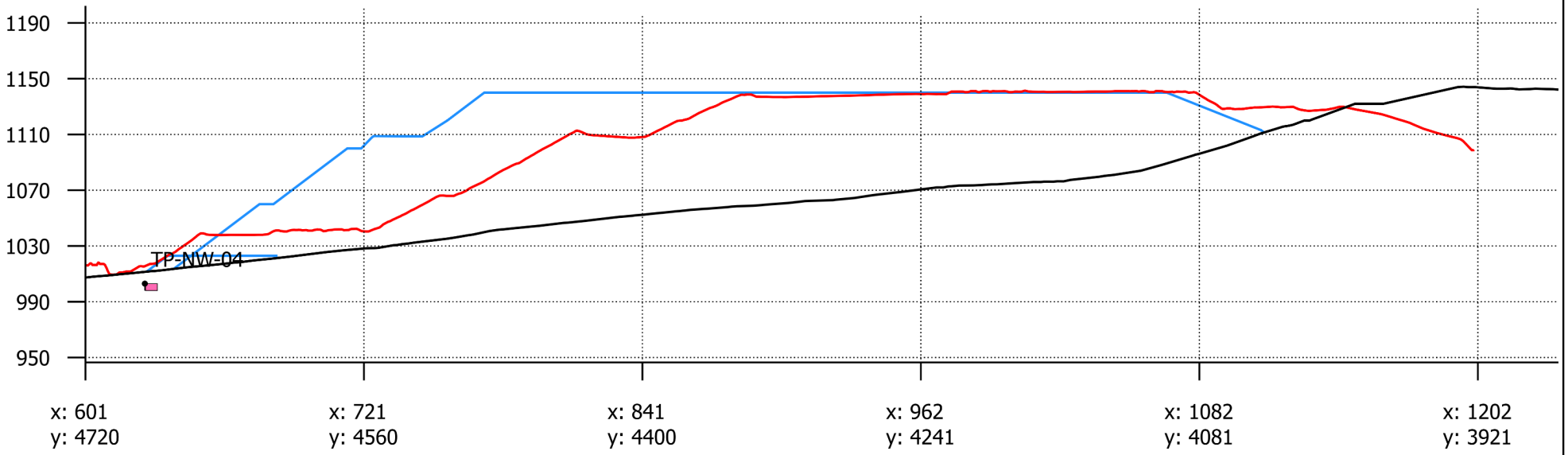
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION I

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-10**

Legend

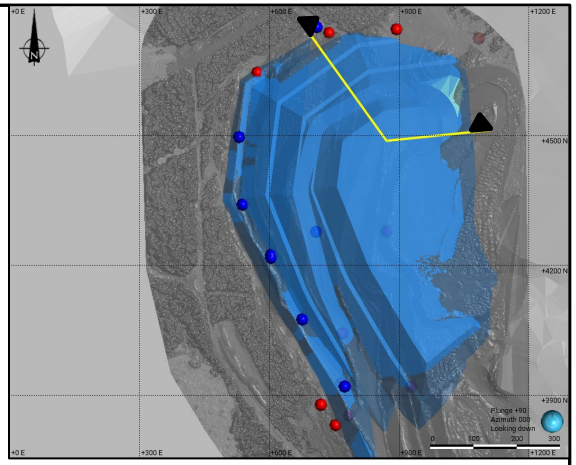
Surfaces

- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

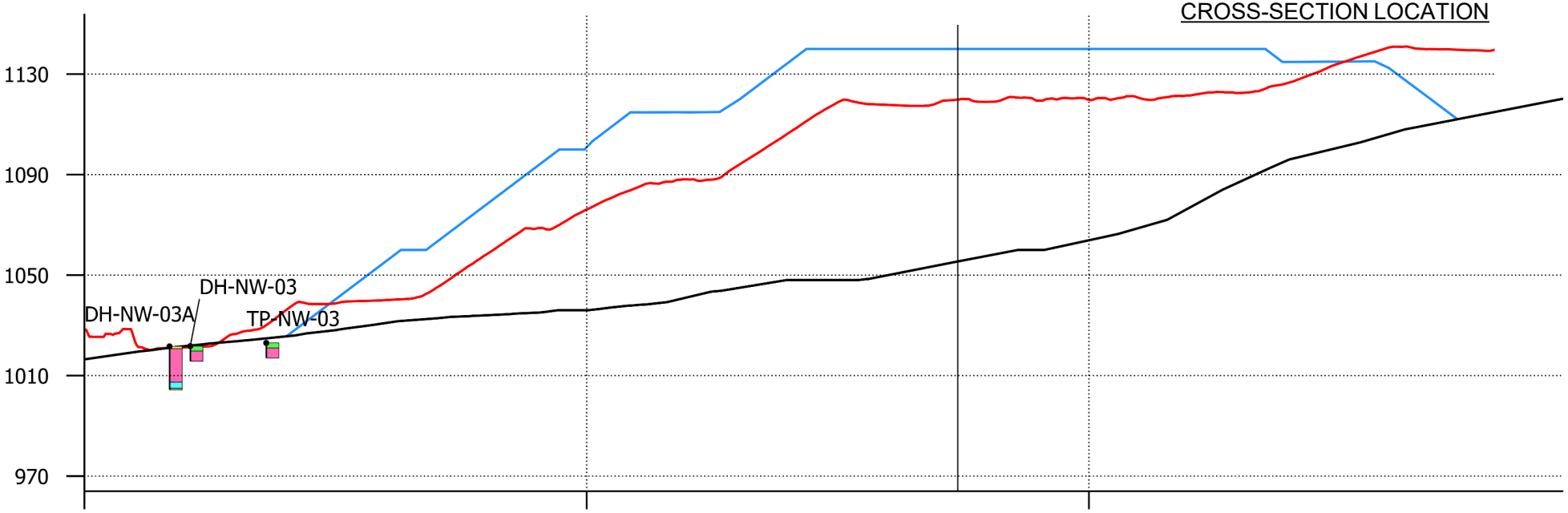
BH_Unit

- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Scale: 1:3,000
Vertical exaggeration: 1x
0m 100m



CROSS-SECTION LOCATION



x: 668
y: 4770

x: 784
y: 4608

x: 923
y: 4493

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 100 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

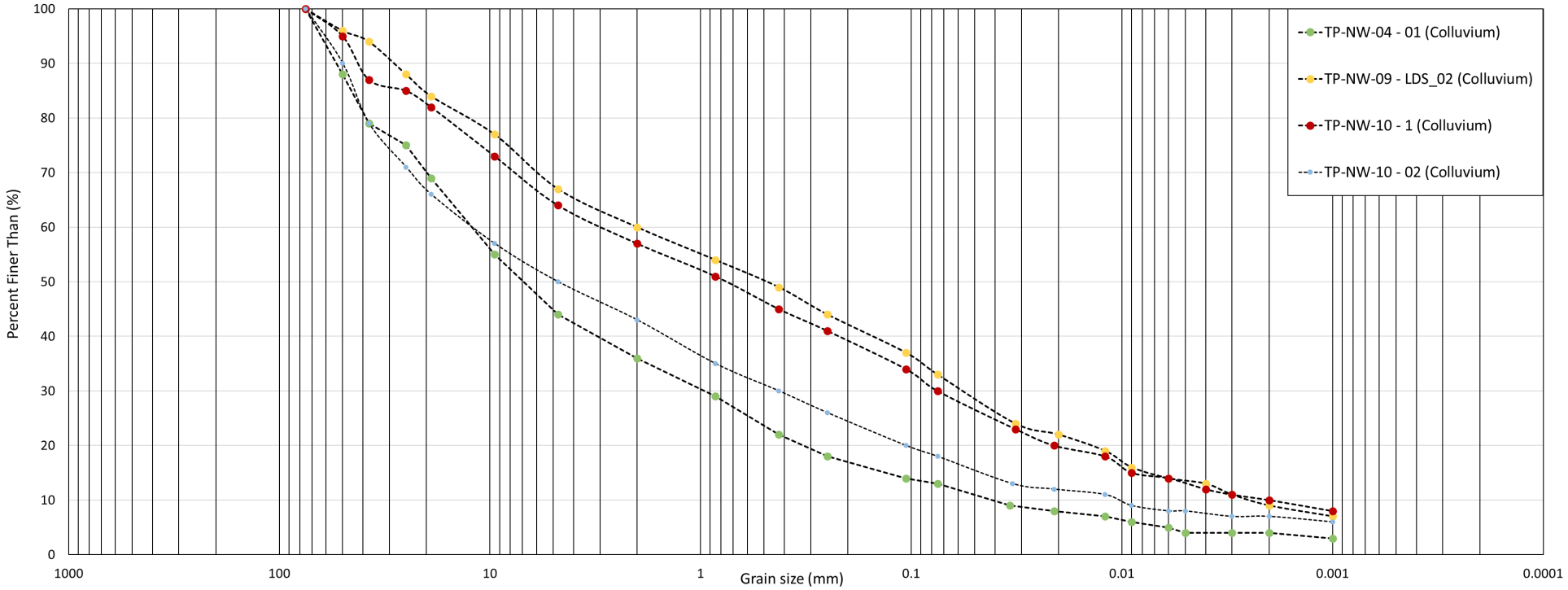
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION J

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**B-11**

APPENDIX C

Particle Size Distribution and Atterberg Limits Summary



Cobble size	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay size
	Gravel size		Sand size			

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

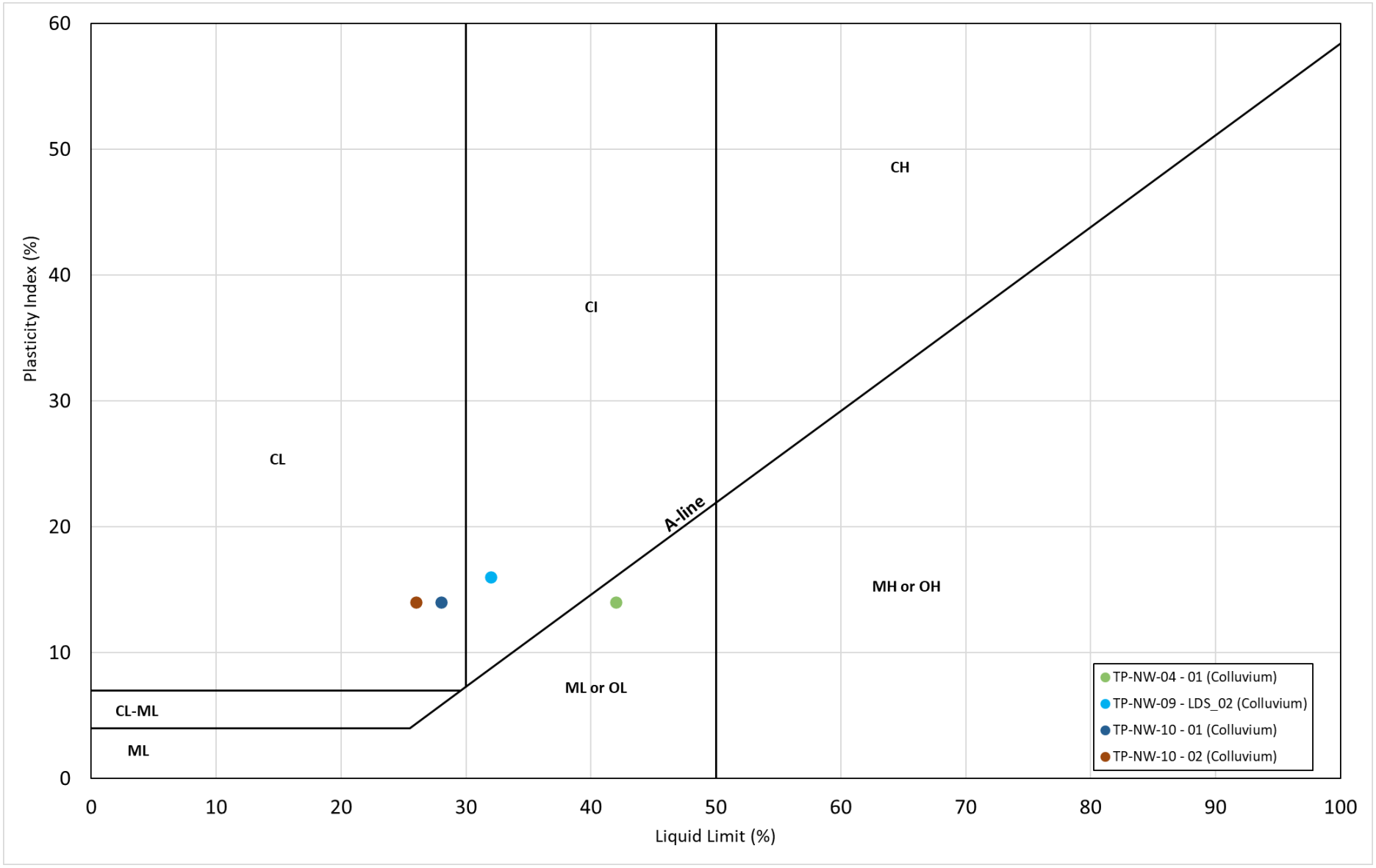
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
COLLUVIUM RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-1**

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

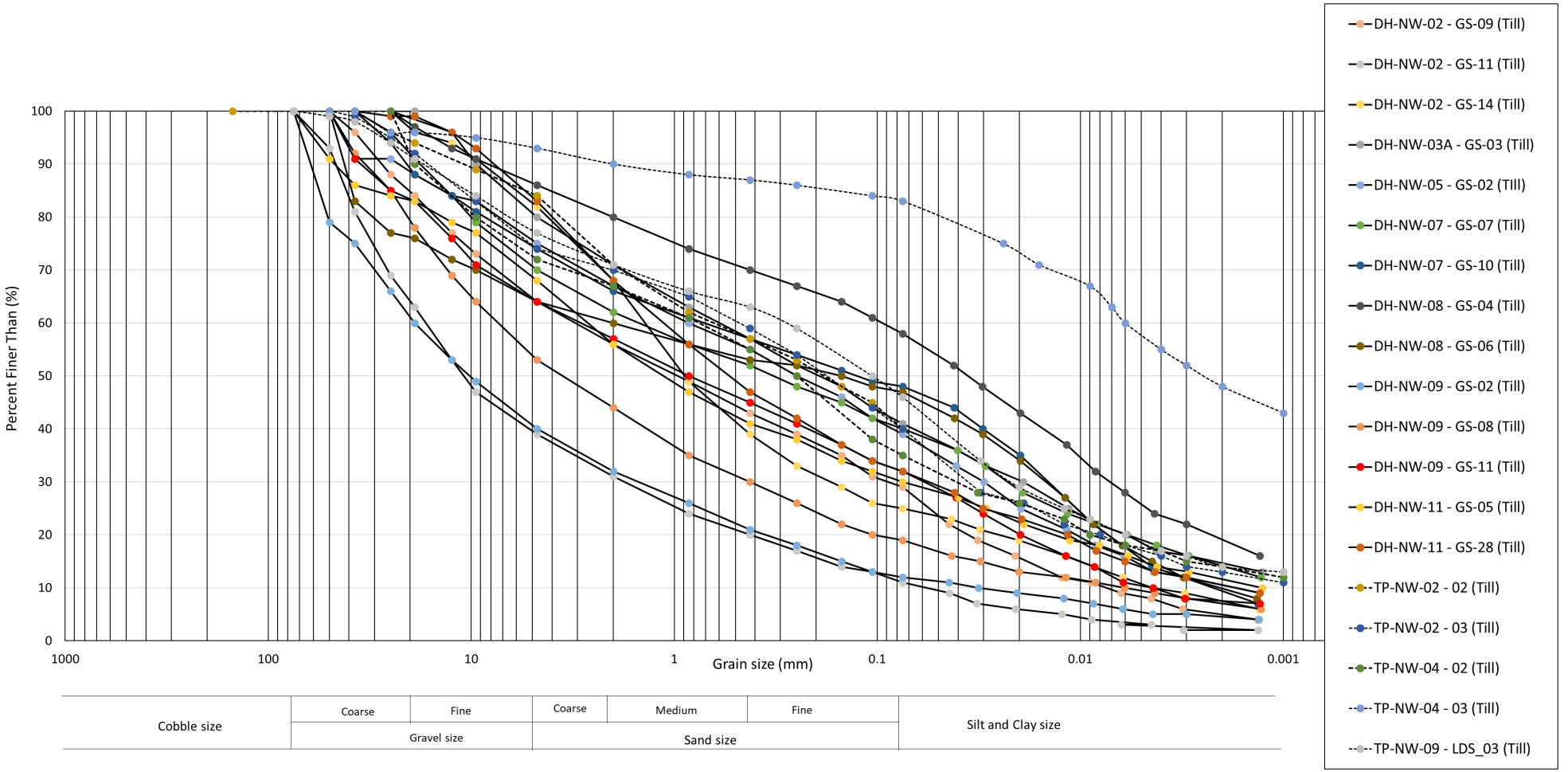
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
COLLUVIUM RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

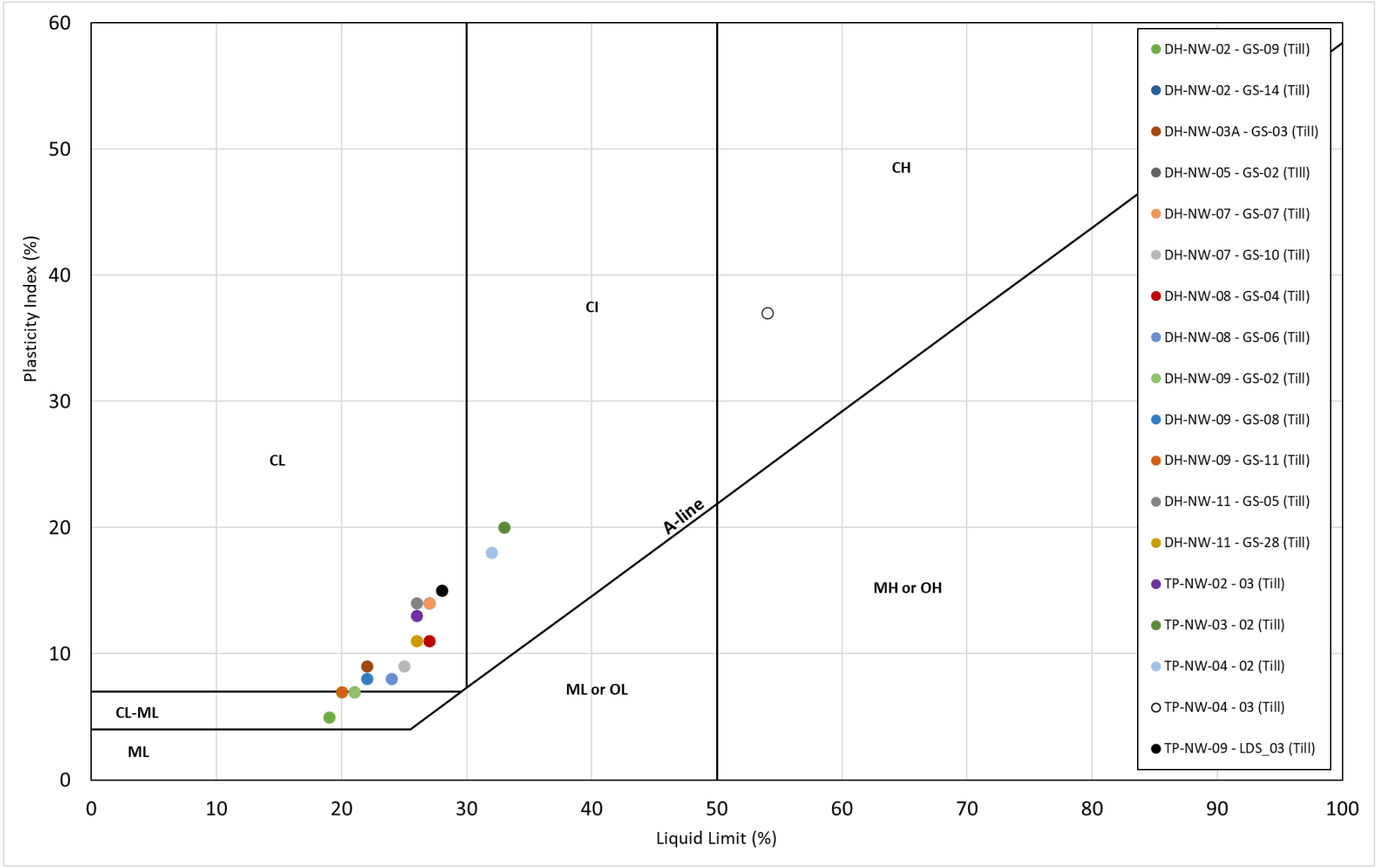
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
TILL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-3

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

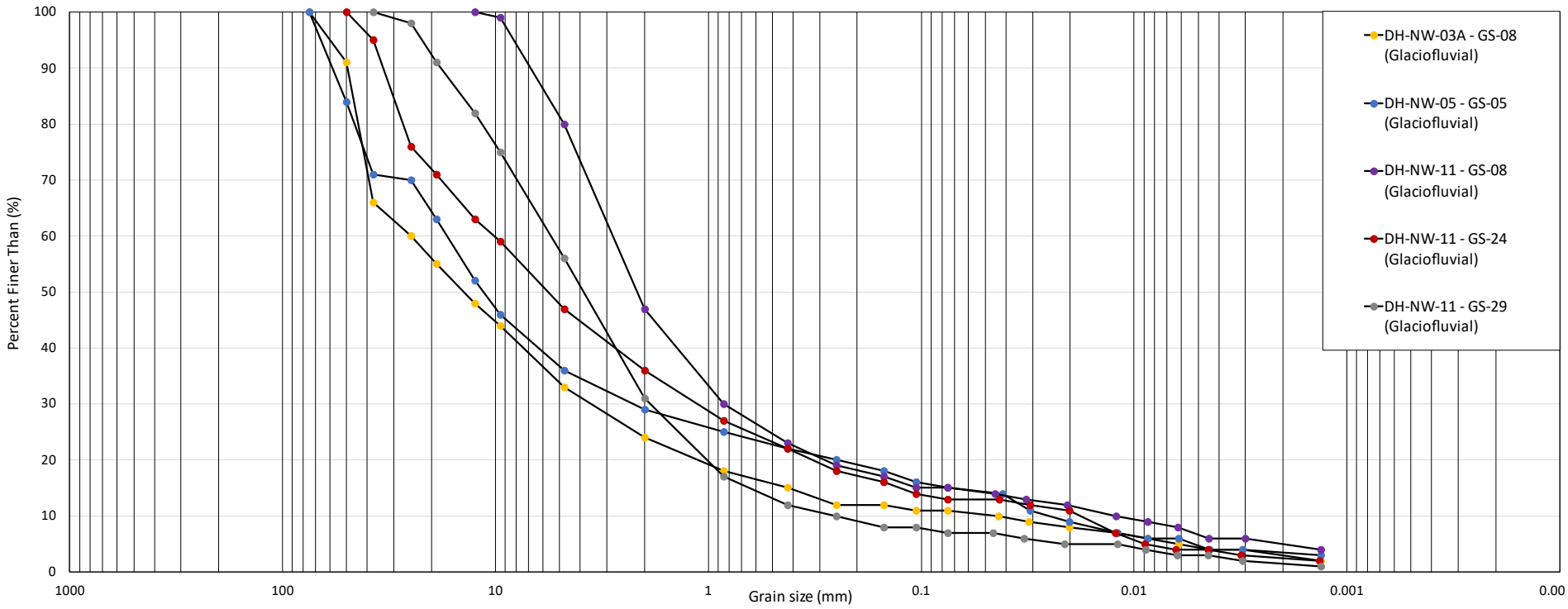
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
TILL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

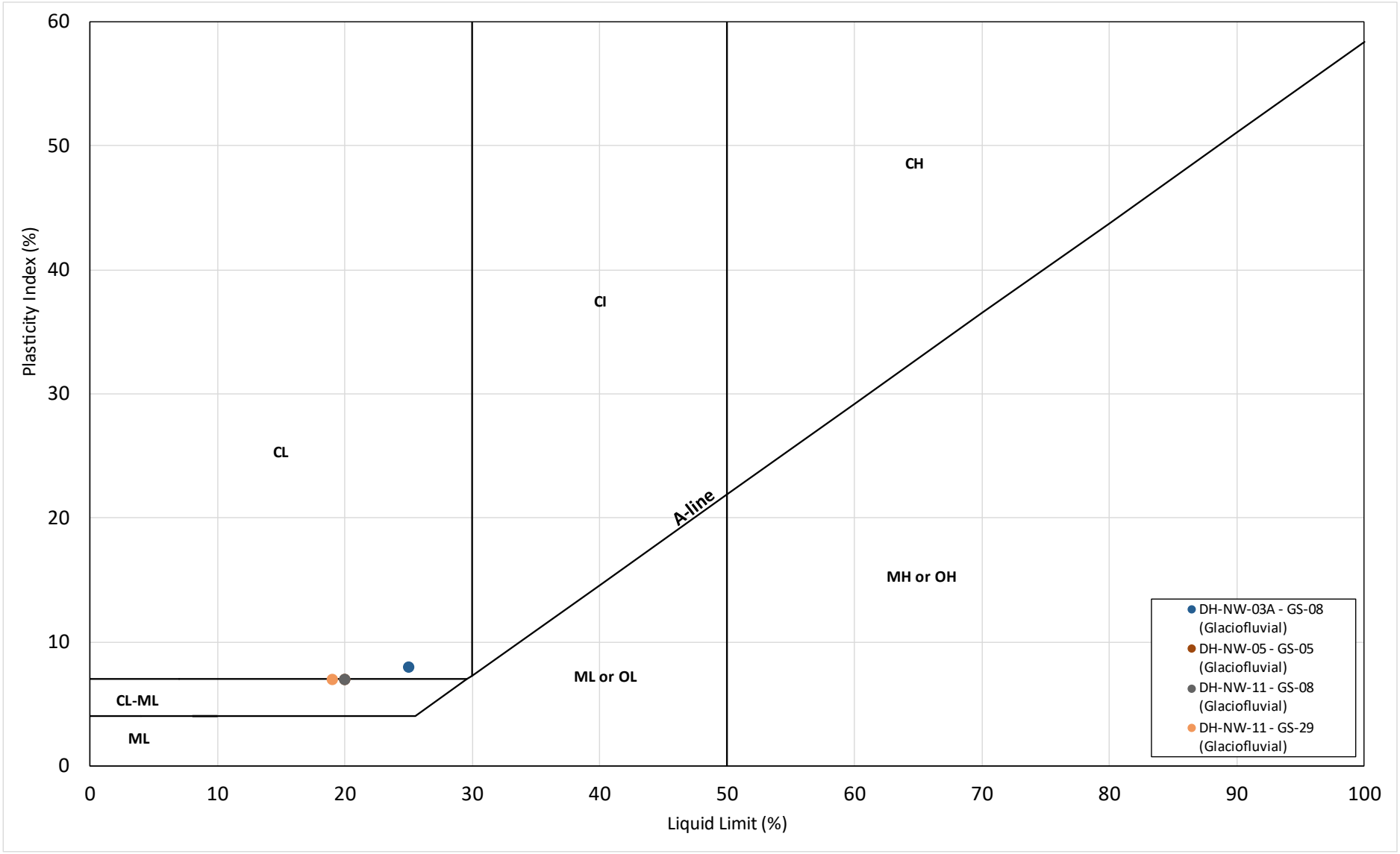
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
GLACIOFLUVIAL DEPOSITS RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-5**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

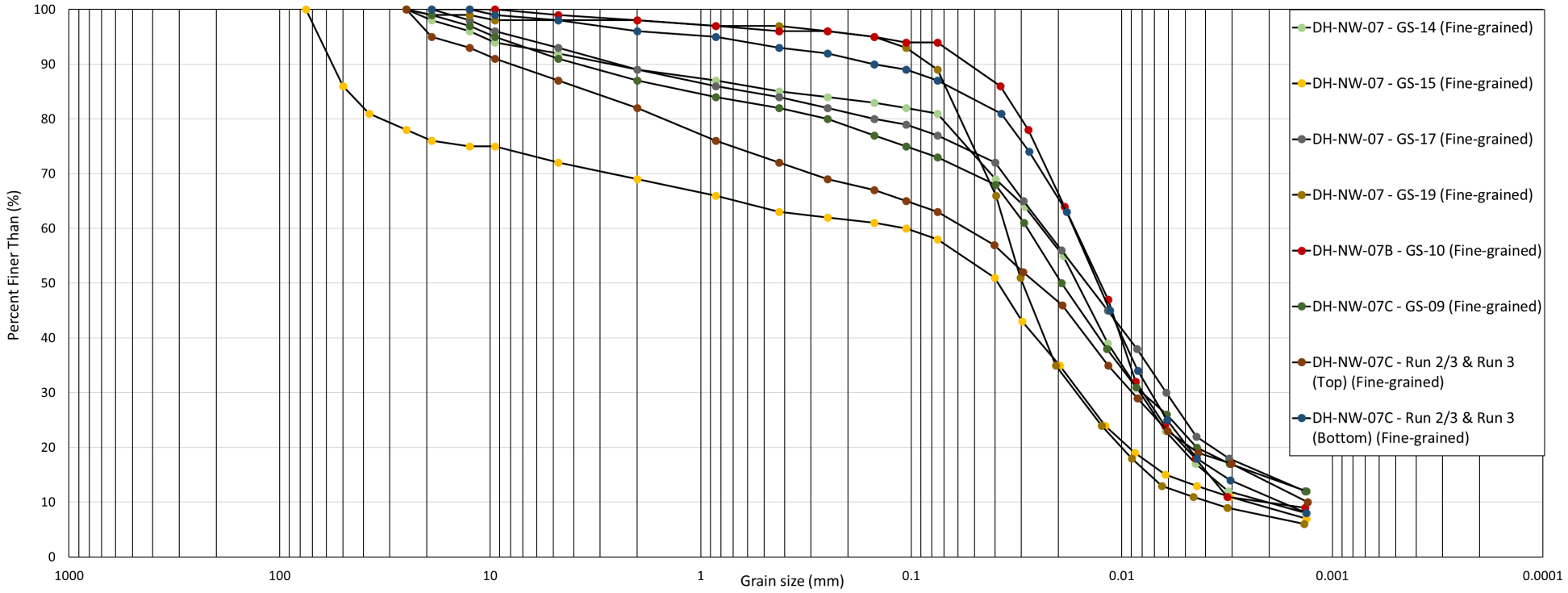
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
GLACIOFLUVIAL DEPOSITS RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



Cobble size	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay size
	Gravel size		Sand size			

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

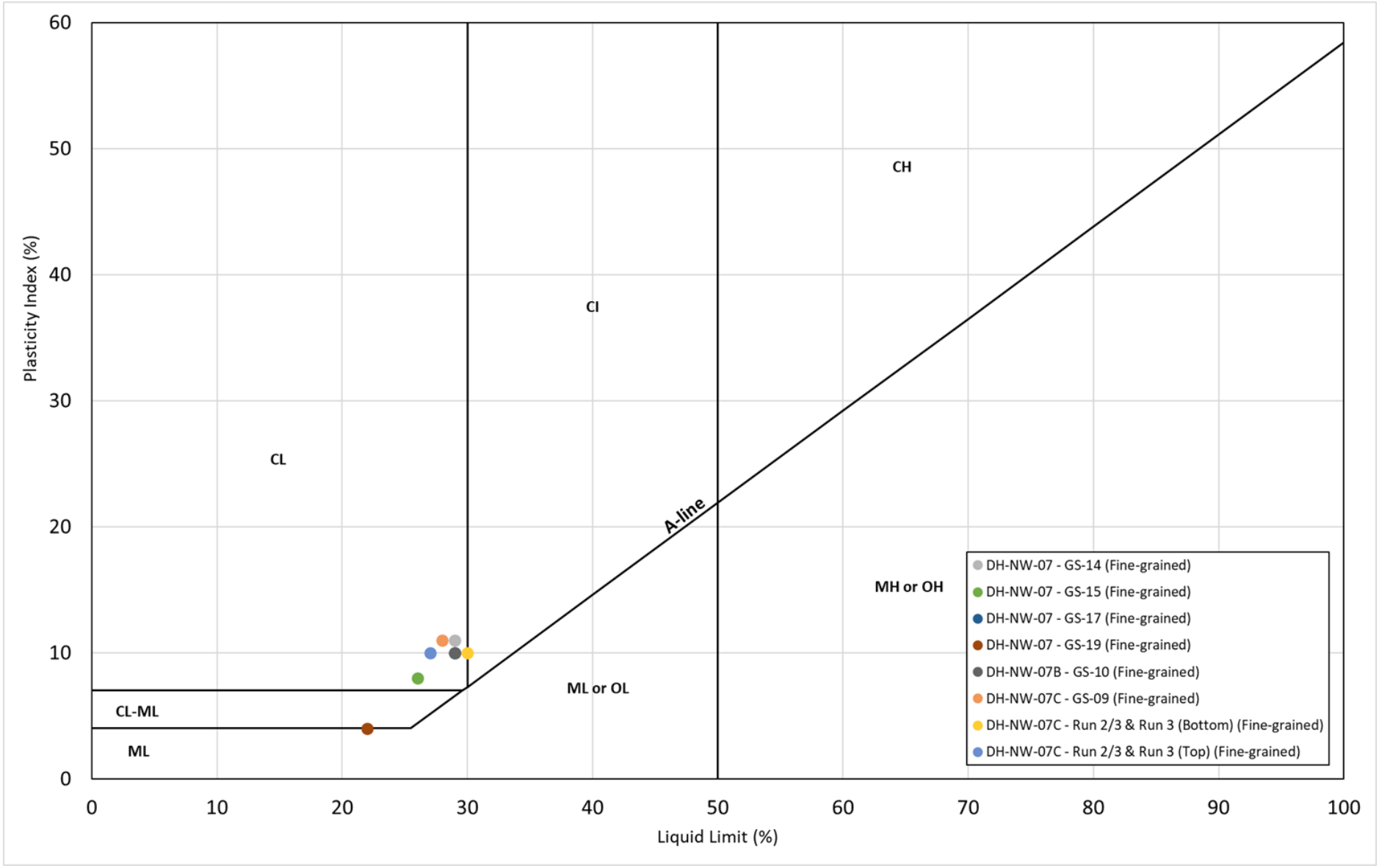
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
FINE-GRAINED MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-7**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

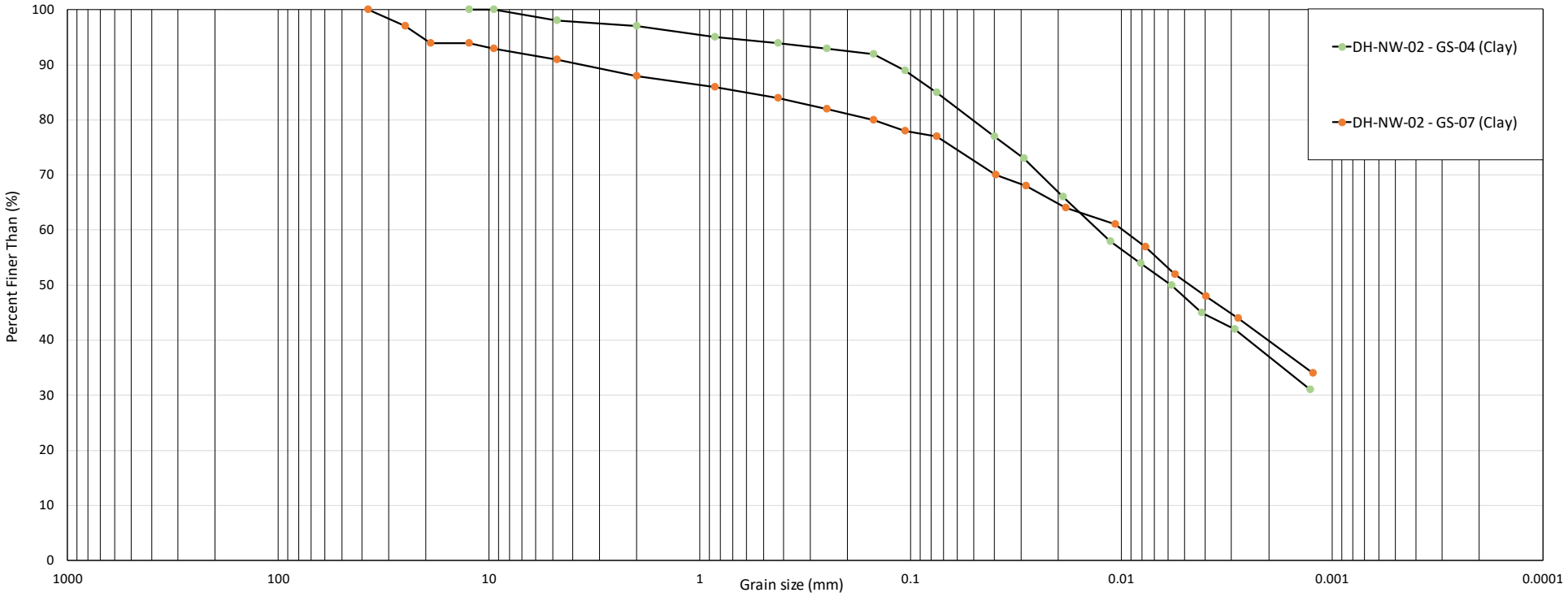
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
FINE-GRAINED MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-8**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



Cobble size	Gravel size		Sand size			Silt and Clay size
	Coarse	Fine	Coarse	Medium	Fine	

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

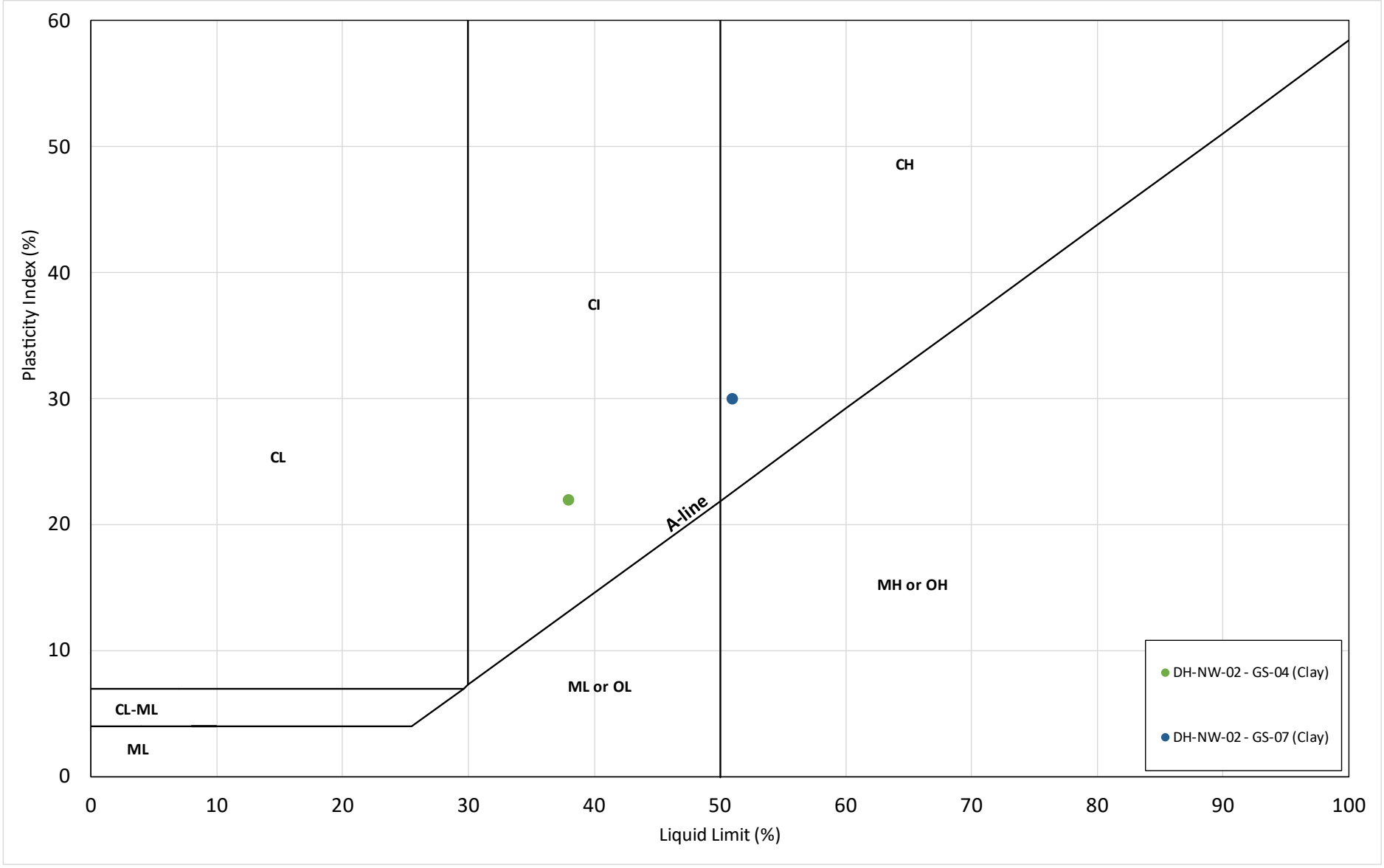
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
CLAY MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-9**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

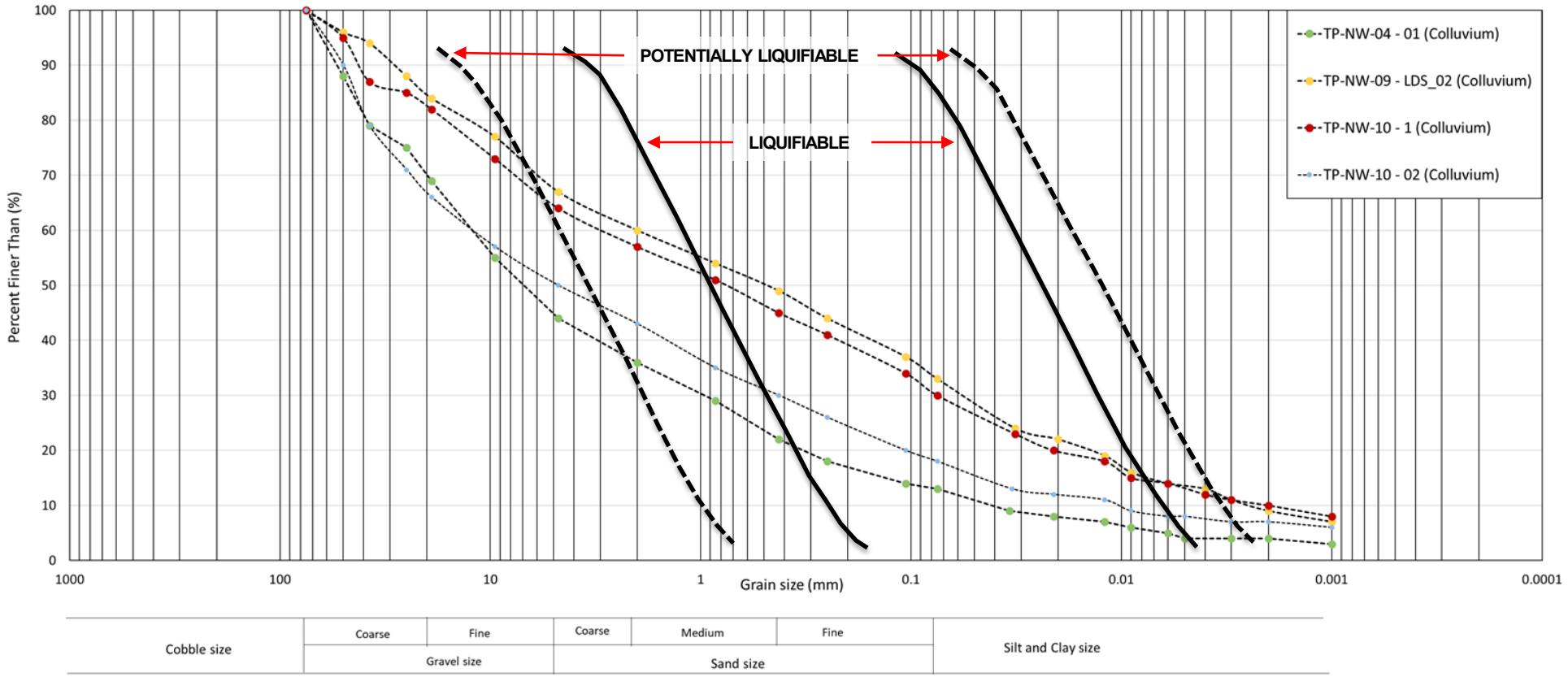
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
ATTERBERG LIMITS GRAPH
CLAY MATERIAL RESULTS SUMMARY

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

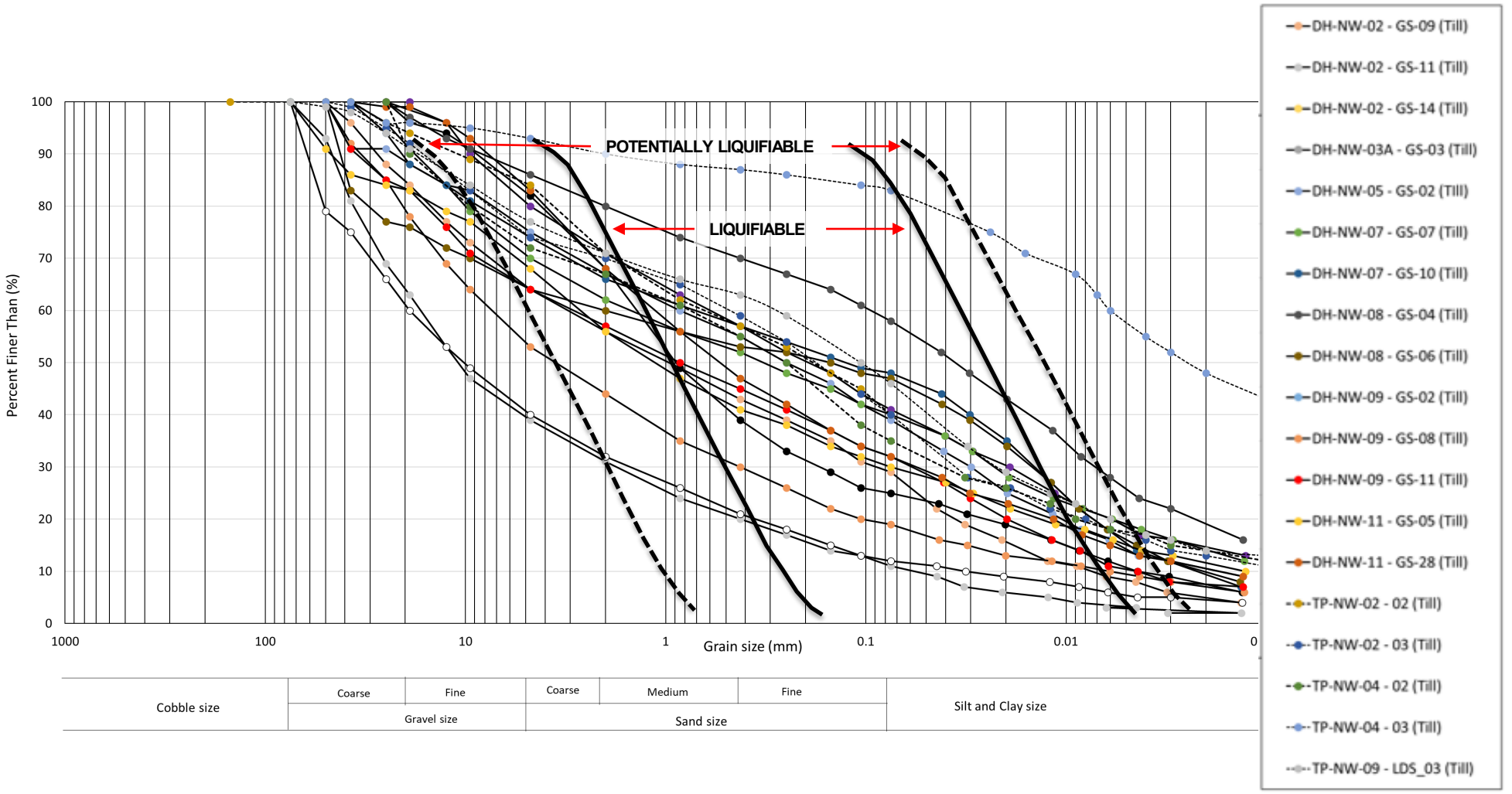
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
COLLUVIUM RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-11**

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

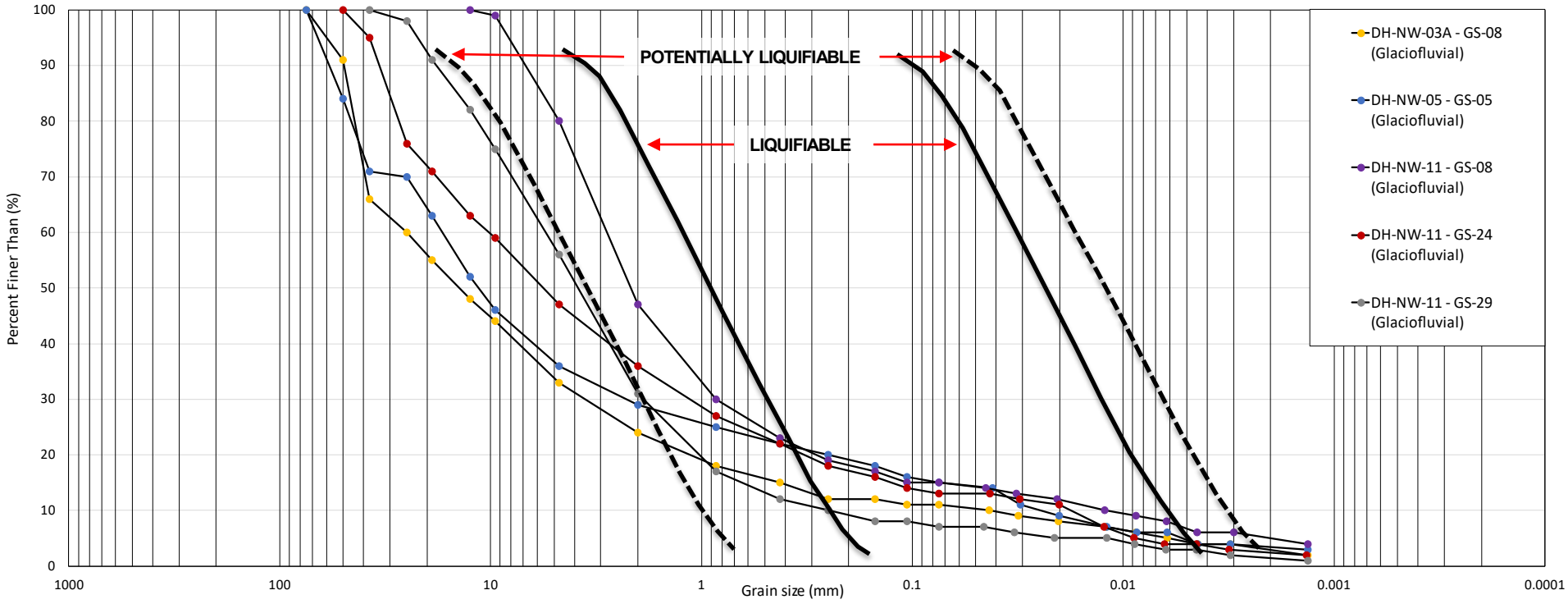
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
TILL RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-12**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm



Cobble size	Gravel size		Sand size			Silt and Clay size
	Coarse	Fine	Coarse	Medium	Fine	

REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

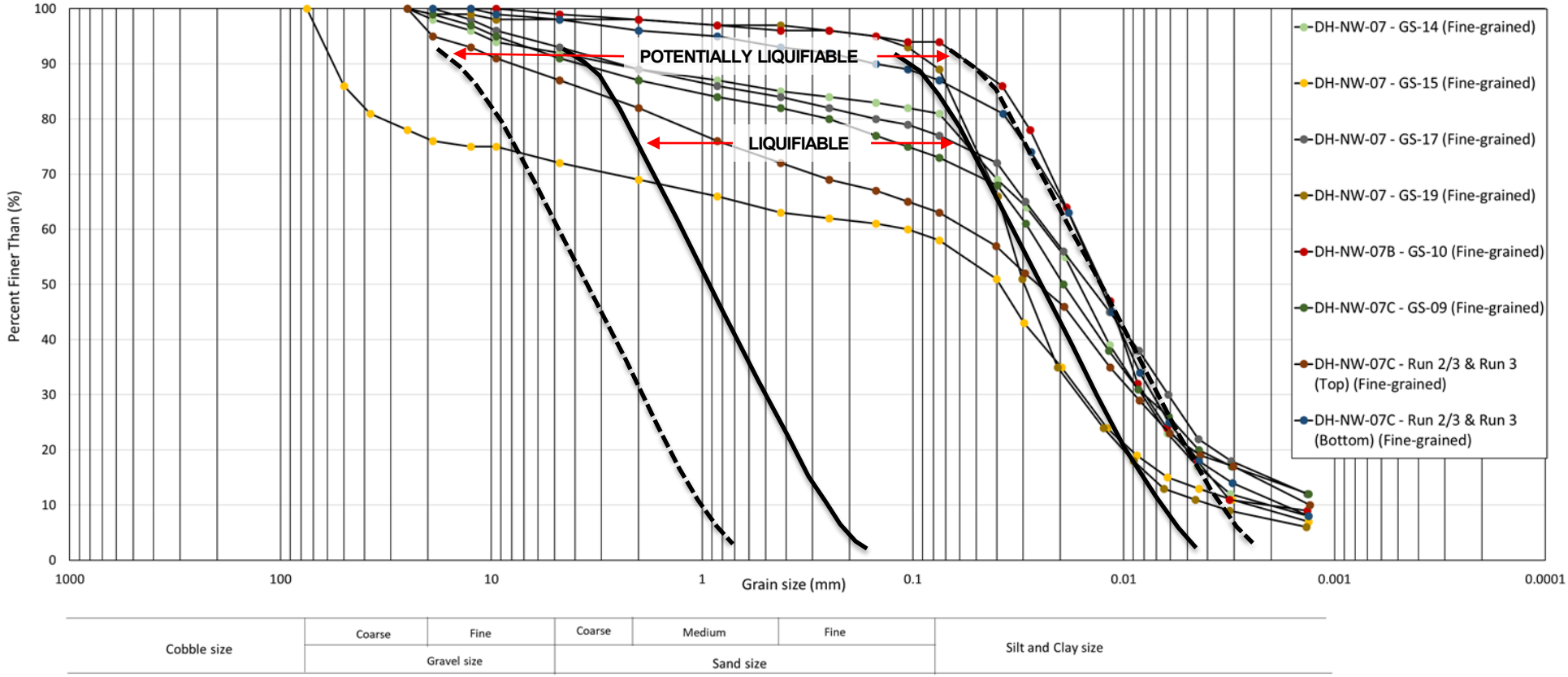
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
GLACIOFLUVIAL DEPOSITS RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	C-13

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
WSP

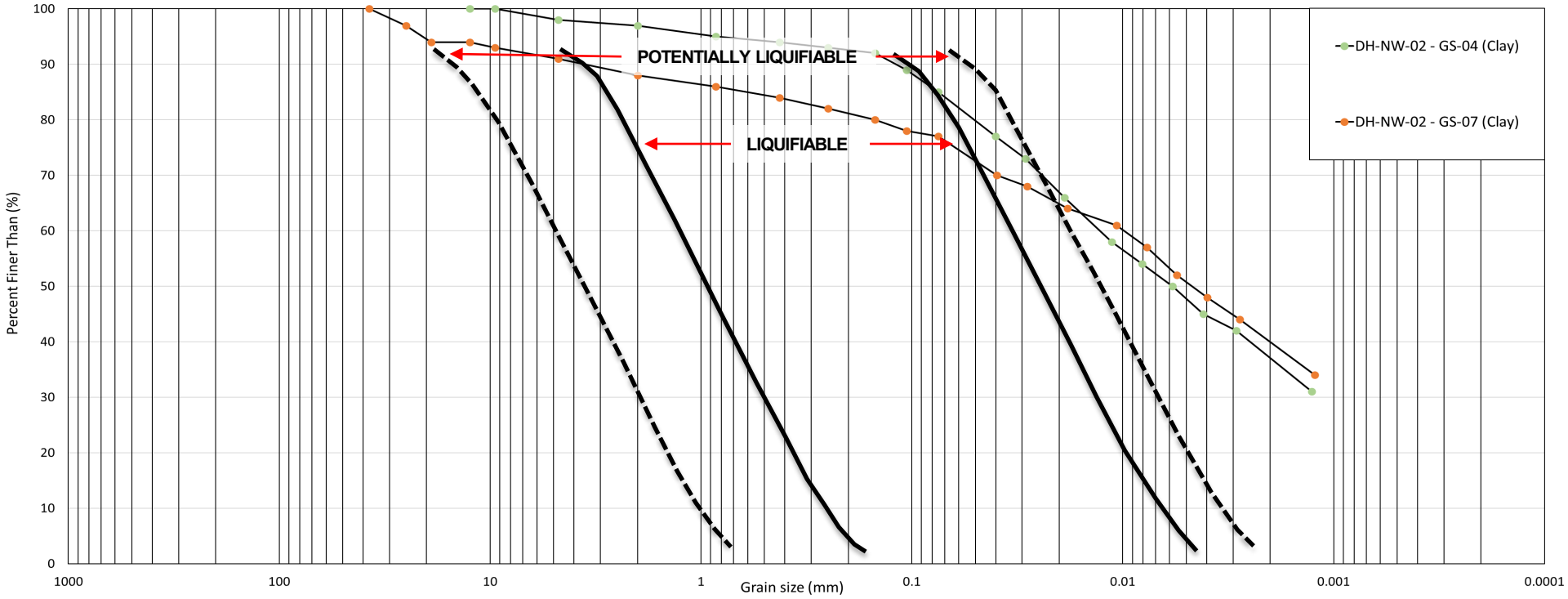
YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
FINE-GRAINED MATERIAL RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-14**

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



REFERENCES AND NOTES

1. LABORATORY TESTING RESULTS PRESENTED IN WSP 2024B.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-01
PREPARED	MVK
DESIGNED	MVK
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

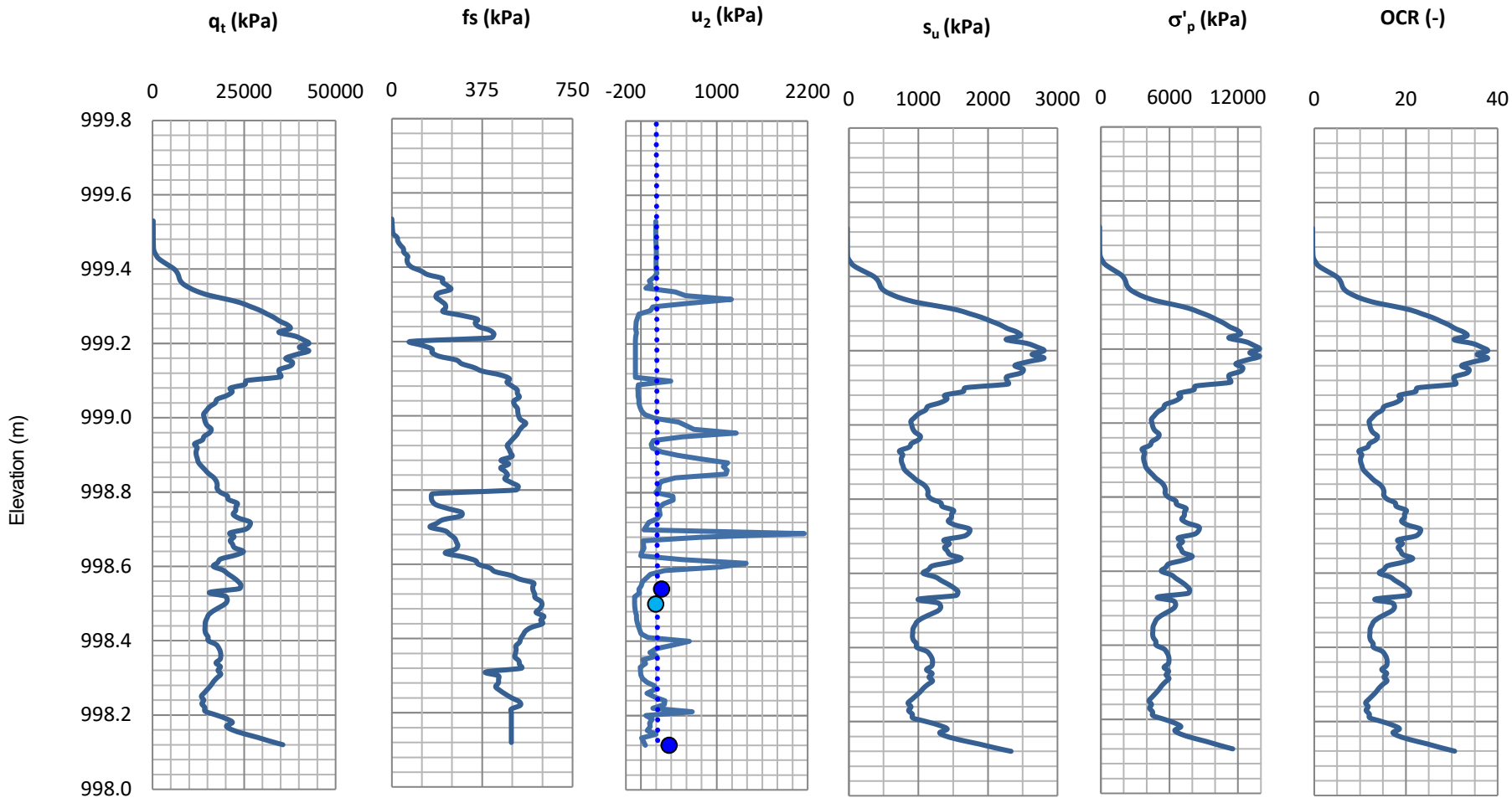
TITLE
PARTICLE SIZE DISTRIBUTION GRAPH
CLAY MATERIAL RESULTS SUMMARY
LIQUEFACTION POTENTIAL

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**C-15**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

APPENDIX D

Cone Penetration Testing Data Review



Piezometer Data Points
End of Dissipation Test (Extrapolated)
Hydrostatic Pore Pressure

$$S_u = \frac{q_t - \sigma_0}{N_{kt}}$$

$$\sigma'_p = 0.33\,(q_t - \sigma_{v0})$$

REFERENCES/NOTES

Notes:
1- q_t = Tip Resistance
2- f_s = Sleeve Friction
3- U_2 = Pore Pressure
4- S_u =Undrained Shear Strength
5- σ'_p= Preconsolidation Stress
6- OCR= Overconsolidation Ratio
7- σ'_v = Effective Stress

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINELIKELY, BC

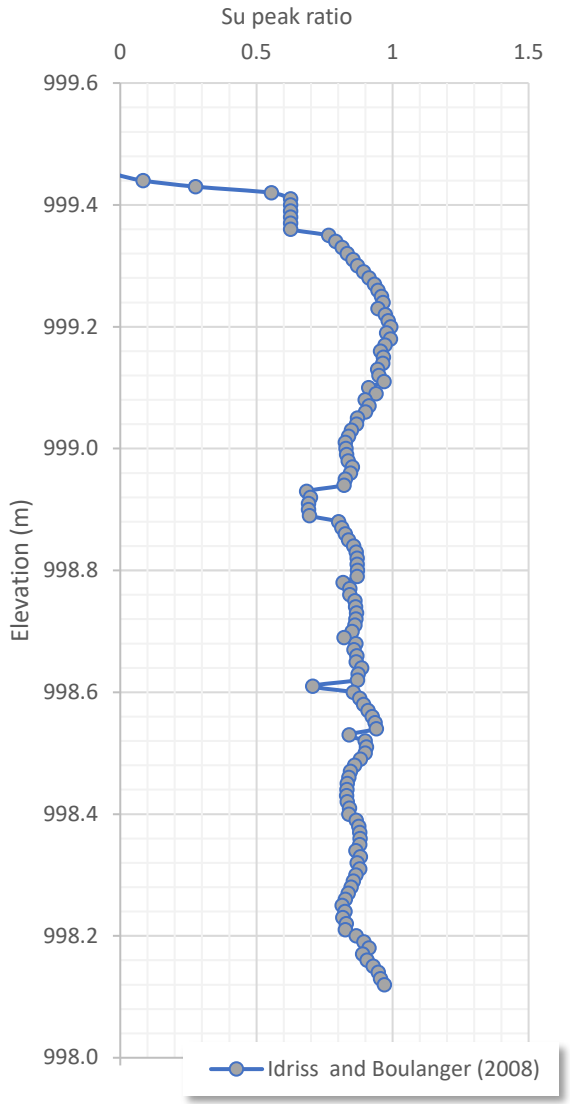
CONSULTANT

YYYY-MM-DD	2024-04-05
PREPARED	AB
DESIGNED	AB
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-07B CPT INTERPRETATION
FINE-GRAINED MATERIAL LAYER

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**D-1**



CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINELIKELY, BC

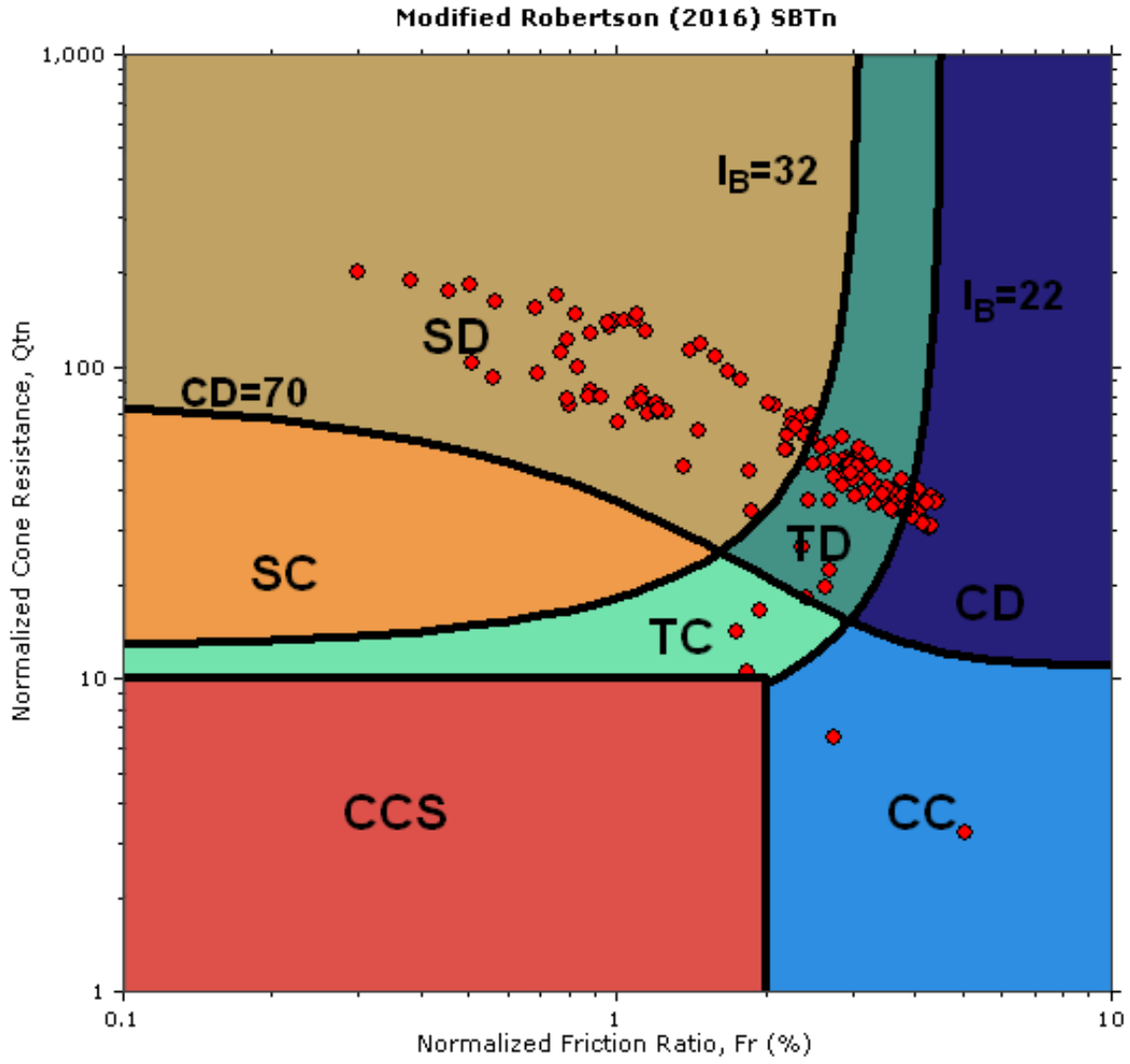
CONSULTANT

YYYY-MM-DD	2024-04-05
PREPARED	AB
DESIGNED	AB
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PEAK UNDRAINED SHEAR STRENGTH RATIO (S_U PEAK) DETERMINED USING IDRISS AND BOULANGER (2008) METHOD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**D-2**



Soil Behaviour Type

CCS Clay-like - Contractive - Sensitive
CC Clay-like - Contractive
CD Clay-like - Dilative
TC Transitional - Contractive
TD Transitional - Dilative
SC Sand-like - Contractive
SD Sand-like - Dilative

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINELIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-05
PREPARED	AB
DESIGNED	AB
REVIEWED	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP GEOTECHNICAL ASSESSMENT

TITLE
SOIL BEHAVIOUR TYPE
DH-NW-07B CHART

PROJECT NO.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**D-3**

APPENDIX E

Hydrogeology Summary and Vibrating Wire Piezometer Data

REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE LOCATION AT TOE OF DUMP
PHOTOGRAPH LOOKING WEST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-1**

REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

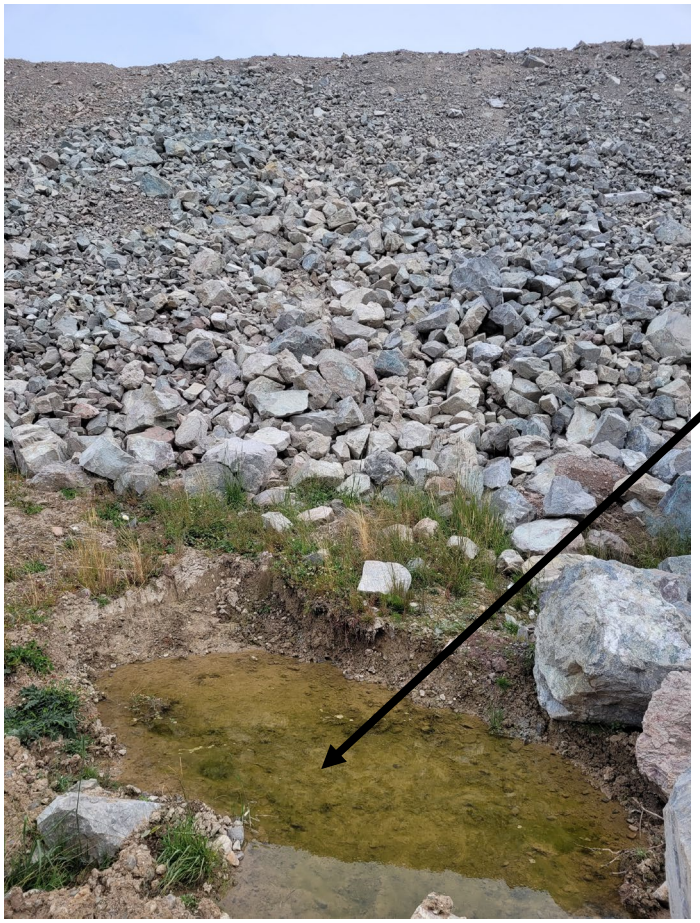
CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE/PONDING LOCATION AT TOE OF DUMP
PHOTOGRAPH LOOKING SOUTHWEST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-2**



REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE/PONDING LOCATION AT TOE OF DUMP
PHOTOGRAPHS LOOKING EAST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-3**

REFERENCES AND NOTES

1. PHOTOGRAPH FROM 2023 SLOPE STABILITY REVIEW, WSP 2023C.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
SEEPAGE COLLECTION LOCATION AT SOUTH END OF DUMP
PHOTOGRAPHS LOOKING SOUTHEAST

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-4**

REFERENCES AND NOTES

1. GOOGLE EARTH IMAGE FROM 2022.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

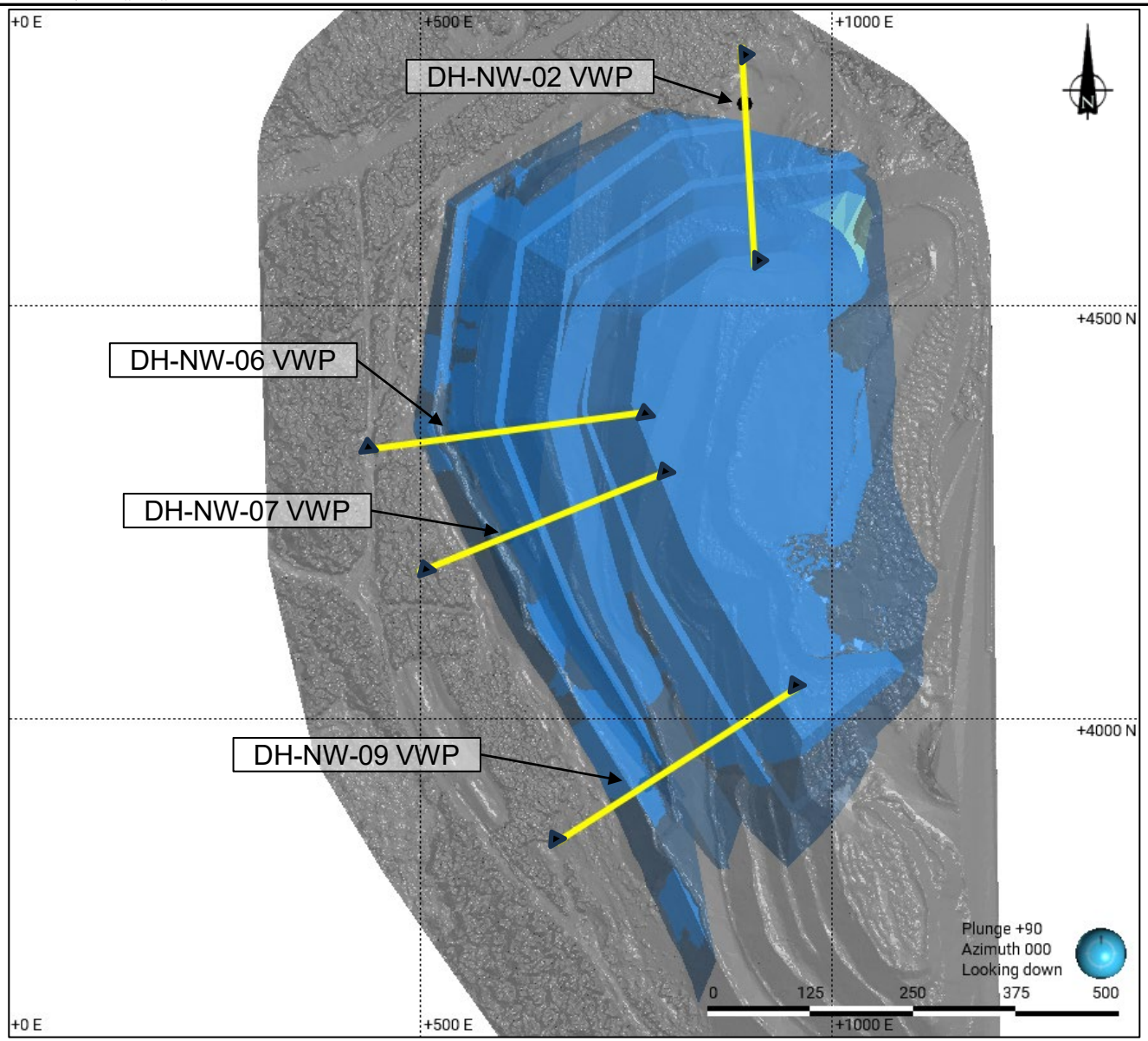
CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
GOOGLE EARTH IMAGE OF NORTHWEST PAG DUMP SEEPAGE COLLECTION SUMP AND SETTLING PONDS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-5**



REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
ULTIMATE NORTHWEST PAG DUMP DESIGN
CROSS-SECTION OVERVIEW
VIBRATING WIRE PIEZOMETER LOCATIONS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-6**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

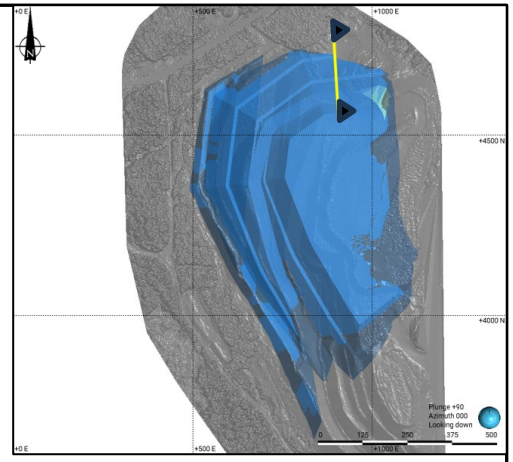
Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

VWP Data
- Head Elevation

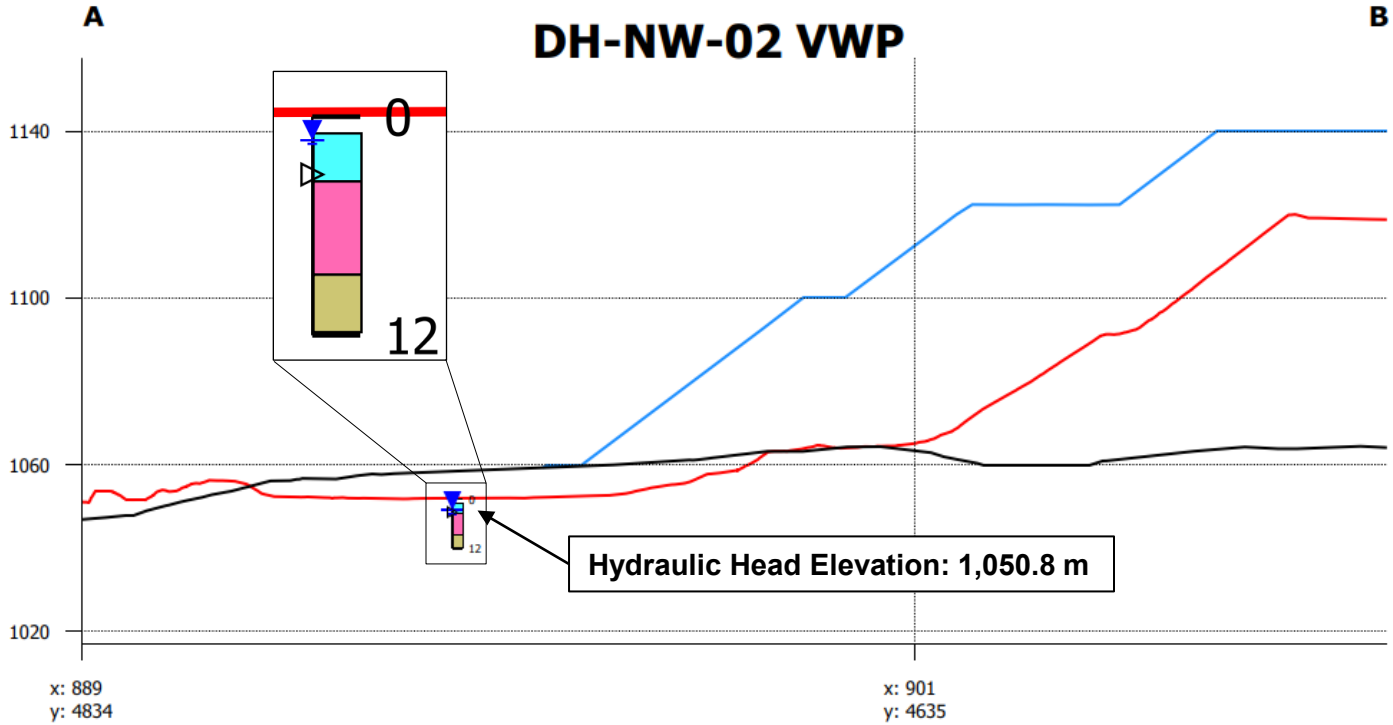
VWP Install Elevation
- VWP Install Elevation

Scale: 1:1,300
Vertical exaggeration: 1x

0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

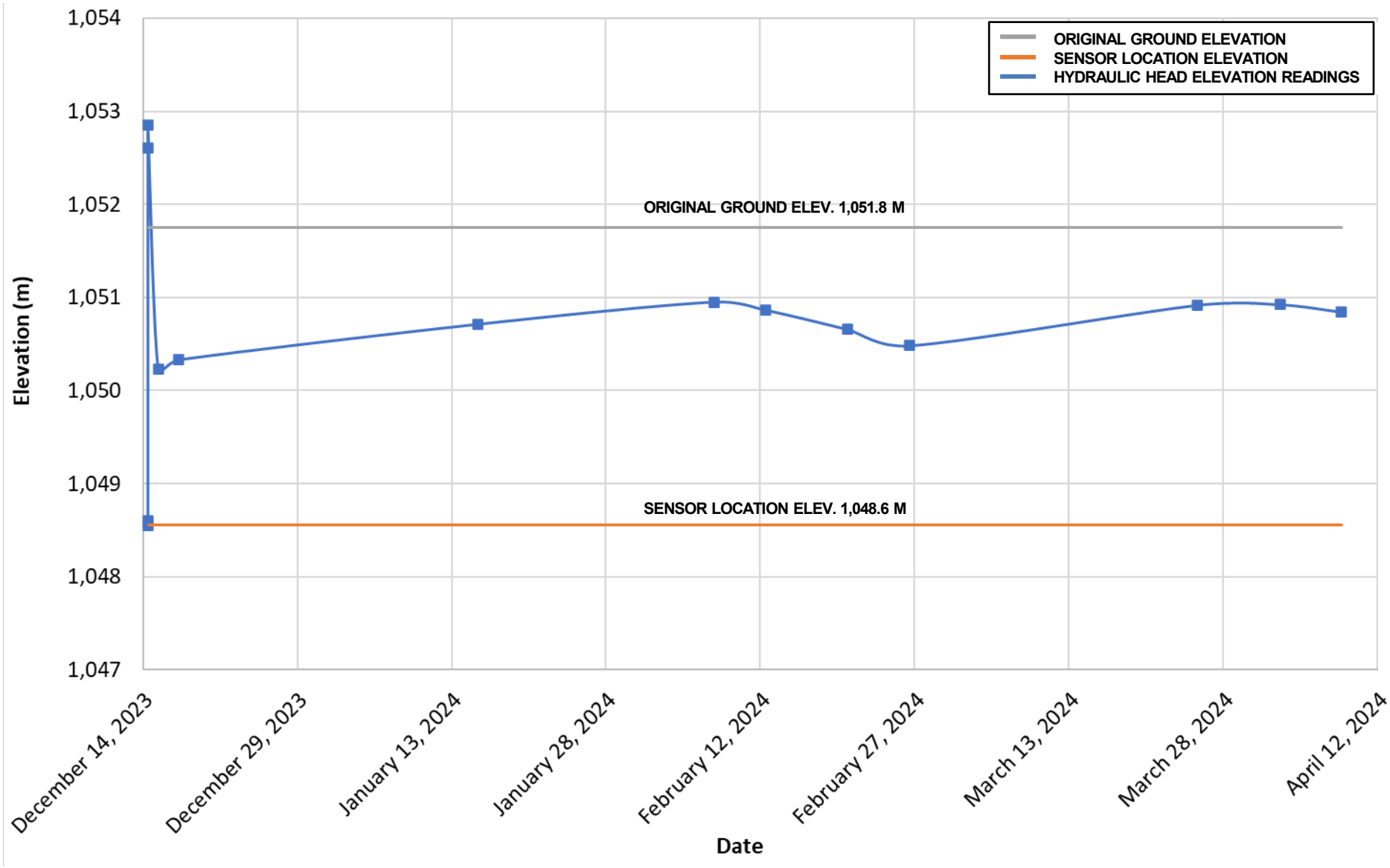
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-02 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-7**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-02 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-8**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

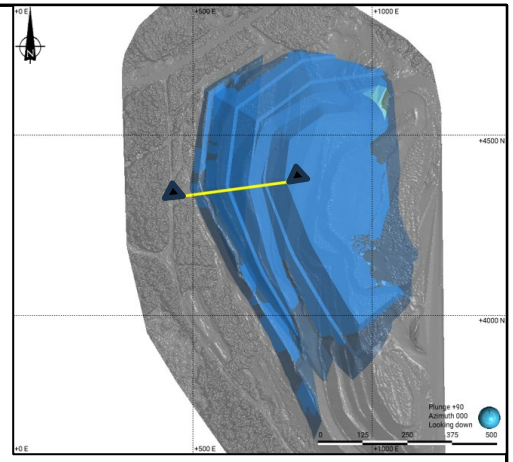
Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

VWP Data
- Head Elevation

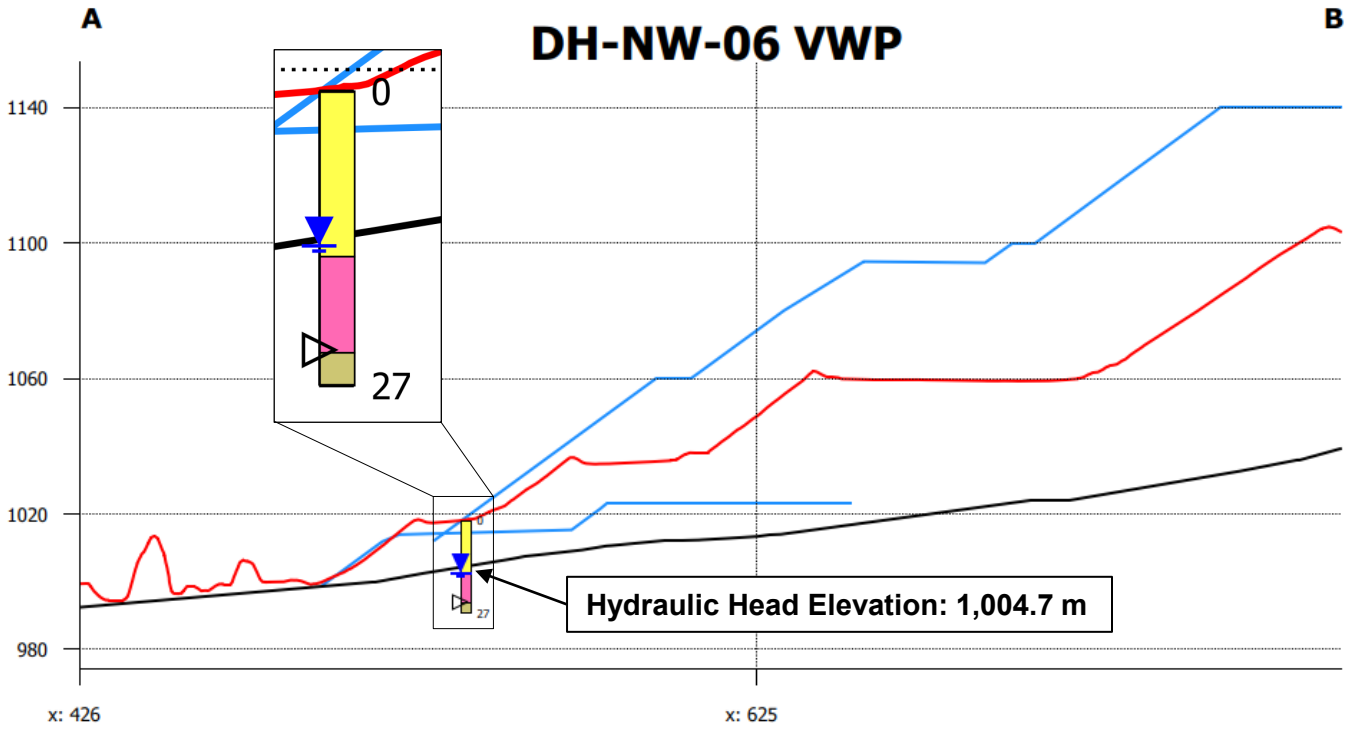
VWP Install Elevation
- VWP Install Elevation

Scale: 1:1,300
Vertical exaggeration: 1x

0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

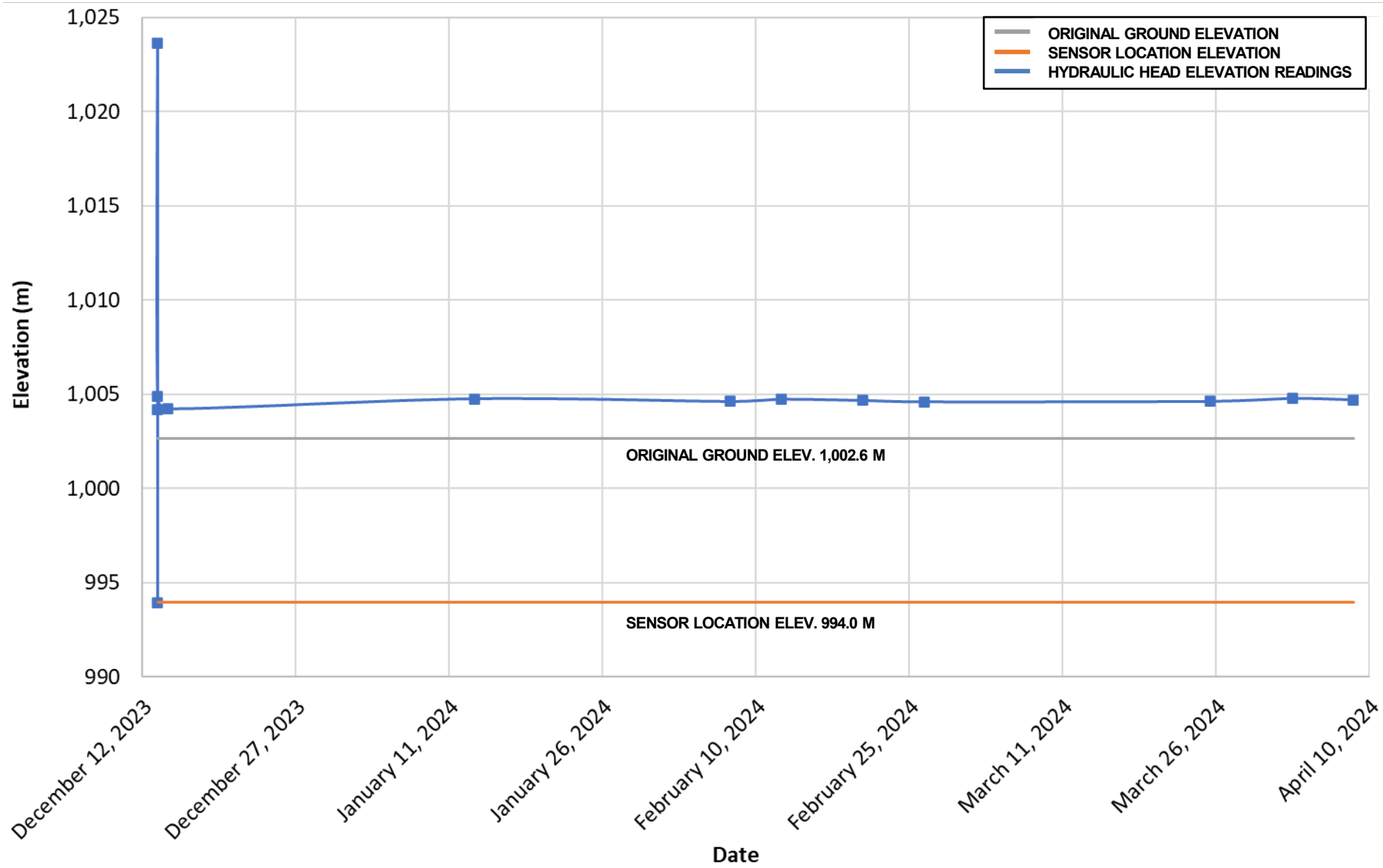
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-06 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-9**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-06 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-10**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

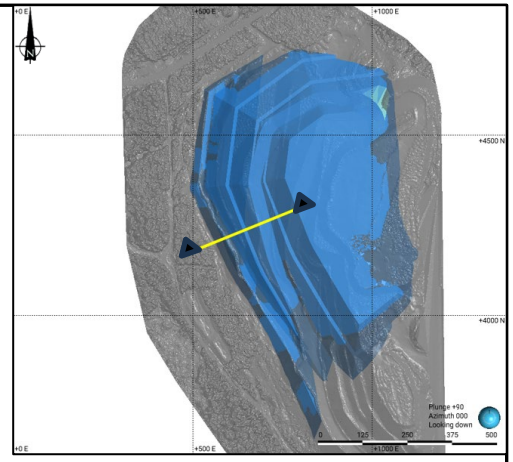
VWP Data
- Head Elevation

VWP Install Elevation
- VWP Install Elevation

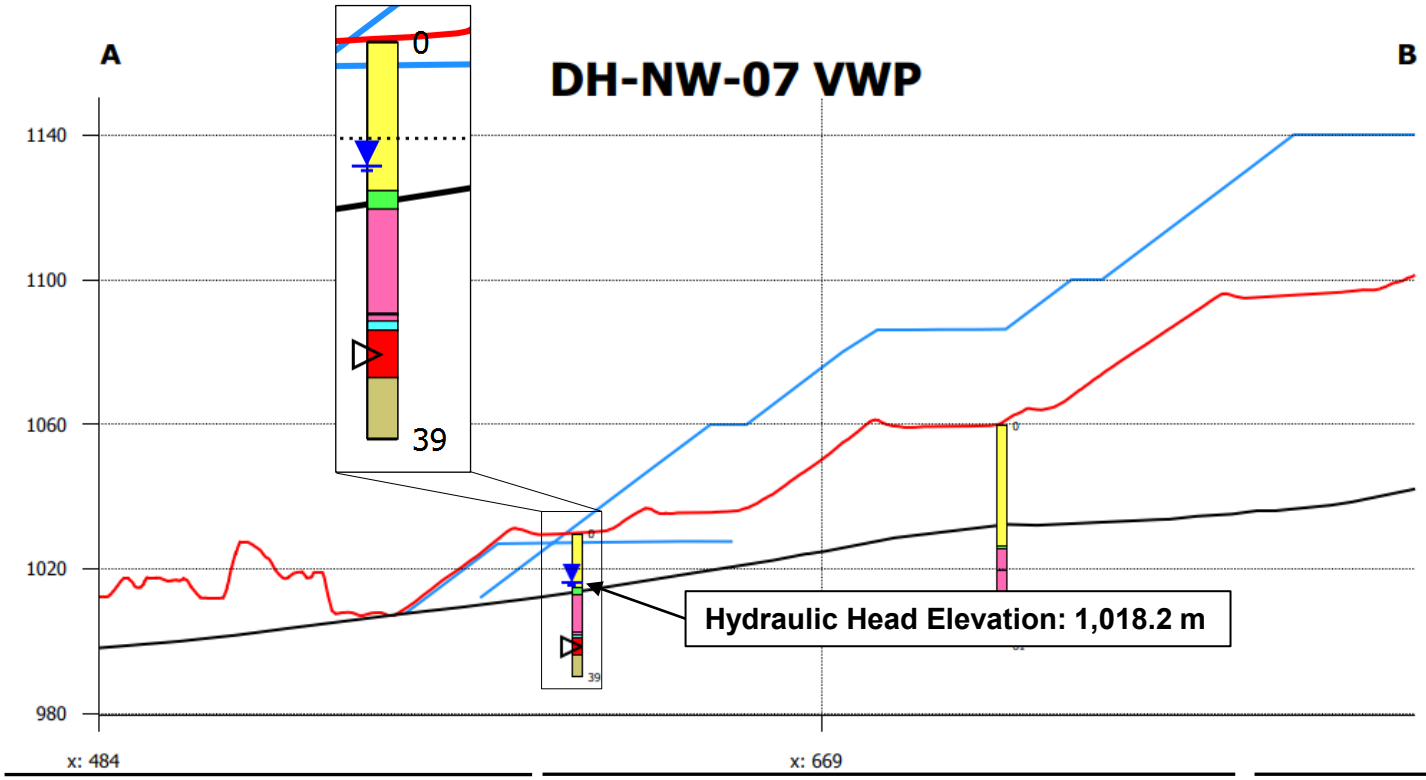
Scale: 1:1,300

Vertical exaggeration: 1x

0m 100m



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

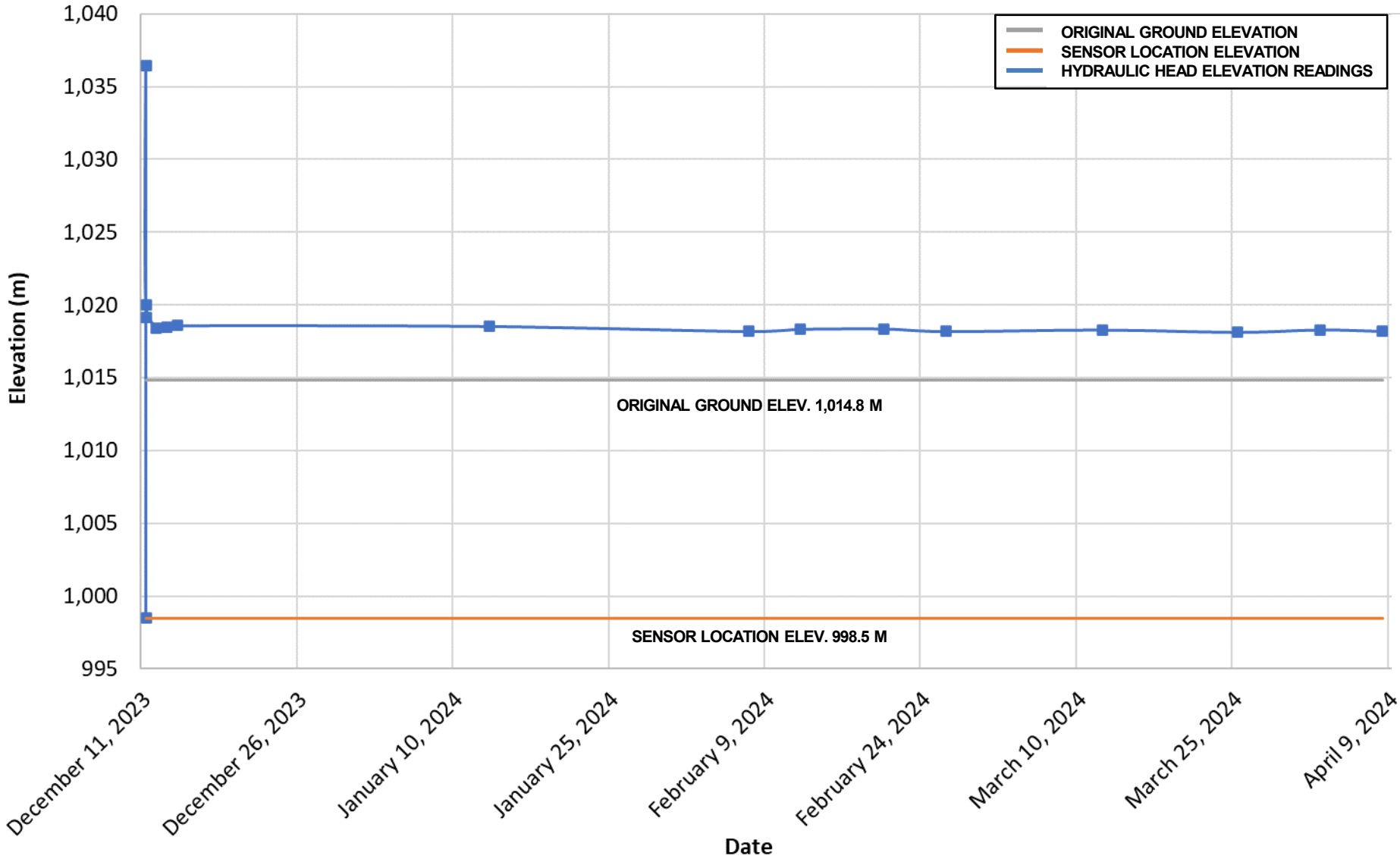
CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-07 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-11**



REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-07 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-12**

Legend

BH_Unit
- Waste Rock
- Till
- Glaciolacustrine
- Colluvium
- Glaciofluvial
- Bedrock

Surfaces
- Ultimate NW PAG Dump Design
- October 2023 Current Topography
- Original Ground

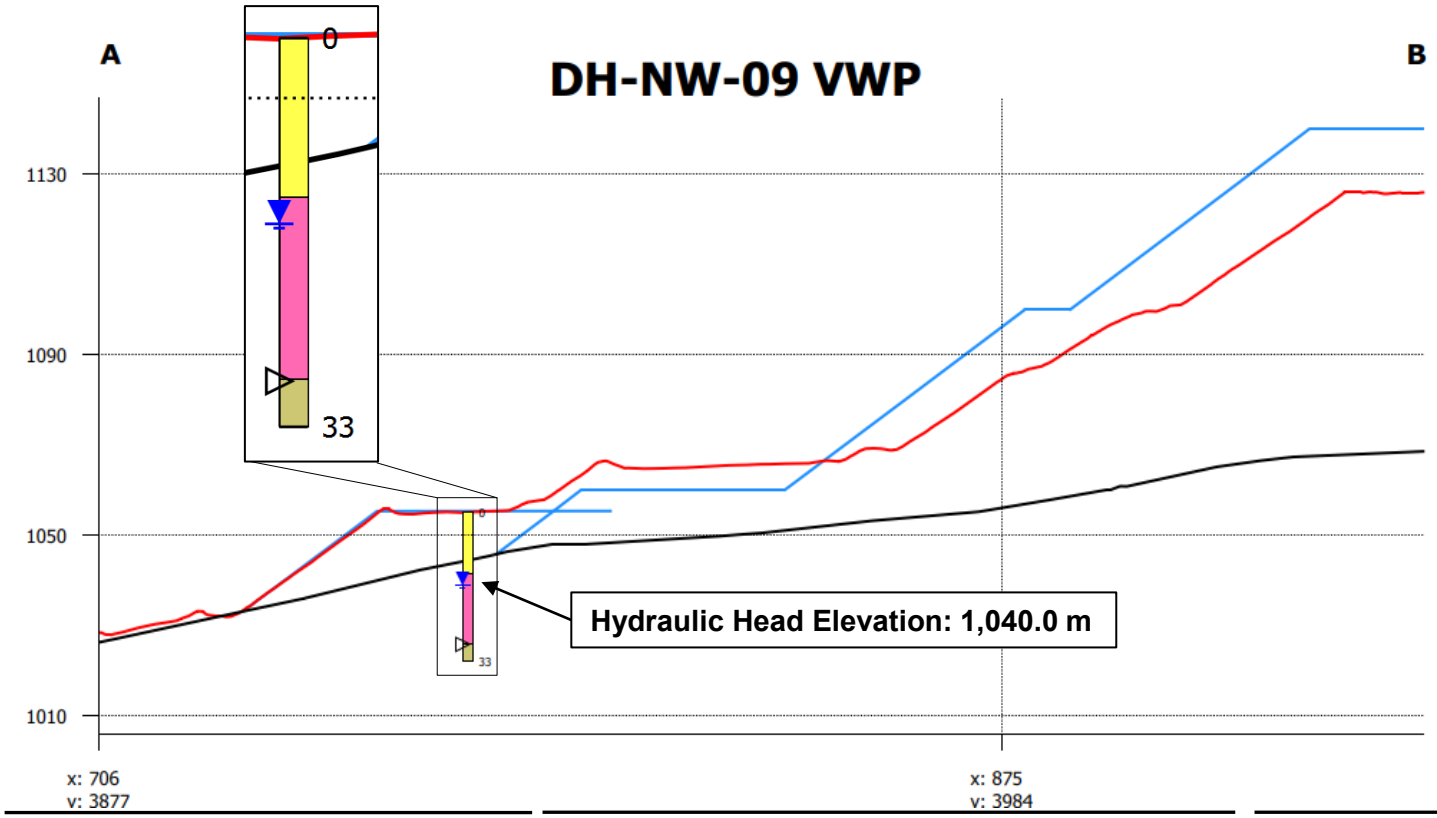
VWP Data
- Head Elevation

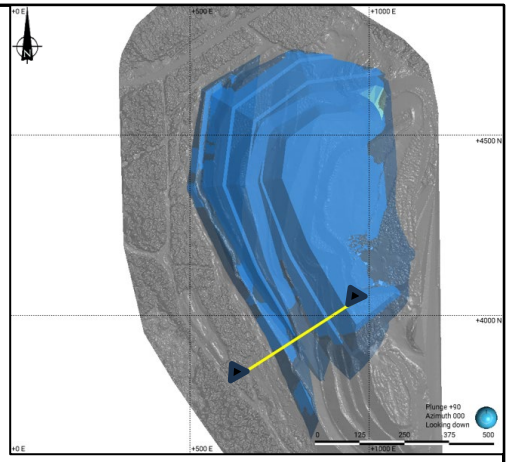
VWP Install Elevation
- VWP Install Elevation

Scale: 1:1,300

Vertical exaggeration: 1x

0m 100m





CROSS-SECTION LOCATION

REFERENCES AND NOTES

1. BOREHOLES SHOWN AT +/- 20 M OF CROSS-SECTION.
2. NOTE THAT THE ORIGINAL GROUND SURFACE MAY BE DIFFERENT THAN THE CURRENT TOPOGRAPHY SURFACE. THIS COULD BE DUE TO DIFFERING SCAN METHODOLOGIES OR SUBSURFACE MANIPULATION.
3. HYDRAULIC HEAD ELEVATION READING FROM APRIL 8, 2024 BY MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-09 CROSS-SECTION
VIBRATING WIRE PIEZOMETER HYDRAULIC HEAD ELEVATION

PROJECT No.	PHASE/TASK	REV.	FIGURE
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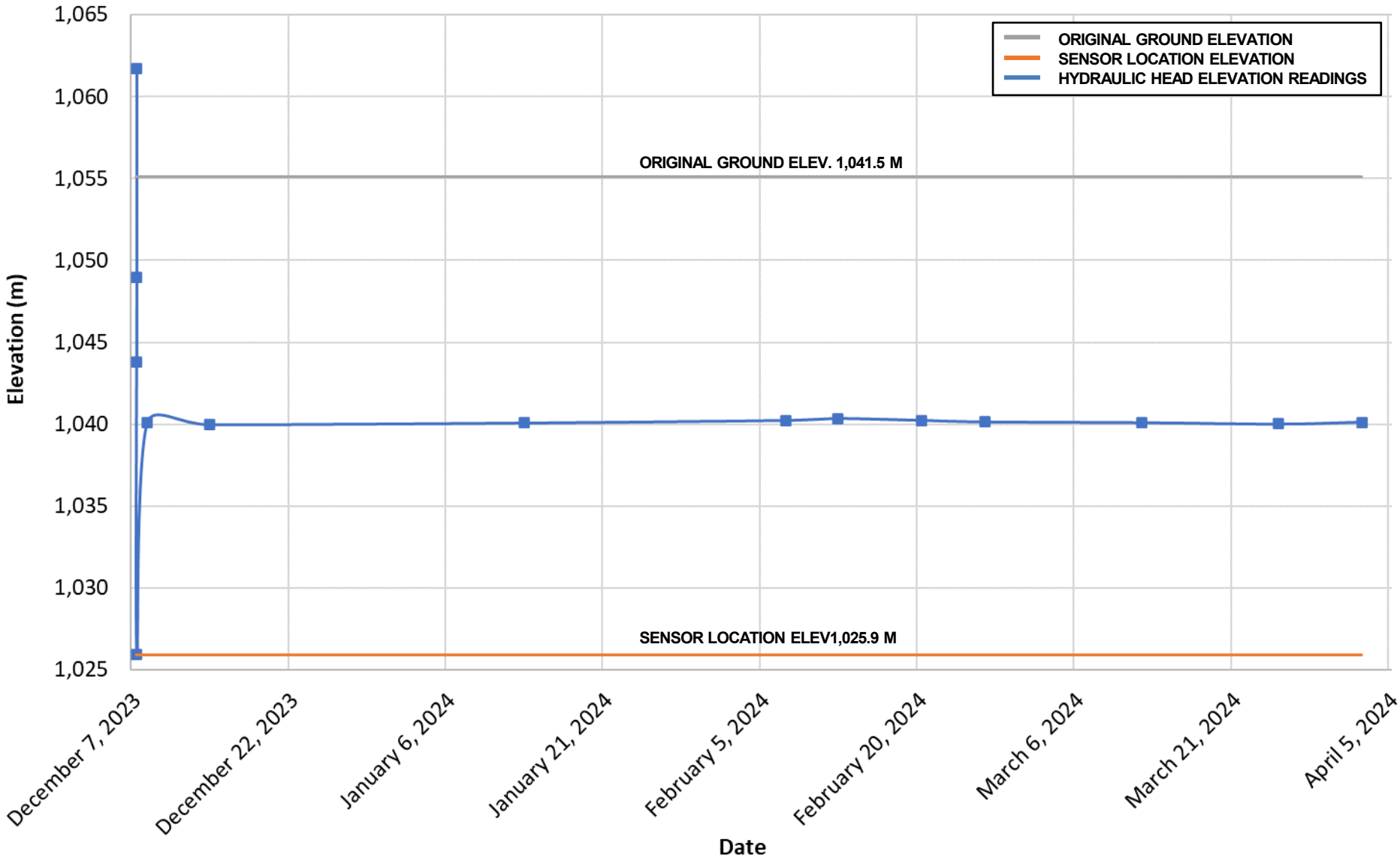


REFERENCES AND NOTES

1. HYDRAULIC HEAD READINGS FROM MPMC STAFF.

CLIENT
MOUNT POLLEY MINE CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	CF
DESIGN	CF
REVIEW	AGH
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
DH-NW-09 VIBRATING WIRE PIEZOMETER
HYDRAULIC HEAD ELEVATION READINGS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**E-14**

APPENDIX F

Hazard Classification

Waste Rock Dump Stability Rating and Hazard Classification

A stability rating and hazard classification for the proposed ultimate NW PAG Dump was carried out using the Waste Dump and Stockpile Stability Rating and Hazard Classification (WSRHC) method (Hawley and Cunning 2017). This system evaluates 22 factors and attributes that are thought to affect waste dump and stockpile stability. The following general steps are carried out in a WSRHC assessment:

1) The regional setting, foundation conditions, and material quality of the stockpile are assessed and assigned values. The individual values are summed, and a numerical Engineering Geology Index (EGI) is determined.

2) The geometry and mass, stability analyses, construction, and performance attributes are assessed and assigned values. The values are summed, and a Design and Performance Index (DPI) is determined.

Table F-1: Waste Dump and Stockpile Stability Rating Breakdown (Hawley and Cunning 2017)

Engineering Geology Index (EGI)	Design and Performance Index (DPI)
Regional setting (max 10 pts.) ▪ Seismicity (0-2) ▪ Precipitation (0-8)	Geometry and mass (max 10 pts.) ▪ Height (0-4) ▪ Slope (0-4) ▪ Volume and mass (0-2)
Foundation conditions (max 20 pts.) ▪ Foundation slope (0-5) ▪ Foundation shape (0-2) ▪ Overburden type (0-4) ▪ Overburden thickness (0-2) ▪ Undrained failure potential (-20-0) ▪ Foundation liquefaction potential (-20-0) ▪ Bedrock (0-4) ▪ Groundwater (0-3)	Stability Analysis (max 10 pts.) ▪ Static stability (0-7) ▪ Dynamic stability (0-3) Construction (max. 15 pts.) ▪ Construction method (0-8) ▪ Loading rate (0-7)
Material quality (max 20 pts.) ▪ Gradation (0-7) ▪ Intact strength and durability (0-8) ▪ Material liquefaction potential (-20-0) ▪ Chemical stability (-5 to +5)	Performance (max 15pts.) ▪ Stability performance (-15 to +15)

3) The EGI and DPI are summed to establish a Waste Rock and Stockpile Stability Rating (WSR). The WSR is then classified within one of five Waste Rock and Stockpile Hazard Classes (WHC). Higher values of WSR indicate relatively low instability hazards.

Table F-2: Summary of Waste Dump and Stockpile Stability Rating and Hazard Classification System (Hawley and Cunning 2017)

Waste Rock and Stockpile Stability Rating (WSR)	Waste Rock and Stockpile Hazard Class (WHC)	Instability Hazard
80 – 100	I	Very Low Hazard
60 – 80	II	Low Hazard
40 – 60	III	Moderate Hazard
20 – 40	IV	High Hazard
0 – 20	V	Very High Hazard

Additional details on the WSRHC methodology, including a detailed explanation of each of the indices and the sub-parameters can be found in Chapter 3 of Hawley and Cunning (2017).

The classification for the proposed ultimate NW PAG Dump is presented in Table F-3.

Table F-3: Waste Dump and Stockpile Stability Rating and Hazard Classification Rating Summary for the Proposed Ultimate NW PAG Dump

Index	Group	Factor	Rating	Description	Notes	Source
Engineering Geology Index (EGI)	Regional Setting	Seismicity	1.5	Low	Maximum Credible Earthquake PGA=0.116g, based on 1 in 10,000 return period	WSP USA 2023
		Precipitation	4	350-1000 mm	Average precipitation = 612 mm	Golder 2022b
	Foundation Conditions	Foundation Slope	4	5 – 15 º (Gentle)	Based on topographic assessment	Original site topography
		Foundation Shape	1	Gentle slope	Planar slope with no lateral confinement	Original site topography
		Overburden Type	3	Type IV	Variable till	WSP 2024b
		Overburden Thickness	0	>5 m	Overburden thicknesses measured up to approximately 24 m deep	WSP 2024b
		Undrained Failure Potential	-2.5	Low	Based on dense till foundation	WSP 2024b
		Foundation Liquefaction Potential	0	Negligible	Dense till	Assessment in this geotechnical report for the foundation soils.
		Bedrock	2	Type C	Moderately competent; GSI/RMR 40-60	WSP 2024b
		Groundwater	0	High	Groundwater table at surface; artesian conditions encountered	WSP 2024b
	Material Quantity	Gradation	5	Coarse	Based on SERDS and expectation of fines mixed in waste rock	WSP 2024a
		Intact Strength and Durability	6	Type 4	Strong to very strong rock	Golder 2016a
		Material Liquefaction Potential	0	Negligible	Well graded materials	WSP 2024b
		Chemical Stability	2.5	Mildly reactive	PAG rock	-
Design and Performance Index (DPI)	Geometry & Mass	Height	2.5	Low-Moderate	25 to 50 m high lifts	Based on proposed ultimate NW PAG Dump design and October 2023 current topography
		Slope Angle	2	Moderate	27-degree slope	Based on proposed ultimate NW PAG Dump design
		Volume and Mass	1	Medium	2.07e7	Based on proposed ultimate NW PAG Dump design
	Stability Analysis	Static Stability	5	1.3 – 1.5	Slope Stability Analyses Results	-
		Dynamic Stability	3	>1.15	Slope Stability Analyses Results	-
	Construction	Construction Method	6	Method IV	Lifts are at a maximum height of 40 m	Based on proposed ultimate NW PAG Dump design
		Loading Rate	3.5	Moderate	Assumed	-
	Performance	Stability Performance	7.5	Good	Minor settlement has occurred along access haul ramp to lifts	Golder 2013c, Golder 2016a, Golder 2017, WSP 2023a, WSP 2023c
Engineering Geology Index Subtotal			**26.5**			
Design and Performance Index Subtotal			**30.5**			
Waste Dump Stability Rating (WSR)			**57**			
Waste Dump Hazard Class (WHC)			**III**			

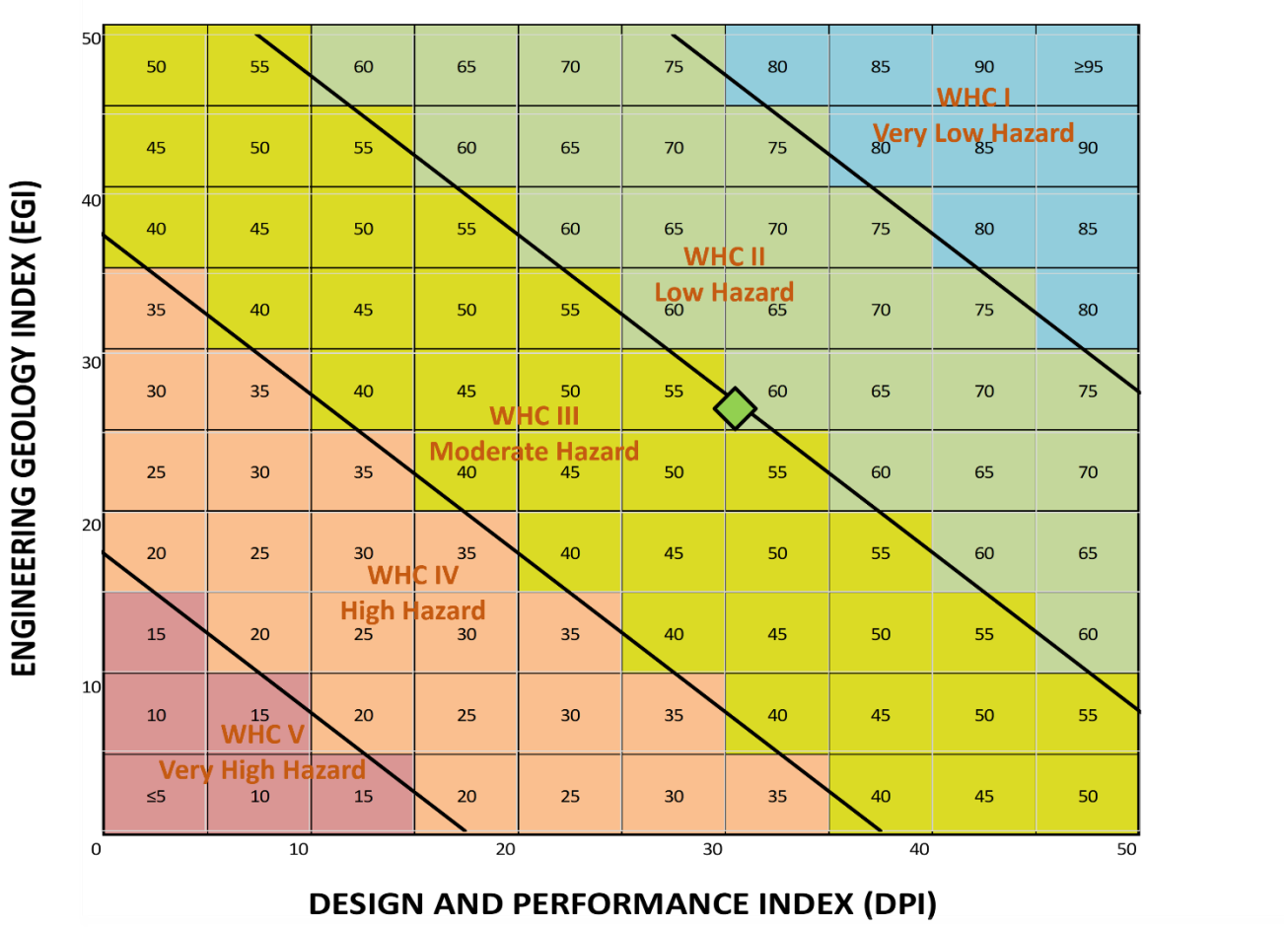


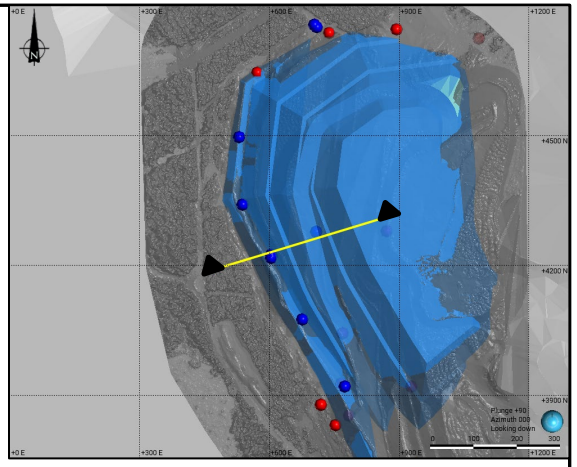
Illustration F-1: Proposed Ultimate NW PAG Dump WSRHC Chart

APPENDIX G

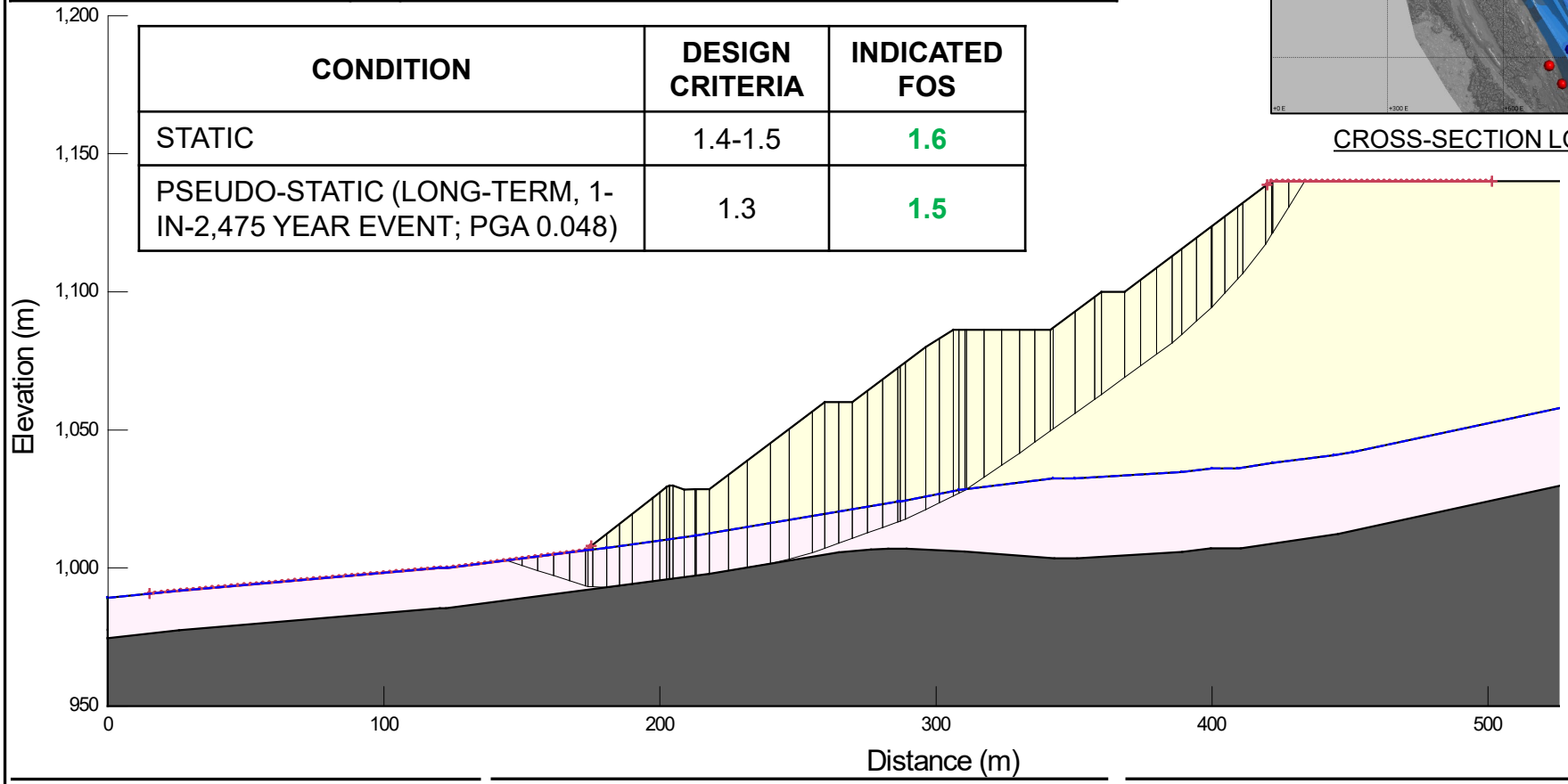
Slope Stability Analyses

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.5**



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

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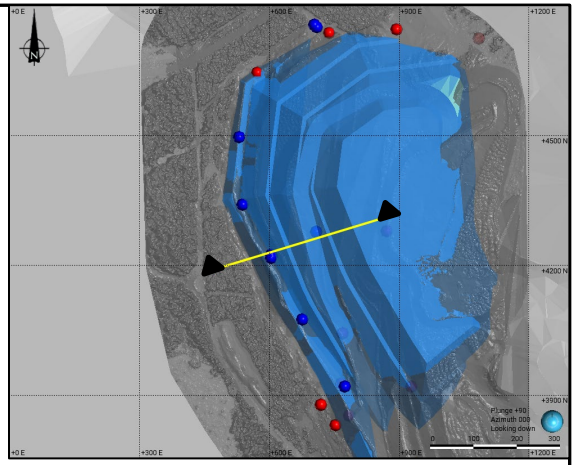
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

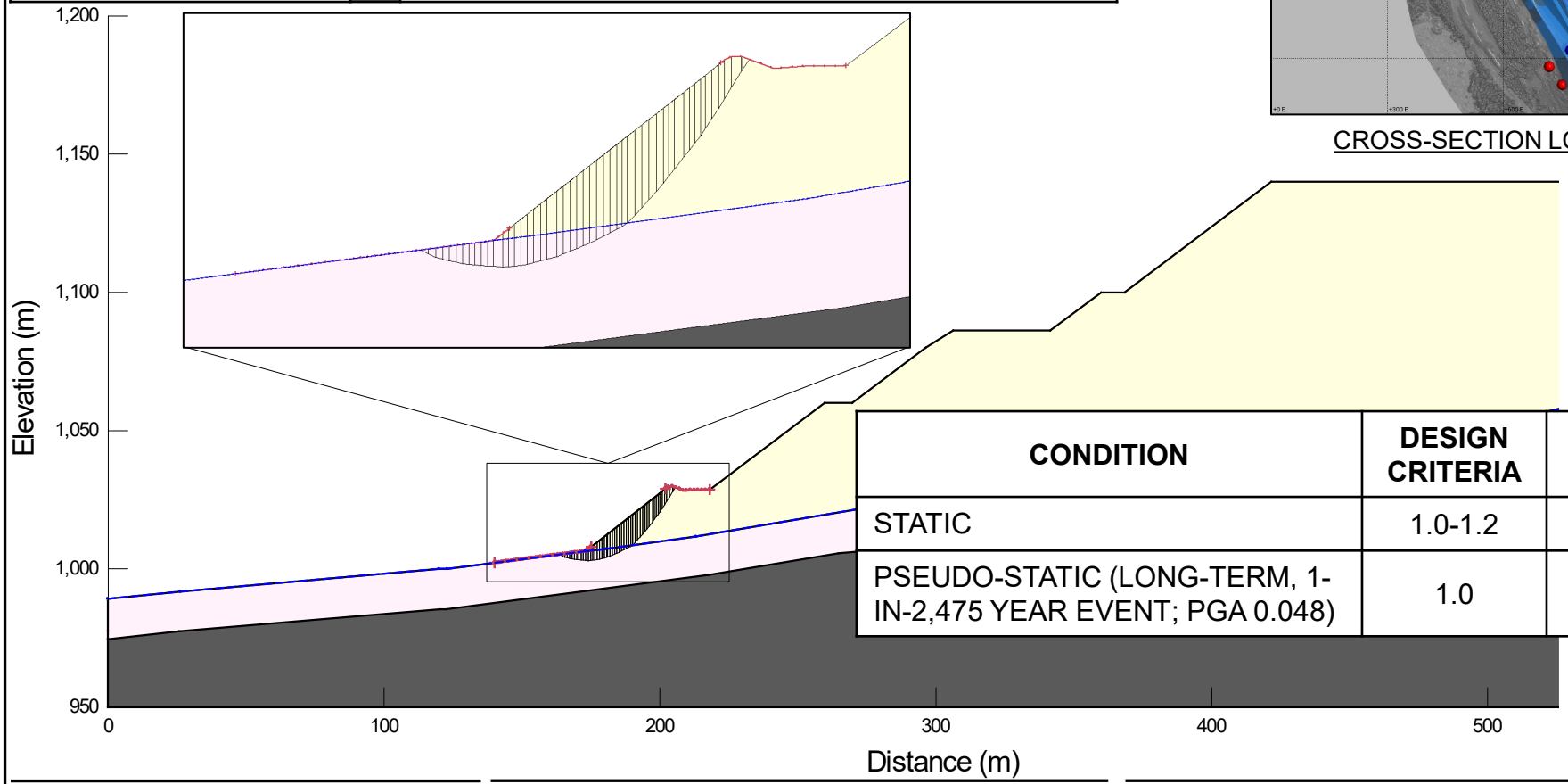
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E OVERALL SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-1**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.4
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.3

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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LIKELY, BC

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PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

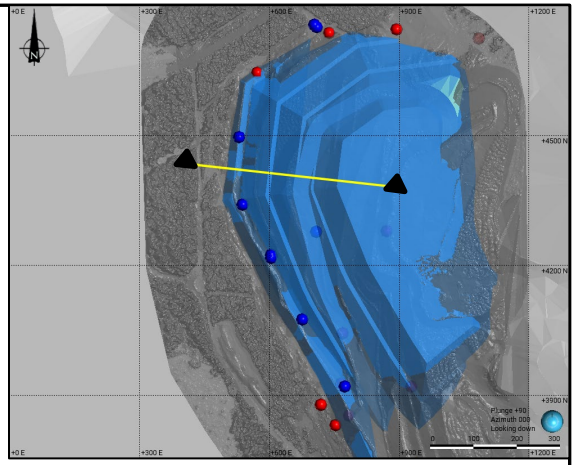
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E LOWER LIFT SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

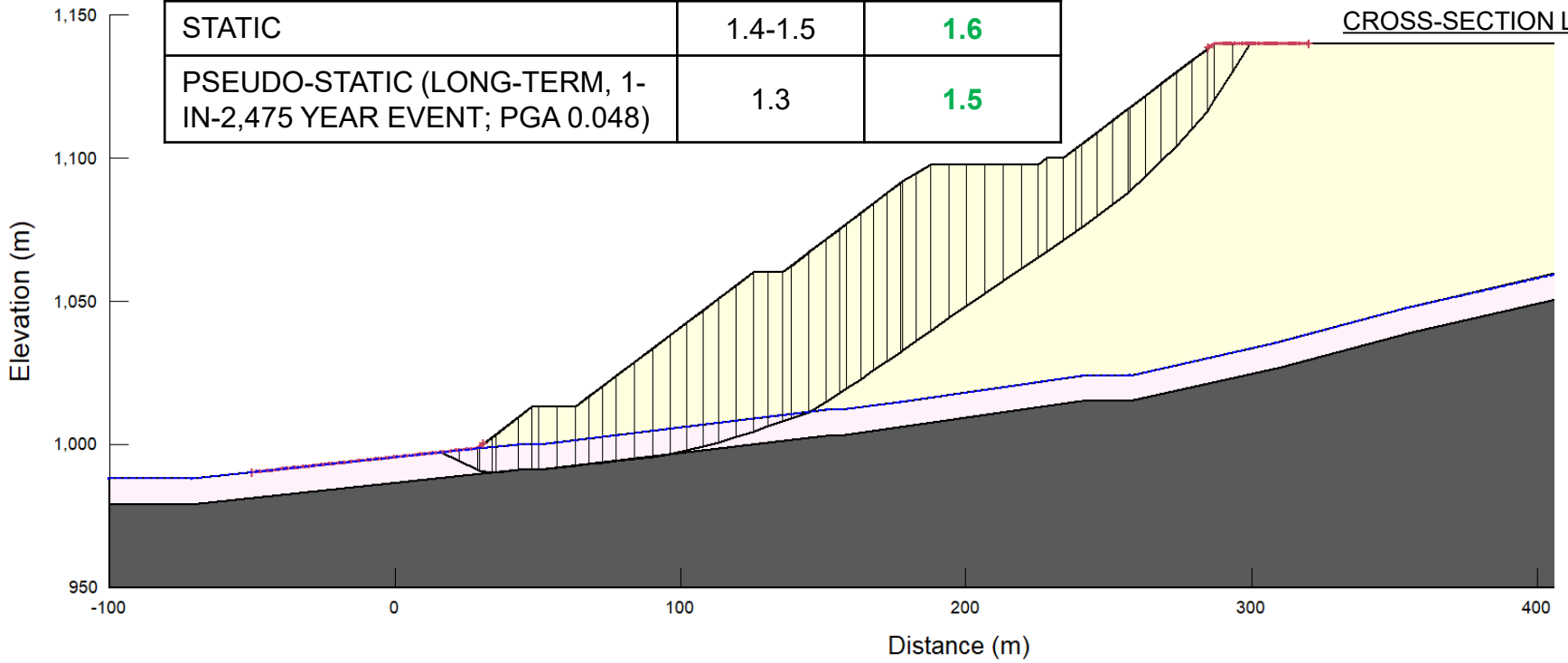
PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-2**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.5**



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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LIKELY, BC

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DESIGN	AJB
REVIEW	MVK
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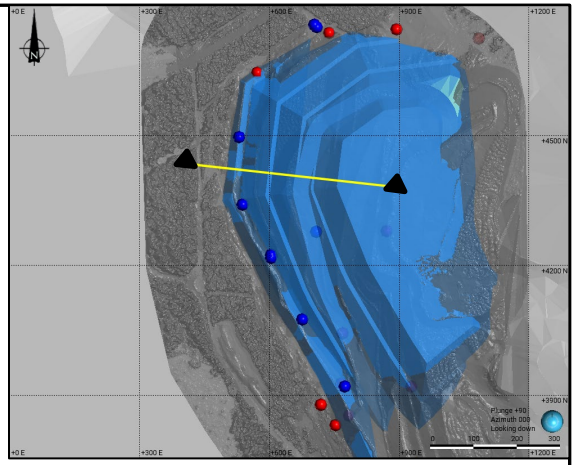
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

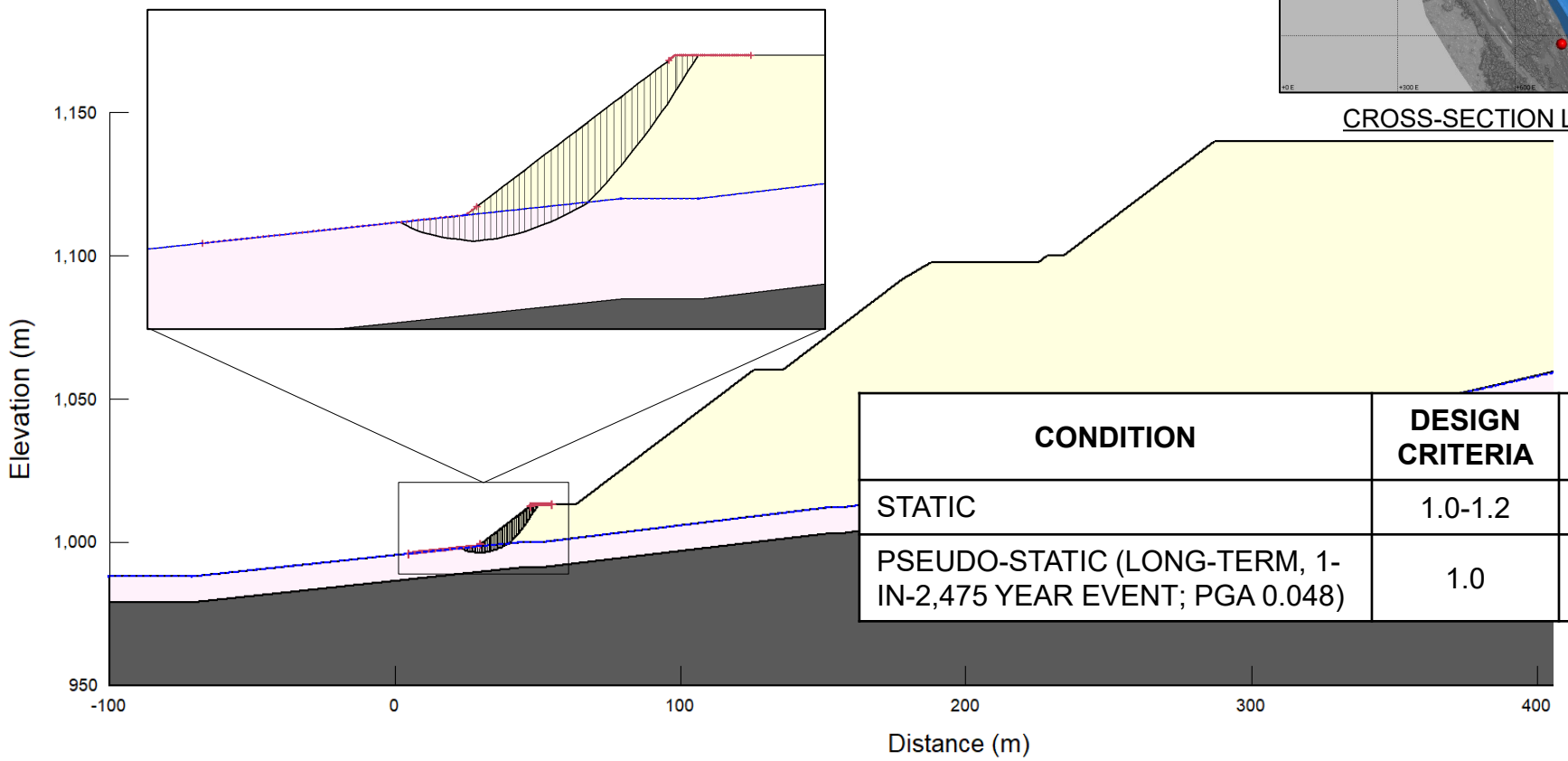
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-3**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.5
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.4

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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LIKELY, BC

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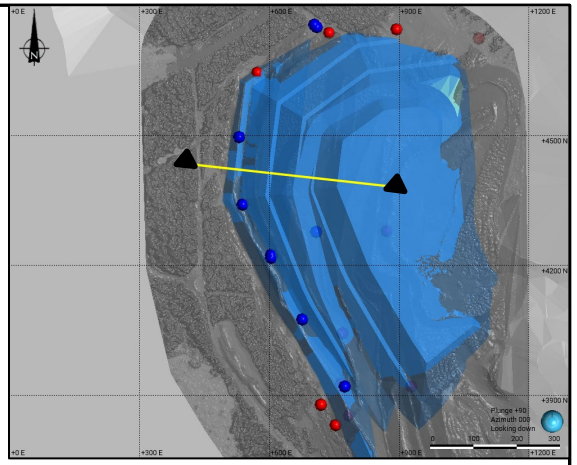
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G LOWER LIFT SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

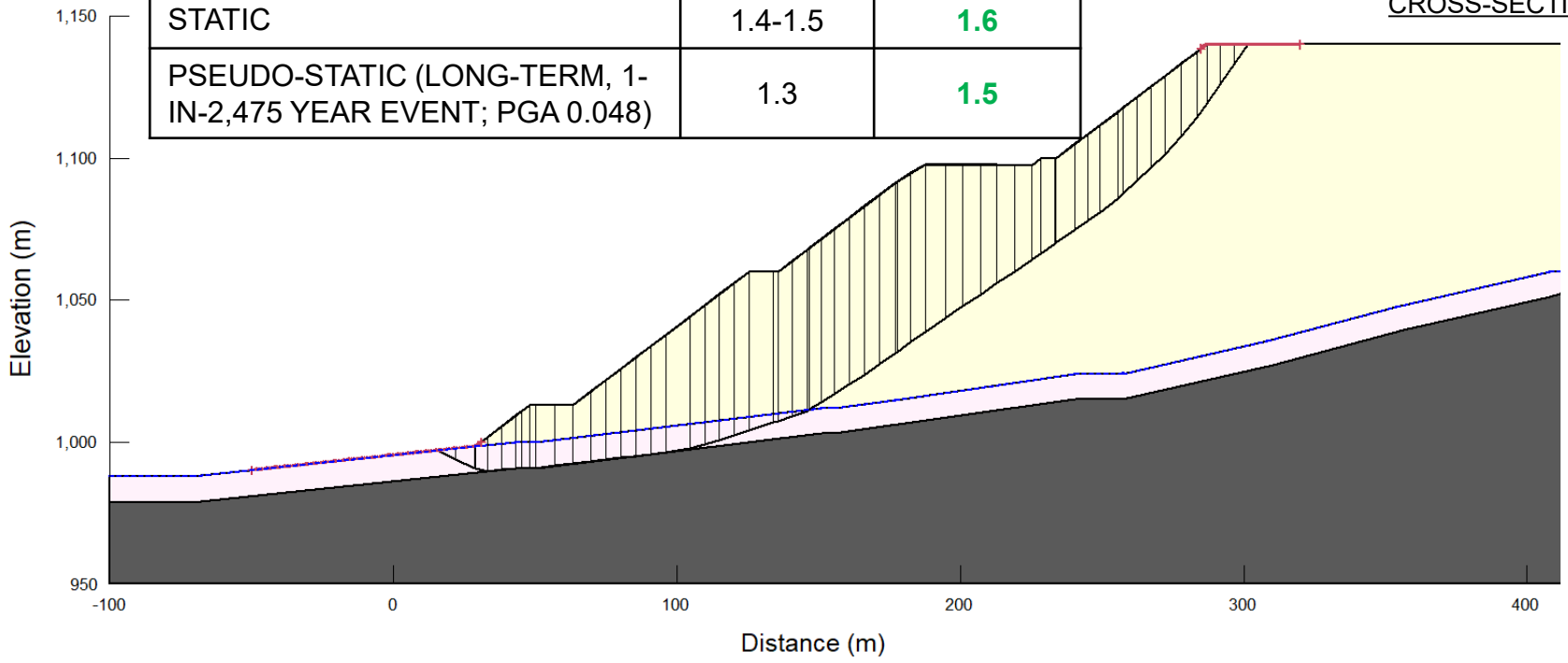
PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-4**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	1.6
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	1.5



CROSS-SECTION LOCATION



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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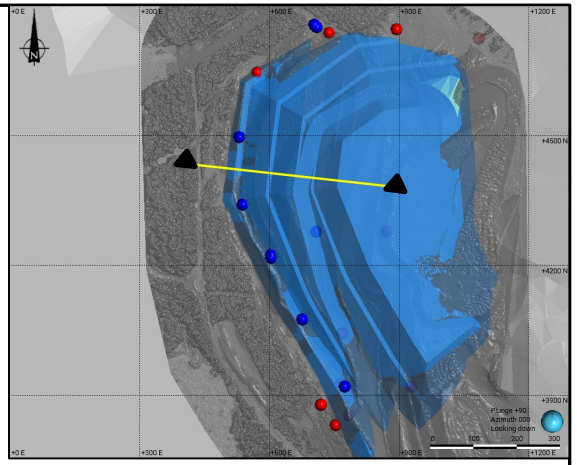
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

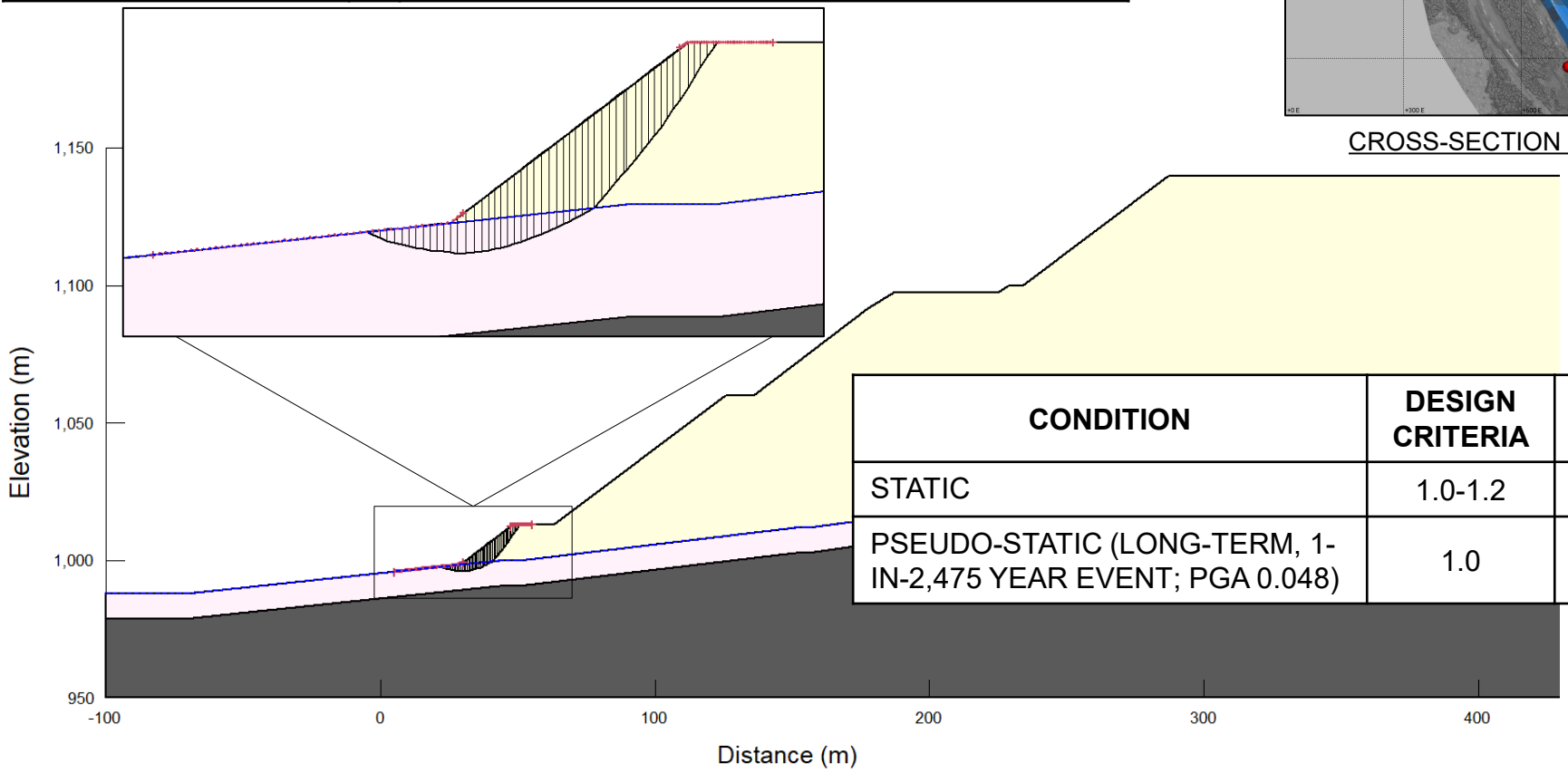
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-5**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	**1.4**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	**1.3**

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

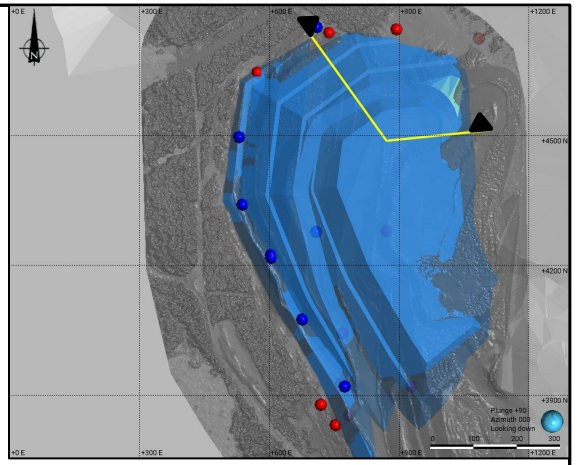
YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G LOWER LIFT SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

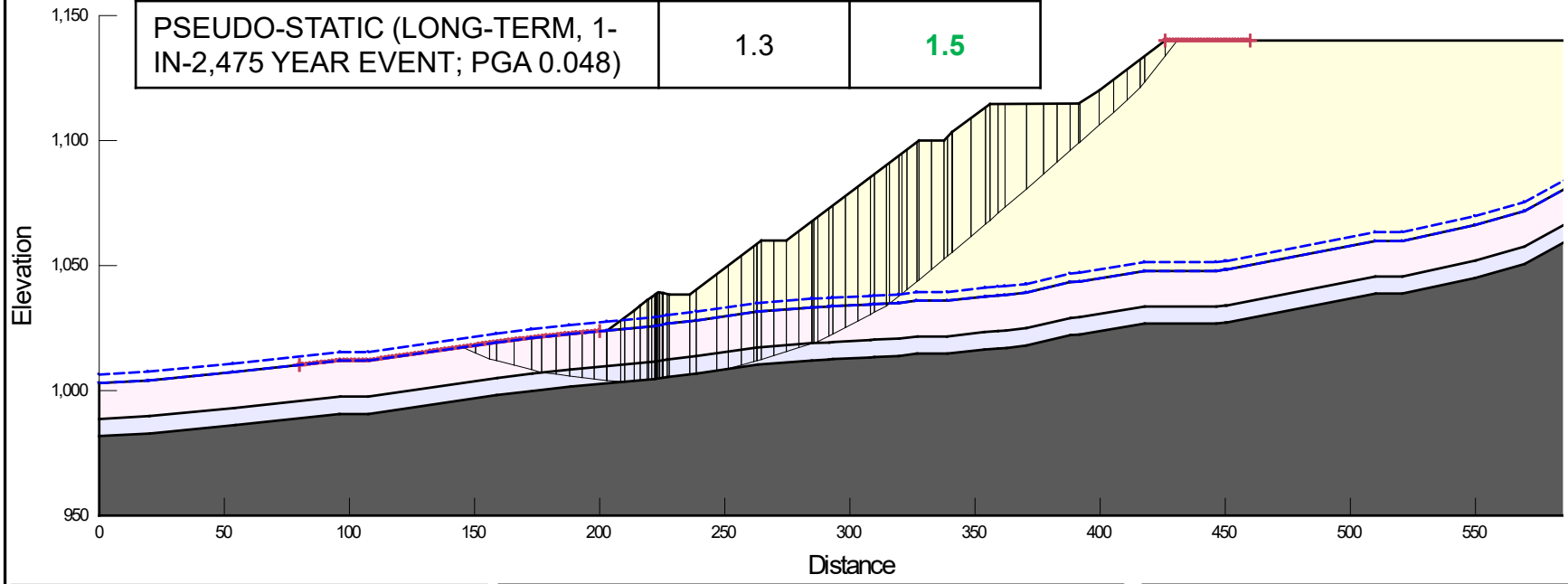
PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-6**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.5**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

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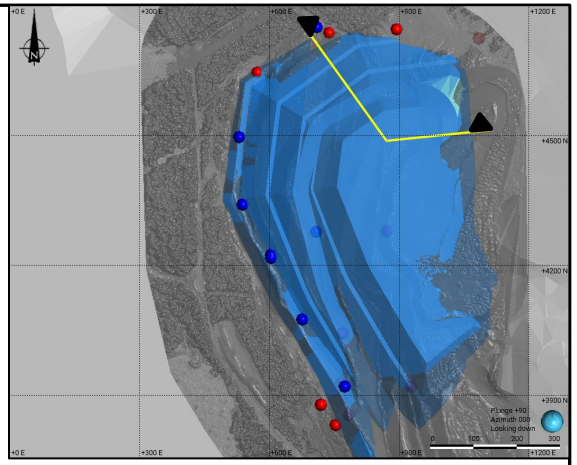
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

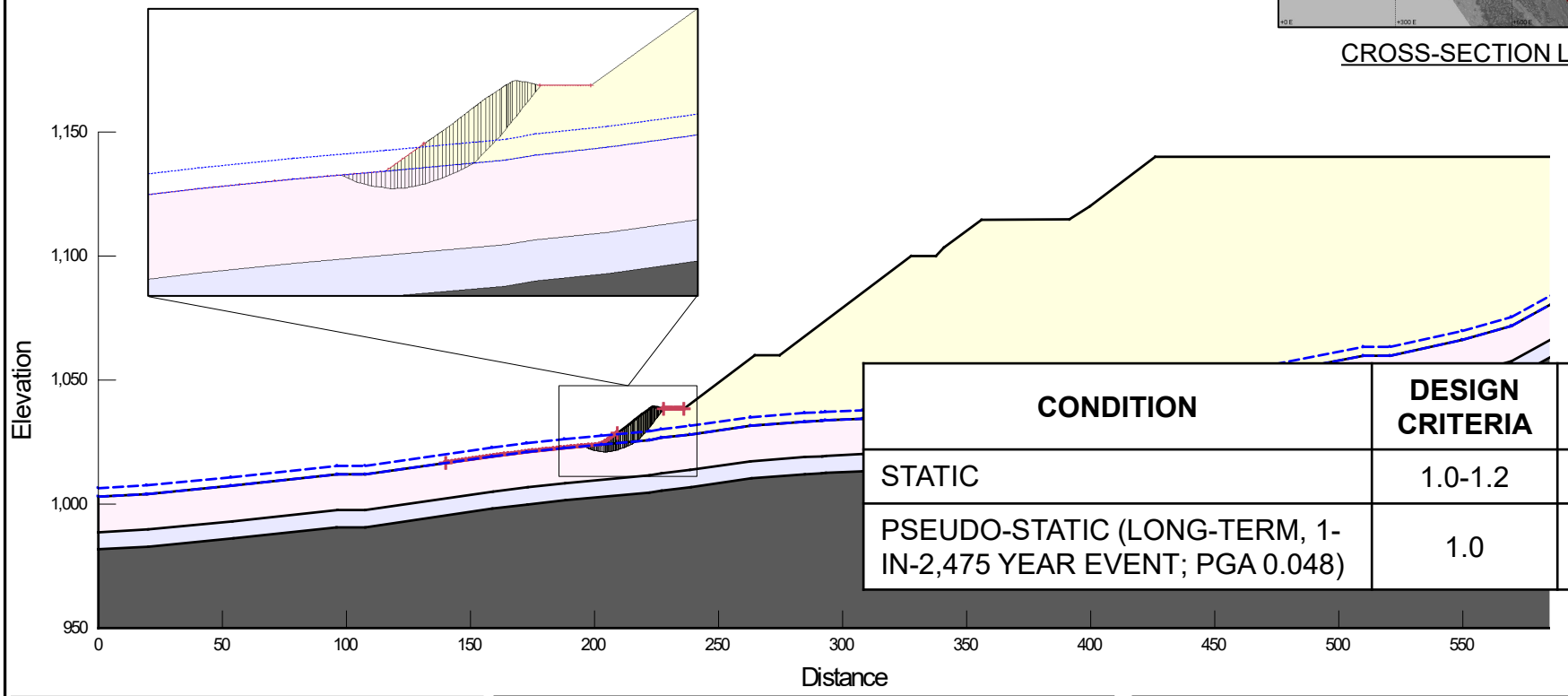
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-7**

MATERIAL PROPERTIES		
MATERIAL TYPE	**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK	19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)	22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL	22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK	IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.5
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.5

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

CLIENT
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MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
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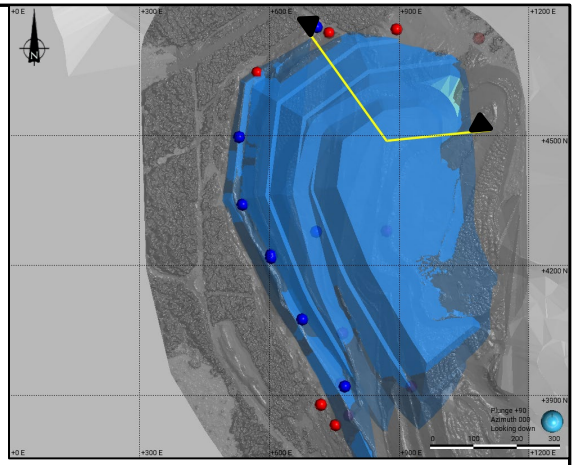
YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J LOWER LIFT SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

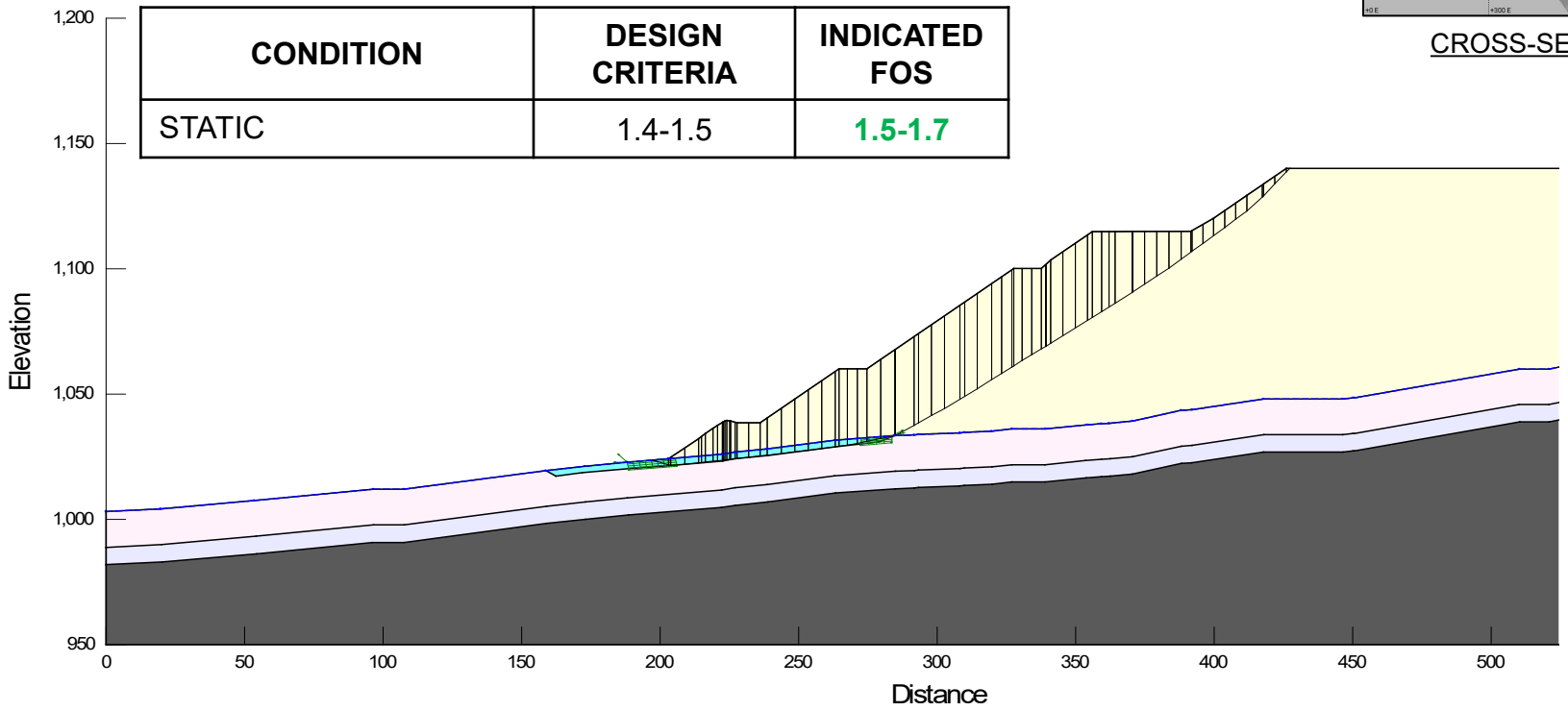
PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-8**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL		20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK		IMPENETRABLE	



CROSS-SECTION LOCATION

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.4-1.5	**1.5-1.7**



REFERENCES AND NOTES

1. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

CLIENT
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MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

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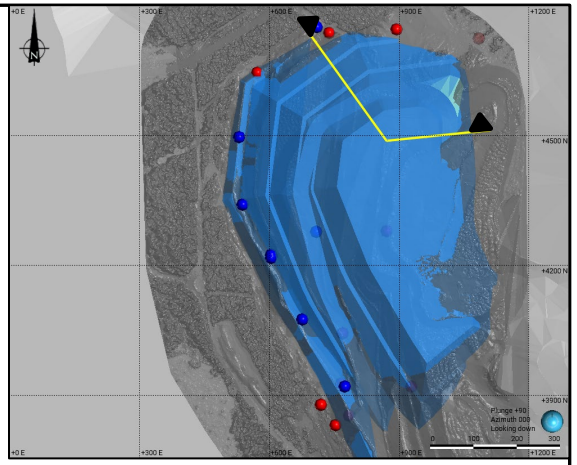
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

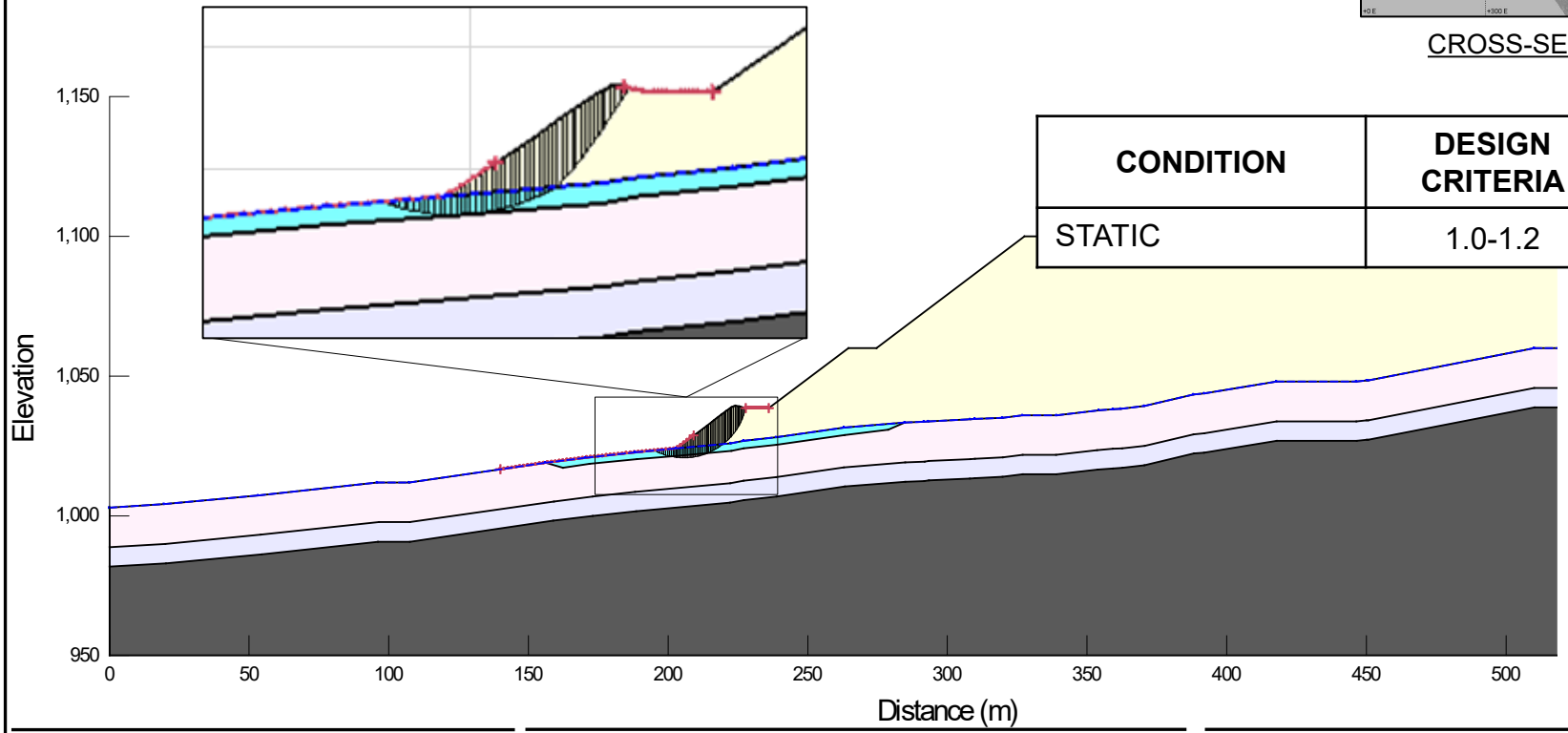
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-9**

MATERIAL PROPERTIES		
MATERIAL TYPE	**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK	19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL	20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM	22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL	22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK	IMPENETRABLE	



CROSS-SECTION LOCATION



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.0-1.2	1.0-1.5

REFERENCES AND NOTES

1. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

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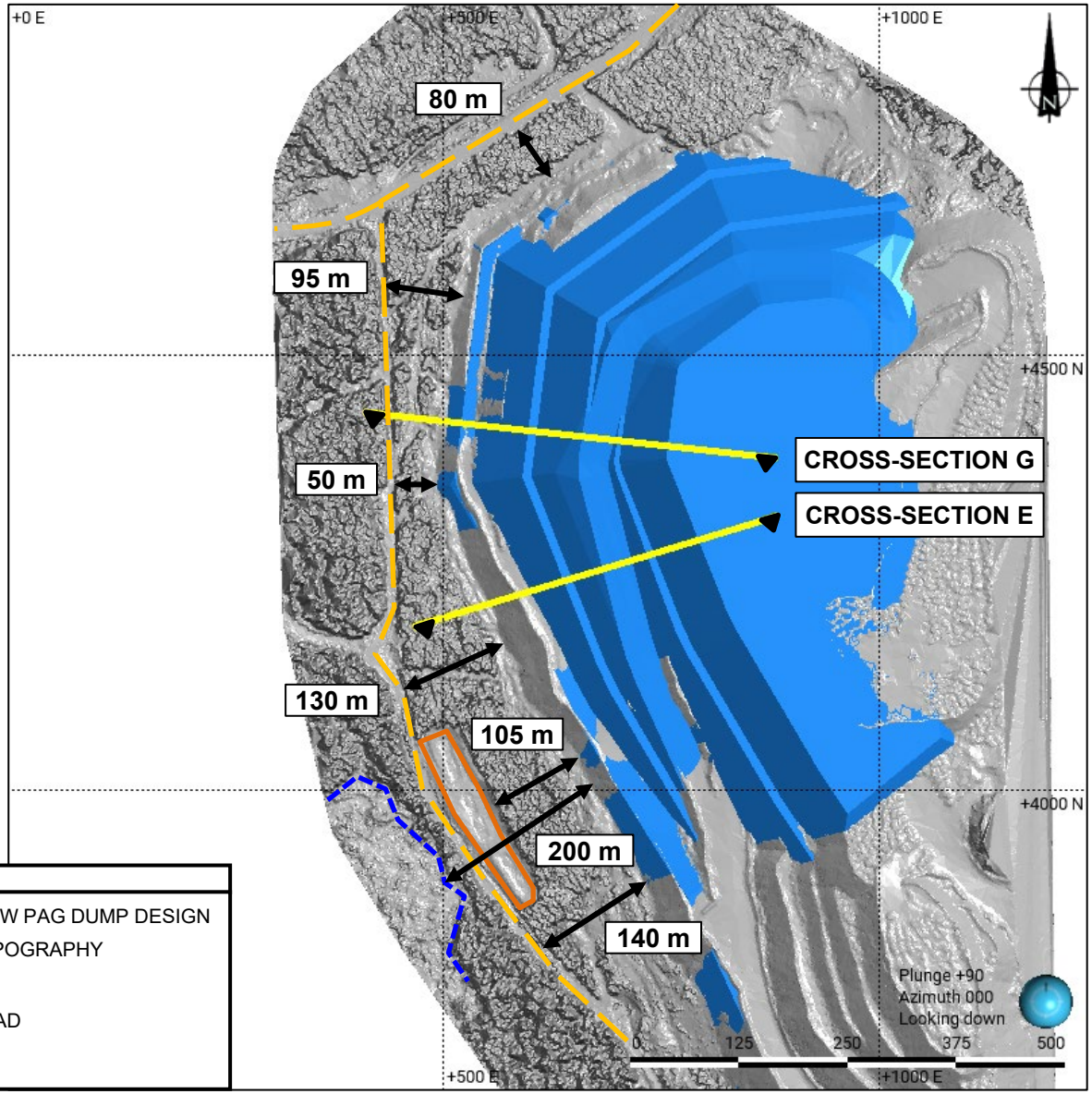
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J LOWER LIFT SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**G-10**

APPENDIX H

Runout Analyses



LEGEND

- PROPOSED ULTIMATE NW PAG DUMP DESIGN
- OCT 2023 CURRENT TOPOGRAPHY
- SETTLING PONDS
- BOOTJACK ACCESS ROAD
- BOOTJACK LAKE

REFERENCES AND NOTES

1. OCT 2023 CURRENT TOPOGRAPHY PROVIDED BY MPMC, RECEIVED 2023-10-18. FILE NAME: 231008-NPP.dxf.
2. PROPOSED ULTIMATE NW PAG DUMP DESIGN PROVIDED BY MPMC, RECEIVED 2023-04-06. FILE NAME: z - NWPAG_PAGlifts-v3.dxf.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

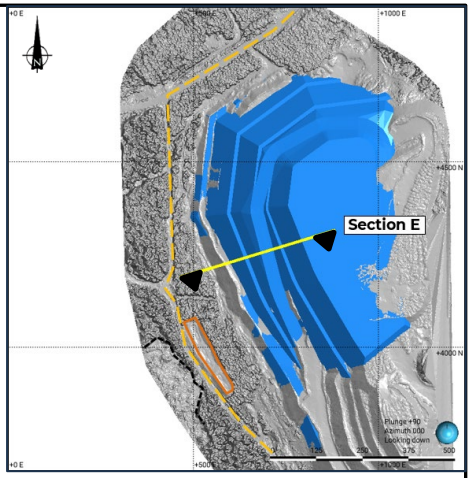
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CRITICAL INFRASTRUCTURE

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**H-1**

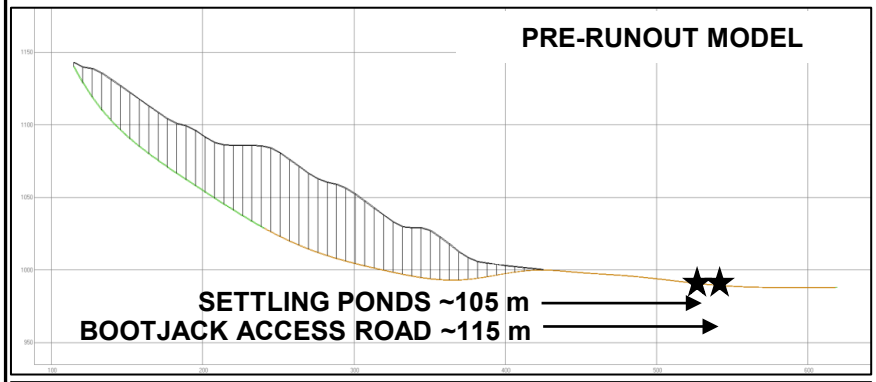
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

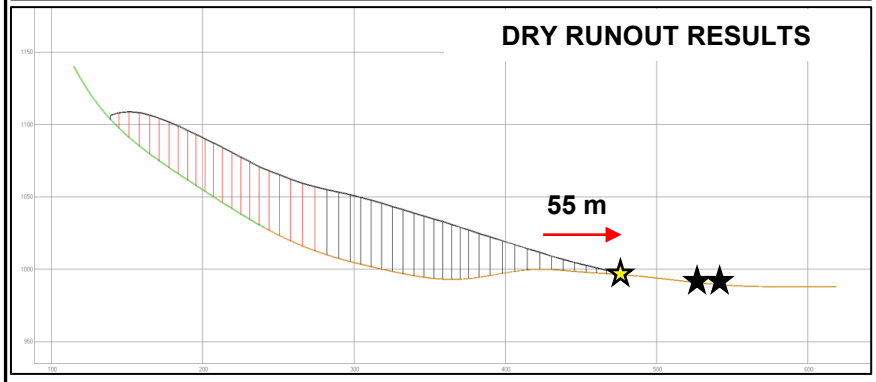
LEGEND

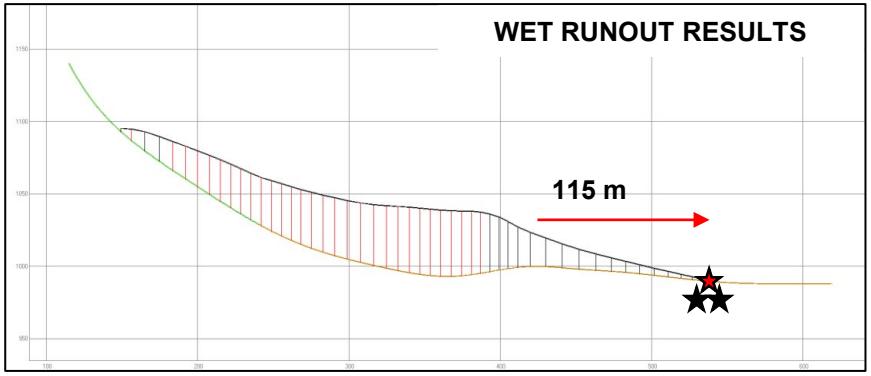
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

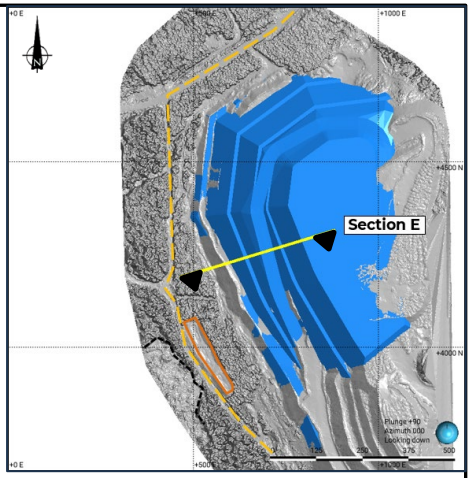
TITLE
CROSS-SECTION E
RUNOUT MODEL OVERALL SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	H-2

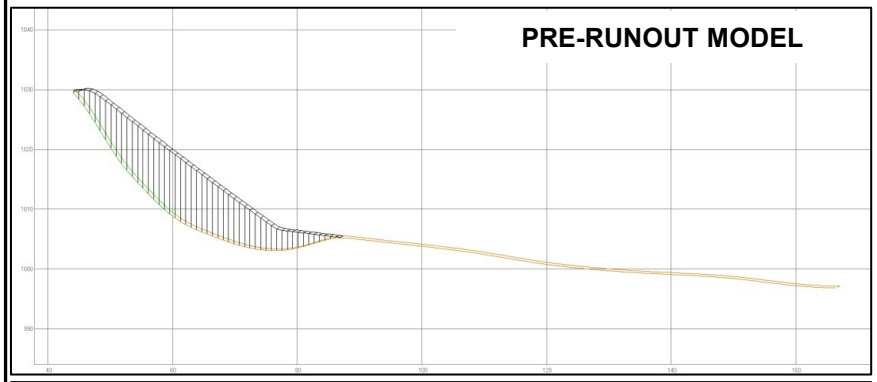
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

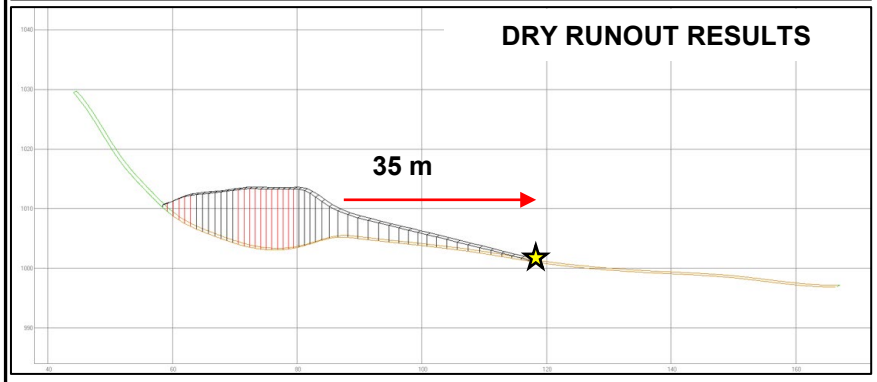
LEGEND

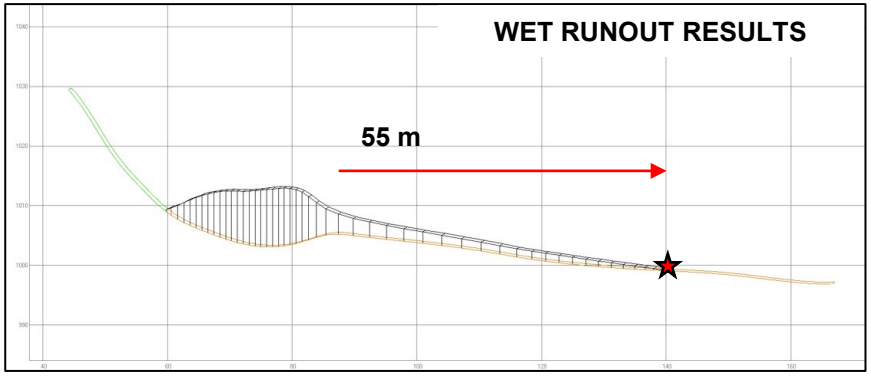
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

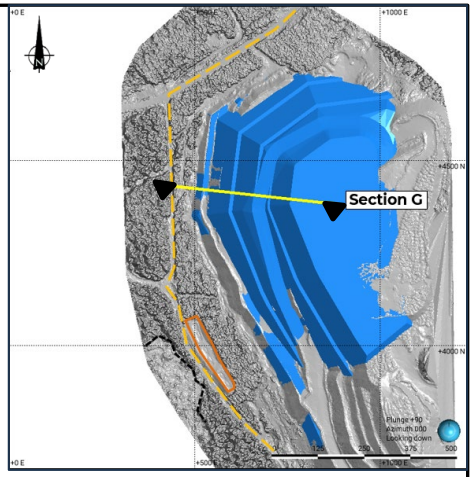
TITLE
CROSS-SECTION E
RUNOUT MODEL LOWER LIFT SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	H-3

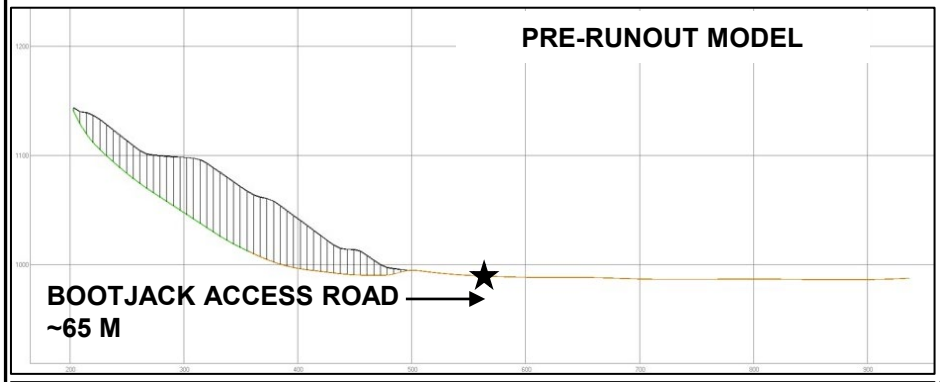
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

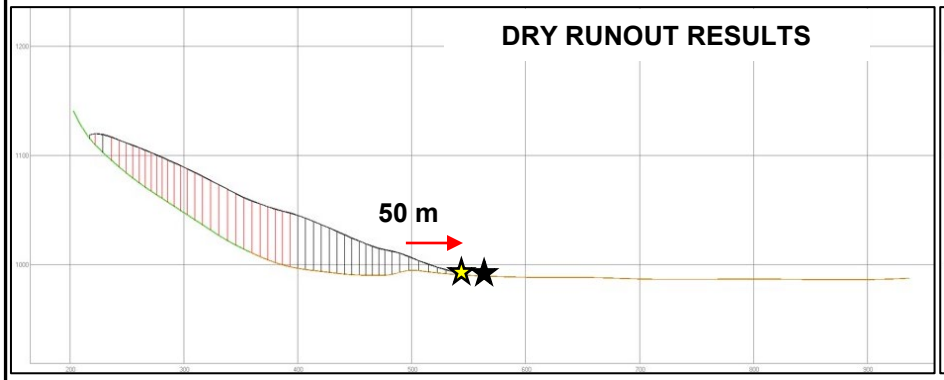
LEGEND

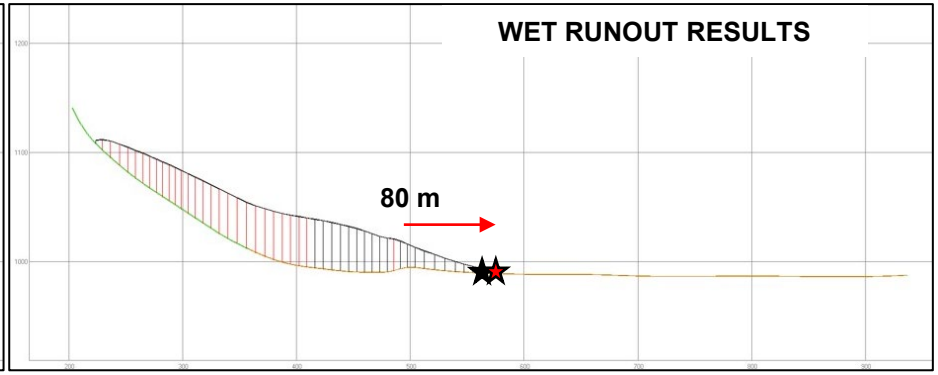
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

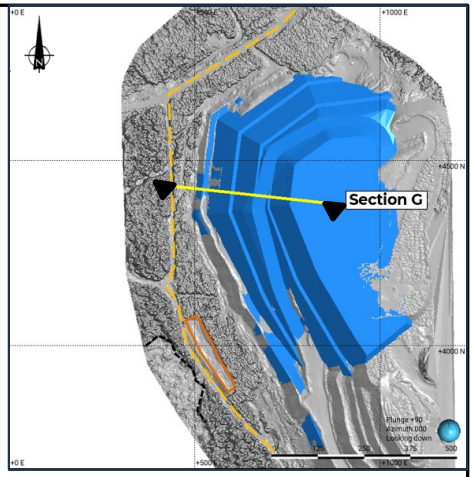
TITLE
CROSS-SECTION G
RUNOUT MODEL OVERALL SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	H-4

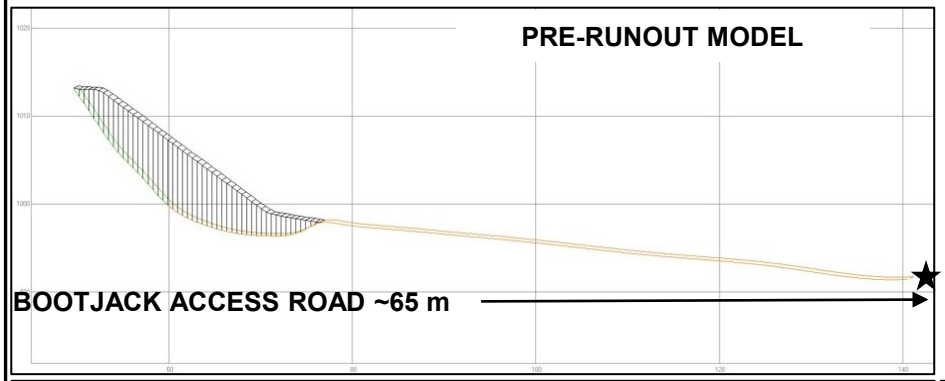
MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	DYNAMIC FRICTION ANGLE (DEGREES)	INTERNAL FRICTION ANGLE (DEGREES)
WASTE ROCK		DRY (INTERNAL)	19.6	33.5	37
FOUNDATION SOIL		DRY (BASAL)	22	19	N/A
		WET (BASAL)		14	

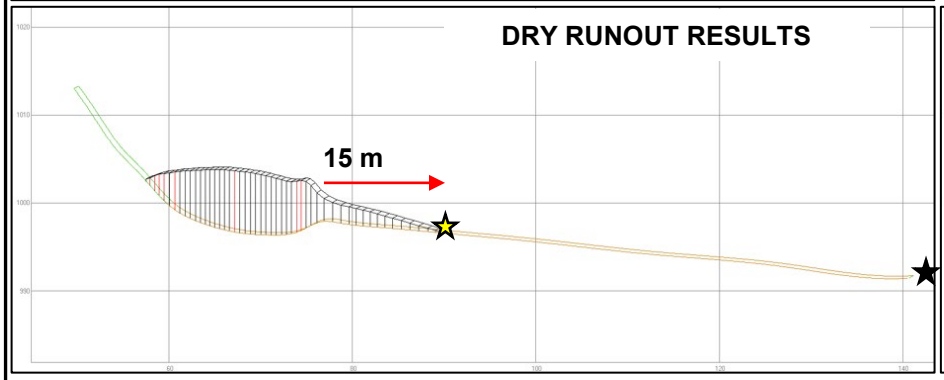
LEGEND

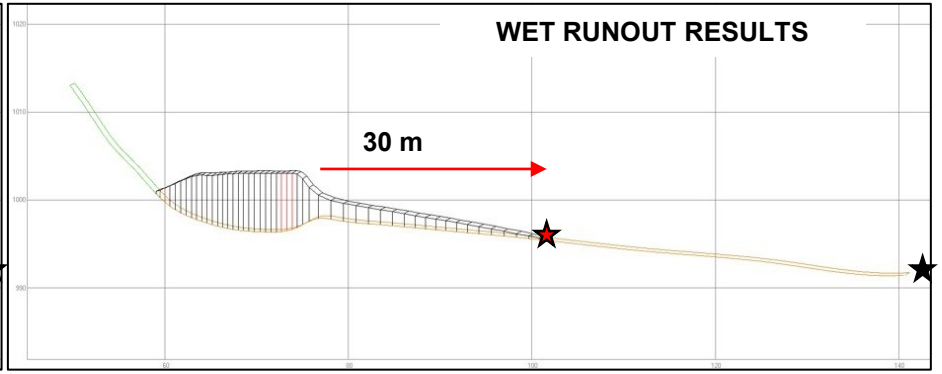
- PREDICTED RUNOUT DISTANCE - DRY
- PREDICTED RUNOUT DISTANCE - WET
- KEY INFRASTRUCTURE (SEE NOTES IN PRE-RUNOUT SURFACE)



CROSS-SECTION LOCATION







REFERENCES AND NOTES

1. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT

YYYY-MM-DD	2024-04-08
PREPARED	AJB
DESIGN	AJB
REVIEW	MVK
APPROVED	AGH

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
CROSS-SECTION G
RUNOUT MODEL LOWER LIFT SLOPE FAILURE
RUNOUT RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**H-5**

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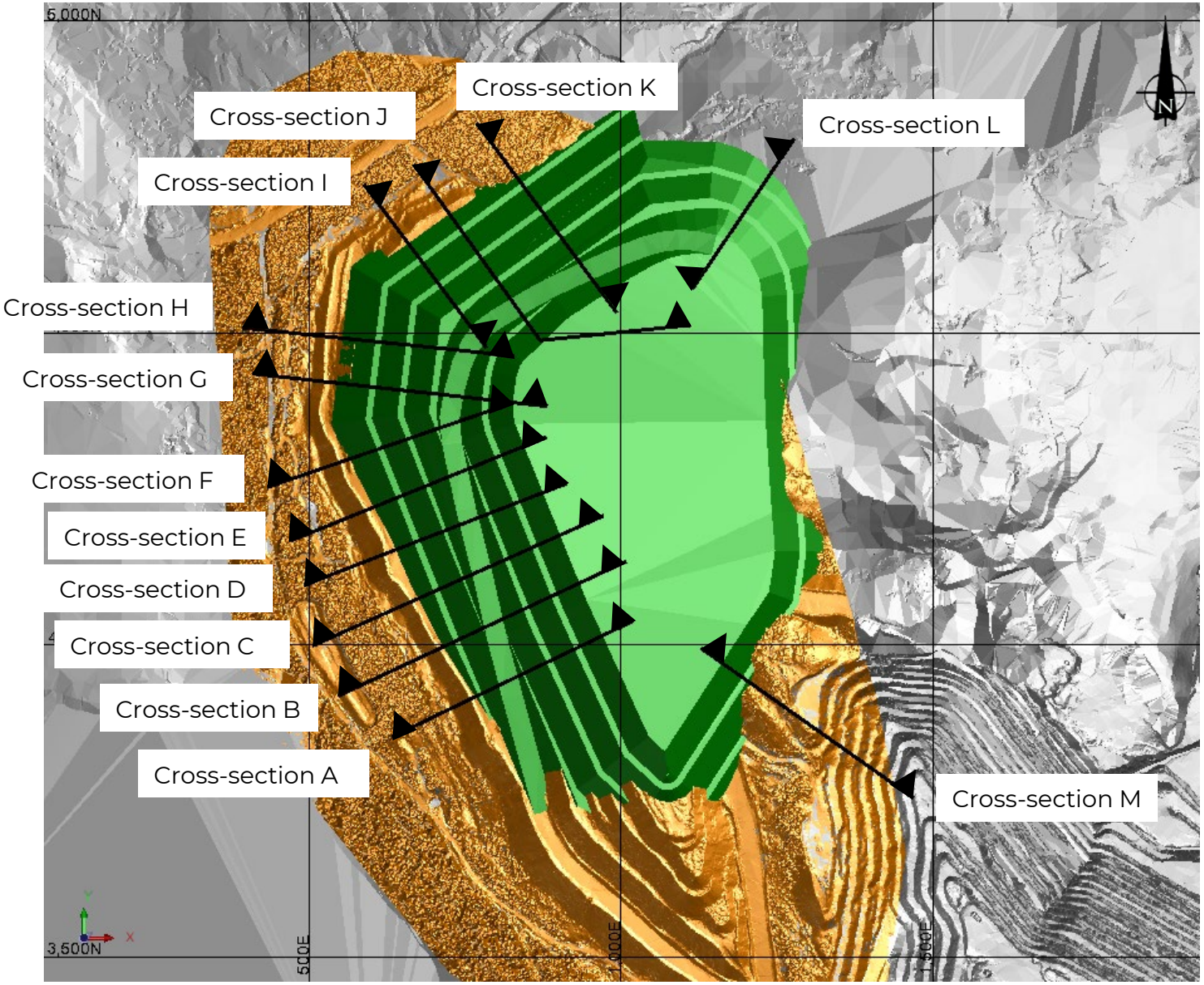
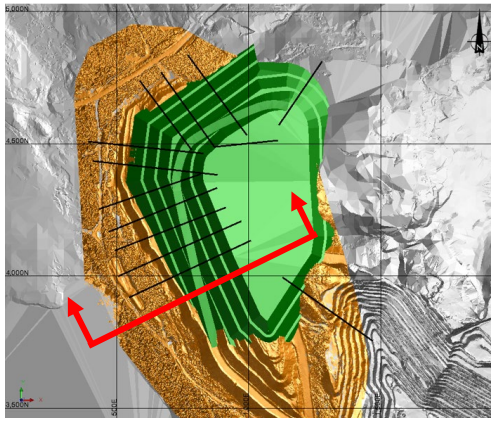
ATTACHMENT 2

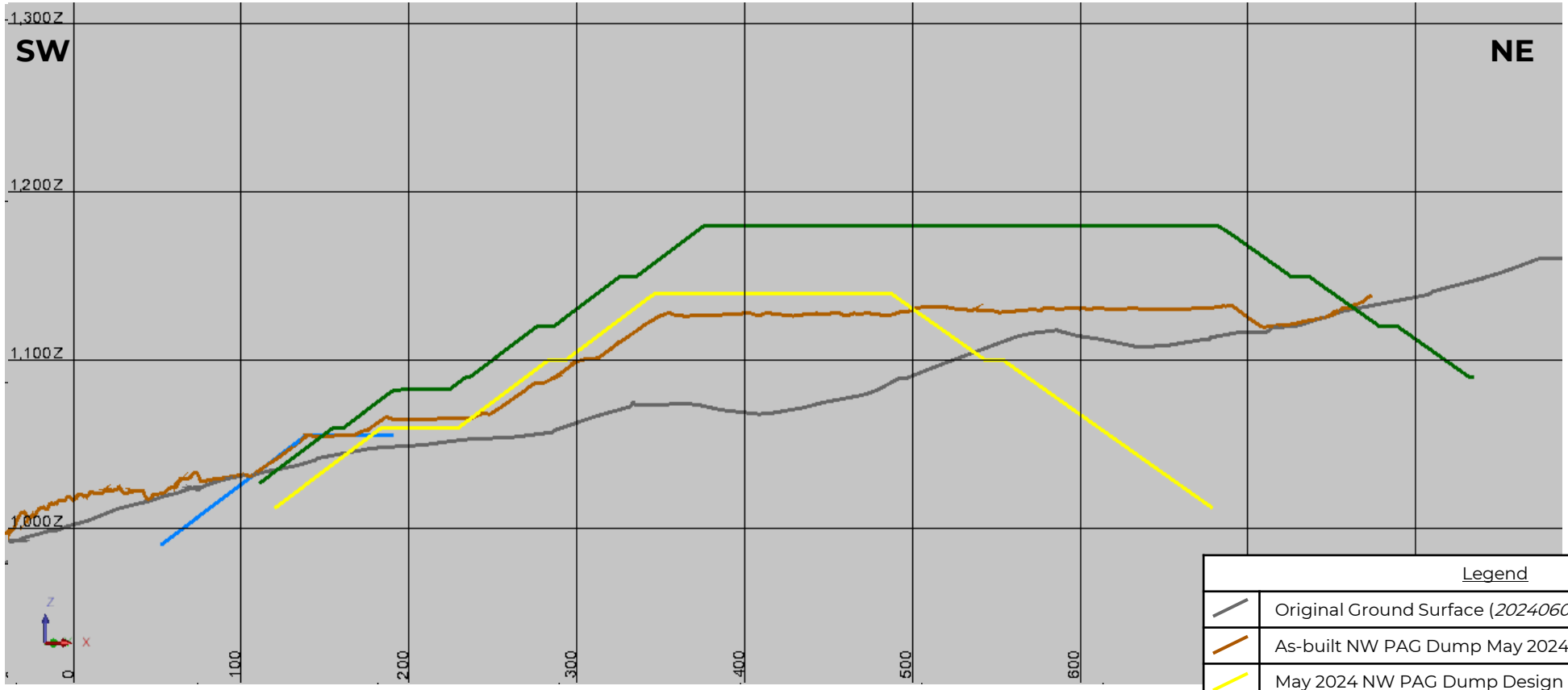
Cross-section Review

Plan View of Cross-Sections on the Updated NW PAG Dump Design



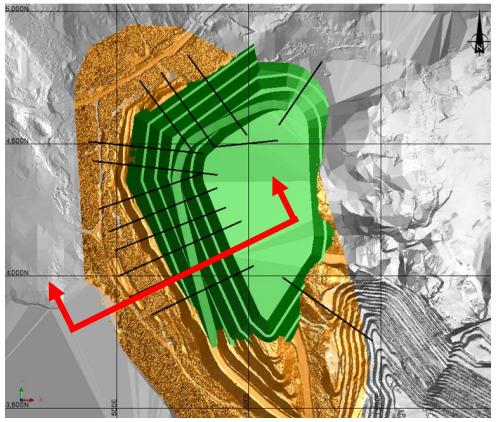
Cross-section A

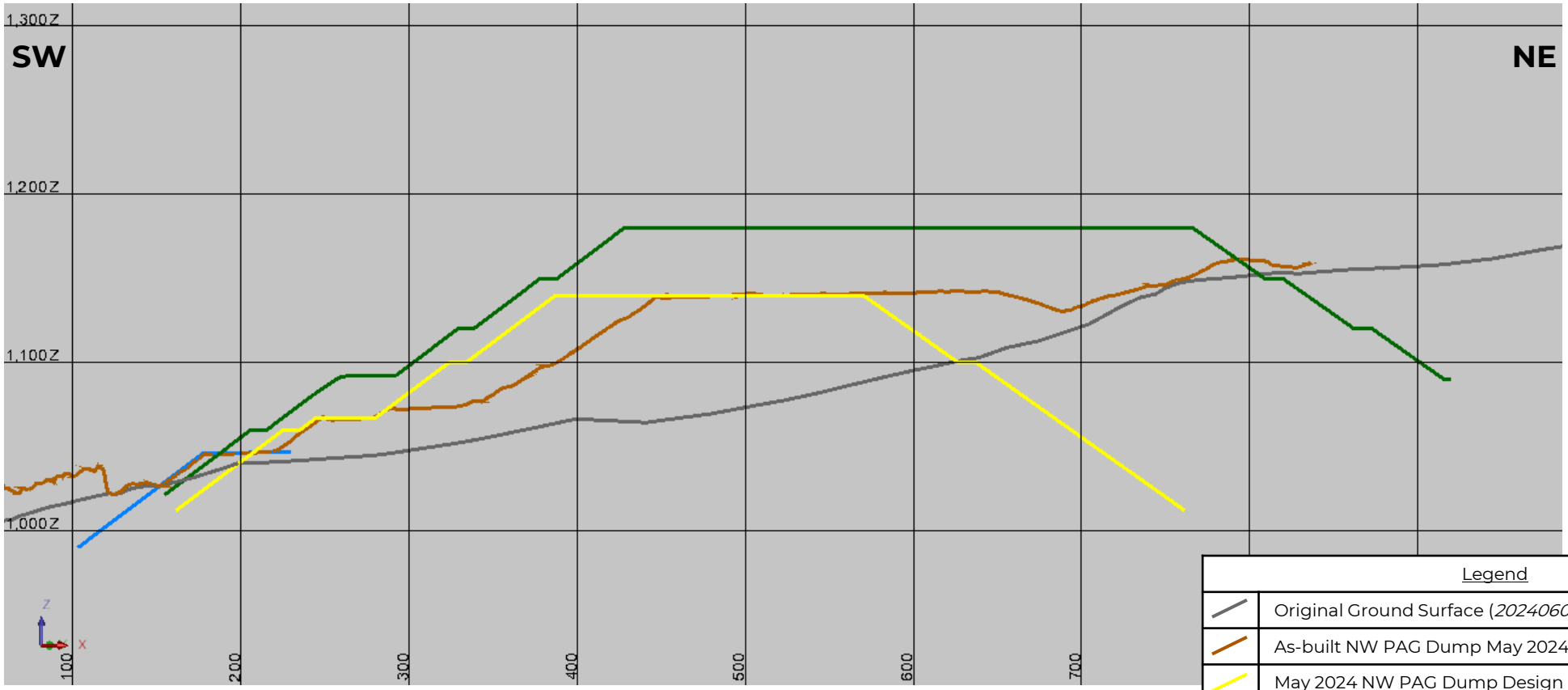




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

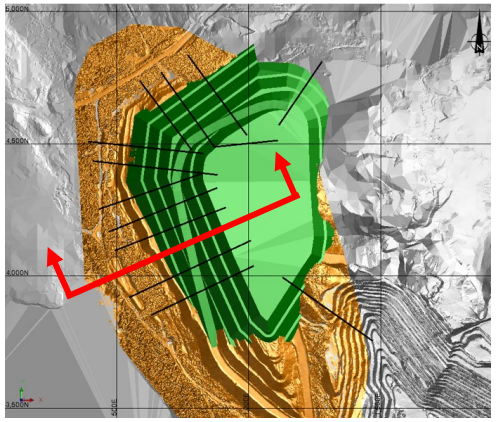
Cross-section B

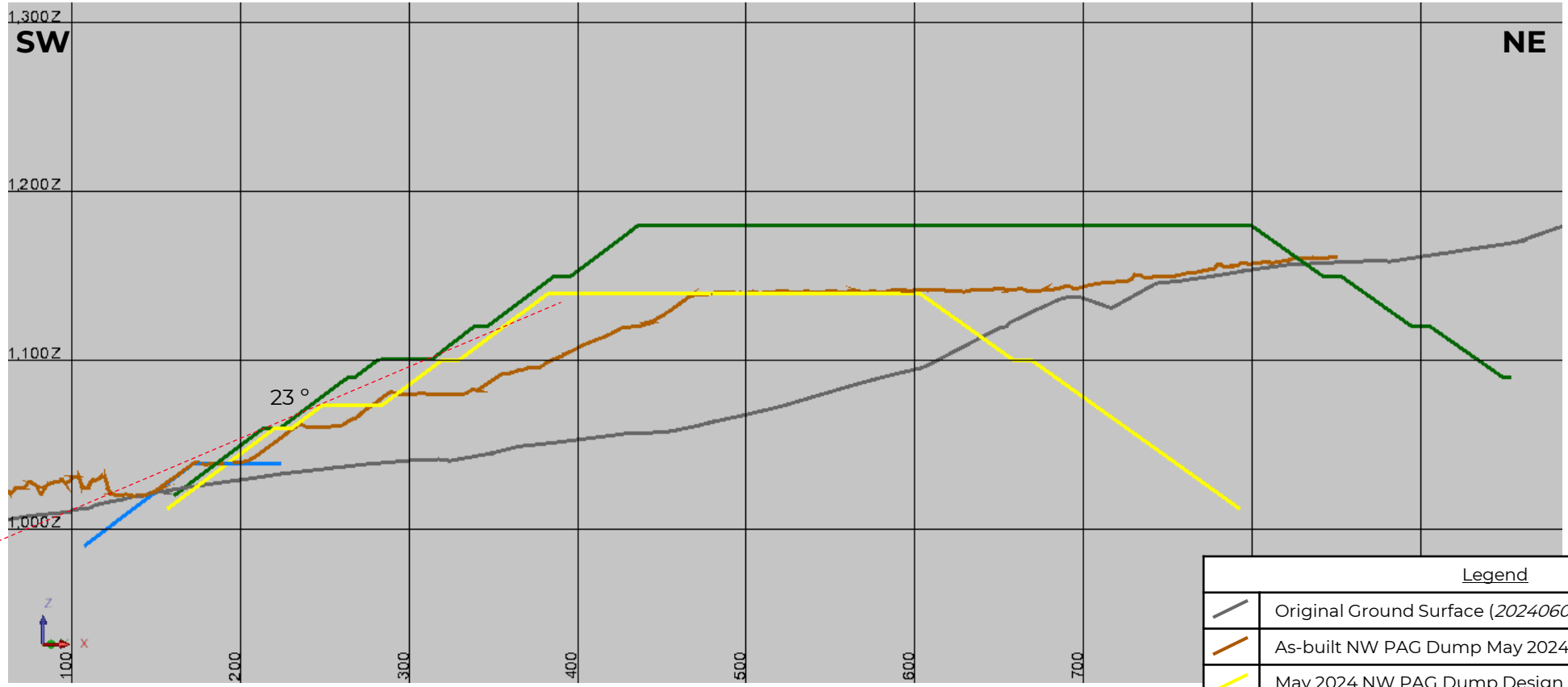




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

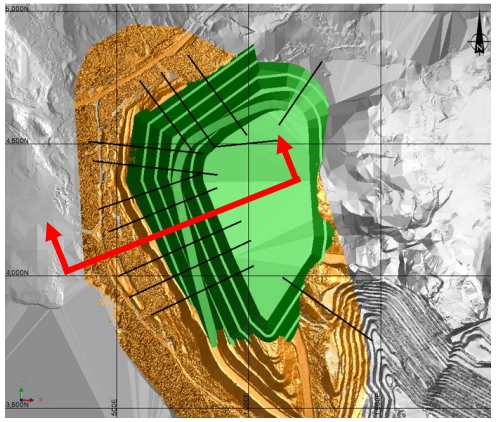
Cross-section C

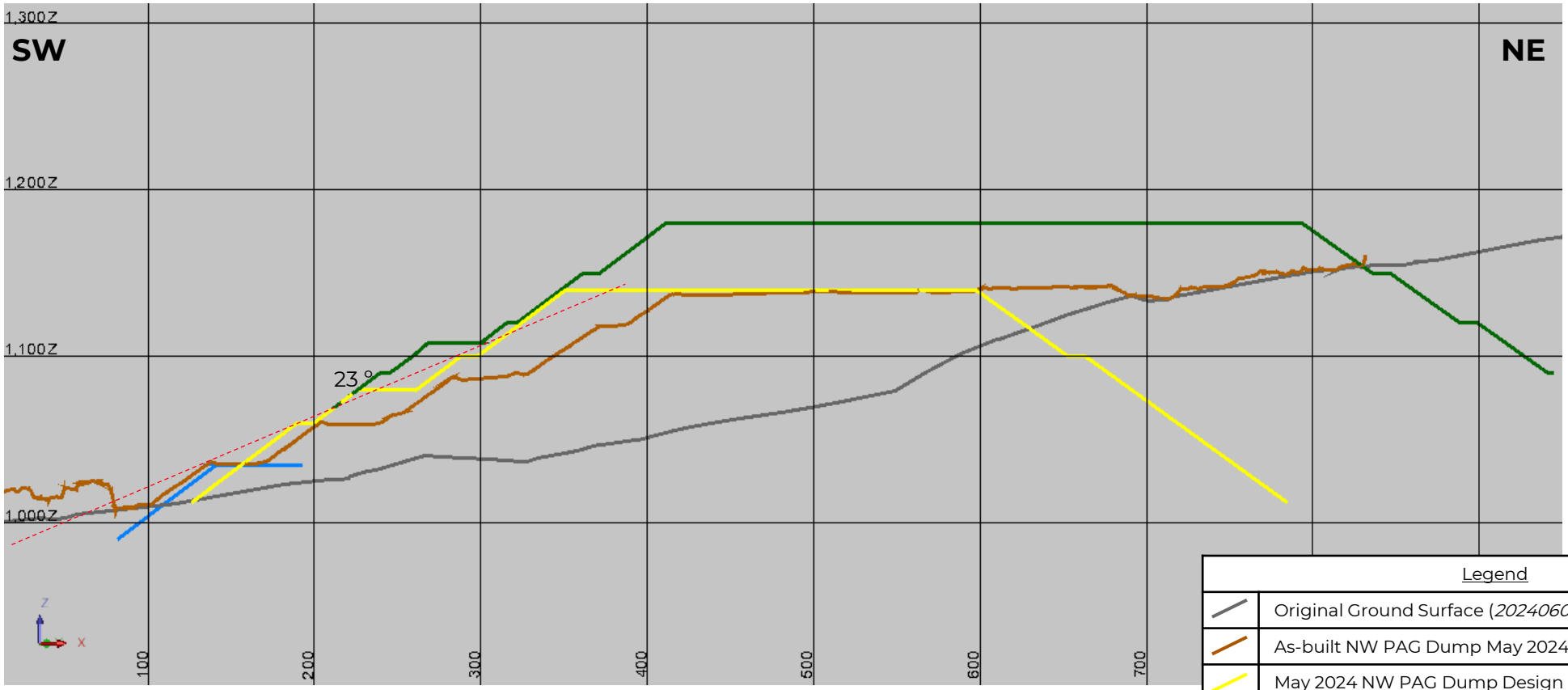




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

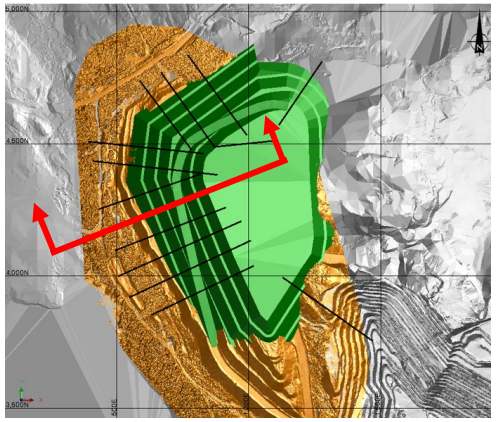
Cross-section D

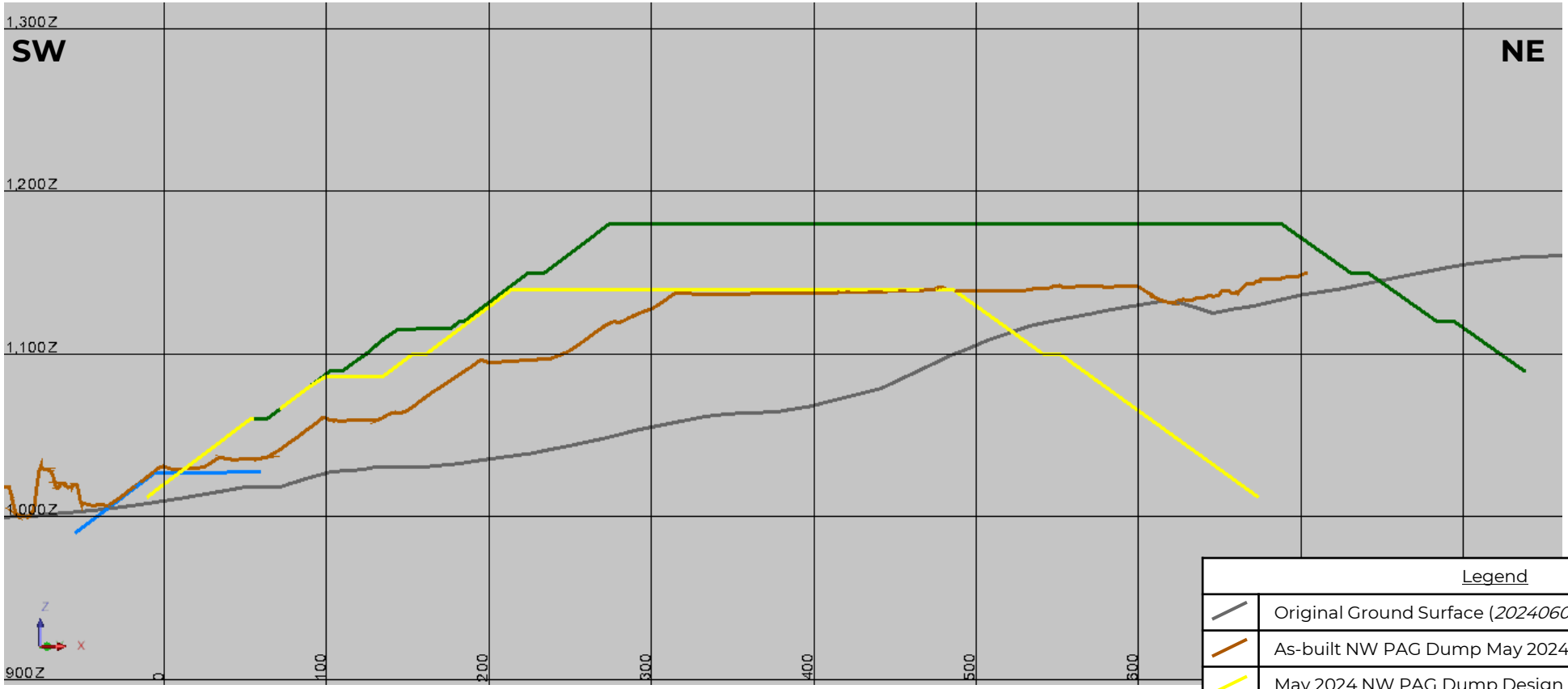




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

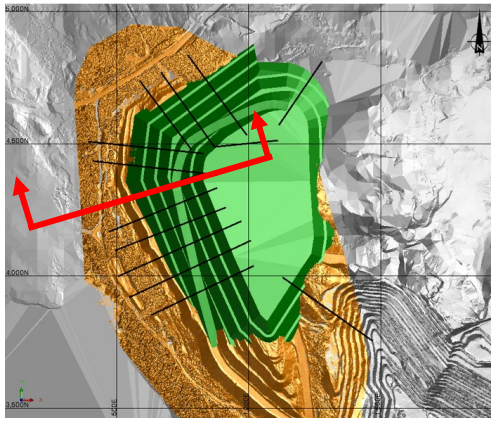
Cross-section E

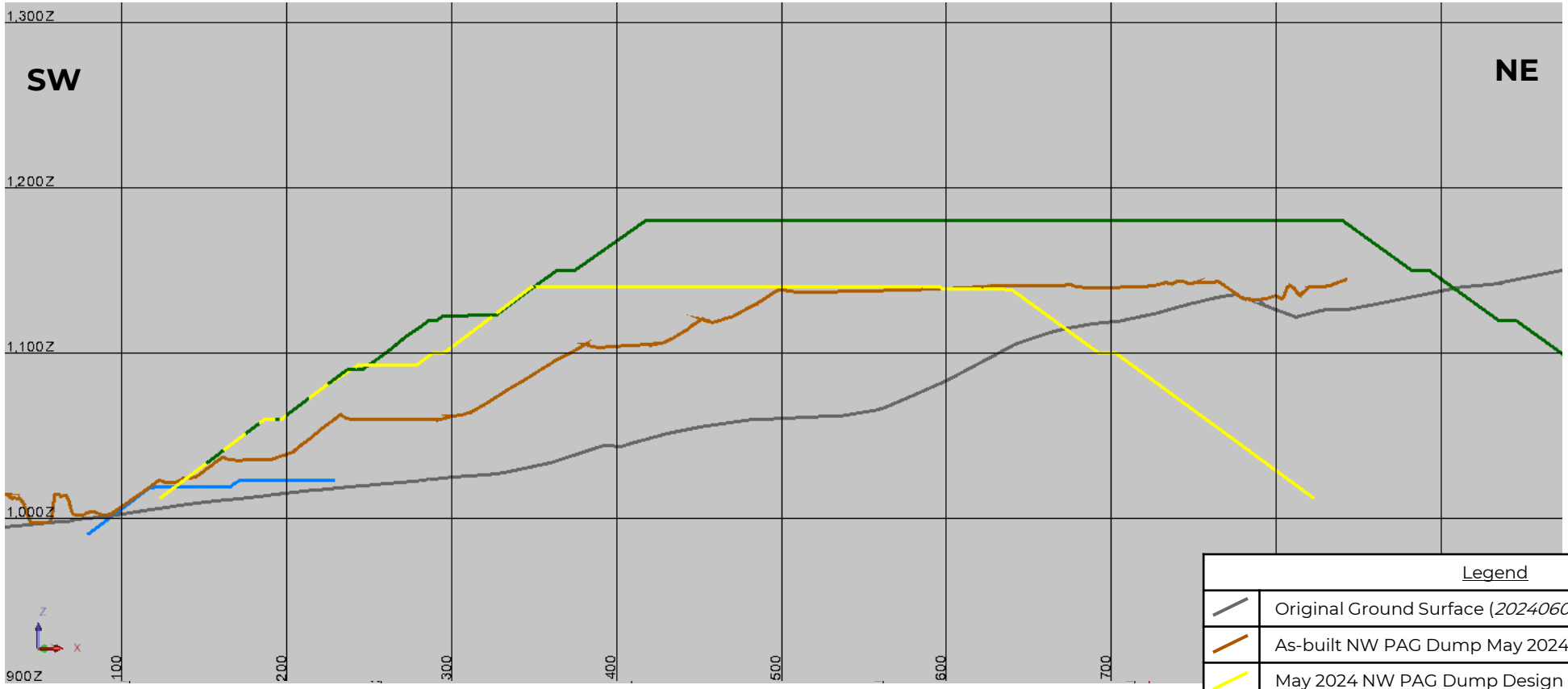




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

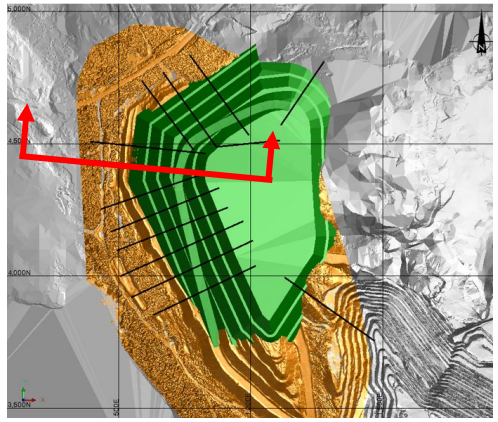
Cross-section F

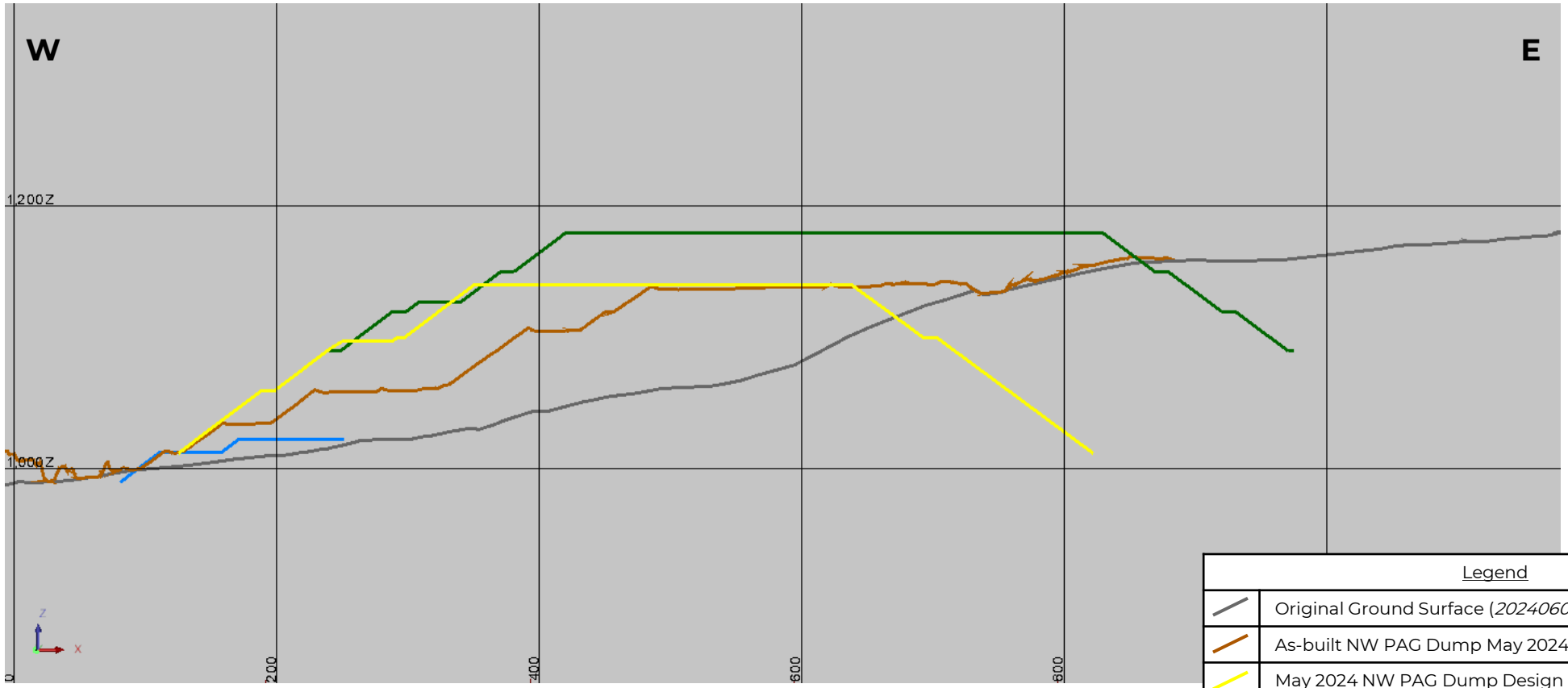




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

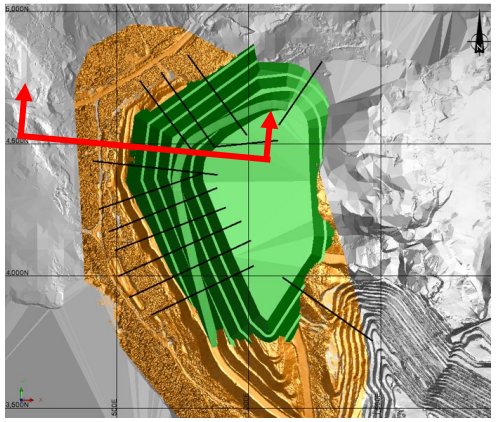
Cross-section G

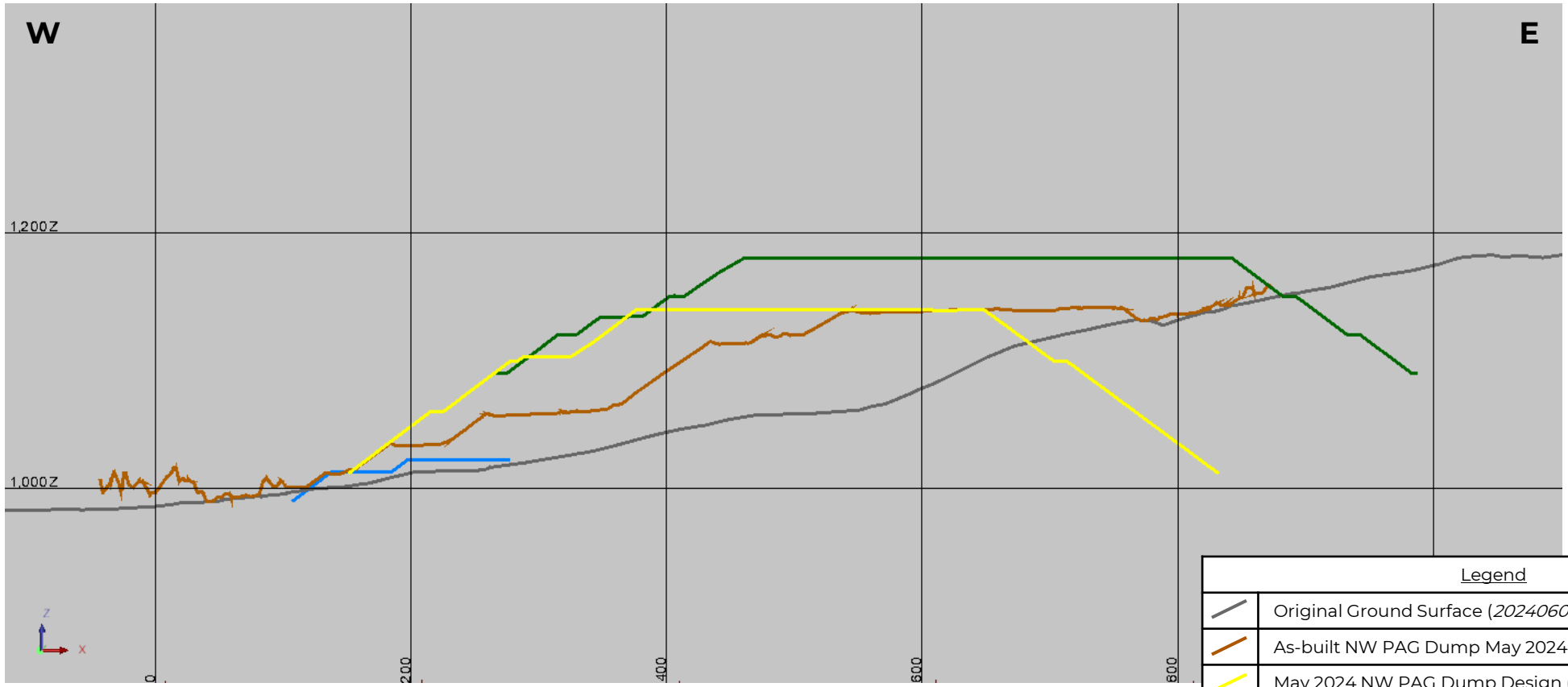




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

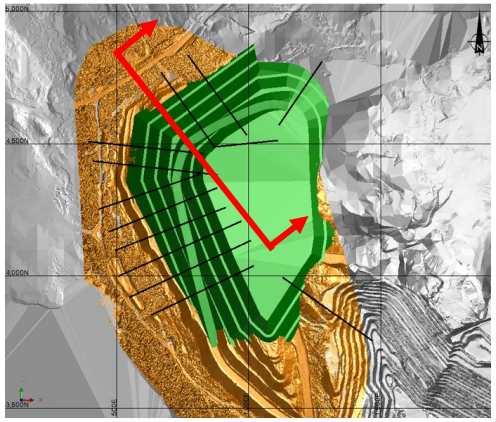
Cross-section H

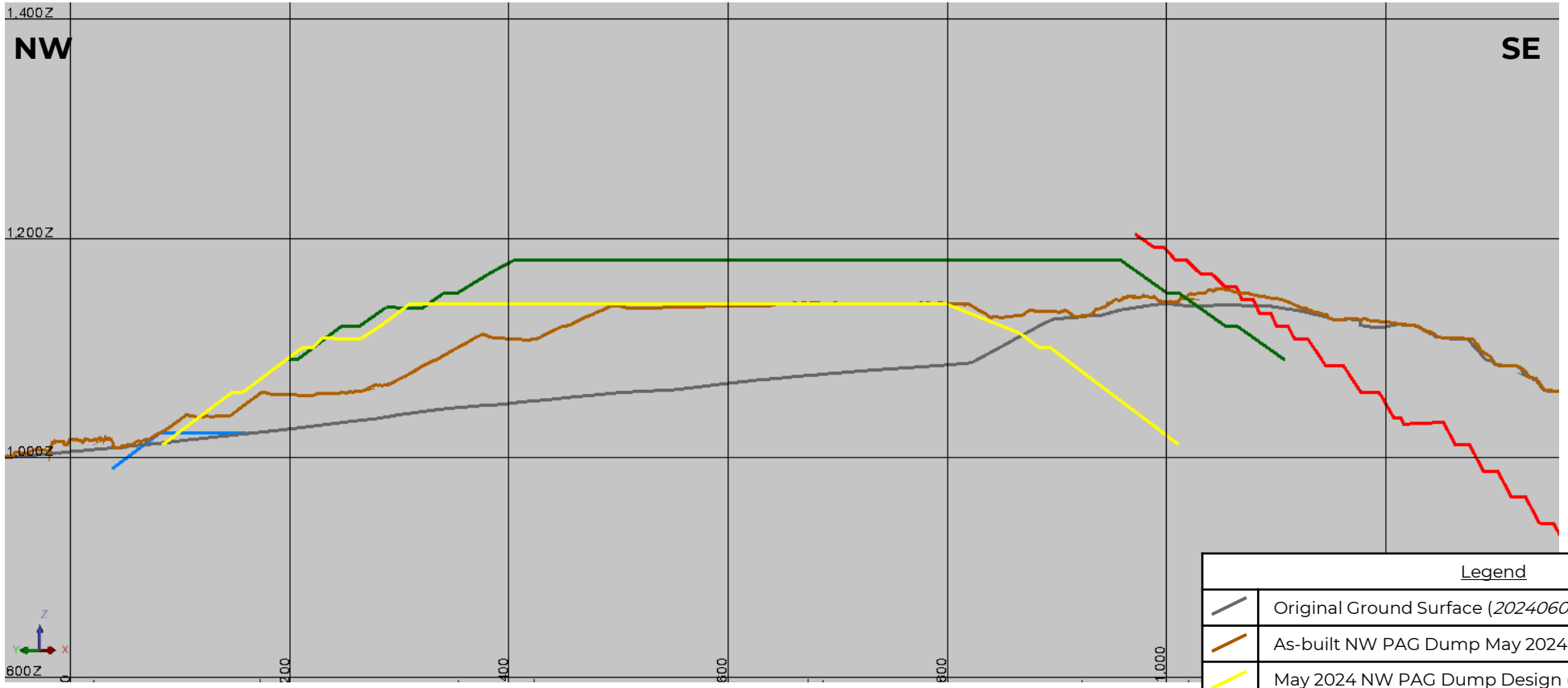




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

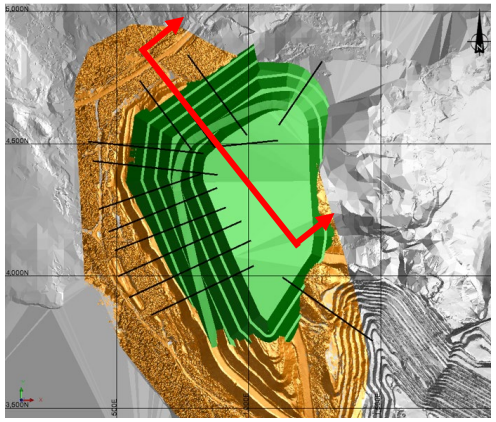
Cross-section I

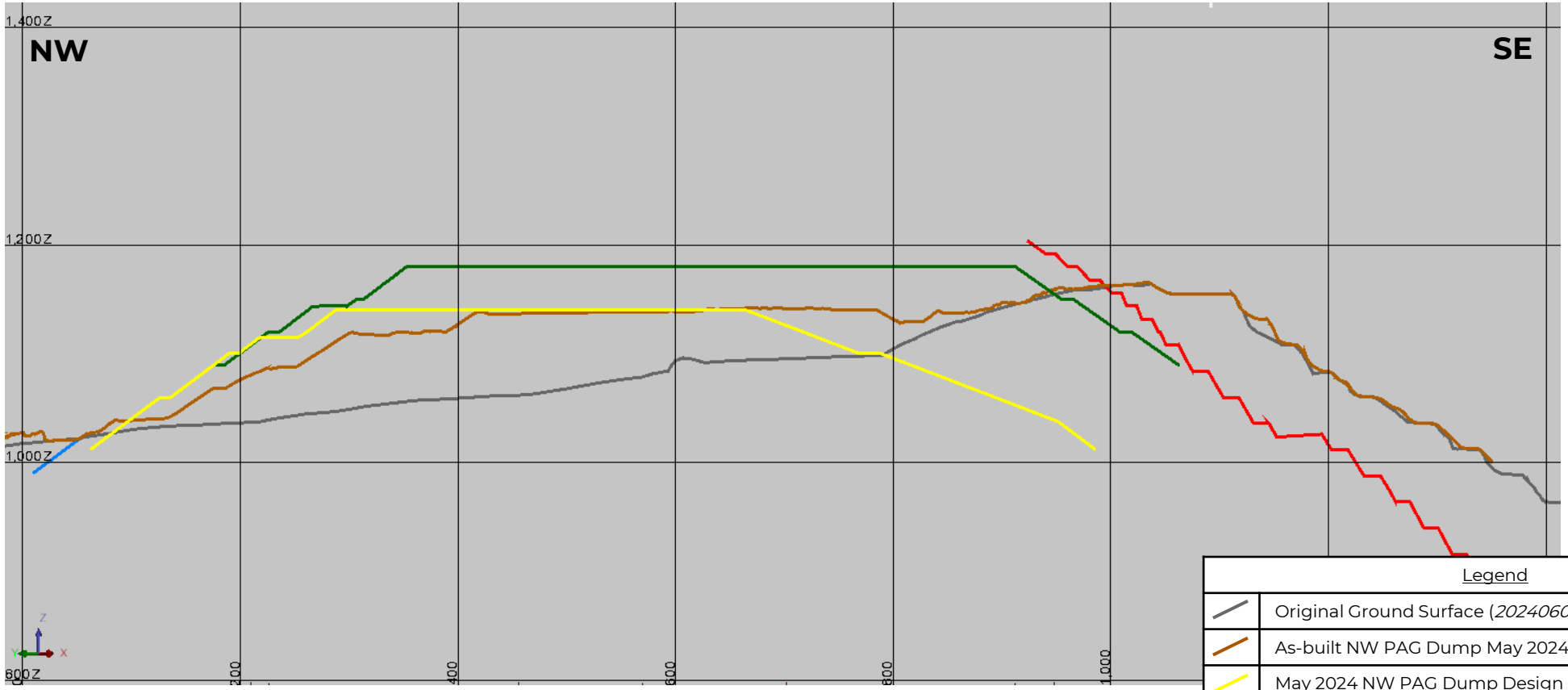




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

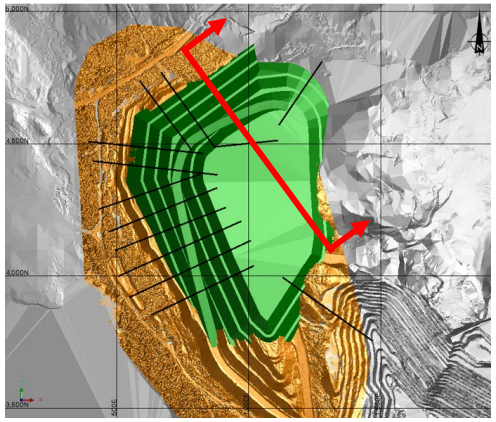
Cross-section J

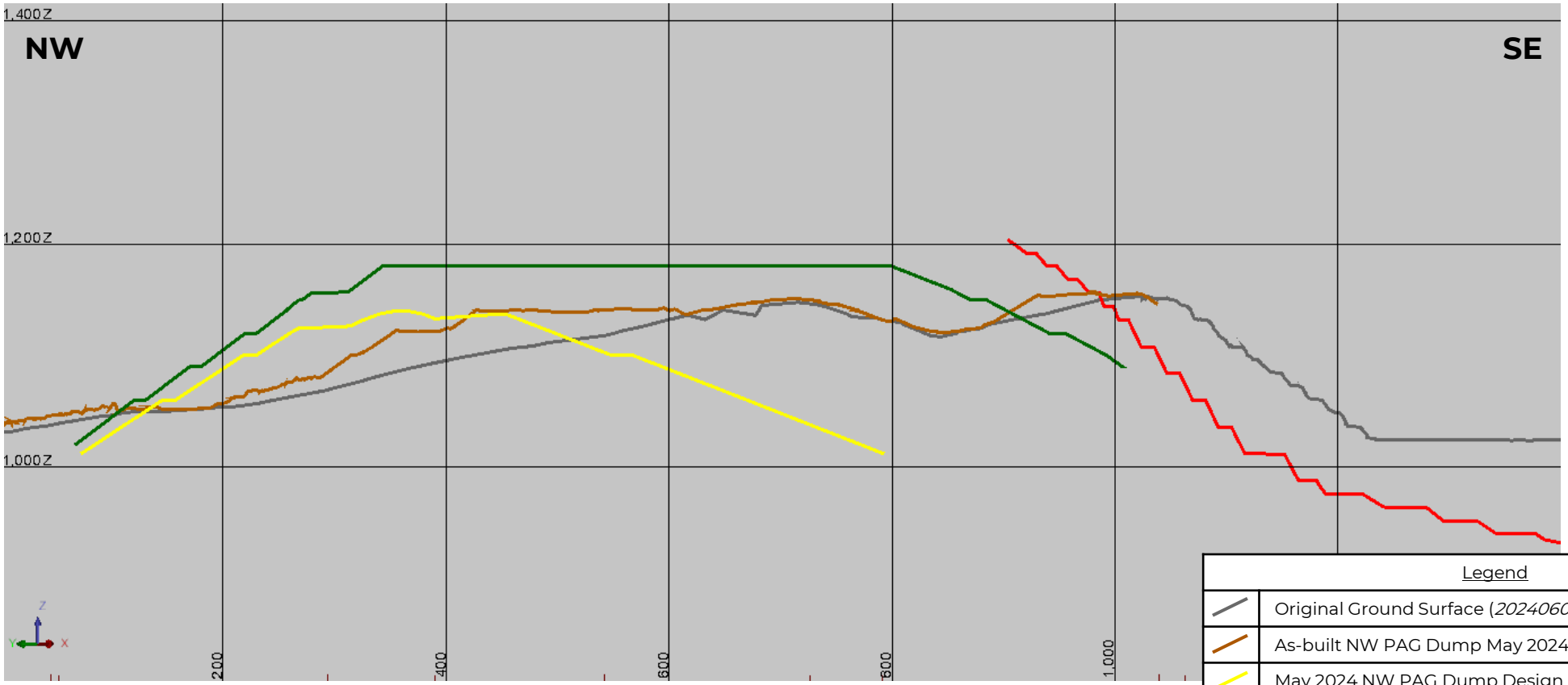




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

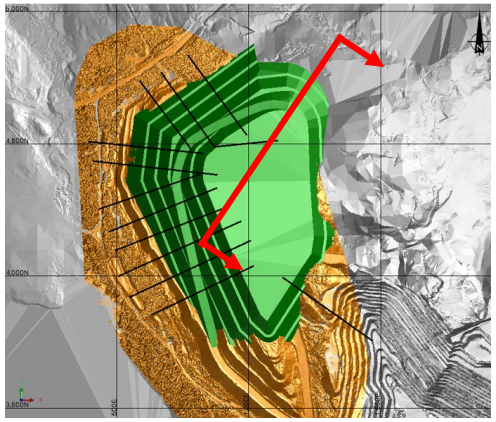
Cross-section K

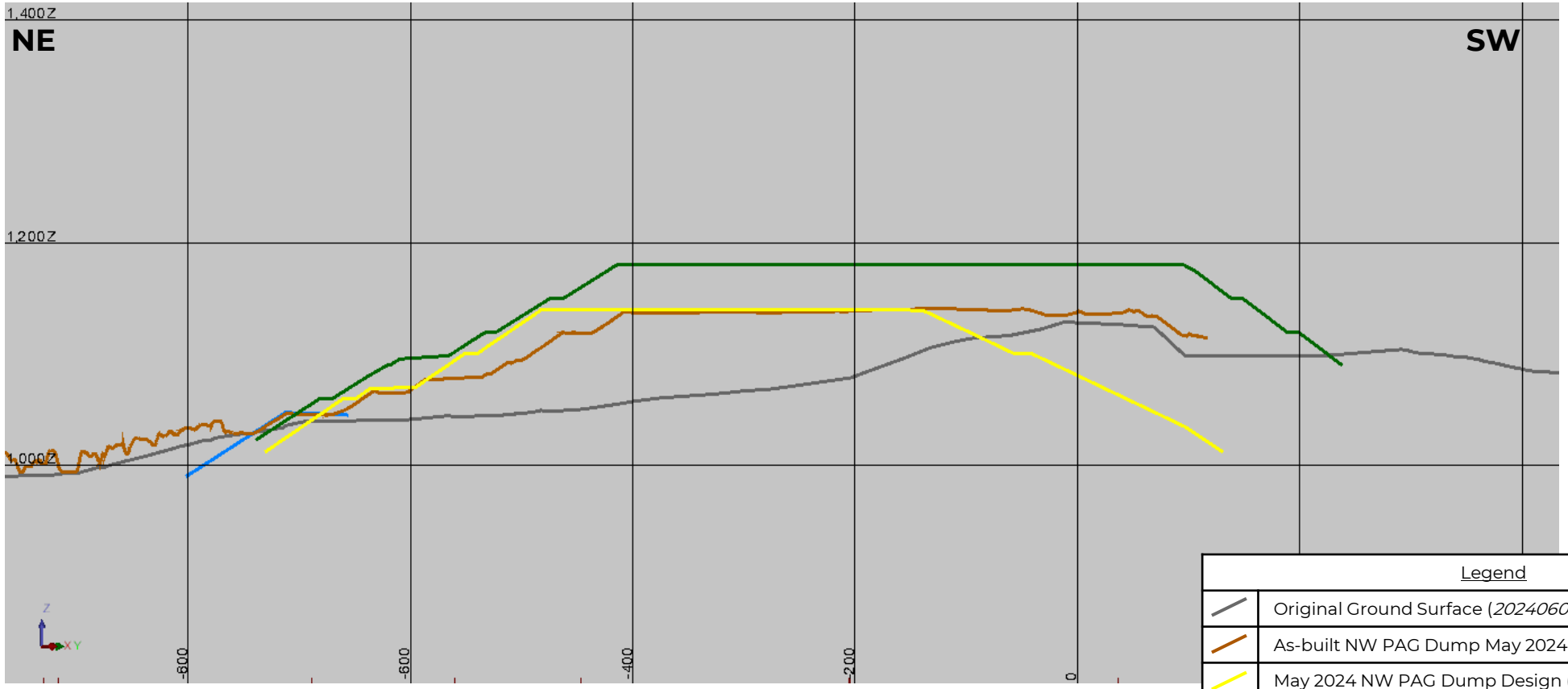




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

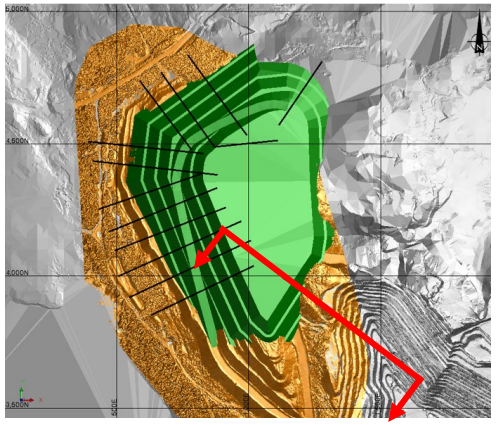
Cross-section L

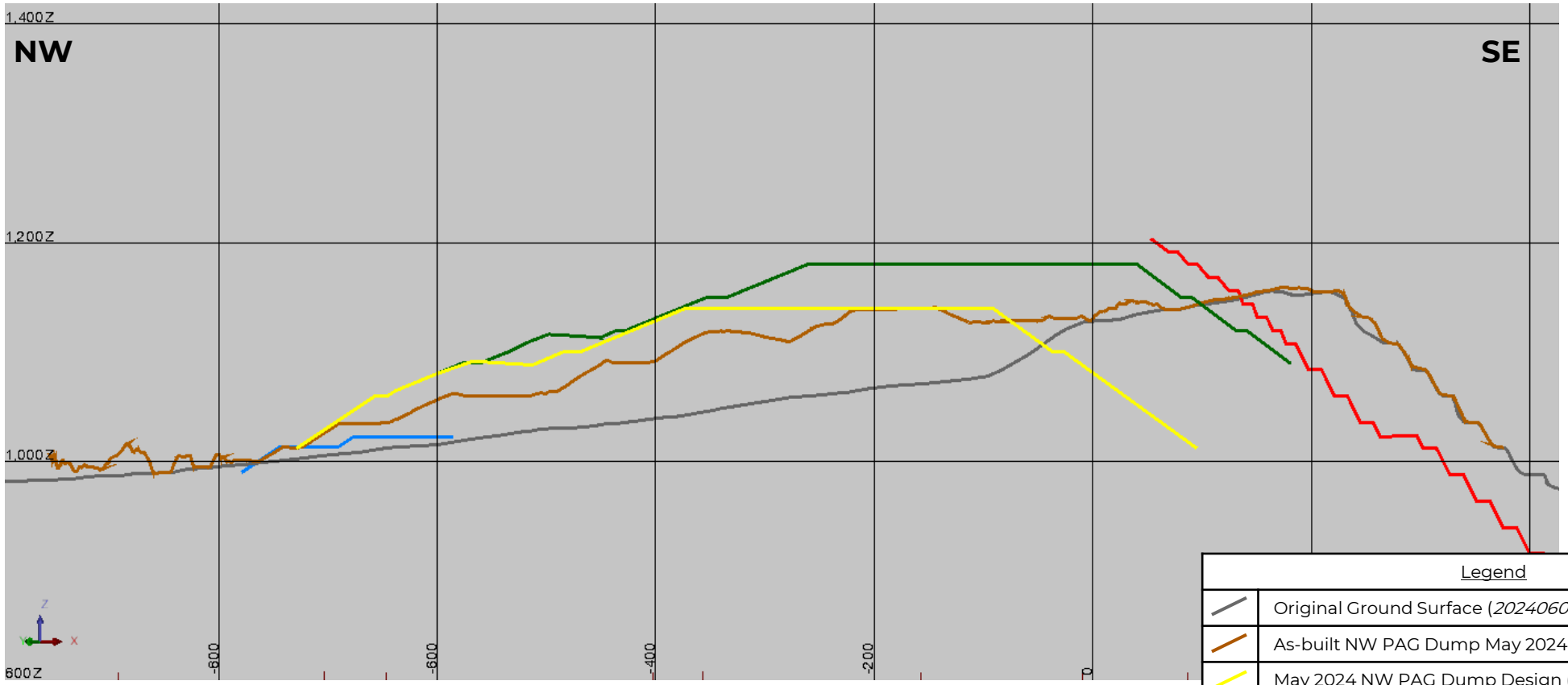




Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

Cross-section M



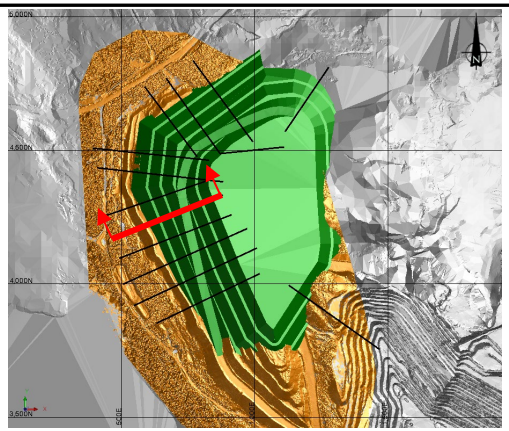


Legend	
	Original Ground Surface (*20240601 as-mined*)
	As-built NW PAG Dump May 2024 (*240531-npp*)
	May 2024 NW PAG Dump Design (*z - NWPAG_PAGlifts-v3*)
	NAG Base Design (*0.3 - NAG base 221001*)
	Updated August NW PAG Dump Design (*NPP LOM 20240519 Surface*)
	Ultimate Springer Pit (*20240609 SP5 to 808 Pit Strings*)

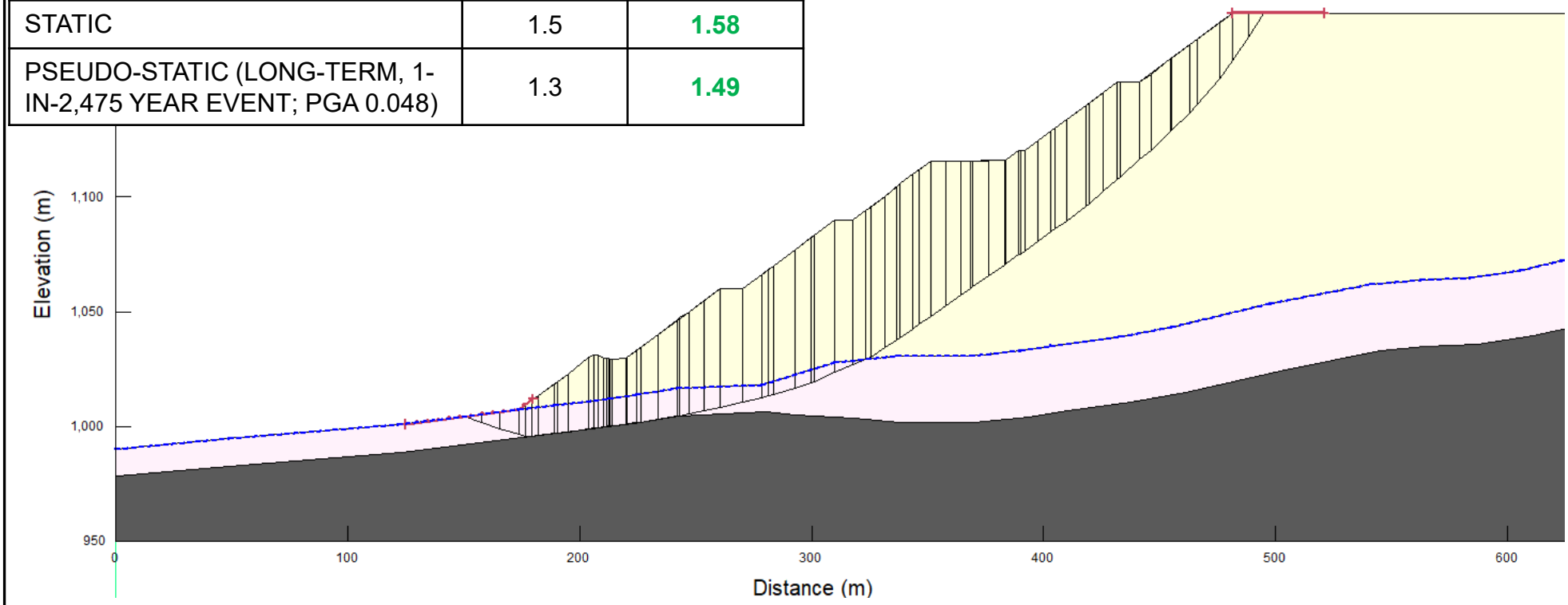
ATTACHMENT 3

Slope Stability Analyses

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.58**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.49**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

CLIENT
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
wsp

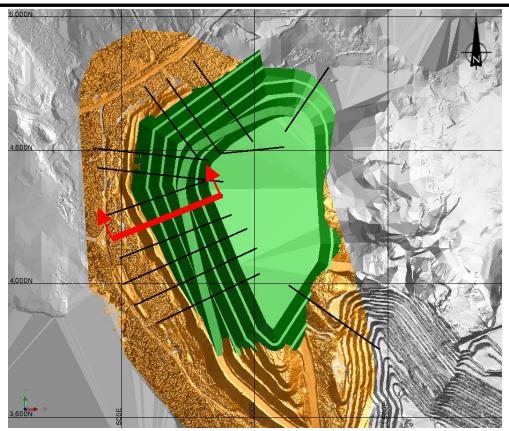
YYYY-MM-DD	2024-09-13
PREPARED	JDH
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

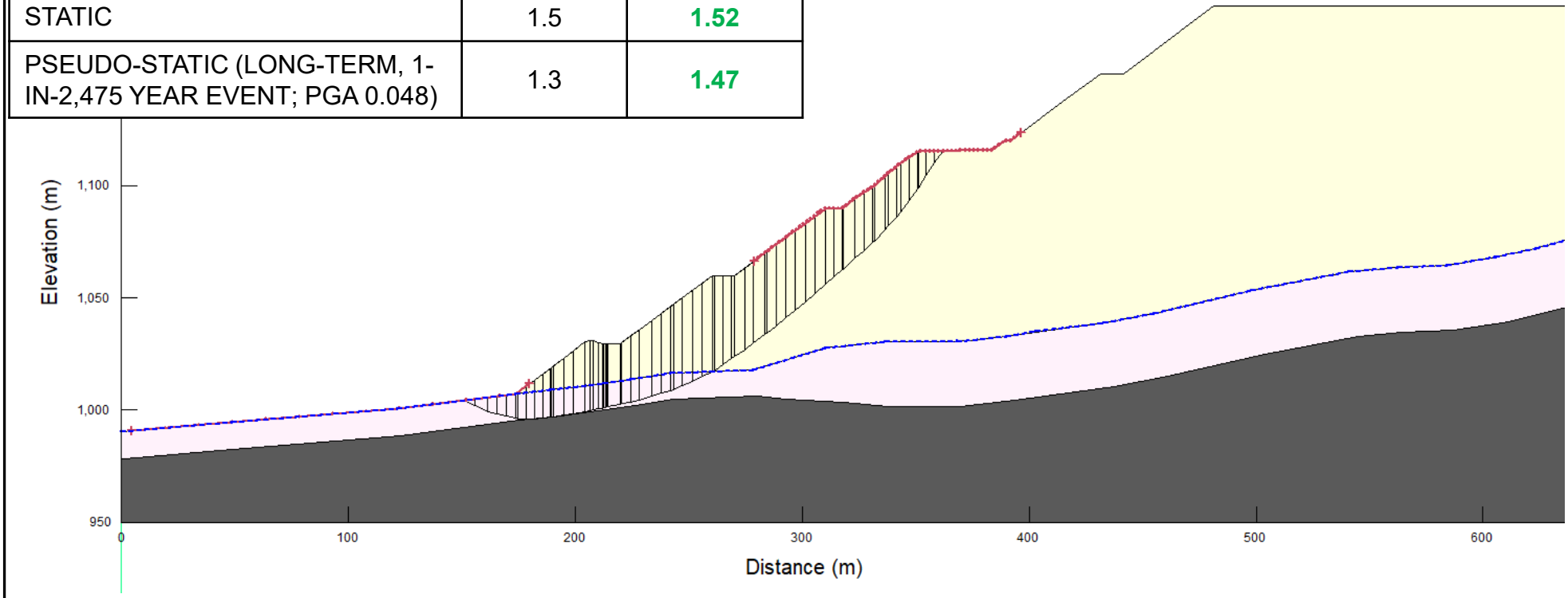
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E OVERALL SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-1**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.52**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.47**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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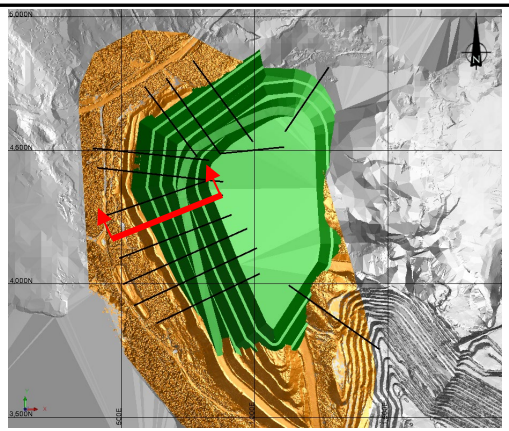
PREPARED	JDH
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

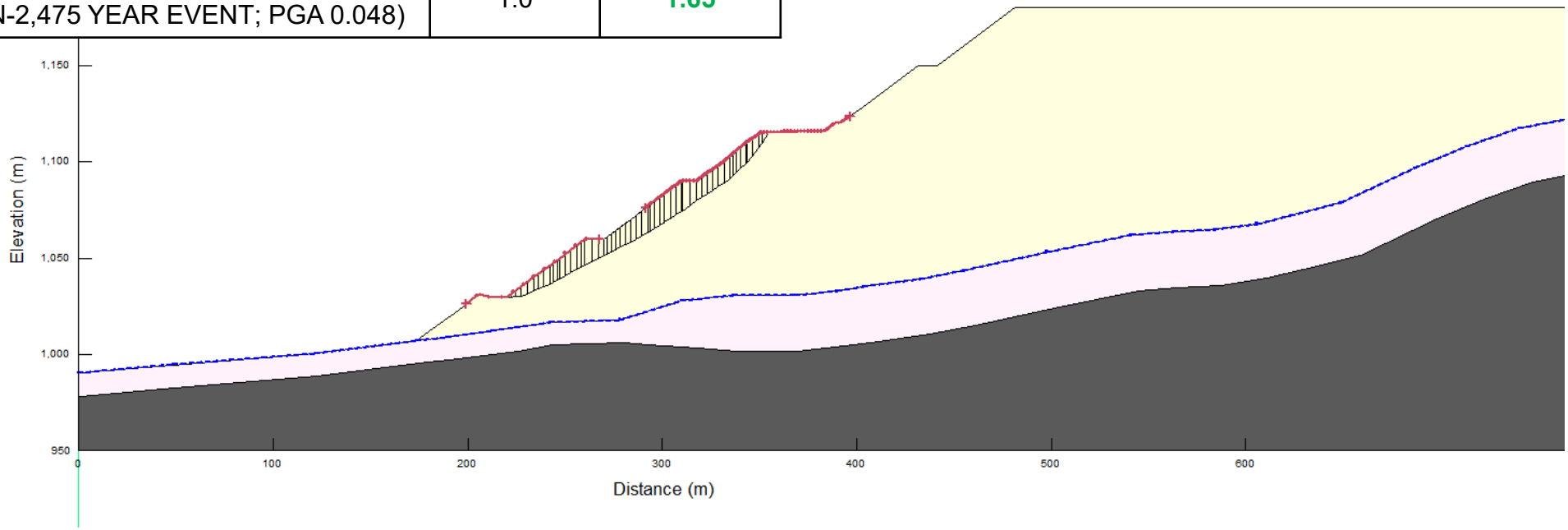
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E OVERALL LOWER SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-2**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2	**1.70**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	**1.65**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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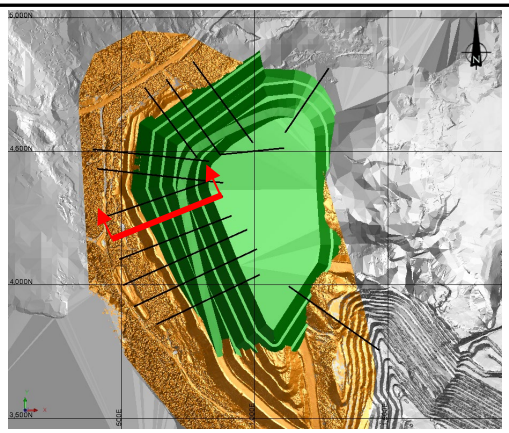
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

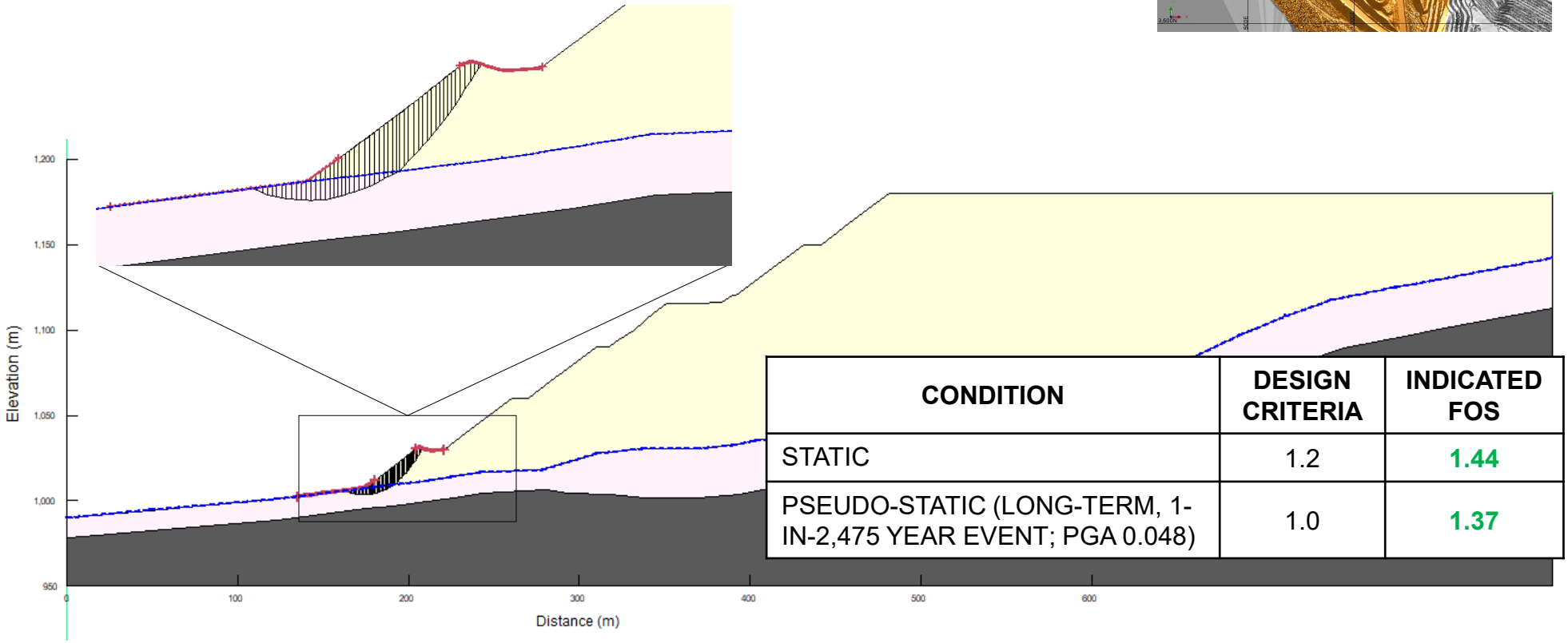
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E SHALLOW SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-3**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	





CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2	1.44
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.37

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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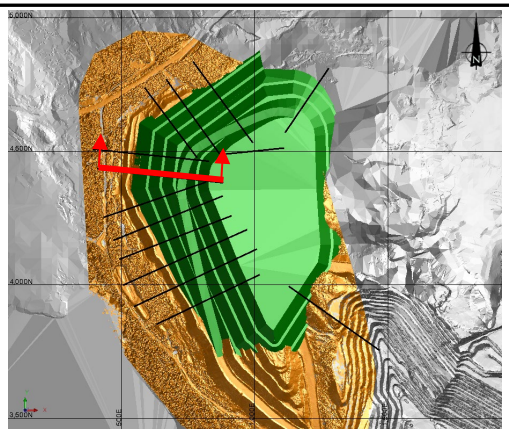
APPROVED	MCR

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

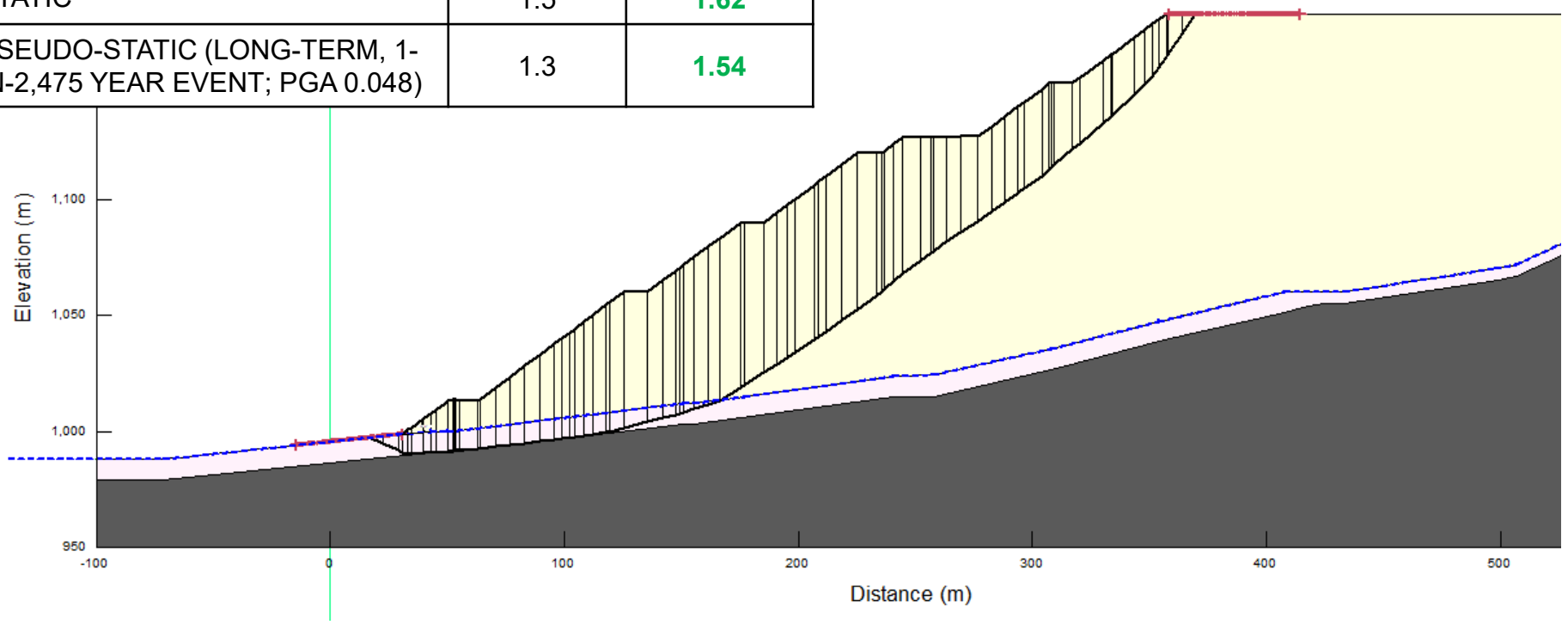
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION E LOWER LIFT SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-4**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.62**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.54**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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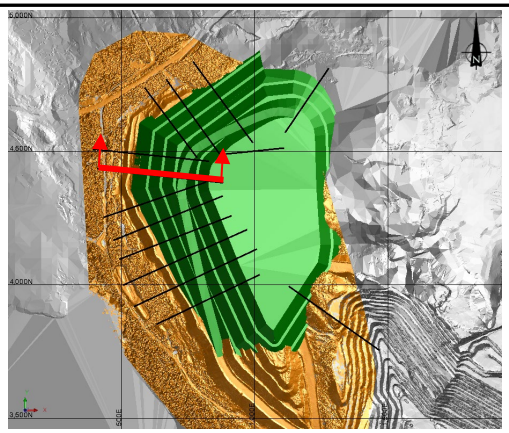
APPROVED	MCR

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

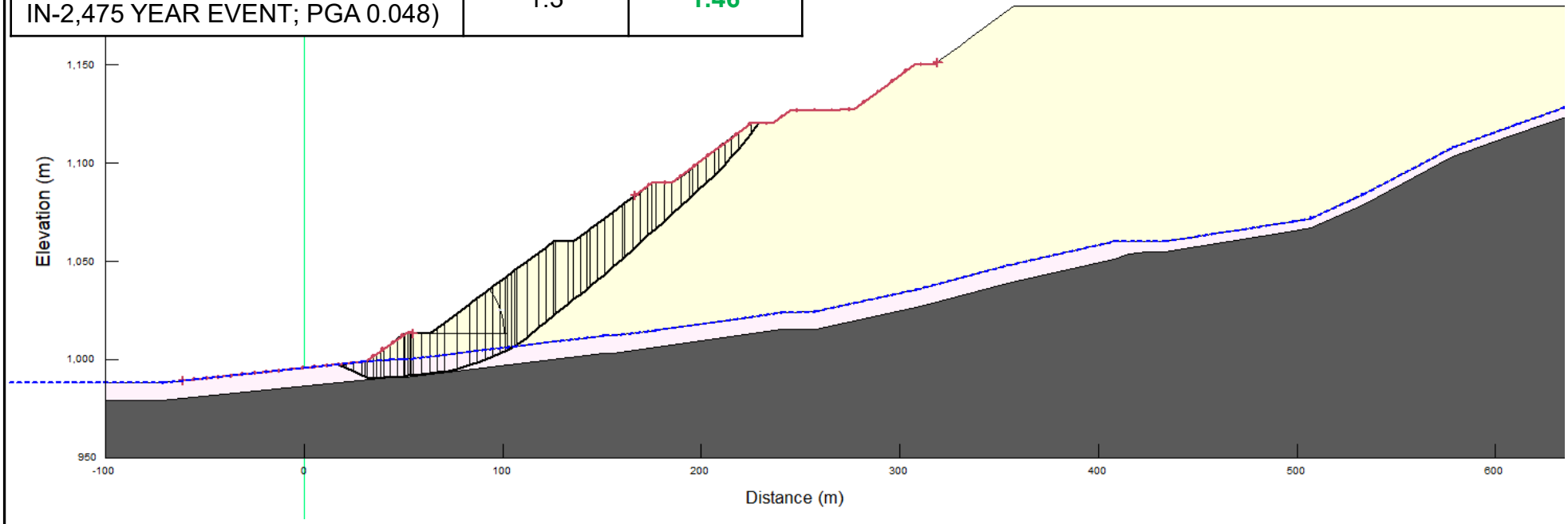
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-5**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.49**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.46**



REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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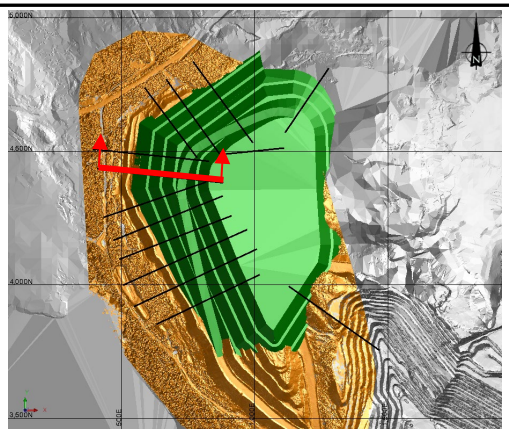
YYYY-MM-DD	2024-09-13
PREPARED	JDH
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

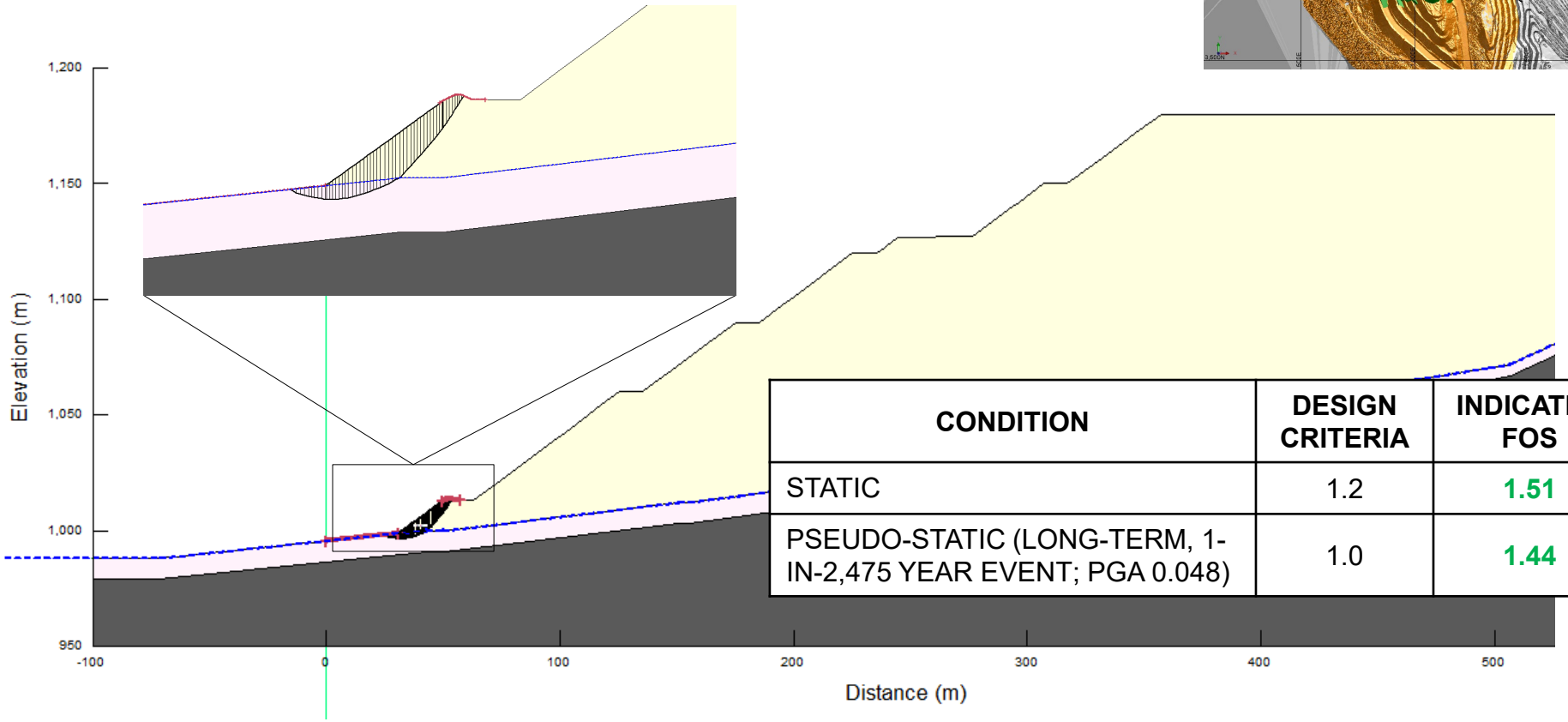
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL LOWER SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-6**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL/COLLUVIUM		22	MOHR-COULOMB: $\phi = 34°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	





CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2	1.51
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.44

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
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YYYY-MM-DD	2024-09-13
PREPARED	JDH
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

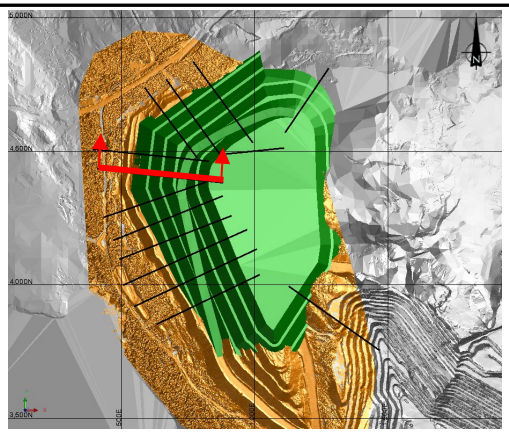
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

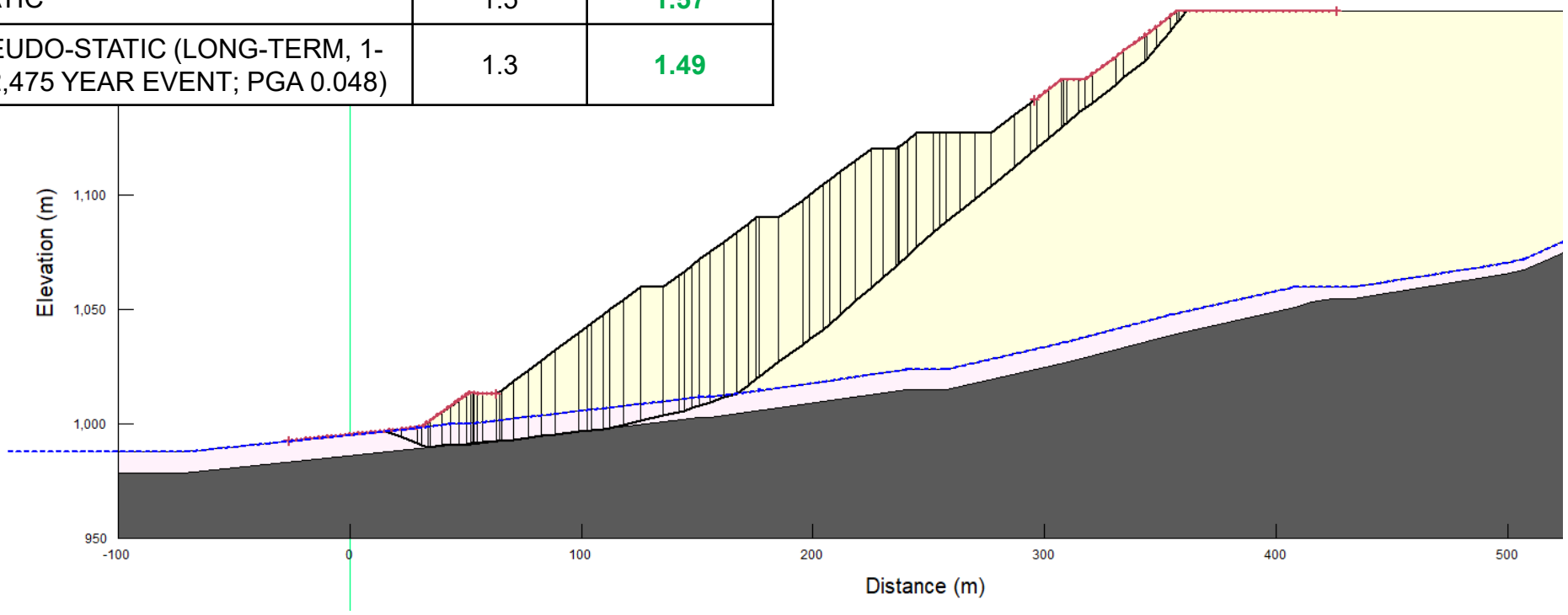
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G LOWER LIFT SLOPE STABILITY MODEL
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-7**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.57**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.49**





REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
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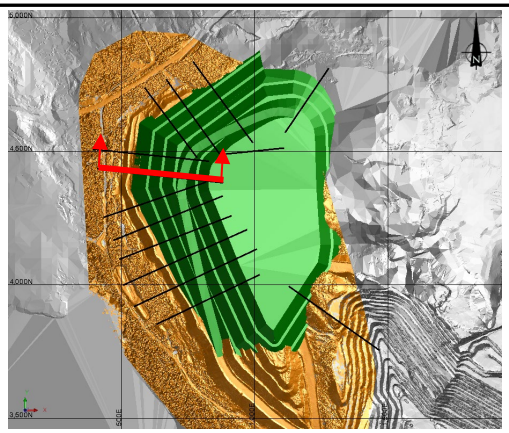
PREPARED	JDH
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

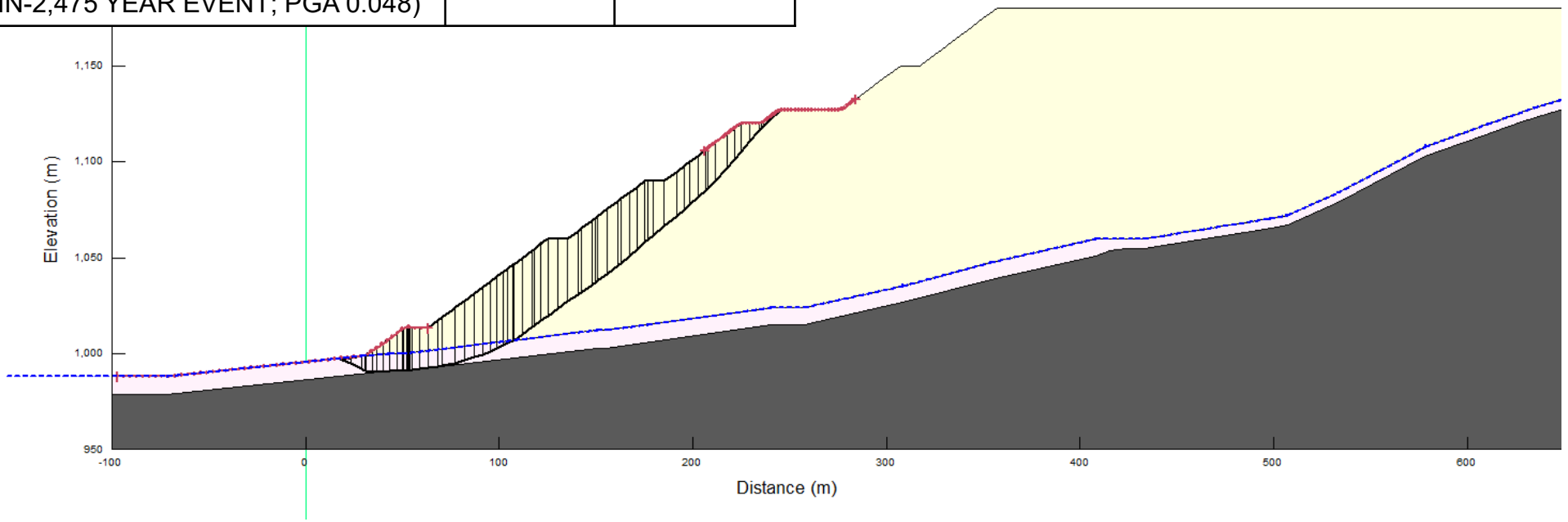
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-8**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.46**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.38**



REFERENCES AND NOTES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.

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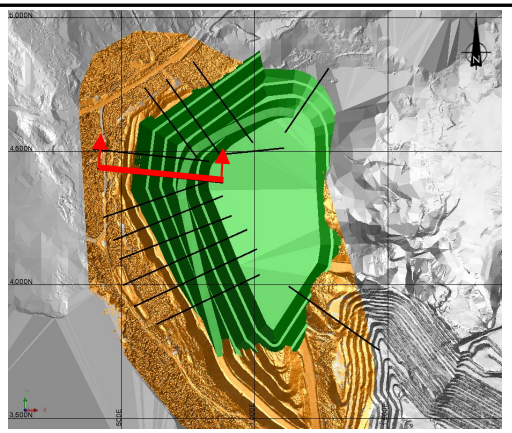
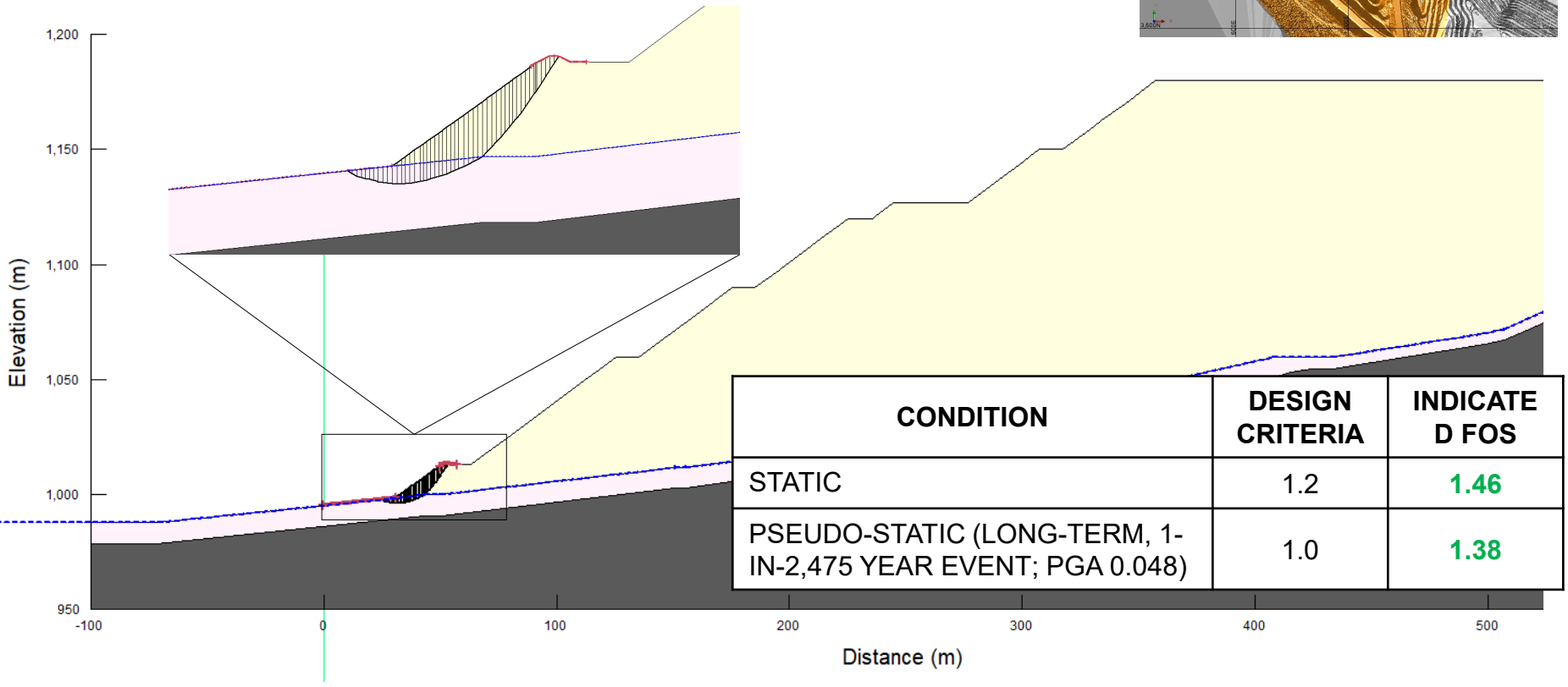
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G OVERALL LOWER SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-9**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; $c = 0$ kPa
BEDROCK		IMPENETRABLE	





CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2	**1.46**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	**1.38**

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
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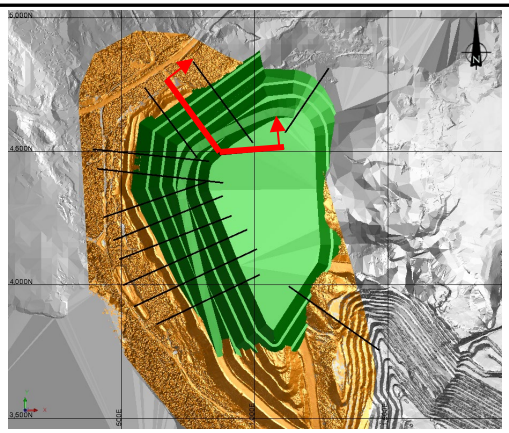
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

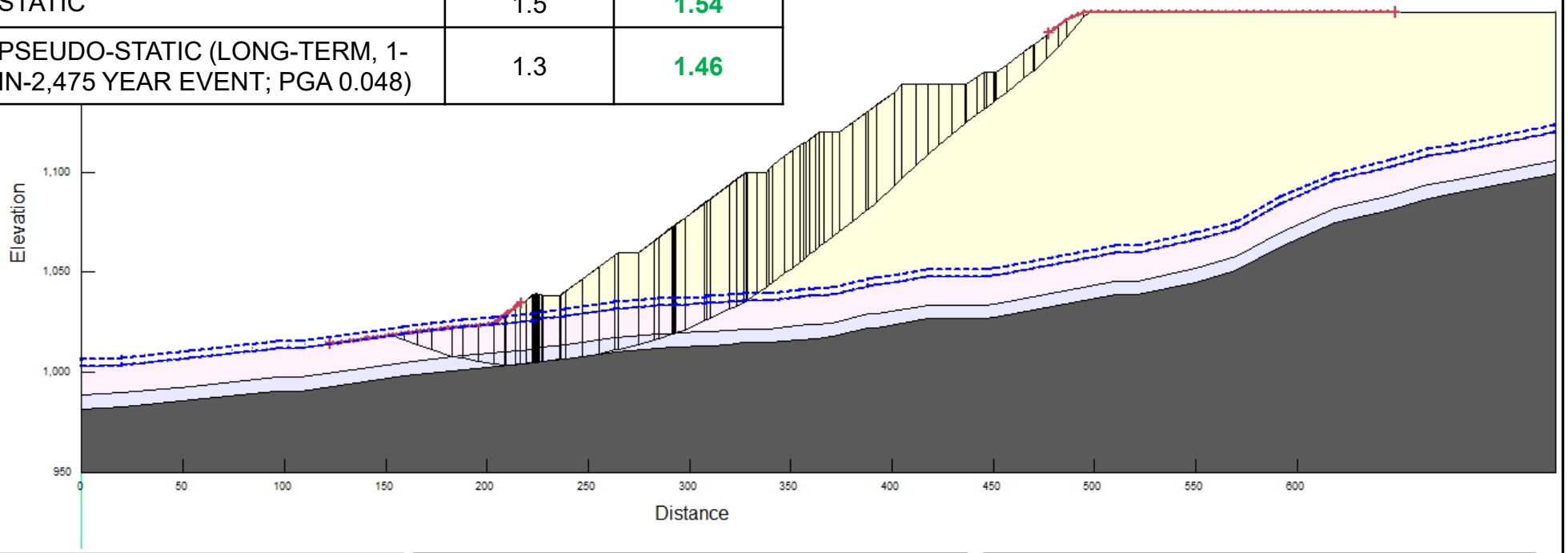
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION G LOWER LIFT SLOPE STABILITY MODEL
LOWER BOUND TILL STRENGTH PROPERTIES
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-10**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.54**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	**1.46**



REFERENCES AND NOTES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

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MOUNT POLLEY MINE
LIKELY, BC

CONSULTANT
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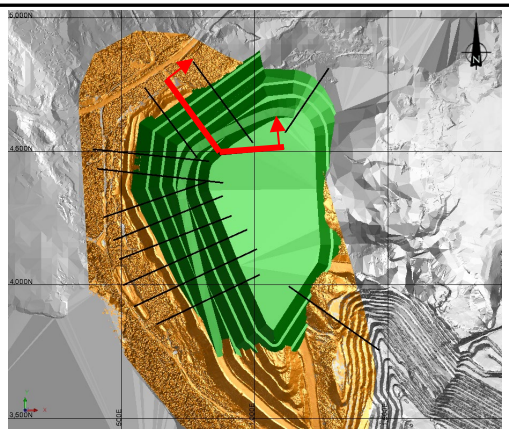
DESIGN	JDH
REVIEW	MCR
APPROVED	MCR

PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

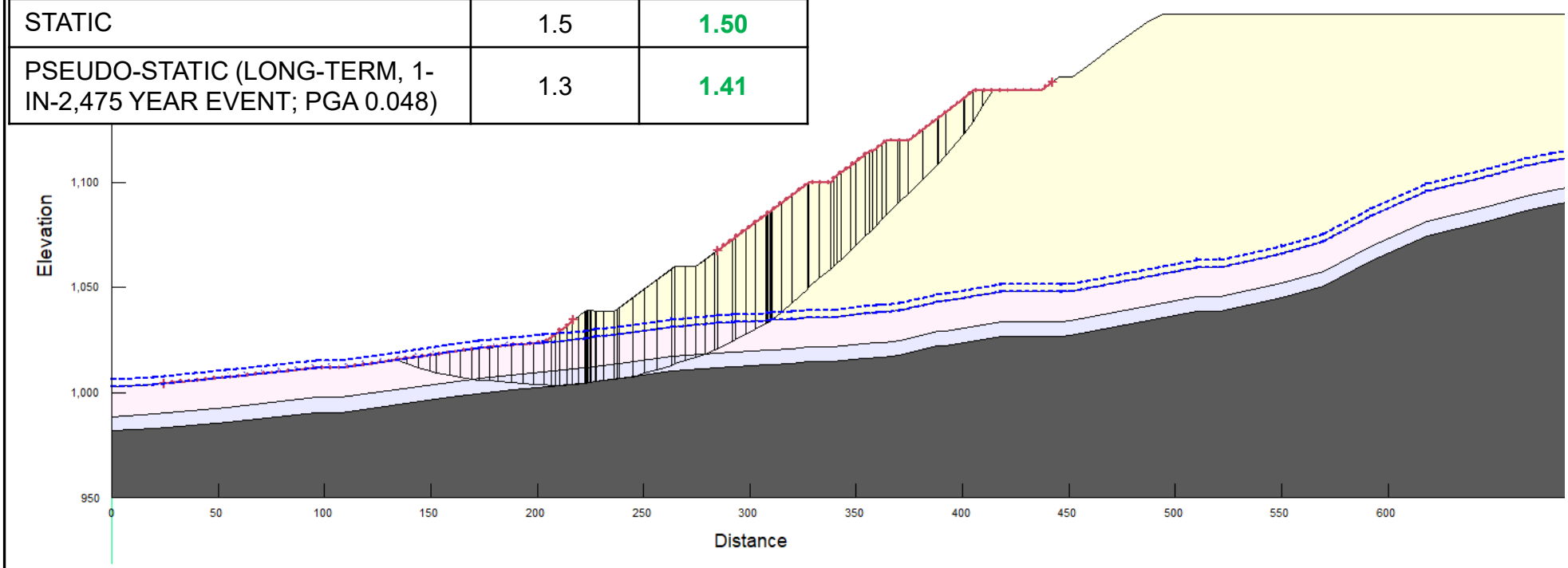
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-11**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	1.50
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.3	1.41



REFERENCES AND NOTES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

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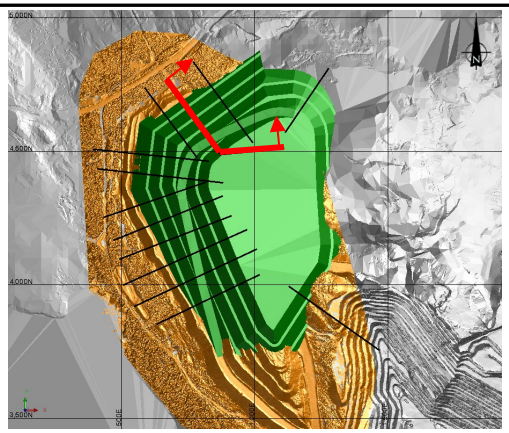
REVIEW	MCR
APPROVED	MCR

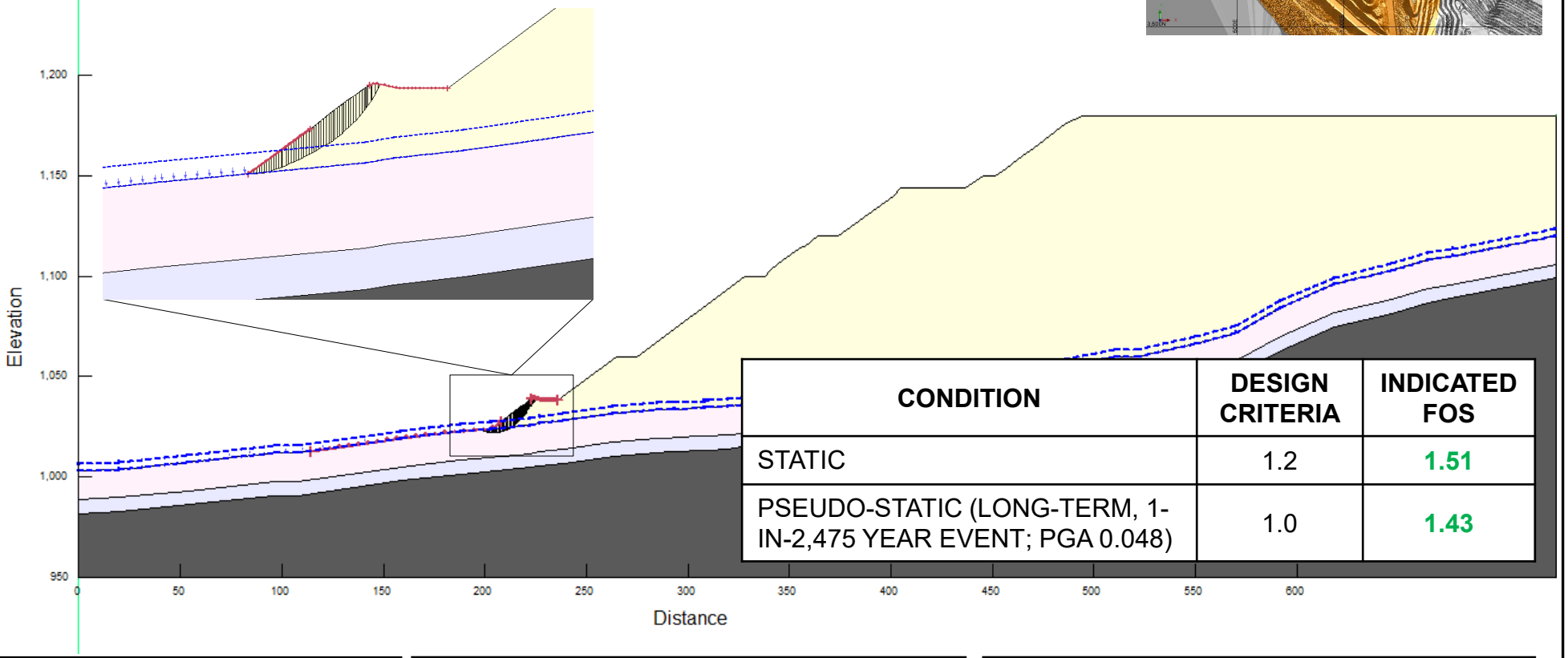
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL LOWER SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-12**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
TILL (LOWER BOUND)		22	MOHR-COULOMB: $\phi = 32.5°$; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: $\phi = 34°$; c = 0 kPa
BEDROCK		IMPENETRABLE	





CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2	1.51
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0	1.43

REFERENCES AND NOTES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. ARTESIAN CONDITIONS MODELLED BY APPLYING WATER TABLE 3.5 M ABOVE FOUDNATION SOILS. APPLIED TO GLACIOFLUVIAL MATERIAL ONLY.

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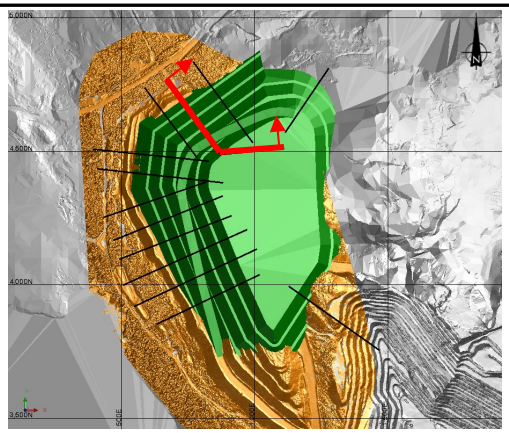
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

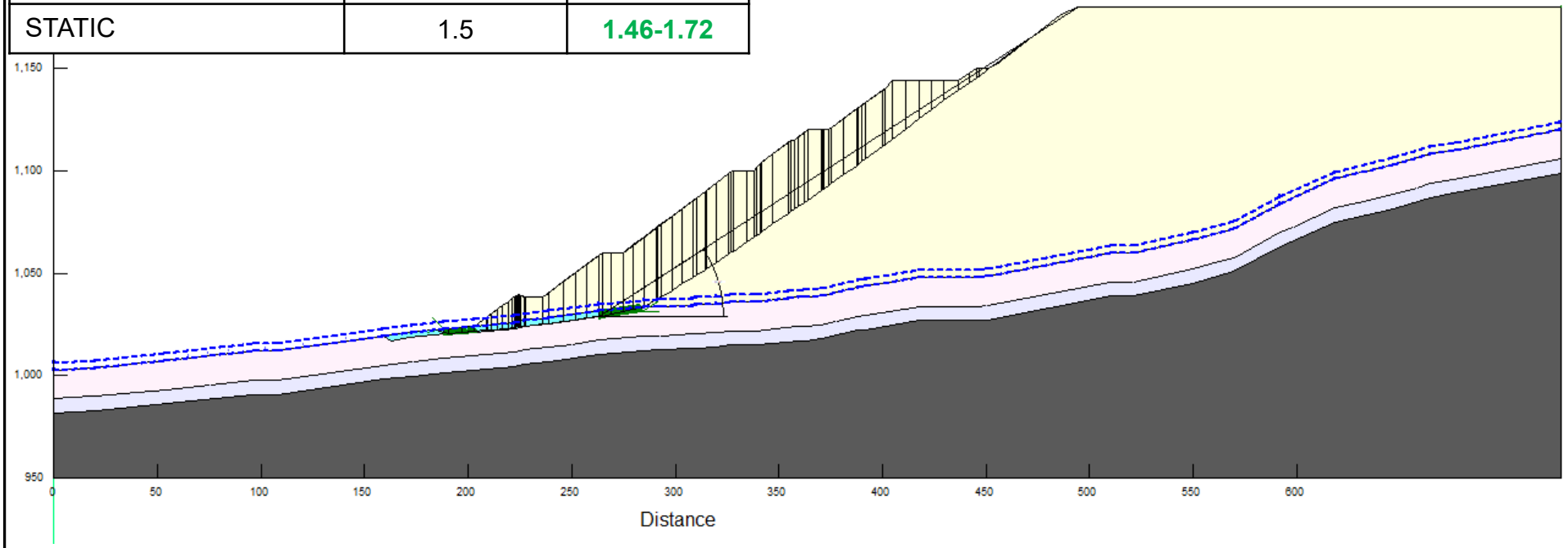
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J LOWER LIFT SLOPE STABILITY MODEL
ARTESIAN CONDITIONS FOR GLACIOFLUVIAL DEPOSITS
STATIC AND PSEUDO-STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-13**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL		20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	**1.46-1.72**



REFERENCES AND NOTES

1. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

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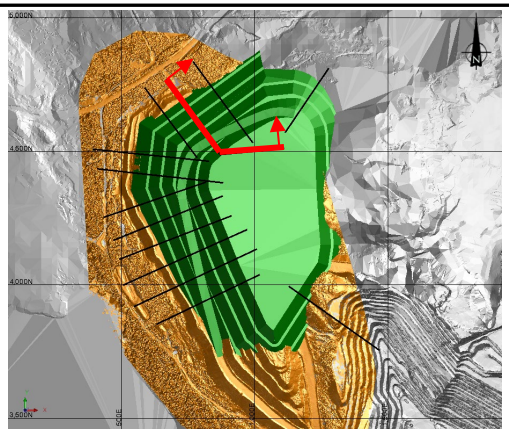
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

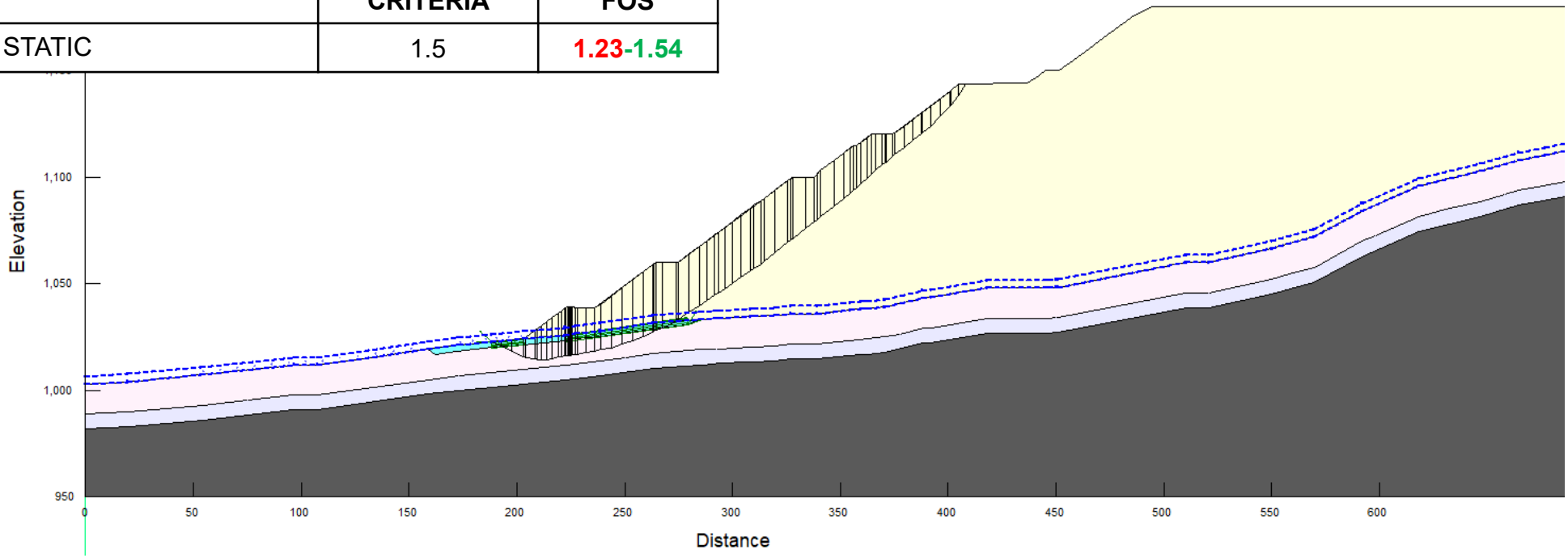
TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-14**

MATERIAL PROPERTIES			
MATERIAL TYPE		**UNIT WEIGHT (kN/m^3)**	**STRENGTH PARAMETERS**
WASTE ROCK		19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL		20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL		22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK		IMPENETRABLE	



CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.5	1.23-1.54



REFERENCES AND NOTES

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2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

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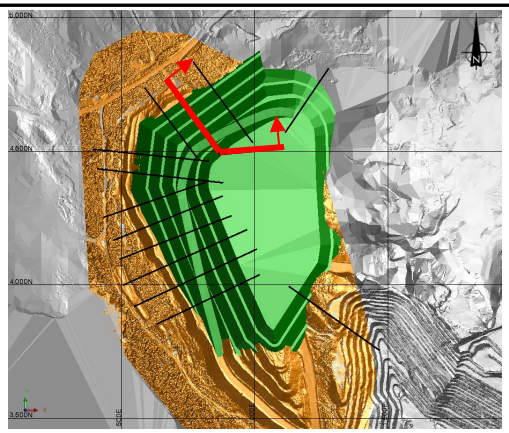
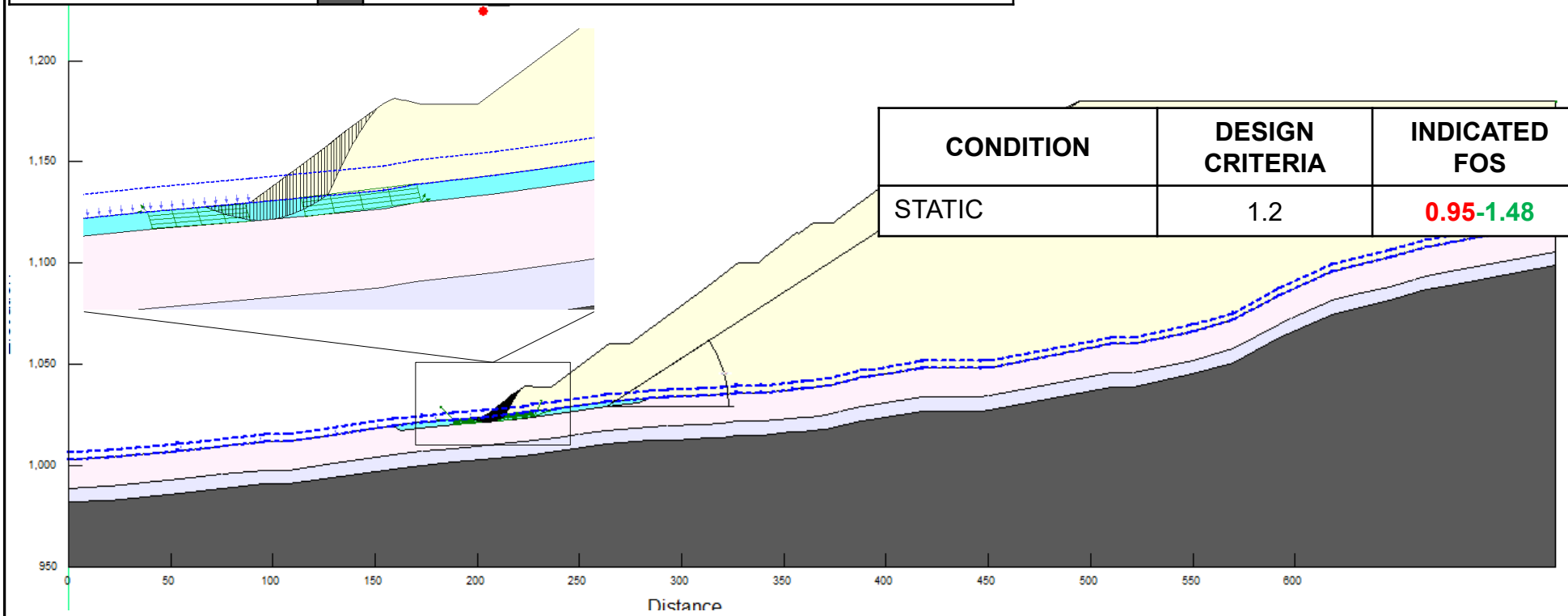
PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
PROPOSED ULTIMATE NW PAG DUMP DESIGN
CROSS-SECTION J OVERALL LOWER SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	**75100/75192**	**0**	**3-15**

MATERIAL PROPERTIES		
MATERIAL TYPE	**UNIT WEIGHT (kN/m³)**	**STRENGTH PARAMETERS**
WASTE ROCK	19.6	SHEAR STRENGTH: $\tau = 1.726\sigma^{0.899}$
CLAY MATERIAL	20	MOHR-COULOMB: ϕ = 20 TO 35°; c = 0 kPa
TILL/COLLUVIUM	22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
GLACIOFLUVIAL	22	MOHR-COULOMB: ϕ = 34°; c = 0 kPa
BEDROCK	IMPENETRABLE	





CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2	0.95-1.48

REFERENCES AND NOTES

1. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
2. SLIP SURFACE FOR CLAY MATERIAL PRESENTED IS ϕ = 30°.

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PROJECT
NORTHWEST POTENTIALLY ACID GENERATING DUMP
GEOTECHNICAL ASSESSMENT

TITLE
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CROSS-SECTION J LOWER LIFT SLOPE STABILITY MODEL
SENSITIVITY ANALYSIS FOR STRENGTH OF CLAY MATERIAL
STATIC SLOPE STABILITY RESULTS

PROJECT No.	PHASE/TASK	REV.	FIGURE
CA0020527.4505	75100/75192	0	3-16

APPENDIX 4-4: NW PAG DUMP LETTER FOR HEIGHT / VOLUME

June 20, 2025 Reference No. CA0048300.8430-012-L-Rev0-78181

Shane Flynn, Project Manager, Imperial Metals Corporation
Mount Polley Mining Corporation
PO Box 12
Likely, BC, V0L 1N0

MOUNT POLLEY MINE NORTHWEST POTENTIALLY ACID GENERATING DUMP – ELEVATION 1,150 M DESIGN REVIEW

Mr. Flynn,

WSP Canada Inc. (WSP) has prepared this letter to support the permit application for the Springer Expansion at Mount Polley Mine with respect to the Northwest Potentially Acid Generating (NW PAG) Dump. WSP has completed a geotechnical assessment and design review of the NW PAG Dump design to a maximum elevation of 1,180 m (WSP 2025). Mount Polley Mining Corporation (MPMC) currently has a permitted maximum elevation to 1,150 m for the NW PAG Dump (M-200 permit) and the purpose of this letter is to determine the applicability of the geotechnical assessment completed for the elev. 1,180 m design to the elev. 1,150 m design for the NW PAG Dump.

This letter presents the following:

- Descriptions of the NW PAG Dump elev. 1,180 m and 1,150 m designs
- Comparison of the NW PAG Dump elev. 1,180 m and 1,150 m designs
- Discussion of design components applicable to the elev. 1,150 m design based on the geotechnical assessment completed for the elev. 1,180 m design
- Discussion regarding operational controls and recommendations

The reader is referred to the Study Limitations section, which follows the text and forms and integral part of this letter.

1.0 DESCRIPTION OF NORTHWEST PAG DUMP DESIGNS

Two designs have been prepared by MPMC for the NW PAG Dump. They are as follows:

- NW PAG Dump elev. 1,150 m design.
  - Maximum elevation of 1,150 m.
  - Presented as the current maximum elevation in the M-200 permit.
  - Can store an additional volume of 35.3 M tonnes of PAG as of February 2025.
- NW PAG Dump elev. 1,180 m design.
  - Geotechnically assessed in WSP (2025).

The NW PAG Dump is being constructed at the northwest end of Mount Polley Mine using waste rock from the open pits in a bottom-up construction. The dump is being constructed over largely till material with some pockets of finer grained material. A detailed description of the engineering geology can be found in WSP (2025). The elev. 1,150 m and elev. 1,180 m NW PAG Dump designs are presented in Figure 1.

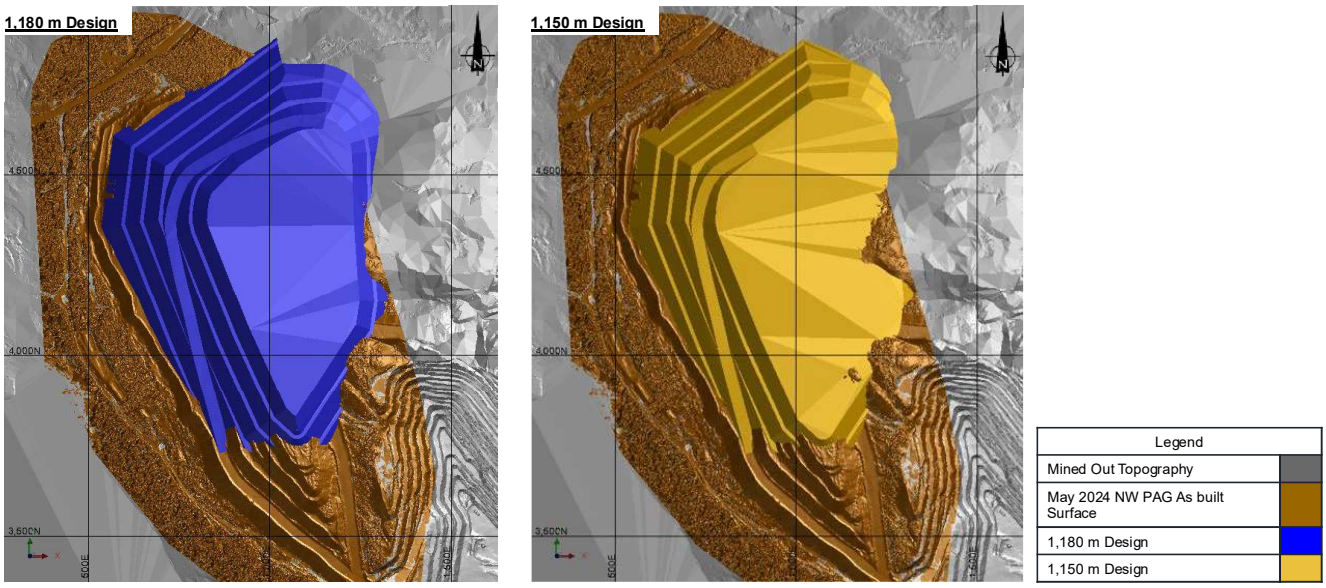

Figure 1: Northwest PAG Dump elev. 1,180 m and elev. 1,150 m Design Comparison (designs provided by MPMC)

1.1 COMPARISON OF NORTHWEST PAG DUMP DESIGNS

The following observations are noted between the NW PAG Dump elev. 1,180 m and the elev. 1,150 m designs (Figure 1):

- The footprint of the NW PAG Dump does not change from the elev. 1,180 m to the elev. 1,150 m design.
- The elev. 1,180 m design has five lifts as compared to four lifts in the elev. 1,150 m design. The overall height of the elev. 1,180 m design is 160 m and the overall height of the elev. 1,150 m design is 130 m.
- The construction methodology for both designs remains the same.

2.0 GEOTECHNICAL CONSIDERATIONS

A geotechnical assessment was completed for the elev. 1,180 m NW PAG Dump design (Figure 1) by WSP which included a foundation review, slope stability hazard rating assessment, slope stability assessment, runout, and rock rollout assessment (WSP 2025). Since the elev.1,180 m design has the same footprint and a higher overall height as compared to the elev.1,150 m design of the NW PAG Dump, the geotechnical assessment presented in WSP (2025) is considered relevant to the elev.1,150 m design. A summary of the geotechnical assessment is provided as it is applicable to the elev. 1,150 m NW PAG Dump design.

2.1 Slope Stability Hazard Rating

The slope stability hazard rating for the NW PAG Dump elev. 1,180 m design was based on the Hawley and Cunning (2017) WSRHC system. The elev.1,180 m design is classified as presenting a moderate potential for instability and is therefore considered to be a moderate hazard waste rock dump (Class III). The only change to the hazard rating for the NW PAG Dump elev. 1,150 m design is the overall height of the NW PAG Dump lowering from 160 m high to 130 m. The height of the elev. 1,150 m design still falls within a moderate hazard rating; therefore, the previously assessed moderate hazard rating is applicable to the elev. 1,150 m NW PAG Dump design.

2.2 Slope Stability Analyses Results

The slope stability analyses design acceptance criteria, material properties, and assumptions for the elev. 1,180 m design remain applicable to the slope stability analyses for the elev. 1,150 m design. The slope stability analyses results for the elev.1,180 m design indicate that the NW PAG Dump will meet the design acceptance criteria for slope stability under static and pseudo-static conditions with the exception of the sensitivity analyses completed for reduced till strength and low clay strength parameters.

The results of the lower bound till strength sensitivity analyses for the elev.1,180 m design suggest that areas of the NW PAG Dump may exhibit Factors of Safety (FOS) less than the design acceptance criteria of 1.5 where till could exhibit lower bound strengths. As a conservative approach for the elev.1,150 m NW PAG Dump design, considerations from WSP (2025) to complete further investigation, laboratory testing, and interpretation of the lower strength till would be required to effectively delineate areas where lower bound weaker materials may exist and to determine remedial design requirements, if any.

The low clay strength sensitivity analyses for the elev.1,180 m design indicate that the NW PAG Dump may not meet the required design acceptance criteria in the area where a clay pocket is interpreted to exist. The elev. 1,180 m NW PAG Dump design has a portion of the dump toe on the clay pocket; therefore, the footprint of the NW PAG Dump elev. 1,150 m design also has a portion of the dump toe on this area with the clay material. The FOS for the elev. 1,150 m design would increase slightly for slope stability in this area due to the reduction in dump height; however, it is likely that the FOS will still remain below the design acceptance criteria. Recommendations regarding construction over this material are presented in WSP (2025) and are applicable to the elev. 1,150 m design.

2.3 Rock Rollout and Runout Analyses Results

The rock rollout assessment for the elev. 1,180 m NW PAG Dump design indicates that the Bootjack Access Road my be impacted by rolling rocks during construction. This result is also applicable to the elev. 1,150 m design. Similar to the elev. 1,180 m design, it is recommended that access to the Bootjack Access Road be restricted/closed during the construction of the lowest PAG lift and free-dump piles be used at the crest of subsequent lifts to limit further rock rollout (WSP 2025).

A runout style failure for the elev. 1,180 m NW PAG Dump design could impact the Bootjack Access Road and the Settling Ponds. This result is also applicable to the elev. 1,150 m design. Similar to the elev. 1,180 m design, construction recommendations applicable to the elev. 1,150 m design are provided in WSP (2025).

2.4 Interaction with Springer Pit

A rock rollout catchment berm should be constructed along the pit crest where the NW PAG Dump slopes exists above the pit regardless of height to prevent rocks from dumping activities or raveling to enter the Springer Pit. As well, a rock rollout berm should be constructed along the inside edge of the haul road that will enter the Springer Pit form the west side to provide additional catchment and protection to equipment entering and exiting the pit (WSP 2024).

Runout due to instability of the NW PAG Dump was considered into the Springer Pit for the elev. 1,180 m design. However, with the reduced height of the NW PAG Dump to elev. 1,150 m, there is insufficient height of waste rock above the Springer Pit to runout into the Springer Pit, and runout is not considered credible. The catchment berms recommended to be constructed along the pit crest and haul road are sufficient to control ravel from dump construction and if excess ravel is noted, a different approach may be considered to contain material.

3.0 OPERATIONAL, CONSTRUCTION, AND MONITORING RECOMMENDATIONS

Additional operational, construction, and monitoring recommendations can be referenced in WSP (2025) and are considered applicable to the elev. 1,150 m NW PAG Dump design.

4.0 CONCLUSION

This letter presents a geotechnical review of the applicability of the NW PAG Dump elev. 1,180 m design components to the NW PAG Dump elev. 1,150 m design. Based on the review carried out, it is determined that the elev. 1,150 m design will have the same footprint with a reduced height and same construction methodology as the elev. 1,180 m design. Considering the similarity in designs, the geotechnical analyses completed for the elev. 1,180 m design are applicable to the elev. 1,150 m design, and due to the reduction in dump height, slope stability will slightly increase and runout potential will decrease. Recommendations regarding operational controls, construction methodology, and monitoring recommendations are presented in WSP (2025) and are considered applicable to the elev. 1,150 m NW PAG Dump design.

5.0 CLOSURE

We trust that this letter satisfies your current requirements. If you have any questions or require further assistance, please do not hesitate to contact the undersigned.

WSP Canada Inc.

June 20, 2025

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APPENDIX 4-5: SERDS LOM DESIGN REPORT

REPORT

Southeast Rock Disposal Site—Life of Mine

Detailed Design

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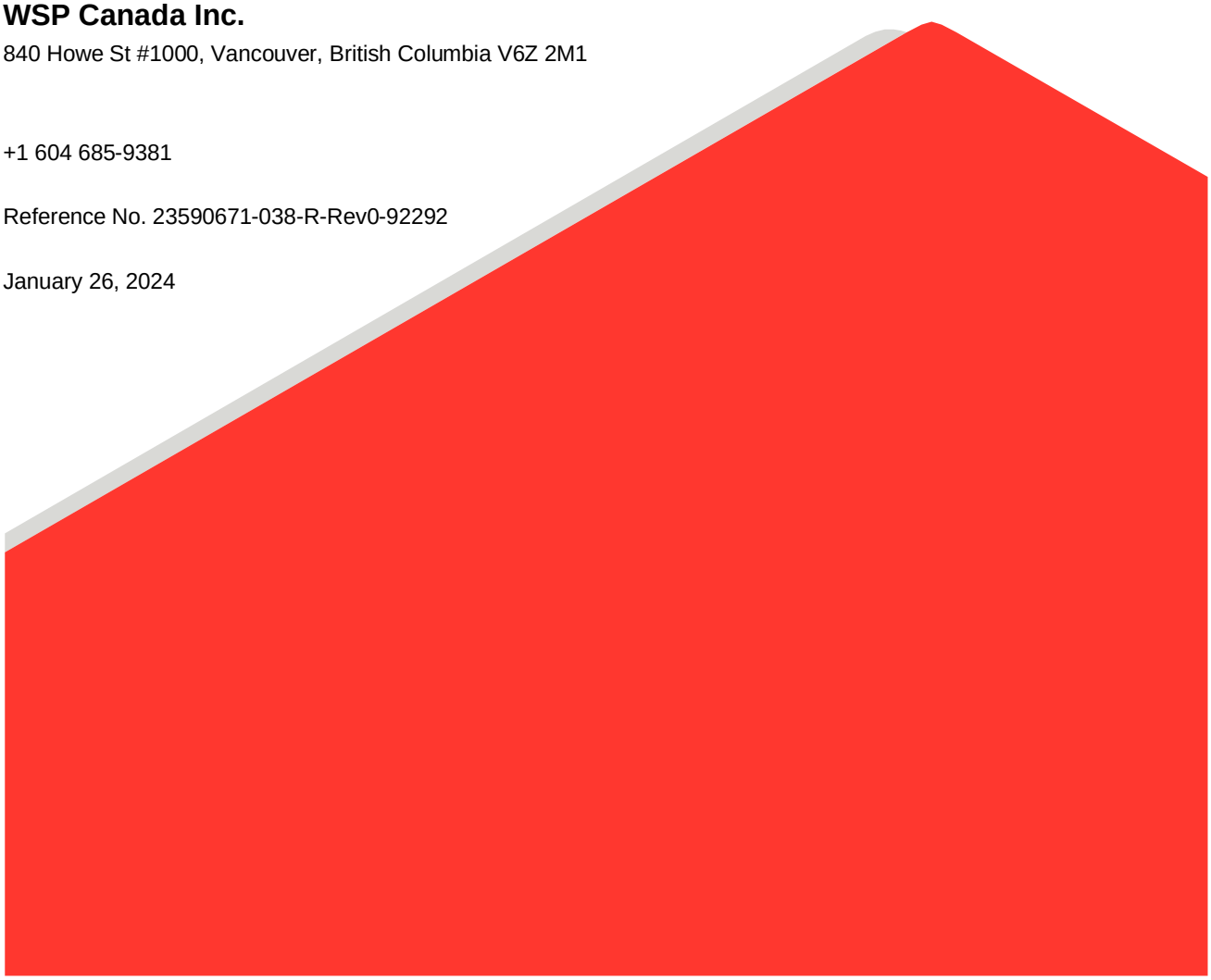
January 26, 2024



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Executive Summary

Mount Polley Mining Corporation (MPMC) has retained WSP Canada Inc. to complete a design for the Southeast Rock Disposal Site (SERDS) Life of Mine (LOM) Facility at the Mount Polley Mine, BC.

This report presents a detailed design and construction drawings for the SERDS LOM Facility and associated Tailings Access Road (TAR).

The design concept is to permanently store non-acid generating (NAG) waste rock excavated from the Cariboo-Springer Pit. Waste rock placed in the SERDS LOM will encapsulate the SERDS Tailings Co-disposal facility. The additional storage volume outside the SERDS Tailings Co-disposal Facility is 60.7 M m^3. The SERDS LOM footprint area including the Tailings Access Road (TAR) and access ramp is 180 ha. The maximum design elevation is 1,150 m and maximum outer slopes are 2H:1V.

The SERDS LOM is designed as a waste rock dump that is constructed and operated following standard operating procedures at the Mount Polley Mine. Slope stability and runout assessments indicate failure modes will not result in a loss of tailings placed in the SERDS Tailings Co-disposal Facility, and will not impact nearby lakes, sensitive environments, or public infrastructure, but will pose a risk to mine staff working in the area. The SERDS LOM is classified as a Low Instability Hazard (II) following the system proposed by Hawley and Cunning (2017). The facility will be closed based on the site closure plan.

This report is to be read with the Study Limitations Section, which precedes the text and forms an integral part of this report.

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Table of Contents

STUDY LIMITATIONS ..... **iii**

1.0 INTRODUCTION **1**

1.1 Project Background 1

2.0 BASIS OF DESIGN AND DESIGN CRITERIA **3**

2.1 Design Concept Summary 3

2.2 Mine Plan 3

2.3 Regulations, Permit Requirements, Guidelines and Standards 5

2.4 Design Criteria and Parameters 5

2.5 Waste Rock Dump Hazard Classification 7

2.6 SERDS LOM Interaction with SERDS Tailings Co-disposal Facility 8

3.0 SITE CONDITIONS **9**

3.1 Site Location 9

3.2 Geomorphology and Topography 9

3.2.1 Southeast Rock Disposal Site 9

3.3 Geology 13

3.3.1 Investigations for Site Characterization 13

3.3.2 Geologic Model 13

3.3.3 Quaternary Geology 15

3.3.4 Bedrock 16

3.4 Geotechnical Conditions 18

3.4.1 Till 19

3.4.2 Glaciolacustrine Units 24

3.4.3 Glaciofluvial Sediments 29

3.4.4 Bedrock 31

3.5 Climate 33

3.6 Hydrology and Surface Drainage Features 37

3.7 Hydrogeology 37
3.8 Seismicity 38
3.9 Summary of Potential Issues Arising from Interaction of the Design with the Site 38
3.9.1 Stability 38
3.9.2 Settlement 40
4.0 MINE WASTE CHARACTERIZATION 41
5.0 DESIGN DESCRIPTION 42
5.1 Design Concept 42
5.2 Materials 42
5.3 Seepage and Surface Water Management 43
5.4 Roads and Ramps 43
6.0 DESIGN ANALYSES AND ASSESSMENTS 44
6.1 Storage Capacity 44
6.2 Geotechnical Analyses 44
6.2.1 Stability 44
6.2.2 Runout 50
6.2.2.1 Methods 50
6.2.2.2 Results and Discussion 50
6.2.3 Consolidation / Settlement 53
6.3 Water Balance 53
6.4 Concordance with BC HSRC, Guidance Document and Permit M-200 53
7.0 CONSTRUCTION, OPERATION, AND CLOSURE 54
7.1 Foundation Preparation 54
7.2 Waste Rock Placement 54
7.3 Water Management 55
7.4 Closure 55
8.0 INSTRUMENTATION, MONITORING AND SURVEILLANCE 56
8.1 Inspections / Surveillance and Reporting 56
9.0 RECOMMENDATIONS 57

10.0 DOCUMENT CLOSURE **57**

REFERENCES **59**

TABLES

Table 1: Cariboo-Springer Pit Mine Plan – Non-Acid Generating Waste (Appendix C) 3

Table 2: Summary of Interim Guidelines for Minimum Design Factors of Safety (BCMWRPRC 1991) 5

Table 3: Design Parameters 6

Table 4: Till Index Testing Summary 19

Table 5: Till Direct Shear Test Results of Remoulded Grab Samples 23

Table 6: Glaciolacustrine Laboratory Testing Summary 25

Table 7: Glaciolacustrine Direct Shear Test Results on Remoulded Grab Samples 25

Table 8: Glaciofluvial Laboratory Testing Summary 29

Table 9: Bedrock and Weathered Bedrock Laboratory Testing Summary 31

Table 10: Polley Mine Site Monthly Temperatures for the Site (1974 to 2021) 34

Table 11: Annual Precipitation Depths for the Site (1974 to 2021) 34

Table 12: Extreme Precipitation Depths for the Site 35

Table 13: Monthly Precipitation Depths for the Site (1974 to 2021) 35

Table 14: Estimated Shallow Lake Evaporation (1974 to 2001) 36

Table 15: Estimated Monthly and Annual Actual Evapotranspiration Statistics for the Site (1974 to 2001) 36

Table 16: Groundwater Level Summary 37

Table 17: Peak Ground Acceleration (PGA) by Return Period 38

Table 18: Material Properties for Analyses 41

Table 19: Storage Volumes and Areas in SERDS LOM 44

Table 20: SERDS LOM Stability Analysis Results 46

Table 21: TAR Section 5 Stability Analysis Results 48

Table 22: Material Parameters for Runout Analyses 50

Table 23: Summary of Runout Analyses Results for SERDS LOM 51

FIGURES

Figure 1: Project Area 2

Figure 2: SERDS Orthophoto, April 28, 2023 11

Figure 3: Tailings cell in operation on crest of SERDS, with waste rock berm on left, tailings and waste rock in the cell on the right. Looking northeast, October 31, 2023 12

Figure 4: Stratigraphic Column from Bichler and Bobrowsky (2003) 15
Figure 5: Simplified Geology of the Mount Polley Intrusive Complex 17
Figure 6: October 2019 Cariboo and Springer Pit Topography Major Faults 18
Figure 7: Till Water Content Measurements 20
Figure 8: Till Atterberg Limit Tests Results 21
Figure 9: Till Particle Size Distributions 22
Figure 10: Till Direct Shear Results of Remoulded Grab Samples 24
Figure 11: Glaciolacustrine Direct Shear Test Results on Remoulded Grab Samples 26
Figure 12: Glaciolacustrine Water Content Measurements 27
Figure 13: Glaciolacustrine Atterberg Limit Test Results 28
Figure 14: Glaciolacustrine Particle Size Distributions 29
Figure 15: Glaciofluvial Water Content Measurements 30
Figure 16: Glaciofluvial Particle Size Distributions 31
Figure 17: Bedrock Water Content Measurements 32
Figure 18: Disturbed Samples of Weathered Bedrock - Particle Size Distributions 33

APPENDICES

APPENDIX A
Drawings

APPENDIX B
Operating Procedures

APPENDIX C
Mine Plan (provided by MPMC)

APPENDIX D
Site Characterization

APPENDIX E
Mine Waste Characterization

APPENDIX F
Design Analyses

APPENDIX G
Code Requirements and Hazard Classification

Abbreviations

List of System of Units, Abbreviations, and Acronyms

Project System of Units: System International (SI)		Abbreviations and Acronyms	
Area		AEP	annual exceedance probability
km^2	square kilometre	EGBC	Engineers and Geoscientists of British Columbia
Length		Code	Health, Safety and Reclamation Code for Mines in BC (EMLI 2022)
km	kilometre	FoS	factors of safety
m	metre	LOM	life of mine
cm	centimetre	MPMC	Mount Polley Mining Corporation
mm	millimetre	OBE	operating basis earthquake
Mass and Density		PMP	probable maximum precipitation
kg	kilogram	PGA	peak ground acceleration
t	metric tonne, 1000 kg	SERDS	Southeast Rock Disposal Site
Mt	million tonnes	TAR	Tailings Access Road
t/m^3	tonnes per cubic metre	TSF	Tailings Storage Facility
g	Gravitational acceleration	XH:1V	X horizontal to 1 vertical
Velocity			
m/s	metre per second		
Volume			
m^3	cubic metre		
M m^3	million cubic metres		

1.0 INTRODUCTION

This document presents a detailed design and construction drawings for the Southeast Rock Disposal Site (SERDS) Life of Mine (LOM) at the Mount Polley Mine, BC.

Mount Polley Mining Corporation (MPMC) retained WSP Canada Inc. to complete the design, which includes the SERDS LOM and access ramp, and the tailings access road (TAR).

This report presents the design basis, site conditions, waste rock properties, the design, analyses and assessments, considerations for construction and sequence, operation, closure, and construction drawings.

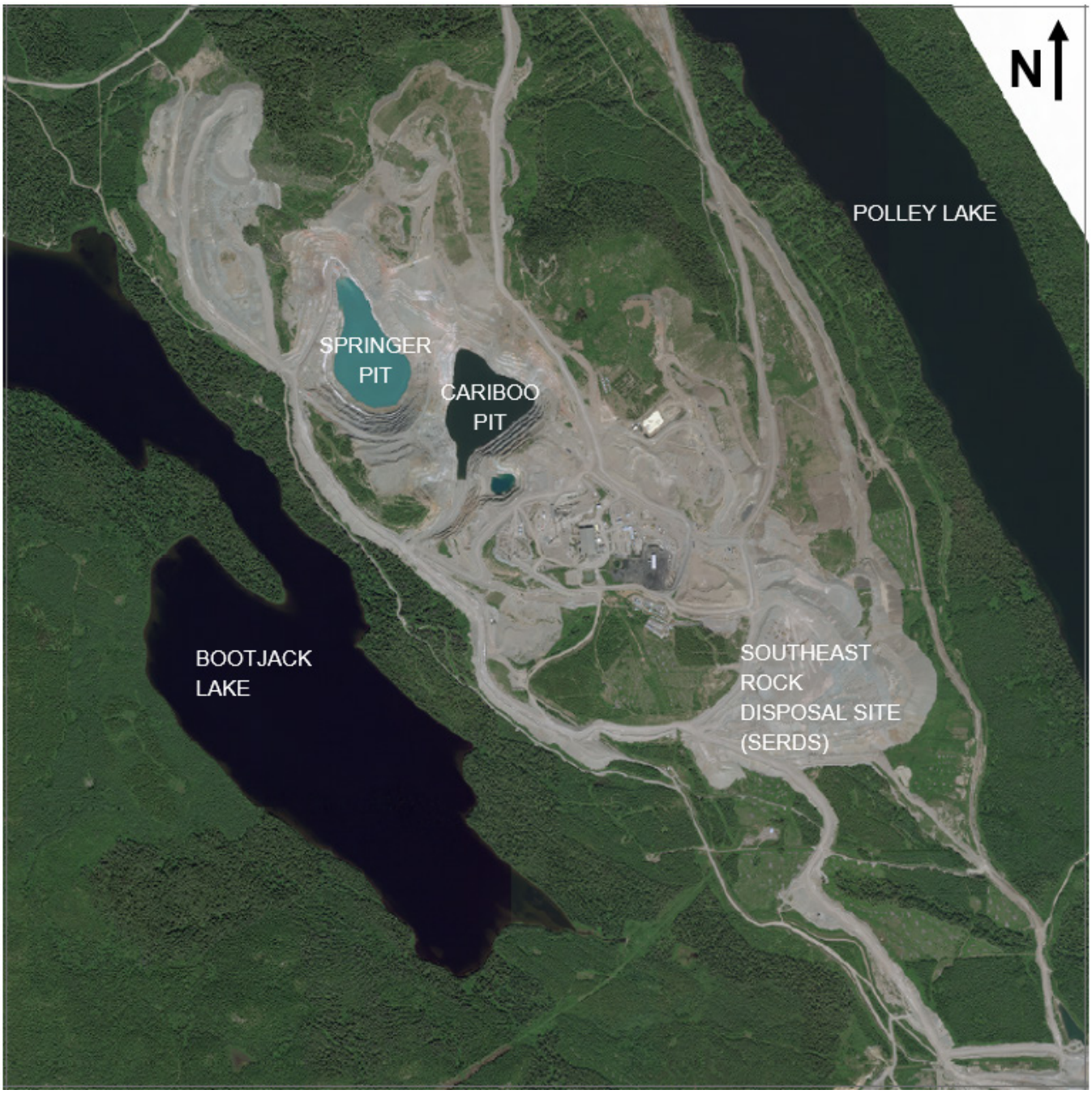
This report is to be read with the Study Limitations Section which precedes the text and forms an integral part of this report. The report scope is limited to geotechnical engineering for the storage of waste rock. Design and updates of surface water management systems, powerlines, pipelines, programs for classification and verification of waste rock geochemistry, and water quality are outside the scope of this report and are the responsibility of MPMC.

1.1 Project Background

The project location is shown in Drawing 1, the site layout is shown in Drawing 2 (Drawings in Appendix A) and in Figure 1.

The project site is located on a ridge between Bootjack Lake to the west, and Polley Lake to the east. Major project features include the Cariboo-Springer Pit, the mill complex, waste rock disposal sites including the SERDS, and a tailings storage facility (TSF).

The SERDS site includes two small open pits which were backfilled, and placement of waste rock in a series of smaller dumps that were developed into the SERDS to store non-acid generating (NAG) waste rock. The SERDS Tailings Co-disposal Facility (WSP Golder 2022b) design concept is to store tailings and waste rock in cells formed from waste rock on the crest of the SERDS. Tailings placement started in May 2023, and was in progress at the time of preparation of this report. The SERDS LOM design includes placement of NAG waste rock over and outside the SERDS Tailings Co-disposal Facility, which will increase in height and area. The designs of the SERDS Tailings Co-disposal Facility and the additional waste rock for the life of mine are shown in drawings in Appendix A.



Source: MPMC, 21 June 2021 Satellite Orthophoto.

Figure 1: Project Area

2.0 BASIS OF DESIGN AND DESIGN CRITERIA

The design basis for storage of waste rock from the Cariboo-Springer Pit in the SERDS LOM is summarized in this section, including a summary description of the design concept, guidelines and regulations, the mine plan, design parameters, and facility consequence classification.

2.1 Design Concept Summary

The design concept for the SERDS LOM is summarized here and described in detail in Section 5.0.

- The SERDS LOM is designed and operated as a waste rock dump.
  - The SERDS LOM will permanently store non-acid generating (NAG) waste rock.
  - Construction is by the bottom-up technique following standard operating procedures for waste rock dumps at Mount Polley Mine.
  - Waste rock placed in the SERDS LOM will buttress and encapsulate the SERDS Tailings Co-disposal Facility. Slope instability and runout assessments for the SERDS LOM do not indicate credible failure modes that could result in the release of tailings, the SERDS LOM is therefore designed as a waste rock facility.
- Water management is passive, with precipitation and snowmelt landing on the SERDS collected in perimeter ditching beyond the toe.
  - Update of the surface water management system is not included as part of this report. Recommendations are provided in Section 9.0 to update the water management system, pipelines and pumping in the area, and the interface between the TSF and the TAR.
- The SERDS LOM will be closed following a closure plan developed for the site.

2.2 Mine Plan

The design criterion for the SERDS LOM is to store the NAG waste rock produced from mining Cariboo-Springer Pit, which is presented in Appendix C and in Table 1. The design holds an additional 60.7 M m^3, over and outside the SERDS Tailings Co-disposal facility, and will accommodate the remaining 93 Mt NAG rock to be produced during the LOM, assuming a dry density of near 2 t/m^3.

Table 1: Cariboo-Springer Pit Mine Plan – Non-Acid Generating Waste (Appendix C)

Month	Year	Non-Acid Generating Waste Rock (dry tonnes)
October	2023	1,936,506
November	2023	1,756,745
December	2023	1,870,228
January	2024	1,831,774
February	2024	1,710,152
March	2024	1,954,903
April	2024	1,878,936
May	2024	1,915,561
June	2024	1,645,975
July	2024	1,874,606
August	2024	1,729,567
September	2024	1,772,961

Table 1: Cariboo-Springer Pit Mine Plan – Non-Acid Generating Waste (Appendix C)

Month	Year	Non-Acid Generating Waste Rock (dry tonnes)
October	2024	1,910,042
November	2024	1,619,190
December	2024	2,010,077
March	2025	4,749,278
June	2025	4,438,211
September	2025	3,792,961
December	2025	4,046,151
March	2026	2,691,292
June	2026	4,049,561
September	2026	3,127,729
December	2026	2,876,579
March	2027	3,707,807
June	2027	4,004,743
September	2027	3,527,420
December	2027	4,152,911
March	2028	3,618,992
June	2028	2,271,835
September	2028	3,266,806
December	2028	2,027,835
March	2029	2,126,561
June	2029	2,432,859
September	2029	933,368
December	2029	2,582,656
March	2030	1,175,978
June	2030	0
September	2030	0
December	2030	0
March	2031	0
June	2031	0
September	2031	0
December	2031	0
March	2032	0
June	2032	0
	Total	**93,018,755**

2.3 Regulations, Permit Requirements, Guidelines and Standards

The design is subject to regulations and permit conditions including:

- The Health Safety and Reclamation Code (the Code) for Mines in BC (EMLI 2022), or latest version.
- Mine permit M-200

Guidance for waste rock dump design includes:

- Investigation and Design Manual – Interim Guidelines (BCMWRPRC 1991)
- Guidelines for Mine Waste Dump and Stockpile Design (Hawley and Cunning 2017)

Requirements of EMLI (2022) and mine permit M-200 that relate to the SERDS at the time of preparation of this report are listed in Appendix G in a table of concordance.

2.4 Design Criteria and Parameters

The selection of design factors of safety (FoS) for stability the SERDS LOM are based on:

- The stability performance of large waste rock dumps previously developed at the Mount Polley site to the north of the SERDS, and on the performance of other large waste rock dumps in BC.
- Guidelines for the design of waste rock dumps (BCMWRPRC 1991), which are summarized in Table 2.

Table 2: Summary of Interim Guidelines for Minimum Design Factors of Safety (BCMWRPRC 1991)

Stability Condition	Factor of Safety	
Stability of Dump Face	Case A	Case B
▪ Short-term	1.0	1.0
▪ Long-term	1.2	1.1
Overall Stability (Deep-seated stability)		
▪ Short-term (Static)	1.3 to 1.5	1.1 to 1.3
▪ Long-term (Static)	1.5	1.3
▪ Long-term (Pseudo-static)	1.1 to 1.3	1.0
Case A ▪ Low level of confidence in critical analysis parameters. ▪ Possibly unconservative interpretation of conditions, assumptions. ▪ Severe consequences of failure. ▪ Simplified stability analyses method (chart, simplified method of slices). ▪ Stability analyses method poorly simulates physical conditions. ▪ Poor understanding of potential failure mechanisms.		
Case B ▪ High level of confidence in critical analysis parameters. ▪ Conservative interpretation of conditions, assumptions. ▪ Minimal consequences of failure. ▪ Rigorous stability analyses method. ▪ Stability analyses method simulates physical conditions well. ▪ High level of confidence of critical failure mechanism(s).		

From BCMWRPRC (1991), the choice of a design minimum values of FoS involves a consideration of level of confidence in the understanding of the factors that will control stability, the input parameters, the analysis methods, and the consequences of failure. The guidelines provide a range of suggested FoS to account for the consideration of these various factors. For the SERDS LOM and the stability analysis presented in this report, the BCMWRPRC (1991) guidelines are interpreted here.

- Experience with pit slope and waste dump construction at Mt. Polley has provided a good understand of the geologic and hydrogeologic conditions at the mine site, and the probable range of waste rock and foundation material strength parameters. Investigations have been completed over the SERDS LOM area on a grid to characterize the foundation, with testing of strength of foundation soils. Consequently, there is a reasonable degree of confidence in the design strength parameters used in the analyses. The strength parameters are somewhat conservative as they ignore the cohesion that may be exhibited in the foundation soils. There is a reasonable high level of confidence in the stability analysis input parameters, and the choice of criteria for minimum values of FoS on the basis of input parameters is assessed as satisfying Case B.
- Experience with mining and construction at Mount Polley and at other porphyry mines in central British Columbia has provided many opportunities to observe and understand the types of instability mechanisms that develop in waste rock dumps. Consequently, there is a reasonable to high level of confidence in the understanding of the potential instability mechanisms. The choice of minimum values of FoS on the basis of understanding of the potential instability mechanisms is also assessed as satisfying Case B.
- Rigorous limit equilibrium analyses methods have been used for stability assessment. The analyses methods carried out in the assessment and choice of FoS are assessed as satisfying Case B.
- There are no public roads or infrastructure located below the proposed dump. Polley Lake is located below the SERDS and analyses indicate runout failures would not reach the lake. There is some risk to mine staff working in the area and to staff traveling on roads through the runout zone of the SERDS, but there are no staff who would be permanently present in the runout zone during operation or closure. Accordingly, the criterion of consequence of failure is assessed as satisfying Case B.

In view of the above considerations, design criteria minimum values of FoS for slope stability for Case B from BCMWRPRC (1991) are adopted for the SERDS LOM.

Design criteria and parameters are presented in Table 3.

Table 3: Design Parameters

Criteria/Parameter	Value	Source / Comment
Coordinate System	Mine Grid	MPMC
LOM crest elevation	1,150 m	Design – see Drawings in Appendix A
Waste Dump and Stockpile Hazard Class (Hawley and Cunning 2017)	II Low Hazard	Section 2.6
Mine Plan	Appendix C	MPMC (2023)
Design Storage Capacity		
Non-Acid Generating (NAG) Waste Rock	60.7 M m^3	Design – see Drawings in Appendix A. Includes SERDS LOM and access ramp, and TAR, as additional volume stored outside the SERDS Tailings Co-disposal facility

Table 3: Design Parameters

Criteria/Parameter	Value	Source / Comment
Design Events		
Design Earthquake	PGA = 0.048 g	WSP USA (2023)
	1/2475 Annual Exceedance Probability	Follows WSP Golder (2022b). BCMWRPRC (1991) does not indicate design seismic event return period events.
Slope Stability for SERDS LOM		
Minimum values of Factor of Safety		
Stability of Dump Face		
Short-term	1.0	BCMWRPRC (1991) Case B
Long-term	1.1	BCMWRPRC (1991) Case B
Overall Stability (Deep-seated stability)		
Short-term (Static)	1.1 to 1.3	BCMWRPRC (1991) Case B
Long-term (Static)	1.3	BCMWRPRC (1991) Case B
Long-term (Pseudo-static)	1.0	BCMWRPRC (1991) Case B
Slope Stability for Failure Modes that Pass through Tailings		
End of Construction	1.5	MEM (2016)
Pseudo-static loading, Construction, Operation, and Transition Phases	1.0	CDA (2019)
Post-earthquake, Construction, Operation, and Transition Phases	1.2	CDA (2019)
Downstream Slope No Steeper Than	2H:1V	10.1.9 (EMLI 2022) For a tailings storage facility steeper than 2H:1V, the manager shall submit justification by the engineer of record for the selected design slope and receive authorization by the chief permitting officer prior to construction. The design allows benching of the slope with interbench angle of repose slopes to achieve an overall slope of 2H:1V.

PGA = Peak ground acceleration.

Site and foundation conditions, including basis of parameters adopted for design analyses are described in Section 3.0.

Properties for tailings and waste rock and basis for design parameters are presented in Section 4.0.

2.5 Waste Rock Dump Hazard Classification

The SERDS LOM stability rating and hazard classification was determined using the system presented in Hawley and Cunning (2017).

The SERDS LOM has a Waste Dump and Stockpile Hazard Class (WHC) of WHC II Low Instability Hazard. Details are provided in Appendix G.

Under the Code, the SERDS LOM is classified as a major dump, as it will store more than 1 M m^3.

Facilities and infrastructure, water bodies, and people below the SERDS LOM that may potentially be impacted by a failure resulting in waste rock runout (see Section 6.0) are:

- There are no people permanently present below the SERDS in the runout zone.
- Mine infrastructure includes powerlines, pipelines, sumps, roads, stockpiles, and ditching.
  - No permanent buildings or major infrastructure are present, other than the TAR, which is considered in the design.
  - There are no public or private infrastructure in the area below the SERDS.
  - The tailings storage facility is located approximately 1.3 km to the southeast, beyond the runout zone of the SERDS.
- Polley Lake is approximately 550 m to the northeast and Bootjack Lake is approximately 900 m to the southwest.
- Bootjack Creek, which runs from Bootjack Lake to Polley Lake via a constructed diversion channel, is located approximately 150 m to the south.

2.6 SERDS LOM Interaction with SERDS Tailings Co-disposal Facility

The SERDS LOM will include placement of NAG waste rock over and outside the limits of the SERDS Tailings Co-disposal Facility.

The SERDS Tailings Co-disposal Facility is classified as a “Significant” consequence structure (WSP Golder 2022b) based on the CDA (2013) consequence classification system for dams, as required by MEM (2016).

The effect of placing waste rock in the SERDS LOM will be to buttress and confine the SERDS Tailings Co-disposal Facility.

Analyses (Section 6.2) indicate that slope instability and runout failure of the SERDS LOM are not expected to impact the stability of the tailings stored in the SERDS and will not result in catastrophic flow failure with loss of tailings.

The SERDS LOM is therefore designed as a waste rock dump.

3.0 SITE CONDITIONS

Site conditions are described in this section to provide context for the design, and to define conditions and design parameters for analyses including material properties, precipitation, and earthquake events.

The BCMWRPRC (1991) recommend site characterization for waste rock dumps in BC be carried out to inform the design. Site characterization for the SERDS LOM design was completed by professional engineers who specialize in geotechnical engineering in consultation with geologists, hydrogeologists, and mine water management specialists.

A summary of key issues that could arise from interaction of the design with the site is presented. As a key risk related to site conditions, the design includes controls on runout failure in case glacial lacustrine units (GLU) exist in the foundation that were not detected in the investigations.

3.1 Site Location

The mine site is located near Williams Lake, BC, shown in Drawing 1 in Appendix A.

3.2 Geomorphology and Topography

The terrain and geomorphology of the site area consist of low mountains and hummocky bedrock exposures dissected by streams (Golder 2015a). Surface drainage patterns are influenced by bedrock topography.
In the TSF area to the south of the SERDS LOM, the gentle topography and surface expression of the lowland area at the head of the west arm of Quesnel Lake is the result of glacial advance followed by glacial retreat and inundation by meltwater, creating a glacial lake (glaciolacustrine) environment. The regional surficial geology is dominantly the result of erosion and deposition associated with the most recent glaciation (Golder 2015a).

The SERDS LOM is located on a ridge between Polley Lake and Bootjack Lake (shown in Drawings 2 and 3 in Appendix A). At the north end of the SERDS LOM site the ground is near elevation 1,100 m and slopes south to approximately elevation 950 m.

The northeast portion of the SERDS LOM nearest Polley Lake is founded on ground with slopes of 2 to 12 degrees (Golder 2010). The southern portion of the SERDS LOM area has slopes of 6 to 14 degrees. Based on review of the original topography of the SERDS LOM area, the area has maximum foundation slopes of 5 to 15 degrees. The topography is intersected by east-west trending ephemeral drainage channels and localized flat lying depressions. A broad east-west valley extends from Bootjack Lake to Polley Lake; Bootjack Creek flows through the area south of the SERDS LOM limit. Two small pits, the Southeast Pit and Pond Zone Pit were excavated in the footprint of the SERDS LOM. The pits are reported to have steep walls and flat floors excavated in strong bedrock (Golder 2010). MPMC indicates the Pond Zone Pit was backfilled in 2012 and the Southeast Pit was backfilled in 2013.

3.2.1 Southeast Rock Disposal Site

Approximately 29 M m^3 of non-acid generating (NAG) waste rock was placed in the SERDS prior to mining restart in 2021, with a crest elevation of near 1,110 m.

From mining restart in 2021 to May 2023, additional NAG waste rock was placed in the SERDS, under the permitted Phase 4 design. The SERDS Tailings Co-disposal Facility was permitted and began construction and operation in May 2023. The SERDS Tailings Co-disposal Facility design is presented in WSP Golder (2022b) and includes up to 20 m of tailings and waste rock placed in cells formed from waste rock on the crest between elevation 1,110 and 1,130 m, and 5 m of waste rock cover to elevation 1,135 m. Tailings placement started in May 2023, and was in progress at the time of preparation of this report. Tailings have not been characterized by

geotechnical testing other than water content and gradation. Observations during tailings placement in the SERDS between May and November 2023 indicate:

- Approximately 10 to 15% waste rock was placed with the tailings. The tailings in the Springer Pit were plated with 1 to 1.5 m of waste rock to allow equipment traffic, then excavated in 10 m benches. Trucks reporting to the SERDS were therefore typically loaded from a face with 1 to 1.5 m of waste rock and 8.5 to 9 m of tailings.
- Tailings had variable consistency, including:
  - Tailings which were primarily free draining sand, with water contents of 4% measured by MPMC. The sand was trafficable and was used for haul road construction in the cells.
  - Tailings with higher fines that settled on placement in the cells, with water expressed at surface and water contents on excavation of near 20% measured by MPMC. The tailings had some cohesion, or clay content, and none were observed to flow on dumping.
- The water expressed at surface from tailings placement generally resulted in minor local ponding of typically no more than a few centimetres depth. There was not enough water expressed to collect or pump out, and ponded water generally infiltrated or evaporated within a few days.
- No large pools of ponded water were observed in the cells, and no active management of water accumulating in the cells required. The summer was generally dry.
- The tailings were soft in zones, and in some areas required waste rock causeways and plating of the tailings with waste rock to allow haul truck traffic. In general, approximately 4 m of tailings and NAG waste rock were placed in each cell, then the surface was leveled and plated with waste rock to bring it up to 5 m. The method requires running equipment over tailings placed in the cells, which was completed without major difficulty.

The waste rock placed in the SERDS was generally observed to be good quality.

The base surface for geometric models and volumetric capacity assessment of the SERDS LOM are 1) the existing ground (survey) and 2) the design shell for the SERDS Tailings Co-disposal Facility, which are shown in Drawing 4 in Appendix A.

Photographs of the SERDS from an inspection in 2022 are included in Appendix D. The configuration of the SERDS in April 2023 is shown in Figure 2, and conditions in October 2023 are shown in Figure 3.

Source: MPMC, not to scale.

Figure 2: SERDS Orthophoto, April 28, 2023

Source: A. Van Engelen (WSP).

Figure 3: Tailings cell in operation on crest of SERDS, with waste rock berm on left, tailings and waste rock in the cell on the right. Looking northeast, October 31, 2023

3.3 Geology

This section presents a list of investigations and data used in site characterization, and the geologic model for the site.

Additional information on site characterization and figures showing geologic sections are presented in Appendix D.

3.3.1 Investigations for Site Characterization

The geology of the site was interpreted based on investigations and information summarized in Appendix D, which include:

- Investigations in the SERDS area are shown in Drawing 3 in Appendix A and reported in WSP (2023).
  - 33 test pits were completed on a grid spacing of approximately 150 m
  - 18 sonic boreholes were completed where test pits did not reach bedrock.
  - Laboratory geotechnical testing of selected samples of glacial sediments.
- 11 test pits to the west of the SERDS area (Golder 2010) – 9 of which are shown in Drawing 3 in Appendix A. Limited laboratory testing was completed for this campaign.
- 173 exploration boreholes in the SERDS area associated with the Pond Pit and Southeast Pit, where original depth to bedrock was inferred from the recorded depth of casing installation.
- Characterization of the TSF area, located to the southeast of the SERDS LOM, where extensive investigations and interpretation have been completed (IEEIRP 2015, Golder 2015b).

3.3.2 Geologic Model

Geologic sections are presented in Appendix D.

The geologic interpretation is based on information at boreholes and test pit investigations only. Conditions between boreholes and the extents of geologic units are unknown and are subject to uncertainty. Geologic sections contain interpreted conditions between boreholes, which are marked based on two levels of uncertainty associated with the interpretation:

- Low – moderate uncertainty
- High uncertainty

The geologic model for the site follows the interpretation for the TSF area (IEEIRP 2015, Golder 2015b) and includes:

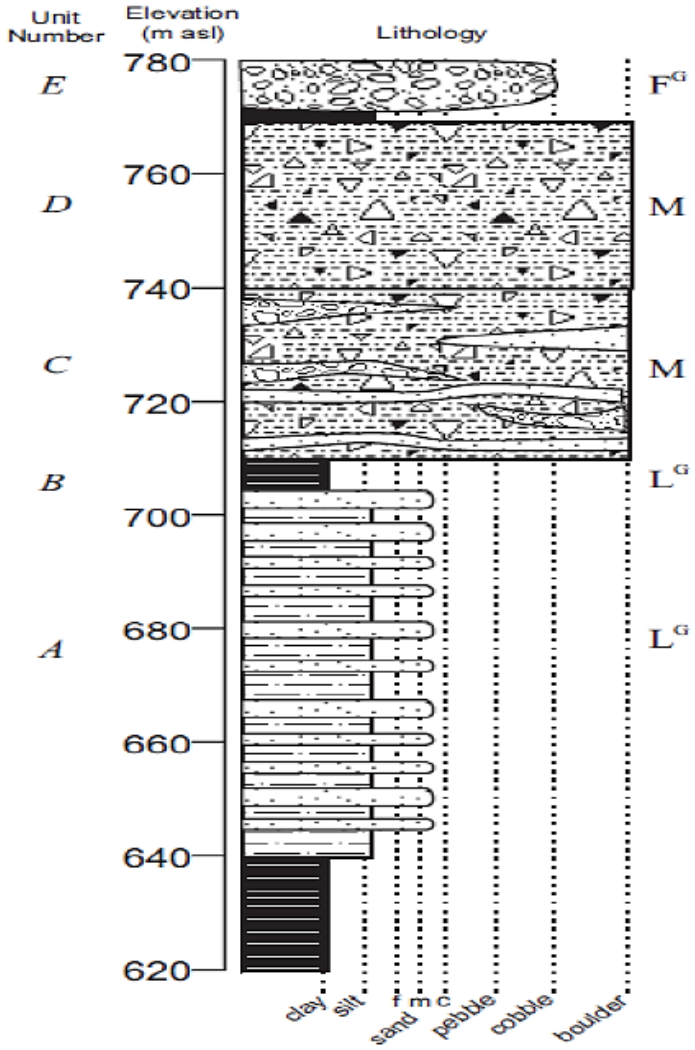
- Fills
  - Up to 70 to 95 m of waste rock in the SERDS.
    - Descriptions of waste rock and tailings are presented in Section 4.0 and in Appendix D.
    - The thickness of waste rock is greater in the areas of the Pond Pit and Southeast Pit.
  - Roads and platforms.
- Topsoil

- Glacial deposits of till including interbedded glaciolacustrine units (GLU) and glaciofluvial (GF) sediments.
  - Till
    - Up to approximately 20 m thick. All test pits and sonic boreholes in the SERDS LOM area encountered till.
    - Tills were logged as basal till or ablation till. This report interprets both layers as till.
  - Glaciolacustrine Units (GLU)
    - The GLU is generally local, or patchy, and is not interpreted to form continuous layers over large areas at continuous elevations, implying a changing post glacial melt regime, with local pools.
    - Elevation is not considered a useful criterion on which to exclude presence of GLU.
    - Extents of the glaciolacustrine unit (GLU) between borehole locations is subject to a high degree of uncertainty due to limited borehole locations were the GLU was found.
    - Layers of GLU from 0.3 to 5.3 m thick were encountered within the till in the SERDS LOM area in three boreholes.
      - Approximately 2.9 m of GLU were encountered in borehole GA21-31 from 16.2 to 19.1 m depth (EL. 963.7 to 966.6 m), which were sampled and tested for strength and instrumented with a vibrating wire piezometer.
      - Approximately 5.3 m of GLU were encountered in borehole GA21-34 from 9.8 to 15.1 m depth (El. 953.4 to 958.8 m), which were sampled and tested for strength and was instrumented with two vibrating wire piezometers.
      - Approximately 0.3 m of GLU were encountered in borehole GA21-41 from 14.8 to 15.1 m depth (El. 963.6 to 963.9 m)
    - Drilling investigations also identified potential layers of GLU that were interpreted as pockets (not continuous units) and as till.
      - 0.7 m in GA21-20 at 10.2 to 10.9 m depth (El. 1,010.2 to 1,010.9 m), located at the south toe of the SERDS LOM (Drawing 3 in Appendix A). The layer was logged as gravelly silty clay with some fine to coarse sand. The layer was sampled and tested and boreholes were drilled to the east and west to delineate the layer. No GLU was encountered in adjacent boreholes and the layer was interpreted to be discontinuous.
      - Approximately 0.5 m in GA21-36 at 3.8 to 4.3 m depth (El. 976.1 to 976.5 m) in the LOM area of the SERDS LOM. The layer was logged as gravelly sandy silty clay with low plasticity and non-cohesive, which was sampled and tested, and instrumented with a vibrating wire piezometer. Direct shear testing of a remoulded grab sample indicated a friction angle of 37.3 degrees and the layer was interpreted to be till.
  - Glaciofluvial (GF) Sediments
    - Layers of GF up to ~4 m thick were encountered.
- Bedrock, with an upper weathered zone, which presented as sand broken up by the sonic drill.

The Pond Pit and Southeast Pit as-built survey data were unavailable at the time of preparation of this report. The exploration boreholes are included on Figures in Appendix D and provide an indication of pit locations. For the analyses in this report, and for the interpretation of geology presented in Appendix D, the casing lengths from drilling records were interpreted as depth to bedrock and thickness of till. Analyses sections include notes where the pits could influence the interpretation and results.

3.3.3 Quaternary Geology

The geologic model for the SERDS LOM area is based on the interpretation presented in Golder (2015b) for the TSF area, which is at a lower elevation and where the topography is gentler. A generalized interpretation of the local Quaternary stratigraphy by Bichler and Bobrowsky (2003) is presented in Figure 4.



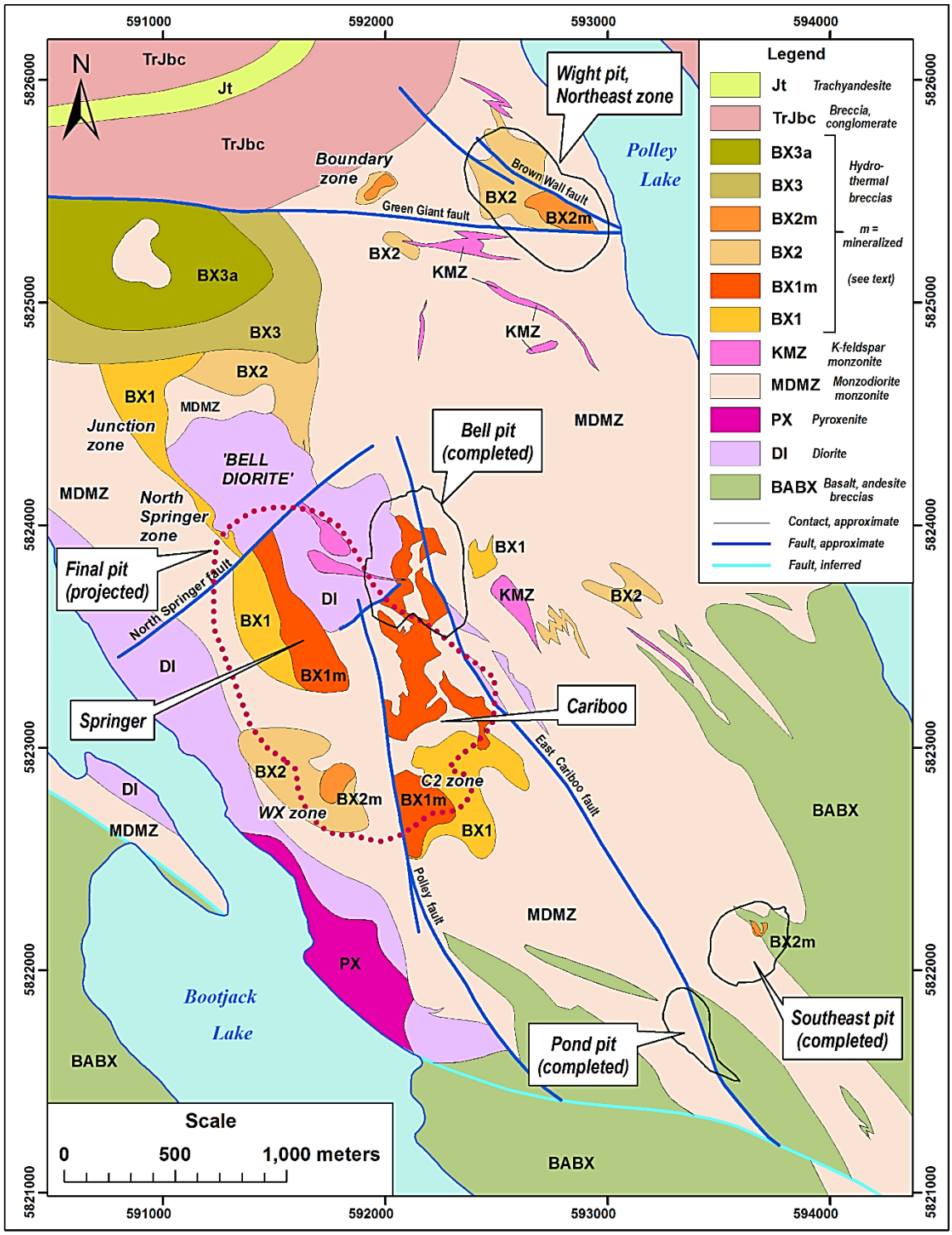
F^G = Glaciofluvial Deposits, M = till, L^G = Glaciolacustrine Deposits.

Figure 4: Stratigraphic Column from Bichler and Bobrowsky (2003)

GLU identified at the SERDS LOM were in the elevation range of 950 to 970 m. The upper GLU in the TSF area nearest the SERDS LOM is below elevation 925 m (Golder 2015a). The lowest elevation of the SERDS LOM design is at approximately 975 m at the ground surface (Appendix A).

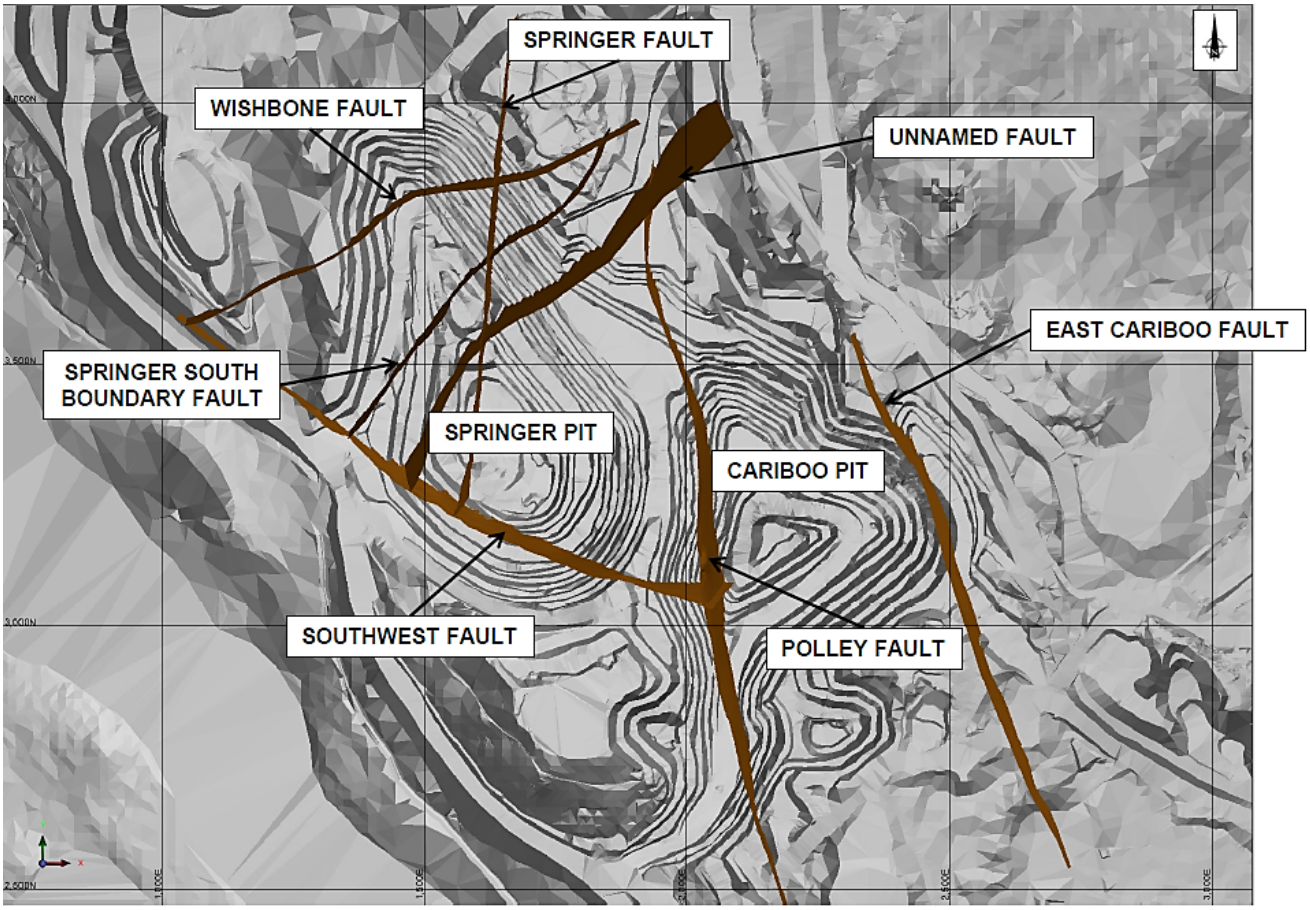
3.3.4 Bedrock

Bedrock in the SERDS LOM area includes monzodiorite, monzonite, basaltic andesitic volcanics, and breccias based on mapping by Rees (2013) (Figure 5). The bedrock encountered in the SERDS LOM area was variably weathered. Golder (2010) described the walls of the Southeast Pit and Pond Pit that were completed in the SERDS LOM footprint as excavated in strong rock. Major faults identified around the Springer and Cariboo Pits to the north of the SERDS LOM are presented in Figure 6.



Source: Rees 2013. (SERDS constructed over Pond Pit and Southeast Pit).

Figure 5: Simplified Geology of the Mount Polley Intrusive Complex



Source: Golder 2021. SERDS is located southeast of the image.

Figure 6: October 2019 Cariboo and Springer Pit Topography Major Faults

3.4 Geotechnical Conditions

The 2021-2022 site investigation program at the Southeast Rock Disposal Site (SERDS) was designed to detect weak soils (GLU) in the foundation of the SERDS and an area considered for the Life of Mine (LOM) SERDS. The investigation results are presented in WSP (2023).

Logging and initial interpretation of GLU in the SERDS area was completed in the field by staff with experience logging and sampling GLU at the TSF. Interpretations of GLU geology for the SERDS design were updated by a senior geologist responsible for interpretation of the geology at other areas at the site, including the TSF.

The program started with a set of investigation locations laid out on a grid with approximately 150 m spacing in the SERDS Phase 4 and an area considered for the SERDS LOM. A total of 33 test pits were excavated and logged at the grid investigation locations. Test pits were excavated to bedrock, or to a maximum depth of 8.7 m. None of the test pits found glaciolacustrine (GLU) deposits.

Where test pits did not encounter bedrock a sonic drill borehole was advanced to bedrock. Boreholes were generally drilled adjacent to the corresponding test pits with some boreholes located on nearby roads and platforms. The deepest boreholes were approximately 29 m in depth.

Where grid investigation locations encountered potential GLU, additional boreholes were advanced to delineate the layer to determine continuity.

A total of 18 boreholes were drilled as part of this portion of the investigation program.

Geotechnical properties are described in the following sub-sections.

3.4.1 Till

Till was encountered in all test pits and all boreholes in the 2021/2022 investigations.

The till was generally a mixture of clay, silt, sand, gravel, and cobbles in varying proportions; non-plastic to medium plasticity; firm to very stiff; moist to wet; and brown, greenish grey, or olive grey.

Index testing results for the samples of till are presented in Table 4.

Table 4: Till Index Testing Summary

Test	Average	Minimum	Maximum	No. of Tests
Water Content (%)	10.9	1.2	23.2	351
Liquid Limit	25.6	17.0	37.0	53
Plastic Limit	13.6	9.0	17.0	
Plasticity Index	12.0	4.0	20.0	
Specific Gravity	2.74	2.72	2.82	6
% Gravel	20.7	0.7	57.7	30
% Sand	37.7	19.8	55.8	
% Fines	41.6	12.9	69.4	

Water contents measured in the till are shown relative to elevation in Figure 7. The water contents in the till ranged from 1% to 23%, with no discernible pattern or trends with respect to elevation.

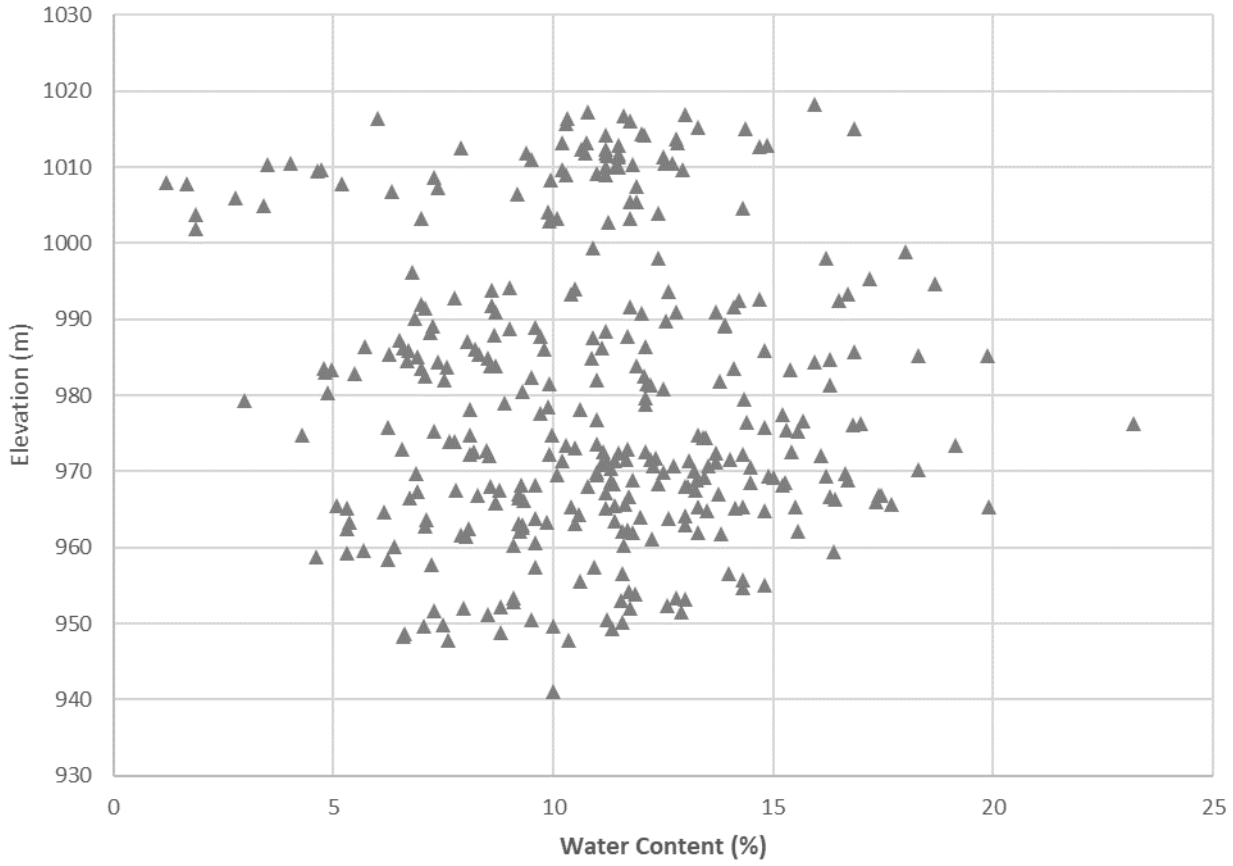


Figure 7: Till Water Content Measurements

Atterberg Limits testing of till samples indicated clays or silty clays with low to medium plasticity, as shown in Figure 8.

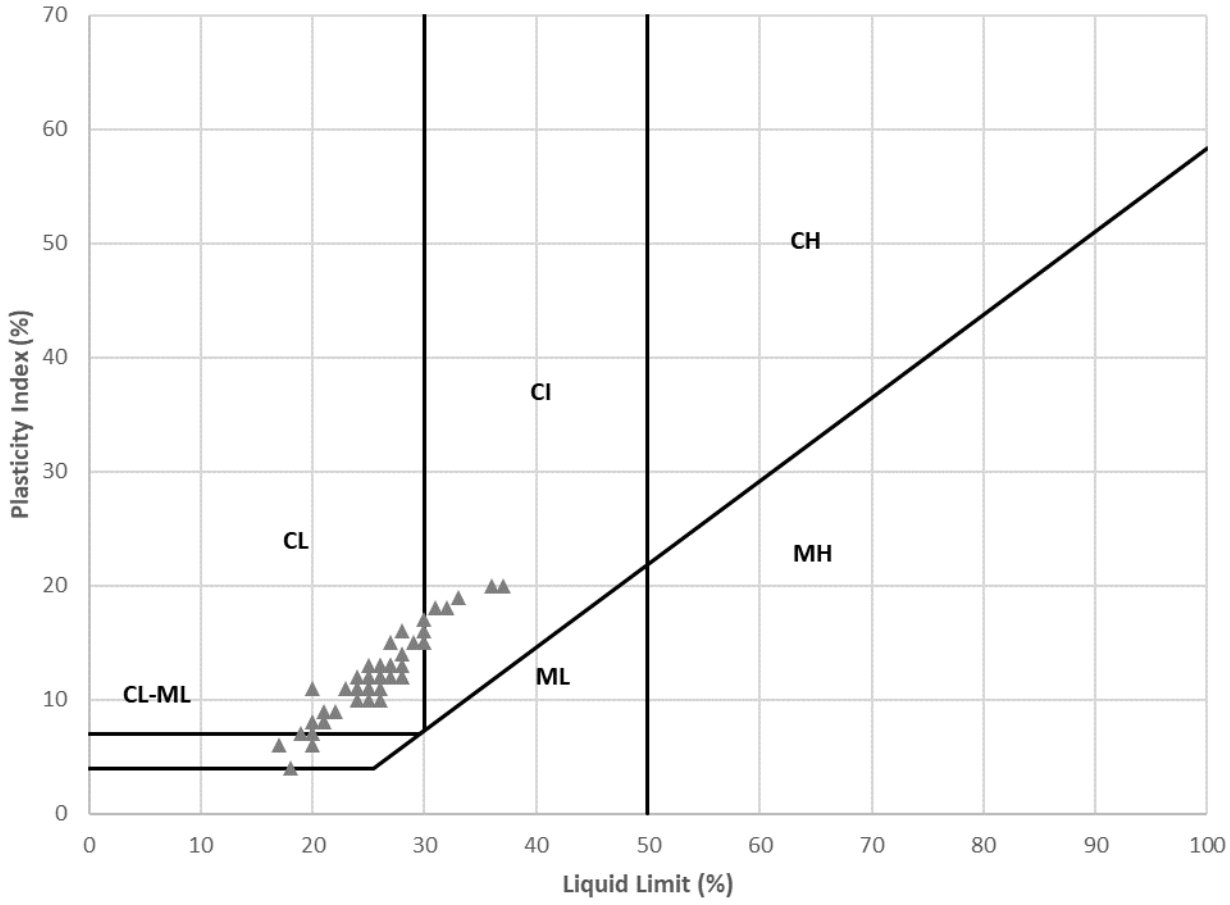


Figure 8: Till Atterberg Limit Tests Results

Sieves conducted on samples of the till indicated a wide range of gradations, as shown in Figure 9. Fines content varied from just over 10% to as much as 70%. Sand and gravel sized particles were present in all samples; the till was generally well-graded.

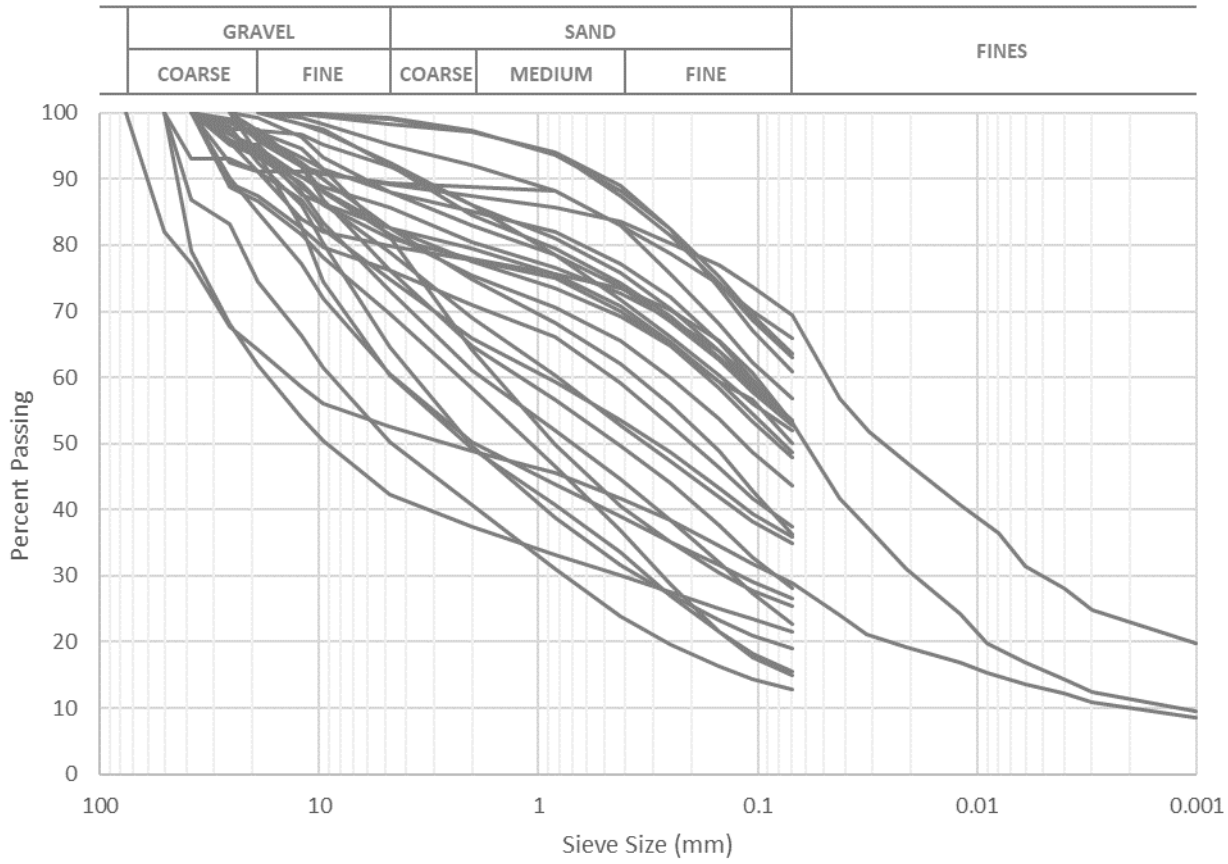


Figure 9: Till Particle Size Distributions

Direct shear tests were conducted to determine the strength of remoulded till grab samples. A summary of the test results is presented in Table 5 and in Figure 10. The design friction angle for till is 34° with 0 kPa cohesion, which follows the lower bound of the measured values of strength.

Table 5: Till Direct Shear Test Results of Remoulded Grab Samples

Location	Sample No.	Depth (m)	Normal Stress (kPa)	Shear Stress (kPa)	Interpreted Friction Angle (Residual) (°)	Interpreted Cohesion c' (kPa)
TP21-21	3	5.0-5.3	50	42.8	34.4	17.4
			200	151.9		
			1,000	729.8		
TP21-24	4	6.8-7.0	50	38.0	35.6	2.9
			200	147.2		
			1,000	719.7		
TP21-35	2	1.5-1.8	50	39.1	33.8	9.7
			200	148.8		
			1,000	679.6		
GA21-14	11	13.1-13.4	50	37.7	38.8	3.0
			200	170.4		
			1,000	806.5		
GA21-31	4	12.5-12.8	50	37.5	33.7	6.2
			200	141.7		
			1,000	671.8		
GA21-36	4	3.8-4.1	50	32.9	37.6	5.6
			200	145.1		
			1,000	764.1		

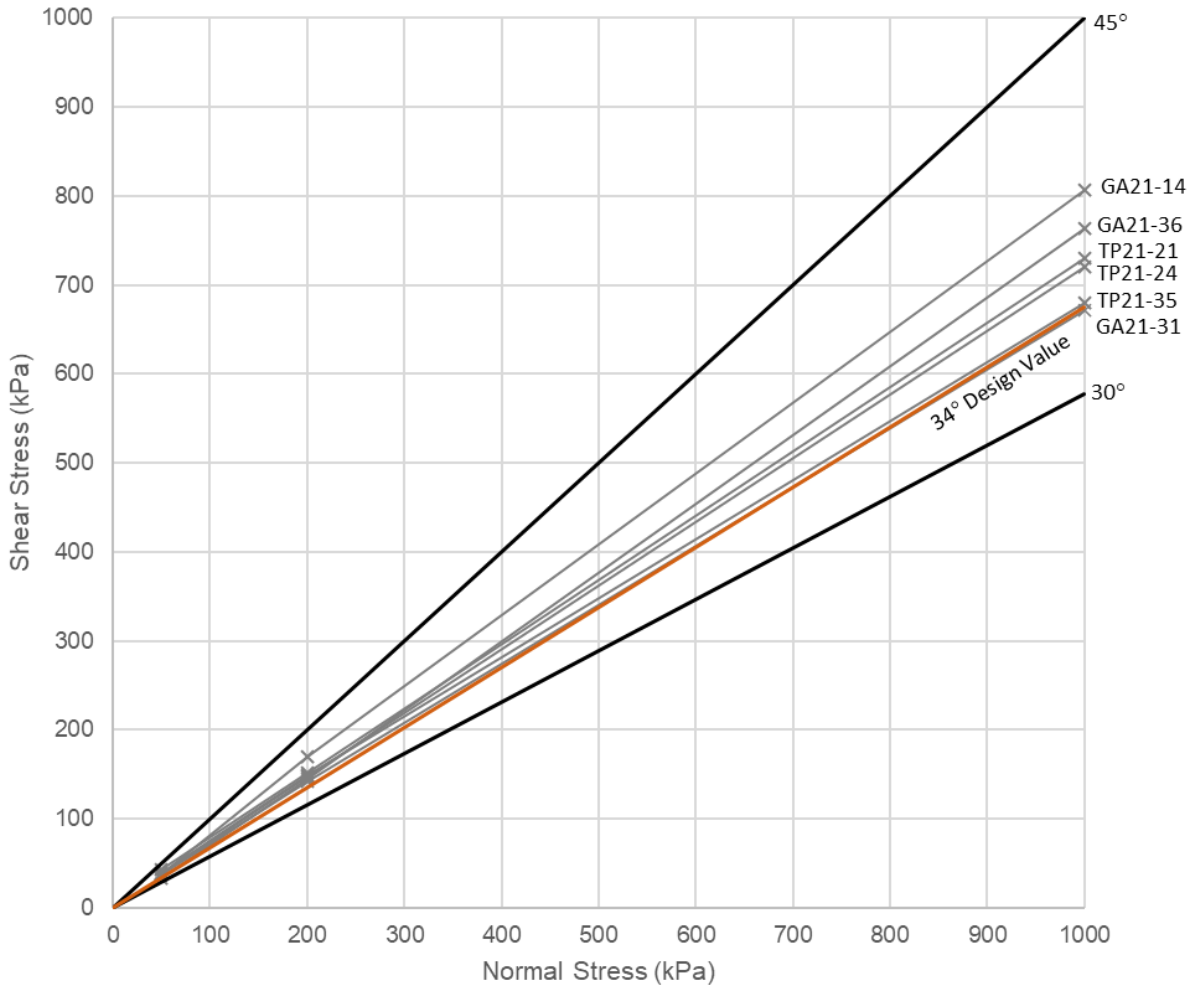


Figure 10: Till Direct Shear Results of Remoulded Grab Samples

3.4.2 Glaciolacustrine Units

GLU were logged in boreholes GA21-20 GA21-31, GA21-34, GA21-36, and GA21-41 in the SERDS LOM area. The soil logged as GLU in in GA21-20 was not found in adjacent delineation boreholes and was interpreted as a pocket, rather than a unit. The GLU in GA21-36 was tested and interpreted to be till based on particle size distribution and strength.

Based on the interpretation, the SERDS LOM design was limited to areas with no continuous GLU in the foundation. A 3 m thick GLU deposit was found below the TAR in borehole GA21-31 and was included in the slope stability analysis (Section 3.9.1)

The GLU ranged in thickness from a few centimetres to over 5 m.

GLU was silty clay, sometimes with sand and/or gravel; laminated; medium plasticity, and firm to very stiff.

Geotechnical laboratory testing results for the samples of GLU are presented in Table 6.

Table 6: Glaciolacustrine Laboratory Testing Summary

Test	Average	Minimum	Maximum	No. of Tests
Water Content (%)	17.0	6.4	20.8	15
Liquid Limit	28.6	22.0	43.0	7
Plastic Limit	15.3	13.0	19.0	
Plasticity Index	13.3	5.0	25.0	

The strength of the GLU was measured by direct shear tests on remoulded grab samples, as summarized in Table 7 and Figure 11.

Table 7: Glaciolacustrine Direct Shear Test Results on Remoulded Grab Samples

Location	Sample No.	Depth (m)	Normal Stress (kPa)	Shear Stress (kPa)	Interpreted Friction Angle (Residual) (°)	Interpreted Cohesion c' (kPa)
GA21-31	7	16.8-17.1	50	39.5	34.1	1.5
			200	131.9		
			1,000	678.9		
GA21-34	9	11.0-11.3	50	29.8	24.6	9.2
			200	103.5		
			1,000	466.9		

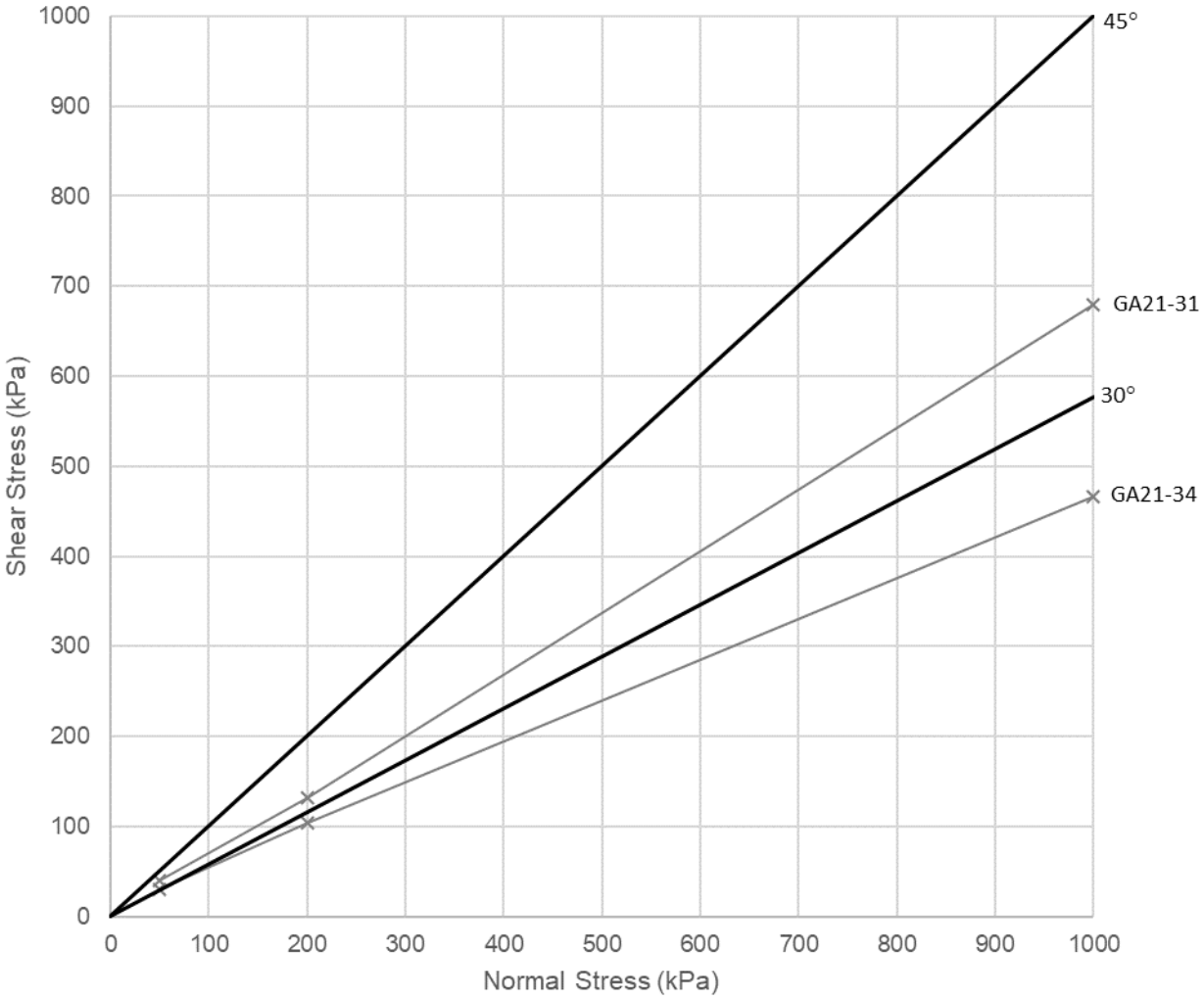


Figure 11: Glaciolacustrine Direct Shear Test Results on Remoulded Grab Samples

Water contents measured in the GLU are shown relative to elevation in Figure 12. The water contents in the GLU ranged from 6% to 21%, with higher water contents measured at lower elevations.

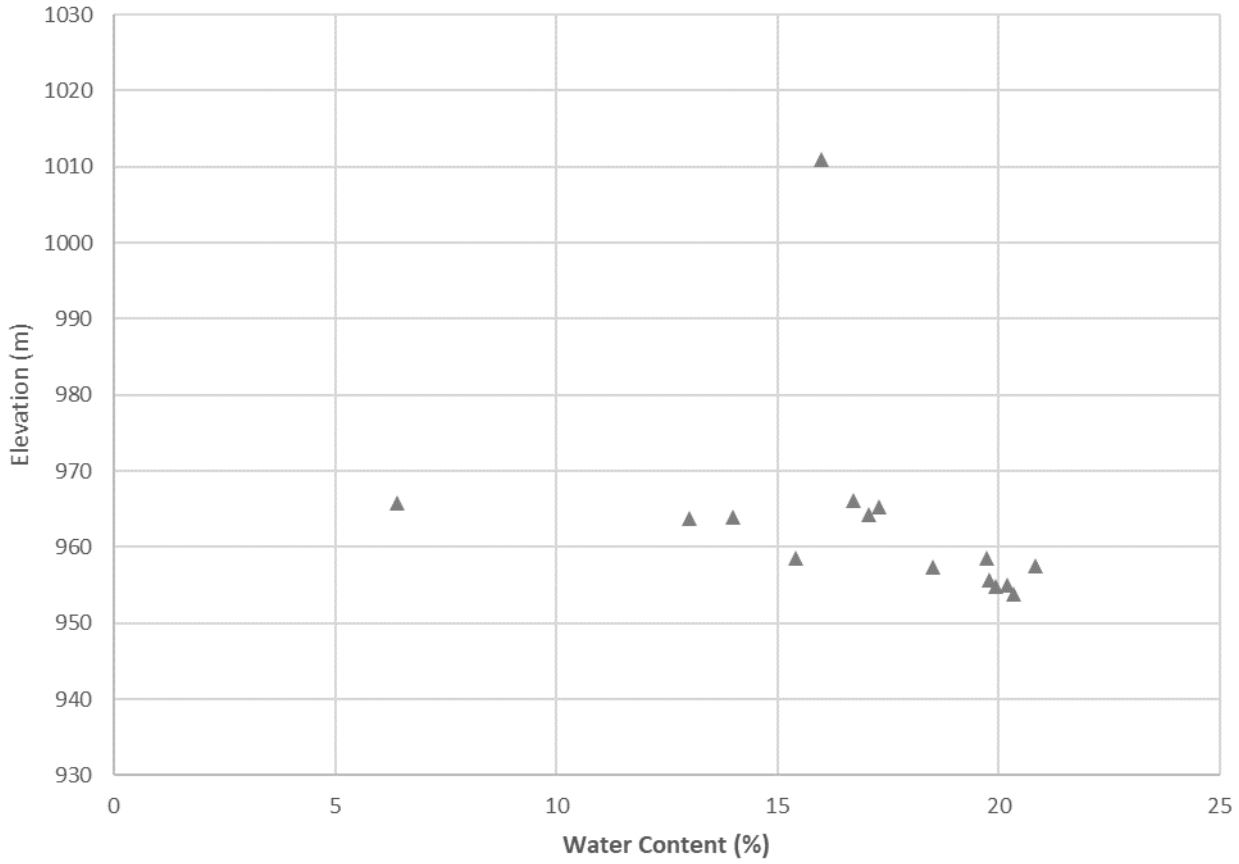


Figure 12: Glaciolacustrine Water Content Measurements

Atterberg Limits of GLU indicated clays and silty clays with low to medium plasticity, as shown in Figure 13, which were similar to the till.

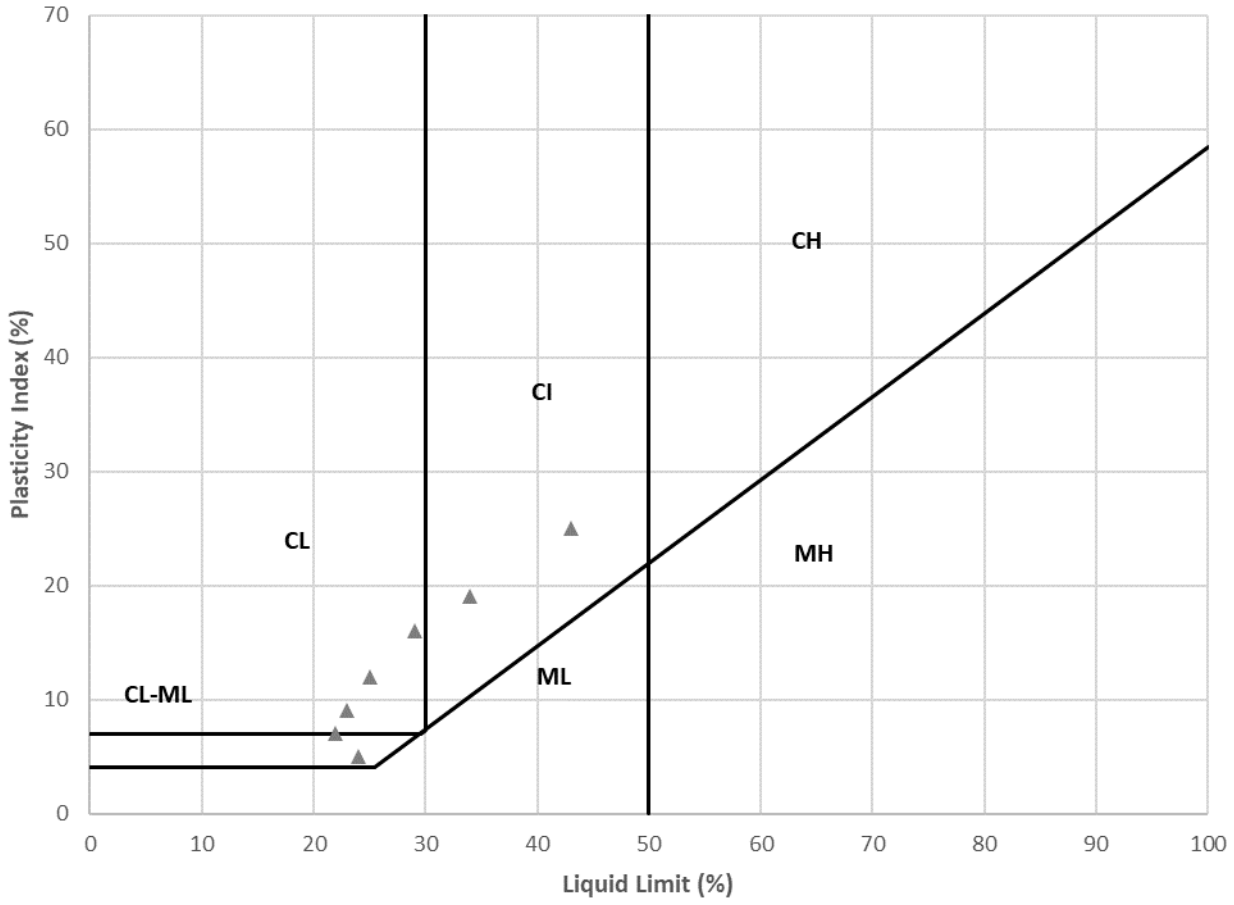


Figure 13: Glaciolacustrine Atterberg Limit Test Results

Sieves on two samples of GLU (taken from GA21-31 and GA21-34) showed consistent gradations, as shown in Figure 14. Fines contents were between 85% and 90% of the samples, with small amounts of sand present.

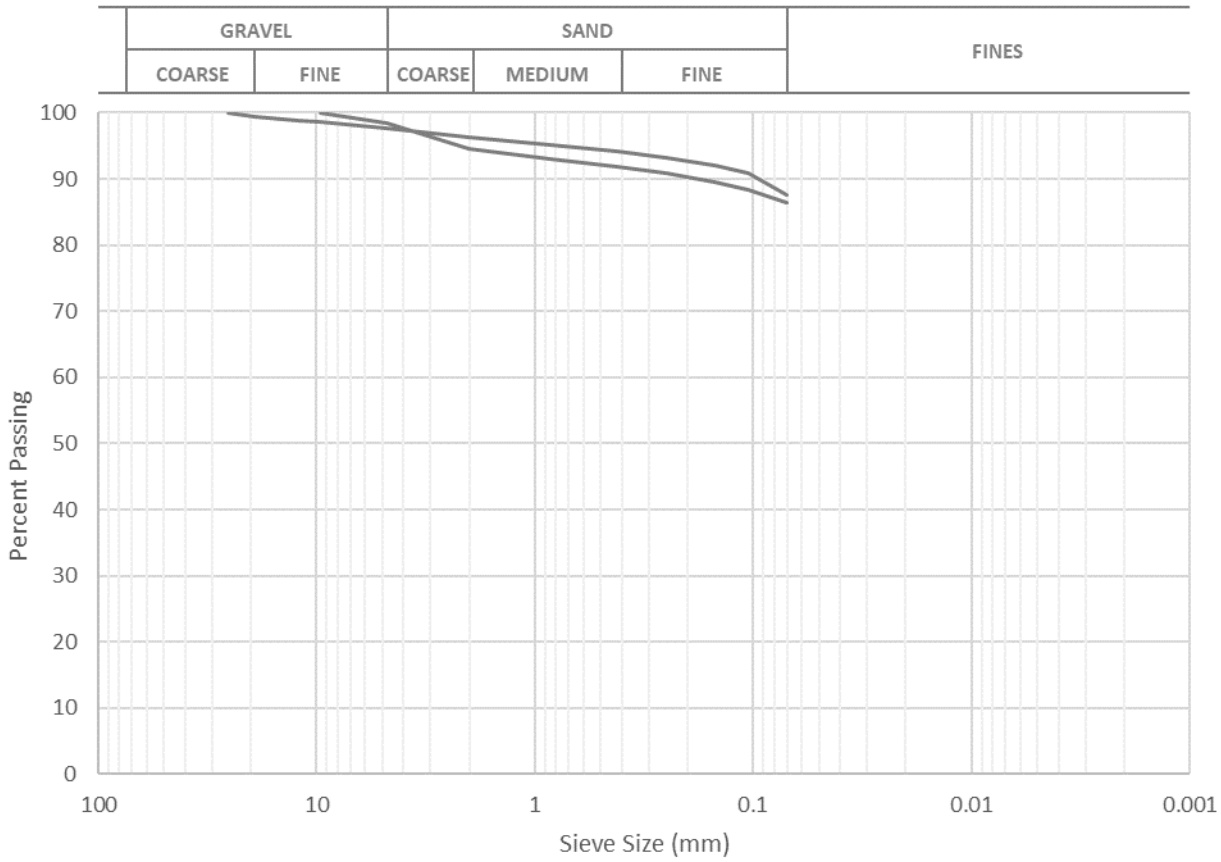


Figure 14: Glaciolacustrine Particle Size Distributions

3.4.3 Glaciofluvial Sediments

Glaciofluvial deposits (GF) were encountered in GA21-12, GA21-14, GA21-15, GA21-16, and GA21-36. Four of these boreholes were located to the east of the SERDS towards Polley Lake. The fifth borehole (GA21-36) was located at the southwest corner of the SERDS LOM area.

The GF was generally gravel and sand with trace fines, well graded, non-cohesive, and moist to wet.

Geotechnical laboratory testing results for the samples of the GF are summarized in Table 8.

Table 8: Glaciofluvial Laboratory Testing Summary

Test	Average	Minimum	Maximum	No. of Tests
Water Content (%)	8.3	5.6	13.7	11

Water contents measured in the GF are shown relative to elevation in Figure 15. The water contents in the GF ranged from 5% to 14%, with no discernible pattern or trends with respect to elevation.

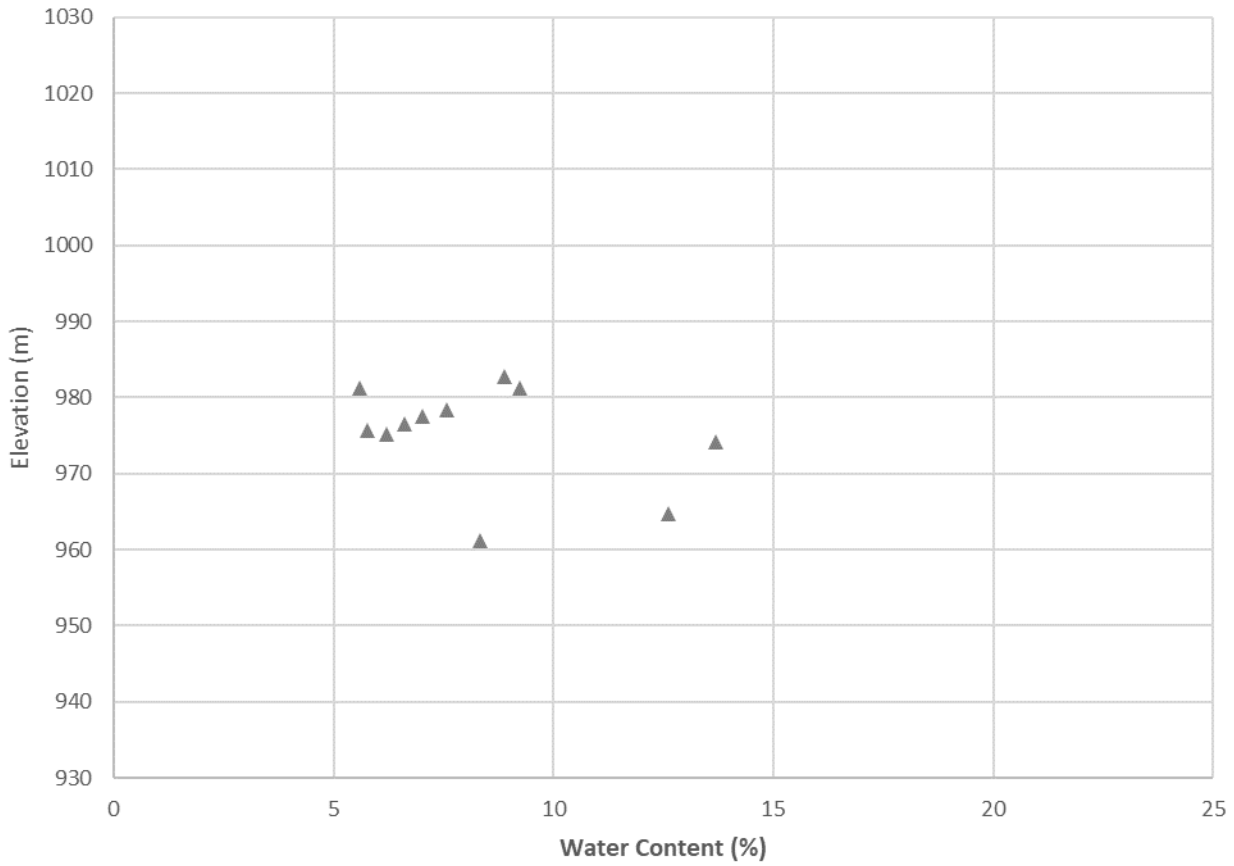


Figure 15: Glaciofluvial Water Content Measurements

Sieves on two samples of GF (taken from GA21-12 and GA21-14) showed consistent gradations, as shown in Figure 16. Fines were limited to 12% or less, and the samples were generally classified as well-graded sands and gravels.

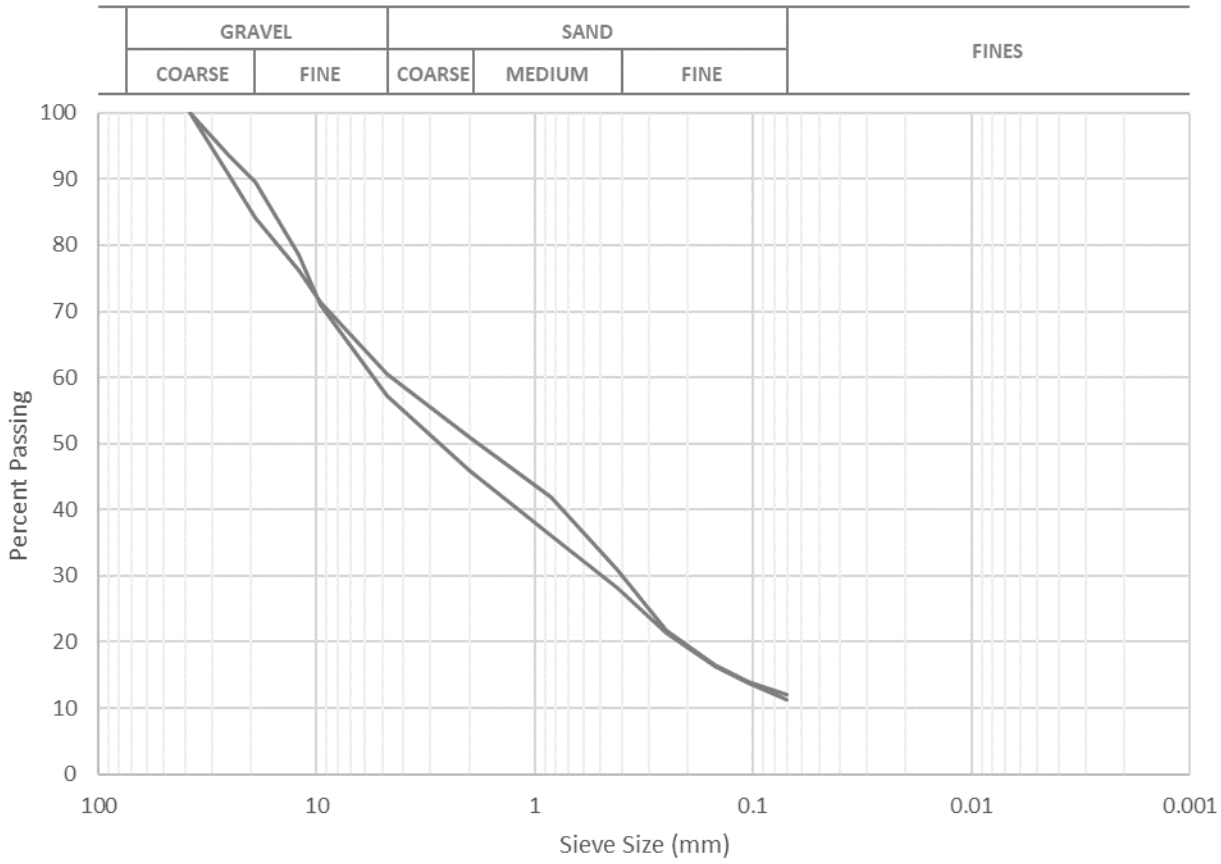


Figure 16: Glaciofluvial Particle Size Distributions

3.4.4 Bedrock

Bedrock was encountered in 14 of 33 test pits and all 18 boreholes. The thickness of weathered bedrock encountered in the boreholes ranged from approximately 3.5 m to 6.6 m. Due to sample disturbance from the sonic drilling equipment, it was generally not possible to clearly distinguish between weathered bedrock and intact bedrock by any means other than drilling resistance, with few intact segments of core recovered.

Geotechnical laboratory testing results for weathered bedrock are presented in Table 9.

Table 9: Bedrock and Weathered Bedrock Laboratory Testing Summary

Test	Average	Minimum	Maximum	No. of Tests
Water Content (%)	8.7	0.6	31.5	61
% Gravel	57.8	37.9	78.1	3
% Sand	34.4	14.0	54.9	
% Fines	7.8	7.2	8.4	

Water contents measured in the bedrock and weathered bedrock are shown relative to elevation in Figure 17. The water contents ranged from 1% to 31%, with the highest water contents measured at the lowest elevations.

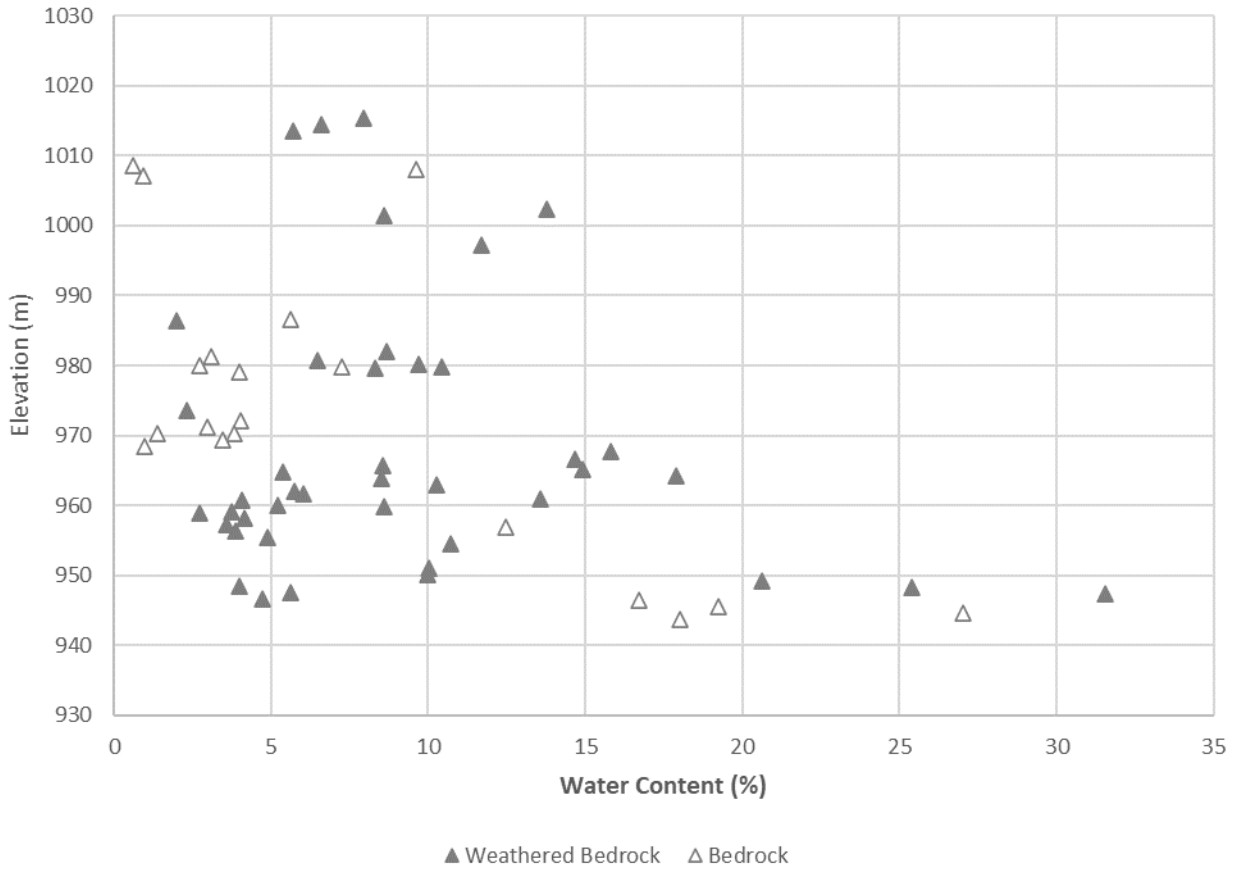


Figure 17: Bedrock Water Content Measurements

Gradations of weathered bedrock are shown in Figure 18. The samples of weathered bedrock were generally well-graded gravel and sand, with less than 10% fines present. The weathered bedrock was interpreted to be broken down by the sonic drill.

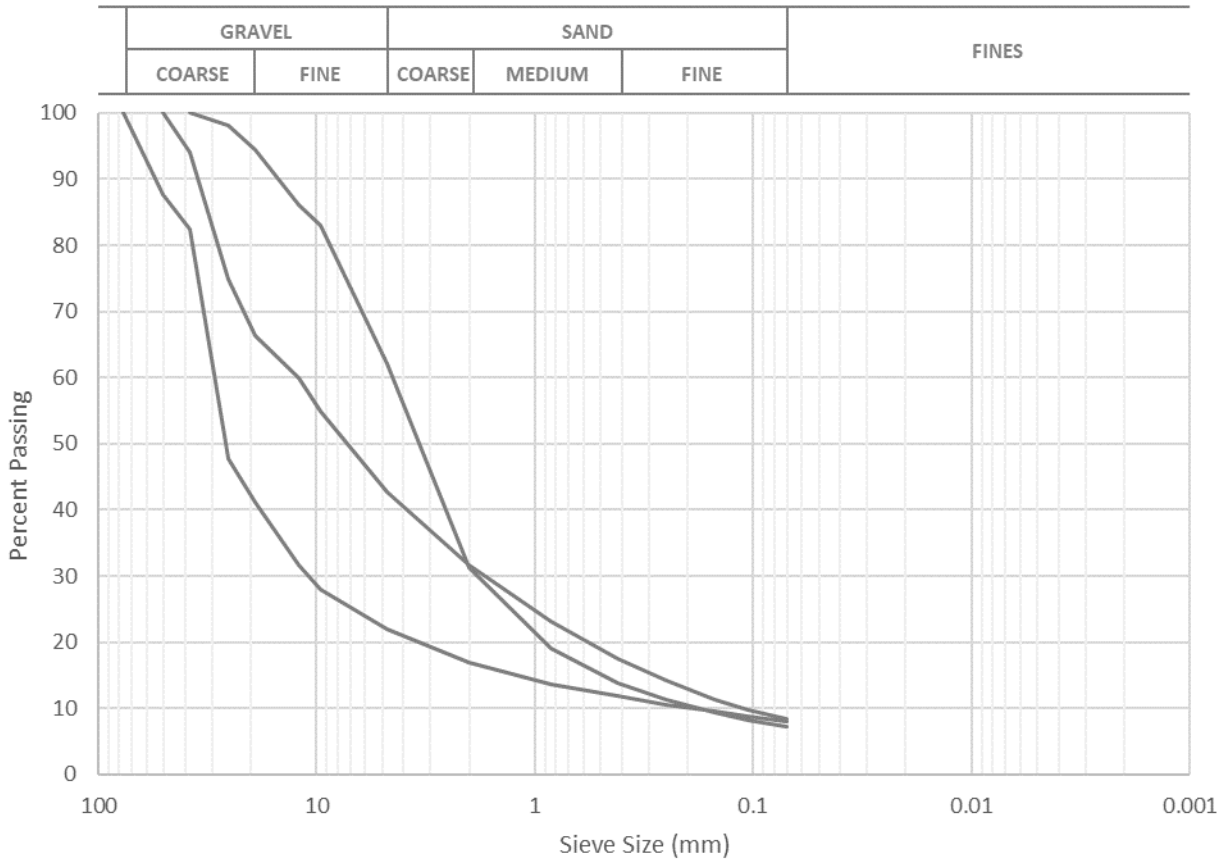


Figure 18: Disturbed Samples of Weathered Bedrock - Particle Size Distributions

3.5 Climate

Site climate from WSP Golder (2022a) is summarized here. WSP Golder (2022a) presents additional information on source climate stations, data collection record periods, and methods of synthesis.

Temperature

Monthly average, maximum, and minimum air temperatures at the site are presented in Table 10. Temperatures are generally mild to cold, with average monthly temperatures ranging from 15°C in July and August to -7°C in December and January.

Table 10: Polley Mine Site Monthly Temperatures for the Site (1974 to 2021)

Month	Temperature (°C)		
	Minimum	Mean	Maximum
January	-16.0	-6.7	-0.3
February	-13.0	-4.8	0.7
March	-6.7	-1.0	3.2
April	-0.7	3.7	12.0
May	5.2	8.5	13.1
June	8.6	12.2	15.5
July	11.8	15.1	21.2
August	11.0	14.6	17.1
September	6.8	10.0	14.2
October	0.8	4.1	8.7
November	-13.7	-2.4	2.6
December	-13.7	-6.6	-1.2
Annual	**1.7**	**3.9**	**6.3**

Source: WSP Golder 2022a.

Precipitation

The site experiences higher precipitation in summer due to summer storms, with the lowest precipitation occurring in February. Precipitation as snowfall typically starts in November and accumulates until March. Average annual precipitation is estimated to be 612 mm. Estimated monthly precipitation depths are presented in Table 11.

Table 11: Annual Precipitation Depths for the Site (1974 to 2021)

Return Period (yr)	Wet (mm)	Dry (mm)
5	714	508
10	768	459
25	825	412
50	861	386
100	893	366
200	922	349
Average	612	

Source: WSP Golder 2022a.

Predicted rainfall during storm events is presented in Table 12.

Table 12: Extreme Precipitation Depths for the Site

Return Period (yr)	24-hour Event Depth[(a)] (mm)	3-day Event Depth[(b)] (mm)	10-Day Event Depth[(b)] (mm)
2	33	40	65
10	47	-	-
25	54	-	-
100	64	-	-
200	69	-	-
1000	80	94	157
24-Hour PMP[(c)]	**224**	**339[(a)]**	**562[(a)]**

(a) Source: WSP Golder 2022a,

(b) Source Golder 2015a,

(c) the PMP does not have a return period.

PMP = Probable maximum precipitation.

Monthly values for the 25- and 200-year return periods for wet and dry precipitation depths are presented in Table 13.

Table 13: Monthly Precipitation Depths for the Site (1974 to 2021)

Month	Precipitation (mm)				
	Average	1:200 Year Wet	1:25 Year Wet	1:25 Year Dry	1:200 Year Dry
January	49.4	74.3	66.5	33.2	28.2
February	35.8	54.0	48.3	24.1	20.5
March	29.7	44.7	40.0	20.0	16.9
April	44.7	67.3	60.2	30.1	25.5
May	49.9	75.2	67.2	33.6	28.5
June	70.8	107	95.4	47.7	40.4
July	63.6	95.8	85.7	42.9	36.3
August	50.6	76.2	68.1	34.1	28.8
September	52.3	78.8	70.5	35.2	29.9
October	58.1	87.5	78.2	39.1	33.1
November	49.8	75.0	67.1	33.5	28.4
December	57.6	86.8	77.7	38.8	32.9
Annual Total	**612**	**922**	**825**	**412**	**349**

Source: WSP Golder 2022a.

Evaporation

Average annual lake evaporation at the mine was estimated to be 673 mm. Estimated average monthly and annual shallow lake evaporation values are provided in Table 14.

Table 14: Estimated Shallow Lake Evaporation (1974 to 2001)

Month	Shallow Lake Evaporation (mm)		
	Minimum	Mean	Maximum
January	0	1	4
February	1	7	12
March	24	32	43
April	52	66	79
May	86	105	140
June	95	122	155
July	110	138	173
August	80	115	137
September	37	61	80
October	18	22	28
November	0	4	8
December	0	0	3
Annual	**606**	**673**	**762**

Source: WSP Golder 2022a.

Note: Values are rounded for presentation; annual total may not equal the sum of the monthly totals.

Actual evaporation is less than lake evaporation, shown in Table 15.

Table 15: Estimated Monthly and Annual Actual Evapotranspiration Statistics for the Site (1974 to 2001)

Month	Actual Evapotranspiration (mm)		
	Minimum	Mean	Maximum
January	0	1	5
February	1	7	11
March	24	41	59
April	68	92	112
May	103	134	178
June	113	150	195
July	124	171	240
August	84	151	199
September	54	89	117
October	17	24	40
November	0	4	9
December	0	1	4
Annual	**744**	**863**	**1022**

Source: WSP Golder 2022a.

3.6 Hydrology and Surface Drainage Features

The SERDS LOM is located within the Mount Polley Mine Site catchment area. The SERDS LOM is higher than the surrounding topography, with no upstream catchment area.

Local hydrology and drainage features near the SERDS LOM are shown in Drawing 3 in Appendix A.

Two seeps from the eastern side of the SERDS report to the toe. These seeps are regularly monitored. Otherwise, there are no large drainage courses that flow through the SERDS LOM area which could limit use of the site.

The SERDS LOM straddles a ridge, with drainage from the SERDS LOM area generally flowing to the south and east.

Surface drainage from the SERDS is collected in the SERDS Ditch system and the Long Ditch system, which are contact water ditches that report to the Central Collection Sump (CCS) located to the south. Contact water then flows under the Corner 1 buttress via culverts to the Perimeter Embankment Till Borrow Pond which is the influent pond for the water treatment plant.

The SERDS LOM and TAR will cover a portion of the SERDS Ditch system. Recommendations are provided to update the surface water management system to accommodate the SERDS LOM and TAR.

Bootjack Creek is a non-contact water channel that flows from Bootjack Lake into Polley Lake via a constructed diversion channel.

3.7 Hydrogeology

Hydrogeology models are not included in the SERDS LOM design scope.

Groundwater levels are generally at greater than 10 m depth in the hillside to the east of the SERDS, and 0 to 10 m depth in the lower areas to the south. The groundwater table was measured near and slightly above the ground surface by piezometers installed in the GLU at GA21-34 and GA21-19.

A total of 10 vibrating wire piezometers were installed in nine boreholes to monitor groundwater levels in the GLU, weathered bedrock, and at the till/bedrock contact. One standpipe monitoring well was installed at GA21-35 with water level during installation near 6.7 m depth. Vibrating wire piezometer data are presented in Table 16.

Table 16: Groundwater Level Summary

Borehole ID	VWP Serial No.	Reading Date	Groundwater Depth (m)	Pressure Head (m)	Groundwater Elevation (m)
GA21-12	VW129097	11-Dec-21	10.2	5.0	985.6
GA21-14	VW139073	07-Jun-22	15.2	-0.9	971.5
GA21-19	VW130012	07-Jun-22	-2.5	9.4	989.6
GA21-20	VW139068	07-Jun-22	16.3	3.5	1004.9
GA21-21	VW129094	07-Jun-22	2.5	11.4	993.7
GA21-31	VW129092	07-Jun-22	9.7	7.5	972.6
GA21-34	VW134456	07-Jun-22	-1.7	11.7	970.2
	VW136157	12-Mar-22	-1.7	11.8	970.2
GA21-36	VW130021	07-Jun-22	0.3	8.8	980.2
GA21-37	VW130019	07-Jun-22	7.8	16.6	974.9

Observations of seepage in test pits included:

- TP21-17 at a depth of 6.8 m in bedrock.
- TP21-19 at a depth of 0.3 m in soil.
- TP21-31 at a depth of 0.3 m in soil.
- TP21-35 at a depth of 1.2 m in soil.
- TP21-36 at a depth of 3.2 m in soil.
- TP21-37 at a depth of 3.5 m in soil.

3.8 Seismicity

PGA values obtained for the location of the Mount Polley tailings storage facility from a site-specific probabilistic seismic hazard analysis (WSP USA 2023) are presented in Table 17.

Table 17: Peak Ground Acceleration (PGA) by Return Period

Return Period	Peak Ground Acceleration (g)
1 in 475 years	0.015
1 in 1000 years	0.026
1 in 2475 years	0.048 (design value)

Source: WSP USA 2023.

Note:

Peak ground accelerations (PGA) are horizontal values from WSP USA (2023) for coordinates: Latitude: 52.509° N, Longitude: 121.6588° W, for ground with an average shear wave velocity 847 m/s.

3.9 Summary of Potential Issues Arising from Interaction of the Design with the Site

Potential safety issues for the design of SERDS LOM facility include instability, deformation that impairs function, and geologic and terrain hazards. Other potential site-related issues include potential for impact to the downstream environment.

Potential of issues related to the site for the design of the SERDS LOM are listed here with design mitigations.

The key issue is the potential for low strength layers (GLU) in the foundation to cause instability when loaded, resulting in waste rock runout failure. Assessment of the SERDS Tailings Co-disposal Facility conceptual design (WSP Golder 2022b) indicated only one credible failure mode, which was instability caused by unknown foundation conditions, such as weak layers in the foundation.

3.9.1 Stability

Potential stability issues related to site conditions include:

1) Insufficient strength in the foundation to resist the loads applied by the facility.
   - Field and laboratory investigations were completed to characterize the distribution and strengths of foundation soils for use in stability assessments.
     - Investigations were spaced on approximately 150 m to determine if GLU / weaker layers are present.

  - The SERDS LOM design was limited to areas where no GLU was encountered.
  - The TAR extends over a borehole where GLU was detected. The GLU is considered in stability analyses for the TAR. Recommendations are provided to monitor the pore water pressure in the GLU when advancing the fills for the TAR across the GLU.
  - Low strength GLU could exist in the SERDS LOM foundation that were not detected by investigations. Controls against instability include;
    - Limiting the maximum overall outer slopes of the SERDS LOM to 2H:1V (which may include lifts at angle of repose and benches).
    - Control of the rate of waste rock placement.
    - Restricting access to the runout zone of the SERDS LOM, particularly during active dumping.
    - Bottom-up construction with limited lift heights.
- Topsoil, soil stockpiles, and forested areas were present in the foundation area of the SERDS LOM. The design requires foundation preparation including removal of weaker materials.
- The waste rock for the SERDS LOM will be founded on glacial soils, primarily tills. The tills have been characterized for strength properties by laboratory testing and the results used in design analyses.
- Bedrock has not been characterized for faults or weak layers at orientations that could result in instability. The design assumption is that bedrock is stronger than overlying soils (Section 3.3.4).
- Tailings in the SERDS Tailings Co-disposal Facility have the potential to act as a low strength layer and are considered in stability analyses.
- Loading rate (placement of waste rock) is controlled by operational procedures and monitoring of movement rates, which will help dissipate pore water pressures in the foundation induced by loading.

2) Dynamic loading by earthquakes can result in liquefaction of saturated or near-saturated tailings in the facility and of soils in the foundation, resulting in slope instability or deformation resulting in loss of containment and subsequent failure.
   - Seismic hazard has been assessed to the 1/2,475 annual exceedance probability. The peak ground acceleration for the design earthquake of 0.048 g is relatively small, below the range where liquefaction of soils is more typically observed (0.3 g).
   - The soils in the SERDS LOM foundation are primarily till, which are firm to stiff, and are not considered prone to liquefaction.
   - The waste rock will be unsaturated. Unsaturated waste rock is expected to settle during earthquakes and is not susceptible to liquefaction due to absence of water.
   - The design assessments of stability consider waste rock and tailings placed in the SERDS Tailings Co-disposal Facility.
   - Post liquefaction conditions where tailings are assumed to have liquefied are considered in the stability analyses. This assumption is considered to be conservative, as observations of tailings placed in the cells in the SERDS Tailings Co-disposal Facility were transportable by haul truck, were end dumped and spread, and did not flow when subjected to considerable disturbance. The earthquake load is below the range that could cause liquefaction, and portions of the tailings are expected to be drained and therefore unsusceptible to liquefaction.

3) Loss of strength of foundation soil or bedrock due to wetting or exposure to acid drainage.

   a) Soluble soils or bedrock types can dissolve under exposure to seepage which could result in loss of support and instability.

      – No karst rock types have been identified in the area.

      – No soluble soils have been identified in the area.

      – The materials stored in the SERDS are non-acid generating (Section 4.0).

   b) Unsaturated soils with apparent cohesion lose strength when wetted.

      – Tills in the area have frictional strength when saturated and are periodically wetted by precipitation and snow melt. Loss of strength due to wetting of confined tills is not considered to be credible.

3.9.2 Settlement

Potential settlement issues related to site conditions include:

1) Settlement of the foundation results in overtopping and a loss of containment.

   - Soils in the foundation may consolidate in response to loading by waste rock, resulting in settlement of the foundation.

      – The foundation soils below the existing waste rock in the SERDS have been loaded with 60 to 70 m of waste rock for several years, and by glaciers prior to that.

      – Loading by the SERDS LOM will induce further settlement, but settlements are anticipated to be small, because no soft or unconsolidated deposits were encountered in the foundation investigations. Preconsolidation pressures in the GLU were estimated at 1,500 kPa (WSP 2023).

      – Loading of the SERDS LOM area on natural ground will induce settlement that will be taken up by successive placement of lifts of waste rock by the bottom-up method. The rate of loading is controlled by operational procedures.

   - Differential settlement may occur due to the presence of existing waste rock in the SERDS, due to consolidation of tailings, due to differences in soil thickness and compressibility, and due to change in loading across the SERDS LOM area.

      – The design does not include a liner or filter, or other elements that are sensitive to differential settlements. Settlements are evaluated in Section 6.0.

   - Settlements of bedrock that would impact the performance of the facility are not considered credible. There are no known underground workings below the SERDS LOM that could result in subsidence.

2) The facility must resist erosion by precipitation during operation and in closure. The facility is constructed from waste rock which is resistant to erosion but could be eroded if flows are allowed to channelize and flow over the outer slopes. The closure plan should consider controls for surface drainage. Recommendations are included in Section 9.0.

4.0 MINE WASTE CHARACTERIZATION

Waste rock to be stored in the SERDS LOM from the Cariboo-Springer Pit will be non-acid generating.

Gradations of waste rock from the Cariboo-Springer Pit have not been measured or predicted, but have been observed for several years. Gradations of rockfill from Stage 3 and 3C of the TSF dam construction and tailings deposited in the Springer Pit are presented in Appendix E for reference. The data for waste rock are for included for comparative proposes only and are based on interpretation of figures provided by Knight Piesold (2001 and 2005).

Material properties used in design analyses are presented in Table 18.

Table 18: Material Properties for Analyses

Material	Shear Strength	Unit Weight (kN/m^3)	Notes
Waste Rock	Non-Linear Strength Function: $\tau = 1.726\ \sigma_n^{0.899}$	19.6	Strength function of Leps (1970) for average quality rockfill, which matches observations of waste rock placed in the SERDS to date.
Tailings	Friction Angle, ϕ' = 25° Cohesion, c = 0 kPa	17.0	Drained loading (Golder 2017).
	Peak Su/σ_{v0}' = 0.23	17.0	Pseudo-static loading – Lower bound for compression shear mode (Sadrekarimi 2014).
	Residual Su/σ'_{v0} = 0.03	17.0	Post-seismic conditions: Lower bound (Idriss & Boulanger 2008)
GLU	Peak $Su/\sigma'_{v0} = 0.21\cdot(OCR)^{0.65}$ Undrained shear strength = 86	20	Derived from testing data Golder (2017), WSP (2023)
	Friction Angle, ϕ' = 24.6° Cohesion, c = 9.2 kPa		Derived from testing by drained loading (WSP 2023)
Till	Friction Angle, ϕ' = 34° Cohesion, c = 0 kPa	22	Derived from testing (WSP 2023)

t = shear strength; σ_n'= effective normal stress; ϕ' = friction angle; Su = undrained shear strength; σ'_{v0} = in situ effective stress, OCR = overconsolidation ratio.

The tailings properties from Golder (2017) are based on cone penetration tests in the tailings beach within the TSF.

The waste rock in the SERDS is assumed to be unsaturated. The tailings in the SERDS are assumed to be saturated.

5.0 DESIGN DESCRIPTION

This section includes a description of the design, materials, staging, and material handling requirements. The design is presented in Drawings in Appendix A.

5.1 Design Concept

The design concept for storing waste rock from the LOM plan in the SERDS is:

- Waste rock is excavated in Cariboo-Springer Pit, hauled by haul truck, dumped, then shaped by bulldozer. Placement may also include lifts of end dumps across platforms, which do not require spreading by bulldozer.
- The construction is sequenced for placement of run-of-mine materials.
- Surface water from precipitation and snow melt are managed to prevent the formation of ponds and accumulations of snow that could create stability issues.
  - Water that infiltrates the SERDS LOM will ultimately report to an existing downstream water management system that has a management plan in place that includes requirements for inspection and maintenance.
  - Update of the downstream water management systems is required, as the SERDS LOM and TAR cross surface water management collection ditching to the south and east. Update of designs for collection ditching is outside the scope of this report. Recommendations are provided in Section 9.0.
  - The facility is designed without a permanent water pond. The SERDS LOM is higher than the surrounding topography with no upstream catchment area.
- The maximum overall outer slopes are 2H:1V and may include benched configurations with angle of repose slopes and offsets.
- The facility will be constructed and operated as a waste rock dump using standard operating procedures. No instrumentation is proposed other than those required by standard operating procedures for waste dump monitoring in Appendix B. A vibrating wire piezometer installed in a GLU in the foundation of the TAR is to be monitored during rockfill placement across the GLU.
- The facility will be closed following a plan developed for the site.

5.2 Materials

Materials to be placed in the SERDS LOM include non-acid generating waste rock. Most NAG waste rock from the pit is expected to be good quality, with limited fines content.

Higher fines content NAG waste rock may be placed in the SERDS LOM. Higher fines content waste rock may hang up on the tip face, and then slough, resulting in a hazard.

Polley Fault material may be placed in the SERDS if mixed with good quality rock or spread to prevent accumulations that may create low strength zones with the potential to impact stability.

5.3 Seepage and Surface Water Management

Seepage from precipitation and snow melt are expected to infiltrate the SERDS LOM.

Seepage is collected in the downstream water management system and ditches, including the SERDS Ditch system and the Long Ditch System.

These systems are described in the TSF OMS manual (MPMC 2021), which includes a water management plan and requirements for inspection and maintenance.

The SERDS LOM and TAR will bury a portion of the surface water management system ditching. Recommendations are provided in Section 9.0 to update the surface water management system to accommodate the SERDS LOM and TAR.

5.4 Roads and Ramps

The final SERDS LOM access ramp shown in Drawings in Appendix A is designed for two-way traffic for CAT 789 haul trucks, plus two safety berms.

Ramps alignments may be modified as required by the operator.

Access for interim construction stages have not been designed here and may be prepared as required by the operator.

6.0 DESIGN ANALYSES AND ASSESSMENTS

6.1 Storage Capacity

The design meets criteria for storage of waste rock set out in Section 2.0. Storage volumes and areas are summarized in Table 19. The storage capacity is for an overall slope of 2H:1V which may be reduced if construction with benching and setbacks is considered.

Table 19: Storage Volumes and Areas in SERDS LOM

Item	Crest Elevation (m)	2D Area (km^2)	Volume ($M\ m^3$)[(a)]
Waste Rock			
LOM Design to El. 1,150 m	1,150	1.77	60.7

(a) Quantities for safety berms are not included.

6.2 Geotechnical Analyses

Analyses of the design for slope stability and runout are presented in this section.

6.2.1 Stability

Design criteria for stability are presented in Section 2.0.

Results of stability analyses cases were used as a basis for runout analyses.

Methods

Two-dimensional limit equilibrium slope stability analyses were completed using GeoStudio 2022.1 from GEOSLOPE International Ltd., a commercially available software. Factor of safety (FoS) values were calculated using the Morgenstern-Price method.

Section locations and analysis sections are presented with analysis results in Appendix F.

Failure mechanisms were considered that could result in runout of large volumes of waste rock and of tailings.

- The analyses considered slip surfaces that pass through the crest and toe of the SERDS LOM and involved large quantities of waste rock (minor or surficial slips were not considered). For some cases, the slip surface was limited to force the surface to pass through the toe foundation, to simulate credible failure modes that have been observed elsewhere in BC.
- The analyses also considered similar slip surfaces that pass through the tailings and waste rock stored in the SERDS Tailings Co-disposal Facility.

Stability analyses consider foundation conditions based on the geologic model presented in Section 3.2.1. The two pits in the SERDS LOM foundation are not considered in the analysis sections.

Material parameters for foundation materials are from Section 3.0. Material properties for tailings and waste rock are from Section 4.0. Materials in cells on the crest of the SERDS LOM were assigned properties of tailings only.

Analyses consider static loading, pseudo-static loading, and post-earthquake conditions where tailings are assumed to have liquefied and possess the lowest value of residual strength from the literature.

The groundwater table was assumed as a phreatic surface at surface of the till (ground surface) below the waste rock, and beyond the toe. The assumption is conservative with respect to stability because measured values were lower as presented in the geological sections in Appendix D, and in Section 3.0. Analyses also considered a perched groundwater table in the tailings layer, with pore water pressures assigned to the tailings layer, but not to the waste rock below – the waste rock was modelled as dry.

Sensitivity analyses were also conducted to examine:

- the effect of loading induced pore water pressures in the GLU layer below the TAR
- construction of the SERDS LOM to an overall slope of 2H:1V composed of angle of repose slopes and setbacks with bench heights of 10 m, 15 m, and 30 m

Earthquake loading for pseudo-static analyses was based on values presented in Table 17, with half the peak ground acceleration applied as a horizontal coefficient in the stability analyses (presented with the analyses results in Appendix F). No strength reduction was applied to the waste rock or till.

Results

Results of stability analyses are presented in Table 20 and Table 21. The results indicate the design meets criteria for stability for initial and long-term conditions under static loading, pseudo-static loading, and for post-earthquake cases where the tailings are assumed to have liquefied. Critical failure modes do not involve the tailings. Failure modes reaching the tailings had higher factor of safety values than failure modes that only involved waste rock and the foundation. Analysis sections included several azimuths to quantify the runout zone around the SERDS.

Table 20: SERDS LOM Stability Analysis Results

Analysis Case		Factor of Safety						
Section	Loading Condition	Design Criteria Minimum Value	Minimum Result	Figure[(a)]	Result Through Tailings	Figure[(a)]	Inter-bench Result	Figure[(a)]
1 – End of Construction ▪ Toward Polley Lake ▪ Steepest foundation	Static	1.3	1.7	F1-1	2.1	F1-4	-	-
	Pseudo-static	1.0	1.6	F1-2	2.0	F1-5	-	-
	Post-Earthquake	1.2	1.7	F1-3	2.1	F1-6	-	-
2 – End of Construction ▪ Second steepest foundation ▪ Toward Polley Lake	Static	1.3	1.6	F1-7	1.8	F1-10	-	-
	Pseudo-static	1.0	1.6	F1-8	1.7	F1-11	-	-
	Post-Earthquake	1.2	1.6	F1-9	1.8	F1-12	-	-
2A – End of Construction ▪ 10 m benches ▪ Second steepest foundation ▪ Toward Polley Lake	Static	1.3	1.6	F1-13	1.8	F1-16	1.8	F1-19
	Pseudo-static	1.0	1.6	F1-14	1.7	F1-17	1.7	F1-20
	Post-Earthquake	1.2	1.6	F1-15	1.8	F1-18	-	-
2B – End of Construction ▪ 15 m benches ▪ Second steepest foundation ▪ Toward Polley Lake	Static	1.3	1.6	F1-21	1.8	F1-24	1.7	F1-27
	Pseudo-static	1.0	1.5	F1-22	1.7	F1-25	1.6	F1-28
	Post-Earthquake	1.2	1.6	F1-23	1.7	F1-26	-	-
2C – End of Construction ▪ 30 m benches ▪ Second steepest foundation ▪ Toward Polley Lake	Static	1.3	1.7	F1-29	1.8	F1-32	1.6	F1-35
	Pseudo-static	1.0	1.6	F1-30	1.7	F1-33	1.5	F1-36
	Post-Earthquake	1.2	1.7	F1-31	1.8	F1-34	-	-
3 – End of Construction ▪ Highest section ▪ Steepest foundation ▪ Towards Polley Lake	Static	1.3	1.7	F1-37	-	-	-	-
	Pseudo-static	1.0	1.6	F1-38	-	-	-	-
	Post-Earthquake	1.2	-	-	-	-	-	-

Table 20: SERDS LOM Stability Analysis Results

Analysis Case		Factor of Safety						
Section	Loading Condition	Design Criteria Minimum Value	Minimum Result	Figure[(a)]	Result Through Tailings	Figure[(a)]	Inter-bench Result	Figure[(a)]
4 – End of Construction	Static	1.3	1.7	F1-39	2.2	F1-42	-	-
▪ Second highest section	Pseudo-static	1.0	1.6	F1-40	2.0	F1-43	-	-
▪ Towards Bootjack Creek	Post-Earthquake	1.2	1.7	F1-41	2.2	F1-44	-	-
6 – End of Construction	Static	1.3	2.0	F1-71	-	-	-	-
▪ Towards TAR	Pseudo-static	1.0	1.9	F1-72	-	-	-	-
▪ Towards Bootjack Lake	Post-Earthquake	1.2	-	-	-	-	-	-
6 (TAR) – End of Construction	Static	1.3	1.7	F1-73	-	-	-	-
▪ Towards TAR	Pseudo-static	1.0	1.6	F1-74	-	-	-	-
▪ Towards Bootjack Lake	Post-Earthquake	1.2	-	-	-	-	-	-
6 (through TAR) – End of Construction	Static	1.3	2.5	F1-75	-	-	-	-
	Pseudo-static	1.0	2.3	F1-76	-	-	-	-
▪ Towards TAR ▪ Towards Bootjack Lake	Post-Earthquake	1.2	-	-	-	-	-	-
7 – End of Construction	Static	1.3	2.1	F1-77	2.4	F1-80	-	-
▪ Along haul ramp to west and Bootjack Lake	Pseudo-static	1.0	2.0	F1-78	2.2	F1-81	-	-
	Post-Earthquake	1.2	2.1	F1-79	2.3	F1-82	-	-

(a) Figures in Appendix F.

Table 21: TAR Section 5 Stability Analysis Results

Analysis Case		Factor of Safety				
Section	Loading Condition	Design Criteria Minimum Value	Minimum Result	Figure[(a)]	Result through GLU	Figure[(a)]
5 (Drained) – End of Construction – East side ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	1.6	F1-45	1.7	F1-47
	Pseudo-static	1.0	1.5	F1-46	1.6	F1-48
5 (Drained) – End of Construction – East side – Block Method ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	-	-	1.7	F1-49
	Pseudo-static	1.0	-	-	1.6	F1-50
5 (Drained) – End of Construction – West side ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	1.6	F1-51	1.9	F1-53
	Pseudo-static	1.0	1.6	F1-52	1.8	F1-54
5 (Drained) – End of Construction – West side – Block Method ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	-	-	1.9	F1-55
	Pseudo-static	1.0	-	-	1.8	F1-56
5 (Undrained) – End of Construction – East side ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	1.6	F1-57	1.7	F1-59
	Pseudo-static	1.0	1.5	F1-58	1.6	F1-60

Table 21: TAR Section 5 Stability Analysis Results

Analysis Case		Factor of Safety				
Section	Loading Condition	Design Criteria Minimum Value	Minimum Result	Figure[(a)]	Result through GLU	Figure[(a)]
5 (Undrained) – End of Construction – East side – Block Method ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	-	-	1.5	F1-61
	Pseudo-static	1.0	-	-	1.4	F1-62
5 (Undrained) – End of Construction – West side ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	1.6	F1-63	1.9	F1-65
	Pseudo-static	1.0	1.6	F1-64	1.8	F1-66
5 (Undrained) – End of Construction – West side – Block Method ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	Static	1.3	-	-	1.7	F1-67
	Pseudo-static	1.0	-	-	1.6	F1-68
TAR (Undrained) – during construction – Angle of Repose ▪ Perpendicular to Section 7 through GA21-31 ▪ Towards water management infrastructure	Static	1.1 to 1.3	-	-	1.5	F1-69
TAR (Undrained) – during construction – Block Method - Angle of Repose ▪ Perpendicular to Section 7 through GA21-31 ▪ Towards water management infrastructure	Static	1.1 to 1.3	-	-	1.5	F1-70

(a) Figures in Appendix F.

6.2.2 Runout

Runout analyses were completed to determine the potential zone of impact around the SERDS LOM should slope instability and runout failure occur.

6.2.2.1 Methods

Runout analyses were completed using the two-dimensional runout modelling software DAN-W Release 8 (O. Hungr, Geotechnical Research Inc. 2008). Runout analyses were carried out for the end of construction of the berms, cells, and cover on the crest, and after build-out to the Phase 4 shell.

Runout analyses were only conducted for deep seated failures running through the crest and toe of the SERDS LOM based on stability analysis results in Section 6.2.1.

An approximate 25 m buffer was added to the furthest predicted runout length on each section to allow for potential failure on GLU in the foundation that was not detected by drilling investigations. This 25 m buffer zone is incorporated in the runout zone limits presented in Figure F2-1 in Appendix F.

The material properties used for the runout analyses are summarized in Table 22, which consider dry runout paths based on the sloped topography in the runout zone and on geotechnical conditions from investigations of the runout zone.

Table 22: Material Parameters for Runout Analyses

Material	Unit Weight (kN/m^3)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34	19
Waste Rock	19.6	37	18.5

The properties for dynamic friction angle for waste rock and the foundation are intended to be low, or conservative with respect to strength and runout distance. The dynamic friction angle in the foundation is reduced based on the assumption of saturated foundation conditions. The dynamic friction angle of waste rock would more typically be in the range of 25 to 35 degrees and was reduced as a conservative approach to predicting runout length.

Frictional parameters were considered for the runout path since the path is composed of till. The frictional model considers a flow regime modelled using frictional rheology. With frictional rheology, the analysis is governed primarily by the dynamic friction angle between the failed waste rock mass and the soil foundation material the failed mass is moving over. The dynamic friction angle is the basal friction angle modified by pore water pressure and can reach values much lower than the dry friction angle of the waste rock. The dynamic friction angle is used to calculate the flow resistance term in the frictional model, in which the flow is controlled by the effective normal stress on the base of the sliding mass. The runout path dynamic friction angle will vary depending on the material type (soils) and condition (dry or wet) (Golder & Hungr 1994). For further details on the runout parameters, refer to Golder & Hungr (1994).

6.2.2.2 Results and Discussion

Runout analyses results are presented in Appendix F and summarized in Table 23. Figure F2-1 in Appendix F presents a potential runout zone in plan around the SERDS LOM, which is based on the results along individual sections, plus the 25 m buffer described in Section 6.2.2.1.

Table 23: Summary of Runout Analyses Results for SERDS LOM

Section	Pseudo-Static Loading Stability Analysis Case		Runout Distance[(a)] (m)	Runout Result Figure[(b)]
	Factor of Safety	Stability Result Figure		
1 – End of Construction ▪ Toward Polley Lake ▪ Steepest foundation	1.6	F1-2	174	F2-2
2 – End of Construction ▪ Second steepest foundation ▪ Toward Polley Lake	1.6	F1-8	145	F2-3
3 – End of Construction ▪ Highest section ▪ Steepest foundation ▪ Towards Polley Lake	1.6	F1-38	194	F2-4
4 – End of Construction ▪ Second highest section ▪ Towards Bootjack Creek	1.6	F1-40	139	F2-5
5 (Undrained) – End of Construction – East side ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	1.5	F1-58	83	F2-6
5 (Undrained) – End of Construction – East side – Failure through GLU ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	1.6	F1-60	84	F2-7
5 (Undrained) – End of Construction – East side – Block Method ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	1.4	F1-62	68	F2-8
5 (Undrained) – End of Construction – West side ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	1.6	F1-64	70	F2-9

Table 23: Summary of Runout Analyses Results for SERDS LOM

Section	Pseudo-Static Loading Stability Analysis Case		Runout Distance[(a)] (m)	Runout Result Figure[(b)]
	Factor of Safety	Stability Result Figure		
5 (Undrained) – End of Construction – West side – Failure through GLU ▪ Perpendicular to TAR through GA21-31	1.8	F1-66	60	F2-10
5 (Undrained) – End of Construction – West side – Block Method ▪ Perpendicular to TAR through GA21-31 ▪ Towards water management infrastructure	1.6	F1-68	51	F2-11
6 – End of Construction ▪ Towards TAR ▪ Towards Bootjack Lake	1.9	F1-72	55	F2-12
6 (TAR) – End of Construction ▪ Towards TAR ▪ Towards Bootjack Lake	1.6	F1-74	72	F2-13
6 (through TAR) – End of Construction ▪ Towards TAR ▪ Towards Bootjack Lake	2.3	F1-76	54	F2-14
7 – End of Construction ▪ Along haul ramp to west and Bootjack Lake	2.0	F1-78	107	F2-15

(a) Results prior to adding the 25 m runout buffer.

(b) Figures in Appendix F.

The results of the runout analyses should be considered in conjunction with the results of the slope stability analyses. The results of the slope stability analyses indicate that the facility achieves design criteria for slope stability. In the unlikely event instability does occur, analyses indicate runout will not reach Polley Lake, Bootjack Lake, or Bootjack Creek, considering conservative strength parameters that imply wetter than normal foundation conditions and lower strength waste rock.

6.2.3 Consolidation / Settlement

The design does not include elements that are sensitive to deformation, such as a liner or filter zones.

Long term surface drainage and seepage patterns could be influenced by deformation.

6.3 Water Balance

The site wide water balance and water management plans should be updated with the SERDS LOM.

For the SERDS, yearly inflows are expected to be equal to outflows, with little change in storage.

Inflows to the SERDS include:

- Average of approximately 1,100,000 m^3 of water as precipitation based on the SERDS LOM area of 1.8 km^2 and the average annual precipitation of 612 mm/year.
- Seeps of groundwater reporting to the SERDS, which have not been quantified.
- The tailings are expected to drain down largely within a few weeks or months of placement – with limited additional water expressed due to consolidation under the load of the SERDS LOM waste rock.

Outflows have not been quantified, and will include:

- Run-off.
- Evaporative losses.
- Seepage flows as surface flows that report to the downstream water management system.
- Seepage losses to ground water.

6.4 Concordance with BC HSRC, Guidance Document and Permit M-200

A table of concordance with the Code and mine permit M-200 is included in Appendix G.

The key changes from the permitted design with the proposed SERDS LOM design include:

- The crest elevation of the SERDS increases from elevation 1,135 m to 1,150 m.
- The footprint area of the SERDS increases from 85 to 180 ha.
- An additional volume of 60.7 M m^3 of non-acid generating (NAG) waste rock is stored over and outside the SERDS Tailings Co-disposal Facility.
- The SERDS LOM is classified as a waste rock storage facility.

No major changes are anticipated to the site water balance.

7.0 CONSTRUCTION, OPERATION, AND CLOSURE

The construction and operation of the SERDS LOM includes a general sequence of foundation preparation, then waste rock placement following standard operating procedures.

7.1 Foundation Preparation

Foundation areas of the SERDS LOM on undisturbed ground are prepared by removal of weaker materials that may promote instability.

Foundation preparation includes removal of trees, organic materials, topsoil, pipes, equipment, power lines, any equipment, and other deleterious materials within the foundation preparation area shown in the Drawings.

The foundation limit is extended to 5 m beyond the toe of the facility to provide a clear delineation between the facility and any stripping stockpiles.

The limits of foundation preparation should be captured in an as-built survey.

Prepared foundations are to be inspected and approved by a qualified Professional Engineer prior to waste rock placement to verify the design assumption that the SERDS LOM is founded on competent till.

Inspections should note any zones of potentially soft or weaker materials, water flows or seeps, and should be documented in the Annual Inspection report (See Section 8.1).

7.2 Waste Rock Placement

The SERDS LOM will be constructed by the mine operator using mine haul trucks and bulldozers, following the standard operating procedures for waste rock management set out in Appendix B. Following Code requirement 6.10.1 (6) the mine manager shall appoint qualified persons to act as dump persons.

Segregation of NAG waste rock for placement in the SERDS is required in the Pit and is to follow the site ML/ARD Management Plan (outside the scope of this report).

The construction of the SERDS LOM includes bottom-up construction with a maximum lift height of 30 m, as well as operational controls on rate of placement of waste rock, to limit the rate of loading of the foundation. Typically, a lift of end dumps is constructed over the crest of the preceding lift, then a ramp is constructed to the target crest elevation and the next lift advanced over the end dumps by dumping short and pushing out.

The drawings in Appendix A include an overall 2H:1V slope. The outer slope may include benches at angle of repose and setbacks to achieve the overall design slope of 2H:1V.

The loading rate for waste rock placement is limited to reduce the risk of loading induced failure modes. The maximum loading rates follow recommendations by Hawley and Cunning (2017) for moderate loading:

- Volumetric loading rate: 50 to 150 m^3/day/m of crest.
- Mass loading rate: 25 to 75 t/d/m.
- Crest advancement rate of 50 to 150 m^2/d.

Operational procedures are included in Appendix B for placement of waste rock, inspections including inspection frequency, monitoring, and working around runout zones:

- Safety berms along haul roads, crest perimeter berms, and dumping areas are required by the Code and are indicated on the Drawings. See M08 in Appendix B.

- Catch-benches or designed impact berms must be constructed during operation to protect against boulder rollout protection in areas where the SERDS LOM is to be constructed above active work areas or active haul roads. Interim configurations during construction must meet this requirement.
- The dumping sequence shall follow M04 in Appendix B.
- Dumping is performed with a spotter as described in M09 in Appendix B.
- Regular inspection and monitoring are required, as set out in M08 in Appendix B.
- Dump monitoring and ground movement monitoring are required as described in M010 and M012 in Appendix B.
- No personnel shall work around the dump toe or runout zone unless completing work which dictates their need to be there as outlined in M031 in Appendix B.

7.3 Water Management

The waste rock dump platforms are to be constructed with slopes that promote surface water drainage away from the waste rock dump face.

The site surface water management system is to be updated to accommodate the SERDS LOM and TAR prior to construction of the SERDS LOM and TAR.

7.4 Closure

The SERDS LOM will be closed following the closure plan to be developed for the site.

The mine reclamation program should be updated when the SERDS LOM is permitted (MPMC 2022).

The reclamation approach for Rock Disposal Sites (RDS) in MPMC (2022) includes:

- RDS slopes will be recontoured to 2H:1V or less to promote long term physical stability, consider pre-mining drainages, scales ranging from micro-topography to regional landscapes, consider control erosion, and consider long term visual impact from Polley and Bootjack lakes.
- Following recontouring, RDSs will be covered with soil and revegetated with early successional species and wildlife habitat enhancements to promote forest establishment and encourage wildlife use.

8.0 INSTRUMENTATION, MONITORING AND SURVEILLANCE

Requirements for monitoring and surveillance are set out in Appendix B and described here.

Monitoring includes:

- Monitoring of the SERDS follows the site waste rock dump monitoring program.
  - Routine inspections.
  - Installation of wireline deformation monitors where indicated by movement of the crest, as required in M010 (Appendix B). Dump monitors are required to measure the amount of settling taking place to ensure safety of all personnel using the area.
- Daily readings of VW129092 in borehole GA21-31 are required when fill for the TAR is placed over the borehole location. A glacial lacustrine unit (GLU) was identified in borehole GA21-31 and instrumented with a vibrating wire piezometer. Monitoring of monitor excess pore water pressure during construction when advancing fill for the TAR over the GLU will provide an indication of potential instability. The results of monitoring should be reviewed with a geotechnical engineer on a daily basis.

8.1 Inspections / Surveillance and Reporting

Inspections of the SERDS LOM include routine and event driven inspections.

Routine inspections include:

1) Inspections by a qualified person during operation follow the operating procedures in Appendix B during active dumping. Inspections are required to detect signs of instability that may inform changes in loading rate, and requirements for instrumentation. Inspections shall monitor:
   - The crest for cracking, sinkholes, deformation, and ponding of water
   - The outer slope for bulging and deformation
   - The toe for evidence of seepage, loss of fines
2) Annual inspections by a geotechnical engineer to verify performance is in accordance with design criteria. Mine permit M-200 requires that waste dump design and stability performance for all dumps be reviewed annually and that this review includes an inspection of all dumps. An annual report documenting the review of waste dump design and stability performance is required to be submitted to the Chief Inspector by March 31st of the year following review and inspection.
   - Foundation inspections and approval results are to be included in the annual report.

Event driven inspections include inspection in the event of an earthquake felt on site, after large storms, and following freshet.

As a condition of mine permit M-200, the waste rock monitoring program is to be reviewed annually and updated as conditions warrant, or as directed by the Chief Inspector. MPMC must submit the waste rock dump monitoring program to the Chief Inspector when updates are made.

9.0 RECOMMENDATIONS

Recommendations for implementation of the SERDS LOM design include:

- Surface water management systems are to be updated and implemented prior to operation of the SERDS LOM. The SERDS LOM and TAR will bury existing surface water collection ditching on the east and south sides. The system must accommodate the SERDS LOM and TAR.
- Powerlines, tailings distribution pipelines, and water reclaim pipelines are to be relocated to allow placement of the fills for the TAR.
- The interface of the TAR with the TSF infrastructure including roads, spillways, piping, and embankments is to be developed and finalized prior to placement of fills for the TAR.
- Operation of the SERDS LOM is to follow an ML/ARD Management Plan developed for classification of NAG waste rock in the pit to verify the SERDS LOM design basis that materials placed in the SERDS are NAG.
- Foundation preparation and operational procedures are to follow the requirements in this report, which reflect the requirements of the Code (EMLI 2022) and operating procedures at Mount Polley.
- The closure design of the SERDS LOM should consider surface water management and control potential for erosion for long term stability.

10.0 DOCUMENT CLOSURE

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

Signature Page

WSP Canada Inc.

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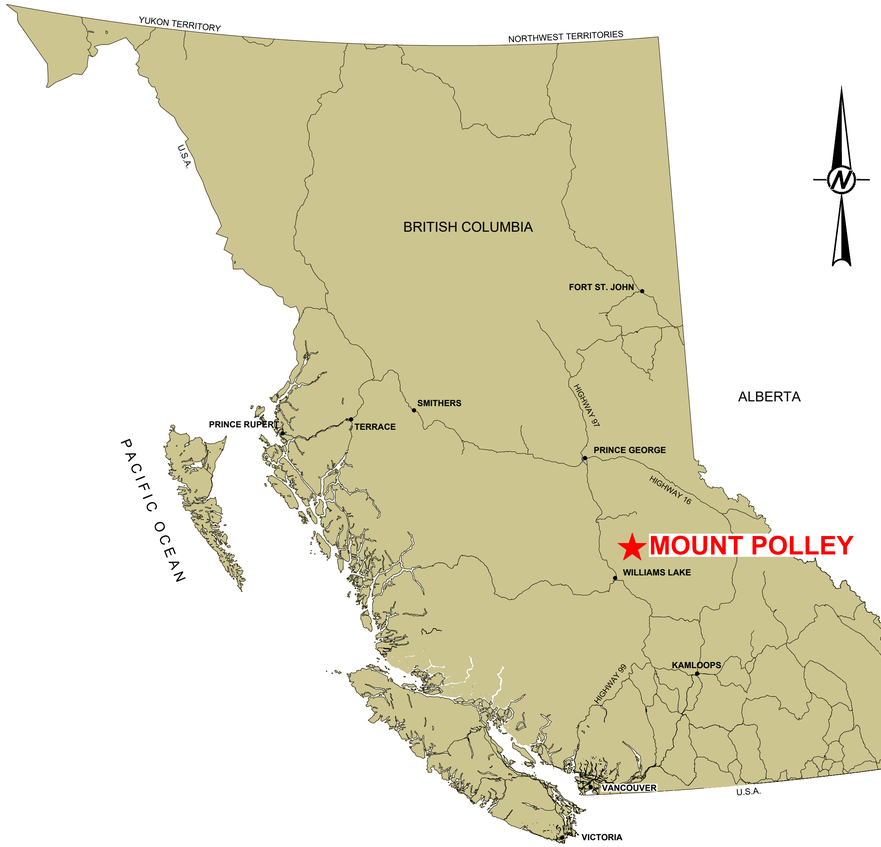
APPENDIX A

Drawings

MOUNT POLLEY MINING CORPORATION
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

DRAWING INDEX				
SHEET NUMBER	SHEET TITLE	REVISION NUMBER	PURPOSE OF ISSUE	DATE OF ISSUE
01	SHEET LIST AND PROJECT LOCATION PLAN	0	ISSUED FOR CONSTRUCTION	2024-01-26
02	SITE PLAN	0	ISSUED FOR CONSTRUCTION	2024-01-26
03	SERDS EXISTING CONDITIONS	0	ISSUED FOR CONSTRUCTION	2024-01-26
04	SERDS LOM FOUNDATION PREPARATION LIMITS	0	ISSUED FOR CONSTRUCTION	2024-01-26
05	SERDS LOM DESIGN	0	ISSUED FOR CONSTRUCTION	2024-01-26
06	SERDS LOM CROSS-SECTIONS	0	ISSUED FOR CONSTRUCTION	2024-01-26



PROJECT LOCATION PLAN
NOT TO SCALE

ISSUED FOR
CONSTRUCTION

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REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2024-01-26	ISSUED FOR CONSTRUCTION	H.M.	T.A.K.	H.M.	B.W.

SEAL

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — Dr. B. E. WICKLAND — # 31172

26 Jan 2024

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
WSP CANADA INC.
840 HOWE STREET, SUITE 1000
VANCOUVER, BC
V6Z 2M1
+1 (604) 685 9381

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

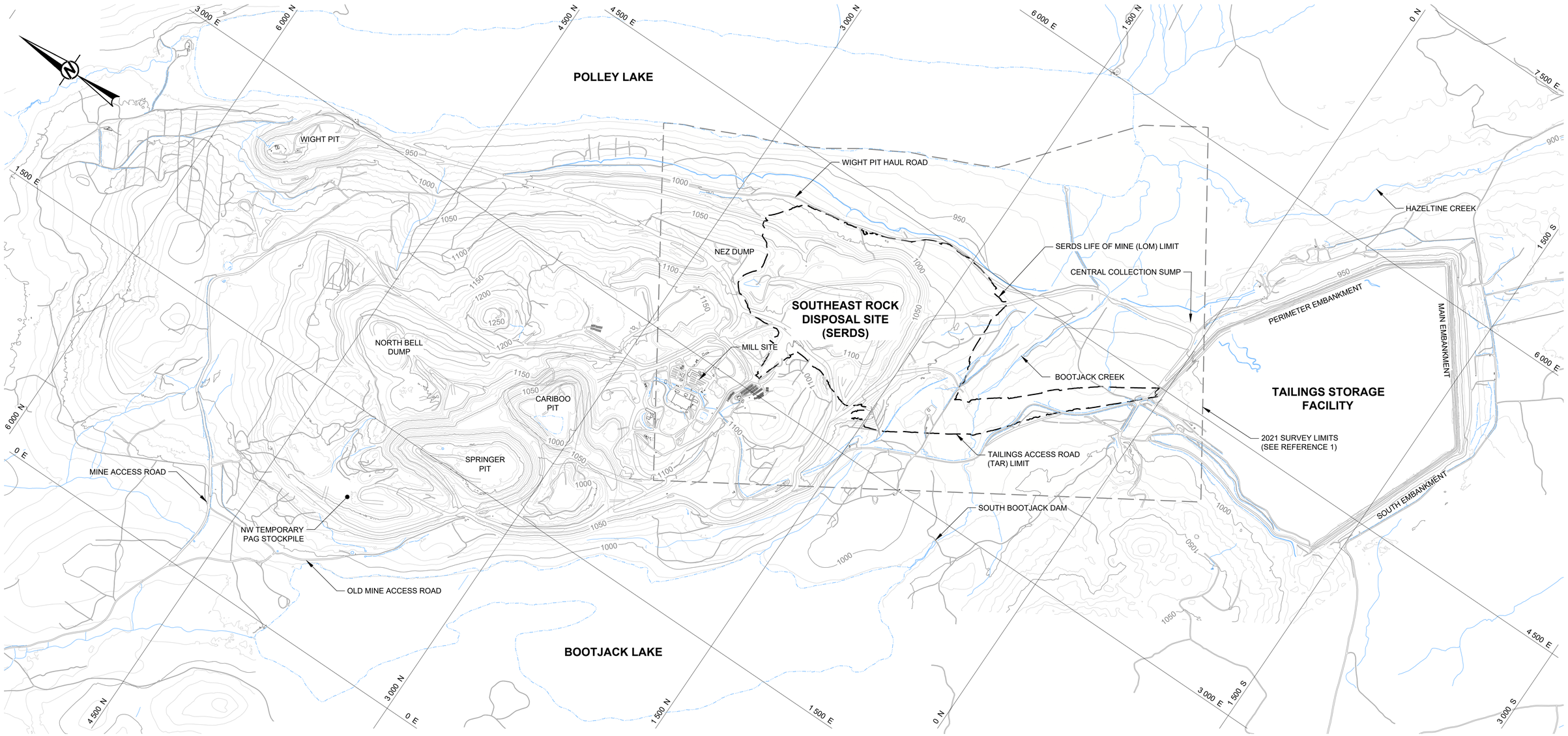
TITLE
SHEET LIST AND PROJECT LOCATION PLAN

PROJECT NO.	PHASE/TASK/DOC.	REV.		DRAWING
23590671	92200/92292/038	0	01 of 06	01

Path: \\golder.gds\comp\edata\office\Vancouver\CAD-GIS\Client\Imperial_Metals_Corp\Mount_Polley_Mine\99_PROJECTS\23590671\92200\92292\Doc. 038\02_PRODUCTION\DWG\Drawings\ | File Name: 23590671-92200-92292-038-01.dwg | Last Edited By: tykiassen Date: 2024-01-25 Time:9:18:50 AM | Printed By: TYKiassen Date: 2024-01-26 Time:11:07:39 AM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm



LEGEND

- EXISTING GROUND CONTOURS 2021(SEE REFERENCE 1)
- EXISTING GROUND CONTOURS 2019 (SEE REFERENCE 2)
- LIFE OF MINE (LOM) SERDS LIMITS
- SHORELINE (SEE REFERENCE 3)
- WATERCOURSE (SEE REFERENCE 3)
- SITE ACCESS ROADS (SEE REFERENCE 3)

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. MAJOR CONTOUR INTERVAL 50 m, MINOR CONTOUR INTERVAL 10 m.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. EXISTING GROUND CONTOURS PROVIDED BY MPMC AS MULTIPLE .laz FILES, SURVEYED: 18 OCTOBER 2019, RECEIVED: 20 FEBRUARY 2020.
3. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.

ISSUED FOR

CONSTRUCTION

0 500 1,000

1:12,500 METRES

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REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2024-01-26	ISSUED FOR CONSTRUCTION	H.M.	T.A.K.	H.M.	B.W.

SEAL

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — Dr. B. E. WICKLAND — # 31172

26 Jan 2024

CLIENT

MOUNT POLLEY MINING CORPORATION

CONSULTANT

WSP CANADA INC.
840 HOWE STREET, SUITE 1000
VANCOUVER, BC
V6Z 2M1
+1 (604) 685 9381

PROJECT

SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

TITLE

SITE PLAN

PROJECT NO.	PHASE/TASK/DOC.	REV.		DRAWING
23590671	92200/92292/038	0	02 of 06	02

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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LEGEND

- EXISTING GROUND CONTOURS (SEE REFERENCE 1)
- LIFE OF MINE (LOM) SERDS LIMITS
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMITS (SEE REFERENCE 2)
- SHORELINE (SEE REFERENCE 3)
- WATERCOURSE (SEE REFERENCE 3)
- CONTACT WATER DITCH (SEE REFERENCE 3)
- CULVERT (SEE REFERENCE 3)
- SITE ACCESS ROADS (SEE REFERENCE 3)
- TAILINGS LINE (SEE REFERENCE 3)
- PIPELINE (SEE REFERENCE 3)
- POWERLINES (SEE REFERENCE 3)
- TEST PIT LOCATION
- SONIC HOLE LOCATION
- SONIC HOLE WITH PIEZOMETER LOCATION

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. MAJOR CONTOUR INTERVAL 10 m, MINOR CONTOUR INTERVAL 2 m.
4. AERIAL PHOTO OVERLAY ORIENTATION IS APPROXIMATE.
5. THIS DRAWING IS TO BE READ WITH SERDS LIFE OF MINE DETAIL DESIGN REPORT. REFERENCE NO.: 23590671-038-R-REV0-92292.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. SOUTHEAST ROCK DISPOSAL SITE TAILINGS CO-DISPOSAL FACILITY DETAIL DESIGN. REPORT REFERENCE NO. 22514095-035-R-REV 2-91315.22, OCTOBER 2022.
3. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.
4. AERIAL PHOTO PROVIDED BY MPMC, FILE NAME: "MountPolley_21Jun2021_15cm_Colr.ecw", FLOWN: 21 JUNE 2021, RECEIVED: 27 SEPTEMBER 2021.

ISSUED FOR

CONSTRUCTION

0 200 400

1:6,000 METRES

THIS DRAWING IS INTENDED FOR CLIENT'S ONE TIME USE ONLY AND IT IS NOT INTENDED OR REPRESENTED BY WSP TO BE SUITABLE FOR REUSE BY ANY PARTY, INCLUDING, BUT NOT LIMITED TO, THE CLIENT, ITS EMPLOYEES, AGENTS, SUBCONTRACTORS OR SUBSEQUENT OWNERS ON ANY EXTENSION OF A SPECIFIC PROJECT OR FUTURE PROJECTS, WHETHER CLIENT'S OR OTHERWISE, WITHOUT WSP'S PRIOR WRITTEN PERMISSION. ANY MANIPULATION, ADAPTATION, MODIFICATION, ALTERATION, MISUSE OR REUSE UNAUTHORIZED BY WSP WILL BE AT CLIENT'S SOLE RISK. WSP EXPRESSLY DISCLAIMS ALL LIABILITY AGAINST ALL THIRD PARTIES RELYING, USING OR MAKING DECISIONS ON THIS DRAWING. THIRD PARTIES DO SO AT THEIR OWN RISK. EXCEPT WHERE WRITTEN AGREEMENT STATES OTHERWISE, THIS DRAWING IS THE PROPERTY OF WSP CANADA INC.

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0	2024-01-26	ISSUED FOR CONSTRUCTION	H.M.	T.A.K.	H.M.	B.W.

SEAL

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — DR. B. E. WICKLAND # 31172

26 Jan 2024

CLIENT

MOUNT POLLEY MINING CORPORATION

CONSULTANT

WSP CANADA INC.
840 HOWE STREET, SUITE 1000
VANCOUVER, BC
V6Z 2M1
+1 (604) 685 9381

PROJECT

SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

TITLE

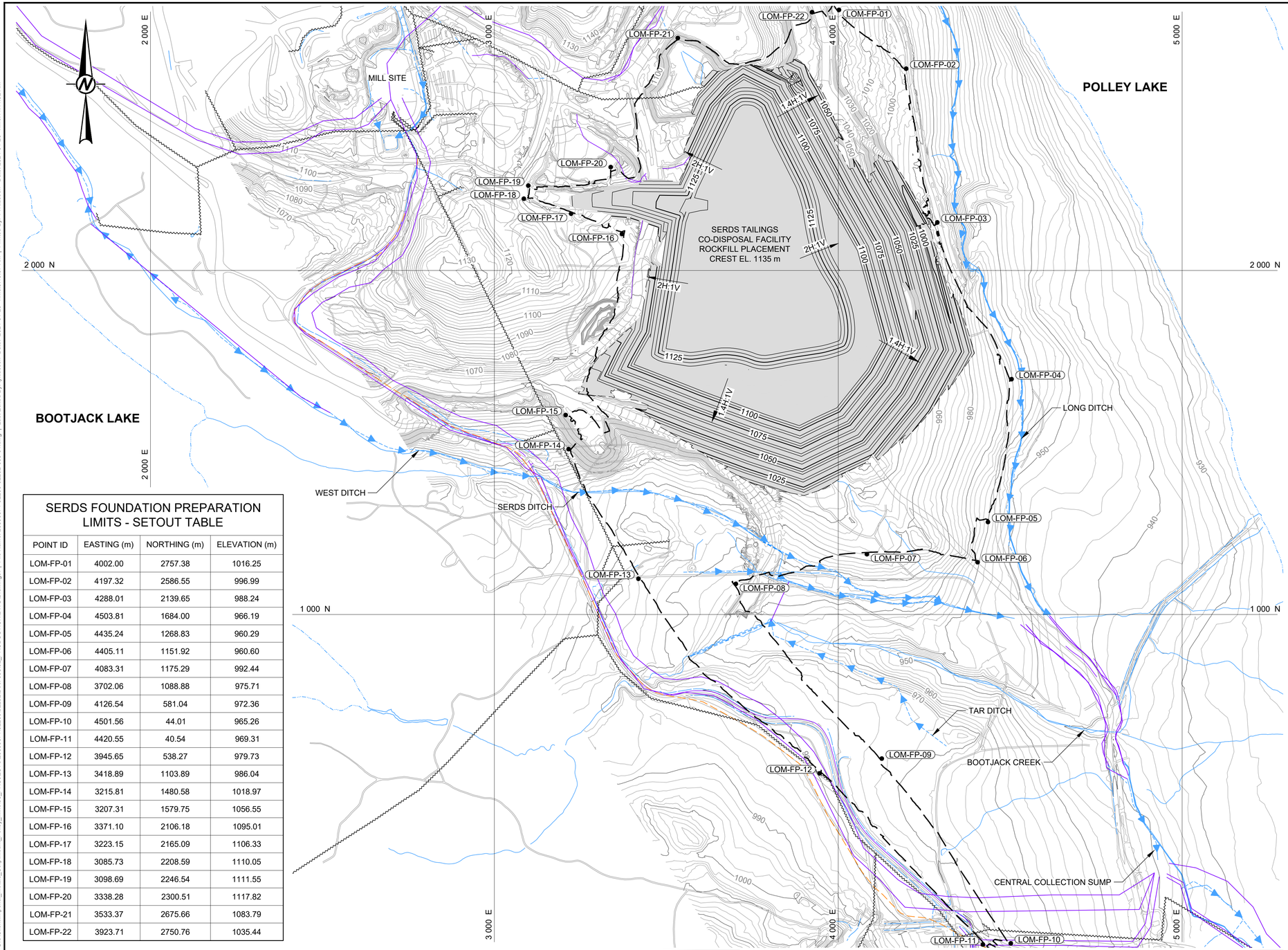
SERDS EXISTING CONDITIONS

PROJECT NO.	PHASE/TASK/DOC.	REV.		DRAWING
23590671	92200/92292/038	0	03 of 06	03

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\complexdata\office\Vancouver\CAD-GIS\Client\Imperial_Metals_Corp\Mount_Polley_Mine\99_PROJECTS\23590671\92200\92292\Doc. 038\02_PRODUCTION\DWG\Drawings\ | File Name: 23590671-92292-038-03.dwg | Last Edited By: tykklassen Date: 2024-01-25 Time:9:17:03 AM | Printed By: TYKklassen Date: 2024-01-26 Time:11:12:45 AM



SERDS FOUNDATION PREPARATION LIMITS - SETOUT TABLE

POINT ID	EASTING (m)	NORTHING (m)	ELEVATION (m)
LOM-FP-01	4002.00	2757.38	1016.25
LOM-FP-02	4197.32	2586.55	996.99
LOM-FP-03	4288.01	2139.65	988.24
LOM-FP-04	4503.81	1684.00	966.19
LOM-FP-05	4435.24	1268.83	960.29
LOM-FP-06	4405.11	1151.92	960.60
LOM-FP-07	4083.31	1175.29	992.44
LOM-FP-08	3702.06	1088.88	975.71
LOM-FP-09	4126.54	581.04	972.36
LOM-FP-10	4501.56	44.01	965.26
LOM-FP-11	4420.55	40.54	969.31
LOM-FP-12	3945.65	538.27	979.73
LOM-FP-13	3418.89	1103.89	986.04
LOM-FP-14	3215.81	1480.58	1018.97
LOM-FP-15	3207.31	1579.75	1056.55
LOM-FP-16	3371.10	2106.18	1095.01
LOM-FP-17	3223.15	2165.09	1106.33
LOM-FP-18	3085.73	2208.59	1110.05
LOM-FP-19	3098.69	2246.54	1111.55
LOM-FP-20	3338.28	2300.51	1117.82
LOM-FP-21	3533.37	2675.66	1083.79
LOM-FP-22	3923.71	2750.76	1035.44

LEGEND

- EXISTING GROUND CONTOURS (SEE REFERENCE 1)
- SERDS TAILINGS CO-DISPOSAL FACILITY - ROCKFILL PLACEMENT CONTOURS (SEE REFERENCE 2)
- LIFE OF MINE (LOM) SERDS LIMITS
- SHORELINE (SEE REFERENCE 3)
- WATERCOURSE (SEE REFERENCE 2)
- CONTACT WATER DITCH (SEE REFERENCE 3)
- CULVERT (SEE REFERENCE 3)
- SITE ACCESS ROADS (SEE REFERENCE 3)
- TAILINGS LINE (SEE REFERENCE 3)
- PIPELINE (SEE REFERENCE 3)
- POWERLINES (SEE REFERENCE 3)

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. EXISTING GROUND CONTOURS MAJOR CONTOUR INTERVAL 10 m, MINOR CONTOUR INTERVAL 2 m.
4. PROPOSED AND PHASE 4 MAJOR CONTOUR INTERVAL 25 m, MINOR CONTOUR INTERVAL 5 m.
5. RAMPS FOR SERDS TAILINGS FACILITY AND SAFETY BERMS NOT SHOWN.
6. THIS DRAWING IS TO BE READ WITH SERDS LIFE OF MINE DETAIL DESIGN REPORT. REFERENCE NO.: 23590671-038-R-REV0-92292.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. SOUTHEAST ROCK DISPOSAL SITE TAILINGS CO-DISPOSAL FACILITY DETAIL DESIGN. REPORT REFERENCE NO. 22514095-035-R-Rev 2-91315.22, OCTOBER 2022.
3. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.

ISSUED FOR

CONSTRUCTION

0 200 400

1:6,000 METRES

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0	2024-01-26	ISSUED FOR CONSTRUCTION	H.M.	T.A.K.	H.M.	B.W.

SEAL

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — Dr. B. E. WICKLAND # 31172

26 Jan 2024

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CONSULTANT

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V6Z 2M1
+1 (604) 685 9381

PROJECT

SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

TITLE

SERDS LOM FOUNDATION PREPARATION LIMITS

PROJECT NO.	PHASE/TASK/DOC.	REV.	04 of 06	DRAWING
23590671	92200/92292/038	0		04

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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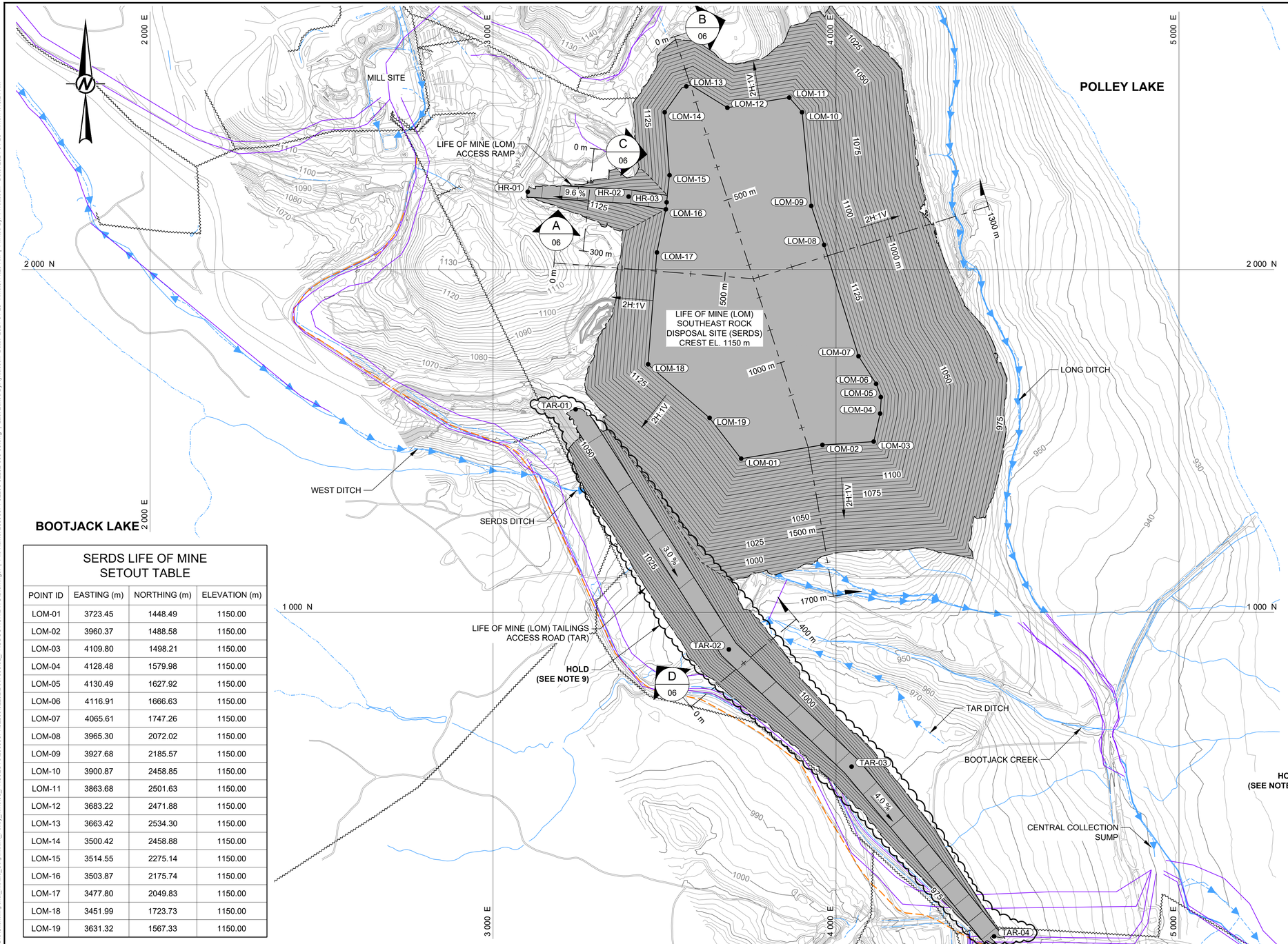

SERDS LIFE OF MINE SETOUT TABLE

POINT ID	EASTING (m)	NORTHING (m)	ELEVATION (m)
LOM-01	3723.45	1448.49	1150.00
LOM-02	3960.37	1488.58	1150.00
LOM-03	4109.80	1498.21	1150.00
LOM-04	4128.48	1579.98	1150.00
LOM-05	4130.49	1627.92	1150.00
LOM-06	4116.91	1666.63	1150.00
LOM-07	4065.61	1747.26	1150.00
LOM-08	3965.30	2072.02	1150.00
LOM-09	3927.68	2185.57	1150.00
LOM-10	3900.87	2458.85	1150.00
LOM-11	3863.68	2501.63	1150.00
LOM-12	3683.22	2471.88	1150.00
LOM-13	3663.42	2534.30	1150.00
LOM-14	3500.42	2458.88	1150.00
LOM-15	3514.55	2275.14	1150.00
LOM-16	3503.87	2175.74	1150.00
LOM-17	3477.80	2049.83	1150.00
LOM-18	3451.99	1723.73	1150.00
LOM-19	3631.32	1567.33	1150.00

LEGEND

- EXISTING GROUND CONTOURS (SEE REFERENCE 1)
- LIFE OF MINE (LOM) SERDS CONTOURS
- SHORELINE (SEE REFERENCE 2)
- CLEAN WATER DITCH (SEE REFERENCE 2)
- CONTACT WATER DITCH (SEE REFERENCE 2)
- CULVERT (SEE REFERENCE 2)
- SITE ACCESS ROADS (SEE REFERENCE 2)
- TAILINGS LINE (SEE REFERENCE 2)
- PIPELINE (SEE REFERENCE 2)
- POWERLINES (SEE REFERENCE 2)

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. EXISTING GROUND CONTOURS MAJOR CONTOUR INTERVAL 10 m, MINOR CONTOUR INTERVAL 2 m.
4. LOM SERDS CONTOURS MAJOR CONTOUR INTERVAL 25 m, MINOR CONTOUR INTERVAL 5 m.
5. SAFETY BERMS NOT SHOWN.
6. CLOSURE CONFIGURATION AT 2H:1V SINGLE OUTER SLOPE SHOWN. CONSTRUCTION MAY INCLUDE BENCHES AND ANGLE OF REPOSE SLOPES AT NO STEEPER THAN 2H:1V. SEE DESIGN REPORT FOR MAXIMUM LIFT HEIGHT.
7. THIS DRAWING IS TO BE READ WITH SERDS LIFE OF MINE DETAIL DESIGN REPORT. REFERENCE NO.: 23590671-038-R-REV0-92292.
8. ACCESS RAMPS MAY BE VARIED BY THE OPERATOR.
9. HOLD FOR UPDATE OF SURFACE WATER MANAGEMENT INFRASTRUCTURE, TAILINGS AND WATER RETURN PIPELINES, POWERLINES, AND DESIGN OF INTERFACE WITH TAILINGS MANAGEMENT FACILITY INFRASTRUCTURE.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.

HAUL RAMP SETOUT TABLE

POINT ID	EASTING (m)	NORTHING (m)	ELEVATION (m)
HR-01	3101.06	2226.74	1110.98
HR-02	3395.30	2212.88	1139.24
HR-03	3506.06	2196.13	1150.00

TAILINGS ACCESS ROAD SETOUT TABLE

POINT ID	EASTING (m)	NORTHING (m)	ELEVATION (m)
TAR-01	3240.80	1592.38	1158.13
TAR-02	3687.58	892.00	1033.11
TAR-03	4045.33	550.17	1008.28
TAR-04	4460.78	54.89	968.73

HOLD (SEE NOTE 9)

ISSUED FOR

CONSTRUCTION

0 200 400

1:6,000 METRES

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0	2024-01-26	ISSUED FOR CONSTRUCTION	H.M.	T.A.K.	H.M.	B.W.

SEAL

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — Dr. B. E. WICKLAND — # 31172

26 Jan 2024

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CONSULTANT

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+1 (604) 685 9381

PROJECT

SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

TITLE

SERDS LOM DESIGN

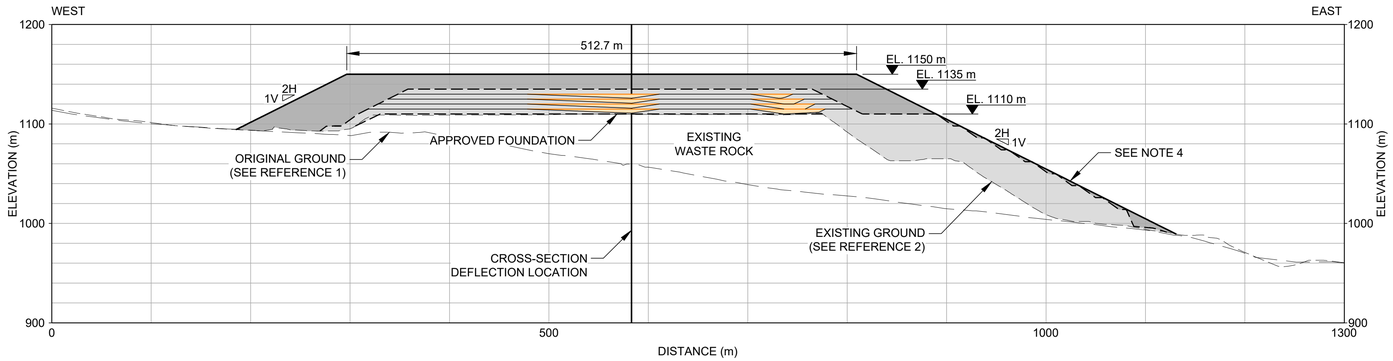
PROJECT NO.	PHASE/TASK/DOC.	REV.		DRAWING
23590671	92200/92292/038	0	05 of 06	05

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

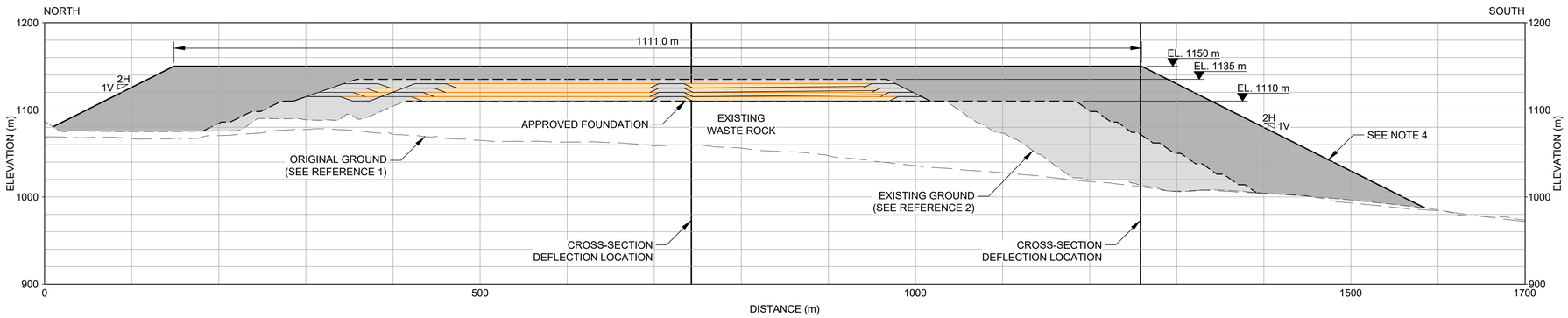
25 mm

0

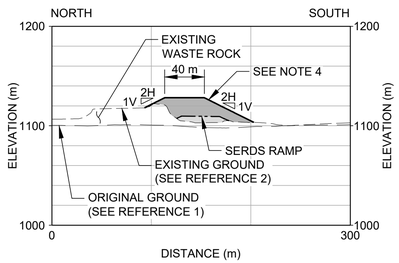
Path: \\golder.gds\complexdata\office\Vancouver\CAD-GIS\Client\Imperial_Metals_Corp\Mount_Polley_Mine\99_PROJECTS\23590671\92200\92292\Doc. 038\02_PRODUCTION\DWG\Drawings\ | File Name: 23590671-92200-92292-038-05.dwg | Last Edited By: tyklassen Date: 2024-01-25 Time:9:14:29 AM | Printed By: TYKlassen Date: 2024-01-26 Time:11:10:21 AM



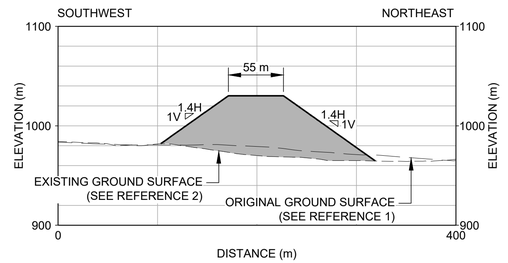
SCALE 1:3 000 m — A / 05 — SERDS LOM CROSS-SECTION



SCALE 1:3 000 m — B / 05 — SERDS LOM CROSS-SECTION



SCALE 1:3 000 m — C / 05 — SERDS LOM ACCESS RAMP CROSS-SECTION



SCALE 1:3 000 m — D / 05 — TAILINGS ACCESS ROAD CROSS-SECTION

LEGEND

- ORIGINAL GROUND (SEE REFERENCE 1)
- EXISTING GROUND (SEE REFERENCE 2)
- LIFE OF MINE (LOM) SERDS DESIGN
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) TAILINGS CO-DISPOSAL FACILITY - TAILINGS AND WASTE ROCK (SEE REFERENCE 3)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) TAILINGS CO-DISPOSAL FACILITY - WASTE ROCK (SEE REFERENCE 3)

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. SEE SERDS LIFE OF MINE DETAILED DESIGN REPORT, NO. 23590671-038-R-REVA-92292, FOR FOUNDATION PREPARATION REQUIREMENTS.
4. SAFETY BERMS NOT SHOWN.
5. CLOSURE CONFIGURATION AT 2H:1V SINGLE OUTER SLOPE SHOWN. CONSTRUCTION MAY INCLUDE BENCHES AND ANGLE OF REPOSE SLOPES AT NO STEEPER THAN 2H:1V. SEE SERDS LIFE OF MINE DETAILED DESIGN REPORT FOR MAXIMUM LIFT HEIGHT.
6. THIS DRAWING IS TO BE READ WITH SERDS LIFE OF MINE DETAIL DESIGN REPORT. REFERENCE NO.: 23590671-038-R-REV0-92292.
7. ACCESS RAMPS MAY BE VARIED BY THE OPERATOR.

REFERENCES

1. ORIGINAL GROUND SURFACE PROVIDED BY MPMC, FILE NAME: "2004 SERD OG.dwg",SURVEYED IN 2004, RECEIVED: 08 NOVEMBER 2021.
2. EXISTING GROUND SURFACE PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf", SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
3. SOUTHEAST ROCK DISPOSAL SITE TAILINGS CO-DISPOSAL FACILITY DETAIL DESIGN. REPORT REFERENCE NO. 22514095-035-R-REV 2-91315.22, OCTOBER 2022.

ISSUED FOR

CONSTRUCTION

0 100 200
1:3,000 METRES

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SEAL

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — Dr. B. E. WICKLAND # 31172

26 Jan 2024

CLIENT

MOUNT POLLEY MINING CORPORATION

CONSULTANT

WSP CANADA INC.
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VANCOUVER, BC
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PROJECT

SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DESIGN

TITLE

SERDS LOM CROSS-SECTIONS

PROJECT NO.	PHASE/TASK/DOC.	REV.		DRAWING
23590671	92200/92292/038	0	08 of 06	06

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25 mm

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APPENDIX B

Operating Procedures

MOUNT POLLEY MINING CORPORATION A DIVISION OF IMPERIAL METALS CORPORATION		**MO4 - Dump Signals**
Revision number 3	**Date of revision** 1/16/2014	**Date of Review** 11/11/2021
Originating Department Mine Operations	**Prepared by** **Title**	**Approved by** **Title**
Distribution Policies and Procedures		Page 1 of 1

OBJECTIVES

Ensure worker safety and provide a consistent haul truck flow on waste dumps.

SCOPE

This procedure applies to all Mount Polley employees, visitors and contractors on the mine site.

PROCEDURE

- Haul trucks will approach the dozer in a clockwise manner, paying close attention to.
  A. Dozer position.
  B. Berm height and quality.
  C. Surface of the dump for cracking.

- The assigned dump dozer will be equipped with a horn and light (which activate simultaneously) to spot haul trucks to dump. When the horn/light is activated the haul truck is to stop and dump the load. When spotted correctly the cab of the dozer should be beside the cab of the haul truck giving both operators a view of each other. If the dozer operator has any special dumping instructions for the haul truck operator, these are to be called over the radio before spotting.

- DUMPING OVER ANY DUMP ANY TIME IS PROHIBITED without a spotter.

- When the dozer has a steady push to keep the dump clean, the dozer operator will work the dump from right to left spotting any truck as it drives on the dump.

- In the event that a dump spotter is to be used, he shall have appropriate reflective clothing; be equipped with a handheld radio; and a flashlight as per the dump spotter procedure.

MOUNT POLLEY MINING CORPORATION A DIVISION OF IMPERIAL METALS CORPORATION		**MO8 - Rock and Overburden Spoil Dumping and Monitoring**
Revision number 1	**Date of revision** 8/24/2015	**Date of Review** 11/11/2021
Originating Department Mine Operations	**Prepared by** **Title**	**Approved by** **Title**
Distribution Policies and Procedures		

OBJECTIVES

Ensure safety of workers and to standardize dumping procedures.

SCOPE

This Procedure applies to all Mount Polley employees, visitors and contractors on site.

PROCEDURE

Pit Supervision:

- A qualified Mine Operations Supervisor will inspect all active dumps and stockpiles within the first (1st) hour of the start of every shift. Where dumping on a dump or stockpile has not been carried out for a period of four (4) hours or more, the inspection will take place before any dumping is permitted.
- A qualified Mine Operations Supervisor shall continue dump and stockpile inspections throughout the shift at intervals of not more than four (4) hours. Any abnormal or hazardous conditions must be communicated verbally to the dump person.
- The Mine Operations Supervisor who conducts the examination shall record the details of the examination in the daily examination and report book (refer to section 6.4.1.2 of the Code).
- The Mine Operations Supervisor will examine and correct, if necessary, the following:

1. Unusual cracking, settlement or toe movement**.** If unusual cracking, settlement, overhangs or toe movement has occurred, the Mine Operations Supervisor shall decide whether to dump extra short and push or block off the area and re-assign the trucks to an alternate dump or stockpile area. In all such cases the decision is to be noted in the Supervisor's daily examination and report book immediately.
2. The Mine Operations Supervisor shall refer to the "Mine Operations Dump Monitors" procedure to determine if extensometer(s) are required.
3. Berms made of mine run material must be a minimum height of one-half (1/2) the maximum tire diameter of the largest tire in the fleet, the entire length of the dump or stockpile. The berm must be placed at sufficient distance to negate any overhangs.
4. The active dump or stockpile area must be properly illuminated for safe night operation.

Dumping Procedures:

- A dozer and operator will be assigned to each active dump where, in the opinion of the Mine Operations Supervisor, a need exists.
- Clean dumping is permitted only on dumps less than three (3) meters in height.
- On all dumps greater than three (3) meters in height, all loads must be dumped on top more than three (3) meters from the crest in the absence of a spotter.
- The driver of a haulage truck shall not reverse for a distance greater than four (4) truck lengths on a dump, stockpile, ramp or road or a road that is under construction, unless it has a positive gradient of more than five (5) percent.
- The grade at the top of all dumps will generally be kept flat. If required to allow for subsidence, a slight two (2) percent upgrade will be maintained, at the face. A minimum berm (one-half (1/2) the maximum tire diameter of the largest tire in the fleet) will be maintained by the dozer operator at all times where the dump is greater than three (3) meters in height.
- On each dump a clockwise flow pattern will be utilized (left to right) which includes an opportunity for each driver to visually inspect the berm and general area where they are going to dump (see Figure 1, Dumping Procedure, attached). If suspect conditions exist, the driver will dump short and immediately notify the supervisor by radio of the action taken.
- Waste dumps will be constructed by a movement of the active truck dumping position from right to left (counterclockwise) along the crest. The truck will back in with the dozer on the driver's side.
- Drivers must stop their trucks without using the berm as a stop block, and at all times must be square to the berm when dumping.
- When the truck is loaded heavily on the back of the box (i.e., frost chunk or large boulder), the load will be dumped tightly against a pile of material that has been free dumped.
- Dump areas will be clearly marked by signage posted by Mine Operations in consultation with Mine Engineering.
- Where dumping is prohibited or dumping is hazardous, access shall be prevented by placing across the entrance a barrier sufficient to prevent access and a sign that reads "No Entry for Dumping Purposes".
- The active area of the dump shall be the crest length required to effectively allow the truck to dump without causing double dumping. This length will be dictated by the rate of arrival of trucks and the productivity of the dozer as determined by the Mine Operations Supervisor and the dozer operator.
- When dumping adjacent to the dozer, unless directed otherwise by the dozer operator, truck drivers must leave a minimum of one (1) truck width between the truck and the dozer. When the truck and dozer are in close proximity, the dozer must move clear of the truck after the truck is spotted and prior to dumping.

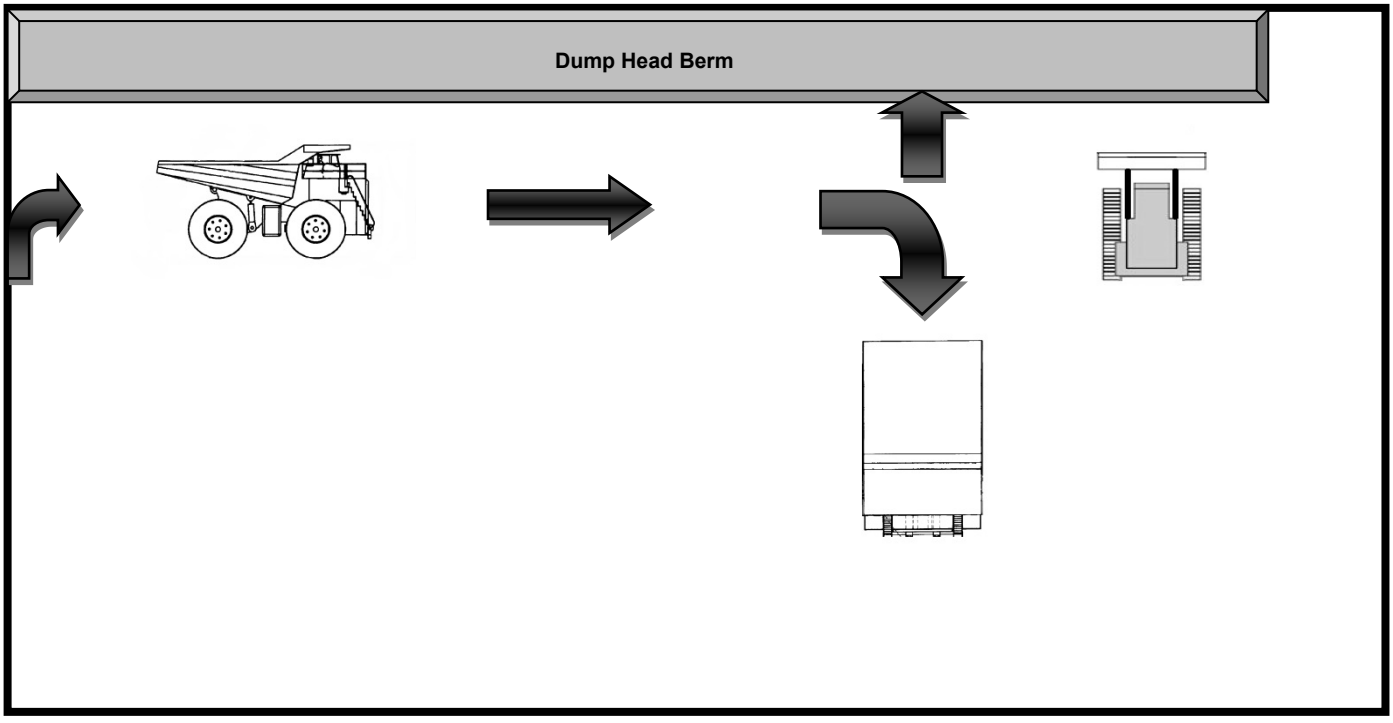
- On any dump, where surface movement has been detected, the dump berm shall be reestablished at a safe operating distance from the crest of the dump, as determined by the Mine Operations Supervisor.
- If the dump is clear and the dozer operator is waiting for material, the dozer will be parked eight (8) meters or more from the berm.

Dumping into water:

Special precautions shall be observed when dumping into water:

- A spotter or dozer operator will direct all dumping.
- All loads will be dumped short and pushed.
- When inactive, dumps over water shall be left with a full three-quarters (3/4) height road class berm.
- When active, an operating dump area with reduced berm height shall be minimized.
- Dumps over water shall be monitored per standard dumping and monitoring procedures.
- When reactivating a dump that toes in water where ice has formed, the ice shall be broken loose from the toe. This is usually accomplished by short dumping large boulders and pushing them over the crest in effect "bombing" the ice shelf below. The potential hazard is sudden failure of the ice shelf from the weight of accumulated material.

Figure 1:



MOUNT POLLEY MINING CORPORATION A DIVISION OF IMPERIAL METALS CORPORATION		**MO9 - Dump Spotter**
Revision number 1	**Date of revision** 8/24/2015	**Date of Review** 11/11/2021
Originating Department Mine Operations	**Prepared by** **Title**	**Approved by** **Title**
Distribution Policies and Procedures		Page 1 of 1

OBJECTIVES

Ensure safety of workers.

SCOPE

This procedure applies to all Mount Polley employees, visitors and contractors on site.

DEFINITIONS

A DUMP SPOTTER is a person who directs haul trucks to the dumping position to dump material from a haul truck over the berm of a dump.

PROCEDURE

- A Dump Spotter is to have a two-way radio, reflective vest, and be equipped with flashlight and directional wand.
- Trucks will enter the dump in a clockwise direction ALWAYS keeping the Dump Spotter in sight on their left.
- Trucks will stay One (1) truck width away from the Dump Spotter.
- Dump Spotter will use hand signals to back-up, and stop haul trucks:

CIRCULAR MOTION TO BACK UP
HAND HELD UP – FIST CLENCHED TO STOP/DUMP

- In the event more than one truck arrives at the dump at the same time, drivers will spot themselves to dump by backing up One (1) truck width away from the truck dumping and waiting One (1) truck length out from the berm to be dumped by the spotter.
- The Dump Spotter will monitor dumps for any abnormalities, i.e. cracking, hang-ups over berms, slumping low berms and report this to the Mine Operations Supervisor.
- Light plants will be situated to best illuminate the dumping area.

OBJECTIVES

To measure the amount of settling taking place on the dump in order to ensure the safety of all personnel using the area including those upon the dump platform and those working below within the potential dump run out area.

SCOPE

This procedure applies to all Mount Polley employees, visitors and contractors on the mine site.

DEFINITIONS

The dump monitor consists of one or possibly two metal stands with a weighted wire anchored to the dump face or crest of the dump face with a pin (depending on the span being monitored). As the dump settles, the pin will move downwards, causing an upward movement of the weight at the dump monitor. When the level of the weight is compared to a stationary metric scale at the monitor, the amount of dump movement can be calculated.

PROCEDURE

Dump monitor set up and readings are the responsibility of the Mine Operations Supervisor.

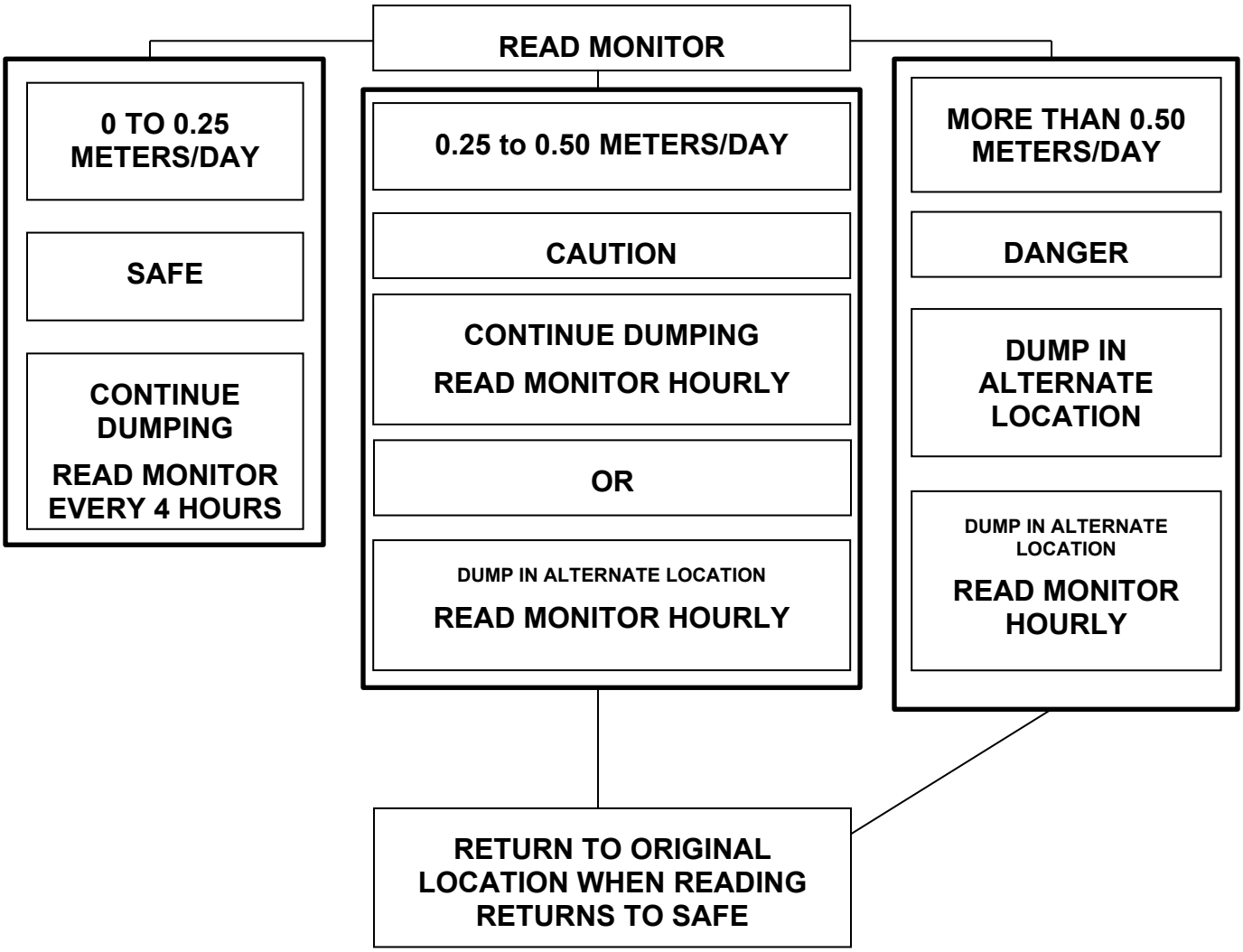
- Wire line extensometers, when required by permit M-200, shall be installed if cracks behind the dump crest develop and crack displacement exceeds ten (10) centimeters.
- Locate the appropriate dump monitor as there may be more than one monitor in place at any given time. In such a case use the following for all monitors.
- Pull the weight down about 2.5 cm and slowly release it. This will effectively remove all slack in the wire and ensure that the wire is free to move and is not frozen to the wheel.
- Readings of the dump condition are to be taken at least every four (4) hours. If a caution reading is recorded, the frequency of readings must be escalated to an hourly basis. Dumping activity should be relocated if the supervisor deems necessary, or if subsequent rates of movement exceed safe limits.
- Dump monitor reports are located in the Mine Operations Supervisor's dump log. It will be filled out and initialed for each reading taken. Records must be kept for all active monitors.
- Information provided on the monitor report will consist of the following:
  - Monitor Location: Location of dump and area of the dump the monitor is located.
  - Date: Date of actual reading of the dump monitor (D/M/Y).
  - Time of Day: Time of actual reading of the dump monitor.

- Reading: Reading of dump monitor at previous time (metric).
- Displacement: Difference between the previous dump monitor reading and the present one.
- Time Difference: Time in hours since last reading.
- Condition: Based on displacement and time difference to indicate if dump is safe to use.
- Initials: Mine Operations Supervisor to initial each reading.

- To provide information for calculation of dump movement, monitor readings should always be taken from the top of the weight. If the weight is approaching the top of the scale, it is time to reset the monitor. Untie the weight, move it to the bottom of the scale and reattach the wire. Take another reading immediately and use this measurement as a reference point for the next reading (indicate "new setting" in the monitor report).

Rate Of Movement	Dump Condition
0 - .25 meters/day	SAFE
.25 - .50 meters/day	CAUTION
Over .50 meters/day	DANGER

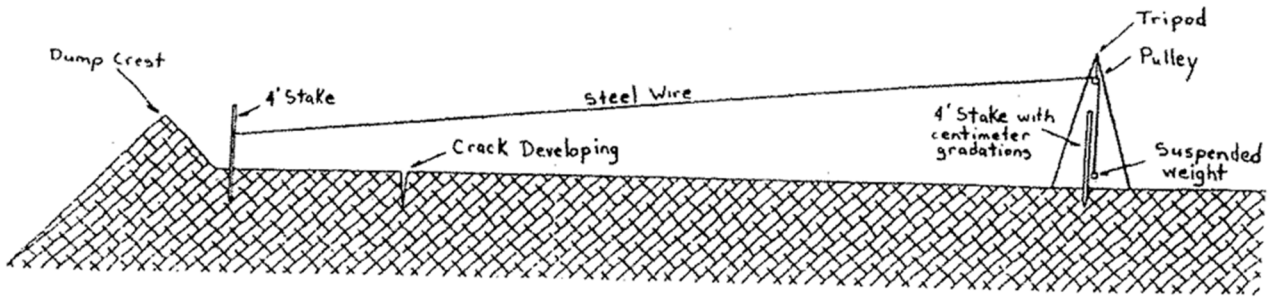
DUMP MONITOR – DECISION CHART



Setup of Monitoring Stations

The drawing below shows a typical monitoring station setup. A four (4) foot survey stake is driven into the ground near the crest of the area being monitored. The stake should be driven into the ground firmly so it does not slip or shift, using a steel bull prick to make a "pilot hole" if necessary. A second four (4) foot survey stake, with centimeter gradations marked on it, is driven into the ground away from the area of active dump movement (typically forty (40) feet from the first stake). Steel wire is tied to the first stake and fed through a pulley above the second stake, and a weight is attached to the end of the wire near the second (graduated) stake. The pulley is suspended by a tripod.

As the dump shifts, the weight will gradually move higher up the graduated stake. Therefore, initial positioning of the graduated stake should be such that the suspended weight begins as close to the ground as possible. This will minimize the number of times the monitoring station needs to be reset.



OBJECTIVES

To ensure that work is performed in a safe manner, on a daily basis, in and around dumps and stockpiles.

SCOPE

This Procedure applies to all Mount Polley employees, visitors and contractors on site.

PROCEDURE

The Mine Operations Supervisor, prior to work commencing and on a regular basis, shall inspect all work areas. The dumps and stockpiles shall be inspected at least every 4 hours when in use. The conditions noted shall be recorded in the daily logbook.

Items of concern include:

Dumps and Stockpiles

- Cracks appearing on the dump floor or face.
- Subsidence of the dump floor.
- Material hanging up on the face of the dump.
- Water flows or pooling.

Pit walls

- Cracks developing along or near the edge.
- Cracks in the face.
- Overhangs developing on the bench face.
- Water flowing into the rock.

If any of the above items are observed contact the Mine Operations Supervisor who will inspect the site to determine what actions are to be taken. In the event that the area appears unsafe contact the Mine Operations Supervisor immediately for direction.

If cracks are observed on the rock dump floor the area shall be blocked off and monitored to determine if additional movement is occurring. Dumping in the area shall not recommence until the Mine Operations Superintendent gives approval.

Overburden and soils piles will slough and compact as they are being built. Dumping shall take place back from the edge and dozed over. If bulging of the face or curved cracks are observed, dumping shall cease in the area and the area shall be monitored for additional movement. Dumping in the area shall not recommence until the Mine Operations Superintendent gives approval.

MOUNT POLLEY MINING CORPORATION A DIVISION OF IMPERIAL METALS CORPORATION		**MO31 - Working Around Dump Run-Out Zones (On Foot)**
Revision number 2	**Date of revision** 2/10/2016	**Date of Review** 11/11/2021
Originating Department Mine Operations	**Prepared by** **Title**	**Approved by** **Title**
Distribution Policies and Procedures		Page 1 of 1

OBJECTIVE

To ensure the safety of Personnel when working on foot in or around a dump run-out zone

SCOPE

This procedure applies to all Mount Polley employees, visitors and contractors on the mine site.

PROCEDURE

No personnel shall work around a dump toe or run-out zone unless they are completing work which dictates their need to be there. All reasonable efforts shall be made to reduce the exposure time spent in or around a dump run-out zone when completing such work.

1. Contact (radio) the Pit Shifter prior to entering the area and communicate location of job and job being performed and attain permission for undertaking the job.
2. Discuss with Pit Shifter requirement for having a spotter present during work; however, at the request of the individual completing the work, a spotter will always be provided.
3. If deemed required (Item 2), have a spotter with radio contact and view of the working area located out of the danger area of the run-out-zone.
4. No active dumping shall be permitted while any individual or equipment is located in the run-out zone of a dump.
5. Under no circumstance is an individual to take a “break” while working around a dump run-out zone.

Notes:

- Suspension of all on-foot work around a dump run-out zone will be at the discretion of the Pit Shifter
- During periods of adverse weather conditions consideration should be given to rescheduling work or using addition controls as determined by completion of a Risk Assessment by the supervisor.

If you feel uncomfortable in performing any part of this procedure, please discuss with your supervisor.

APPENDIX C

Mine Plan (provided by MPMC)

Month	WSP	Total NAG	Cumulative NAG	Total PAG	Period End Stkpl
January	Jan-22	680,519	680,519	247,010	263,235
February	Feb-22	512,555	1,193,074	984,188	438,601
March	Mar-22	1,001,544	2,194,618	842,257	732,168
April	Apr-22	1,416,016	3,610,634	700,102	1,000,457
May	May-22	1,606,539	5,217,173	630,400	1,218,726
June	Jun-22	1,647,082	6,864,255	554,592	1,445,492
July	Jul-22	1,860,531	8,724,786	399,603	1,245,492
August	Aug-22	1,693,024	10,417,810	295,996	1,203,103
September	Sep-22	1,488,096	11,905,906	371,206	1,069,914
October	Oct-22	1,738,690	13,644,596	41,407	1,251,423
November	Nov-22	1,501,252	15,145,847	495,770	1,238,216
December	Dec-22	1,640,810	16,786,657	167,728	1,420,867
January	Jan-23	1,335,056	18,121,713	429,404	1,601,218
February	Feb-23	1,640,686	19,762,399	157,056	1,620,941
March	Mar-23	1,634,244	21,396,643	274,747	1,562,128
April	Apr-23	1,531,910	22,928,553	200,707	1,487,461
May	May-23	1,657,923	24,586,477	193,021	1,611,934
June	Jun-23	1,703,101	26,289,577	125,936	1,711,987
July	Jul-23	1,808,454	28,098,031	117,900	1,791,450
August	Aug-23	1,794,948	29,892,979	42,994	1,953,730
September	Sep-23	1,754,944	31,647,923	92,138	2,047,910
October	Oct-23	1,936,506	33,584,429	5,707	2,115,594
November	Nov-23	1,756,745	35,341,174	11,021	2,292,742
December	Dec-23	1,870,228	37,211,402	85,092	2,338,299
January	Jan-24	1,831,774	39,043,176	53,592	2,464,685
February	Feb-24	1,710,152	40,753,328	20,244	2,541,464
March	Mar-24	1,954,903	42,708,230	9,492	2,577,739
April	Apr-24	1,878,936	44,587,166	87,134	2,554,659
May	May-24	1,915,561	46,502,727	16,988	2,645,540
June	Jun-24	1,645,975	48,148,702	257,897	2,677,082
July	Jul-24	1,874,606	50,023,308	13,324	2,797,648
August	Aug-24	1,729,567	51,752,876	252,338	2,721,442
September	Sep-24	1,772,961	53,525,837	188,683	2,552,810
October	Oct-24	1,910,042	55,435,879	148,102	2,277,130
November	Nov-24	1,619,190	57,055,069	14,302	2,584,953
December	Dec-24	2,010,077	59,065,146	8,019	2,542,472
Q1-1	Mar-25	4,749,278	63,814,424	669,912	2,967,432
Q2-1	Jun-25	4,438,211	68,252,634	1,314,400	3,109,863
Q3-1	Sep-25	3,792,961	72,045,596	2,165,271	3,001,587
Q4-1	Dec-25	4,046,151	76,091,747	1,748,623	3,102,942
Q1-2	Mar-26	2,691,292	78,783,039	2,933,142	3,307,909
Q2-2	Jun-26	4,049,561	82,832,600	1,808,472	3,246,901

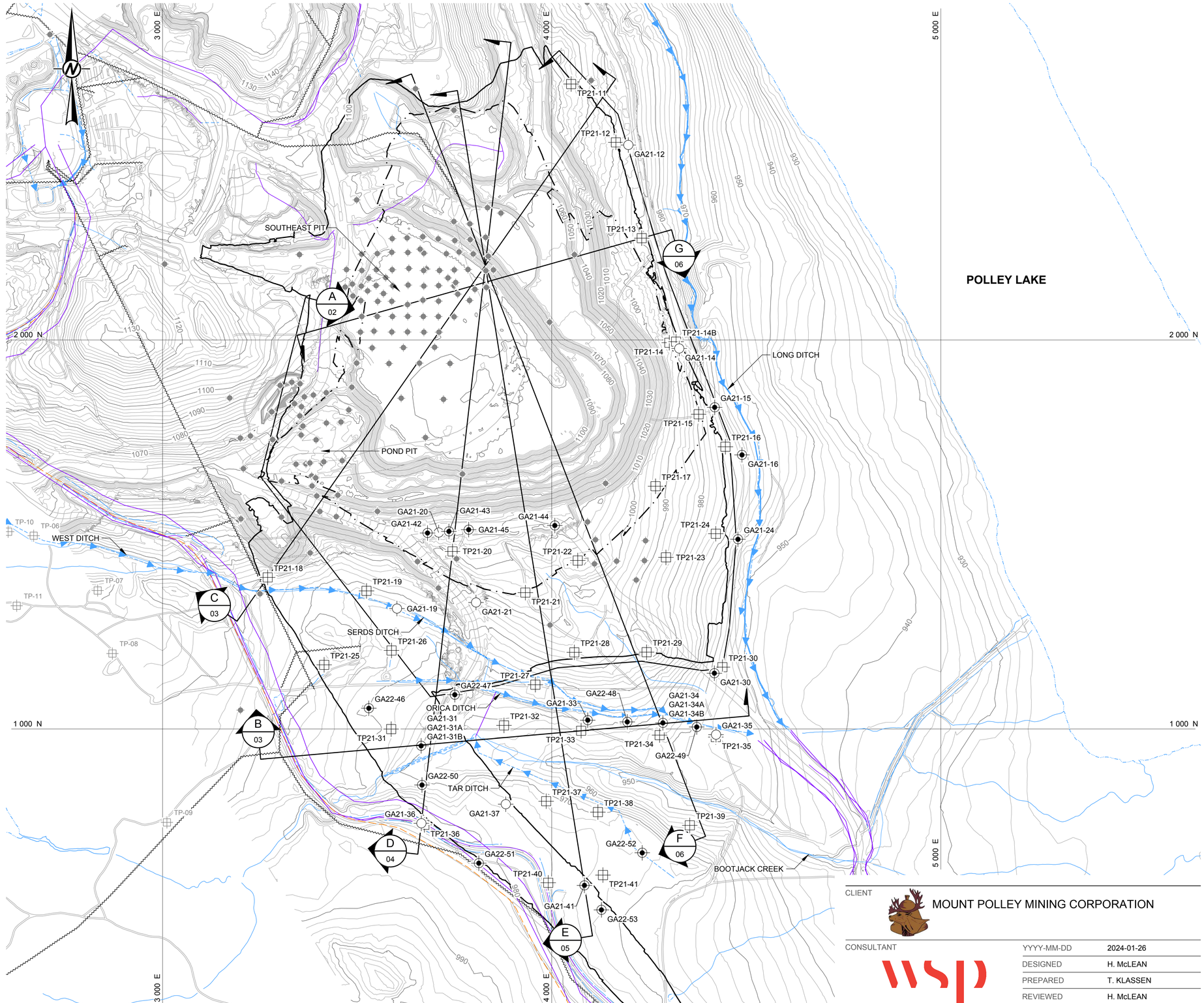
Q3-2	**Sep-26**	3,127,729	85,960,329	2,622,669	3,349,413
Q4-2	**Dec-26**	2,876,579	88,836,908	3,300,052	2,584,758
Q1-3	**Mar-27**	3,707,807	92,544,715	2,541,590	1,650,957
Q2-3	**Jun-27**	4,004,743	96,549,458	1,667,549	1,820,107
Q3-3	**Sep-27**	3,527,420	100,076,878	1,954,498	2,243,673
Q4-3	**Dec-27**	4,152,911	104,229,789	1,428,236	2,612,803
Q1-4	**Mar-28**	3,618,992	107,848,781	2,129,300	2,629,826
Q2-4	**Jun-28**	2,271,835	110,120,616	3,278,932	2,991,181
Q3-4	**Sep-28**	3,266,806	113,387,422	2,226,964	3,434,623
Q4-4	**Dec-28**	2,027,835	115,415,257	3,205,886	4,137,182
Q1-5	**Mar-29**	2,126,561	117,541,817	81,003	4,861,726
Q2-5	**Jun-29**	2,432,859	119,974,676	914	5,834,530
Q3-5	**Sep-29**	933,368	120,908,044	4,900,552	5,943,910
Q4-5	**Dec-29**	2,582,656	123,490,700	2,948,602	6,383,746
Q1-6	**Mar-30**	1,175,978	124,666,678	4,678,703	6,360,381
Q2-6	**Jun-30**	0	124,666,678	6,370,000	4,540,381
Q3-6	**Sep-30**	0	124,666,678	6,440,000	2,700,381
Q4-6	**Dec-30**	0	124,666,678	6,440,000	860,381
Q1-7	**Mar-31**	0	124,666,678	7,004,714	0
Q2-7	**Jun-31**	0	124,666,678	7,735,000	0
Q3-7	**Sep-31**	0	124,666,678	7,820,000	0
Q4-7	**Dec-31**	0	124,666,678	7,820,000	0
Q1-8	**Mar-32**	0	124,666,678	7,650,000	0
Q2-8	**Jun-32**	0	124,666,678	2,433,798	0

Total	124,666,678	115,854,882

APPENDIX D

Site Characterization

D1 – Geological Interpretation Figures



LEGEND

- EXISTING GROUND CONTOURS (SEE REFERENCE 1)
- SHORELINE (SEE REFERENCE 2)
- CLEAN WATER DITCH (SEE REFERENCE 2)
- CONTACT WATER DITCH (SEE REFERENCE 2)
- CULVERT (SEE REFERENCE 2)
- SITE ACCESS ROADS (SEE REFERENCE 2)
- TAILINGS LINE (SEE REFERENCE 2)
- PIPELINE (SEE REFERENCE 2)
- POWERLINES (SEE REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMIT (SEE REFERENCE 3)
- TEST PIT LOCATIONS
- SONIC HOLE LOCATIONS
- SONIC HOLE LOCATIONS WITH PIEZOMETER
- HISTORICAL BOREHOLE LOCATIONS

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. MAJOR CONTOUR INTERVAL 10 m, MINOR CONTOUR INTERVAL 2 m.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.
3. SOUTHEAST ROCK DISPOSAL SITE TAILINGS CO-DISPOSAL FACILITY DETAIL DESIGN. REPORT REFERENCE NO. 22514095-035-R-REV 2-91315.22, OCTOBER 2022.
4. EXPLORATION BOREHOLE CONTACTS PROVIDED BY MPMC. FOR GEOTECHNICAL BOREHOLE AND TESTPIT RECORDS SEE 2021/2022 SOUTHEAST ROCK DISPOSAL SITE GEOTECHNICAL INVESTIGATION FACTUAL REPORT, REFERENCE NO.: 22514095-025-R-REV2-91113.

NOT FOR CONSTRUCTION

0 200 400
1:5,000 METRES

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CLIENT: MOUNT POLLEY MINING CORPORATION

CONSULTANT: wsp

YYYY-MM-DD	2024-01-26
DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
TAILINGS CO-DISPOSAL
FOUNDATION CHARACTERIZATION

TITLE
SITE PLAN

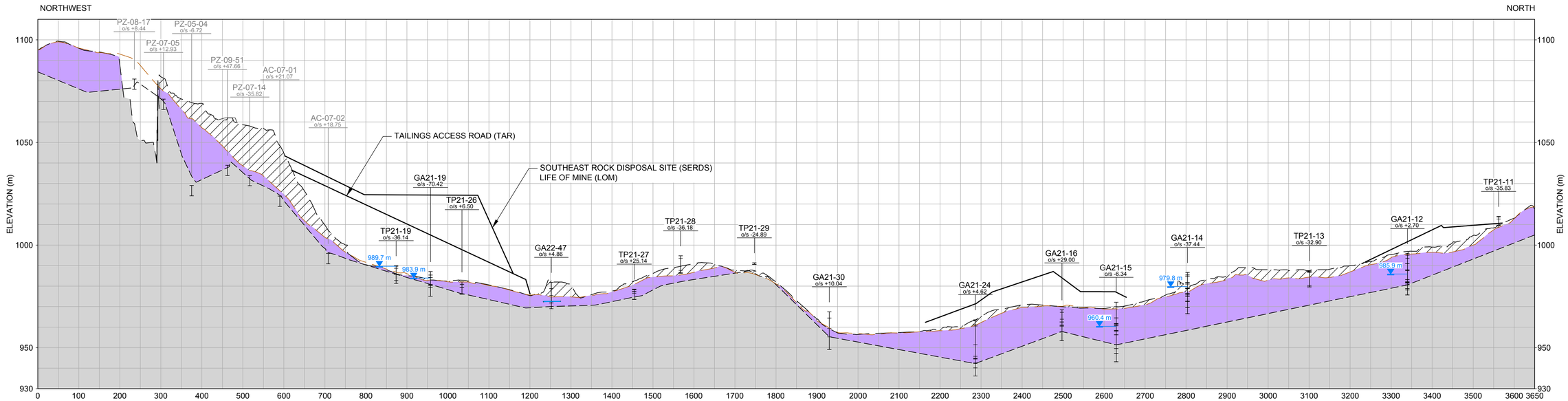
PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	01

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\complexdata\office\vancouver\CAD-GIS\Client\imperial_metals_corp\mount_polley_mine\99_projects\23590671\92200\92292\Doc_038\02_PRODUCTION\DWG\Report Figures\ | File Name: 23590671-92200-92292-038-01.dwg | Last Edited By: tyklassen Date: 2024-01-25 Time:9:29:25 AM | Printed By: TYKlassen Date: 2024-01-26 Time:11:21:52 AM

Path: \\golder.gds\complexdata\office\vancouver\CAD-GIS\Client\imperial_metals_corp\mount_polley_mine\99_projects\23590671\92200\92292\Doc. 038\02_PRODUCTION\DWG\Report Figures\ | File Name: 23590671-92200-92292-038-02.dwg | Last Edited By: tyklassen Date: 2024-01-25 Time:9:26:21 AM | Printed By: TYKlassen Date: 2024-01-26 Time:11:21:25 AM



HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

A 01 SURFICIAL GEOLOGY CROSS-SECTION

TEST HOLE LEGEND

BH19-02
o/s -88.59

- DENOTES TEST HOLE TYPE, INVESTIGATION YEAR AND ID NUMBER
- DENOTES PERPENDICULAR OFFSET (o/s) FROM TEST HOLE TO SECTION LINE IN METRES
- TEST HOLE RECORD SHOWING SOIL ELEVATIONS (FOR DETAILED GEOTECHNICAL INFORMATION REFER TO RECORD OF BOREHOLE)

LEGEND

- 2021 EXISTING GROUND (REFERENCE 1)
- 2004 ORIGINAL GROUND (REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- GEOLOGICAL INTERPRETATION WITH LOW TO MODERATE UNCERTAINTY (SEE NOTE 2)
- PIEZOMETRIC LEVEL

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. DATA CONCERNING THE VARIOUS STRATA HAVE BEEN OBTAINED AT TEST HOLE LOCATIONS ONLY. THE SOIL STRATIGRAPHY BETWEEN TEST HOLES HAS BEEN INFERRED FROM GEOLOGICAL EVIDENCE AND MAY VARY FROM THAT SHOWN.

REFERENCES

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3. EXPLORATION BOREHOLE CONTACTS PROVIDED BY MPMC. FOR GEOTECHNICAL BOREHOLE AND TESTPIT RECORDS SEE 2021/2022 SOUTHEAST ROCK DISPOSAL SITE GEOTECHNICAL INVESTIGATION FACTUAL REPORT, REFERENCE NO.: 22514095-025-R-REV2-91113.

SOIL UNITS

- FILL
- TILL
- GLACIOLACUSTRINE
- BEDROCK

NOT FOR CONSTRUCTION

0 50 100
VERTICAL SCALE 1:1,000 METRES

0 200 400
HORIZONTAL SCALE 1:5,000 METRES

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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-26
DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

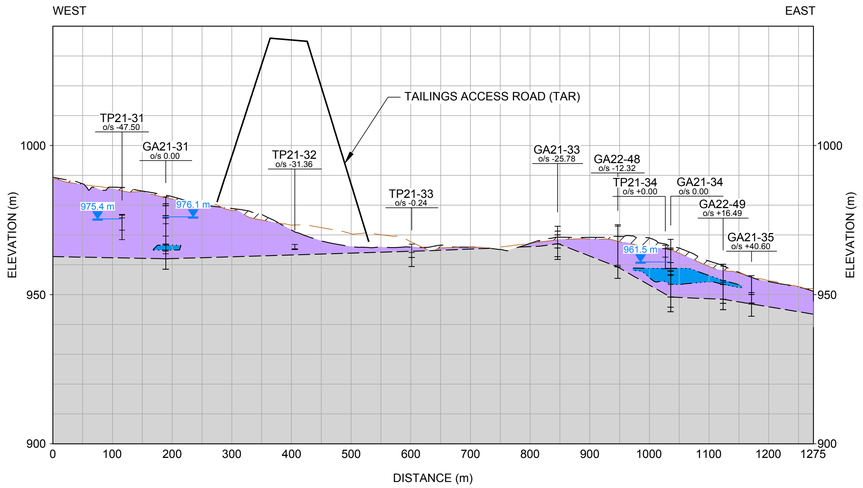
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
TAILINGS CO-DISPOSAL
FOUNDATION CHARACTERIZATION

TITLE
SURFICIAL GEOLOGY CROSS-SECTION A

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	02

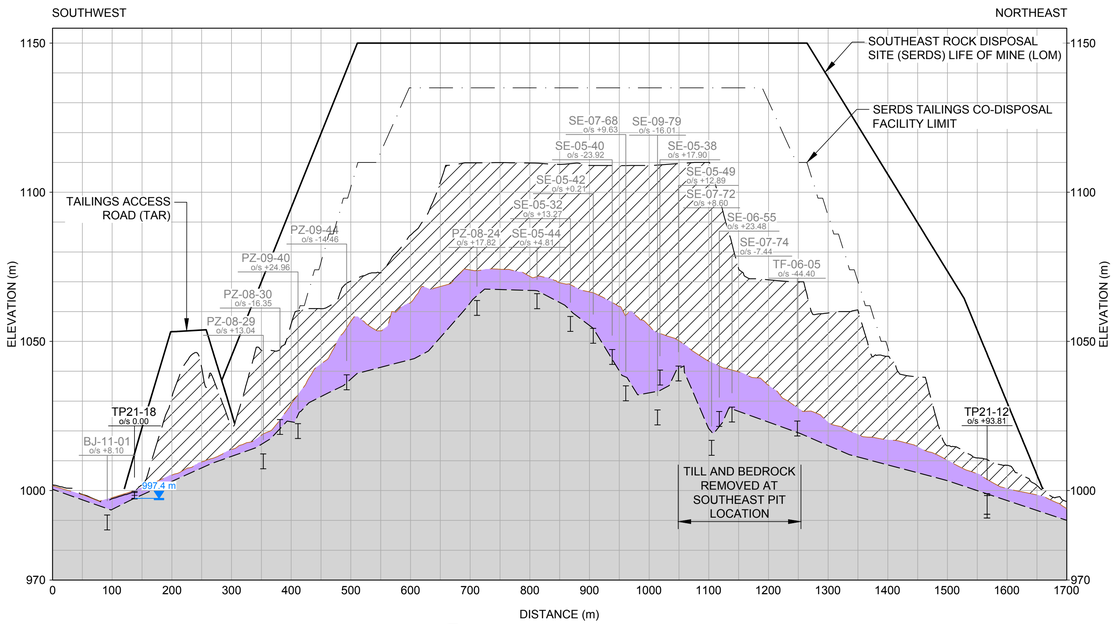
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm



HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

B 01 SURFICIAL GEOLOGY CROSS-SECTION



HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

C 01 SURFICIAL GEOLOGY CROSS-SECTION

LEGEND

- 2021 EXISTING GROUND (REFERENCE 1)
- 2004 ORIGINAL GROUND (REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMIT (SEE REFERENCE 3)
- GEOLOGICAL INTERPRETATION WITH LOW TO MODERATE UNCERTAINTY (SEE NOTE 2)
- GEOLOGICAL INTERPRETATION WITH HIGH DEGREE OF UNCERTAINTY (SEE NOTE 2)
- PIEZOMETRIC LEVEL

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. DATA CONCERNING THE VARIOUS STRATA HAVE BEEN OBTAINED AT TEST HOLE LOCATIONS ONLY. THE SOIL STRATIGRAPHY BETWEEN TEST HOLES HAS BEEN INFERRED FROM GEOLOGICAL EVIDENCE AND MAY VARY FROM THAT SHOWN.

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TEST HOLE LEGEND

BH19-02
o/s -88.59

- DENOTES TEST HOLE TYPE, INVESTIGATION YEAR AND ID NUMBER
- DENOTES PERPENDICULAR OFFSET (o/s) FROM TEST HOLE TO SECTION LINE IN METRES

TEST HOLE RECORD SHOWING SOIL ELEVATIONS (FOR DETAILED GEOTECHNICAL INFORMATION REFER TO RECORD OF BOREHOLE)

SOIL UNITS

- FILL
- TILL
- GLACIOLACUSTRINE
- BEDROCK

NOT FOR CONSTRUCTION

0 50 100
VERTICAL SCALE 1:1,000 METRES

0 200 400
HORIZONTAL SCALE 1:5,000 METRES

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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-26
DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
TAILINGS CO-DISPOSAL
FOUNDATION CHARACTERIZATION

TITLE
SURFICIAL GEOLOGY CROSS-SECTIONS B AND C

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	03

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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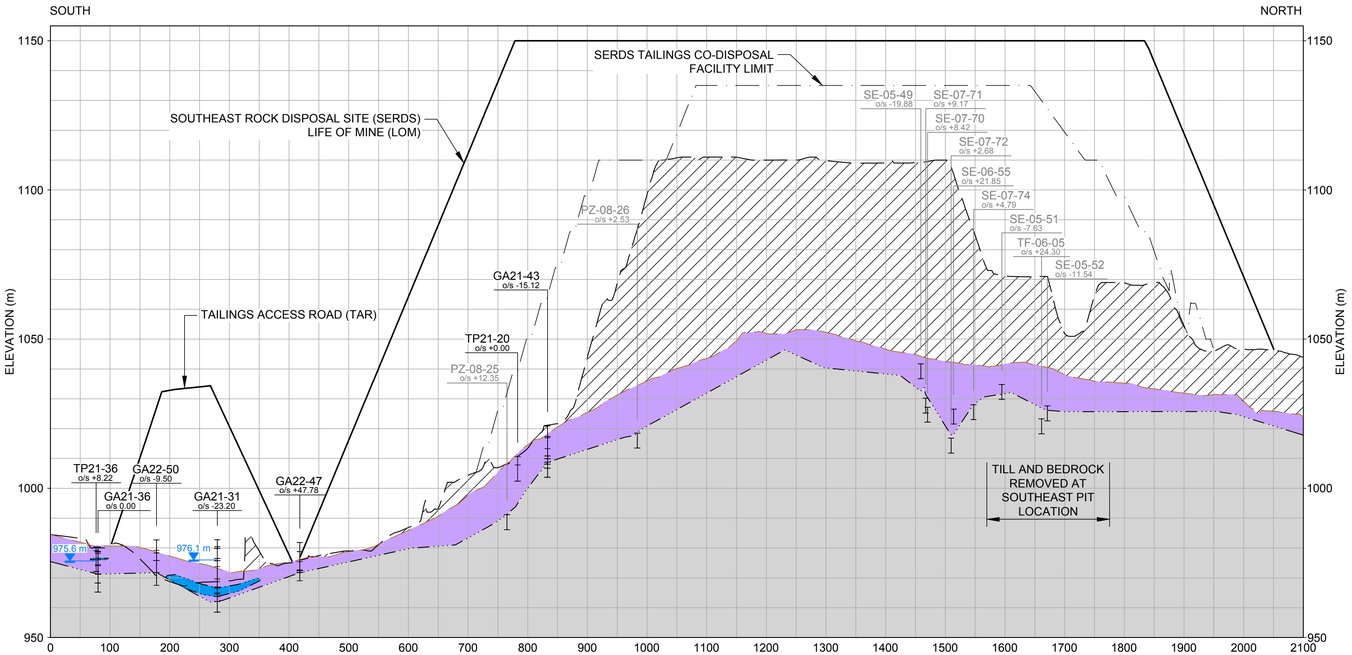

HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

D
01

SURFICIAL GEOLOGY CROSS-SECTION

LEGEND

- 2021 EXISTING GROUND (REFERENCE 1)
- 2004 ORIGINAL GROUND (REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMIT (SEE REFERENCE 3)
- GEOLOGICAL INTERPRETATION WITH LOW TO MODERATE UNCERTAINTY (SEE NOTE 2)
- GEOLOGICAL INTERPRETATION WITH HIGH DEGREE OF UNCERTAINTY (SEE NOTE 2)
- PIEZOMETRIC LEVEL

NOTES

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4. EXPLORATION BOREHOLE CONTACTS PROVIDED BY MPMC. FOR GEOTECHNICAL BOREHOLE AND TESTPIT RECORDS SEE 2021/2022 SOUTHEAST ROCK DISPOSAL SITE GEOTECHNICAL INVESTIGATION FACTUAL REPORT, REFERENCE NO.: 22514095-025-R-REV2-91113.

TEST HOLE LEGEND

BH19-02
o/s -88.59

- DENOTES TEST HOLE TYPE, INVESTIGATION YEAR AND ID NUMBER
- DENOTES PERPENDICULAR OFFSET (o/s) FROM TEST HOLE TO SECTION LINE IN METRES

TEST HOLE RECORD SHOWING SOIL ELEVATIONS (FOR DETAILED GEOTECHNICAL INFORMATION REFER TO RECORD OF BOREHOLE)

SOIL UNITS

- FILL
- TILL
- GLACIOLACUSTRINE
- BEDROCK

NOT FOR CONSTRUCTION

0 50 100
VERTICAL SCALE 1:1,000 METRES

0 200 400
HORIZONTAL SCALE 1:5,000 METRES

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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-26
DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
TAILINGS CO-DISPOSAL
FOUNDATION CHARACTERIZATION

TITLE
SURFICIAL GEOLOGY CROSS-SECTION D

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	04

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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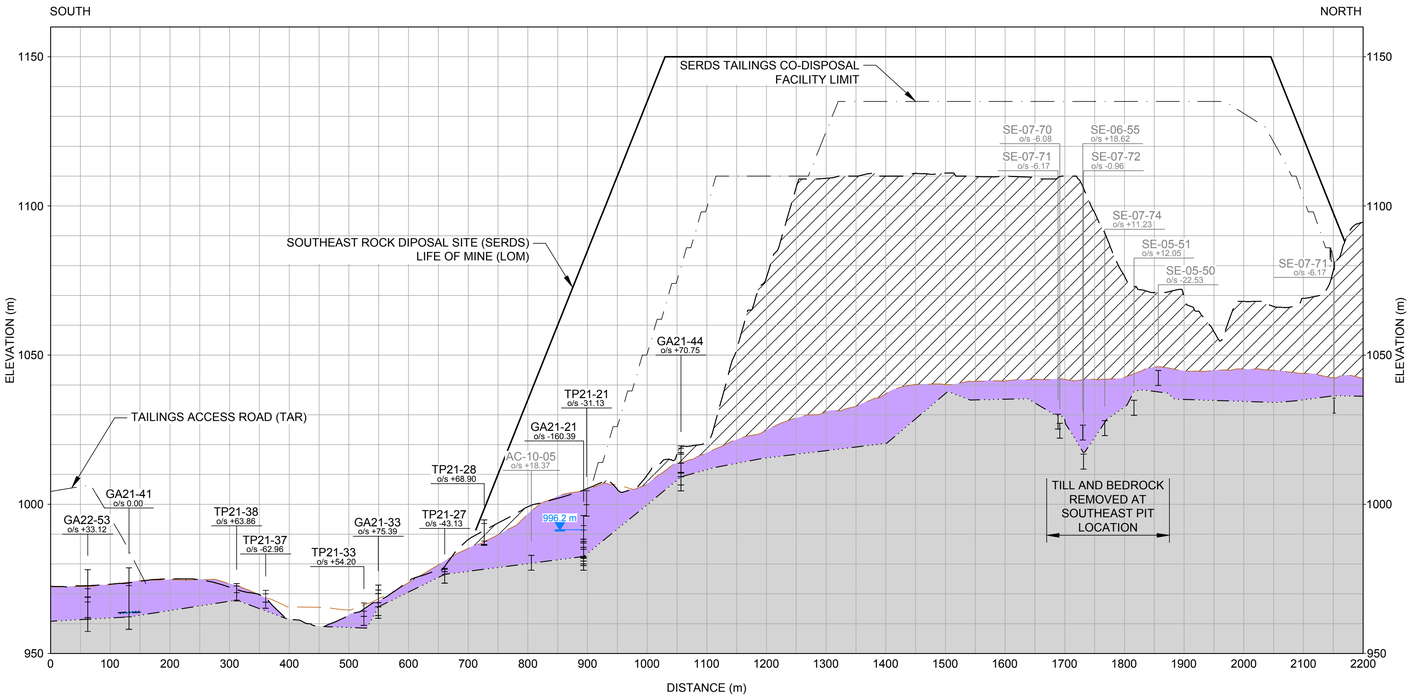

HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

E 01 SURFICIAL GEOLOGY CROSS-SECTION

LEGEND

- 2021 EXISTING GROUND (REFERENCE 1)
- 2004 ORIGINAL GROUND (REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMIT (SEE REFERENCE 3)
- GEOLOGICAL INTERPRETATION WITH HIGH DEGREE OF UNCERTAINTY (SEE NOTE 2)
- PIEZOMETRIC LEVEL

NOTES

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2. DATA CONCERNING THE VARIOUS STRATA HAVE BEEN OBTAINED AT TEST HOLE LOCATIONS ONLY. THE SOIL STRATIGRAPHY BETWEEN TEST HOLES HAS BEEN INFERRED FROM GEOLOGICAL EVIDENCE AND MAY VARY FROM THAT SHOWN.

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TEST HOLE LEGEND

BH19-02 o/s -88.59
- DENOTES TEST HOLE TYPE, INVESTIGATION YEAR AND ID NUMBER
- DENOTES PERPENDICULAR OFFSET (o/s) FROM TEST HOLE TO SECTION LINE IN METRES

TEST HOLE RECORD SHOWING SOIL ELEVATIONS (FOR DETAILED GEOTECHNICAL INFORMATION REFER TO RECORD OF BOREHOLE)

SOIL UNITS

- FILL
- TILL
- GLACIOLACUSTRINE
- BEDROCK

NOT FOR CONSTRUCTION

0 50 100
VERTICAL SCALE 1:1,000 METRES

0 200 400
HORIZONTAL SCALE 1:5,000 METRES

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CLIENT: MOUNT POLLEY MINING CORPORATION

CONSULTANT: wsp

YYYY-MM-DD	2024-01-26
DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
TAILINGS CO-DISPOSAL
FOUNDATION CHARACTERIZATION

TITLE
SURFICIAL GEOLOGY CROSS-SECTION E

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	05

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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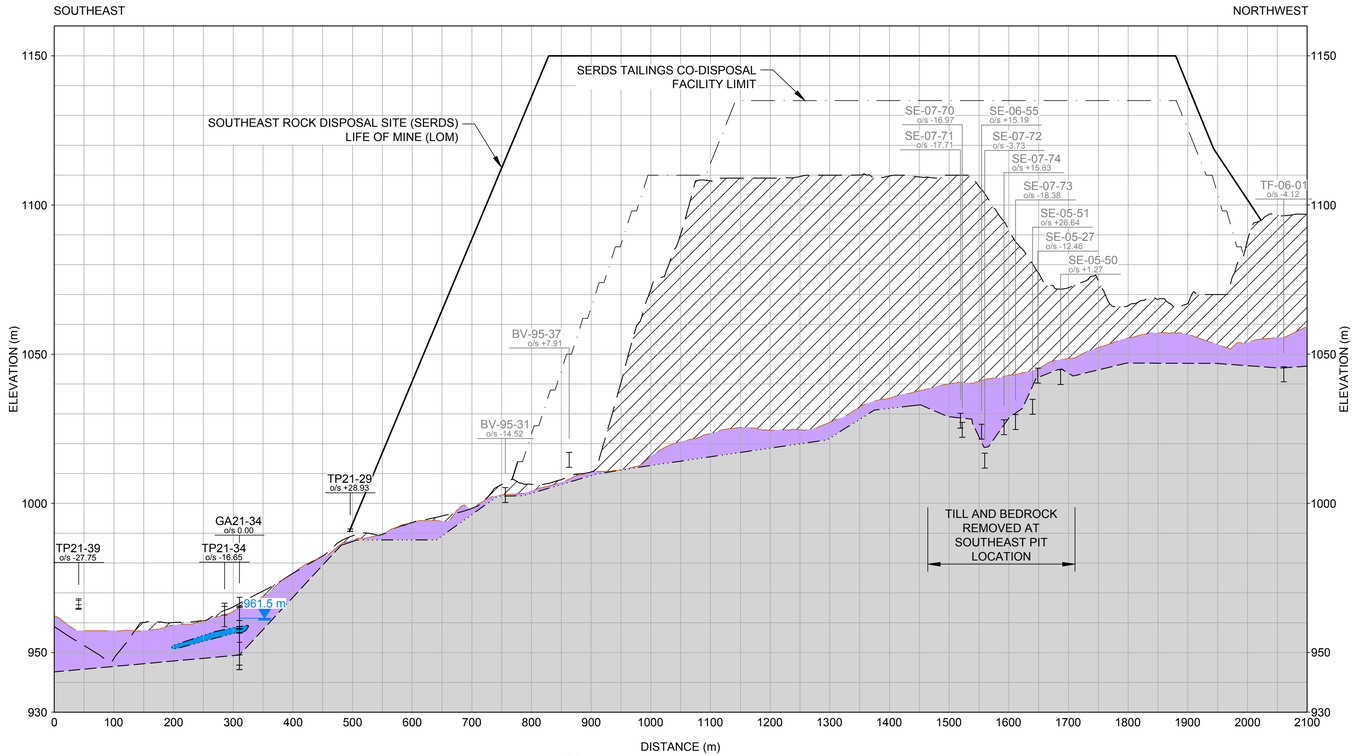
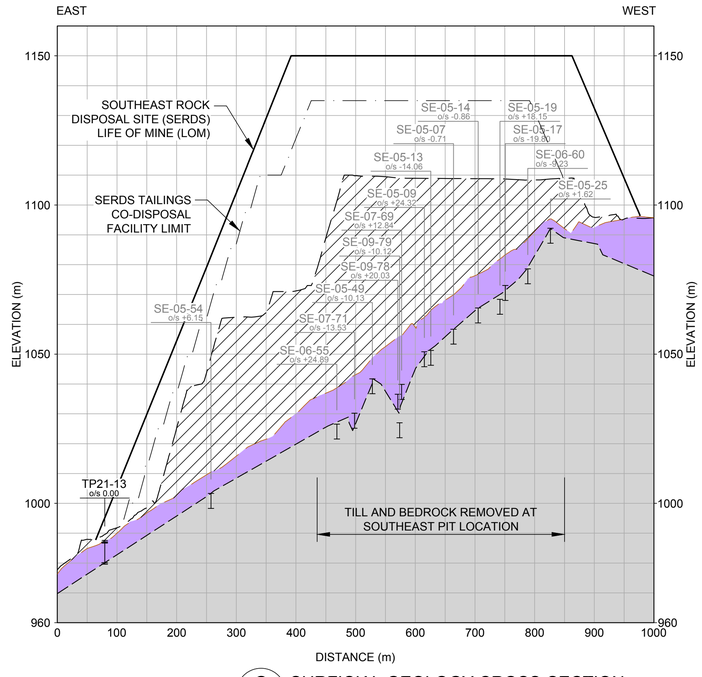


HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

F 01 SURFICIAL GEOLOGY CROSS-SECTION



HORIZONTAL SCALE 1:5 000 m
VERTICAL SCALE 1:1 000 m

G 01 SURFICIAL GEOLOGY CROSS-SECTION

LEGEND

- 2021 EXISTING GROUND (REFERENCE 1)
- 2004 ORIGINAL GROUND (REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMIT (SEE REFERENCE 3)
- GEOLOGICAL INTERPRETATION WITH LOW TO MODERATE UNCERTAINTY (SEE NOTE 2)
- GEOLOGICAL INTERPRETATION WITH HIGH DEGREE OF UNCERTAINTY (SEE NOTE 2)
- PIEZOMETRIC LEVEL

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
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TEST HOLE LEGEND

BH19-02 o/s -88.59 — DENOTES TEST HOLE TYPE, INVESTIGATION YEAR AND ID NUMBER; DENOTES PERPENDICULAR OFFSET (o/s) FROM TEST HOLE TO SECTION LINE IN METRES

TEST HOLE RECORD SHOWING SOIL ELEVATIONS (FOR DETAILED GEOTECHNICAL INFORMATION REFER TO RECORD OF BOREHOLE)

SOIL UNITS

FILL; GLACIOLACUSTRINE; TILL; BEDROCK

NOT FOR CONSTRUCTION

0 50 100
VERTICAL SCALE 1:1,000 METRES

0 200 400
HORIZONTAL SCALE 1:5,000 METRES

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CLIENT: MOUNT POLLEY MINING CORPORATION

CONSULTANT: wsp

YYYY-MM-DD	2024-01-26
DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
TAILINGS CO-DISPOSAL
FOUNDATION CHARACTERIZATION

TITLE
SURFICIAL GEOLOGY CROSS-SECTIONS F AND G

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	06

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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D2 – Geotechnical Investigations Summary and Data Tables

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
GA21-12	GA21-12-L1	FILL	2500.918	4196.786	995.834
GA21-12	GA21-12-L2	ABLATION TILL	2500.918	4196.786	995.074
GA21-12	GA21-12-L7	GLACIOFLUVIAL	2500.918	4196.786	983.184
GA21-12	GA21-12-L8	BASAL TILL	2500.918	4196.786	982.114
GA21-12	GA21-12-L11	BEDROCK	2500.918	4196.786	980.594
GA21-14	GA21-14-L1	ABLATION TILL	1977.991	4327.589	986.669
GA21-14	GA21-14-L4	GLACIOFLUVIAL	1977.991	4327.589	981.789
GA21-14	GA21-14-L5	ABLATION TILL	1977.991	4327.589	981.029
GA21-14	GA21-14-L6	GLACIOFLUVIAL	1977.991	4327.589	979.049
GA21-14	GA21-14-L8	BASAL TILL	1977.991	4327.589	976.459
GA21-14	GA21-14-L9	GLACIOFLUVIAL	1977.991	4327.589	975.699
GA21-14	GA21-14-L10	BASAL TILL	1977.991	4327.589	974.939
GA21-14	GA21-14-L11	BEDROCK	1977.991	4327.589	972.649
GA21-15	GA21-15-L1	ABLATION TILL	1826.771	4418.731	972.117
GA21-15	GA21-15-L4	BASAL TILL	1826.771	4418.731	961.757
GA21-15	GA21-15-L5	GLACIOFLUVIAL	1826.771	4418.731	961.447
GA21-15	GA21-15-L6	BASAL TILL	1826.771	4418.731	960.687
GA21-15	GA21-15-L8	GLACIOFLUVIAL	1826.771	4418.731	958.397
GA21-15	GA21-15-L9	BASAL TILL	1826.771	4418.731	958.097
GA21-15	GA21-15-L11	BEDROCK	1826.771	4418.731	951.387
GA21-16	GA21-16-L1	FILL	1704.51	4488.95	968.46
GA21-16	GA21-16-L2	ABLATION TILL	1704.51	4488.95	967.24
GA21-16	GA21-16-L3	BASAL TILL	1704.51	4488.95	963.89
GA21-16	GA21-16-L5	GLACIOFLUVIAL	1704.51	4488.95	960.99
GA21-16	GA21-16-L6	BASAL TILL	1704.51	4488.95	960.54
GA21-16	GA21-16-L7	BEDROCK	1704.51	4488.95	957.79
GA21-19	GA21-19-L1	FILL	1309.55	3602.36	987.08
GA21-19	GA21-19-L2	ABLATION TILL	1309.55	3602.36	985.4
GA21-19	GA21-19-L4	BEDROCK	1309.55	3602.36	980.83
GA21-20	GA21-20-L1	FILL	1504.994	3709.62	1021.179
GA21-20	GA21-20-L4	ABLATION TILL	1504.994	3709.62	1015.689
GA21-20	GA21-20-L5	GLACIOLACUSTRINE	1504.994	3709.62	1010.969
GA21-20	GA21-20-L6	ABLATION TILL	1504.994	3709.62	1010.919
GA21-20	GA21-20-L9	BASAL TILL	1504.994	3709.62	1007.159
GA21-20	GA21-20-L16	BEDROCK	1504.994	3709.62	1002.589
GA21-21	GA21-21-L1	FILL	1325.285	3805.436	996.213
GA21-21	GA21-21-L2	ABLATION TILL	1325.285	3805.436	992.863
GA21-21	GA21-21-L5	GLACIOFLUVIAL	1325.285	3805.436	987.523
GA21-21	GA21-21-L6	BASAL TILL	1325.285	3805.436	987.073
GA21-21	GA21-21-L12	BEDROCK	1325.285	3805.436	982.193
GA21-31	GA21-31-L1	FILL	958.97	3664.619	982.745
GA21-31	GA21-31-L4	ABLATION TILL	958.97	3664.619	976.495
GA21-31	GA21-31-L10	GLACIOLACUSTRINE	958.97	3664.619	966.595
GA21-31	GA21-31-L11	GLACIOFLUVIAL	958.97	3664.619	964.915
GA21-31	GA21-31-L12	GLACIOLACUSTRINE	958.97	3664.619	964.605
GA21-31	GA21-31-L13	BASAL TILL	958.97	3664.619	963.695
GA21-31	GA21-31-L14	BEDROCK	958.97	3664.619	962.015
GA21-33	GA21-33-L1	FILL	1022.798	4092.562	972.938
GA21-33	GA21-33-L2	ABLATION TILL	1022.798	4092.562	971.258
GA21-33	GA21-33-L4	BEDROCK	1022.798	4092.562	966.998
GA21-34	GA21-34-L1	FILL	1013.86	4283.662	968.519
GA21-34	GA21-34-L2	ABLATION TILL	1013.86	4283.662	965.619
GA21-34	GA21-34-L5	GLACIOLACUSTRINE	1013.86	4283.662	958.769
GA21-34	GA21-34-L6	ABLATION TILL	1013.86	4283.662	957.999
GA21-34	GA21-34-L7	GLACIOLACUSTRINE	1013.86	4283.662	957.849
GA21-34	GA21-34-L8	ABLATION TILL	1013.86	4283.662	956.689
GA21-34	GA21-14-L9	GLACIOFLUVIAL	1013.86	4283.662	975.699
GA21-34	GA21-34-L10	ABLATION TILL	1013.86	4283.662	953.429
GA21-34	GA21-34-L12	BEDROCK	1013.86	4283.662	949.169
GA21-35	GA21-35-L1	ABLATION TILL	985.383	4422.176	956.321
GA21-35	GA21-35-L3	BASAL TILL	985.383	4422.176	950.071
GA21-35	GA21-35-L4	BEDROCK	985.383	4422.176	947.181
GA21-36	GA21-36-L1	ABLATION TILL	757.658	3664.863	980.337
GA21-36	GA21-36-L2	GLACIOFLUVIAL	757.658	3664.863	978.817
GA21-36	GA21-36-L3	ABLATION TILL	757.658	3664.863	978.757
GA21-36	GA21-36-L6	GLACIOLACUSTRINE	757.658	3664.863	976.527
GA21-36	GA21-36-L7	BASAL TILL	757.658	3664.863	976.067
GA21-36	GA21-36-L9	GLACIOFLUVIAL	757.658	3664.863	974.397
GA21-36	GA21-36-L10	BASAL TILL	757.658	3664.863	974.087
GA21-36	GA21-36-L11	BEDROCK	757.658	3664.863	971.197
GA21-37	GA21-37-L1	FILL	806.727	3881.757	981.827
GA21-37	GA21-37-L3	ABLATION TILL	806.727	3881.757	975.277
GA21-37	GA21-37-L5	BASAL TILL	806.727	3881.757	966.737
GA21-37	GA21-37-L7	BEDROCK	806.727	3881.757	961.097
GA21-41	GA21-41-L1	FILL	598.201	4084.085	978.707
GA21-41	GA21-41-L2	ABLATION TILL	598.201	4084.085	972.767
GA21-41	GA21-41-L7	GLACIOLACUSTRINE	598.201	4084.085	963.927
GA21-41	GA21-41-L8	ABLATION TILL	598.201	4084.085	963.617
GA21-41	GA21-41-L9	BEDROCK	598.201	4084.085	962.247
GA21-42	GA21-42-L1	FILL	1503.83	3680.8	1021.38
GA21-42	GA21-42-L5	ABLATION TILL	1503.83	3680.8	1013.15
GA21-42	GA21-42-L7	BASAL TILL	1503.83	3680.8	1007.97
GA21-42	GA21-42-L13	BEDROCK	1503.83	3680.8	999.74
GA21-43	GA21-43-L1	FILL	1507.92	3735.77	1020.89

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
GA21-43	GA21-43-L2	ABLATION TILL	1507.92	3735.77	1017.38
GA21-43	GA21-43-L7	BASAL TILL	1507.92	3735.77	1009.92
GA21-43	GA21-43-L8	BEDROCK	1507.92	3735.77	1008.7
GA21-44	GA21-44-L1	FILL	1523.01	4007.91	1019.58
GA21-44	GA21-44-L6	BASAL TILL	1523.01	4007.91	1010.74
GA21-44	GA21-44-L8	BEDROCK	1523.01	4007.91	1009.22
GA21-45	GA21-45-L1	FILL	1512.364	3786.557	1020.792
GA21-45	GA21-45-L2	ABLATION TILL	1512.364	3786.557	1018.812
GA21-45	GA21-45-L5	BEDROCK	1512.364	3786.557	1015.612
TP21-11	TP21-11-L1	TOPSOIL	2657.687	4049.845	1013.979
TP21-11	TP21-11-L2	ABLATION TILL	2657.687	4049.845	1013.679
TP21-11	TP21-11-L4	BEDROCK	2657.687	4049.845	1009.679
TP21-12	TP21-12-L1	ABLATION TILL	2507.796	4164.81	998.926
TP21-12B	TP21-12B-L1	FILL	2507.796	4164.81	998.926
TP21-12B	TP21-12B-L2	TOPSOIL	2507.796	4164.81	998.626
TP21-12B	TP21-12B-L3	ABLATION TILL	2507.796	4164.81	997.726
TP21-13	TP21-13-L1	FILL	2261.513	4231.332	987.596
TP21-13	TP21-13-L2	TOPSOIL	2261.513	4231.332	987.096
TP21-13	TP21-13-L3	ABLATION TILL	2261.513	4231.332	986.996
TP21-13	TP21-13-L5	BEDROCK	2261.513	4231.332	980.096
TP21-14	TP21-14-L1	ABLATION TILL	1992.833	4302.177	992.11
TP21-14B	TP21-14B-L1	ABLATION TILL	1995.459	4319.622	988.167
TP21-15	TP21-15-L1	ABLATION TILL	1809.093	4377.498	978.407
TP21-16	TP21-16-L1	ABLATION TILL	1725.449	4446.347	971.47
TP21-17	TP21-17-L1	TOPSOIL	1624.014	4266.769	993.66
TP21-17	TP21-17-L2	ABLATION TILL	1624.014	4266.769	993.46
TP21-17	TP21-17-L5	BEDROCK	1624.014	4266.769	987.36
TP21-18	TP21-18-L1	ABLATION TILL	1389.722	3269.896	999.724
TP21-18	TP21-18-L4	BEDROCK	1389.722	3269.896	997.424
TP21-19	TP21-19-L1	TOPSOIL	1354.965	3523.996	989.971
TP21-19	TP21-19-L2	ABLATION TILL	1354.965	3523.996	989.671
TP21-20	TP21-20-L1	ABLATION TILL	1456.477	3745.086	1010.622
TP21-21	TP21-21-L1	TOPSOIL	1350.584	3932.292	1004.538
TP21-21	TP21-21-L2	ABLATION TILL	1350.584	3932.292	1004.238
TP21-22	TP21-22-L1	ABLATION TILL	1433.035	4066.88	1008.902
TP21-22	TP21-22-L2	BEDROCK	1433.035	4066.88	1008.052
TP21-23	TP21-23-L1	ABLATION TILL	1441.14	4293.632	985.804
TP21-23	TP21-23-L4	BEDROCK	1441.14	4293.632	980.804
TP21-24	TP21-24-L1	ABLATION TILL	1501.909	4421.669	972.412
TP21-25	TP21-25-L1	ABLATION TILL	1165.038	3415.264	988.458
TP21-25	TP21-25-L4	BEDROCK	1165.038	3415.264	985.658
TP21-26	TP21-26-L1	ABLATION TILL	1201.906	3588.277	982.07
TP21-26	TP21-26-L4	BEDROCK	1201.906	3588.277	976.17
TP21-27	TP21-27-L1	ABLATION TILL	1113.966	3957.968	978.521
TP21-27	TP21-27-L5	BEDROCK	1113.966	3957.968	973.621
TP21-28	TP21-28-L1	ABLATION TILL	1197.099	4058.13	994.762
TP21-28	TP21-28-L4	BEDROCK	1197.099	4058.13	986.462
TP21-29	TP21-29-L1	ABLATION TILL	1197.491	4243.824	991.368
TP21-29	TP21-29-L2	BEDROCK	1197.491	4243.824	990.618
TP21-30	TP21-30-L1	FILL	1159.063	4438.731	962.164
TP21-30	TP21-30-L3	ABLATION TILL	1159.063	4438.731	956.164
TP21-31	TP21-31-L1	ORGANICS	999.807	3587.405	976.925
TP21-31	TP21-31-L2	ABLATION TILL	999.807	3587.405	976.625
TP21-32	TP21-32-L1	TOPSOIL	1009.316	3877.373	966.853
TP21-32	TP21-32-L2	ABLATION TILL	1009.316	3877.373	966.053
TP21-32	TP21-32-L3	BEDROCK	1009.316	3877.373	965.353
TP21-33	TP21-33-L1	ABLATION TILL	995.635	4075.447	966.939
TP21-34	TP21-34-L1	ABLATION TILL	984.461	4277.158	966.55
TP21-35	TP21-35-L1	TOPSOIL	979.415	4421.654	954.943
TP21-35	TP21-35-L2	ABLATION TILL	979.415	4421.654	953.743
TP21-36	TP21-36-L1	ABLATION TILL	753.737	3672.681	980.372
TP21-37	TP21-37-L1	TOPSOIL	814.527	3985.749	971.156
TP21-37	TP21-37-L2	ABLATION TILL	814.527	3985.749	970.856
TP21-38	TP21-38-L1	ABLATION TILL	786.53	4118.656	973.377
TP21-38	TP21-38-L4	BEDROCK	786.53	4118.656	967.877
TP21-39	TP21-39-L1	TOPSOIL	752.379	4354.789	968.027
TP21-39	TP21-39-L2	ABLATION TILL	752.379	4354.789	967.527
TP21-39	TP21-39-L4	BEDROCK	752.379	4354.789	964.827
TP21-40	TP21-40-L1	ABLATION TILL	604.815	3991.051	976.399
TP21-41	TP21-41-L1	ABLATION TILL	624.693	4131.717	972.96
MP-00-34		BEDROCK	2182.31	3678.12	1065.56
PZ-08-34		BEDROCK	1539.3	3199.92	1026.14
BV-95-31		BEDROCK	1424.39	4109.72	1005.29
BV-97-120		BEDROCK	1483.99	4241	1024.39
BV-97-119		BEDROCK	1432.74	4238.19	968.39
BV-95-38		BEDROCK	1382.96	4217.06	988.39
BV-95-36		BEDROCK	2666.94	4101.33	1022.39
AC-07-01		BEDROCK	1544.56	3305.35	1023.87
SE-09-78		BEDROCK	2147.48	3753.17	1036.56
SE-09-77		BEDROCK	2159.35	3733.34	1036.58
SE-07-75		BEDROCK	2304.3	3748.5	1051.65
SE-07-66		BEDROCK	2119.1	3567.6	1079.85
PZ-10-53		BEDROCK	1537.9	3194.7	1024.55
PZ-10-52		BEDROCK	1537.9	3194.7	1024.55
PZ-09-50		BEDROCK	1539.3	3199.92	1024.92

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
PZ-09-48		BEDROCK	1753.2	3225.5	1065.75
PZ-09-47		BEDROCK	1753.1	3225.84	1065.76
PZ-09-46		BEDROCK	1601.4	3451.4	1022.25
PZ-09-45		BEDROCK	1601.6	3450.9	1022.45
PZ-09-41		BEDROCK	1624.3	3385.9	1031.35
PZ-09-40		BEDROCK	1600.1	3447.2	1022.45
PZ-08-30		BEDROCK	1598.98	3396.03	1023.81
PZ-08-22		BEDROCK	1600.93	3450.27	1021.93
PZ-08-21		BEDROCK	1755.52	3355.99	1057.6
AC-06-01		BEDROCK	1540	3201.9	1024.85
SE-06-61		BEDROCK	2020	3508.2	1088.1
SE-05-50		BEDROCK	2298.29	3789.51	1044.85
SE-05-47		BEDROCK	2096.74	3469.29	1090.35
SE-05-43		BEDROCK	1980.21	3618.79	1077.11
SE-05-41		BEDROCK	2020.52	3629.39	1077.82
SE-05-27		BEDROCK	2257.79	3790.42	1045.3
SE-05-25		BEDROCK	2060.31	3511.89	1092.21
SE-05-18		BEDROCK	2359.81	3498.63	1079.46
BV-95-37		BEDROCK	1532.3	4092.13	1017.09
BJ-11-02		BEDROCK	1048.5	3200.1	990.05
BV-97-118		BEDROCK	1486.55	4112.43	1073.79
PZ-10-57		BEDROCK	1669.2	3207.6	1046.65
PZ-10-56		BEDROCK	1540.1	3201.2	1024.25
PZ-10-54		BEDROCK	1537.9	3194.7	1023.94
SE-05-36		BEDROCK	2020.32	3588.97	1084.85
MP-00-35		BEDROCK	2183.73	3632.66	1070.83
BV-95-33		BEDROCK	1431.39	4166.7	997.39
BJ-11-01		BEDROCK	1347.5	3250.3	991.78
SE-05-39		BEDROCK	1979.4	3538.53	1086.38
PZ-10-59		BEDROCK	1686.8	3414.2	1045.53
PZ-08-29		BEDROCK	1559.18	3404.09	1012.28
PZ-07-11		BEDROCK	1772.71	3357.86	1057.77
SE-05-44		BEDROCK	1940.28	3660.09	1065.99
SE-05-37		BEDROCK	1939.18	3581.66	1080.11
SE-05-12		BEDROCK	2225.93	3761.77	1047.42
SE-05-03		BEDROCK	2223.15	3671.32	1061.9
SE-05-01		BEDROCK	2178.31	3670.83	1064.67
SE-06-62		BEDROCK	1940.4	3498.6	1081
SE-10-82		BEDROCK	1847.3	3721.8	1055.4
PZ-09-39		BEDROCK	1545.66	3446.29	1007.83
SE-05-24		BEDROCK	2180.93	3784.65	1041.97
P00-19		BEDROCK	2045.68	3994.43	1022.41
SE-07-65		BEDROCK	2160.2	3573.3	1074.8
SE-06-59		BEDROCK	2260.3	3590.1	1072.3
SE-06-57		BEDROCK	2180.7	3472.6	1085.1
SE-06-56		BEDROCK	2219.17	3351.77	1090.91
SE-05-51		BEDROCK	2263.64	3830.07	1034.84
SE-05-49		BEDROCK	2130.02	3802.4	1041.74
SE-05-35		BEDROCK	2180.43	3549.06	1078.5
SE-05-08		BEDROCK	2060.3	3669.91	1065.06
SE-05-04		BEDROCK	2224.59	3630.25	1067.62
PZ-09-43		BEDROCK	1624.8	3384.1	1028.3
PZ-09-42		BEDROCK	1624.8	3384.1	1028.3
PZ-08-24		BEDROCK	1850.21	3613.08	1063.73
PZ-08-20		BEDROCK	1804.78	3352.56	1066.26
PZ-08-19		BEDROCK	1836.07	3338.87	1073.42
PZ-07-15		BEDROCK	1747.8	3199.8	1064.6
PZ-07-13		BEDROCK	1743.15	3394.36	1049.31
PZ-07-10		BEDROCK	1772.71	3357.86	1056.24
PZ-07-05		BEDROCK	1815.2	3280.3	1071.1
SE-05-29		BEDROCK	2259.77	3708.25	1056.01
BV-95-34		BEDROCK	1426.99	4058.17	1012.69
TF-06-02		BEDROCK	2590.28	3748.53	1037.96
SE-09-81		BEDROCK	2113.08	3489.07	1081.56
PZ-07-09		BEDROCK	1828.25	3356.84	1072.98
AC-07-02		BEDROCK	1452.7	3379.2	995.9
SE-05-54		BEDROCK	2219.13	4058.38	1003.33
PZ-10-58		BEDROCK	1682.4	3410.7	1042.78
SE-06-58		BEDROCK	2220.5	3511.4	1079.8
SE-05-53		BEDROCK	2022.54	3543.19	1085.84
PZ-07-14		BEDROCK	1637.2	3305.7	1033.88
SE-05-46		BEDROCK	2135.82	3469.17	1083.74
SE-07-63		BEDROCK	2125.9	3526.8	1078.87
BV-95-27		BEDROCK	1631.33	4138.41	1010.59
SE-05-48		BEDROCK	2262.23	3628.24	1064.67
SE-05-38		BEDROCK	2101.64	3788.7	1040.4
SE-05-30		BEDROCK	2098.94	3552.7	1076.94
SE-05-28		BEDROCK	2139.77	3548.73	1076.49
SE-05-23		BEDROCK	2225.23	3588.86	1070.06
SE-05-22		BEDROCK	2100.86	3509.44	1080.09
SE-05-10		BEDROCK	2178.32	3711.42	1053.55
PZ-07-06		BEDROCK	1778.5	3360.5	1053.2
TF-06-03		BEDROCK	2590.28	3748.53	1035.53
SE-07-67		BEDROCK	2019.9	3671.4	1062.06
SE-07-64		BEDROCK	2158.2	3529.8	1076.76

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
PZ-09-49		BEDROCK	1672.46	3208.77	1041.94
PZ-08-17		BEDROCK	1883.09	3301.92	1080.9
PZ-07-16		BEDROCK	1645.4	3393.4	1033.26
PZ-09-37		BEDROCK	1887.32	3353.23	1078.03
SE-05-32		BEDROCK	1981.11	3698.92	1058.35
SE-05-20		BEDROCK	2179.82	3749.58	1045.87
MP-00-36		BEDROCK	2233.19	3661.84	1059.23
PZ-05-03		BEDROCK	1864.32	3420.36	1073.01
SE-06-60		BEDROCK	2060.2	3551.5	1078.6
TF-06-05		BEDROCK	2326.04	3869.37	1023.28
SE-09-80		BEDROCK	2143.58	3487.48	1079.76
PZ-10-55		BEDROCK	1623.5	3389.3	1023.43
PZ-08-18		BEDROCK	1858.41	3387.52	1071.86
SE-05-16		BEDROCK	2265.27	3668.62	1058.33
SE-05-14		BEDROCK	2090.86	3629.35	1065.48
SE-05-02		BEDROCK	2138.5	3671.19	1056.5
C2-11-104		BEDROCK	2784.8	2710.3	1110.58
TF-06-01		BEDROCK	2645.43	3649.81	1045.78
SE-05-34		BEDROCK	2138.31	3510.73	1077.93
SE-07-74		BEDROCK	2215.1	3837	1028.01
SE-07-71		BEDROCK	2134.9	3832.2	1030.21
PZ-09-51		BEDROCK	1672.46	3208.77	1038.89
PZ-08-28		BEDROCK	1545.79	3447.01	1000.65
SE-05-52		BEDROCK	2339.85	3834.88	1027.61
SE-05-45		BEDROCK	2178.42	3511.99	1075.46
SE-05-42		BEDROCK	2020.02	3710.15	1054.36
SE-05-31		BEDROCK	2138.89	3591.6	1068.46
SE-05-26		BEDROCK	2221.78	3551.62	1071.74
SE-05-21		BEDROCK	2181.13	3786.27	1034.86
SE-05-17		BEDROCK	2060.24	3590.57	1073.01
SE-05-11		BEDROCK	2221.4	3729.15	1046.25
SE-05-09		BEDROCK	2139.56	3709.3	1050.79
SE-05-07		BEDROCK	2102.18	3668.96	1058.36
SE-05-06		BEDROCK	2140.93	3630.89	1061.57
SE-05-05		BEDROCK	2180.23	3590.07	1066.14
AC-10-03		BEDROCK	1430.42	3654.92	990.1
SE-05-19		BEDROCK	2099.19	3588.86	1068.36
AC-10-04		BEDROCK	1362.15	3708.81	980.66
SE-06-55		BEDROCK	2179.87	3850.12	1026.53
SE-05-13		BEDROCK	2099.66	3709.22	1051.28
SE-10-83		BEDROCK	1748.99	3675.47	1043.42
CON07-01		BEDROCK	2194.9	3005.2	1098.2
SE-07-73		BEDROCK	2220.9	3798.3	1029.76
SE-07-70		BEDROCK	2138	3831.8	1027.16
SE-07-69		BEDROCK	2138.8	3748.9	1039.86
PZ-08-31		BEDROCK	1650.41	3383	1027.91
PZ-08-27		BEDROCK	1559.36	3552.14	1001.64
PZ-08-26		BEDROCK	1655.49	3770.48	1018.49
PZ-07-08		BEDROCK	1680.61	3342.69	1042.55
PZ-07-07		BEDROCK	1685.21	3410.17	1042.45
SE-07-76		BEDROCK	2255.4	3750.9	1037.35
SE-05-33		BEDROCK	1939.35	3738.51	1046.56
AC-10-05		BEDROCK	1267.1	3995.77	982.89
PZ-08-23		BEDROCK	1878.48	3486.26	1065.71
PZ-09-35		BEDROCK	1681.36	3368.3	1039.89
PZ-08-25		BEDROCK	1437.42	3755.33	991.15
SE-05-40		BEDROCK	2059.99	3708.63	1047.29
SE-05-15		BEDROCK	2060.46	3630.1	1060.24
PZ-09-44		BEDROCK	1689.6	3461.6	1038.79
PZ-08-32		BEDROCK	1683.72	3378.45	1039.01
PZ-10-60		BEDROCK	1820.1	3478.5	1048.77
PZ-05-02		BEDROCK	1789.02	3458.45	1044.72
PZ-05-01		BEDROCK	1786.51	3420.85	1044.03
PZ-09-36		BEDROCK	1891.35	3331.92	1066.98
SE-07-68		BEDROCK	2059.5	3749.2	1035.12
SE-07-72		BEDROCK	2177.9	3830.6	1016.81
PZ-09-38		BEDROCK	1853.64	3364.13	1056.97
PZ-07-12		BEDROCK	1850.78	3172.42	1065.74
SE-09-79		BEDROCK	2117.67	3758.54	1027.02
PZ-05-04		BEDROCK	1743.86	3282.7	1029
NS06-1		BEDROCK	2867.704	4091.094	643.797

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
GA21-12	GA21-12-L1	FILL	2500.9	4196.8	995.83
GA21-12	GA21-12-L2	ABLATION TILL	2500.9	4196.8	995.07
GA21-12	GA21-12-L7	GLACIOFLUVIAL	2500.9	4196.8	983.18
GA21-12	GA21-12-L8	BASAL TILL	2500.9	4196.8	982.11
GA21-12	GA21-12-L11	BEDROCK	2500.9	4196.8	980.59
GA21-14	GA21-14-L1	ABLATION TILL	1978.0	4327.6	986.67
GA21-14	GA21-14-L4	GLACIOFLUVIAL	1978.0	4327.6	981.79
GA21-14	GA21-14-L5	ABLATION TILL	1978.0	4327.6	981.03
GA21-14	GA21-14-L6	GLACIOFLUVIAL	1978.0	4327.6	979.05
GA21-14	GA21-14-L8	BASAL TILL	1978.0	4327.6	976.46
GA21-14	GA21-14-L9	GLACIOFLUVIAL	1978.0	4327.6	975.70
GA21-14	GA21-14-L10	BASAL TILL	1978.0	4327.6	974.94
GA21-14	GA21-14-L11	BEDROCK	1978.0	4327.6	972.65
GA21-15	GA21-15-L1	ABLATION TILL	1826.8	4418.7	972.12
GA21-15	GA21-15-L4	BASAL TILL	1826.8	4418.7	961.76
GA21-15	GA21-15-L5	GLACIOFLUVIAL	1826.8	4418.7	961.45
GA21-15	GA21-15-L6	BASAL TILL	1826.8	4418.7	960.69
GA21-15	GA21-15-L8	GLACIOFLUVIAL	1826.8	4418.7	958.40
GA21-15	GA21-15-L9	BASAL TILL	1826.8	4418.7	958.10
GA21-15	GA21-15-L11	BEDROCK	1826.8	4418.7	951.39
GA21-16	GA21-16-L1	FILL	1704.5	4489.0	968.46
GA21-16	GA21-16-L2	ABLATION TILL	1704.5	4489.0	967.24
GA21-16	GA21-16-L3	BASAL TILL	1704.5	4489.0	963.89
GA21-16	GA21-16-L5	GLACIOFLUVIAL	1704.5	4489.0	960.99
GA21-16	GA21-16-L6	BASAL TILL	1704.5	4489.0	960.54
GA21-16	GA21-16-L7	BEDROCK	1704.5	4489.0	957.79
GA21-19	GA21-19-L1	FILL	1309.6	3602.4	987.08
GA21-19	GA21-19-L2	ABLATION TILL	1309.6	3602.4	985.40
GA21-19	GA21-19-L4	BEDROCK	1309.6	3602.4	980.83
GA21-20	GA21-20-L1	FILL	1505.0	3709.6	1021.18
GA21-20	GA21-20-L4	ABLATION TILL	1505.0	3709.6	1015.69
GA21-20	GA21-20-L5	GLACIOLACUSTRINE	1505.0	3709.6	1010.97
GA21-20	GA21-20-L6	ABLATION TILL	1505.0	3709.6	1010.92
GA21-20	GA21-20-L9	BASAL TILL	1505.0	3709.6	1007.16
GA21-20	GA21-20-L16	BEDROCK	1505.0	3709.6	1002.59
GA21-21	GA21-21-L1	FILL	1325.3	3805.4	996.21
GA21-21	GA21-21-L2	ABLATION TILL	1325.3	3805.4	992.86
GA21-21	GA21-21-L5	GLACIOFLUVIAL	1325.3	3805.4	987.52
GA21-21	GA21-21-L6	BASAL TILL	1325.3	3805.4	987.07
GA21-21	GA21-21-L12	BEDROCK	1325.3	3805.4	982.19
GA21-31	GA21-31-L1	FILL	959.0	3664.6	982.75
GA21-31	GA21-31-L4	ABLATION TILL	959.0	3664.6	976.50
GA21-31	GA21-31-L10	GLACIOLACUSTRINE	959.0	3664.6	966.60
GA21-31	GA21-31-L11	GLACIOFLUVIAL	959.0	3664.6	964.92
GA21-31	GA21-31-L12	GLACIOLACUSTRINE	959.0	3664.6	964.61
GA21-31	GA21-31-L13	BASAL TILL	959.0	3664.6	963.70
GA21-31	GA21-31-L14	BEDROCK	959.0	3664.6	962.02
GA21-33	GA21-33-L1	FILL	1022.8	4092.6	972.94
GA21-33	GA21-33-L2	ABLATION TILL	1022.8	4092.6	971.26
GA21-33	GA21-33-L4	BEDROCK	1022.8	4092.6	967.00
GA21-34	GA21-34-L1	FILL	1013.9	4283.7	968.52
GA21-34	GA21-34-L2	ABLATION TILL	1013.9	4283.7	965.62
GA21-34	GA21-34-L5	GLACIOLACUSTRINE	1013.9	4283.7	958.77
GA21-34	GA21-34-L6	ABLATION TILL	1013.9	4283.7	958.00
GA21-34	GA21-34-L7	GLACIOLACUSTRINE	1013.9	4283.7	957.85
GA21-34	GA21-34-L8	ABLATION TILL	1013.9	4283.7	956.69
GA21-34	GA21-14-L9	GLACIOFLUVIAL	1013.9	4283.7	975.70
GA21-34	GA21-34-L10	ABLATION TILL	1013.9	4283.7	953.43
GA21-34	GA21-34-L12	BEDROCK	1013.9	4283.7	949.17
GA21-35	GA21-35-L1	ABLATION TILL	985.4	4422.2	956.32
GA21-35	GA21-35-L3	BASAL TILL	985.4	4422.2	950.07
GA21-35	GA21-35-L4	BEDROCK	985.4	4422.2	947.18
GA21-36	GA21-36-L1	ABLATION TILL	757.7	3664.9	980.34
GA21-36	GA21-36-L2	GLACIOFLUVIAL	757.7	3664.9	978.82
GA21-36	GA21-36-L3	ABLATION TILL	757.7	3664.9	978.76
GA21-36	GA21-36-L6	GLACIOLACUSTRINE	757.7	3664.9	976.53
GA21-36	GA21-36-L7	BASAL TILL	757.7	3664.9	976.07
GA21-36	GA21-36-L9	GLACIOFLUVIAL	757.7	3664.9	974.40
GA21-36	GA21-36-L10	BASAL TILL	757.7	3664.9	974.09
GA21-36	GA21-36-L11	BEDROCK	757.7	3664.9	971.20
GA21-37	GA21-37-L1	FILL	806.7	3881.8	981.83
GA21-37	GA21-37-L3	ABLATION TILL	806.7	3881.8	975.28
GA21-37	GA21-37-L5	BASAL TILL	806.7	3881.8	966.74
GA21-37	GA21-37-L7	BEDROCK	806.7	3881.8	961.10
GA21-41	GA21-41-L1	FILL	598.2	4084.1	978.71
GA21-41	GA21-41-L2	ABLATION TILL	598.2	4084.1	972.77
GA21-41	GA21-41-L7	GLACIOLACUSTRINE	598.2	4084.1	963.93
GA21-41	GA21-41-L8	ABLATION TILL	598.2	4084.1	963.62
GA21-41	GA21-41-L9	BEDROCK	598.2	4084.1	962.25
GA21-42	GA21-42-L1	FILL	1503.8	3680.8	1021.38
GA21-42	GA21-42-L5	ABLATION TILL	1503.8	3680.8	1013.15
GA21-42	GA21-42-L7	BASAL TILL	1503.8	3680.8	1007.97
GA21-42	GA21-42-L13	BEDROCK	1503.8	3680.8	999.74
GA21-43	GA21-43-L1	FILL	1507.9	3735.8	1020.89

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
GA21-43	GA21-43-L2	ABLATION TILL	1507.9	3735.8	1017.38
GA21-43	GA21-43-L7	BASAL TILL	1507.9	3735.8	1009.92
GA21-43	GA21-43-L8	BEDROCK	1507.9	3735.8	1008.70
GA21-44	GA21-44-L1	FILL	1523.0	4007.9	1019.58
GA21-44	GA21-44-L6	BASAL TILL	1523.0	4007.9	1010.74
GA21-44	GA21-44-L8	BEDROCK	1523.0	4007.9	1009.22
GA21-45	GA21-45-L1	FILL	1512.4	3786.6	1020.79
GA21-45	GA21-45-L2	ABLATION TILL	1512.4	3786.6	1018.81
GA21-45	GA21-45-L5	BEDROCK	1512.4	3786.6	1015.61
TP21-11	TP21-11-L1	TOPSOIL	2657.7	4049.8	1013.98
TP21-11	TP21-11-L2	ABLATION TILL	2657.7	4049.8	1013.68
TP21-11	TP21-11-L4	BEDROCK	2657.7	4049.8	1009.68
TP21-12	TP21-12-L1	ABLATION TILL	2507.8	4164.8	998.93
TP21-12B	TP21-12B-L1	FILL	2507.8	4164.8	998.93
TP21-12B	TP21-12B-L2	TOPSOIL	2507.8	4164.8	998.63
TP21-12B	TP21-12B-L3	ABLATION TILL	2507.8	4164.8	997.73
TP21-13	TP21-13-L1	FILL	2261.5	4231.3	987.60
TP21-13	TP21-13-L2	TOPSOIL	2261.5	4231.3	987.10
TP21-13	TP21-13-L3	ABLATION TILL	2261.5	4231.3	987.00
TP21-13	TP21-13-L5	BEDROCK	2261.5	4231.3	980.10
TP21-14	TP21-14-L1	ABLATION TILL	1992.8	4302.2	992.11
TP21-14B	TP21-14B-L1	ABLATION TILL	1995.5	4319.6	988.17
TP21-15	TP21-15-L1	ABLATION TILL	1809.1	4377.5	978.41
TP21-16	TP21-16-L1	ABLATION TILL	1725.4	4446.3	971.47
TP21-17	TP21-17-L1	TOPSOIL	1624.0	4266.8	993.66
TP21-17	TP21-17-L2	ABLATION TILL	1624.0	4266.8	993.46
TP21-17	TP21-17-L5	BEDROCK	1624.0	4266.8	987.36
TP21-18	TP21-18-L1	ABLATION TILL	1389.7	3269.9	999.72
TP21-18	TP21-18-L4	BEDROCK	1389.7	3269.9	997.42
TP21-19	TP21-19-L1	TOPSOIL	1355.0	3524.0	989.97
TP21-19	TP21-19-L2	ABLATION TILL	1355.0	3524.0	989.67
TP21-20	TP21-20-L1	ABLATION TILL	1456.5	3745.1	1010.62
TP21-21	TP21-21-L1	TOPSOIL	1350.6	3932.3	1004.54
TP21-21	TP21-21-L2	ABLATION TILL	1350.6	3932.3	1004.24
TP21-22	TP21-22-L1	ABLATION TILL	1433.0	4066.9	1008.90
TP21-22	TP21-22-L2	BEDROCK	1433.0	4066.9	1008.05
TP21-23	TP21-23-L1	ABLATION TILL	1441.1	4293.6	985.80
TP21-23	TP21-23-L4	BEDROCK	1441.1	4293.6	980.80
TP21-24	TP21-24-L1	ABLATION TILL	1501.9	4421.7	972.41
TP21-25	TP21-25-L1	ABLATION TILL	1165.0	3415.3	988.46
TP21-25	TP21-25-L4	BEDROCK	1165.0	3415.3	985.66
TP21-26	TP21-26-L1	ABLATION TILL	1201.9	3588.3	982.07
TP21-26	TP21-26-L4	BEDROCK	1201.9	3588.3	976.17
TP21-27	TP21-27-L1	ABLATION TILL	1114.0	3958.0	978.52
TP21-27	TP21-27-L5	BEDROCK	1114.0	3958.0	973.62
TP21-28	TP21-28-L1	ABLATION TILL	1197.1	4058.1	994.76
TP21-28	TP21-28-L4	BEDROCK	1197.1	4058.1	986.46
TP21-29	TP21-29-L1	ABLATION TILL	1197.5	4243.8	991.37
TP21-29	TP21-29-L2	BEDROCK	1197.5	4243.8	990.62
TP21-30	TP21-30-L1	FILL	1159.1	4438.7	962.16
TP21-30	TP21-30-L3	ABLATION TILL	1159.1	4438.7	956.16
TP21-31	TP21-31-L1	ORGANICS	999.8	3587.4	976.93
TP21-31	TP21-31-L2	ABLATION TILL	999.8	3587.4	976.63
TP21-32	TP21-32-L1	TOPSOIL	1009.3	3877.4	966.85
TP21-32	TP21-32-L2	ABLATION TILL	1009.3	3877.4	966.05
TP21-32	TP21-32-L3	BEDROCK	1009.3	3877.4	965.35
TP21-33	TP21-33-L1	ABLATION TILL	995.6	4075.4	966.94
TP21-34	TP21-34-L1	ABLATION TILL	984.5	4277.2	966.55
TP21-35	TP21-35-L1	TOPSOIL	979.4	4421.7	954.94
TP21-35	TP21-35-L2	ABLATION TILL	979.4	4421.7	953.74
TP21-36	TP21-36-L1	ABLATION TILL	753.7	3672.7	980.37
TP21-37	TP21-37-L1	TOPSOIL	814.5	3985.7	971.16
TP21-37	TP21-37-L2	ABLATION TILL	814.5	3985.7	970.86
TP21-38	TP21-38-L1	ABLATION TILL	786.5	4118.7	973.38
TP21-38	TP21-38-L4	BEDROCK	786.5	4118.7	967.88
TP21-39	TP21-39-L1	TOPSOIL	752.4	4354.8	968.03
TP21-39	TP21-39-L2	ABLATION TILL	752.4	4354.8	967.53
TP21-39	TP21-39-L4	BEDROCK	752.4	4354.8	964.83
TP21-40	TP21-40-L1	ABLATION TILL	604.8	3991.1	976.40
TP21-41	TP21-41-L1	ABLATION TILL	624.7	4131.7	972.96
MP-00-34		BEDROCK	2182.3	3678.1	1065.56
PZ-08-34		BEDROCK	1539.3	3199.9	1026.14
BV-95-31		BEDROCK	1424.4	4109.7	1005.29
BV-97-120		BEDROCK	1484.0	4241.0	1024.39
BV-97-119		BEDROCK	1432.7	4238.2	968.39
BV-95-38		BEDROCK	1383.0	4217.1	988.39
BV-95-36		BEDROCK	2666.9	4101.3	1022.39
AC-07-01		BEDROCK	1544.6	3305.4	1023.87
SE-09-78		BEDROCK	2147.5	3753.2	1036.56
SE-09-77		BEDROCK	2159.4	3733.3	1036.58
SE-07-75		BEDROCK	2304.3	3748.5	1051.65
SE-07-66		BEDROCK	2119.1	3567.6	1079.85
PZ-10-53		BEDROCK	1537.9	3194.7	1024.55
PZ-10-52		BEDROCK	1537.9	3194.7	1024.55
PZ-09-50		BEDROCK	1539.3	3199.9	1024.92

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
PZ-09-48		BEDROCK	1753.2	3225.5	1065.75
PZ-09-47		BEDROCK	1753.1	3225.8	1065.76
PZ-09-46		BEDROCK	1601.4	3451.4	1022.25
PZ-09-45		BEDROCK	1601.6	3450.9	1022.45
PZ-09-41		BEDROCK	1624.3	3385.9	1031.35
PZ-09-40		BEDROCK	1600.1	3447.2	1022.45
PZ-08-30		BEDROCK	1599.0	3396.0	1023.81
PZ-08-22		BEDROCK	1600.9	3450.3	1021.93
PZ-08-21		BEDROCK	1755.5	3356.0	1057.60
AC-06-01		BEDROCK	1540.0	3201.9	1024.85
SE-06-61		BEDROCK	2020.0	3508.2	1088.10
SE-05-50		BEDROCK	2298.3	3789.5	1044.85
SE-05-47		BEDROCK	2096.7	3469.3	1090.35
SE-05-43		BEDROCK	1980.2	3618.8	1077.11
SE-05-41		BEDROCK	2020.5	3629.4	1077.82
SE-05-27		BEDROCK	2257.8	3790.4	1045.30
SE-05-25		BEDROCK	2060.3	3511.9	1092.21
SE-05-18		BEDROCK	2359.8	3498.6	1079.46
BV-95-37		BEDROCK	1532.3	4092.1	1017.09
BJ-11-02		BEDROCK	1048.5	3200.1	990.05
BV-97-118		BEDROCK	1486.6	4112.4	1073.79
PZ-10-57		BEDROCK	1669.2	3207.6	1046.65
PZ-10-56		BEDROCK	1540.1	3201.2	1024.25
PZ-10-54		BEDROCK	1537.9	3194.7	1023.94
SE-05-36		BEDROCK	2020.3	3589.0	1084.85
MP-00-35		BEDROCK	2183.7	3632.7	1070.83
BV-95-33		BEDROCK	1431.4	4166.7	997.39
BJ-11-01		BEDROCK	1347.5	3250.3	991.78
SE-05-39		BEDROCK	1979.4	3538.5	1086.38
PZ-10-59		BEDROCK	1686.8	3414.2	1045.53
PZ-08-29		BEDROCK	1559.2	3404.1	1012.28
PZ-07-11		BEDROCK	1772.7	3357.9	1057.77
SE-05-44		BEDROCK	1940.3	3660.1	1065.99
SE-05-37		BEDROCK	1939.2	3581.7	1080.11
SE-05-12		BEDROCK	2225.9	3761.8	1047.42
SE-05-03		BEDROCK	2223.2	3671.3	1061.90
SE-05-01		BEDROCK	2178.3	3670.8	1064.67
SE-06-62		BEDROCK	1940.4	3498.6	1081.00
SE-10-82		BEDROCK	1847.3	3721.8	1055.40
PZ-09-39		BEDROCK	1545.7	3446.3	1007.83
SE-05-24		BEDROCK	2180.9	3784.7	1041.97
P00-19		BEDROCK	2045.7	3994.4	1022.41
SE-07-65		BEDROCK	2160.2	3573.3	1074.80
SE-06-59		BEDROCK	2260.3	3590.1	1072.30
SE-06-57		BEDROCK	2180.7	3472.6	1085.10
SE-06-56		BEDROCK	2219.2	3351.8	1090.91
SE-05-51		BEDROCK	2263.6	3830.1	1034.84
SE-05-49		BEDROCK	2130.0	3802.4	1041.74
SE-05-35		BEDROCK	2180.4	3549.1	1078.50
SE-05-08		BEDROCK	2060.3	3669.9	1065.06
SE-05-04		BEDROCK	2224.6	3630.3	1067.62
PZ-09-43		BEDROCK	1624.8	3384.1	1028.30
PZ-09-42		BEDROCK	1624.8	3384.1	1028.30
PZ-08-24		BEDROCK	1850.2	3613.1	1063.73
PZ-08-20		BEDROCK	1804.8	3352.6	1066.26
PZ-08-19		BEDROCK	1836.1	3338.9	1073.42
PZ-07-15		BEDROCK	1747.8	3199.8	1064.60
PZ-07-13		BEDROCK	1743.2	3394.4	1049.31
PZ-07-10		BEDROCK	1772.7	3357.9	1056.24
PZ-07-05		BEDROCK	1815.2	3280.3	1071.10
SE-05-29		BEDROCK	2259.8	3708.3	1056.01
BV-95-34		BEDROCK	1427.0	4058.2	1012.69
TF-06-02		BEDROCK	2590.3	3748.5	1037.96
SE-09-81		BEDROCK	2113.1	3489.1	1081.56
PZ-07-09		BEDROCK	1828.3	3356.8	1072.98
AC-07-02		BEDROCK	1452.7	3379.2	995.90
SE-05-54		BEDROCK	2219.1	4058.4	1003.33
PZ-10-58		BEDROCK	1682.4	3410.7	1042.78
SE-06-58		BEDROCK	2220.5	3511.4	1079.80
SE-05-53		BEDROCK	2022.5	3543.2	1085.84
PZ-07-14		BEDROCK	1637.2	3305.7	1033.88
SE-05-46		BEDROCK	2135.8	3469.2	1083.74
SE-07-63		BEDROCK	2125.9	3526.8	1078.87
BV-95-27		BEDROCK	1631.3	4138.4	1010.59
SE-05-48		BEDROCK	2262.2	3628.2	1064.67
SE-05-38		BEDROCK	2101.6	3788.7	1040.40
SE-05-30		BEDROCK	2098.9	3552.7	1076.94
SE-05-28		BEDROCK	2139.8	3548.7	1076.49
SE-05-23		BEDROCK	2225.2	3588.9	1070.06
SE-05-22		BEDROCK	2100.9	3509.4	1080.09
SE-05-10		BEDROCK	2178.3	3711.4	1053.55
PZ-07-06		BEDROCK	1778.5	3360.5	1053.20
TF-06-03		BEDROCK	2590.3	3748.5	1035.53
SE-07-67		BEDROCK	2019.9	3671.4	1062.06
SE-07-64		BEDROCK	2158.2	3529.8	1076.76

Location ID	Layer ID	Geologic Formation	Northing (m)	Easting (m)	Unit Top Elevation (m)
PZ-09-49		BEDROCK	1672.5	3208.8	1041.94
PZ-08-17		BEDROCK	1883.1	3301.9	1080.90
PZ-07-16		BEDROCK	1645.4	3393.4	1033.26
PZ-09-37		BEDROCK	1887.3	3353.2	1078.03
SE-05-32		BEDROCK	1981.1	3698.9	1058.35
SE-05-20		BEDROCK	2179.8	3749.6	1045.87
MP-00-36		BEDROCK	2233.2	3661.8	1059.23
PZ-05-03		BEDROCK	1864.3	3420.4	1073.01
SE-06-60		BEDROCK	2060.2	3551.5	1078.60
TF-06-05		BEDROCK	2326.0	3869.4	1023.28
SE-09-80		BEDROCK	2143.6	3487.5	1079.76
PZ-10-55		BEDROCK	1623.5	3389.3	1023.43
PZ-08-18		BEDROCK	1858.4	3387.5	1071.86
SE-05-16		BEDROCK	2265.3	3668.6	1058.33
SE-05-14		BEDROCK	2090.9	3629.4	1065.48
SE-05-02		BEDROCK	2138.5	3671.2	1056.50
C2-11-104		BEDROCK	2784.8	2710.3	1110.58
TF-06-01		BEDROCK	2645.4	3649.8	1045.78
SE-05-34		BEDROCK	2138.3	3510.7	1077.93
SE-07-74		BEDROCK	2215.1	3837.0	1028.01
SE-07-71		BEDROCK	2134.9	3832.2	1030.21
PZ-09-51		BEDROCK	1672.5	3208.8	1038.89
PZ-08-28		BEDROCK	1545.8	3447.0	1000.65
SE-05-52		BEDROCK	2339.9	3834.9	1027.61
SE-05-45		BEDROCK	2178.4	3512.0	1075.46
SE-05-42		BEDROCK	2020.0	3710.2	1054.36
SE-05-31		BEDROCK	2138.9	3591.6	1068.46
SE-05-26		BEDROCK	2221.8	3551.6	1071.74
SE-05-21		BEDROCK	2181.1	3786.3	1034.86
SE-05-17		BEDROCK	2060.2	3590.6	1073.01
SE-05-11		BEDROCK	2221.4	3729.2	1046.25
SE-05-09		BEDROCK	2139.6	3709.3	1050.79
SE-05-07		BEDROCK	2102.2	3669.0	1058.36
SE-05-06		BEDROCK	2140.9	3630.9	1061.57
SE-05-05		BEDROCK	2180.2	3590.1	1066.14
AC-10-03		BEDROCK	1430.4	3654.9	990.10
SE-05-19		BEDROCK	2099.2	3588.9	1068.36
AC-10-04		BEDROCK	1362.2	3708.8	980.66
SE-06-55		BEDROCK	2179.9	3850.1	1026.53
SE-05-13		BEDROCK	2099.7	3709.2	1051.28
SE-10-83		BEDROCK	1749.0	3675.5	1043.42
CON07-01		BEDROCK	2194.9	3005.2	1098.20
SE-07-73		BEDROCK	2220.9	3798.3	1029.76
SE-07-70		BEDROCK	2138.0	3831.8	1027.16
SE-07-69		BEDROCK	2138.8	3748.9	1039.86
PZ-08-31		BEDROCK	1650.4	3383.0	1027.91
PZ-08-27		BEDROCK	1559.4	3552.1	1001.64
PZ-08-26		BEDROCK	1655.5	3770.5	1018.49
PZ-07-08		BEDROCK	1680.6	3342.7	1042.55
PZ-07-07		BEDROCK	1685.2	3410.2	1042.45
SE-07-76		BEDROCK	2255.4	3750.9	1037.35
SE-05-33		BEDROCK	1939.4	3738.5	1046.56
AC-10-05		BEDROCK	1267.1	3995.8	982.89
PZ-08-23		BEDROCK	1878.5	3486.3	1065.71
PZ-09-35		BEDROCK	1681.4	3368.3	1039.89
PZ-08-25		BEDROCK	1437.4	3755.3	991.15
SE-05-40		BEDROCK	2060.0	3708.6	1047.29
SE-05-15		BEDROCK	2060.5	3630.1	1060.24
PZ-09-44		BEDROCK	1689.6	3461.6	1038.79
PZ-08-32		BEDROCK	1683.7	3378.5	1039.01
PZ-10-60		BEDROCK	1820.1	3478.5	1048.77
PZ-05-02		BEDROCK	1789.0	3458.5	1044.72
PZ-05-01		BEDROCK	1786.5	3420.9	1044.03
PZ-09-36		BEDROCK	1891.4	3331.9	1066.98
SE-07-68		BEDROCK	2059.5	3749.2	1035.12
SE-07-72		BEDROCK	2177.9	3830.6	1016.81
PZ-09-38		BEDROCK	1853.6	3364.1	1056.97
PZ-07-12		BEDROCK	1850.8	3172.4	1065.74
SE-09-79		BEDROCK	2117.7	3758.5	1027.02
PZ-05-04		BEDROCK	1743.9	3282.7	1029.00
NS06-1		BEDROCK	2867.7	4091.1	643.80

| Test Pit / Boreholes ID | Sample Id. | Depth (m) | | Ground Elevation (m) | Lithology | Specific Gravity (-) | Water Content *w* (Mw/Ms) (%) | Atterberg Limits | | | Strength Testing | | | | | | Gradation | | | | | |

| Test Pit / Boreholes ID | Sample Id. | Depth (m) | | Ground Elevation (m) | Lithology | Specific Gravity (-) | Water Content *w* (Mw/Ms) (%) | Atterberg Limits | | | Strength Testing | | | | | | Gradation | | | | | |

| Test Pit / Boreholes ID | Sample Id. | Depth (m) | | Ground Elevation (m) | Lithology | Specific Gravity (-) | Water Content *w* (Mw/Ms) (%) | Atterberg Limits | | | Strength Testing | | | | | | Gradation | | | | | |

| Test Pit / Boreholes ID | Sample Id. | Depth (m) | | Ground Elevation (m) | Lithology | Specific Gravity (-) | Water Content *w* (Mw/Ms) (%) | Atterberg Limits | | | Strength Testing | | | | | | Gradation | | | | | |

| Test Pit / Boreholes ID | Sample Id. | Depth (m) | | Ground Elevation (m) | Lithology | Specific Gravity (-) | Water Content *w* (Mw/Ms) (%) | Atterberg Limits | | | Strength Testing | | | | | | Gradation | | | | | |

D3 – SERDS Inspection Trip Report

TECHNICAL MEMORANDUM

DATE 10 August 2022 **Reference No.** 22514095-043-TM-Rev0-91211

TO Mathieu O'Leary
Mount Polley Mining Corporation

FROM Ben Wickland and Scott Coombs **EMAIL Ben.Wickland@wsp.com; Scott.Coombs@wsp.com**

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

1.0 INTRODUCTION

A site visit to the Mount Polley Mine was carried out on 6 and 7 June 2022 by Ben Wickland, P.Eng. and Scott Coombs of Golder Associates Ltd. The site visit included the following activities:

6 June 2022

- Visitor Health and Safety Training.
- Inspection of the Southeast Rock Disposal Site (SERDS) and area, and exposed tailings south of Polley Lake, accompanied by Mathieu O'Leary of Mount Polley Mining Corporation (MPMC).

7 June 2022

- Inspection of exposed tailings in the Springer Pit, accompanied by Scott Girvin of MPMC.
- A brief tour of the crest of the tailings storage facility (TSF), accompanied by Bill Grieve of MPMC.

The purpose of the visit was to see site conditions in support of a design to store tailings from the Springer Pit within a co-disposal facility on the crest of the SERDS.

Photographs are appended. Photograph locations are shown in Figure 1, attached.

The site was free of snow and ice, weather was 15 to 16 degrees, overcast with light wind on the 6 June and sunny with no wind on 7 June.

2.0 SOUTHEAST ROCK DISPOSAL SITE

The inspection involved observing and photographing the crest and outer slopes of the SERDS, and the surrounding areas. Waste rock had been placed in the SERDS over most of the Phase 4 area. Observations are presented by area.

Crest of the SERDS

- The crest was generally clear and level, with free dumps to 1.5 m in the southeast.
- Where clear of free dumps, the crest was generally accessible by light vehicle, though windrows and boulders limited traffic to select routes.
- End dumps were generally free draining coarse clean rockfill. Some end dumps contained finer material.
- The south end of the crest had no ponding, and the rock was generally unweathered, angular, clean, with a strength of R4 to R5 based on hammer blows.
- The central and northern portions of the crest had minor ponding, corresponding to a waste rock at surface with smaller particles and a matrix of fines.
- Ponding on crest was attributed to rain prior to the inspection, and relatively slow rates of infiltration through traffic surfaces.
- Some equipment and pipelines were present on the crest.

Roads and Ramps Around the SERDS

- Roads along the southwest toe of the SERDS had several areas of “blow out” through the safety berms, attributed to ponding water accumulating during care and maintenance, leading to erosion and local downcutting.

Slopes of the SERDS

- Slopes were benched, with angle of repose slopes between benches. Bench heights were variable, indicating several stages of construction on several fronts.
- Benches on the east side had vegetation, stumps, and plastic at surface.
- The south slope had dead trees standing within the toe of the SERDS.
- Build out of the southwest corner of the SERDS below the crest elevation of El. 1,110 m had commenced. The southwest fill had an outer slope at angle of repose. The area below was flagged off, with several boulders on the road along the toe.
- The outer slope angles of the SERDS near the southwest corner were near 35 degrees as measured by handheld clinometer.

Phase 4 SERDS Area (Not Covered by Waste Rock)

- South
  - The area between the two roads that extend southeast from the SERDS was forested.
  - Soil stockpiles were present along the eastern road.
- Southeast
  - Forested – may have been logged with regrowth of deciduous trees.
- East
  - Forested – may have been logged with regrowth of deciduous trees.
  - A surface flow with a rate of ~ 2 L/s was observed above the road to the east of the Phase 4 area of the SERDS.

Life of Mine SERDS Area

- Roads extending to the southeast, including a partially constructed haul road.
- Forested areas.
- Deforested areas with log piles.
- Water collection works including the Orica Ditch, TAR ditch, and SERDS ditch, associated ponds, sumps, and pumping stations.
- On the west side there was an area formerly used for explosives preparation and storage with a pad, associated roads, a building, equipment, and powerlines. MPMC indicated the area was no longer in use.
- Bootjack Creek – which was not inspected, though should be considered in planning and design of the LOM SERDS.

Areas Around the SERDS

- A feature on the east side of the SERDS towards Polley Lake that was recommended to be evaluated as a surface drainage pathway in the conceptual design of the SERDS co-disposal facility was reviewed. The area was forested, and the feature was not visible from the road. The feature was interpreted as a ramp, not a drainage channel, based on the width.
- The Long Ditch which runs along the east side of the SERDS was not visible from the road. Several bears were observed in the area between the road and the Long Ditch, so reconnaissance of the Long Ditch was not attempted.

3.0 SPRINGER PIT

Observations from the inspection of the Springer Pit included:

- The pit was flooded, with little or no tailings exposed.
- A rockfill causeway was in construction around the west wall of the pit, with a dozer and 2 haul trucks operating to extend the causeway further southeast. The equipment was stopped during the inspection.
- The pit wall forming the saddle between Cariboo Pit and Springer Pit was covered with blast rock.
- Mining of the saddle was in progress.
- Tailings were observed at the entrance to the pit over an ore stockpile. The tailings had a pattern of desiccation cracking on surface, smoothed out by re-wetting. Tailings were olive grey with low plasticity, consisting of silty fine sand and were damp to wet.
- MPMC staff indicated dredging of the tailings left an uneven surface. The dredge did not work well when harder layers in the tailings were encountered (interpreted as clay rich tailings), so the dredge would simply move to focus on softer areas that were more amenable to dredging, leaving “rat holes.”

4.0 TSF AREA

The exposed tailings at the south end of Polley Lake had similar particle size, moisture content, and plasticity as compared to the exposed tailings on the ore stockpile in Springer Pit.

The TSF crest had tailings exposed above the pond, near the dams. Tailings blown onto the crest of the dam were sandy.

5.0 SUMMARY OF RECOMMENDATIONS

Key considerations for the design and construction of the SERDS Tailings Co-disposal facility from observations made during the inspection are:

- Portions of the outer slopes of the SERDS were at angle of repose and may require re-sloping to achieve design grades for overall maximum slopes of 2H:1V.
- Minor ponding observed on the SERDS crest and associated roadways indicates traffic surfaces limit infiltration. The design should consider ripping of traffic surfaces to promote infiltration in areas of tailings placement.
- The benches on the east slope of the SERDS should be cleared of stumps, organics, and plastic prior to placement of waste rock; unsuitable materials should not be buried in the waste rock.
- Dead trees in the south toe of the SERDS should be removed.
- The foundation of the SERDS Phase 4 area that has not been covered in waste rock should be prepared.
    - Forested areas should be deforested, with removal of organic materials and topsoil to allow founding on mineral soil.
    - Soil stockpiles located to the south within the SERDS Phase 4 area should be relocated.

6.0 DOCUMENT CLOSURE

This document is to be read with the Study Limitations, which follow the text and form an integral part of this document.

We trust that this document meets your needs at this time. Should you have any questions or comments, please contact the undersigned.

Golder Associates Ltd.

10 Aug 2022

Scott Coombs, M.A.Sc., E.I.T.
Project Engineer

Ben Wickland, Ph.D., P.Eng.
Senior Principal Geotechnical Engineer

BEW/SC/nm/ar

Attachments: Figure 1
Attachment 1: Record of Photographs

https://golderassociates.sharepoint.com/sites/10023g/22514095 deliverables/002_issued/043-tm-91211-serds inspection trip report/22514095-043-tm-rev0-91211-serds site inspection_10aug_22.docx

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LEGEND

- EXISTING GROUND CONTOURS (SEE REFERENCE 1)
- SHORELINE (SEE REFERENCE 2)
- CLEAN WATER DITCH (SEE REFERENCE 2)
- CONTACT WATER DITCH (SEE REFERENCE 2)
- CULVERT (SEE REFERENCE 2)
- SITE ACCESS ROADS (SEE REFERENCE 2)
- TAILINGS LINE (SEE REFERENCE 2)
- PIPELINE (SEE REFERENCE 2)
- POWERLINES (SEE REFERENCE 2)
- PHASE 4 SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIMITS (SEE REFERENCE 4)
- LIFE OF MINE (LOM) SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIMITS (SEE REFERENCE 5)
- (1) PHOTO LOCATION

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. MAJOR CONTOUR INTERVAL 10 m, MINOR CONTOUR INTERVAL 2 m.
4. AERIAL PHOTO OVERLAY ORIENTATION IS APPROXIMATE.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.
3. AERIAL PHOTO PROVIDED BY MPMC, FILE NAME: "MountPolley_21Jun2021_15cm_Colr.ecw", SUREVEYED: 21 JUNE 2021, RECEIVED: 27 SEPTEMBER 2021.
4. PHASE 4 SERDS LIMIT PROVIDED BY MPMC, FILE NAME: "Pemitted SERD Surface.dxf",RECEIVED: 29 JULY 2021.
5. LIFE OF MINE SERDS LIMIT PROVIDED BY MPMC, FILE NAME: "LOM SERD Surface.dxf", RECEIVED: 29 JULY 2021.

NOT FOR CONSTRUCTION

0 200 400
1:6,000 METRES

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MOUNT POLLEY MINING CORPORATION

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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
SPRINGER PIT TAILINGS CO-DISPOSAL
SITE VISIT

TITLE
PHOTOGRAPH LOCATIONS

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22514095	91200/91211/043	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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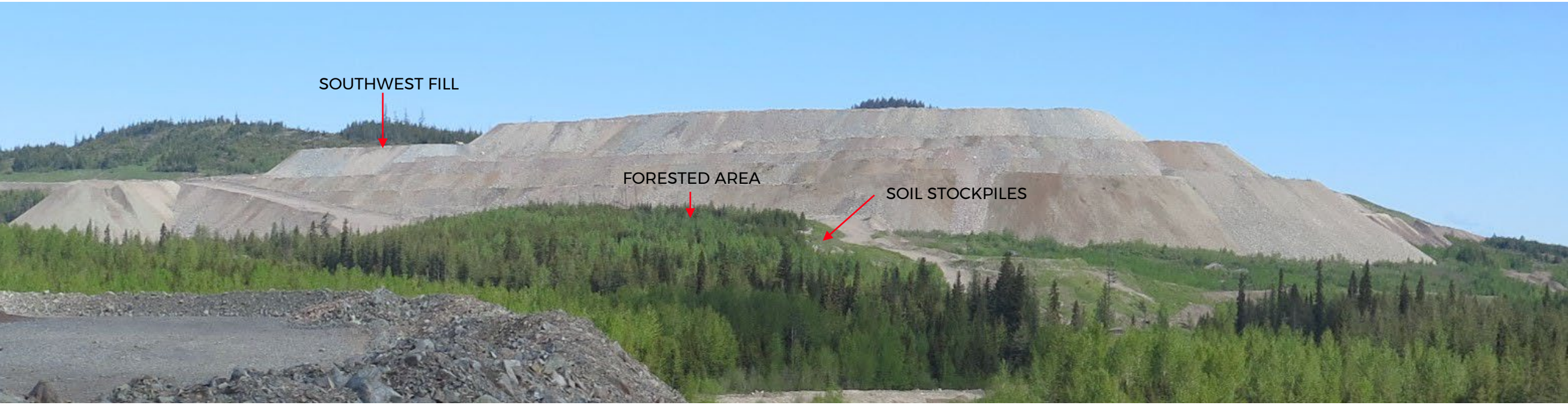
ATTACHMENT 1

Record of Photographs

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 1

7 June 2022



SERDS, LOOKING NORTHWEST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 2

6 June 2022

SERDS SOUTHWEST FILL, LOOKING EAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 3

6 June 2022

SERDS SOUTHWEST FILL, LOOKING SOUTH FROM CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 4

6 June 2022

SERDS EAST SLOPE, LOOKING NORTHEAST FROM CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 5

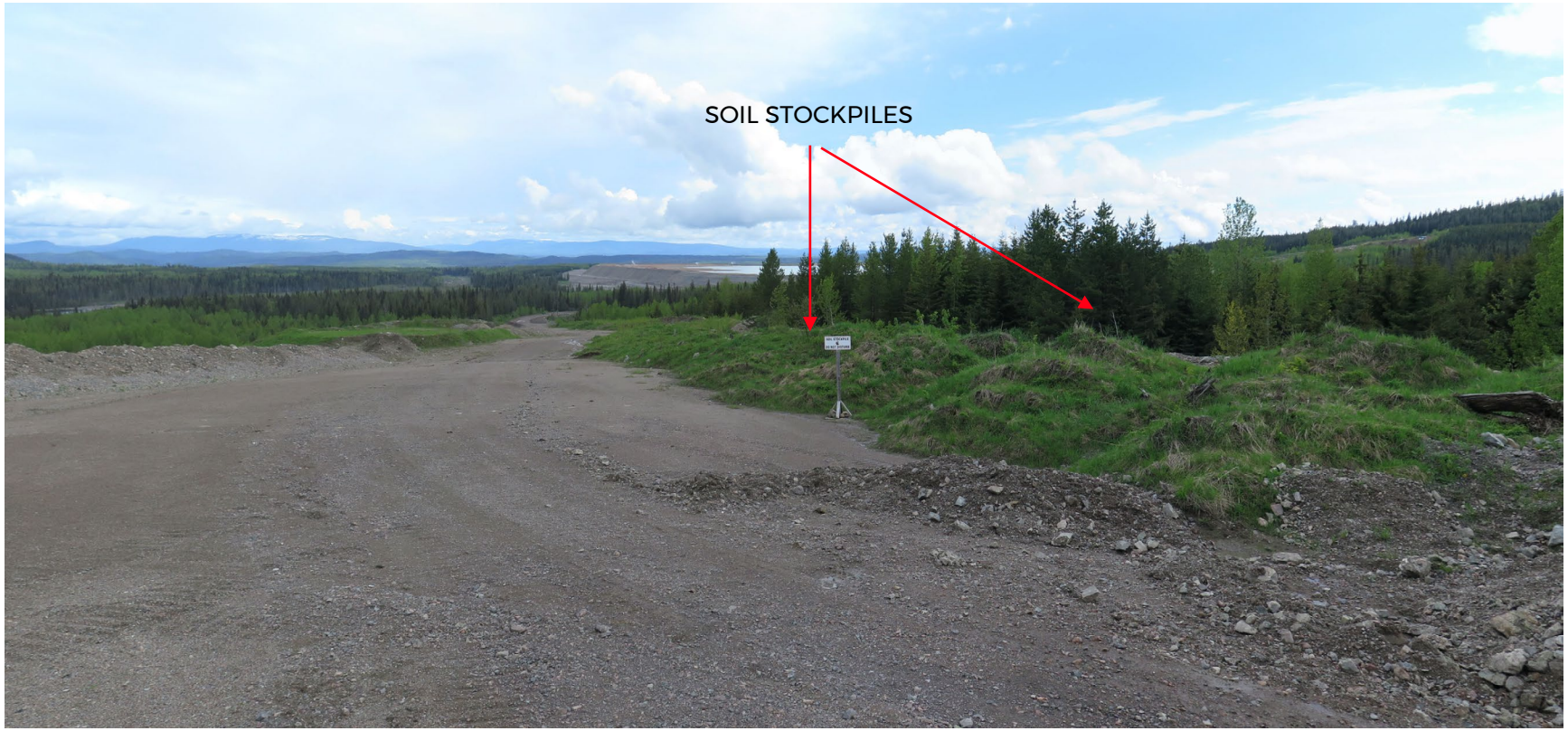
6 June 2022

SERDS EAST SLOPE, LOOKING SOUTHEAST FROM CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 6

6 June 2022



SOIL STOCKPILES AND ROAD IN PHASE 4 SERDS AREA, LOOKING SOUTHEAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 7

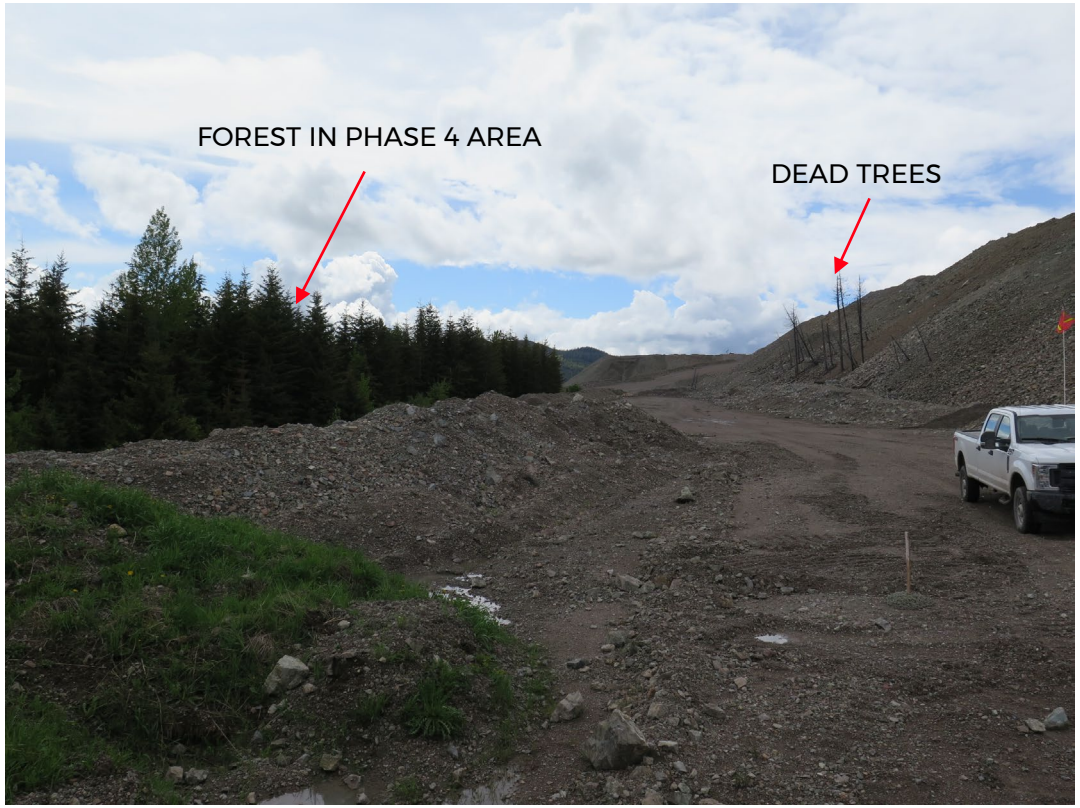
6 June 2022

AREA SOUTH OF SERDS, LOOKING SOUTH FROM CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 8

6 June 2022



SOUTH TOE OF SERDS, LOOKING WEST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 9

6 June 2022

CREST OF SERDS AND AREA WEST OF SERDS, LOOKING WEST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 10

6 June 2022

SERDS SOUTHWEST CREST AREA, LOOKING EAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 11

6 June 2022

WASTE ROCK ON SERDS CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 12

6 June 2022

WASTE ROCK END DUMPS ON SERDS CREST, LOOKING SOUTHWEST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 13

6 June 2022

OVERSIZE WASTE ROCK ON SERDS CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 14

6 June 2022

WASTE ROCK ON SERDS CREST WITH SANDY MATRIX

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 15

6 June 2022

WASTE ROCK ON SERDS CREST WITH SANDY MATRIX

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 16

6 June 2022

MINOR PONDING ON SERDS CREST, LOOKING SOUTH-SOUTHEAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 17

6 June 2022

PONDING ON SERDS CREST, LOOKING SOUTH

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 18

6 June 2022

TRAFFIC SURFACE ON SERDS CREST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 19

6 June 2022

WASH-OUT OF ROAD BEYOND SERDS TOE, LOOKING WEST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 20

6 June 2022

WASH-OUT THROUGH BERM ALONG ROAD AT TOE OF SERDS, LOOKING SOUTHEAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 21

6 June 2022

SERDS DITCH AND POND, LOOKING EAST-SOUTHEAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 22

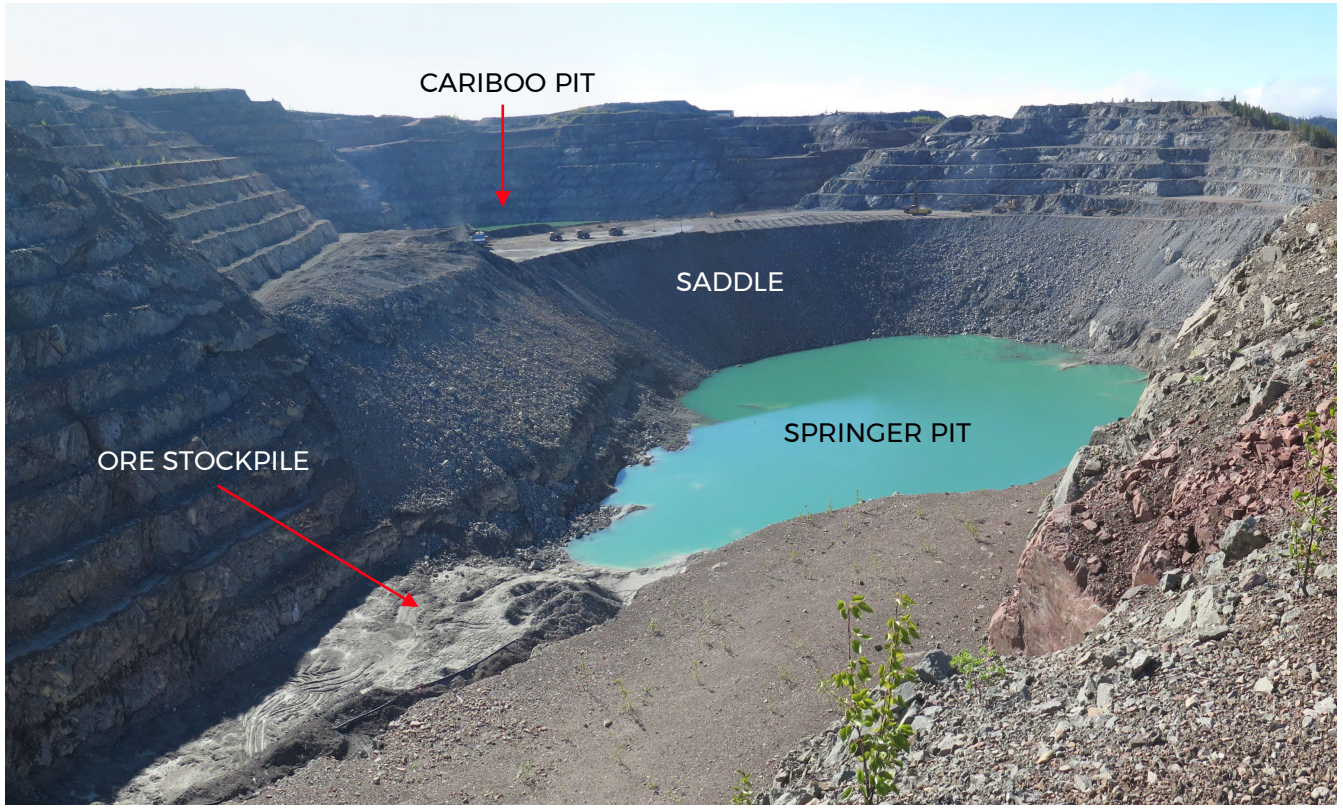
6 June 2022

POND AT END OF SERDS DITCH, LOOKING WEST-NORTHWEST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 23

7 June 2022



CARIBOO - SPRINGER PITS, LOOKING SOUTHEAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 24

7 June 2022

TAILINGS IN SPRINGER PIT ON ORE STOCKPILE

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 25

6 June 2022

TAILINGS STORAGE FACILITY, LOOKING SOUTHEAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

PHOTOGRAPH 26

7 June 2022

TAILINGS IN STORAGE FACILITY, LOOKING EAST

JUNE 2022 SITE VISIT – MOUNT POLLEY MINE SOUTHEAST ROCK DISPOSAL SITE

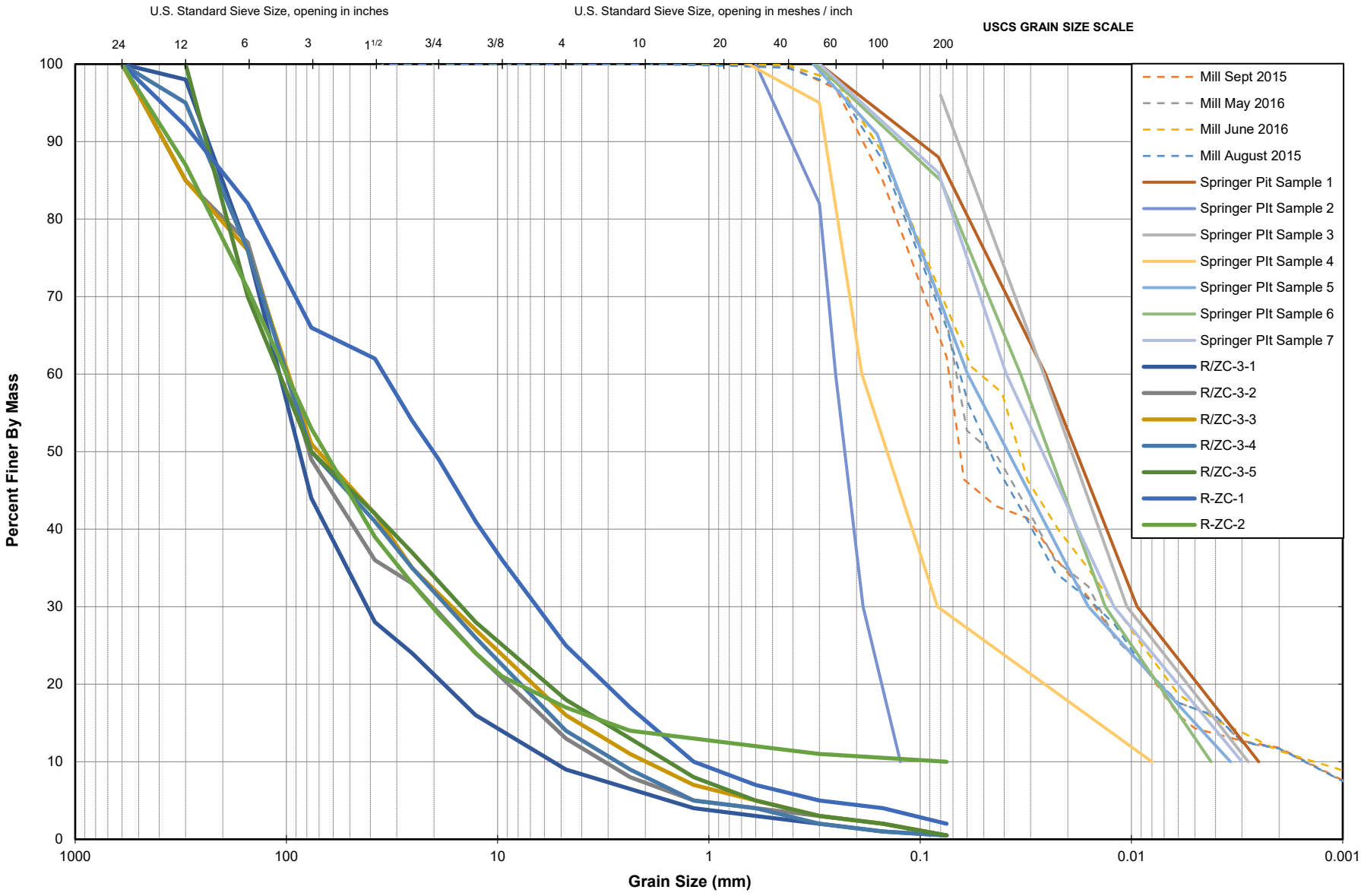
PHOTOGRAPH 27

7 June 2022

TAILINGS NEAR SOUTH END OF POLLEY LAKE

APPENDIX E

Mine Waste Characterization



BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

APPENDIX F

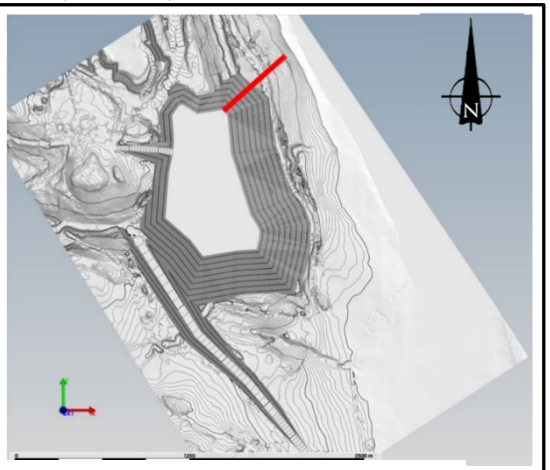
Design Analyses

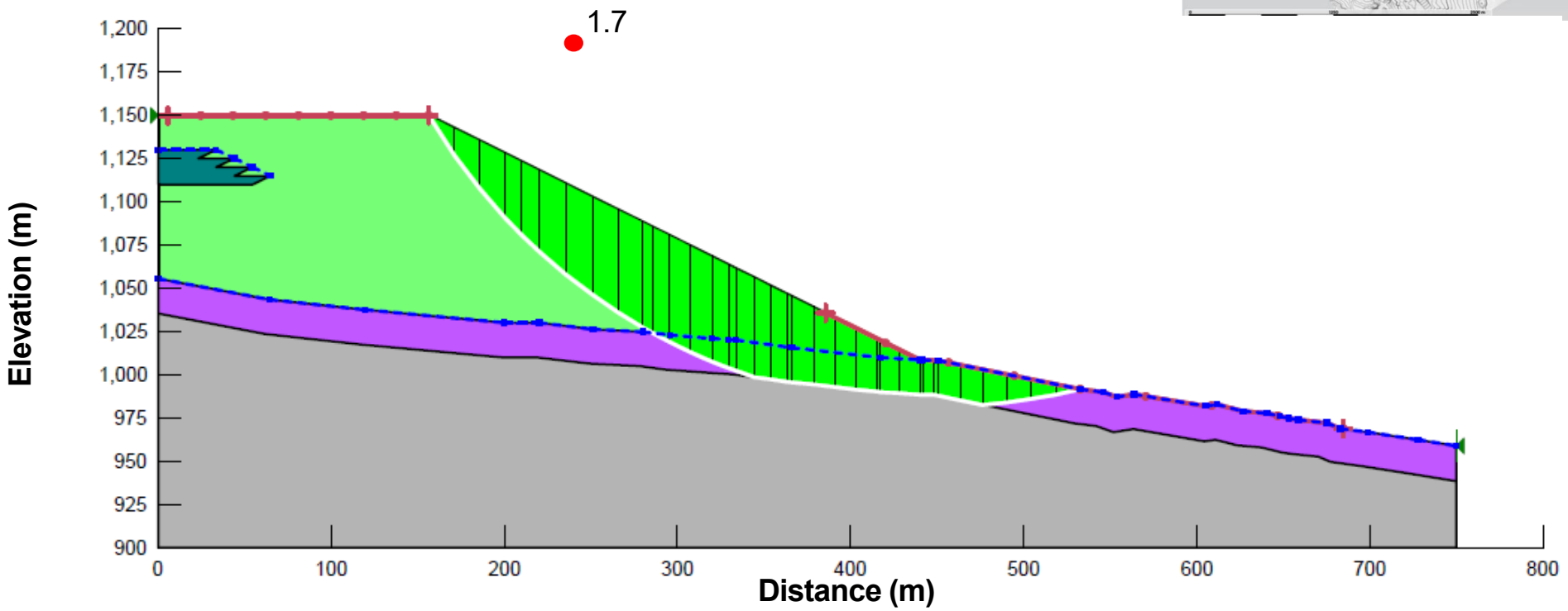
F1 – Stability Analyses

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

1. MODEL INCLUDES TWO PIEZOMETRIC LINES: ONE AT THE TOP OF THE TAILINGS, APPLIED ONLY TO THE TAILINGS, AND THE OTHER AT THE TOP OF THE TILL, APPLIED ONLY TO THE TILL.
2. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 1 – STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-1**

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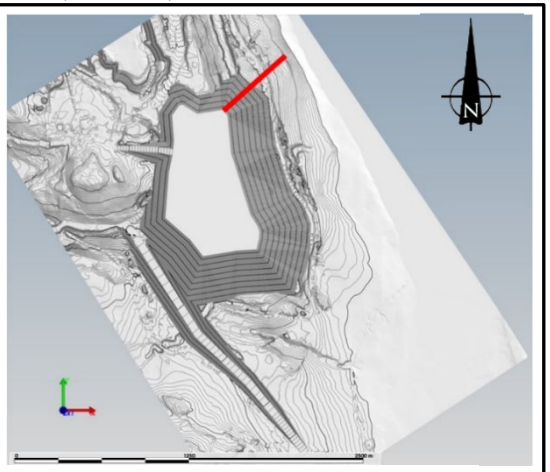
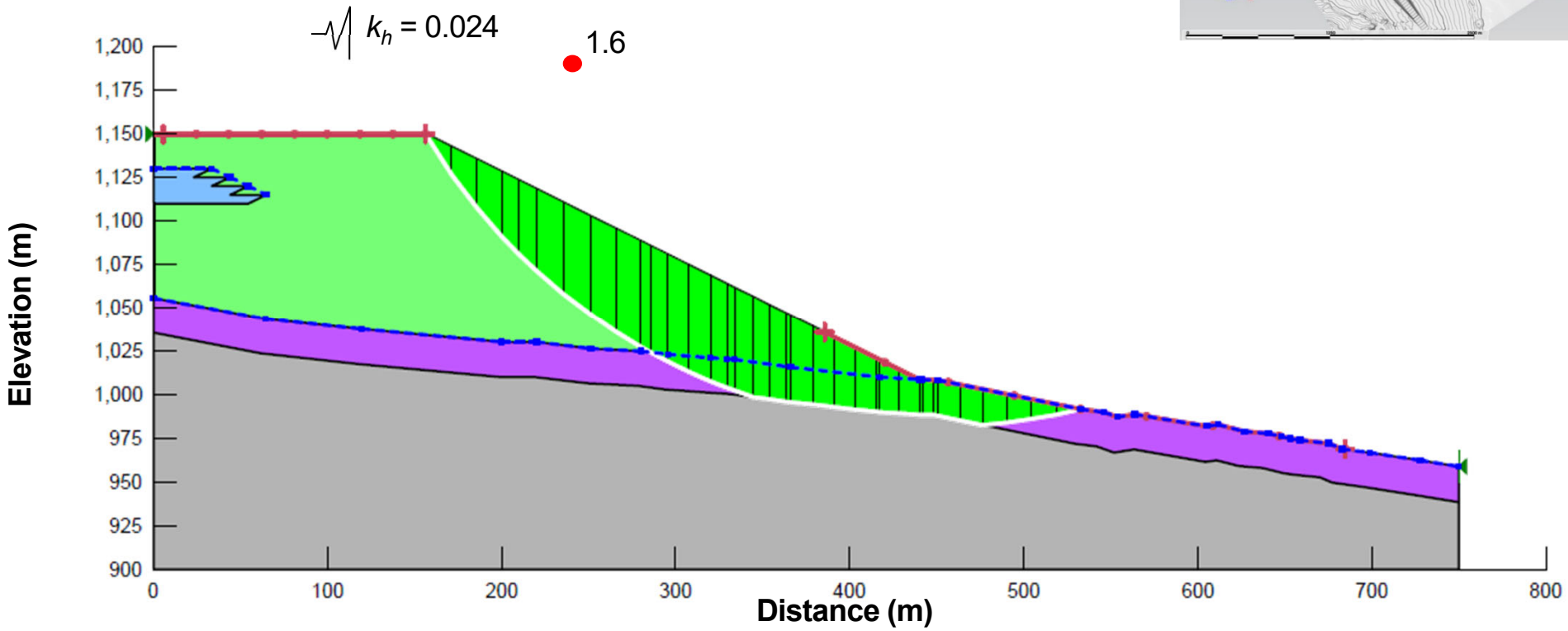
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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SECTION 1 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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Material Properties

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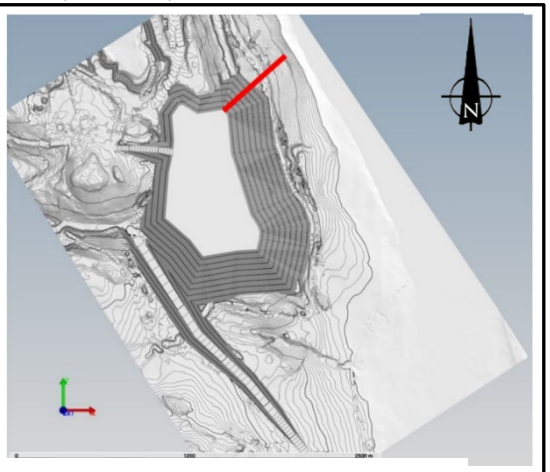
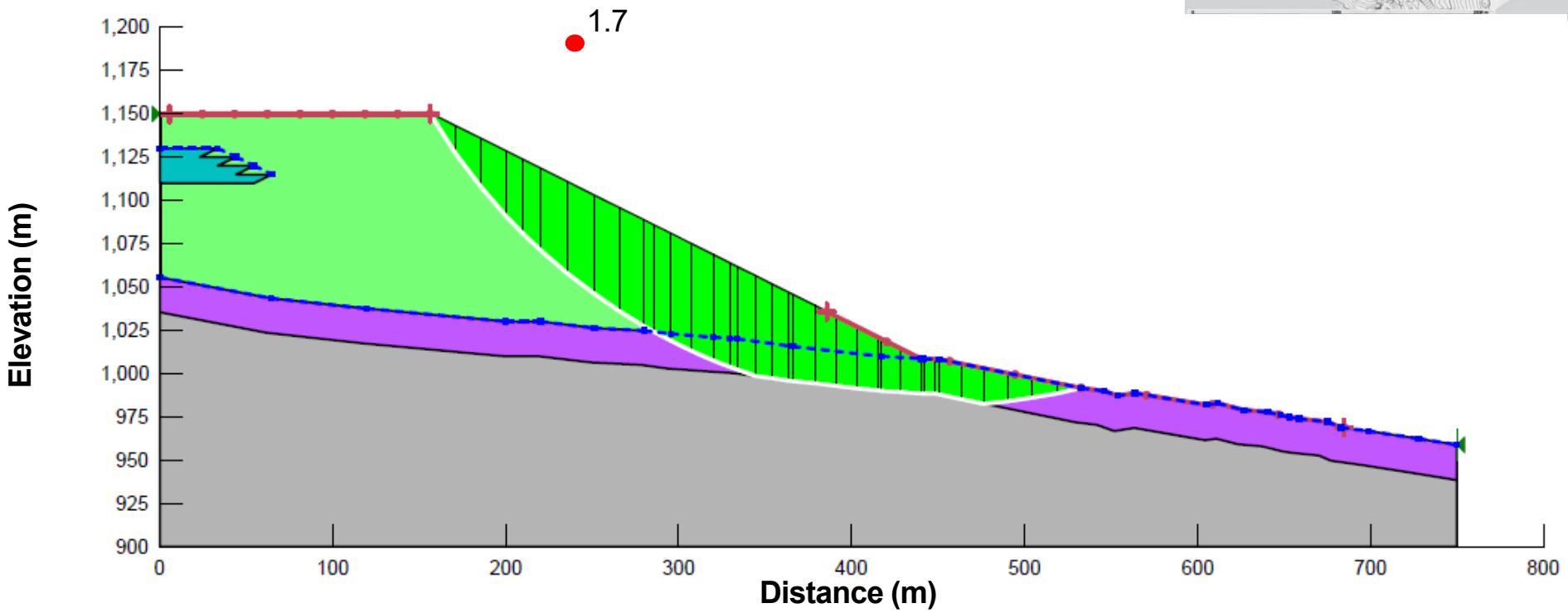
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 1 – POST EARTHQUAKE CONDITIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
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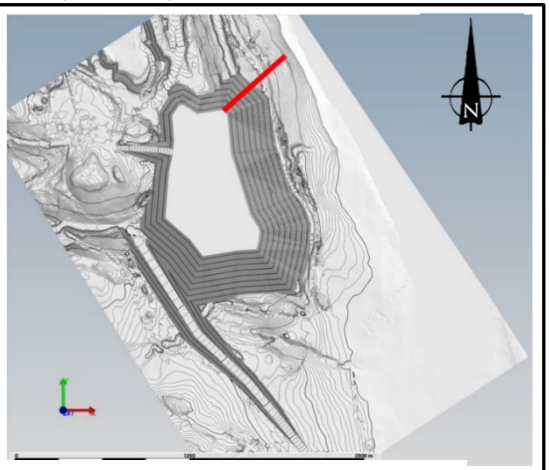
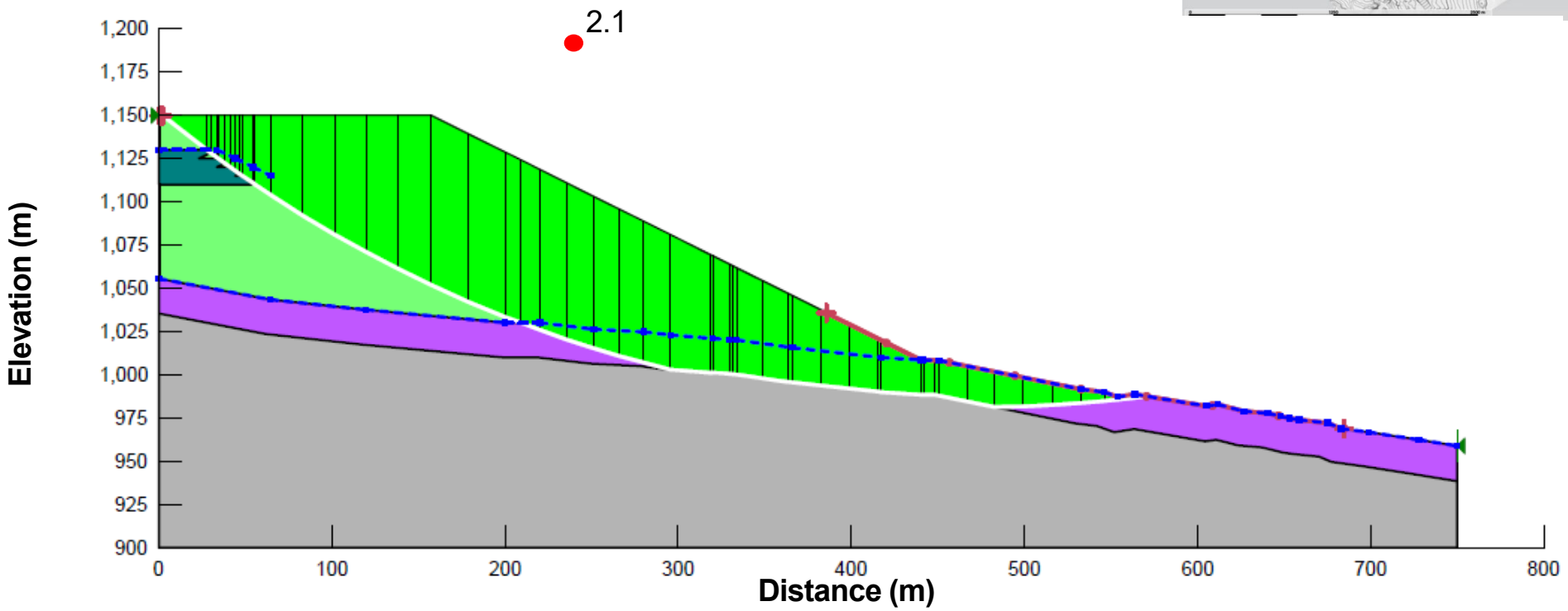
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 1 – STATIC LOADING
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-4**

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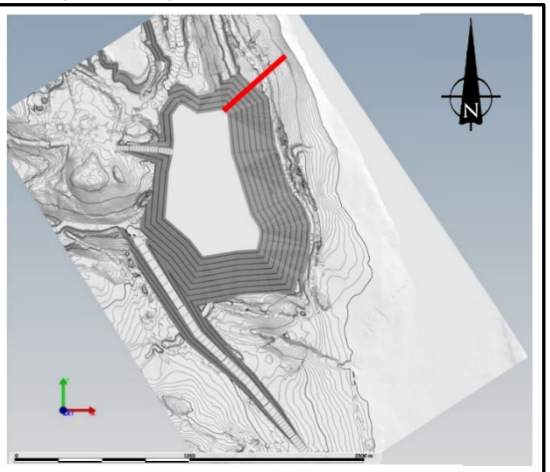
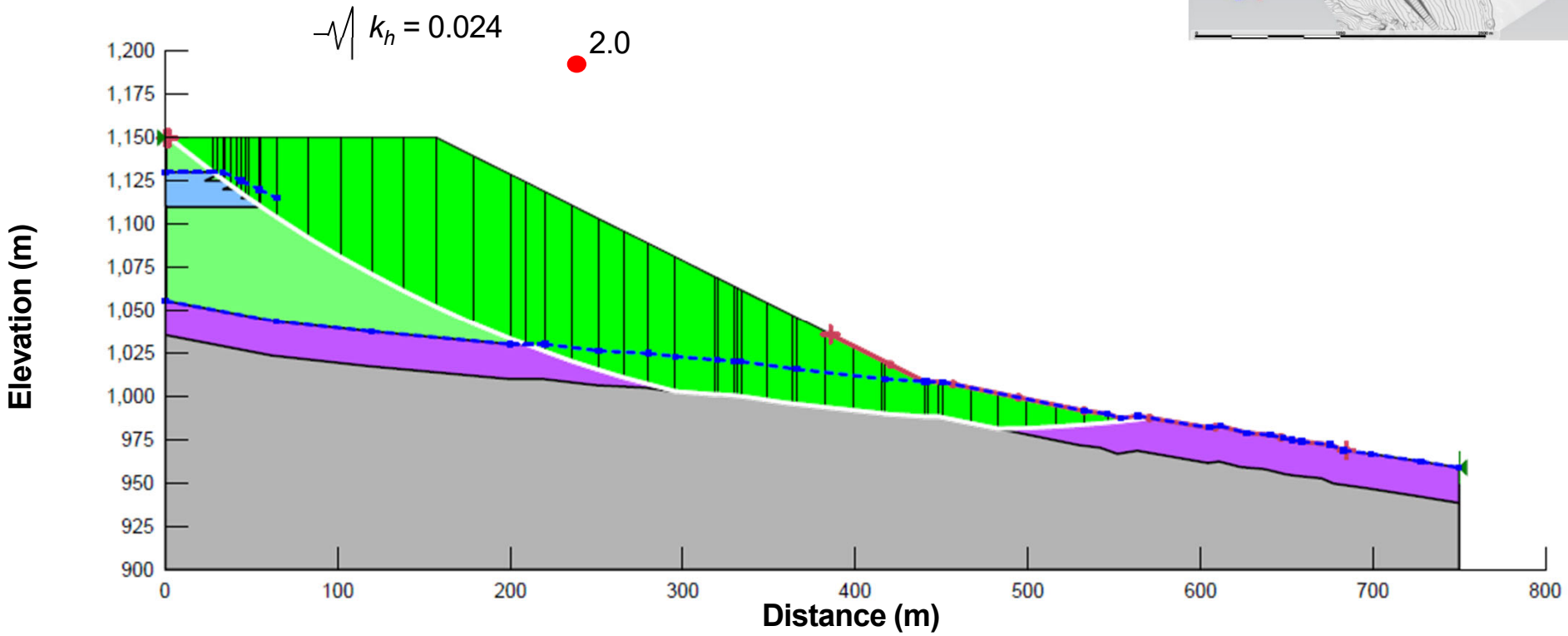
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 1 – PSEUDO-STATIC LOADING
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-5

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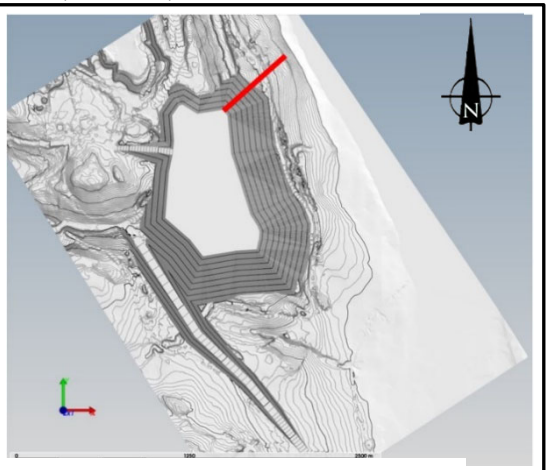
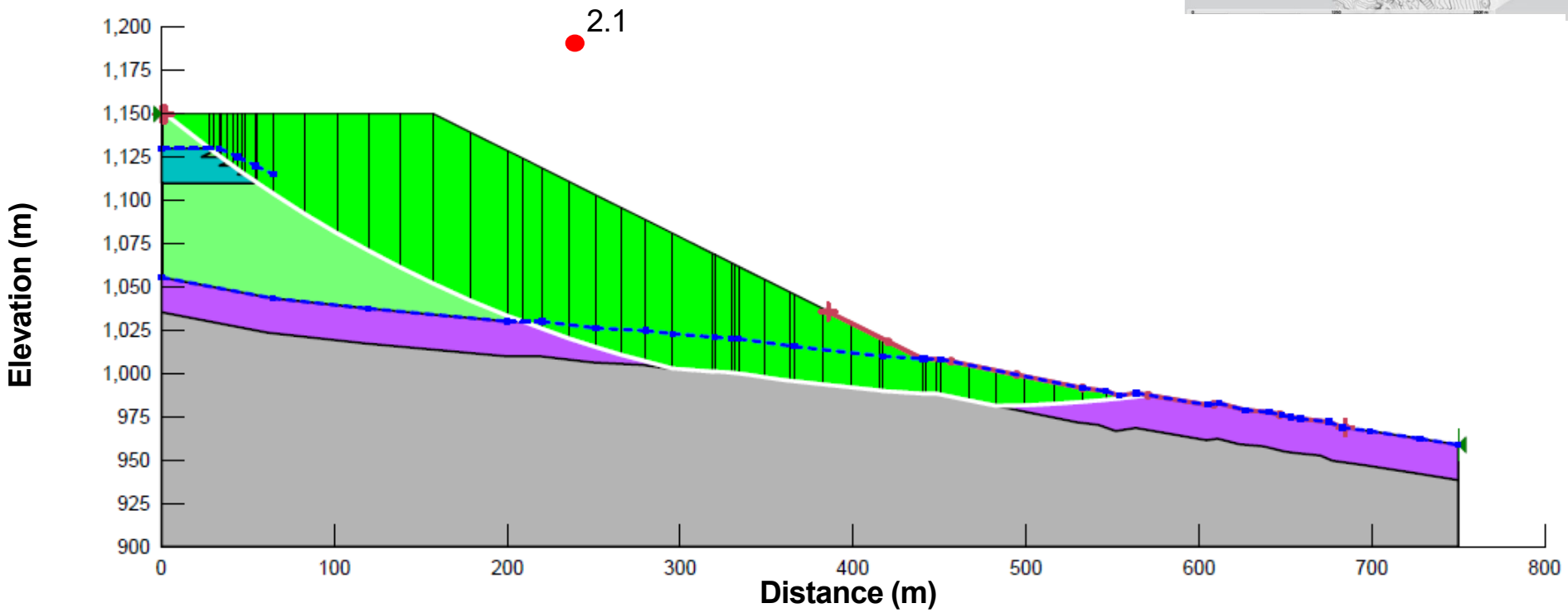
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 1 – POST EARTHQUAKE CONDITIONS
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-6

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

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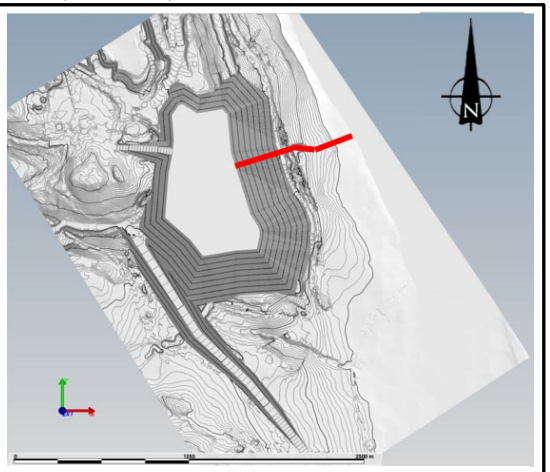
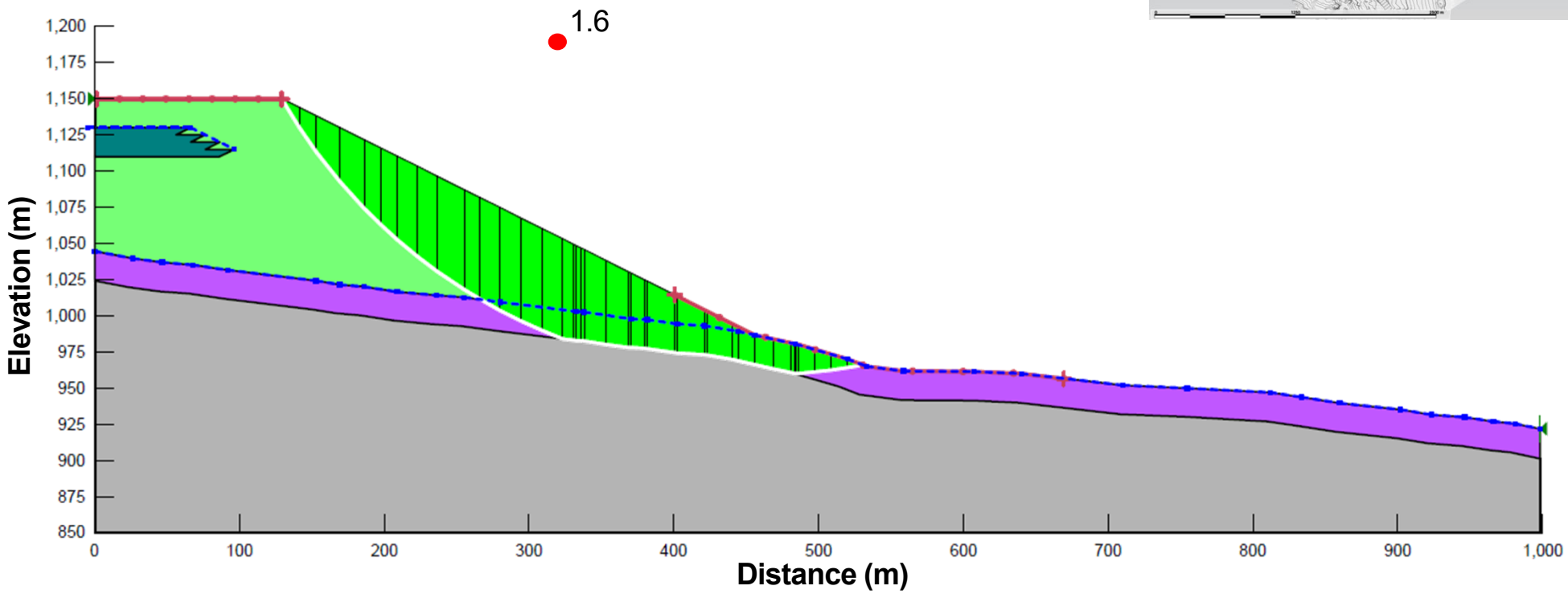
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

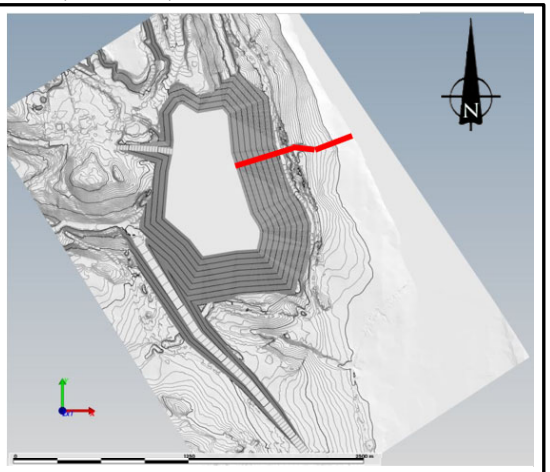
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2 – STATIC LOADING

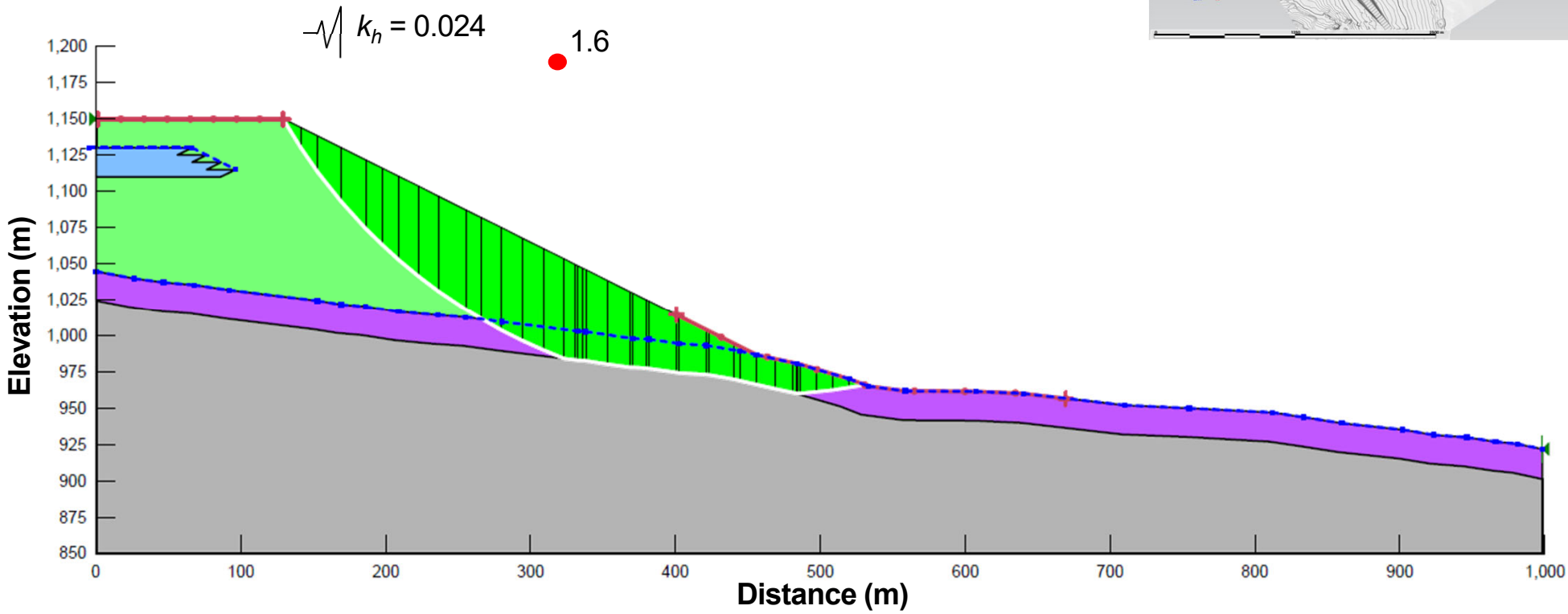
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-7**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

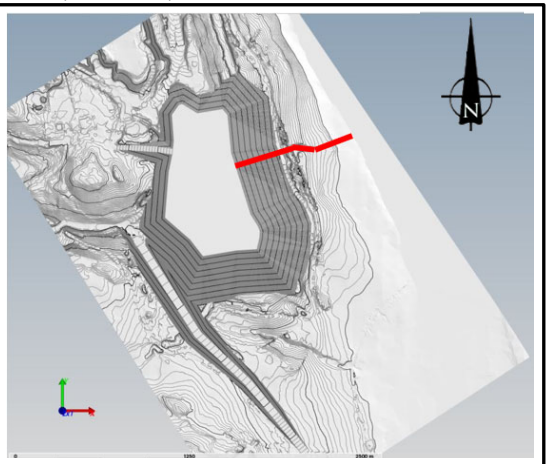
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2 – PSEUDO-STATIC LOADING

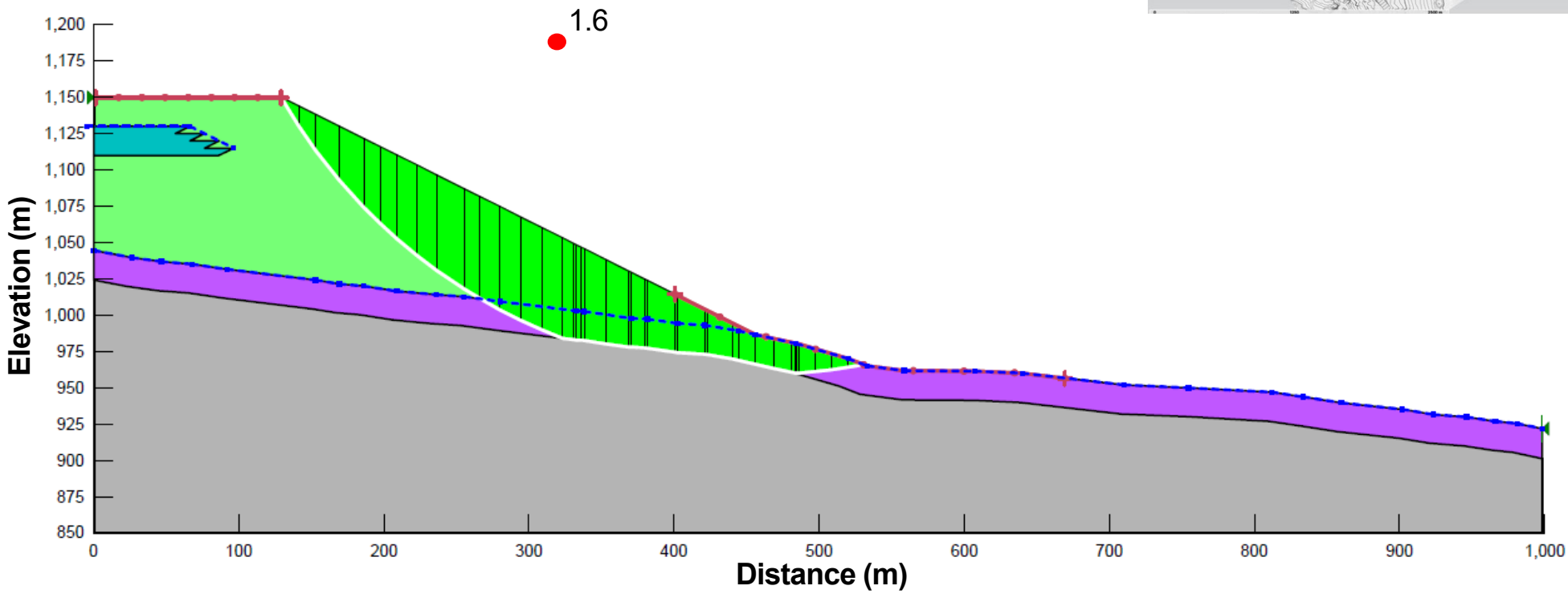
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-8

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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SOUTHEAST ROCK DISPOSAL SITE
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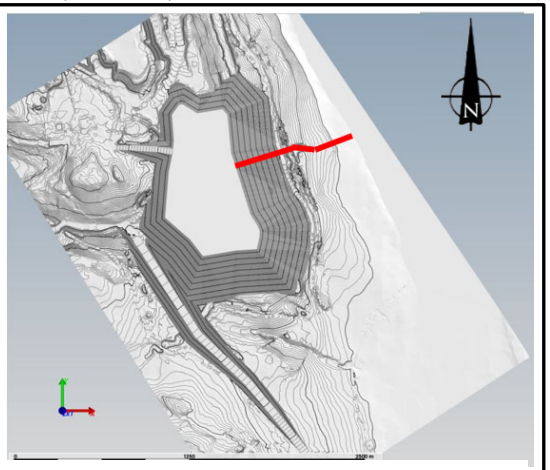
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2 – POST EARTHQUAKE CONDITIONS

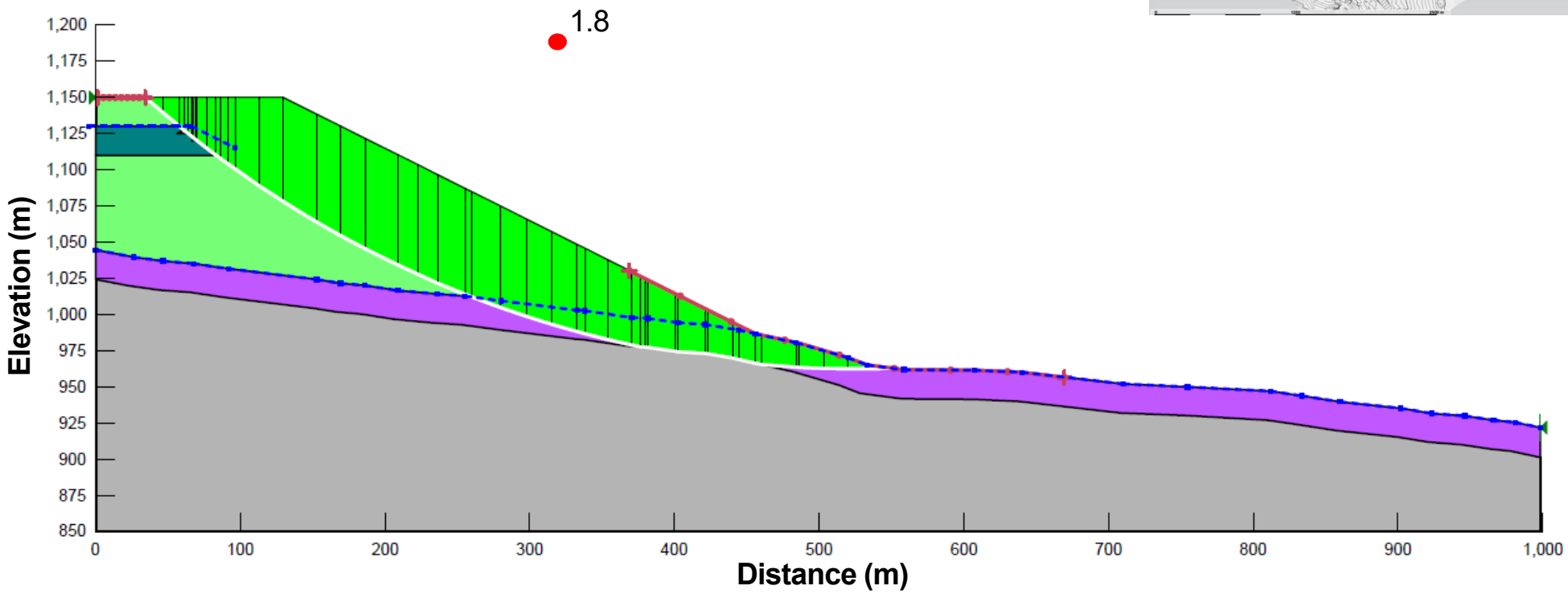
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-9**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
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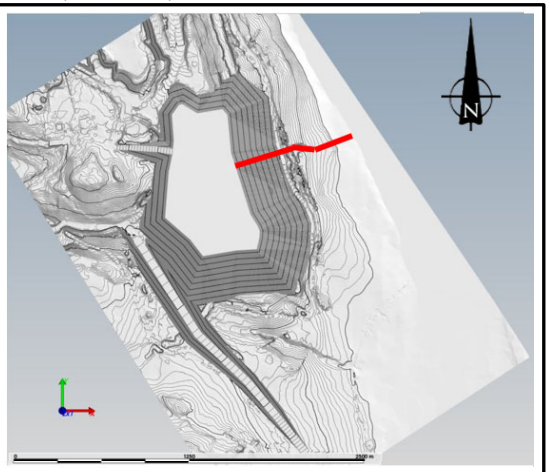
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2 – STATIC LOADING
FAILURE THROUGH TAILINGS

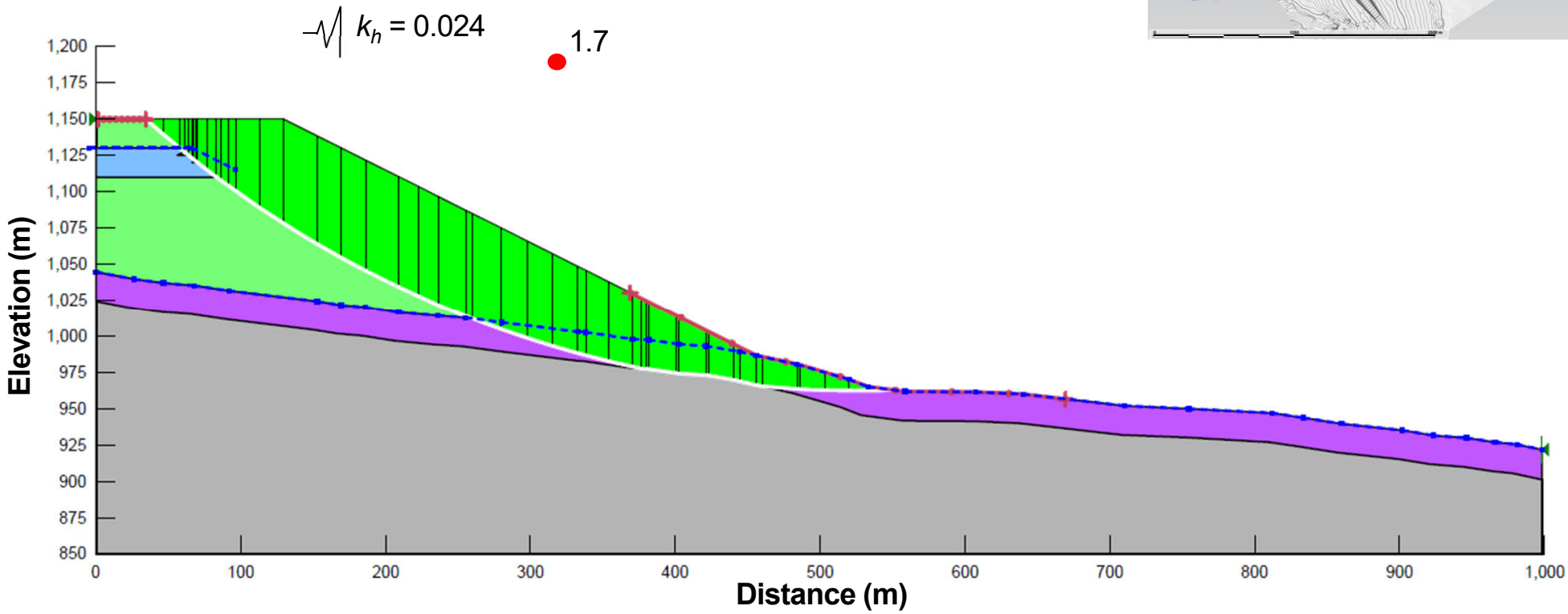
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-10**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

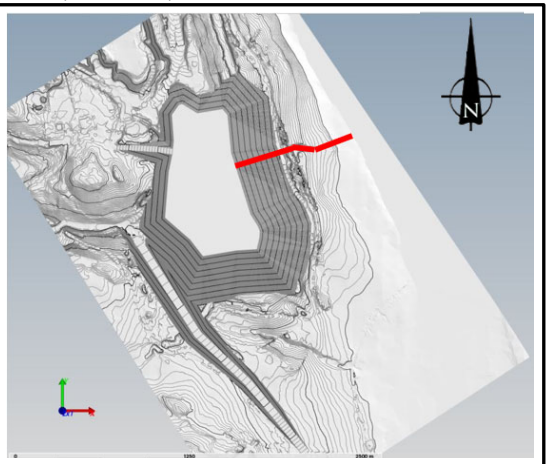
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2 – PSEUDO-STATIC LOADING
FAILURE THROUGH TAILINGS

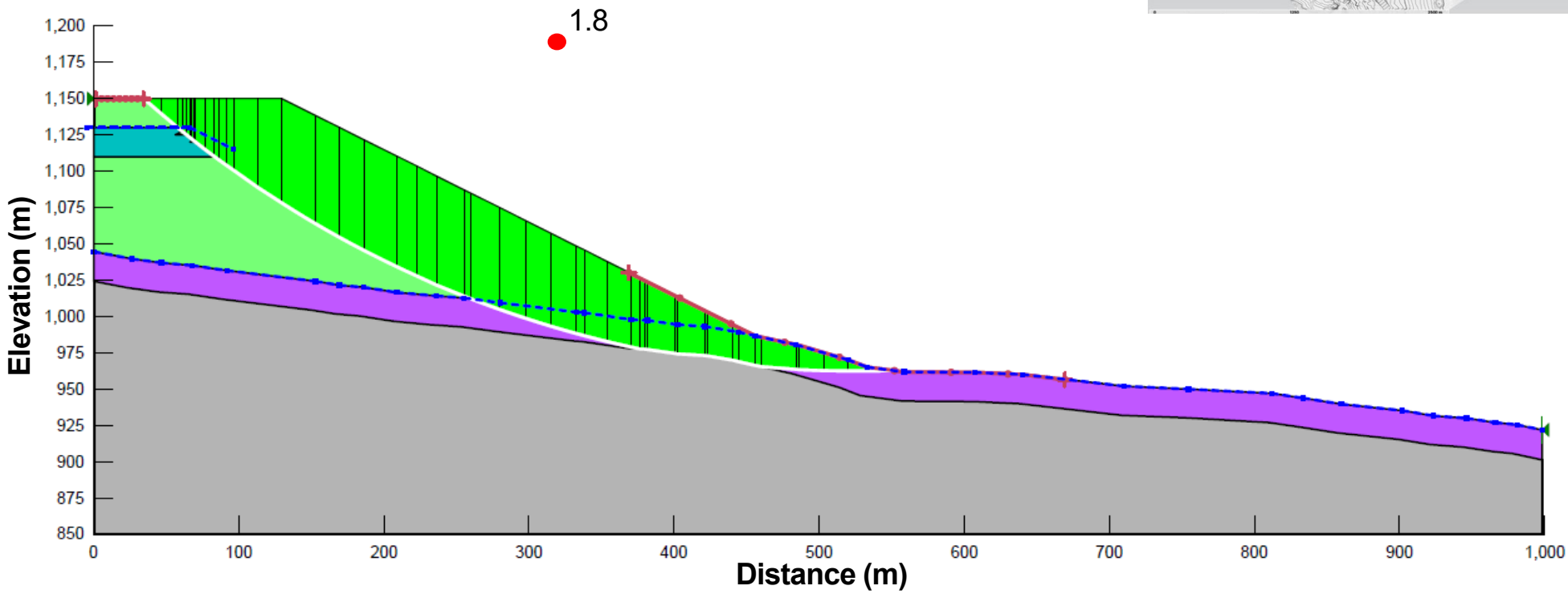
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-11

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

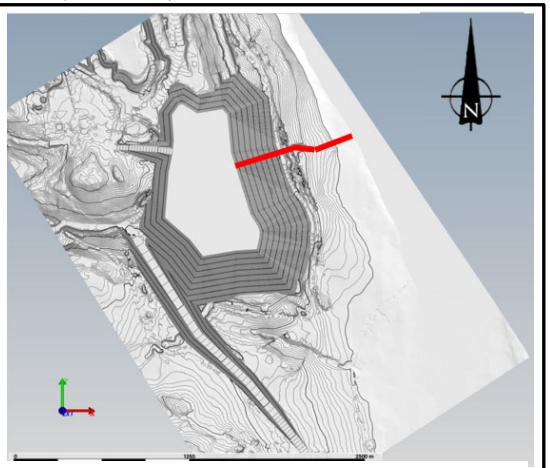
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2 – POST EARTHQUAKE CONDITIONS
FAILURE THROUGH TAILINGS

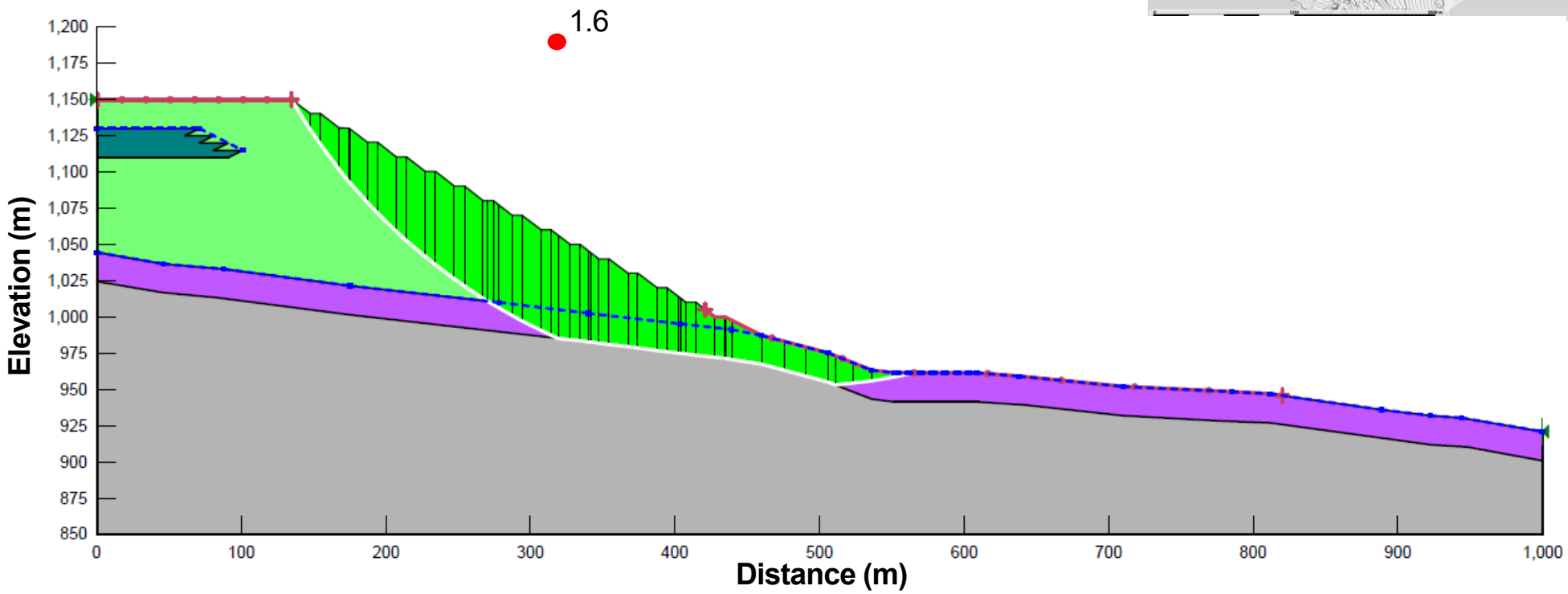
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-12**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PREPARED	J. Graham
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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

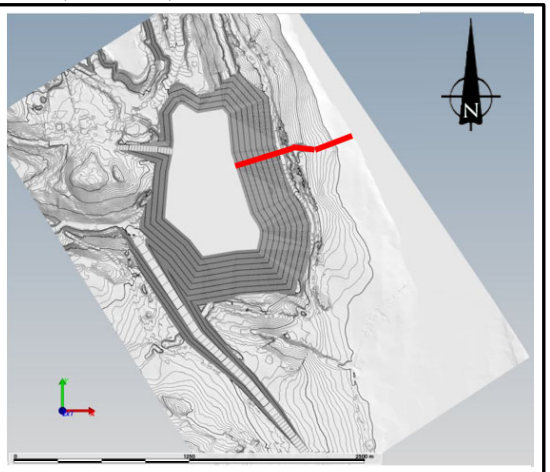
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – STATIC LOADING (10 m Benches)

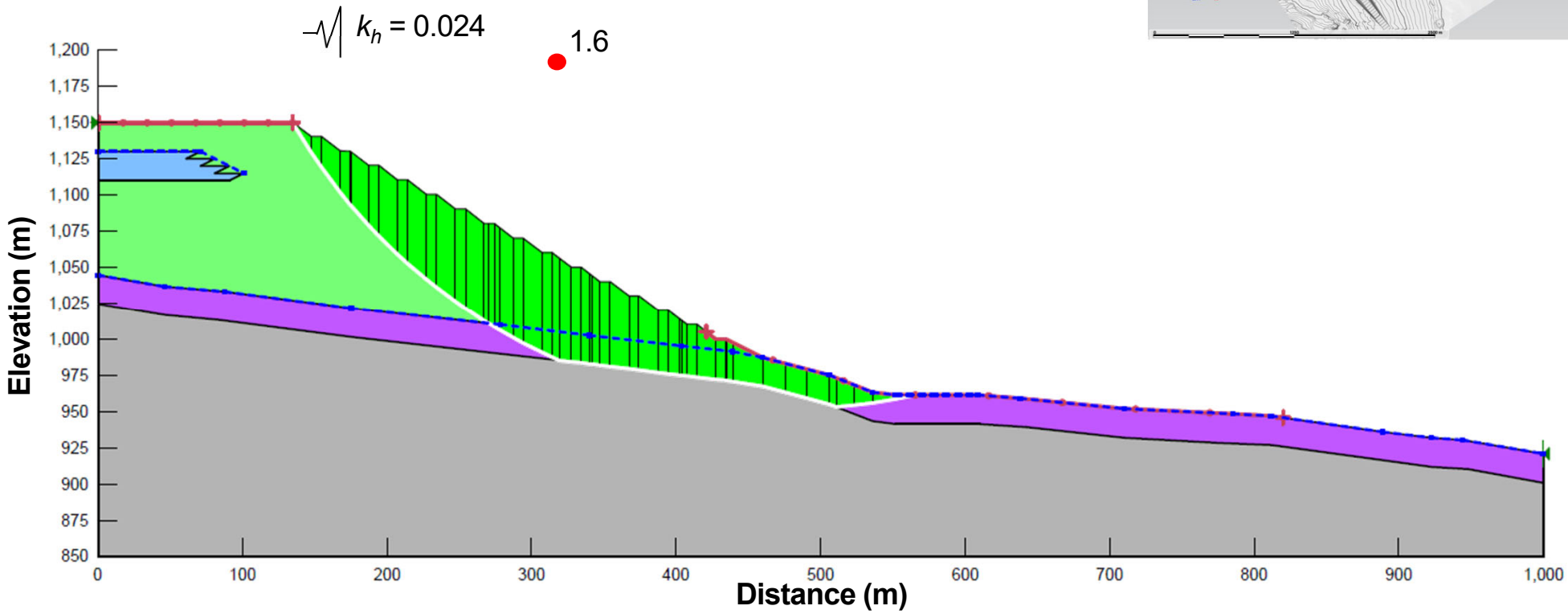
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-13**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – PSEUDO-STATIC LOADING (10 m Benches)

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-14

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
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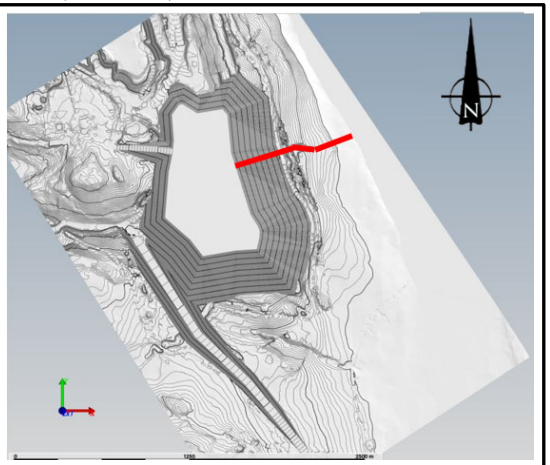
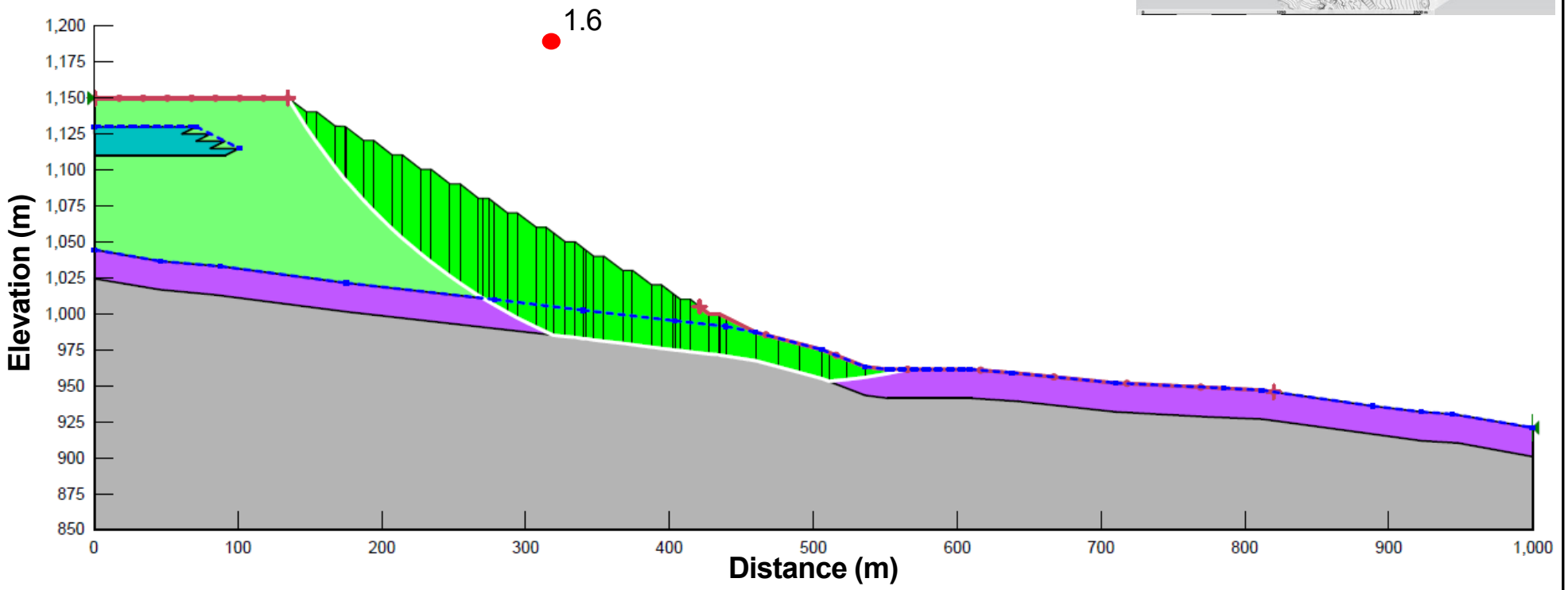
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – POST EARTHQUAKE CONDITIONS (10 m Benches)

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-15

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Material Properties

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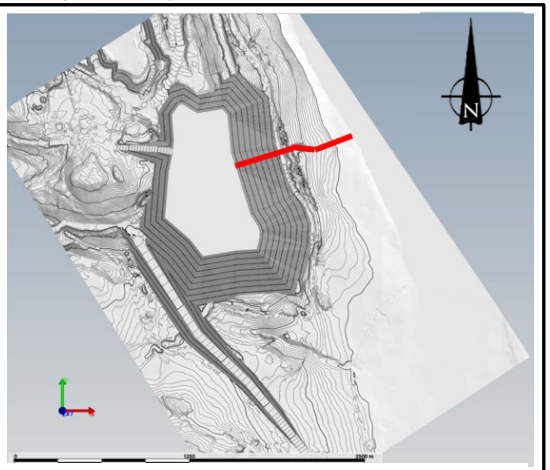
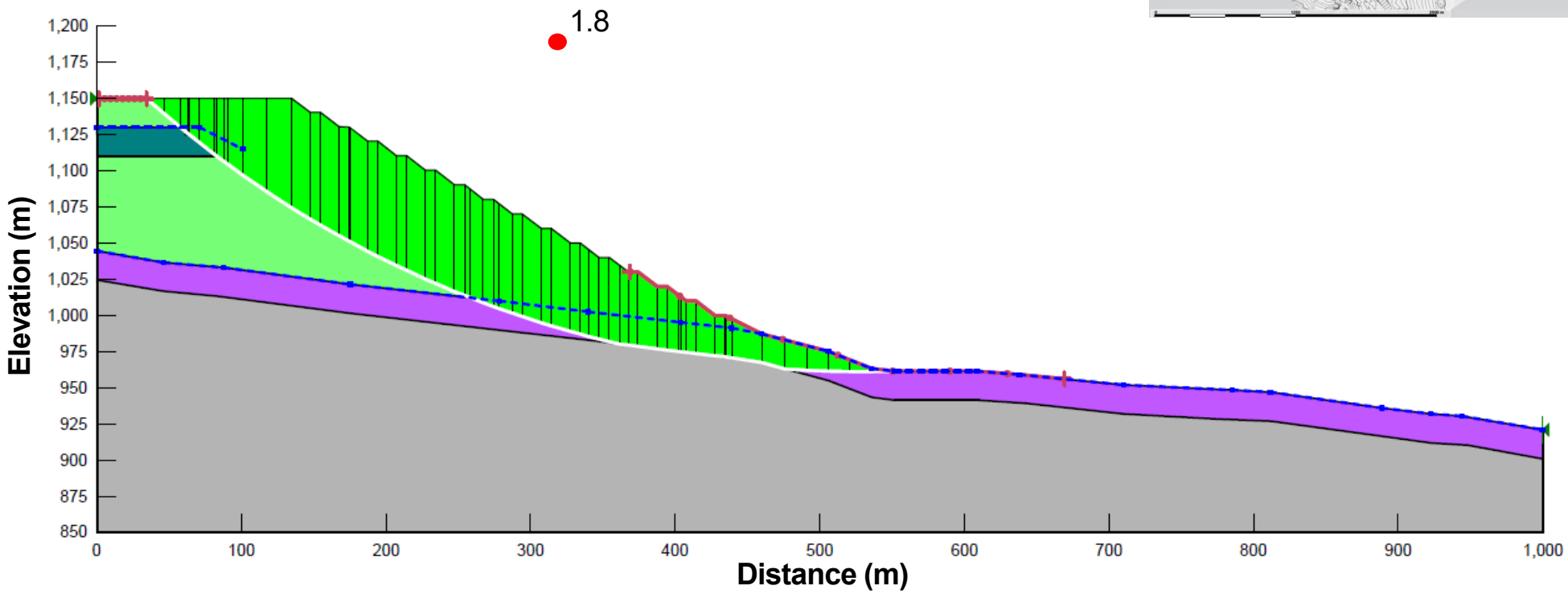
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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SOUTHEAST ROCK DISPOSAL SITE
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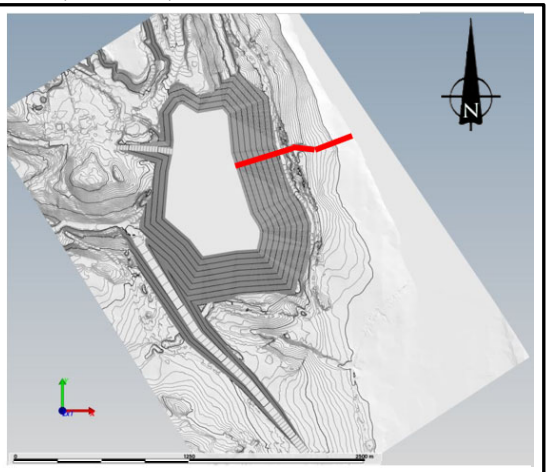
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – STATIC LOADING (10 m Benches)
FAILURE THROUGH TAILINGS

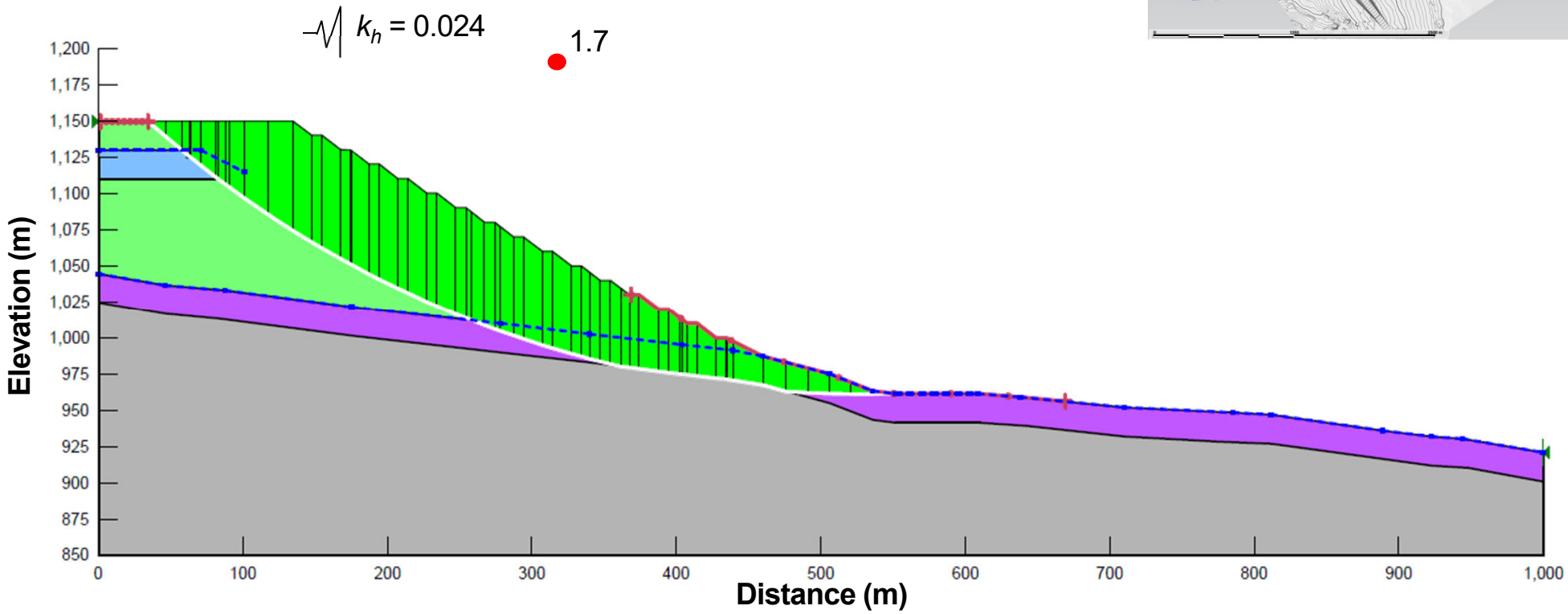
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-16**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – PSEUDO-STATIC LOADING (10 m Benches)
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-17

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
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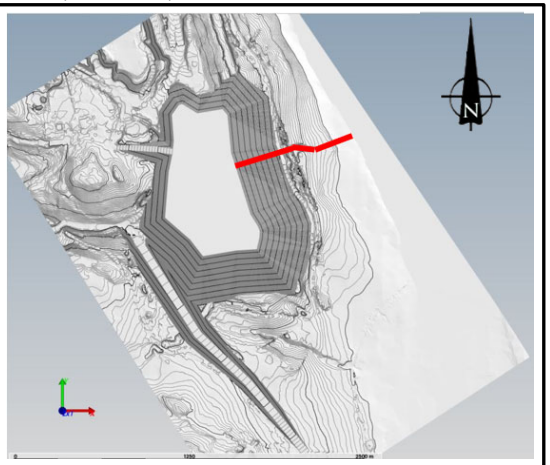
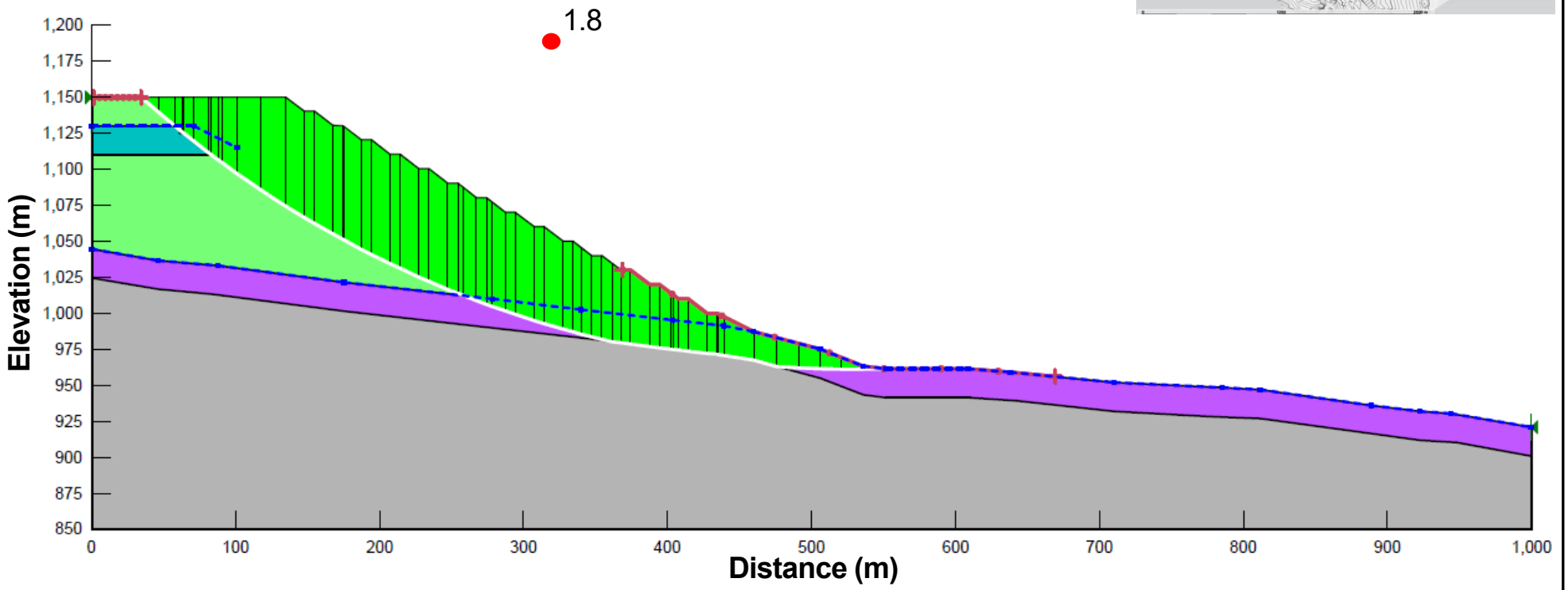
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
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TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – POST EARTHQUAKE CONDITIONS (10 m Benches)
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-18**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
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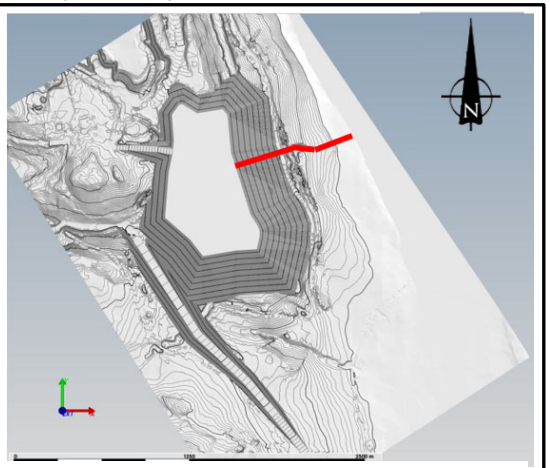
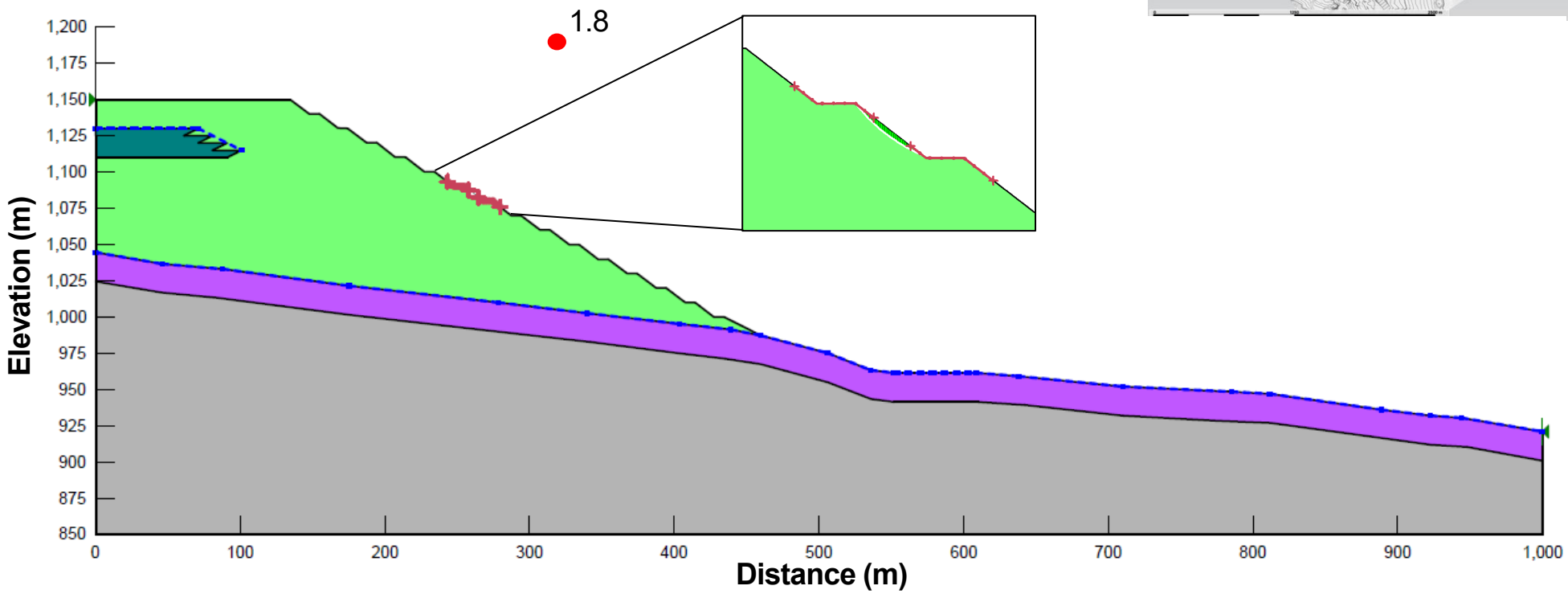
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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SOUTHEAST ROCK DISPOSAL SITE
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TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – STATIC LOADING (10 m Benches)
INTER BENCH FAILURE

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-19**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

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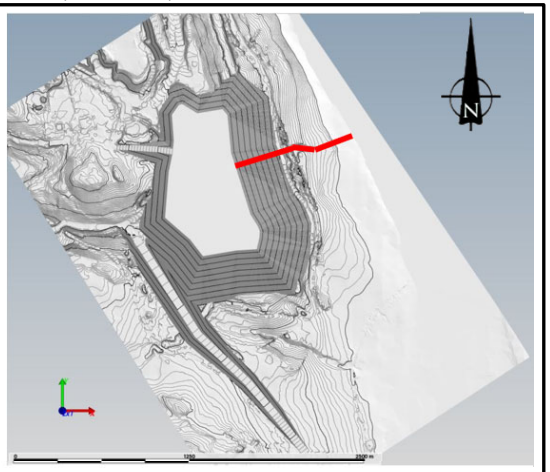
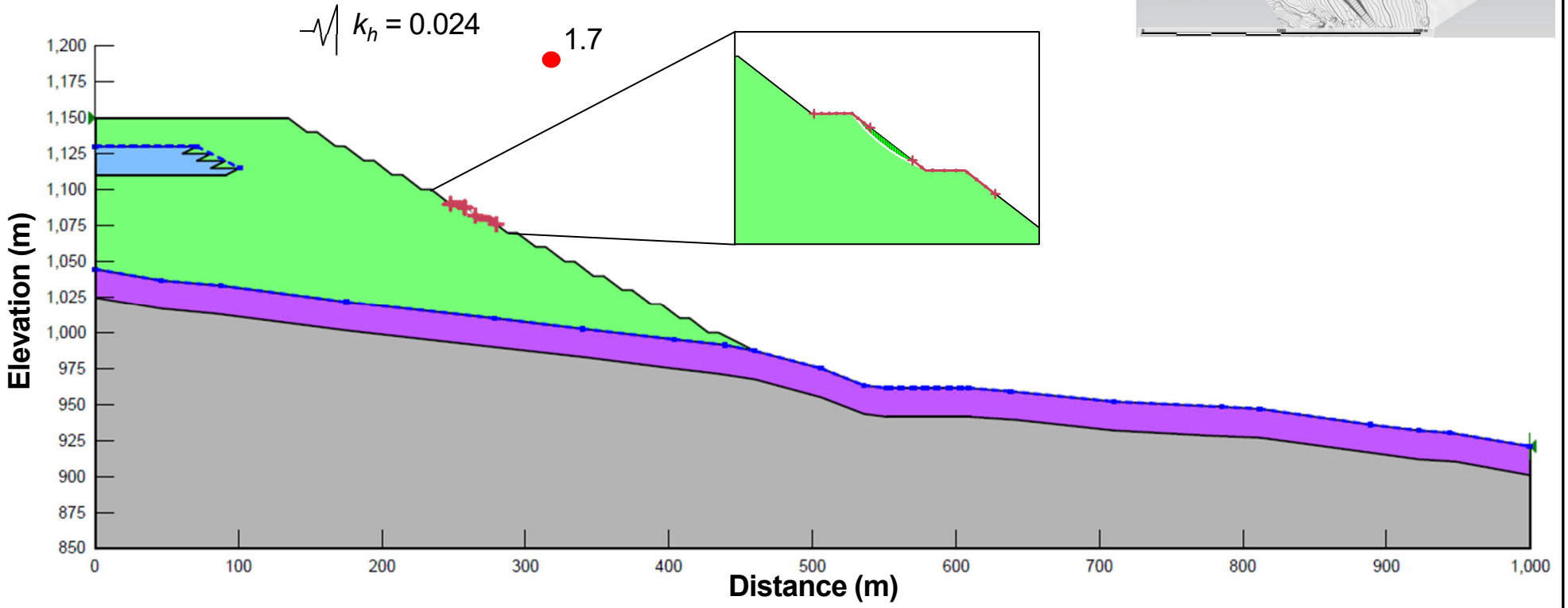
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2A – PSEUDO-STATIC LOADING (10 m Benches)
INTER BENCH FAILURE

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-20**

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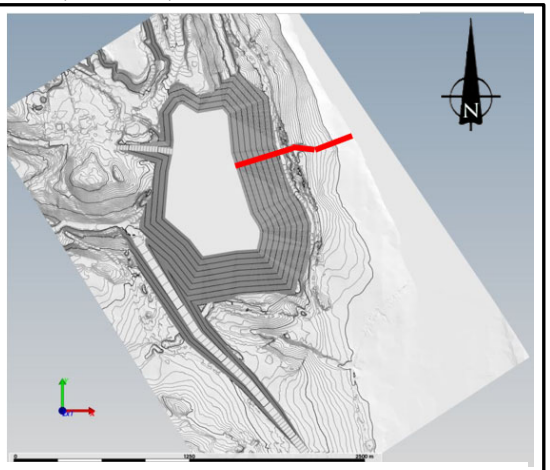

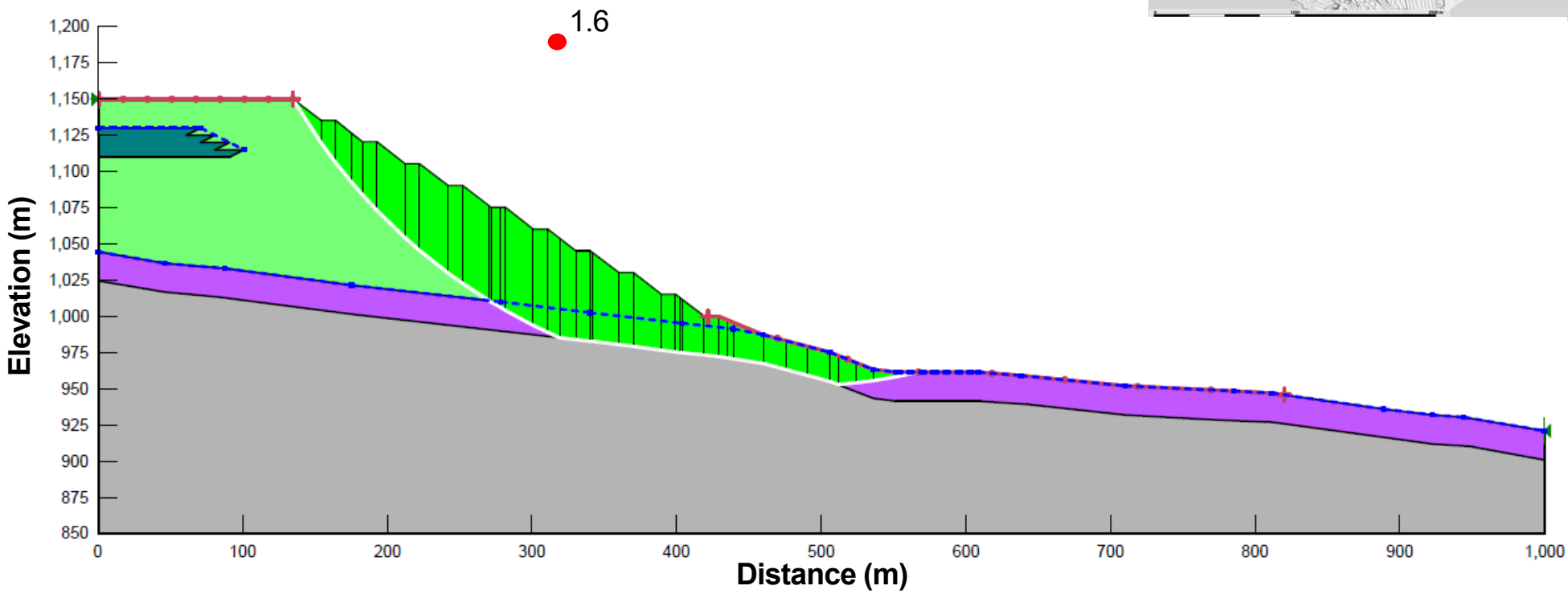

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REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

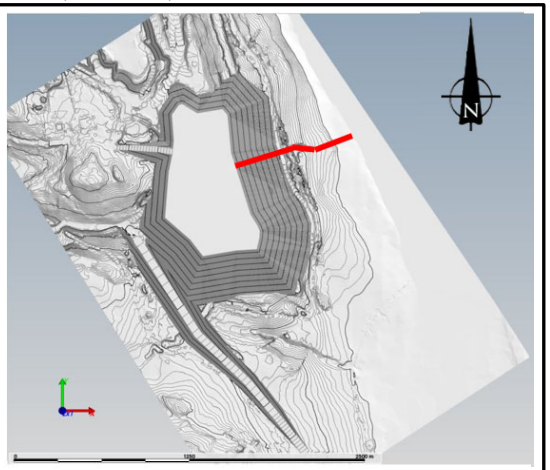
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – STATIC LOADING (15 m Benches)

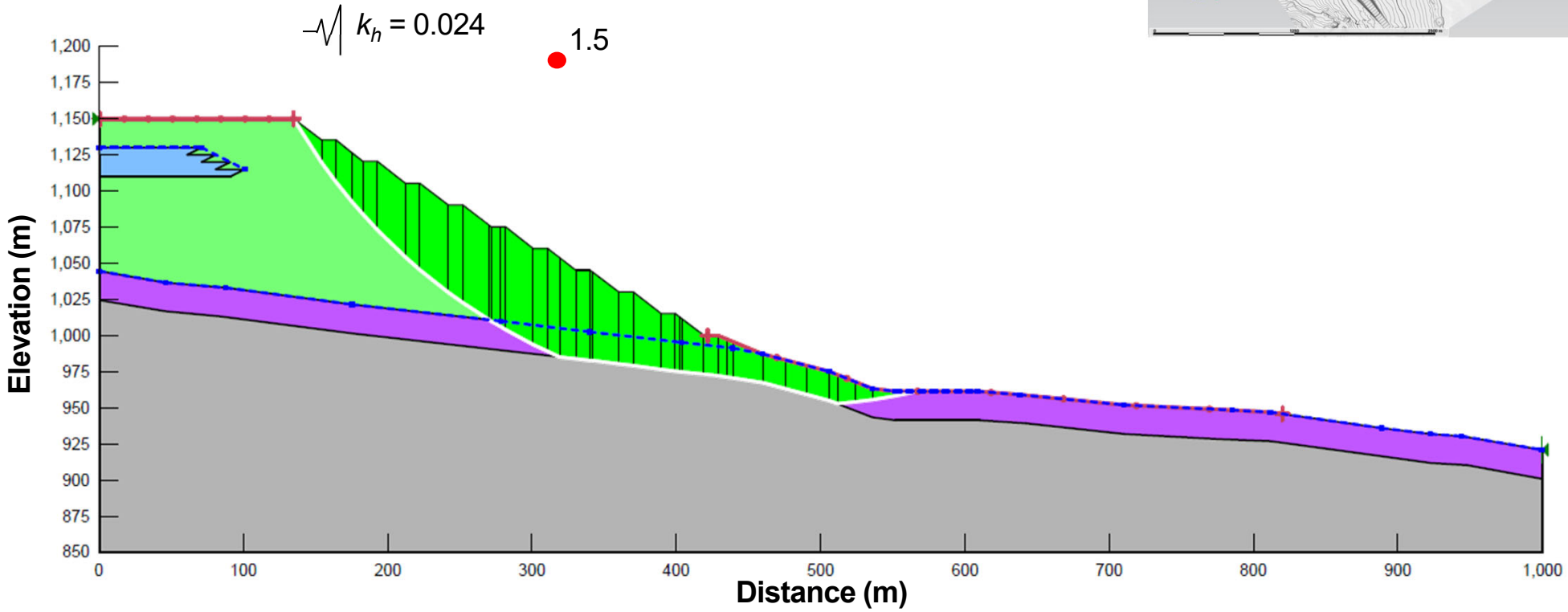
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-21**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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CLIENT
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CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

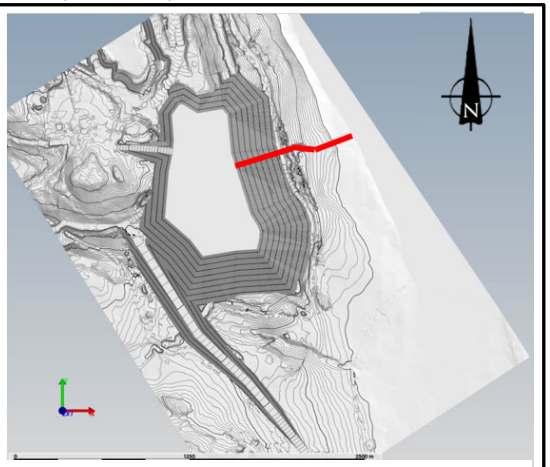
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – PSEUDO-STATIC LOADING (15 m Benches)

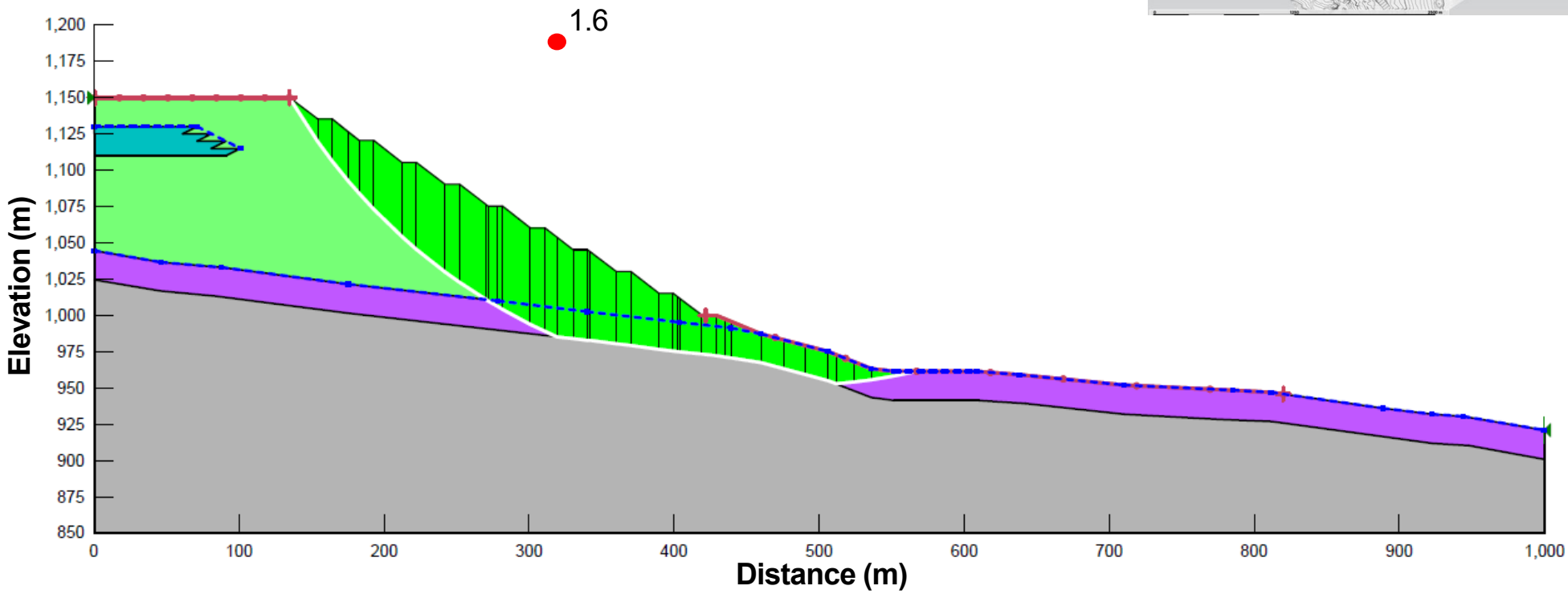
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-22**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – POST EARTHQUAKE CONDITIONS (15 m Benches)

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-23

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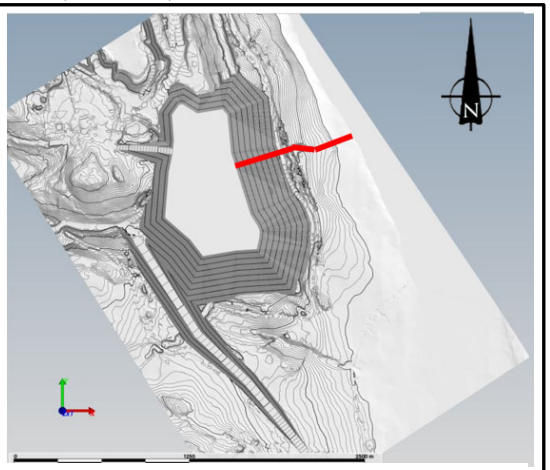

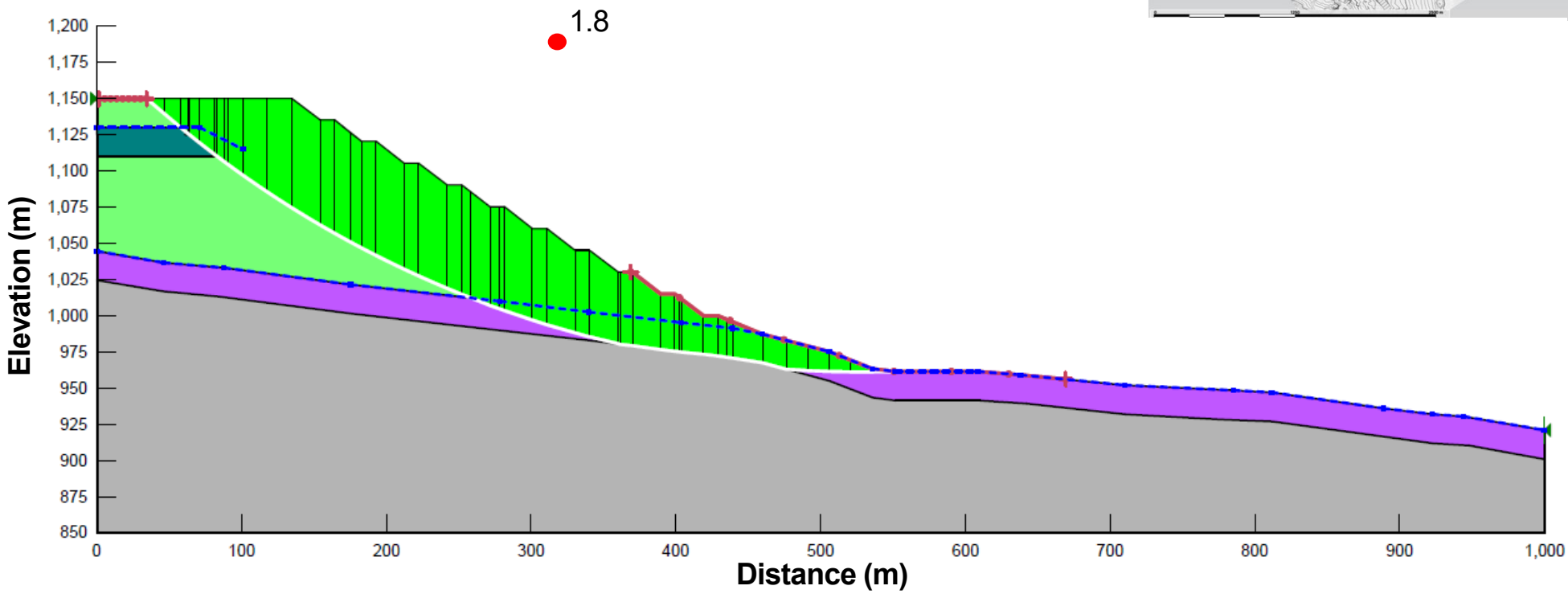

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PROJECT
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LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – STATIC LOADING (15 m Benches)
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-24**

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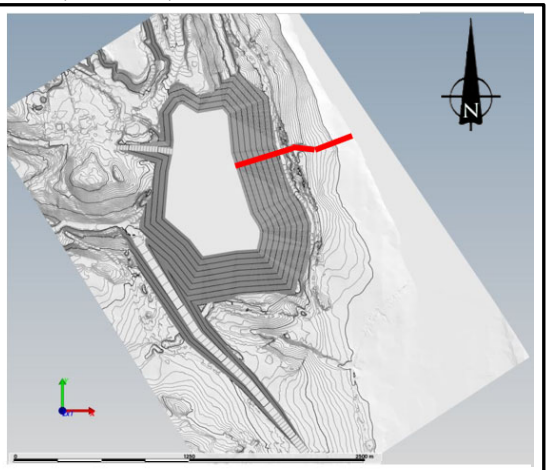

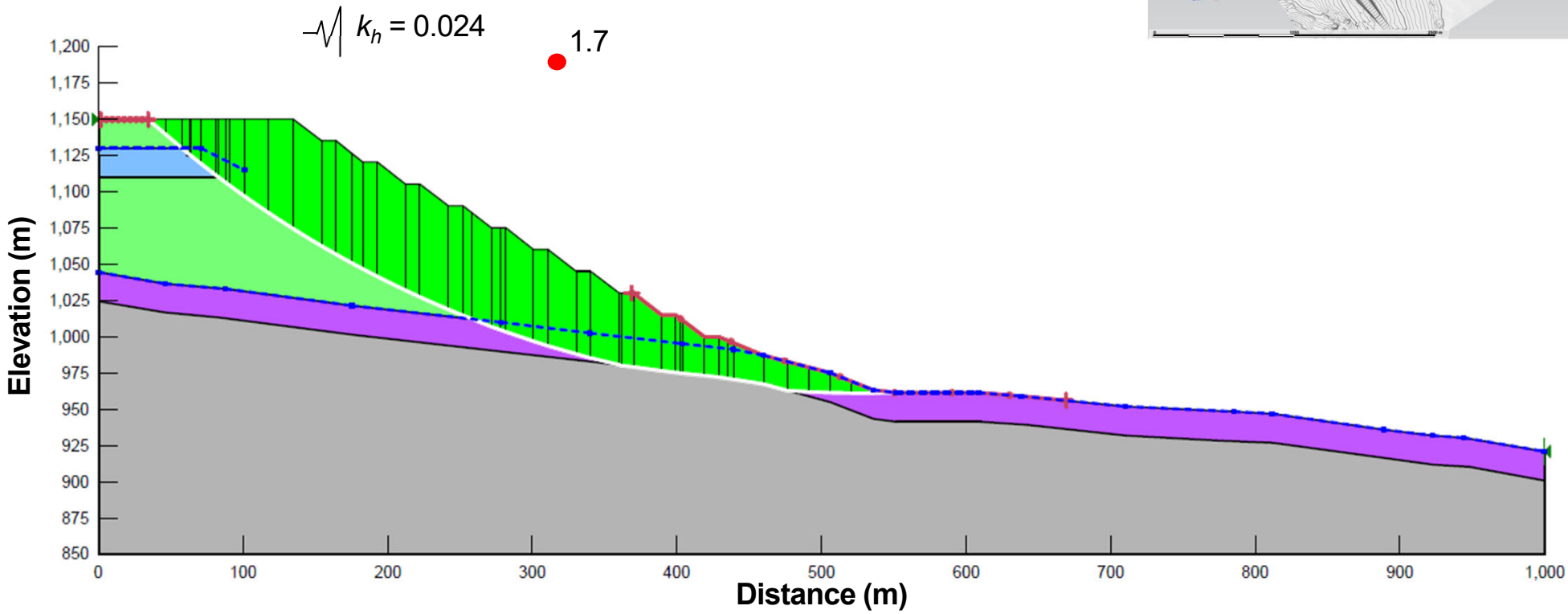

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SOUTHEAST ROCK DISPOSAL SITE
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SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – PSEUDO-STATIC LOADING (15 m Benches)
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-25

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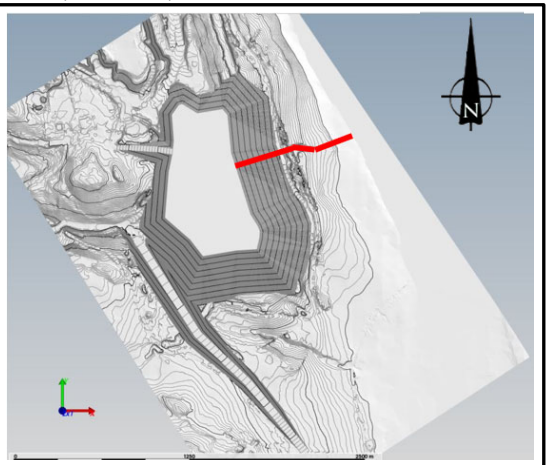
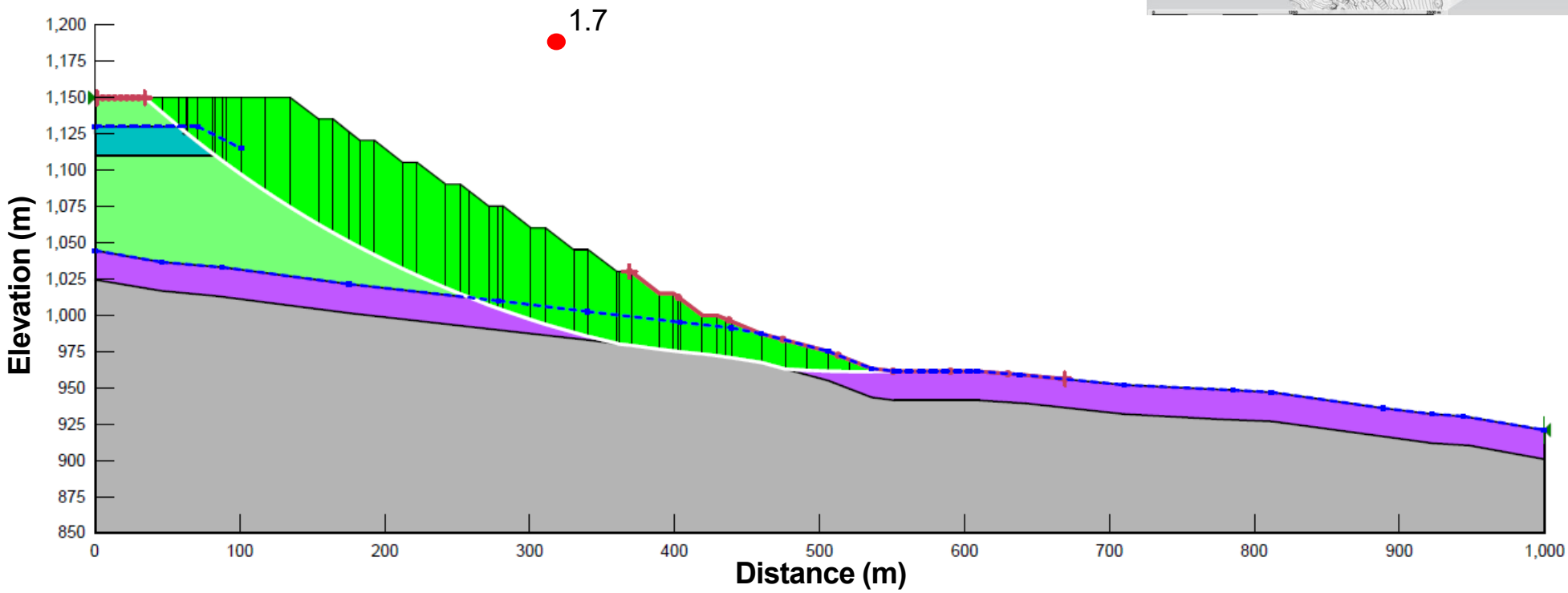
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

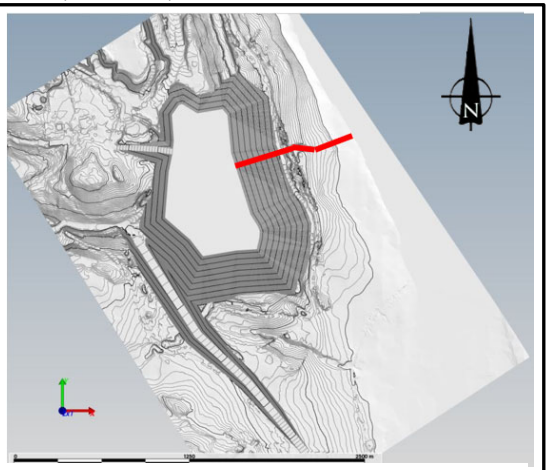
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – POST EARTHQUAKE CONDITIONS (15 m Benches)
FAILURE THROUGH TAILINGS

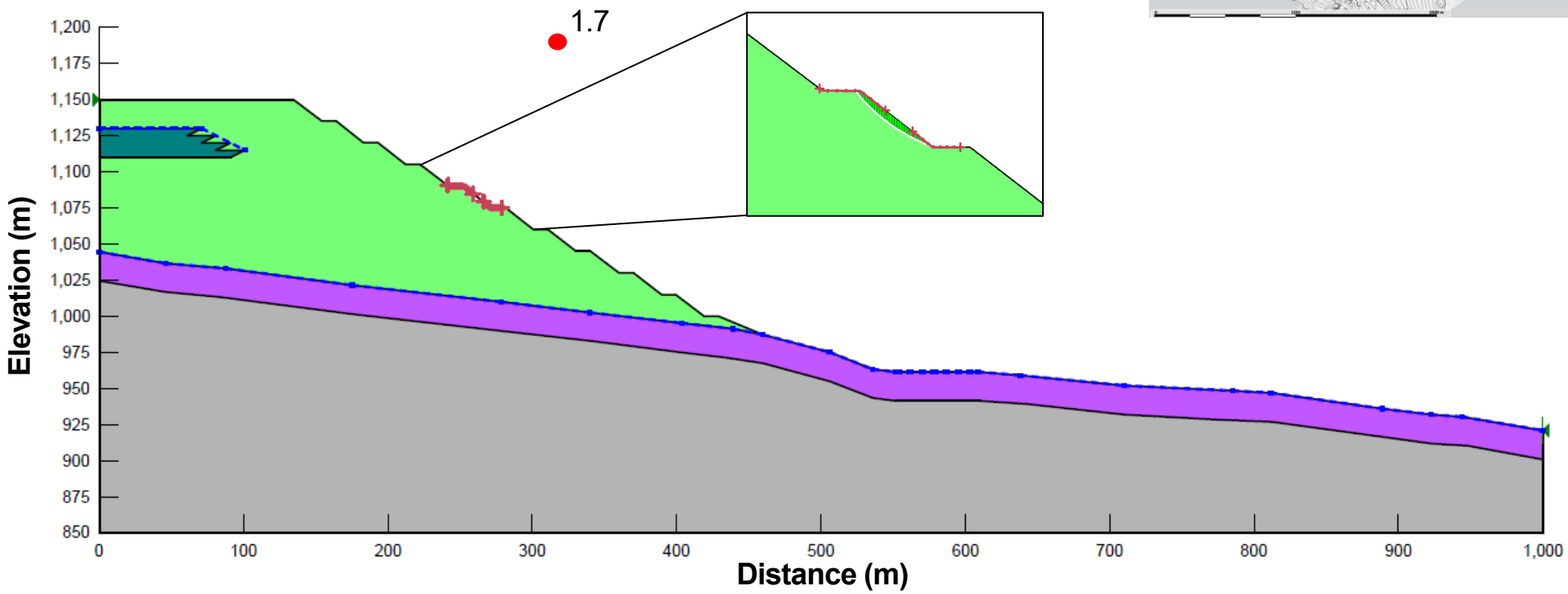
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-26**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

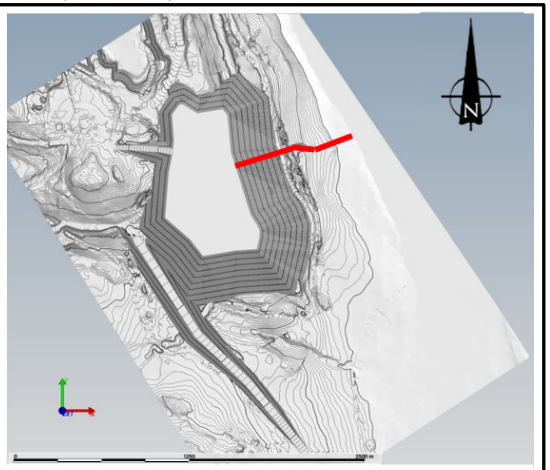
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – STATIC LOADING (15 m Benches)
INTER BENCH FAILURE

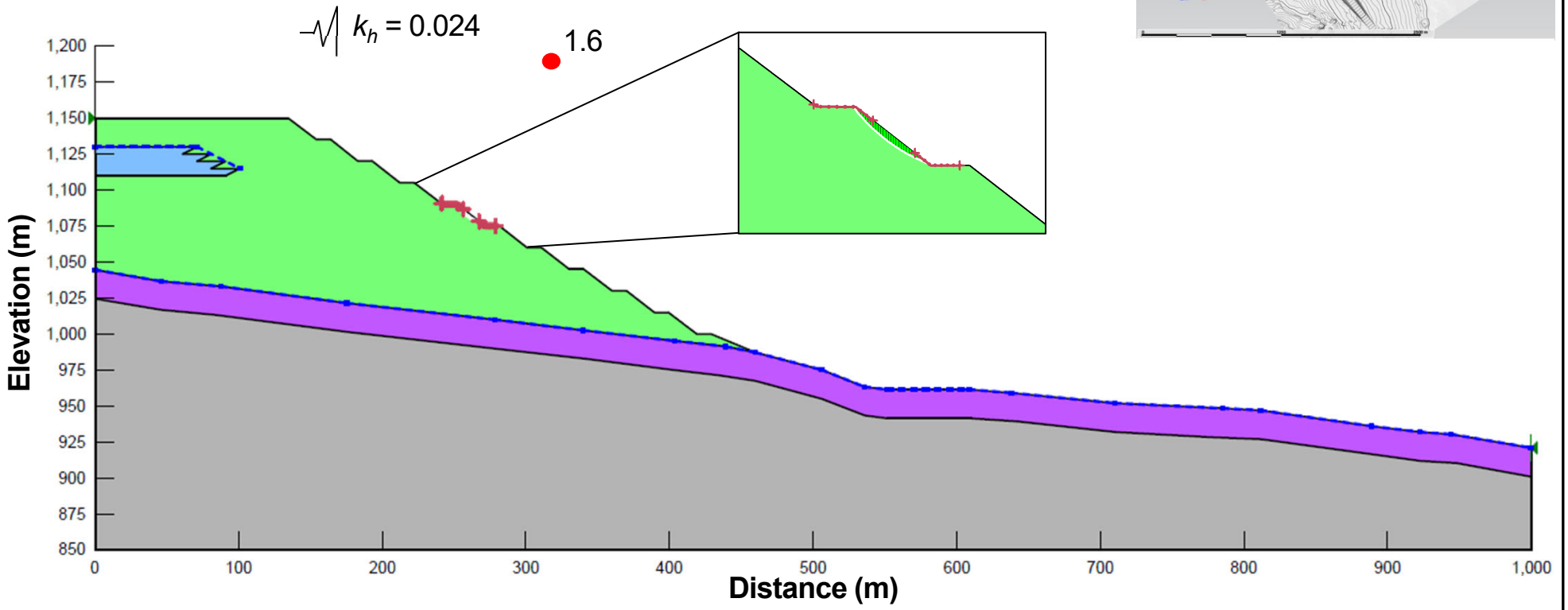
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-27**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

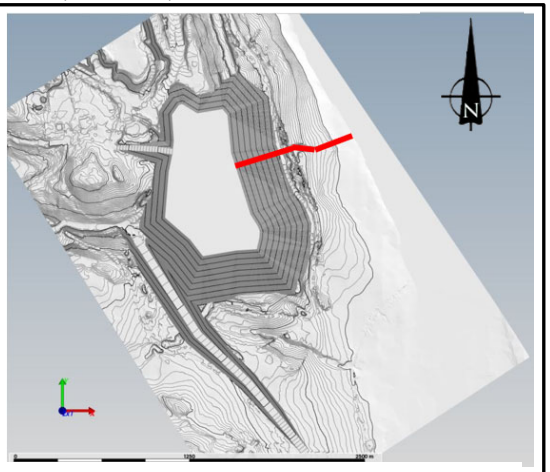
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2B – PSEUDO-STATIC LOADING (15 m Benches)
INTER BENCH FAILURE

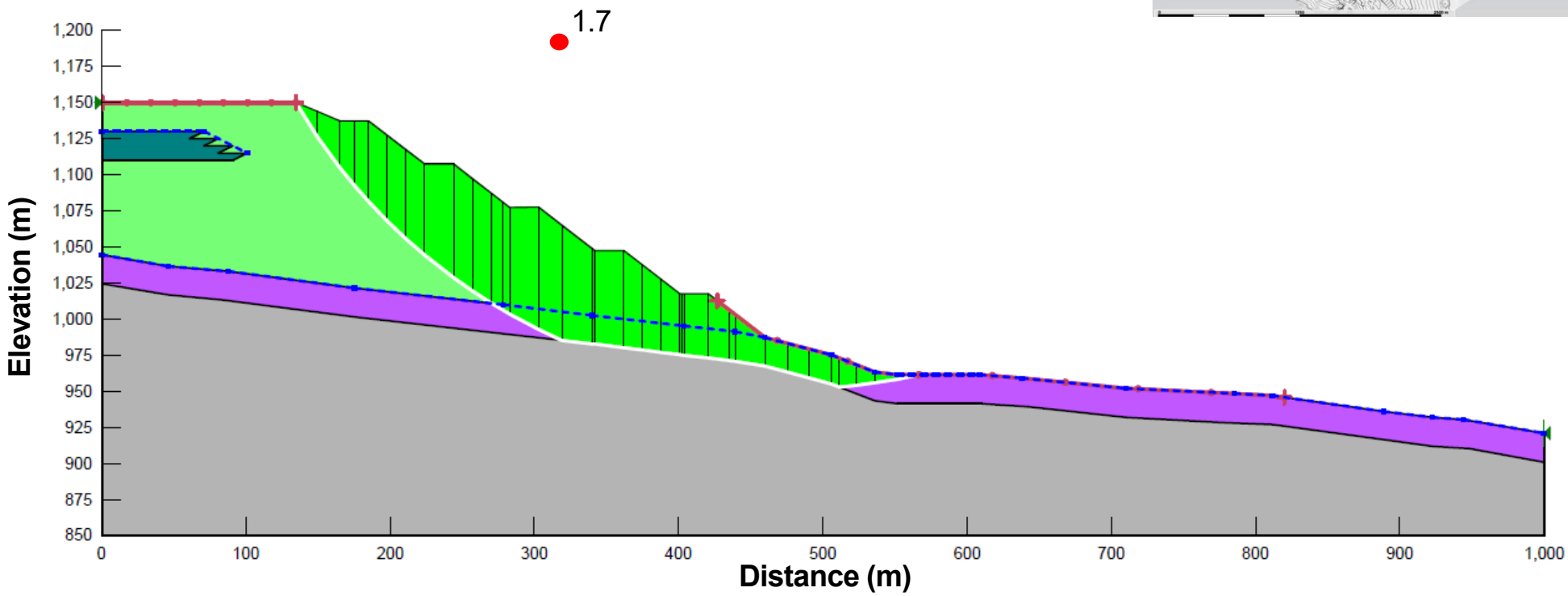
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-28

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

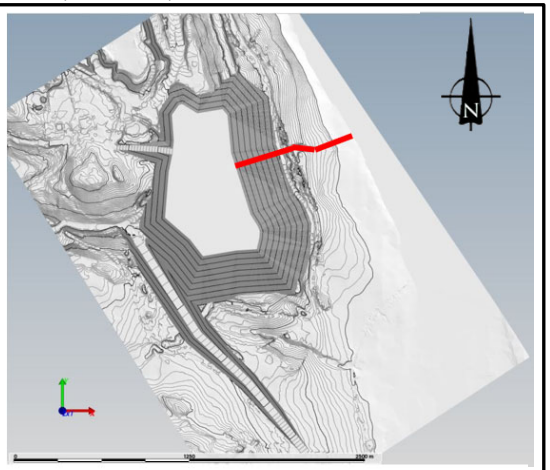
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – STATIC LOADING (30 m Benches)

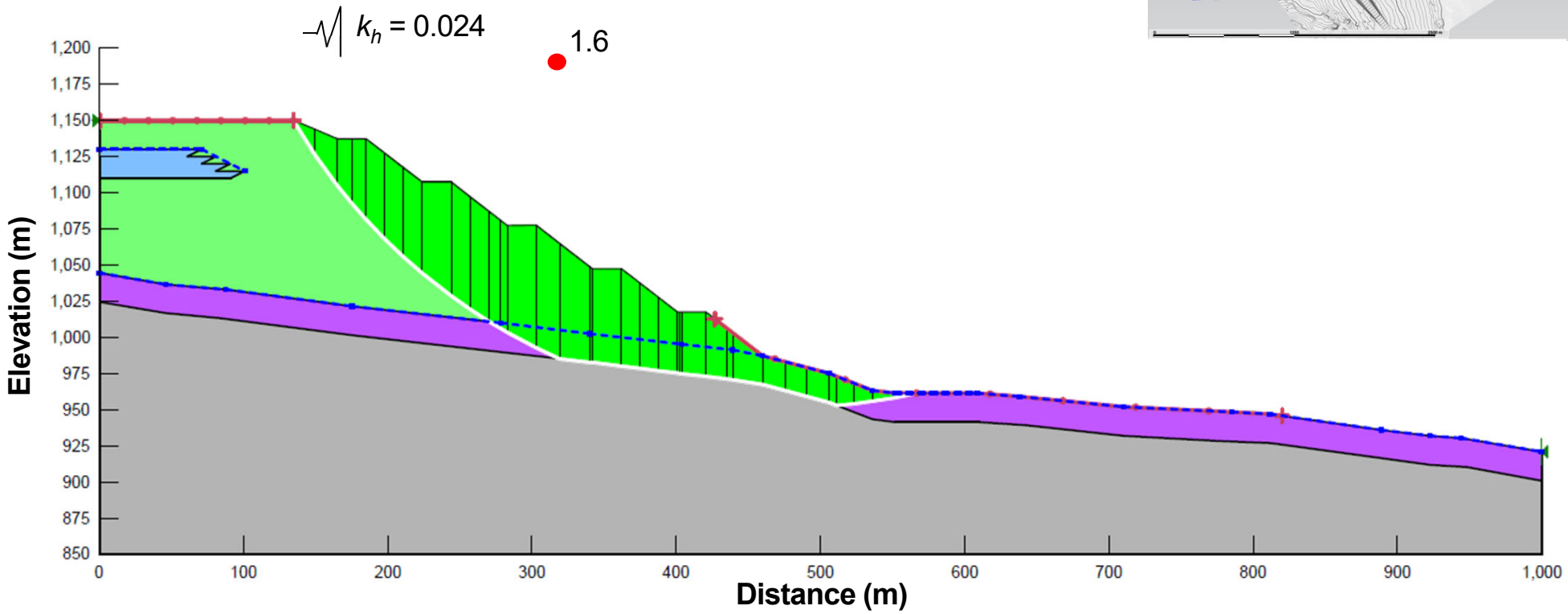
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-29**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

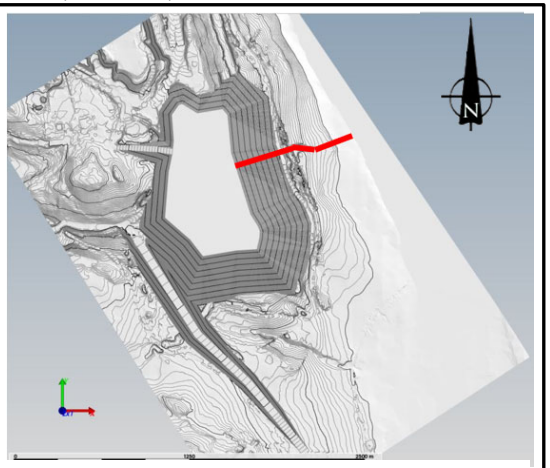
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – PSEUDO-STATIC LOADING (30 m Benches)

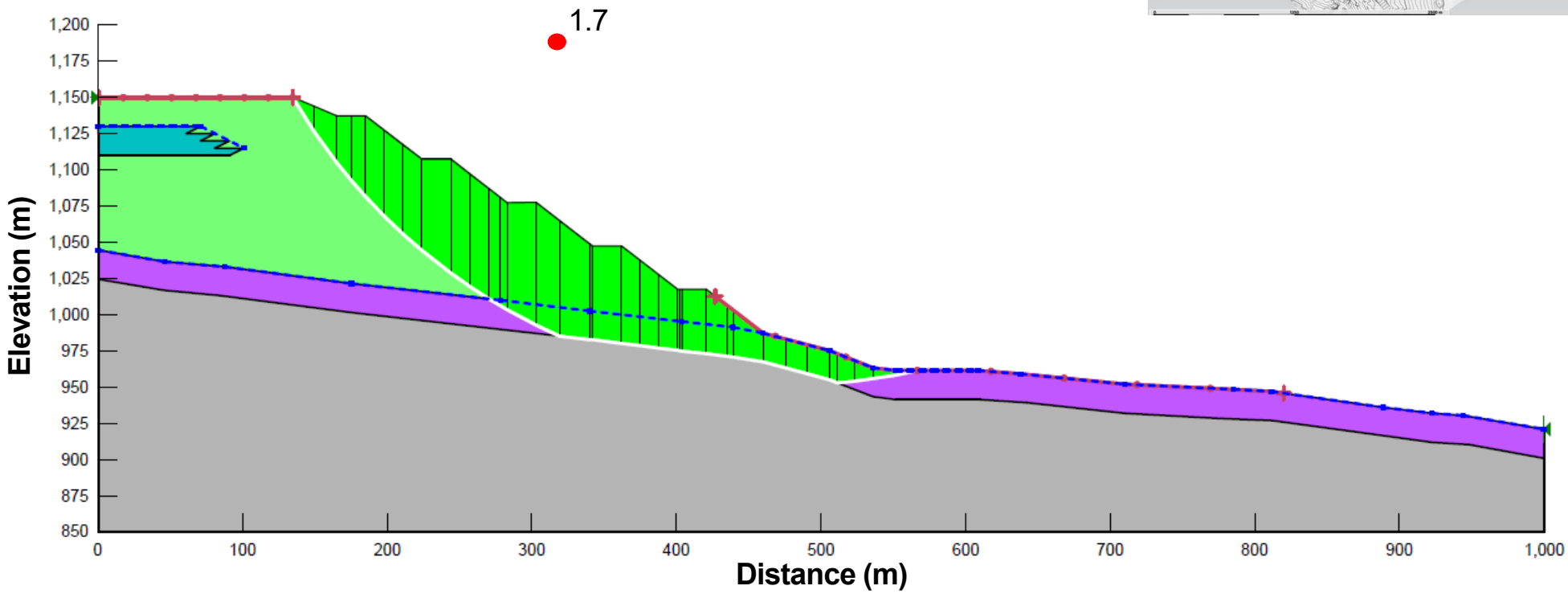
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-30

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

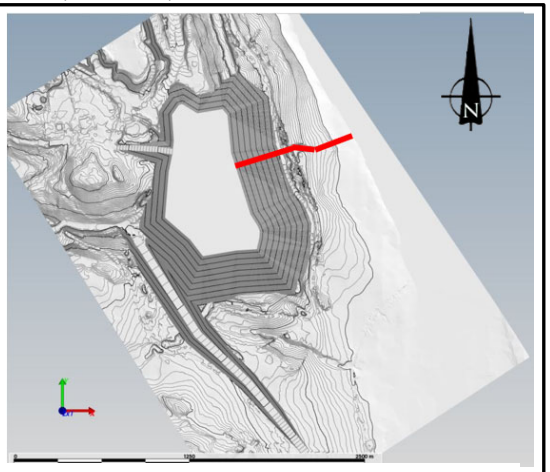
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – POST EARTHQUAKE CONDITIONS (30 m Benches)

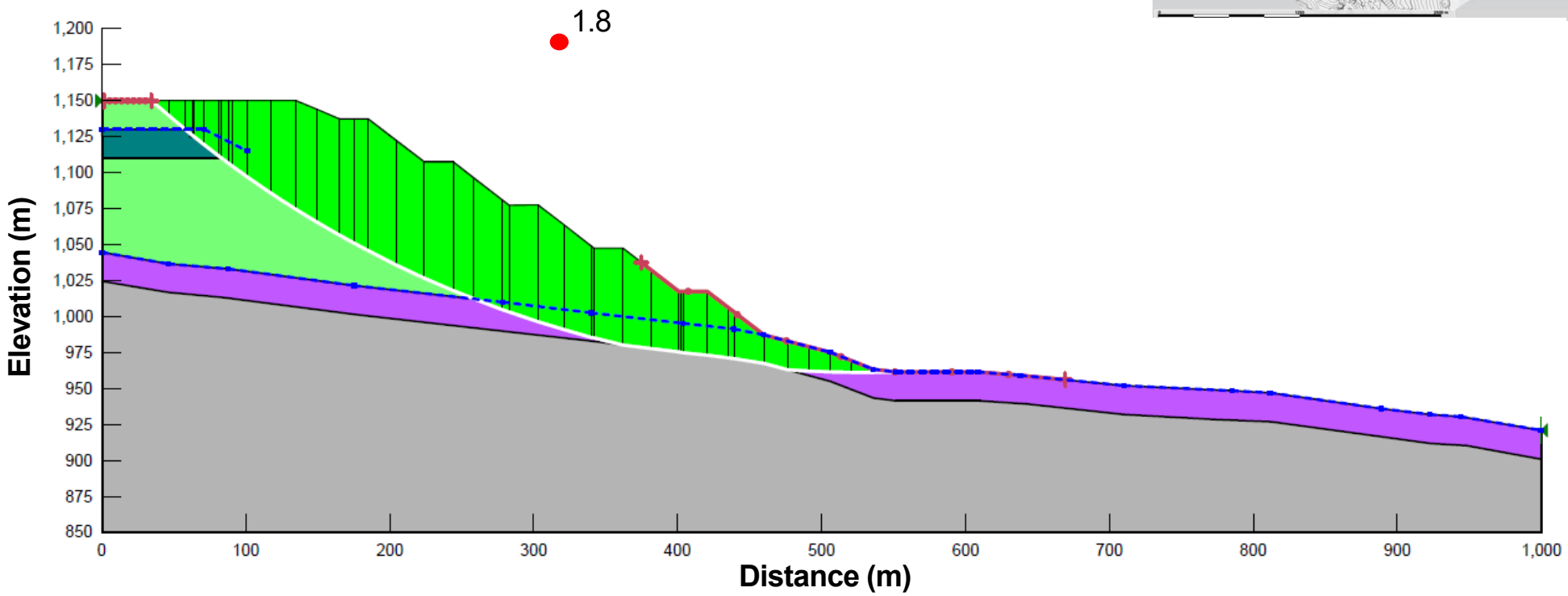
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-31

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

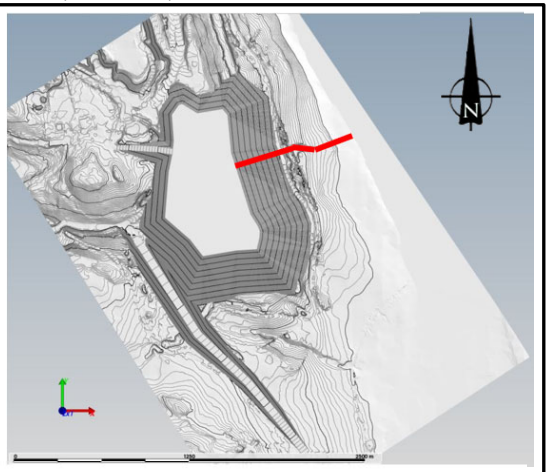
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – STATIC LOADING (30 m Benches)
FAILURE THROUGH TAILINGS

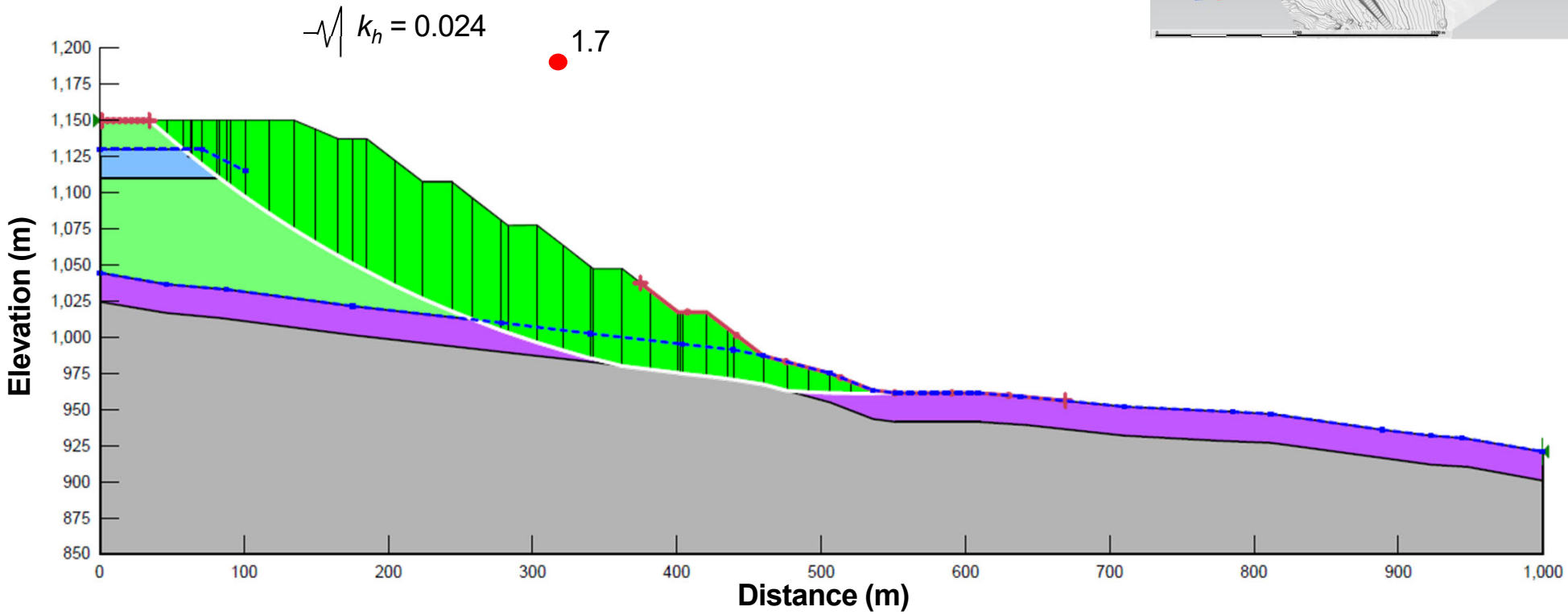
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-32**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
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LIFE OF MINE DETAILED DESIGN

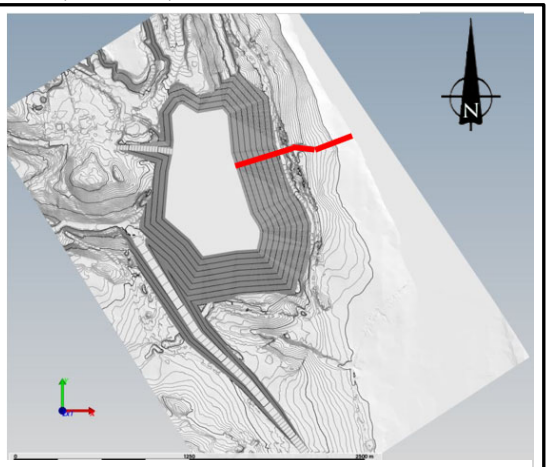
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – PSEUDO-STATIC LOADING (30 m Benches)
FAILURE THROUGH TAILINGS

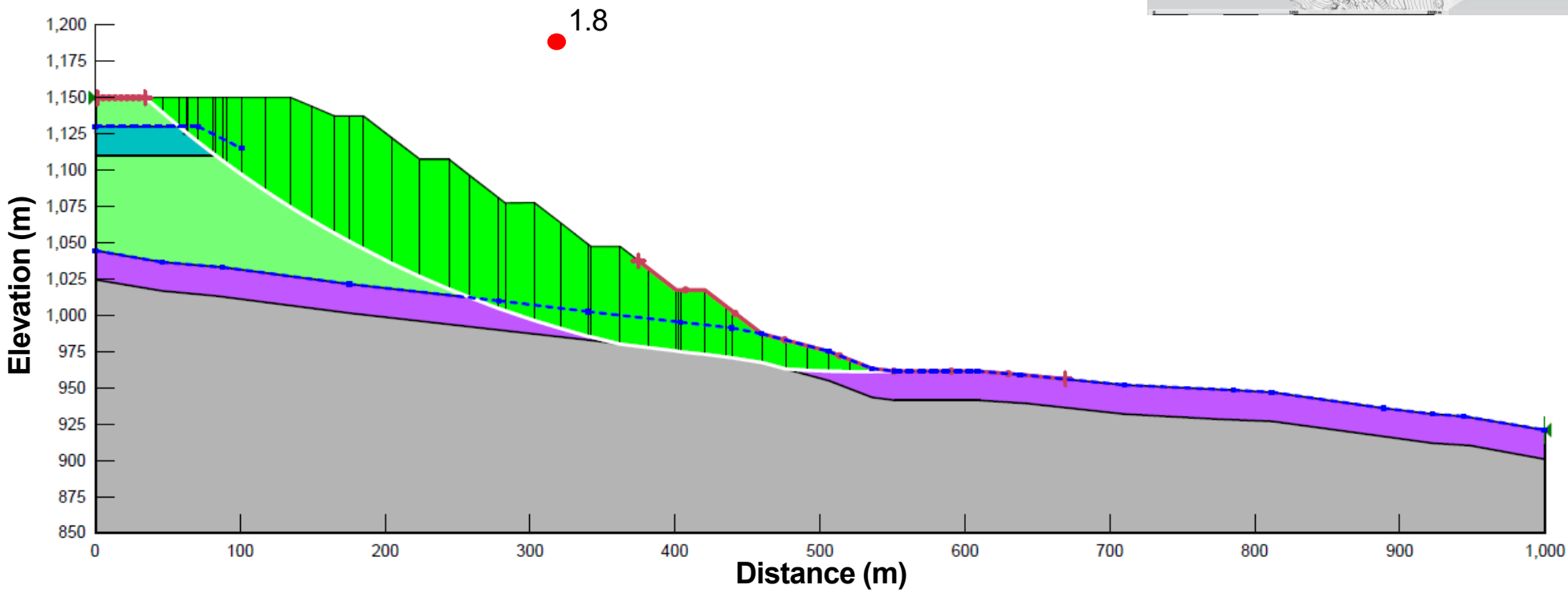
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-33

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – POST EARTHQUAKE CONDITIONS (30 m Benches)
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-34

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Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
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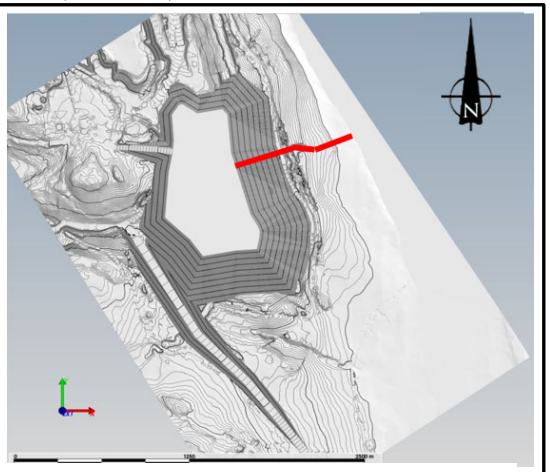
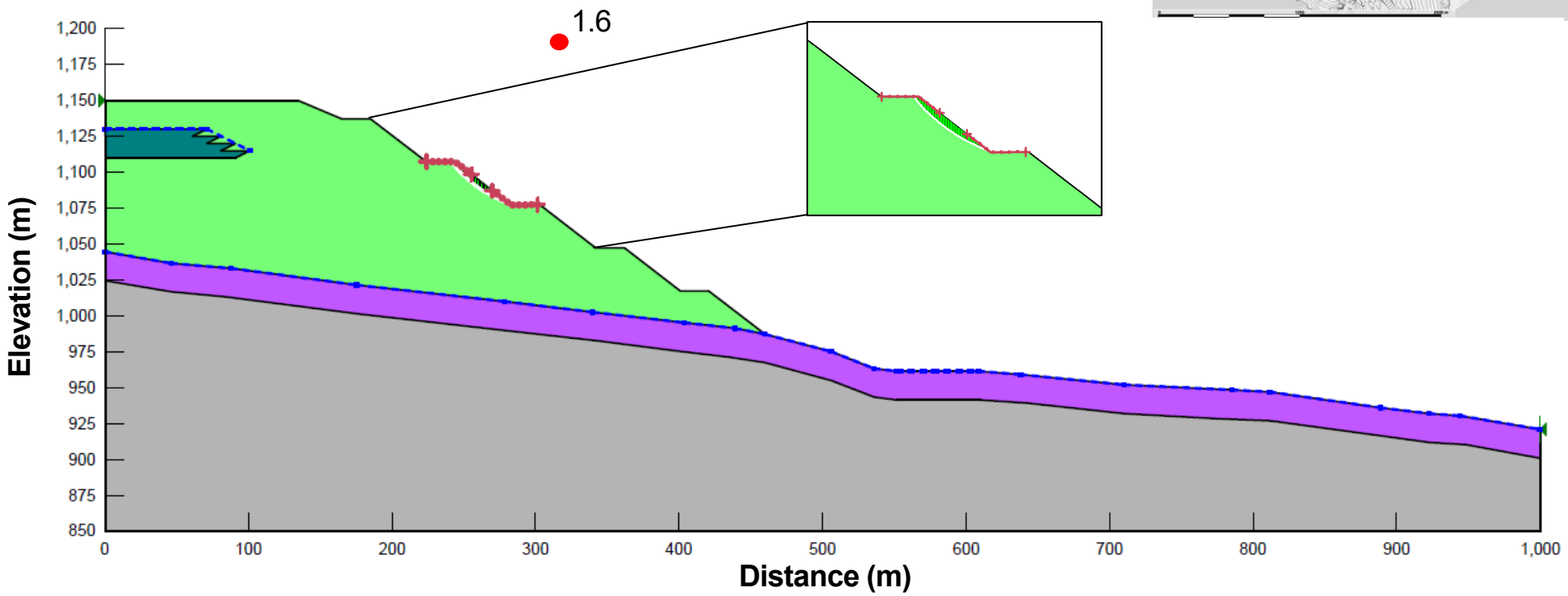
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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LIFE OF MINE DETAILED DESIGN

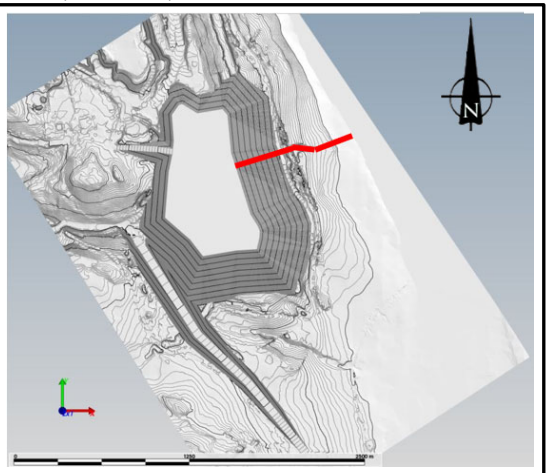
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – STATIC LOADING (30 m Benches)
INTER BENCH FAILURE

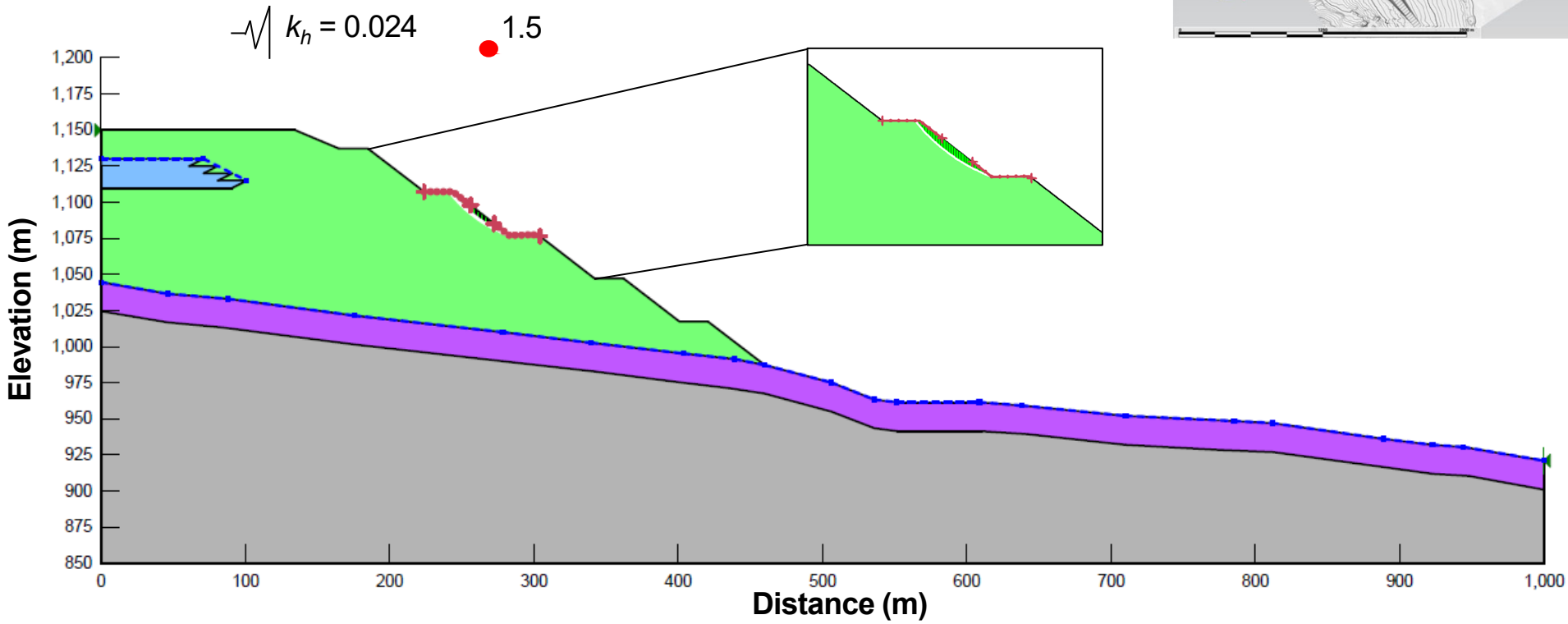
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-35**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

1. MODEL INCLUDES TWO PIEZOMETRIC LINES: ONE AT THE TOP OF THE TAILINGS, APPLIED ONLY TO THE TAILINGS, AND THE OTHER AT THE TOP OF THE TILL, APPLIED ONLY TO THE TILL.
2. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

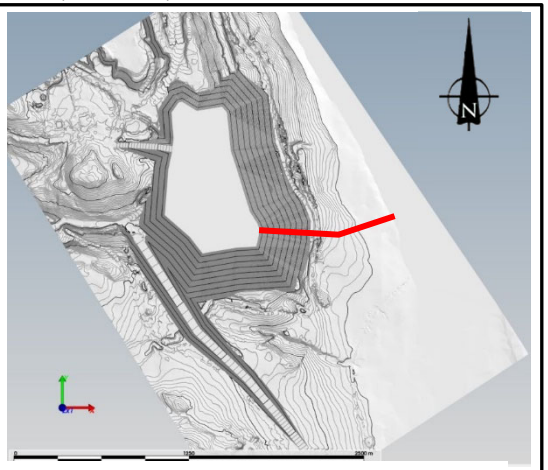
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 2C – PSEUDO-STATIC LOADING (30 m Benches)
INTER BENCH FAILURE

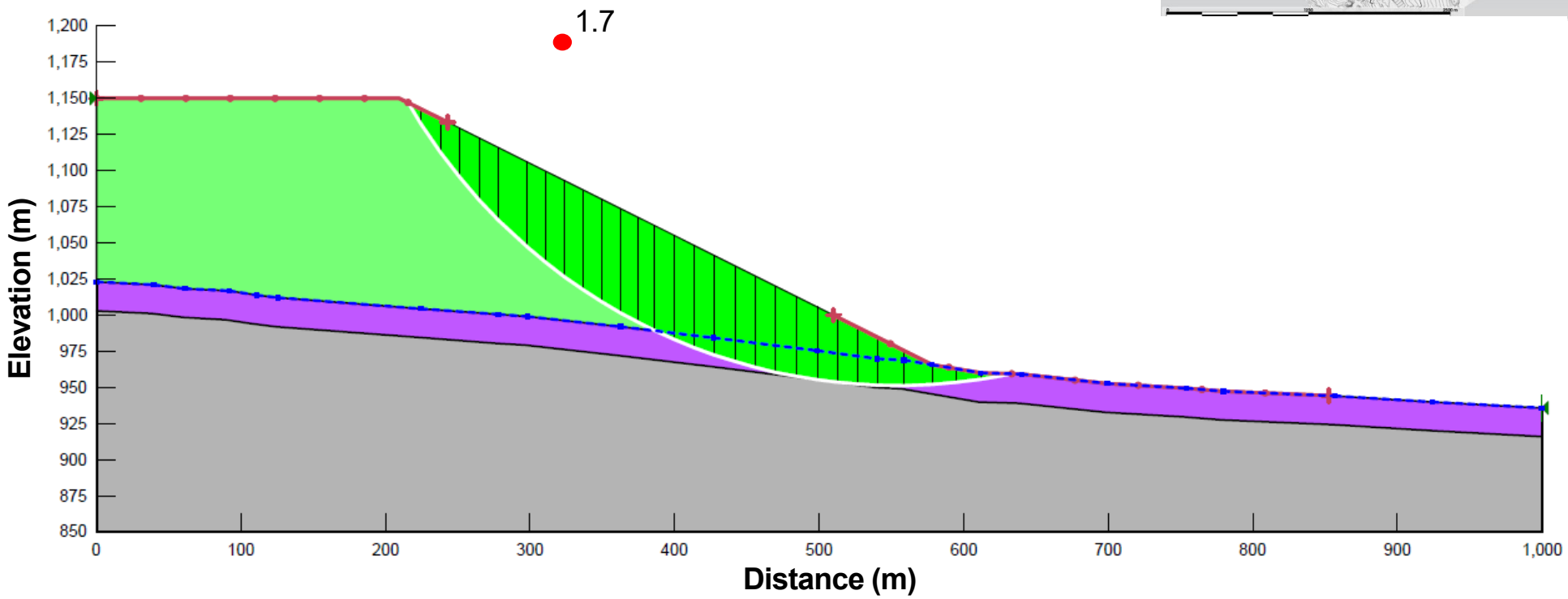
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-36

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
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CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

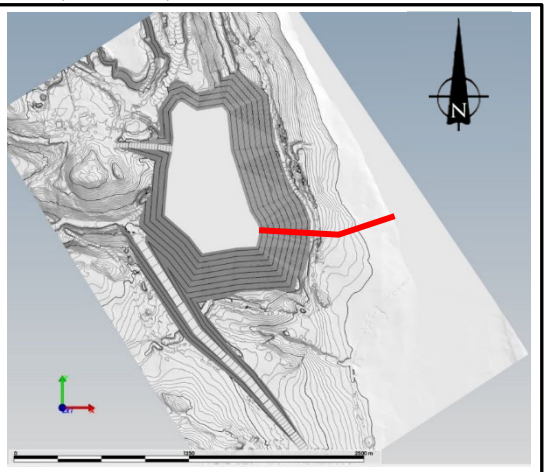
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 3 – STATIC LOADING

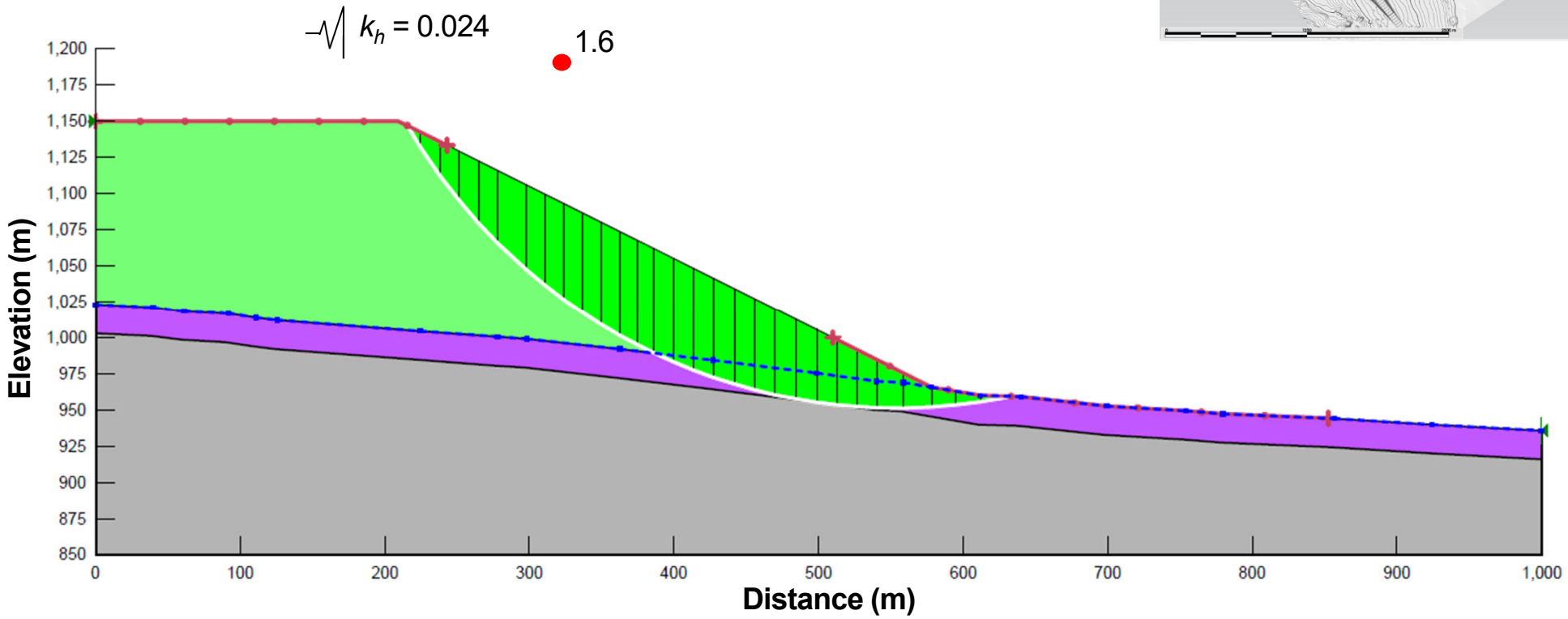
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-37**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

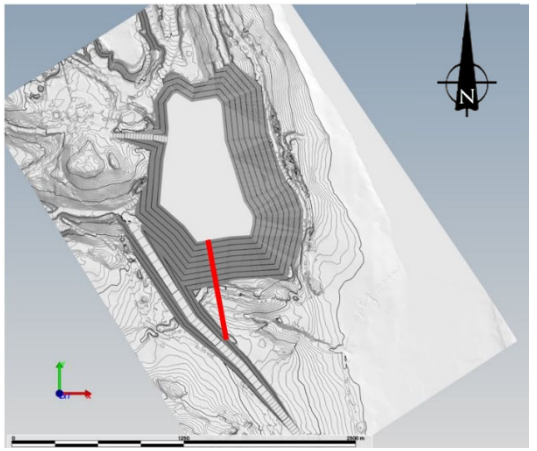
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 3 – PSEUDO-STATIC LOADING

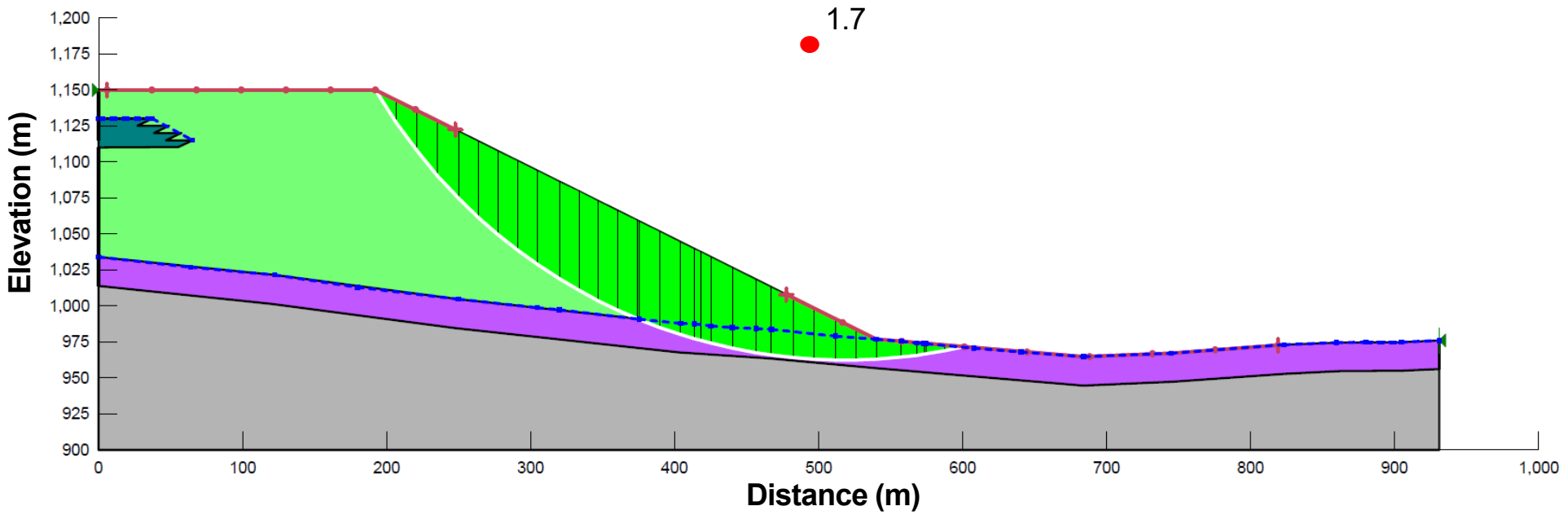
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-38**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

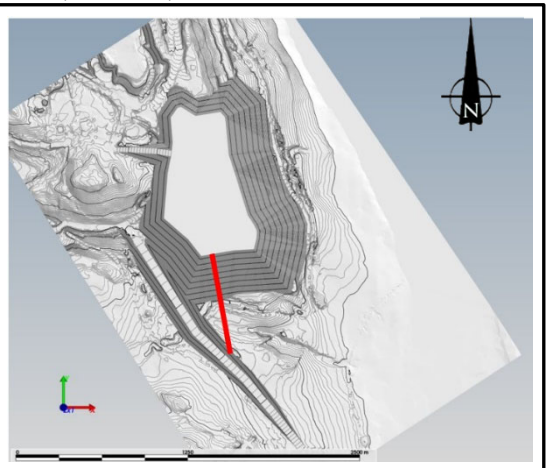
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 4 – STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-39**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	



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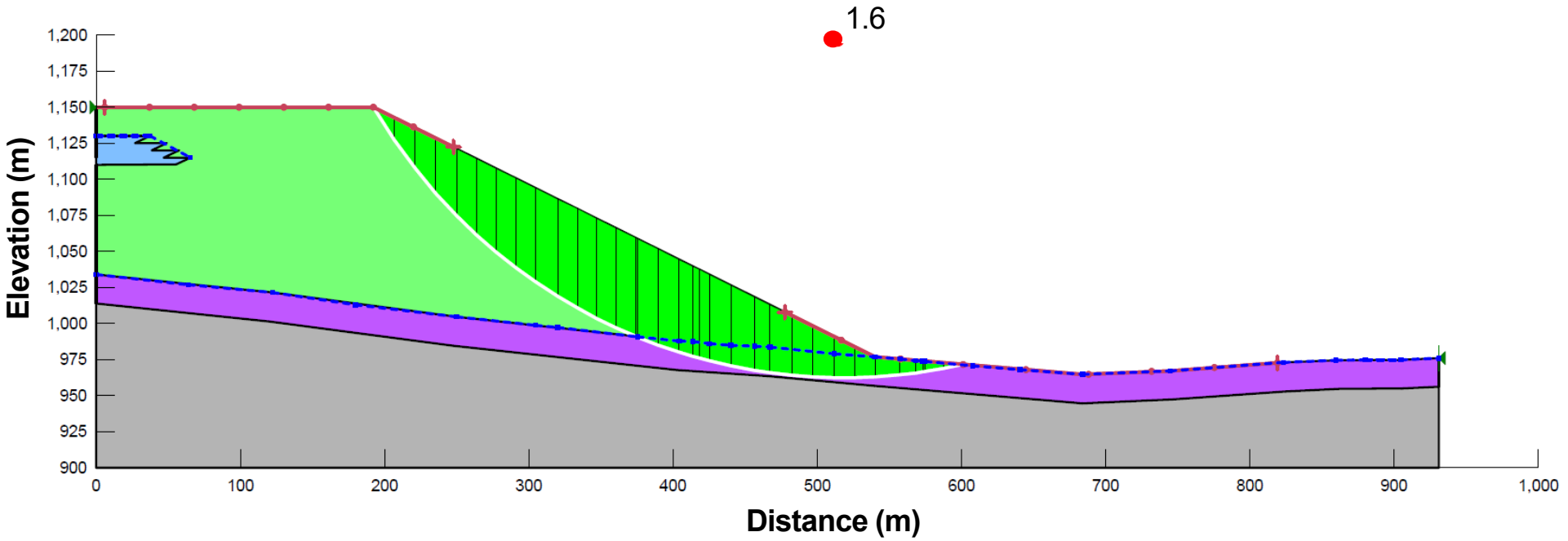

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PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

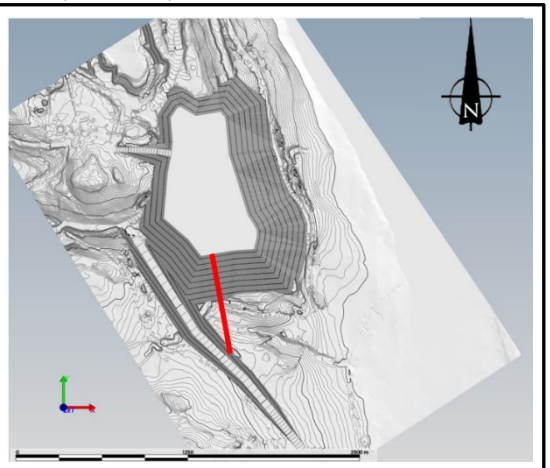
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 4 – PSEUDO-STATIC LOADING

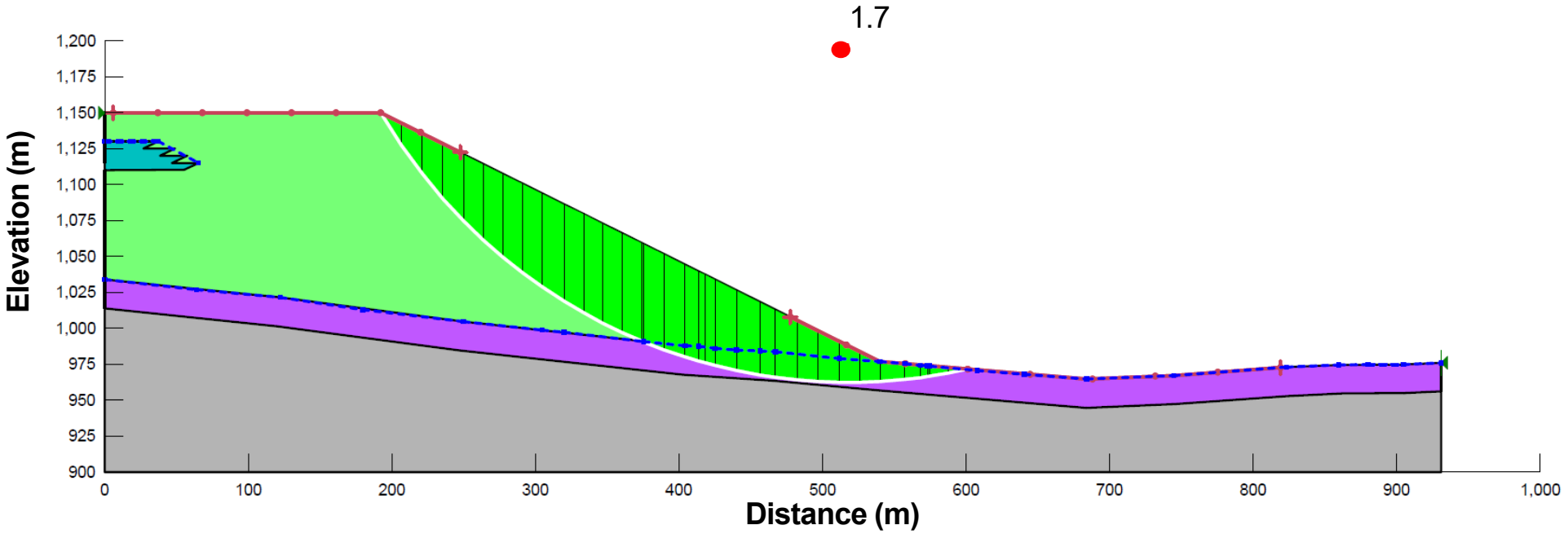
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-40

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

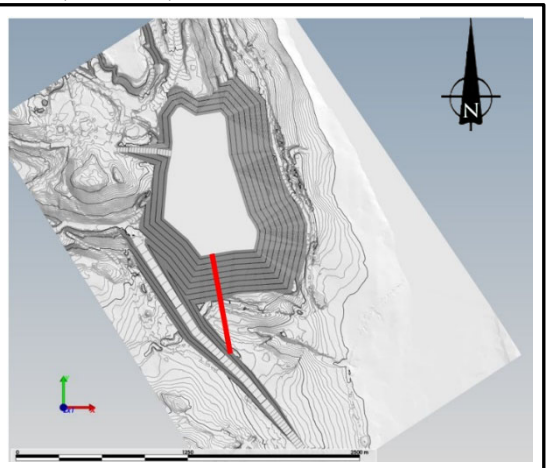
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

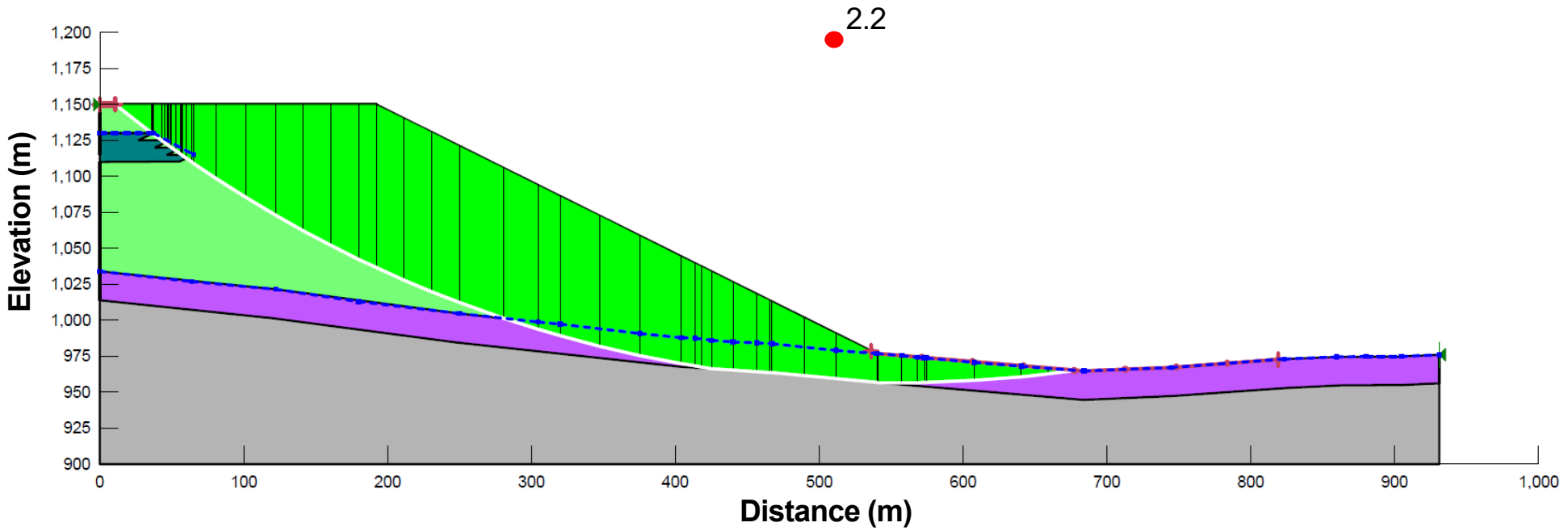
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 4 – POST EARTHQUAKE CONDITIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-41**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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CLIENT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
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REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

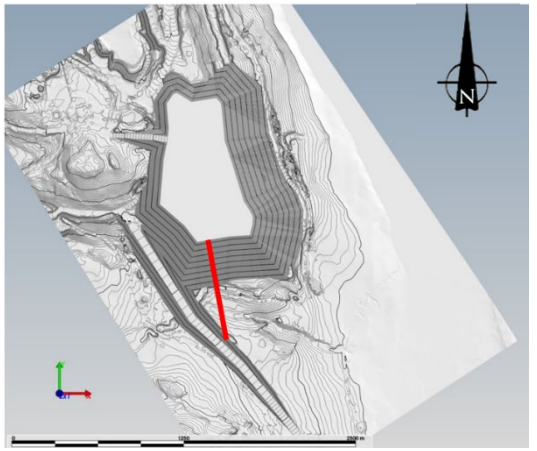
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 4 – STATIC LOADING
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-42**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	



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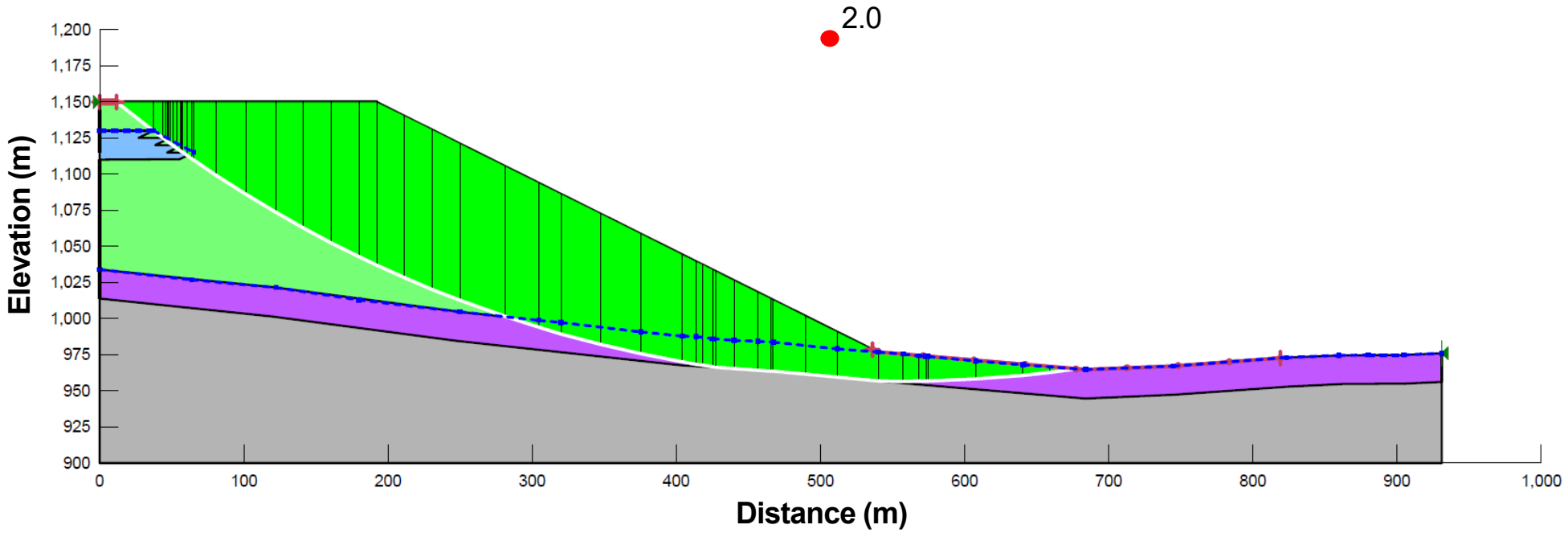

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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

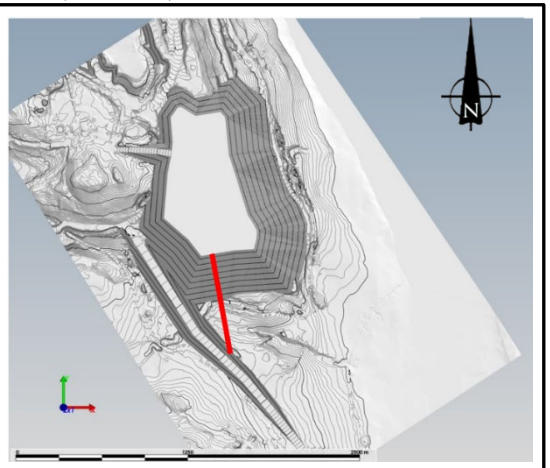
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 4 – PSEUDO-STATIC LOADING
FAILURE THROUGH TAILINGS

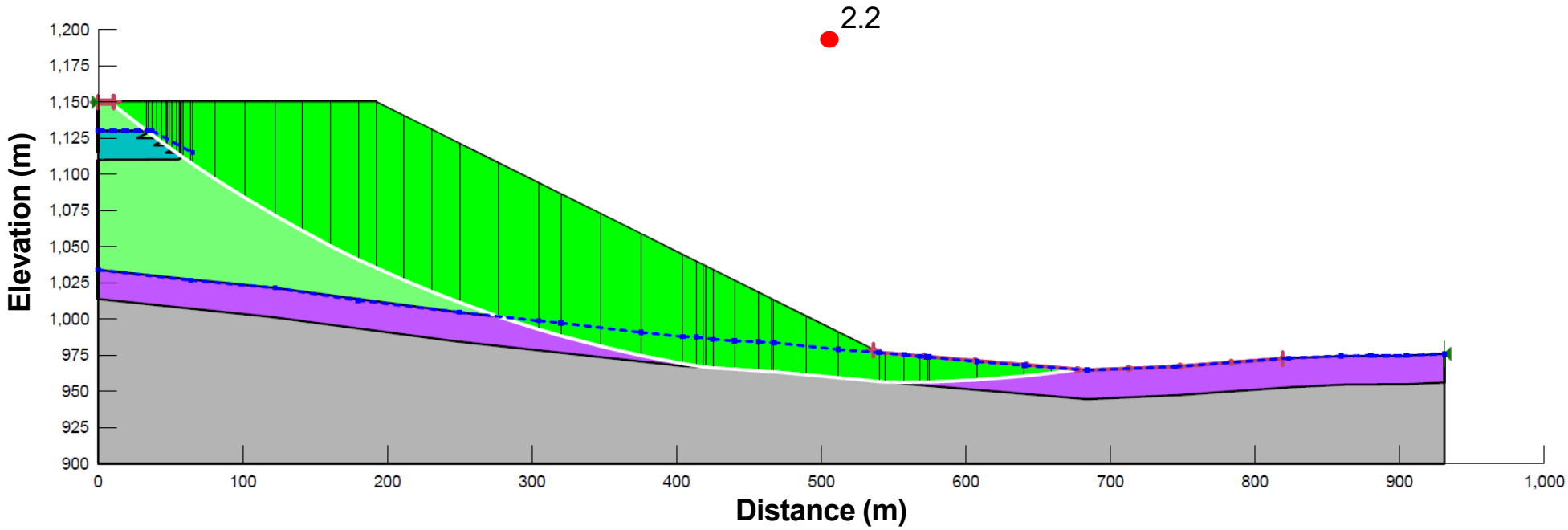
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-43

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PREPARED	J. Graham
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APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

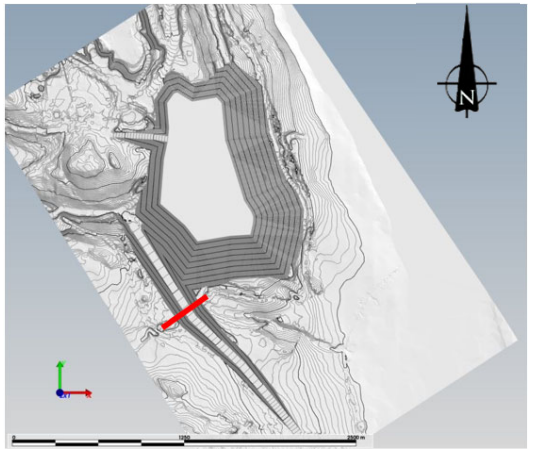
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 4 – POST EARTHQUAKE CONDITIONS
FAILURE THROUGH TAILINGS

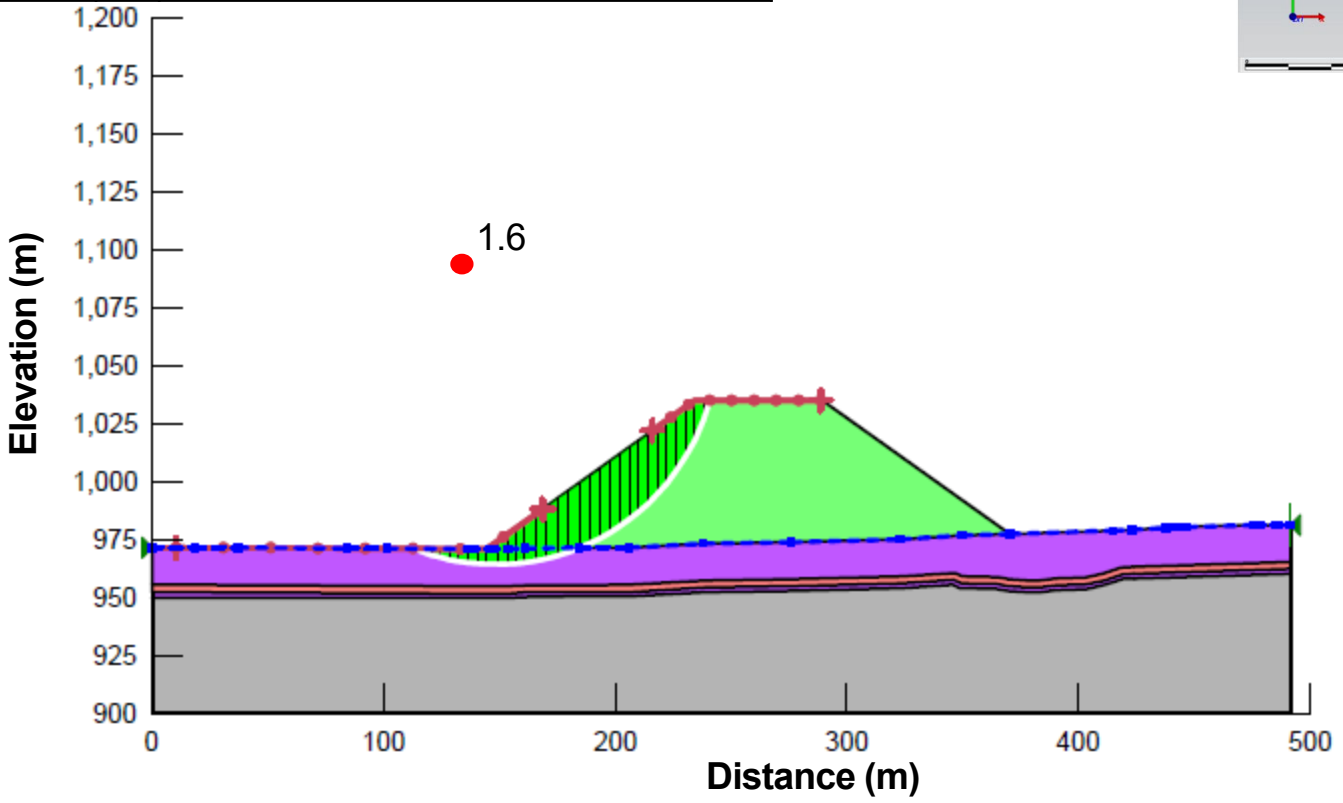
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-44

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
1. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

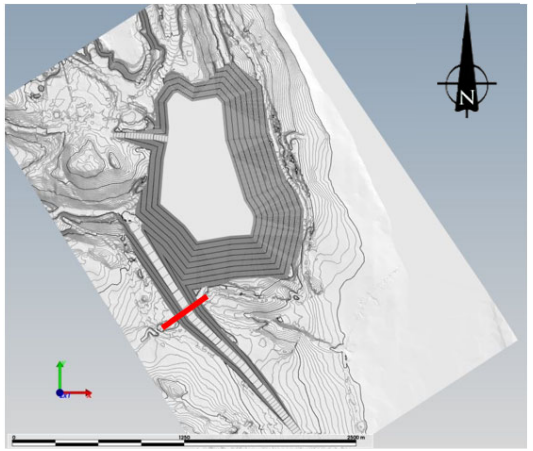
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

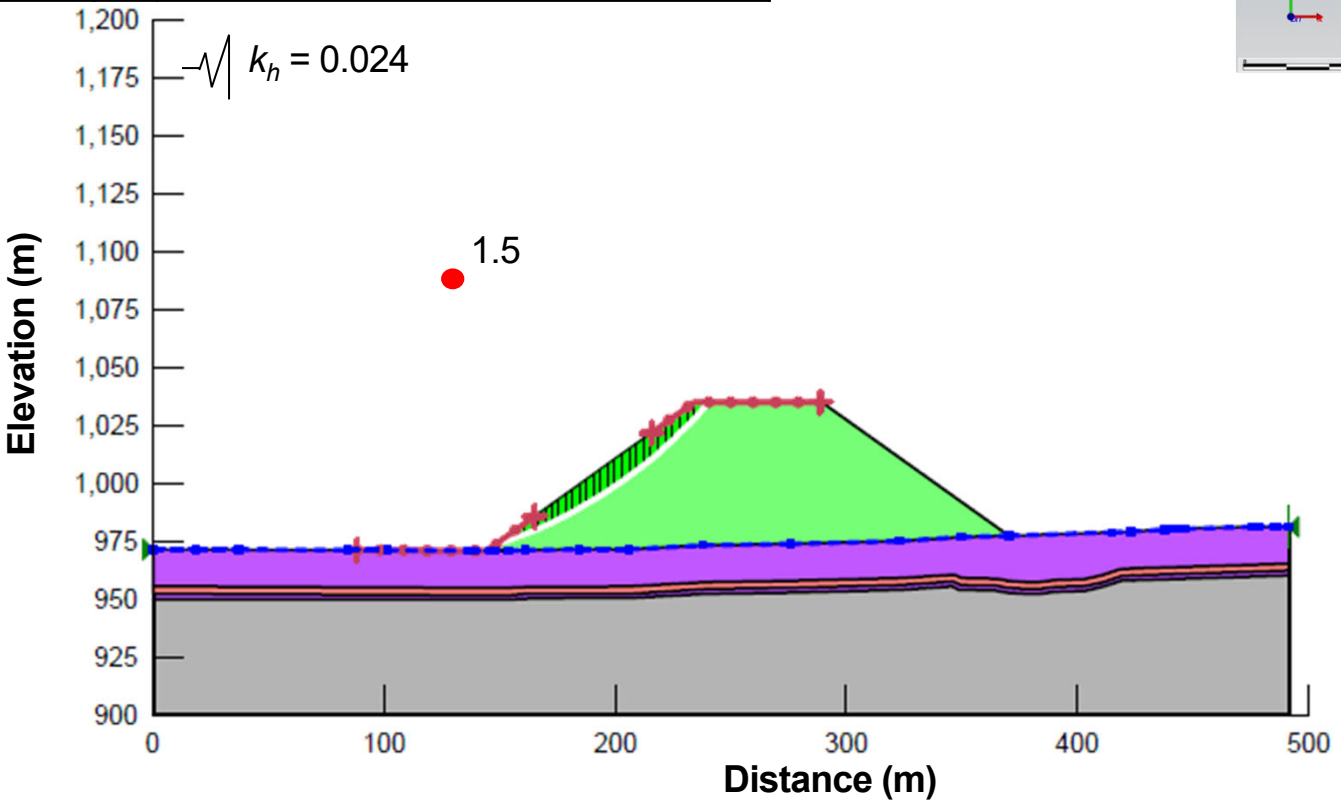
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – DRAINED STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-45

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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APPROVED	B. Wickland

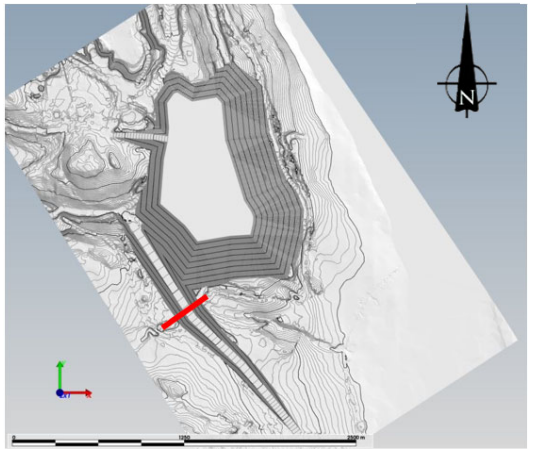
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

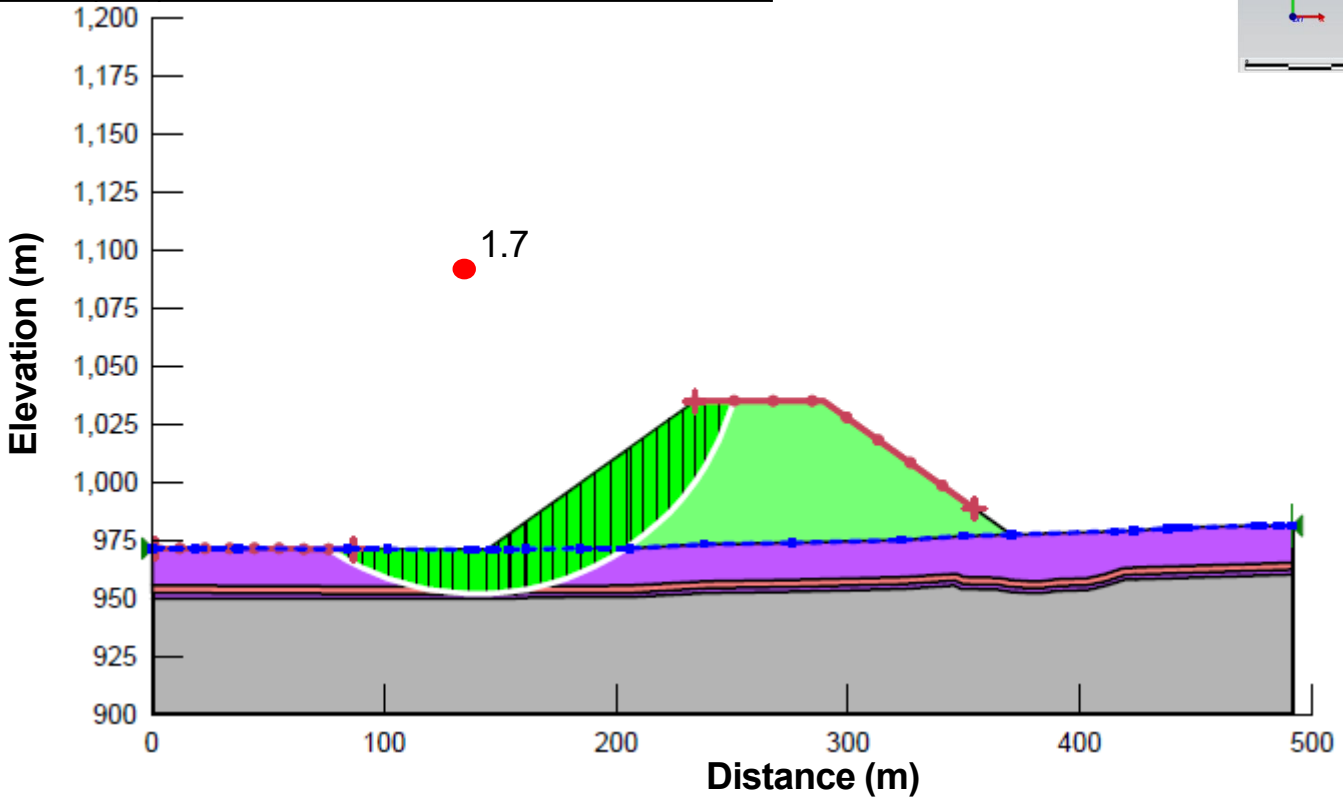
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – DRAINED PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-46**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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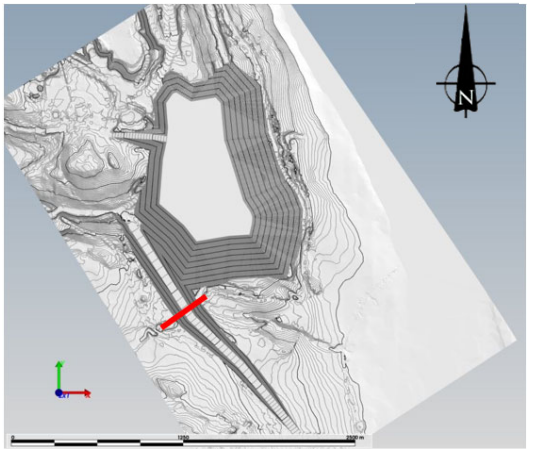
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

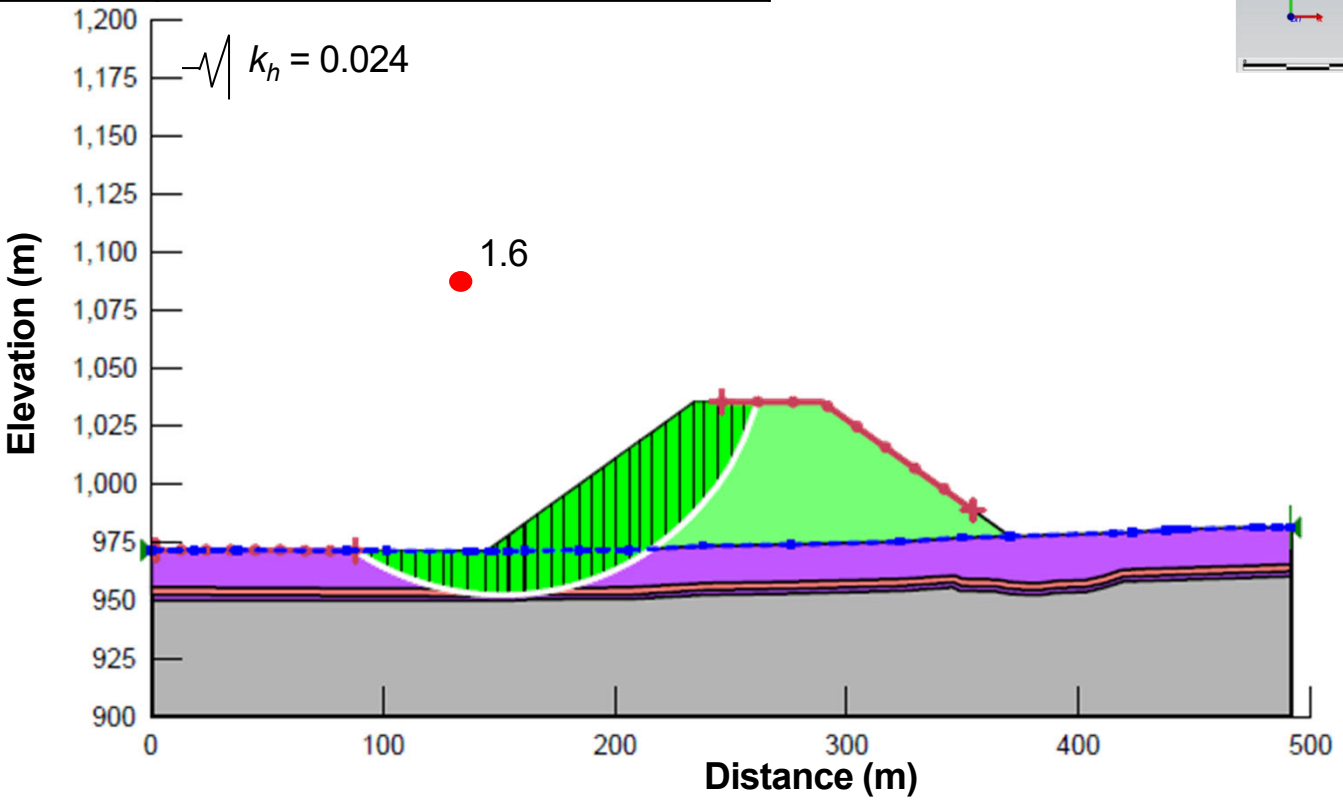
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – DRAINED STATIC LOADING
FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-47**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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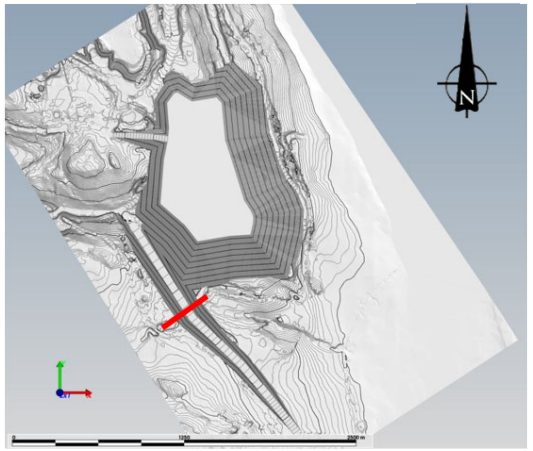
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

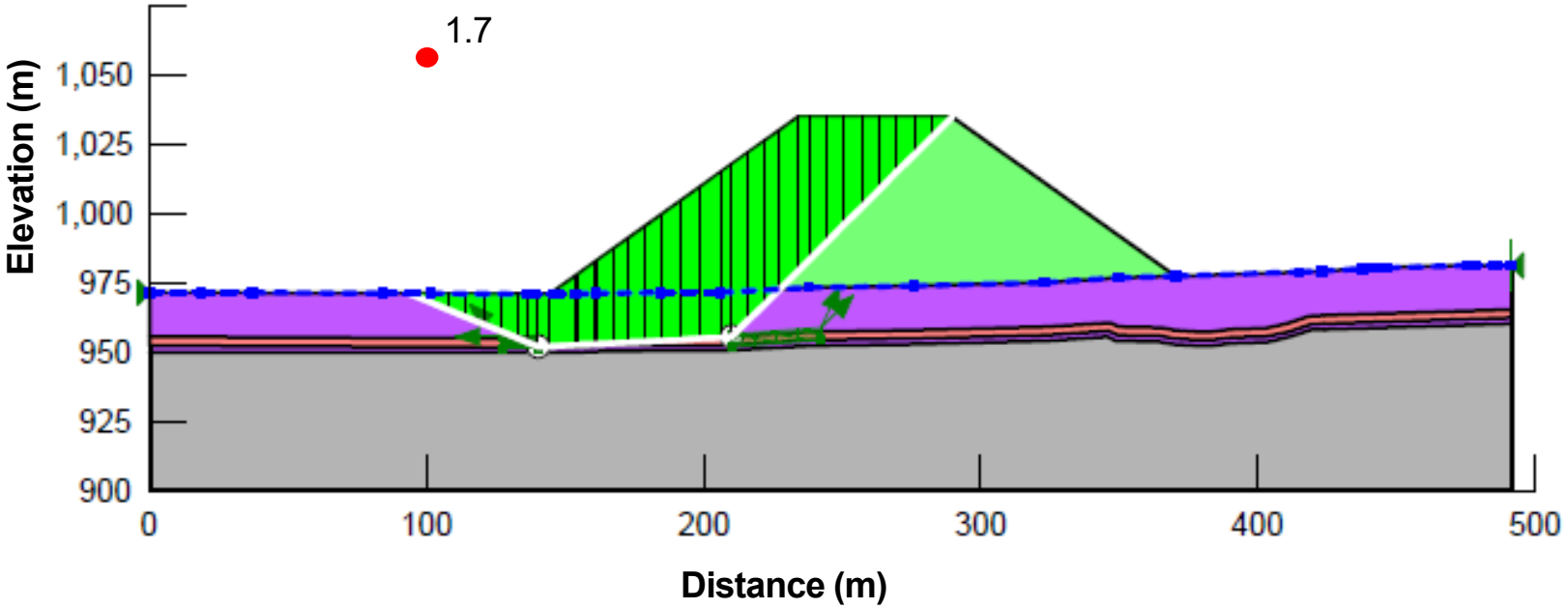
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – DRAINED PSEUDO-STATIC LOADING – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-48**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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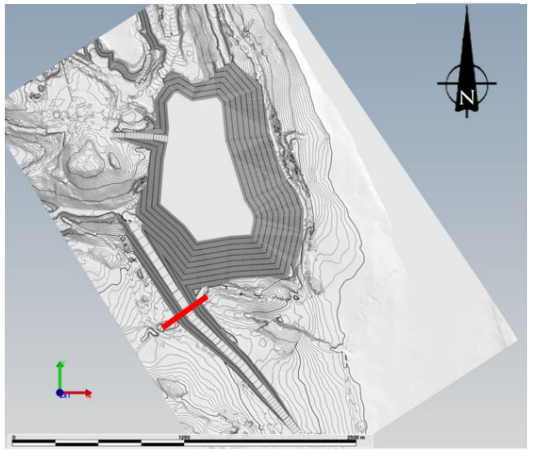
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

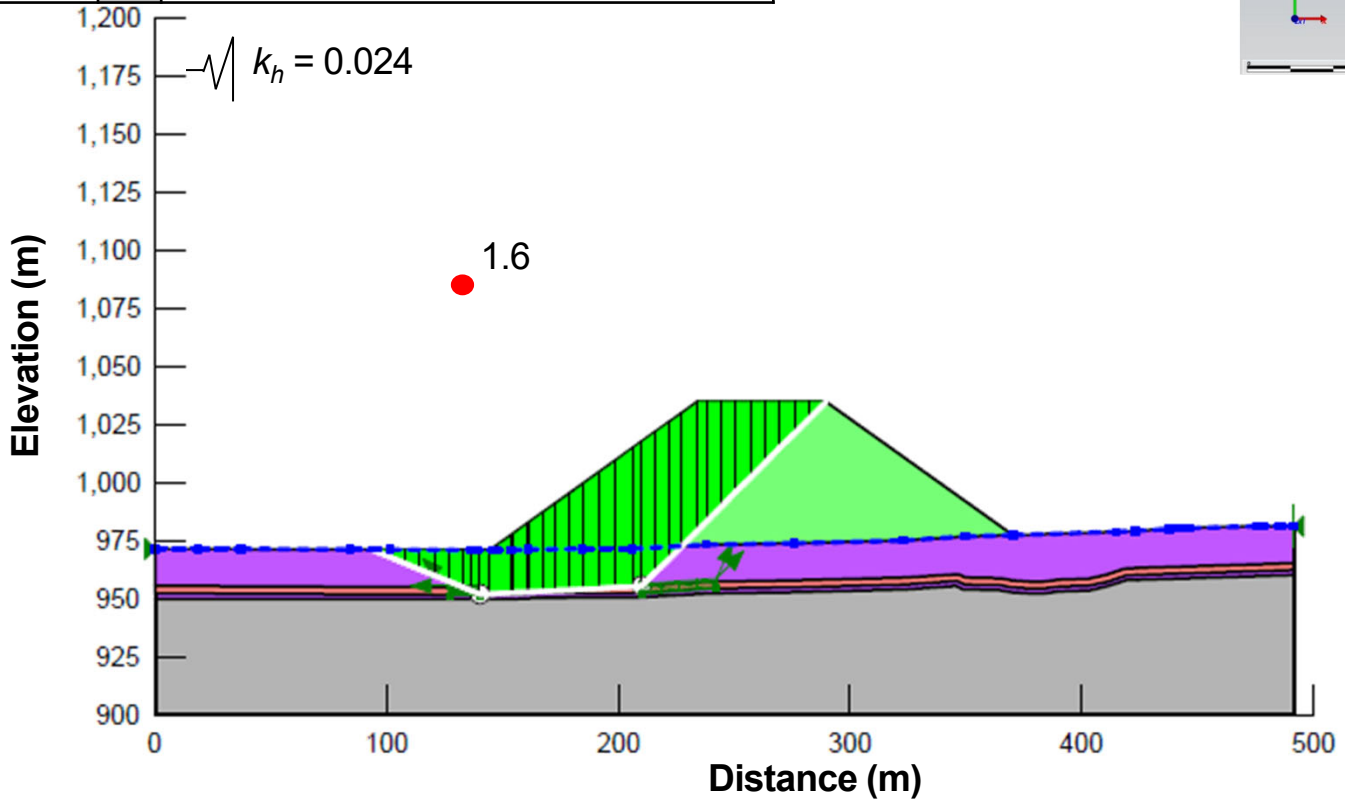
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – DRAINED STATIC LOADING
BLOCK METHOD – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-49**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

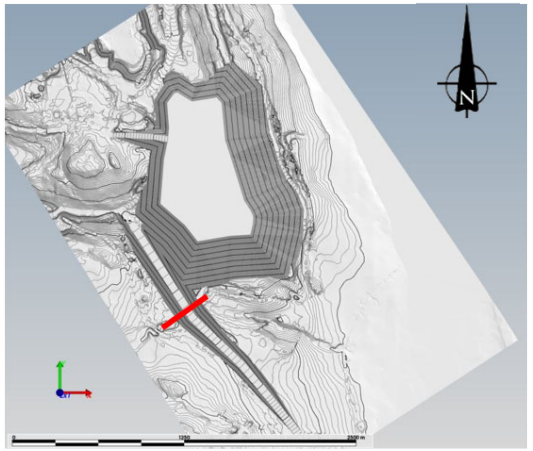
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – DRAINED PSEUDO-STATIC
LOADING BLOCK METHOD – FAILURE THROUGH GLU

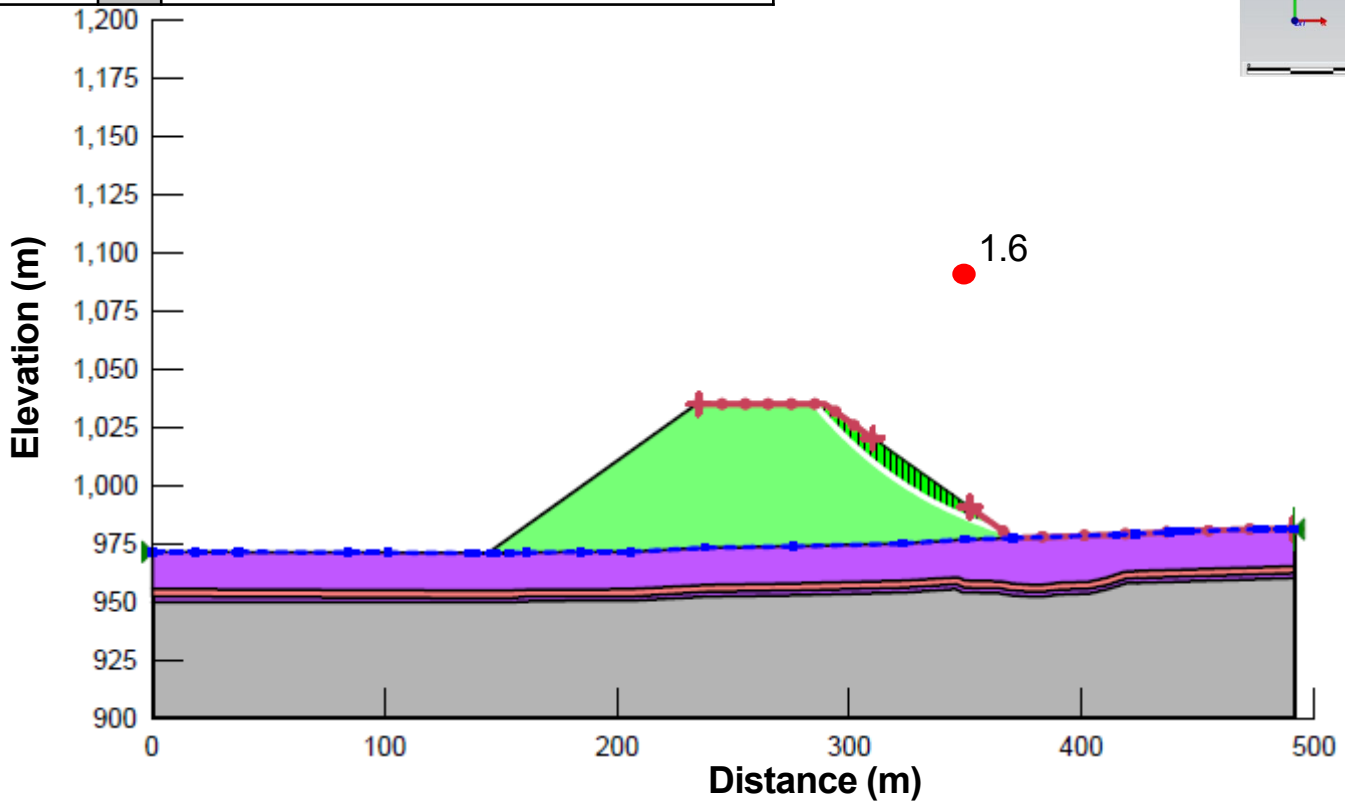
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-50**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

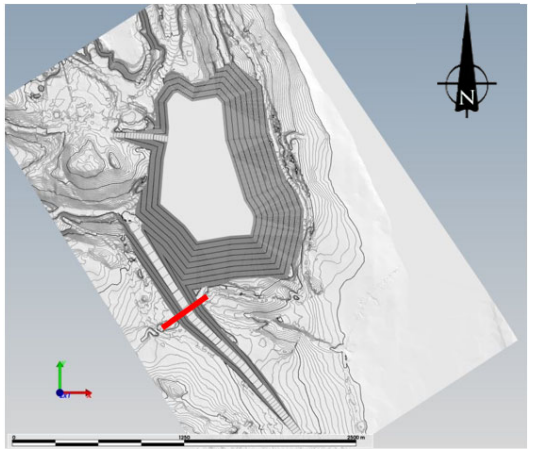
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

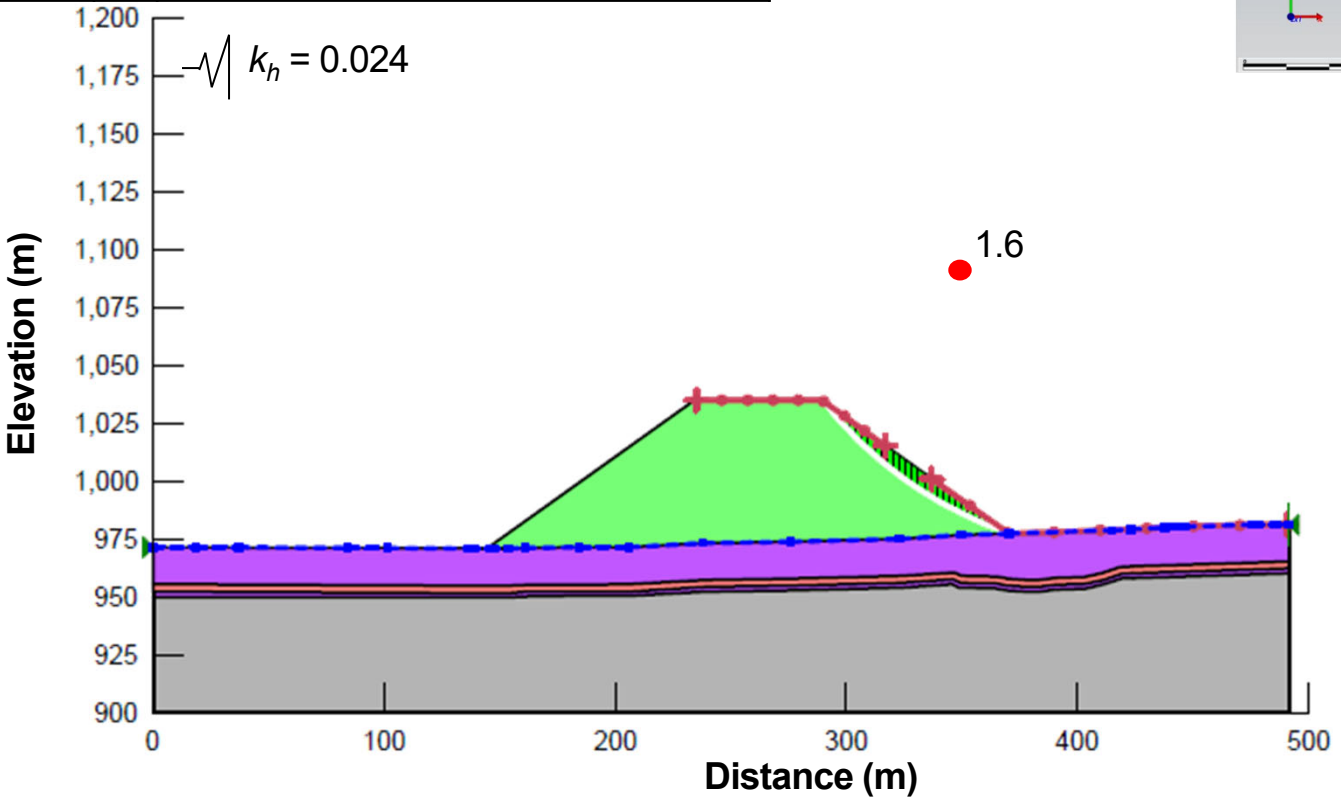
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – DRAINED STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-51**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

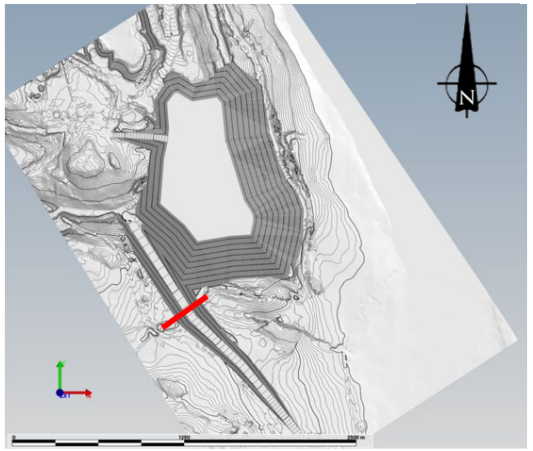
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – DRAINED PSEUDO-STATIC LOADING

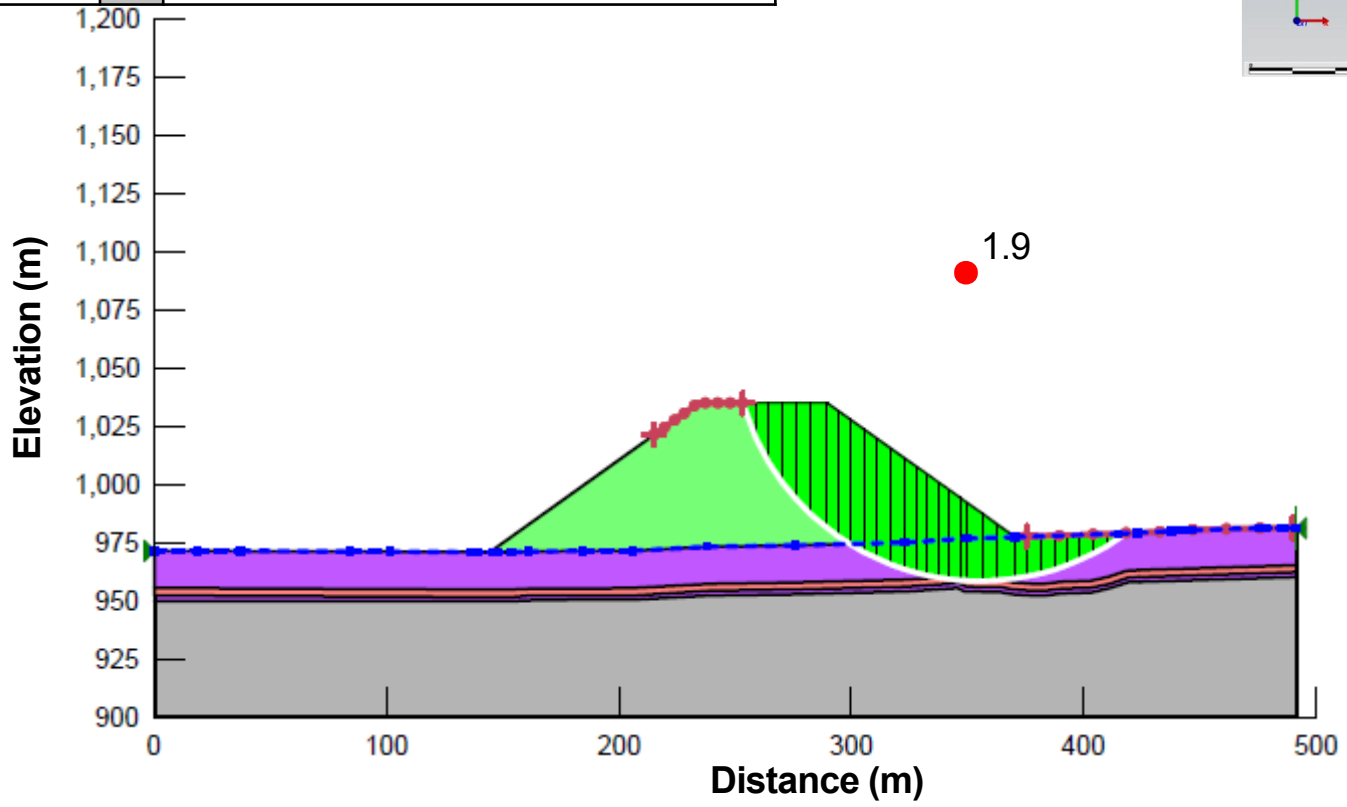
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-52**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – DRAINED STATIC LOADING
FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-53

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

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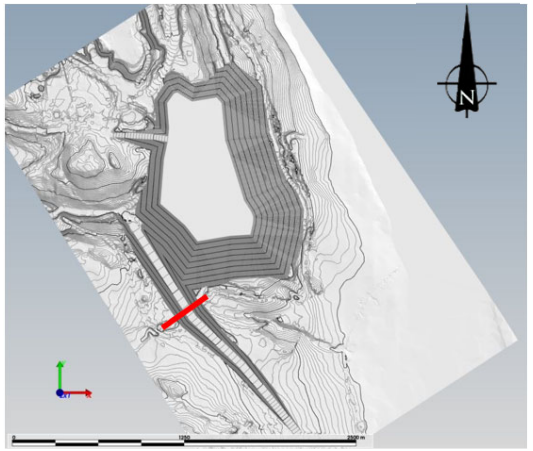

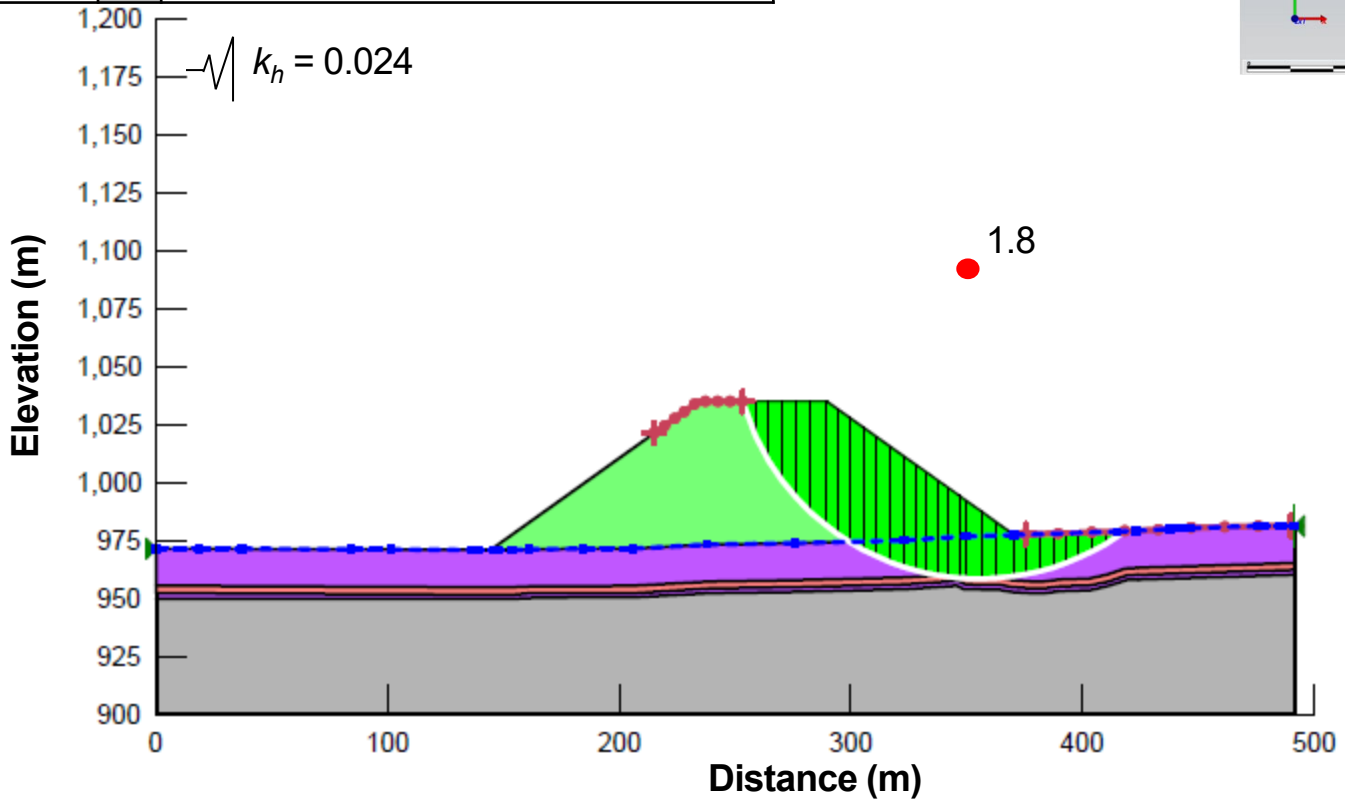

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PROJECT
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LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – DRAINED PSEUDO-STATIC LOADING – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-54**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

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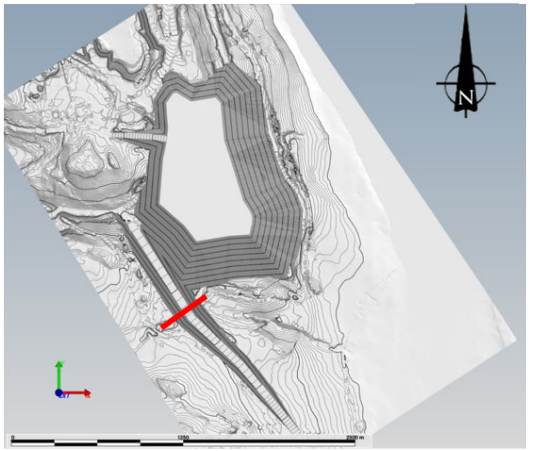
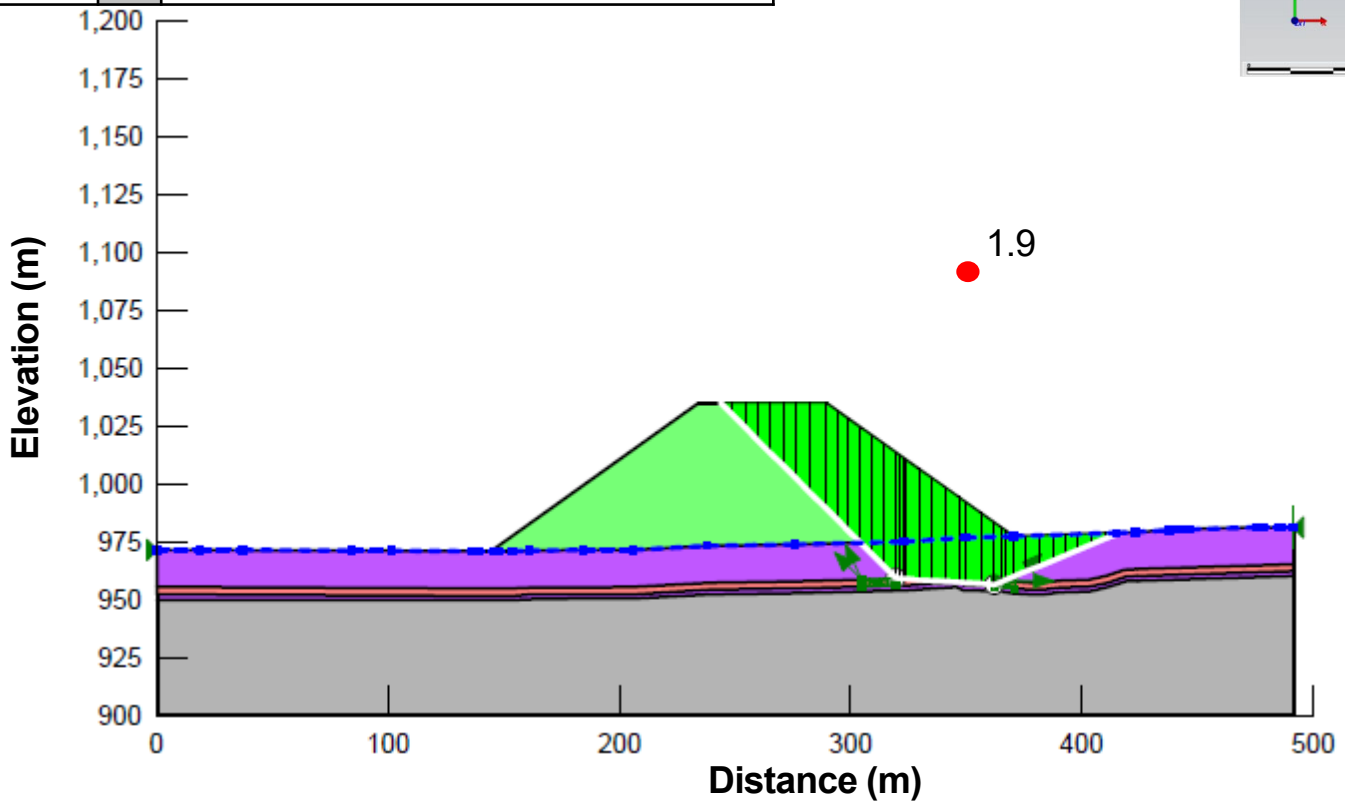
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
1. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

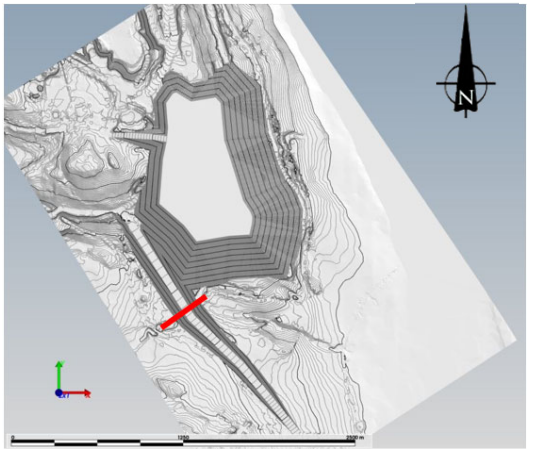
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

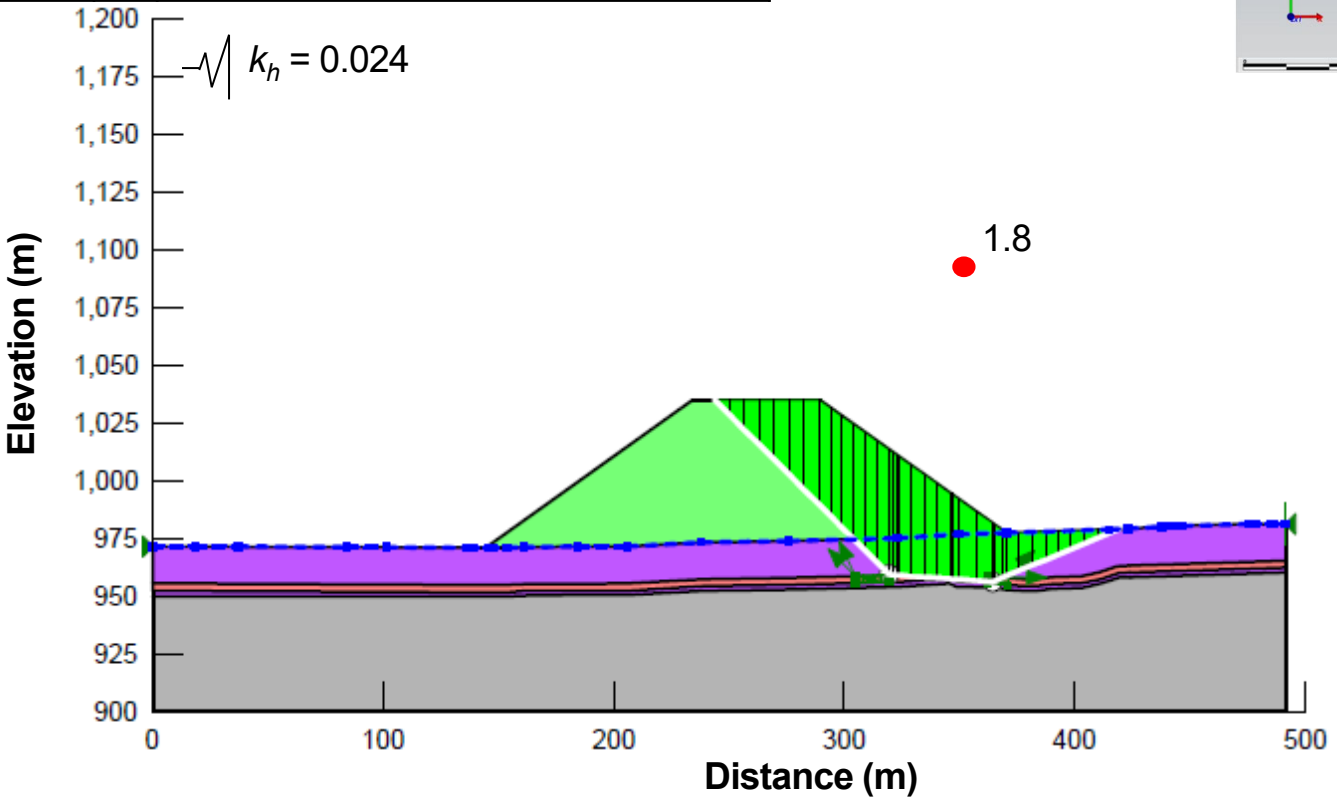
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – DRAINED STATIC LOADING
BLOCK METHOD – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-55**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT

SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE

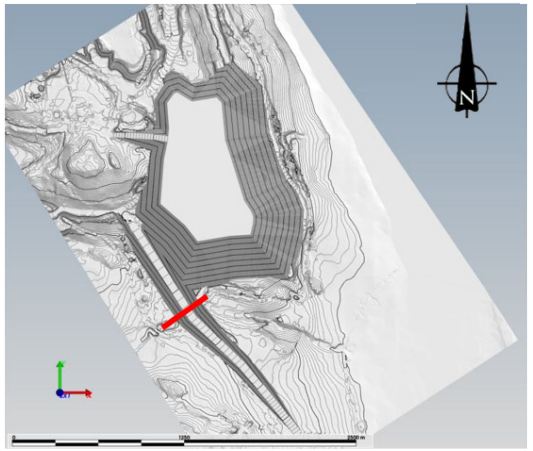
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – DRAINED PSEUDO-STATIC
LOADING BLOCK METHOD – FAILURE THROUGH GLU

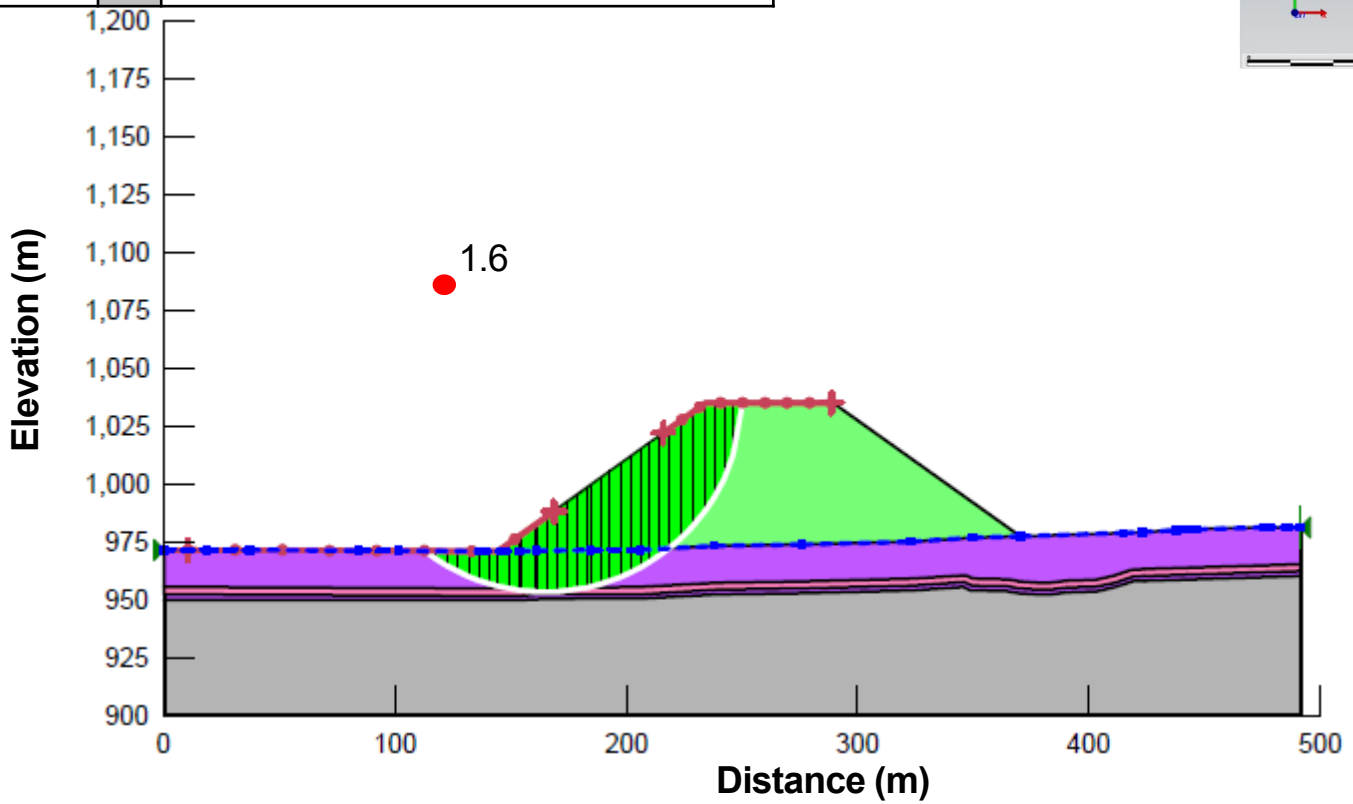
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-56**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

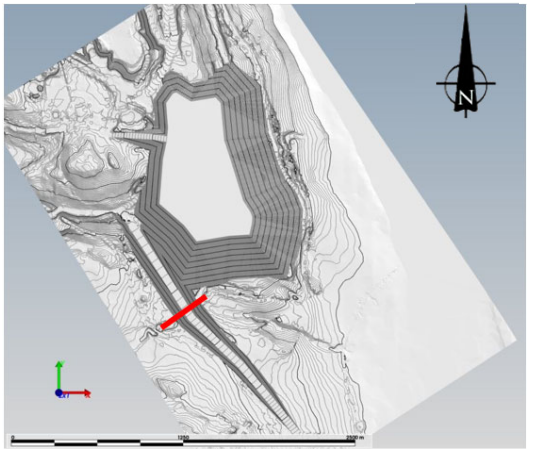
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – UNDRAINED STATIC LOADING

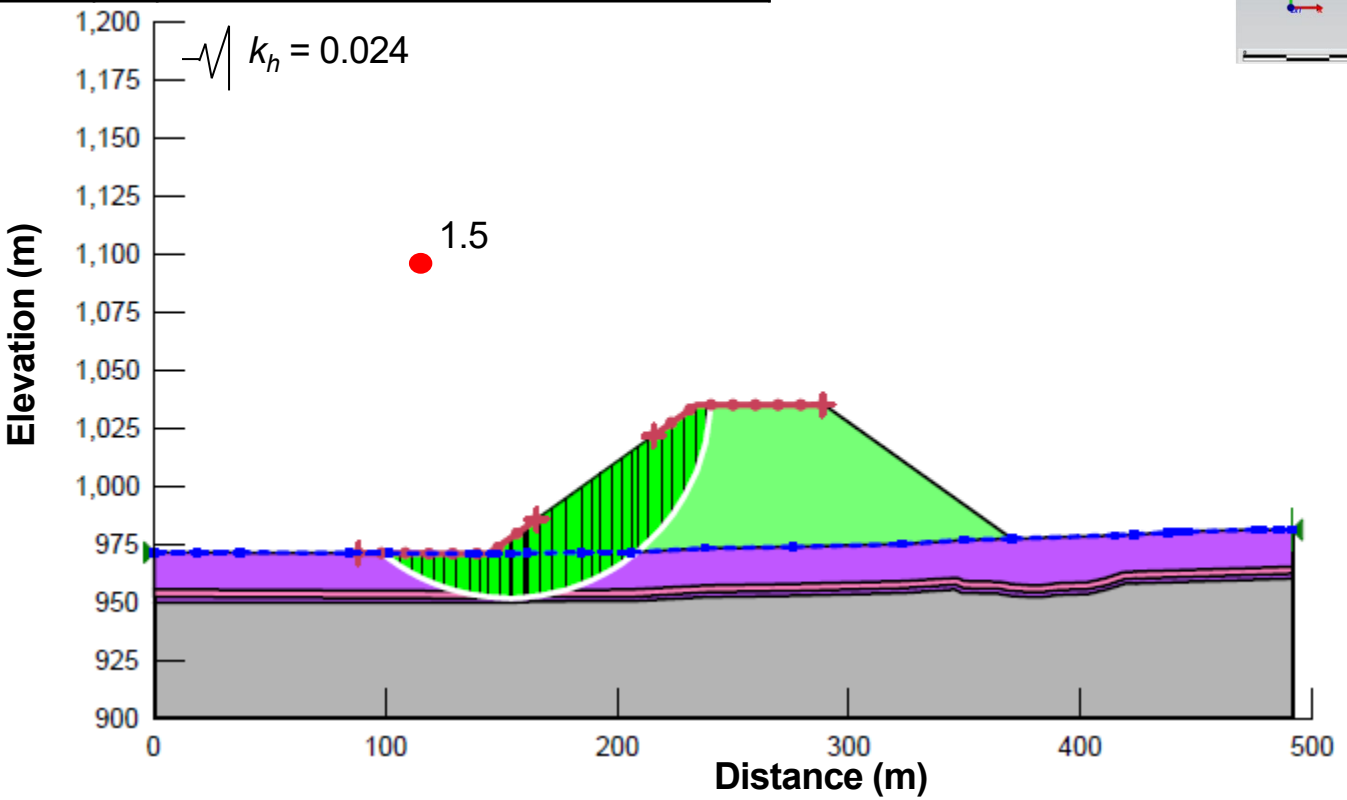
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-57**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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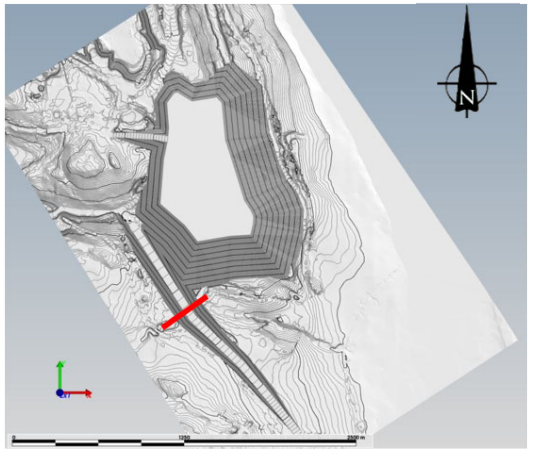
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

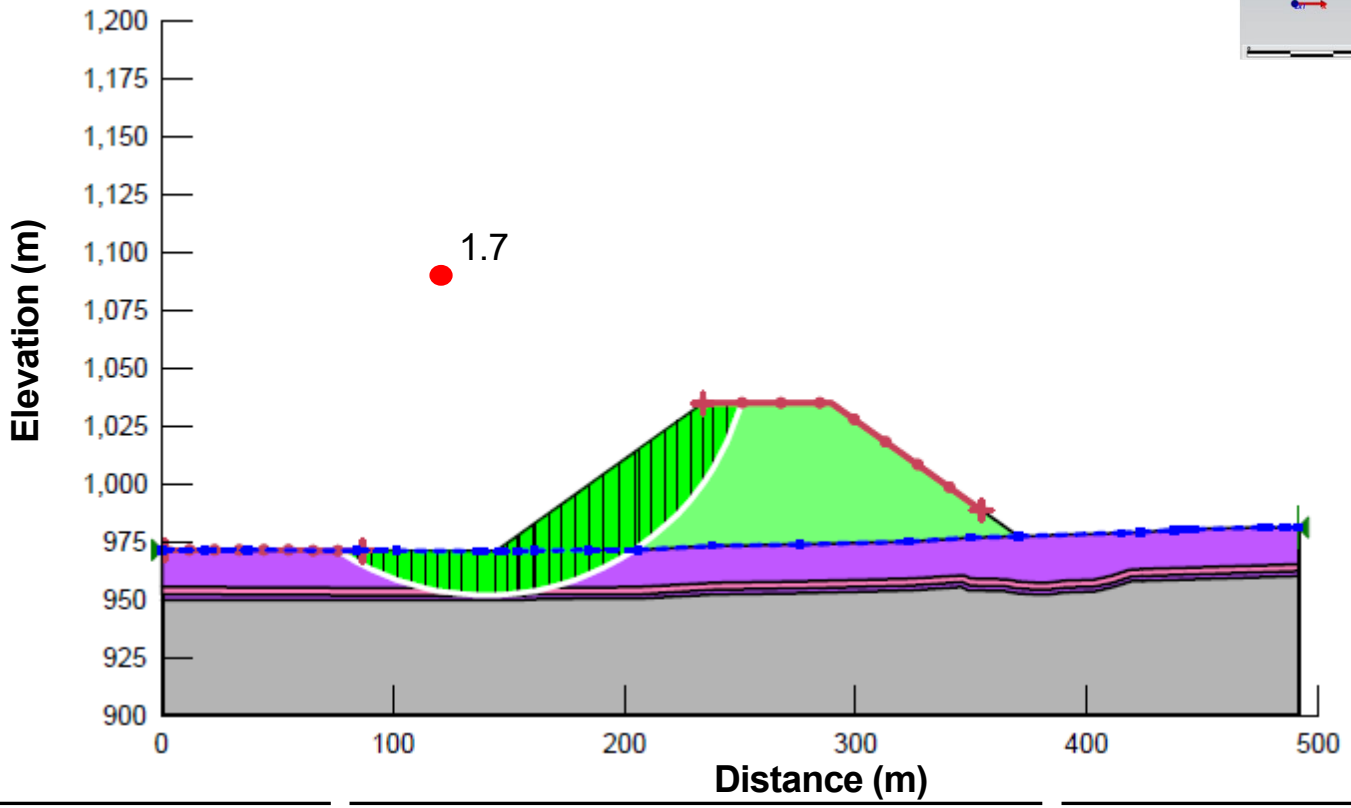
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – UNDRAINED PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-58

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

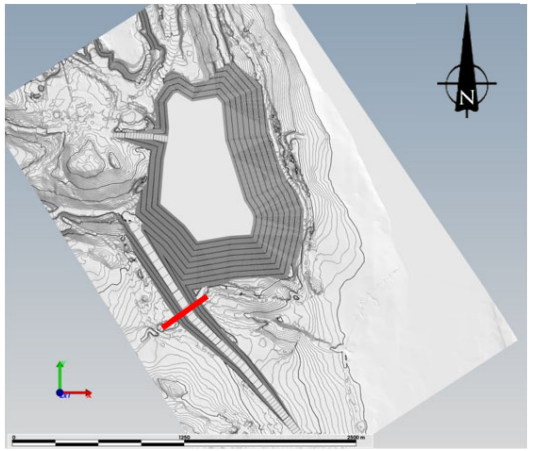
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – UNDRAINED STATIC LOADING
FAILURE THROUGH GLU

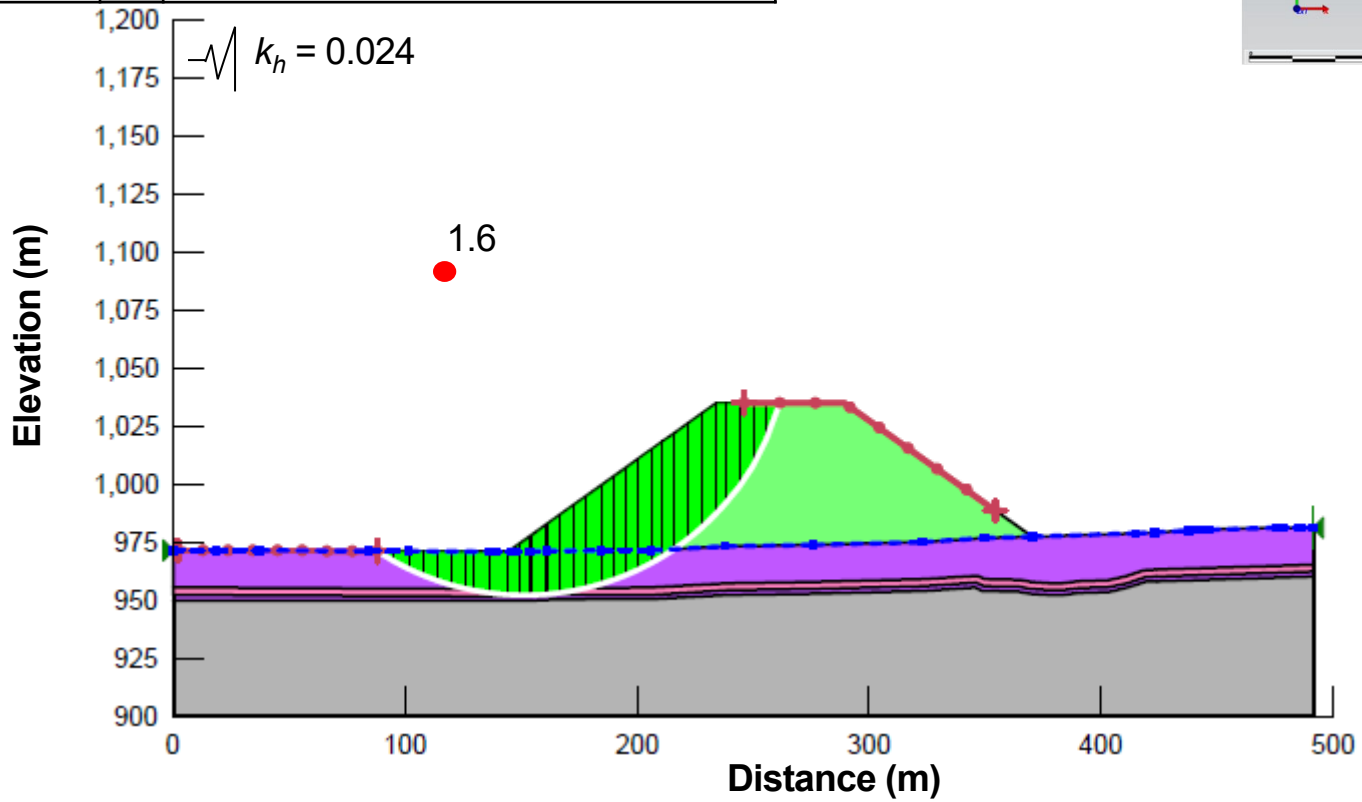
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-59**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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REVIEWED	H. McLean
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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

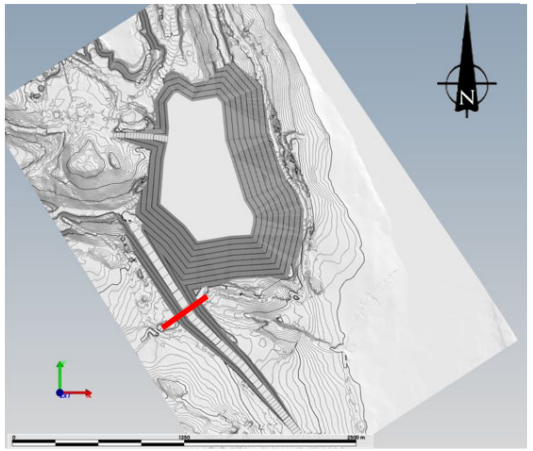
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – UNDRAINED PSEUDO-STATIC LOADING – FAILURE THROUGH GLU

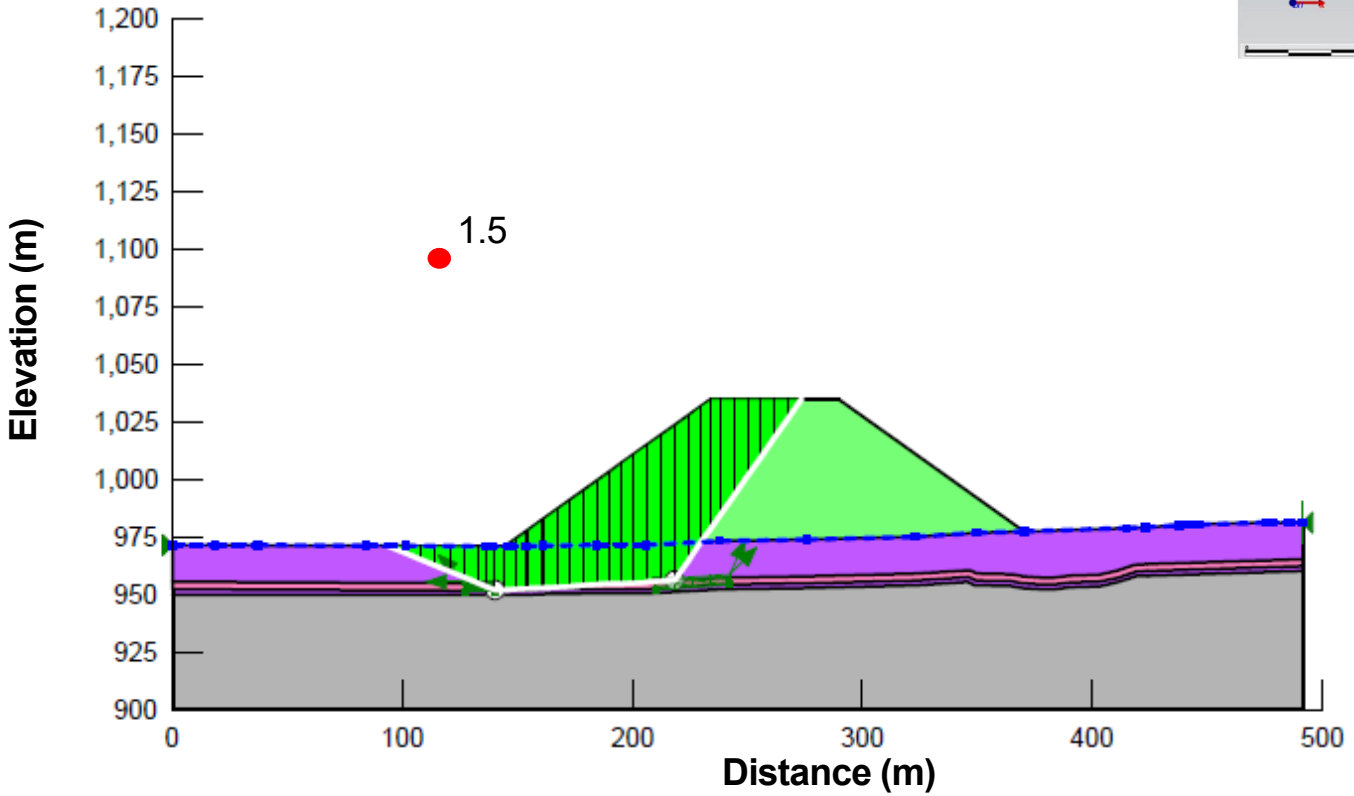
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-60

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

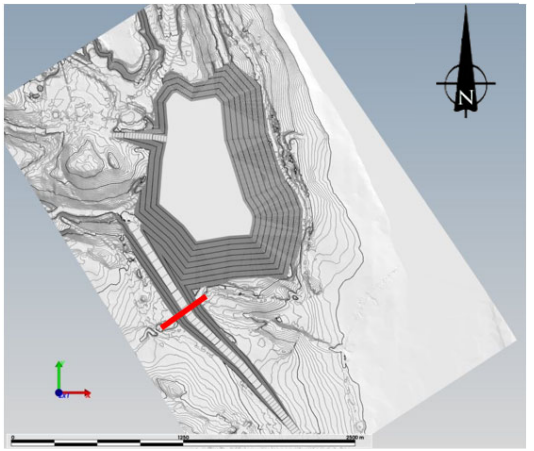
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – UNDRAINED STATIC LOADING
BLOCK METHOD – FAILURE THROUGH GLU

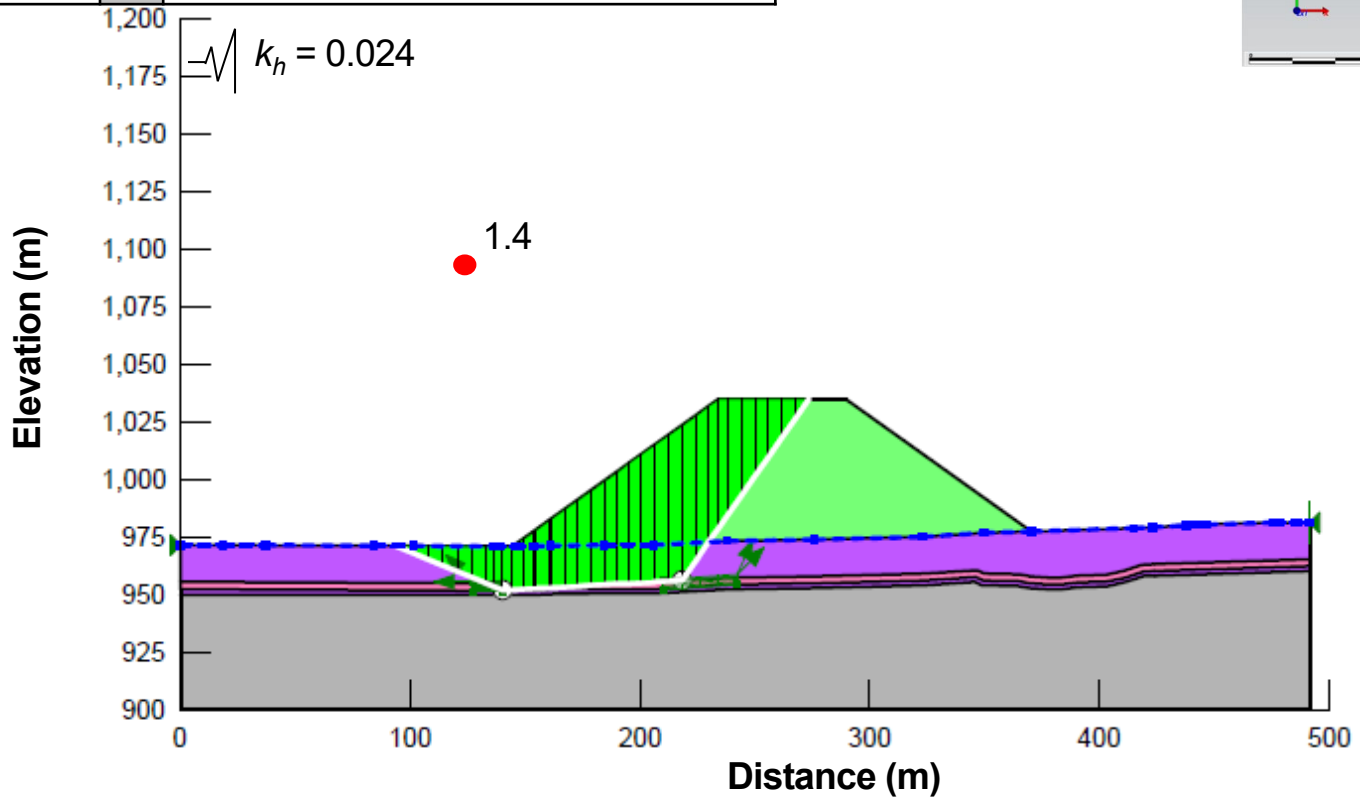
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-61

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

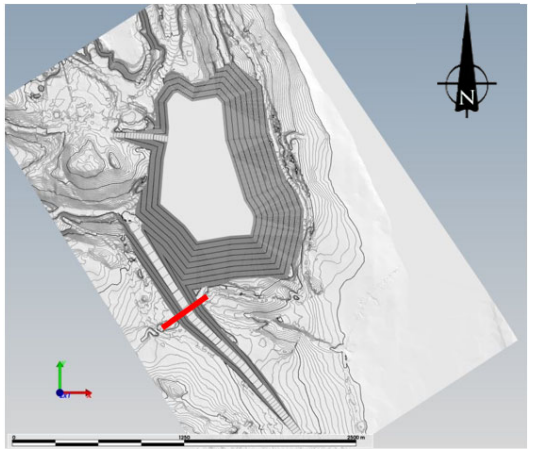
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – UNDRAINED PSEUDO-STATIC LOADING BLOCK METHOD – FAILURE THROUGH GLU

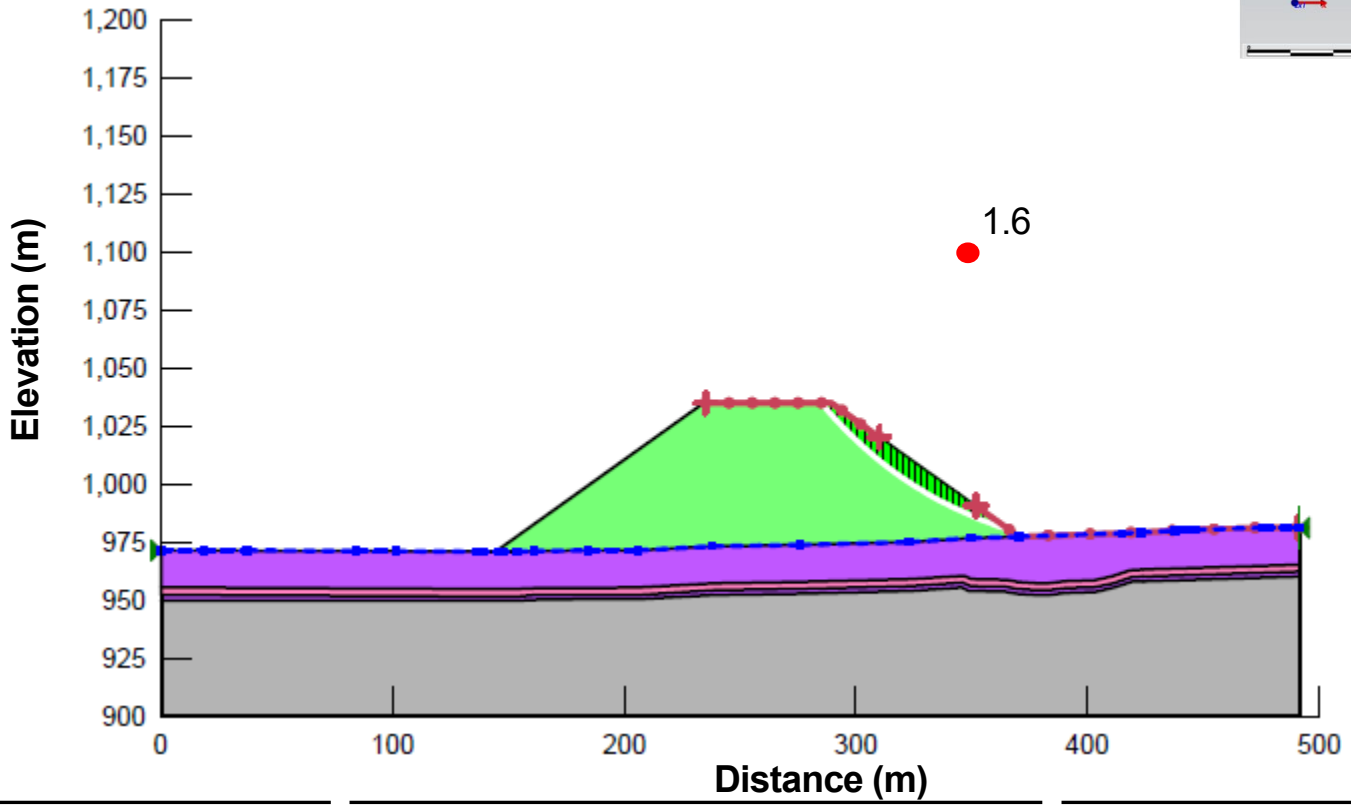
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-62

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

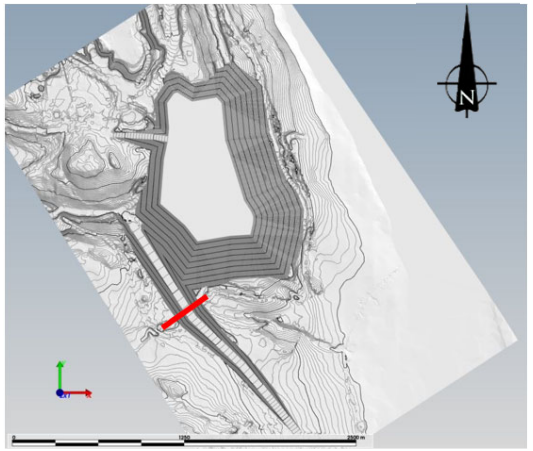
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – UNDRAINED STATIC LOADING

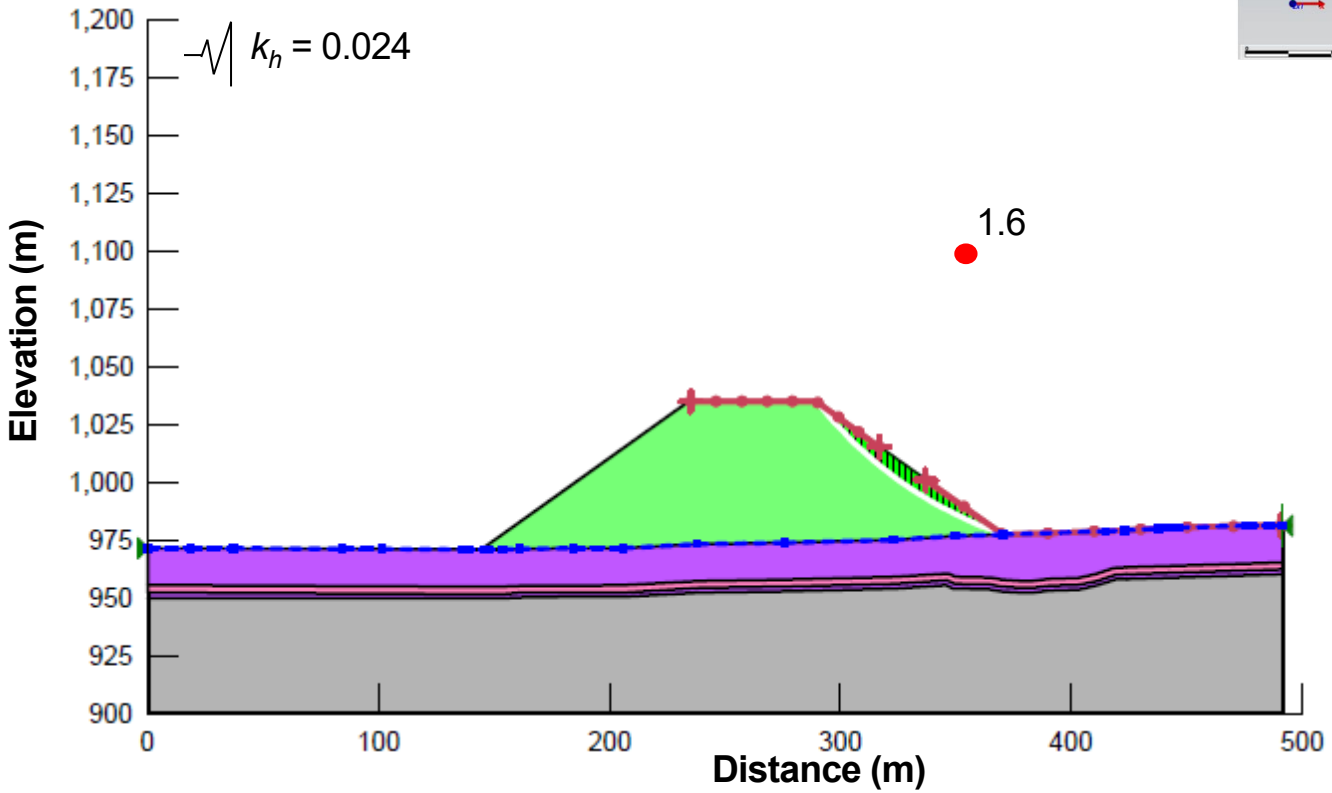
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-63

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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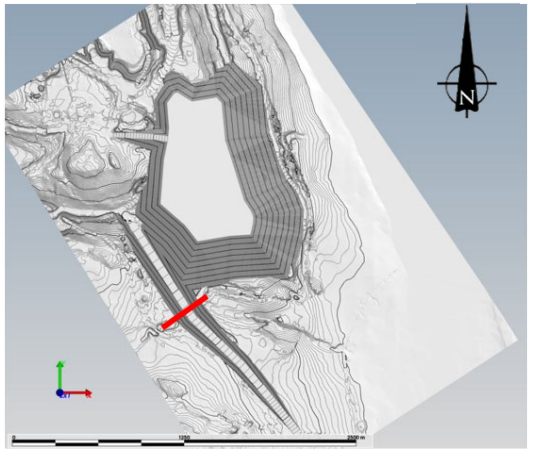
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

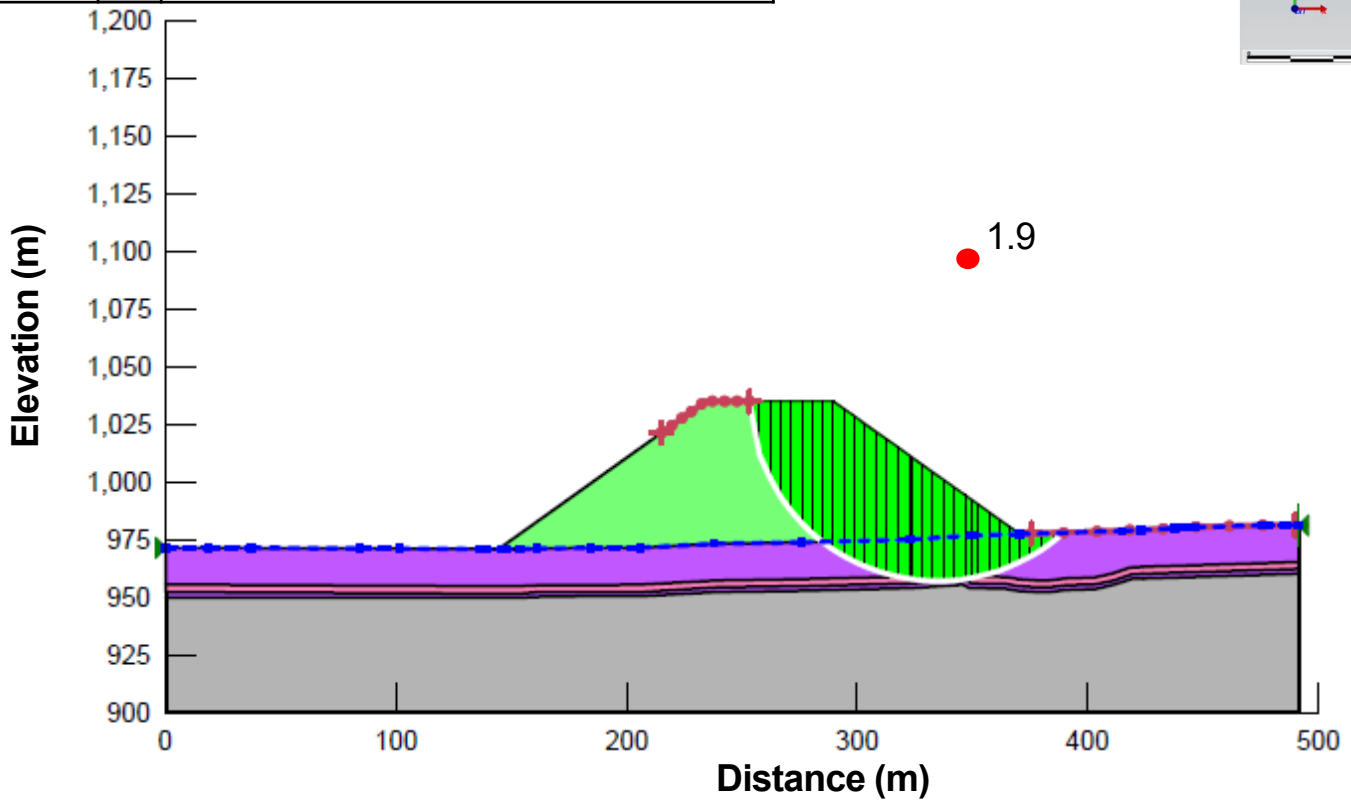
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – UNDRAINED PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-64

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
1. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

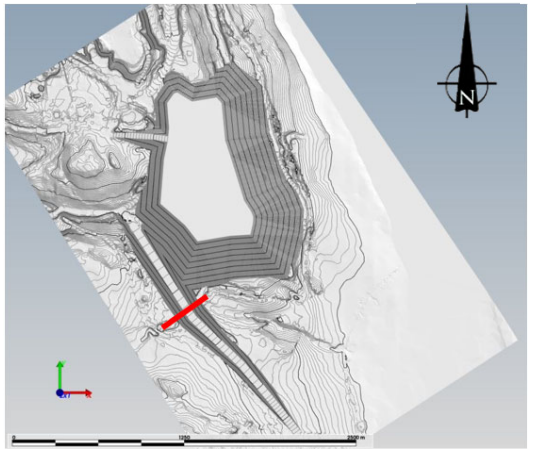
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

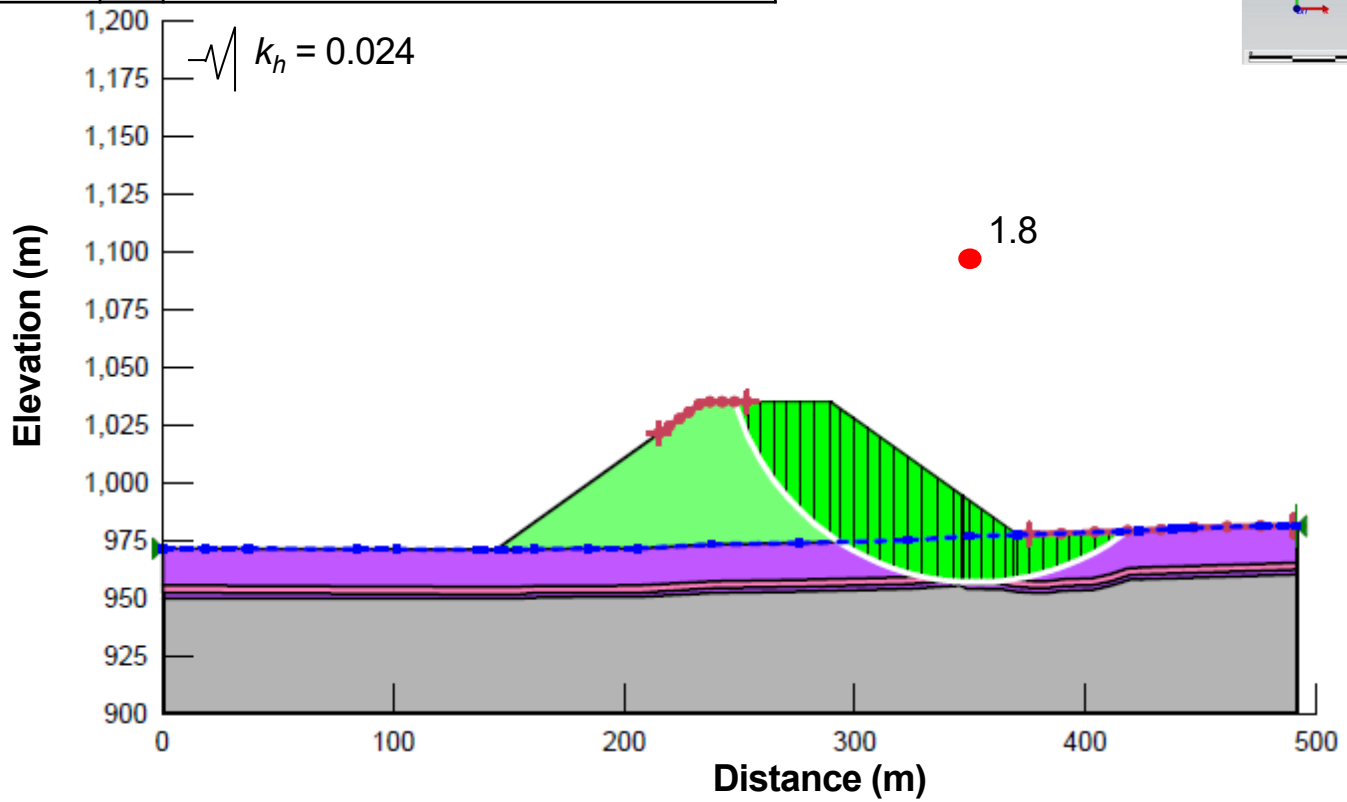
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – UNDRAINED STATIC LOADING
FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-65**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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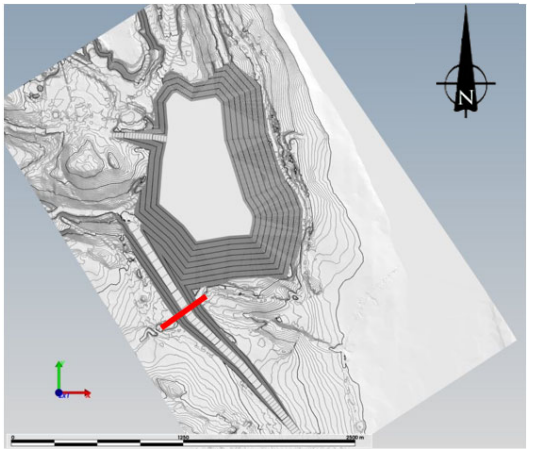
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

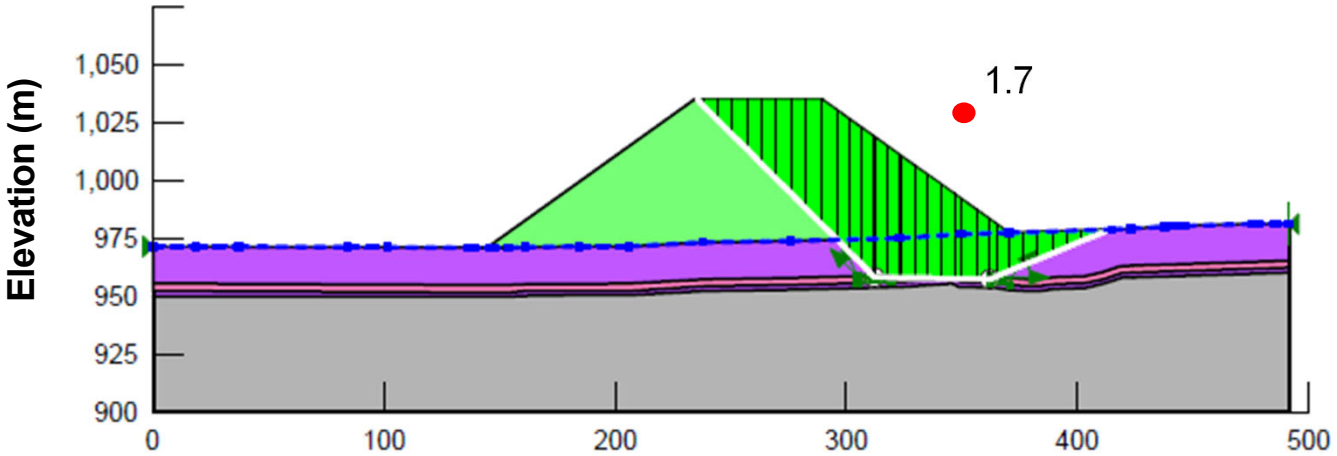
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – UNDRAINED PSEUDO-STATIC LOADING – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-66**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





Distance (m)

REFERENCES/NOTES
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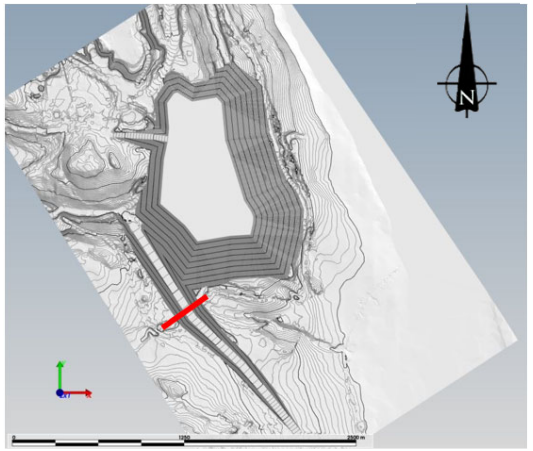
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

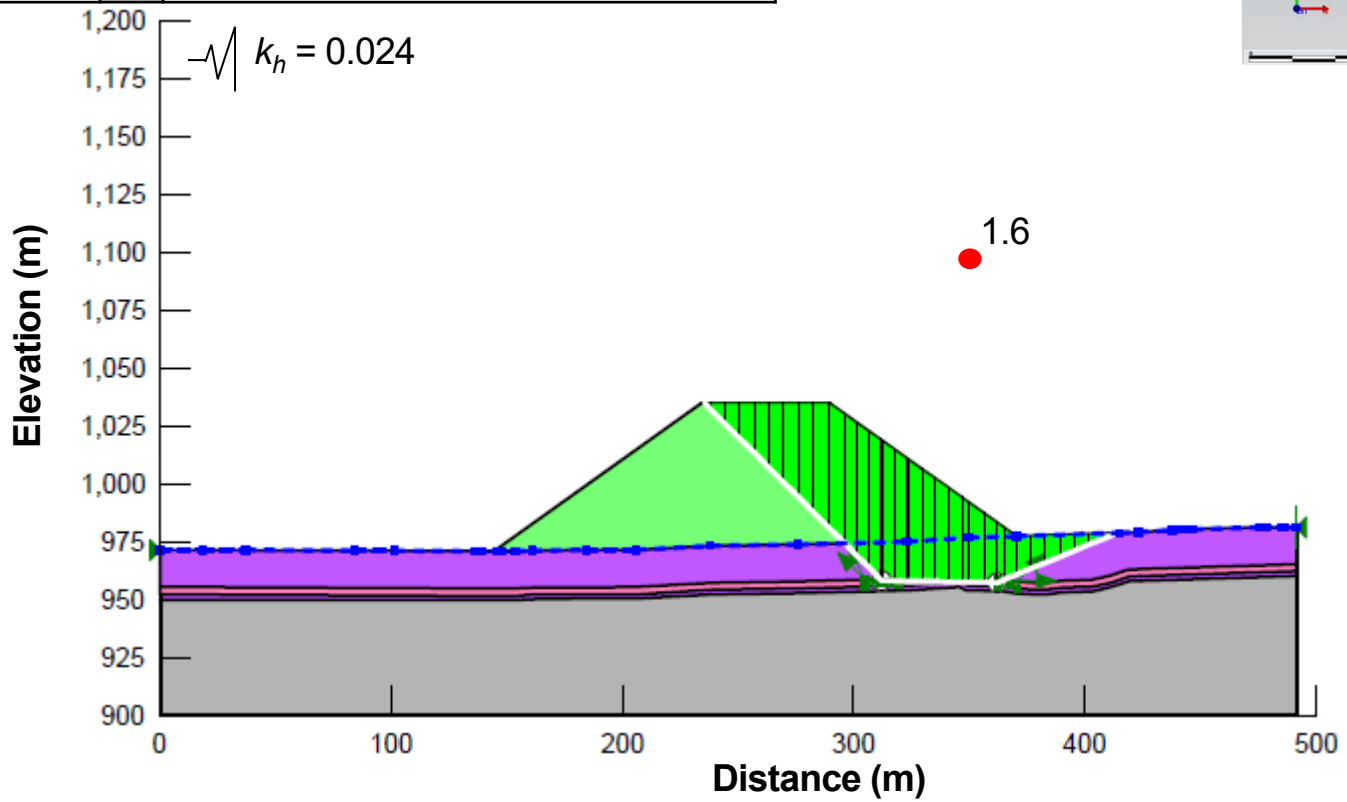
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – UNDRAINED STATIC LOADING
BLOCK METHOD – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-67**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
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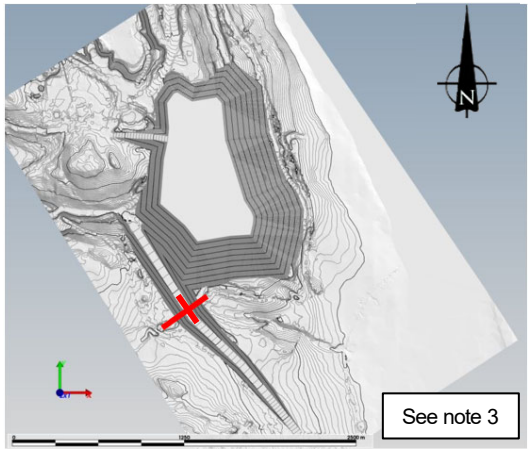
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

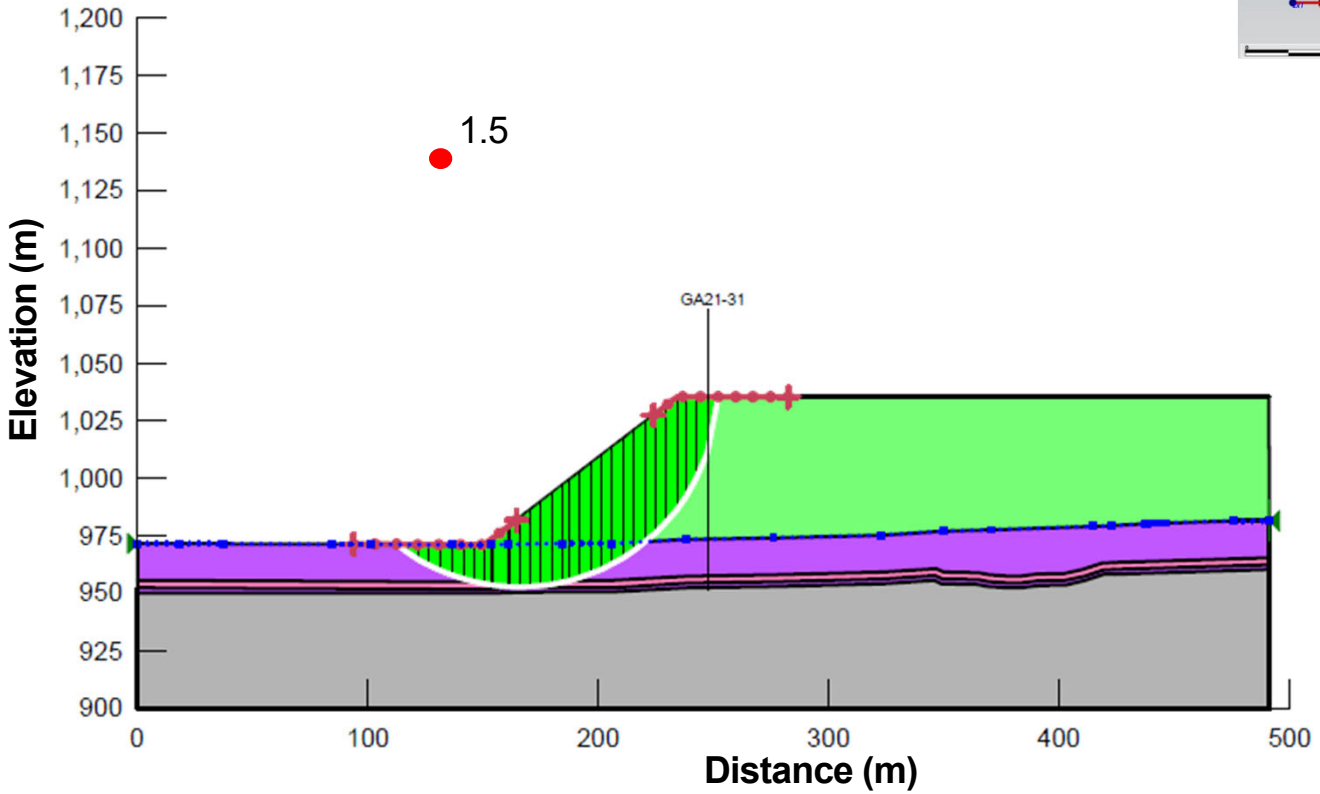
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – UNDRAINED PSEUDO-STATIC LOADING BLOCK METHOD – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-68**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties					
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**	**B-Bar**	**Weight added**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa	1	No
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$	0	Yes
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa	0	No
Bedrock		Impenetrable		0	No





REFERENCES/NOTES

1. SECTION TAKEN PERPENDICULAR TO SECTION 7 TO PRESENT THE CRITICAL SLOPE OF THE TAR AT THE ANGLE OF REPOSE DURING CONSTRUCTION..
2. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

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YYYY-MM-DD	2024-01-25
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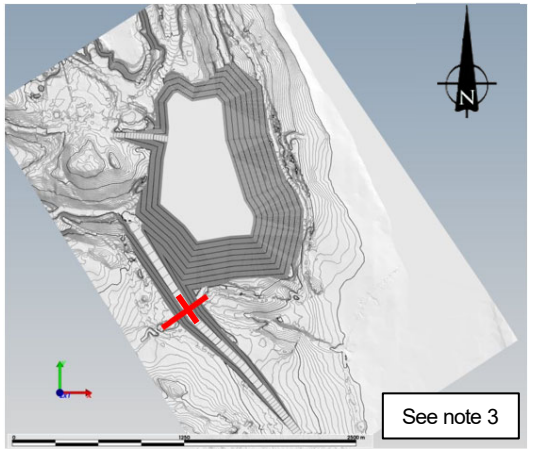
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

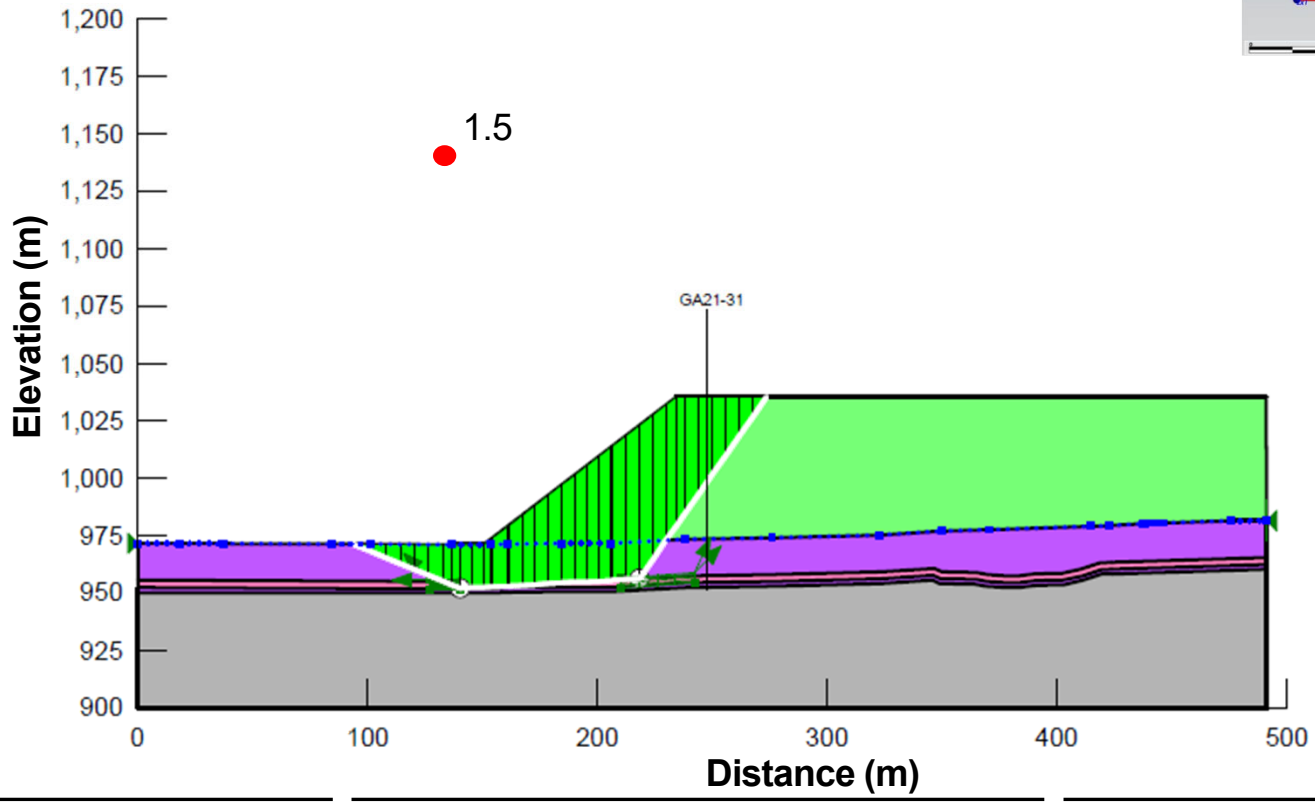
TITLE
SLOPE STABILITY ANALYSIS RESULT
(TAR) – UNDRAINED STATIC LOADING ANGLE OF REPOSE DURING CONSTRUCTION

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-69**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties					
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**	**B-Bar**	**Weight added**
GLU - Undrained		17	SHANSEP: s_u/σ_v=0.21xOCR^0.65; minimum strength = 86 kPa	1	No
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$	0	Yes
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa	0	No
Bedrock		Impenetrable		0	No





REFERENCES/NOTES

1. SECTION TAKEN PERPENDICULAR TO SECTION 7 TO PRESENT THE CRITICAL SLOPE OF THE TAR AT THE ANGLE OF REPOSE DURING CONSTRUCTION..
2. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

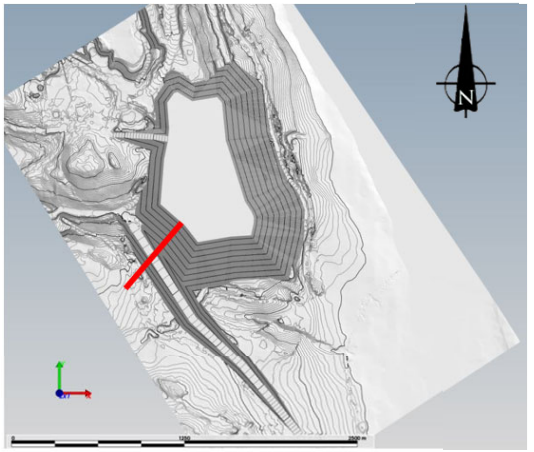
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

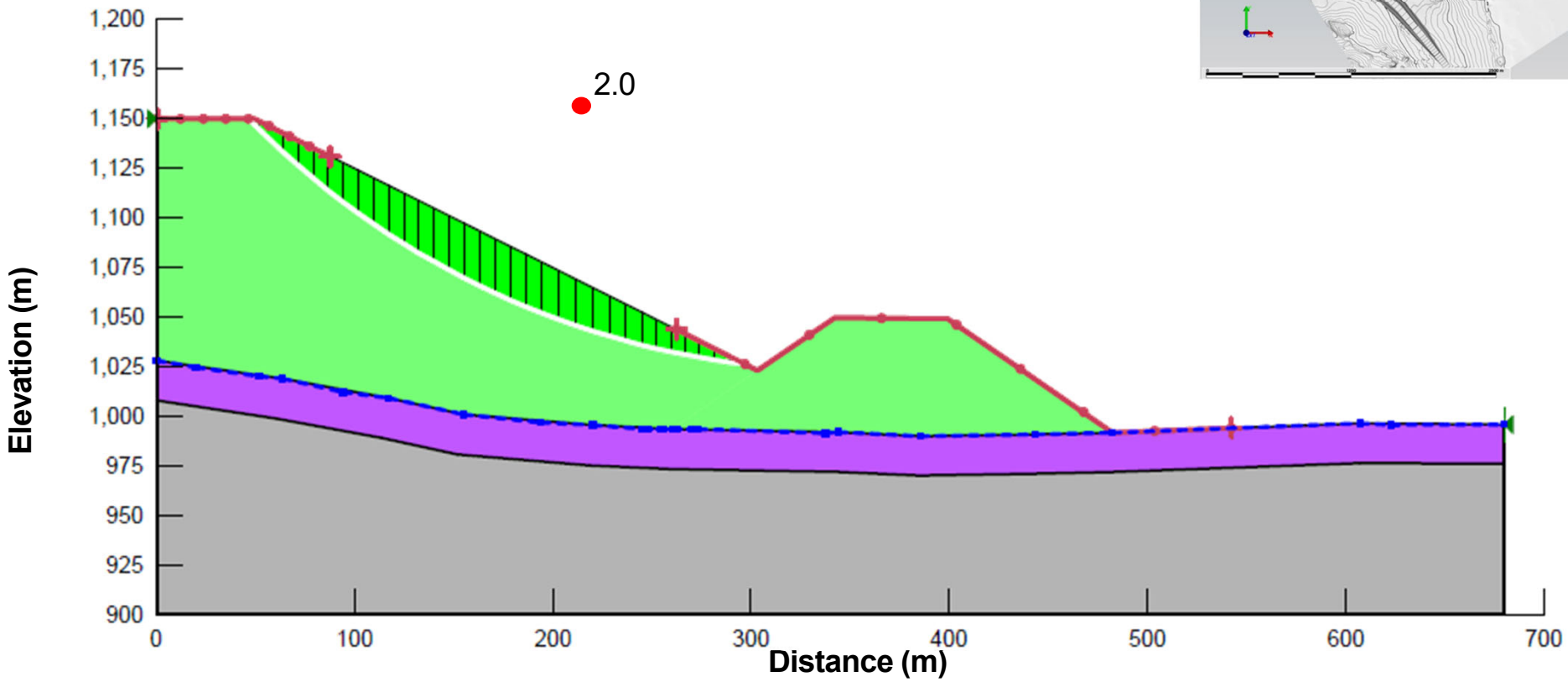
TITLE
SLOPE STABILITY ANALYSIS RESULT
TAR – UNDRAINED STATIC LOADING BLOCK METHOD – ANGLE OF REPOSE DURING CONSTRUCTION

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-70**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m^3)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
1. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

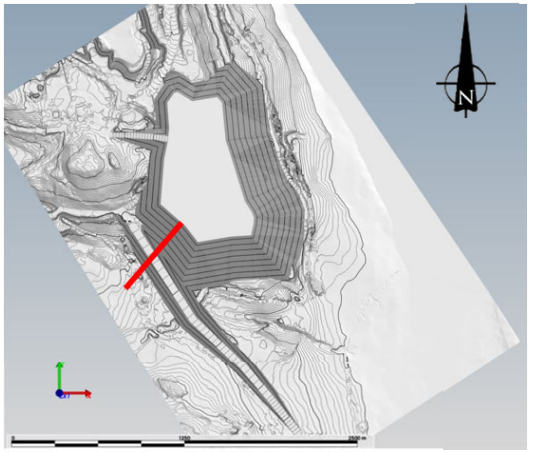
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 6 – STATIC LOADING

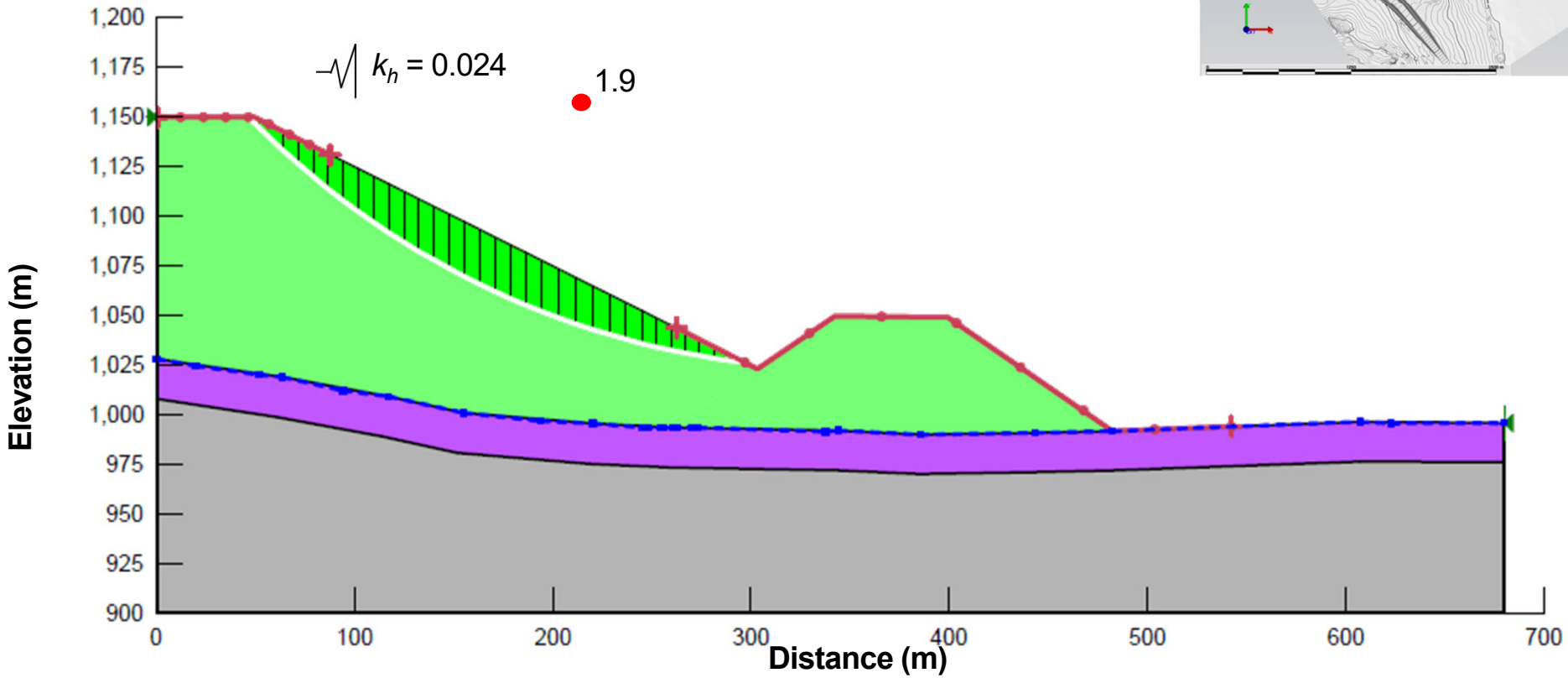
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-71**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





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REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

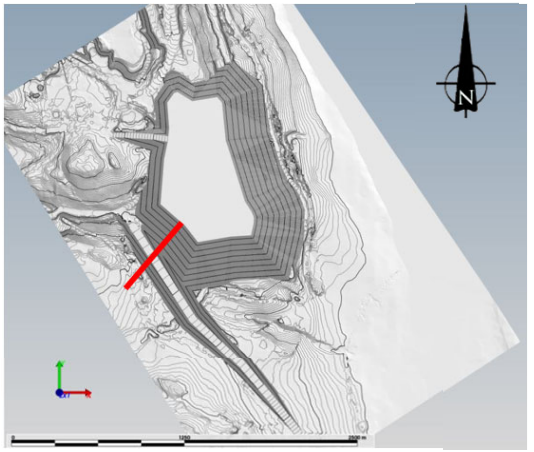
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 6 – PSEUDO-STATIC LOADING

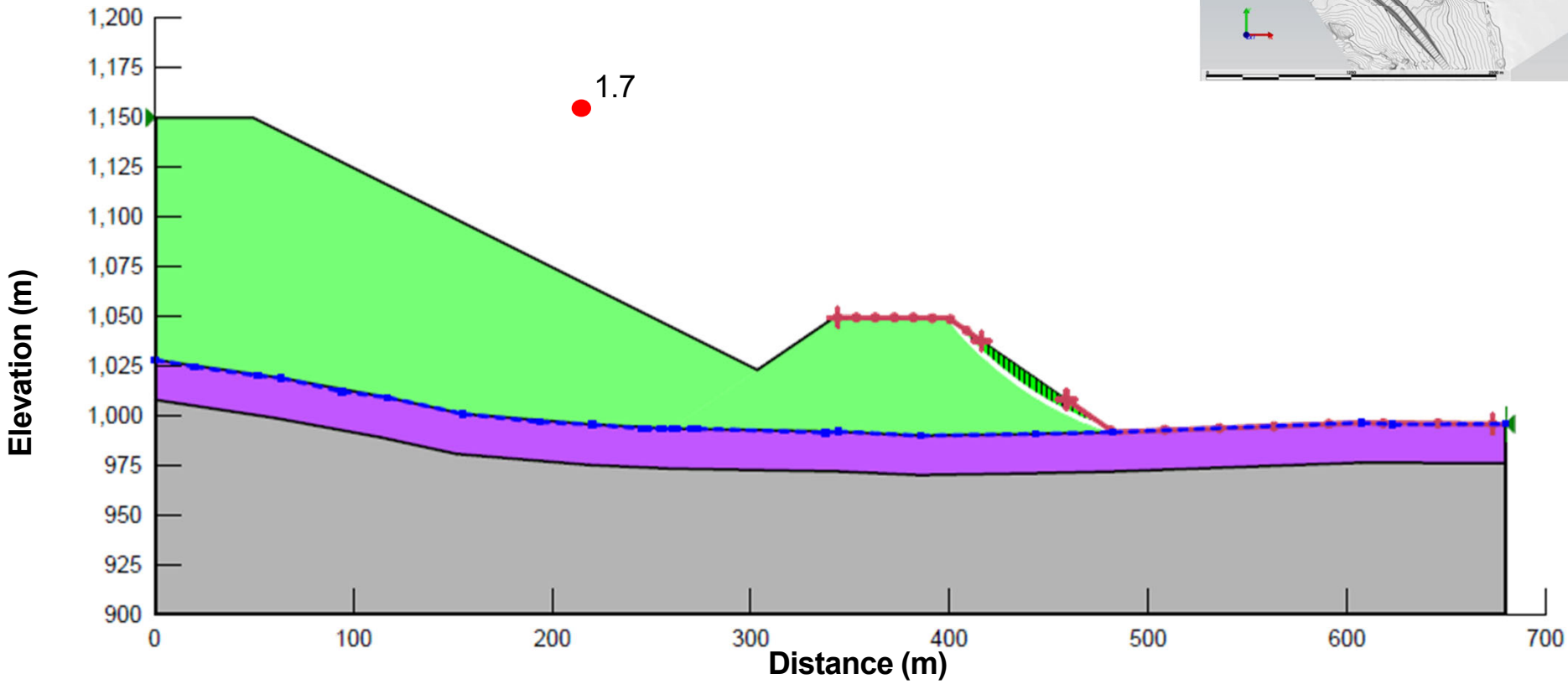
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-72

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





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PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

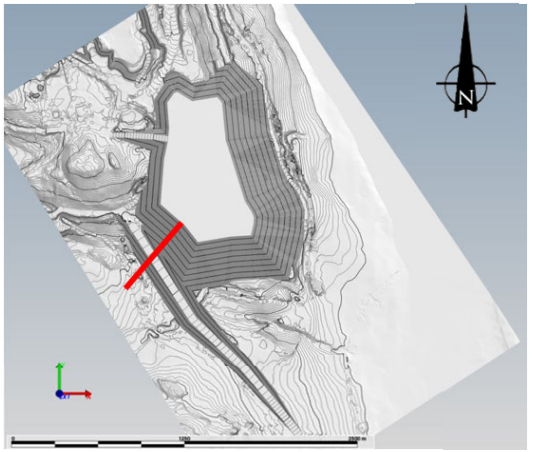
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 6 – STATIC LOADING
FAILURE THROUGH TAR

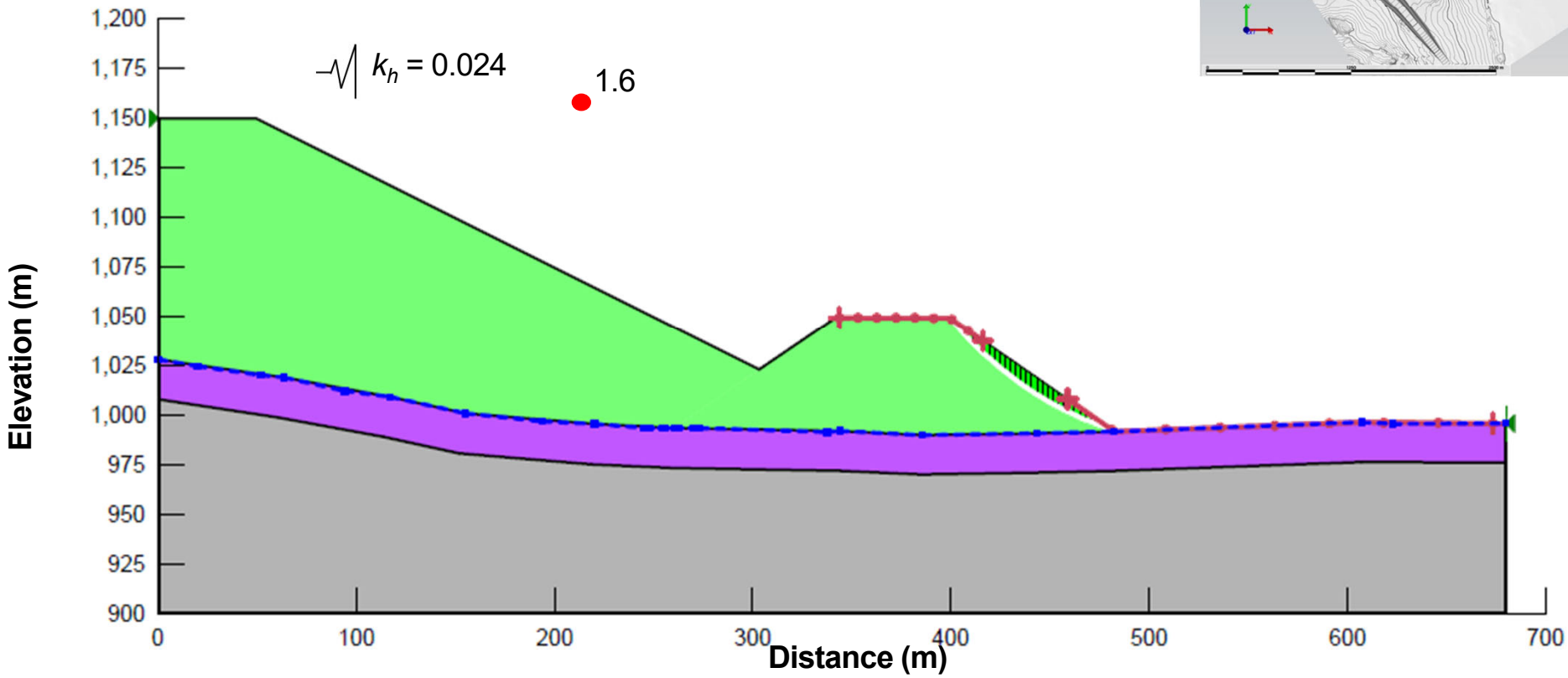
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-73

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





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PROJECT
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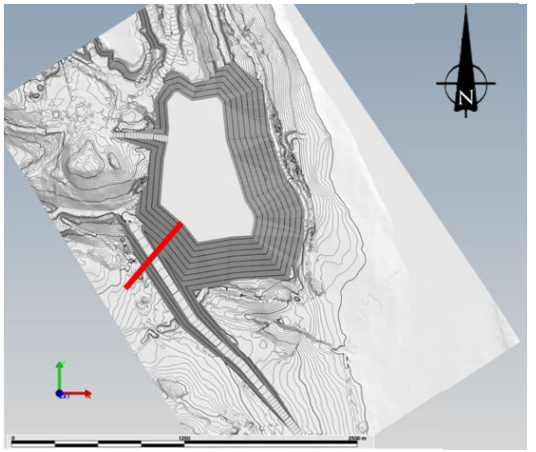
LIFE OF MINE DETAILED DESIGN

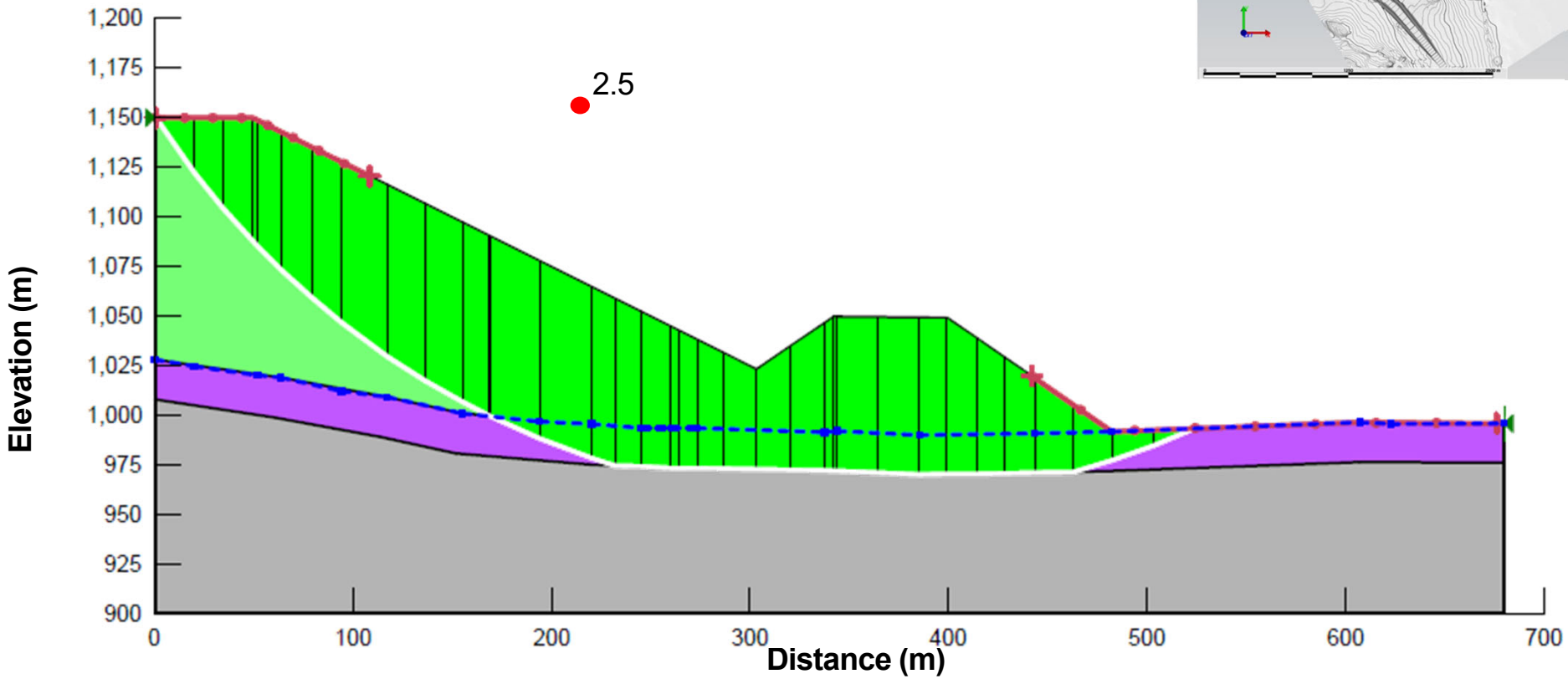
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 6 – PSEUDO-STATIC LOADING
FAILURE THROUGH TAR

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-74

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
1. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

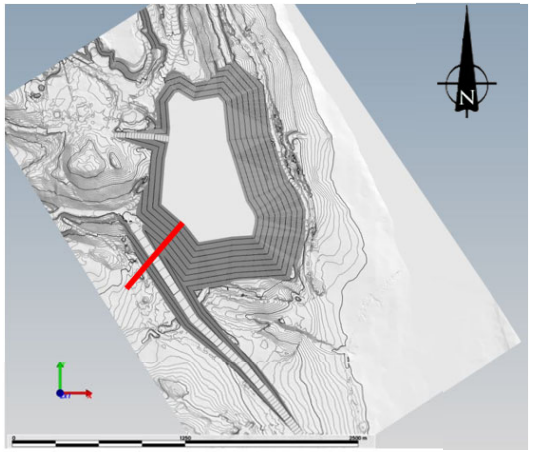
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

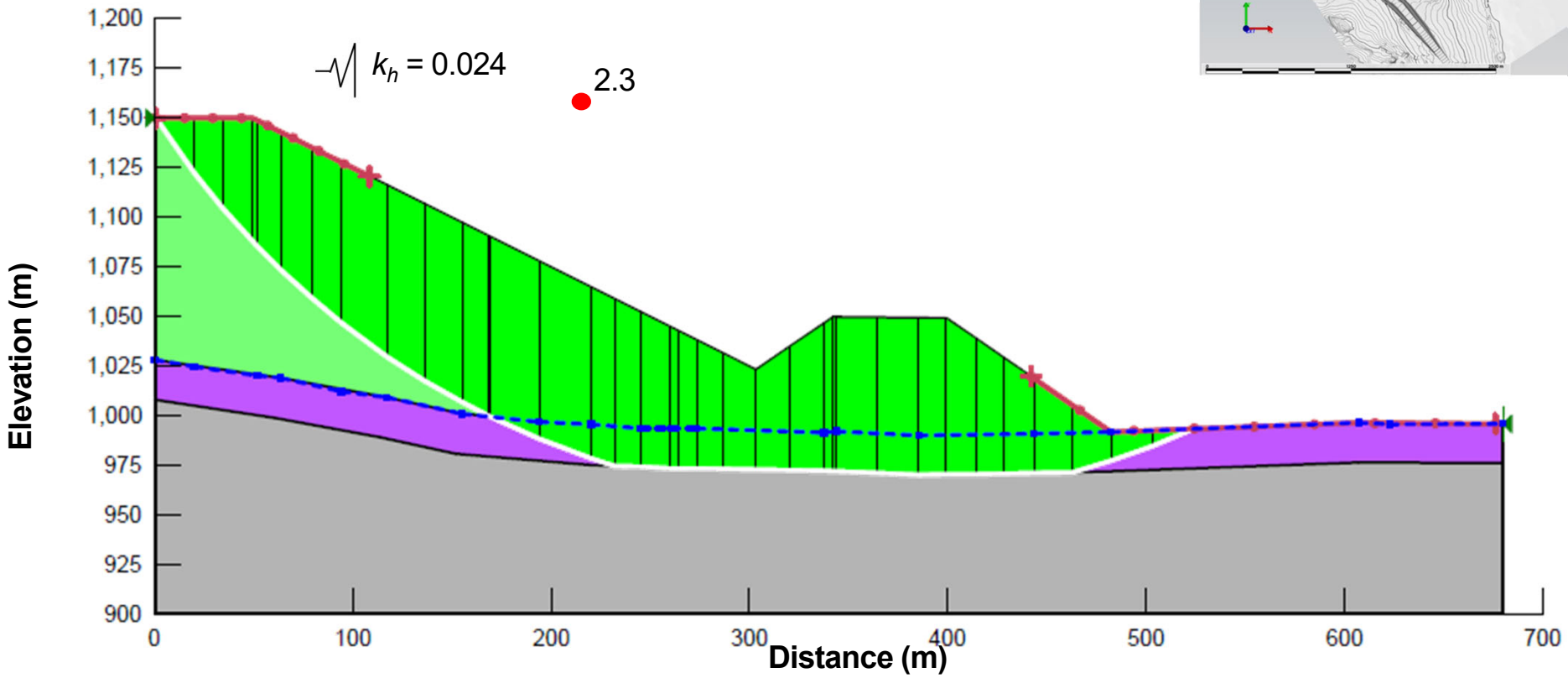
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 6 – STATIC LOADING (GLOBAL)

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-75**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES
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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

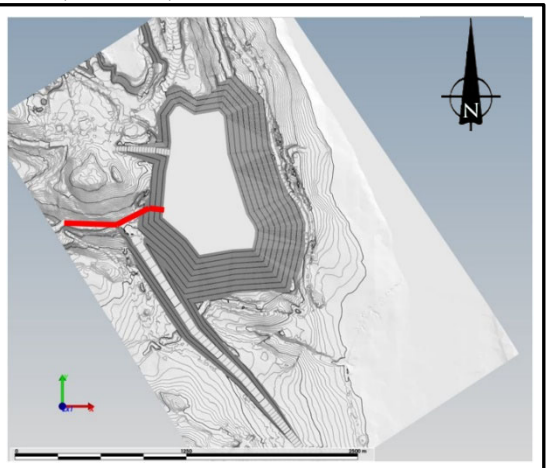
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 6 – PSEUDO-STATIC LOADING (GLOBAL)

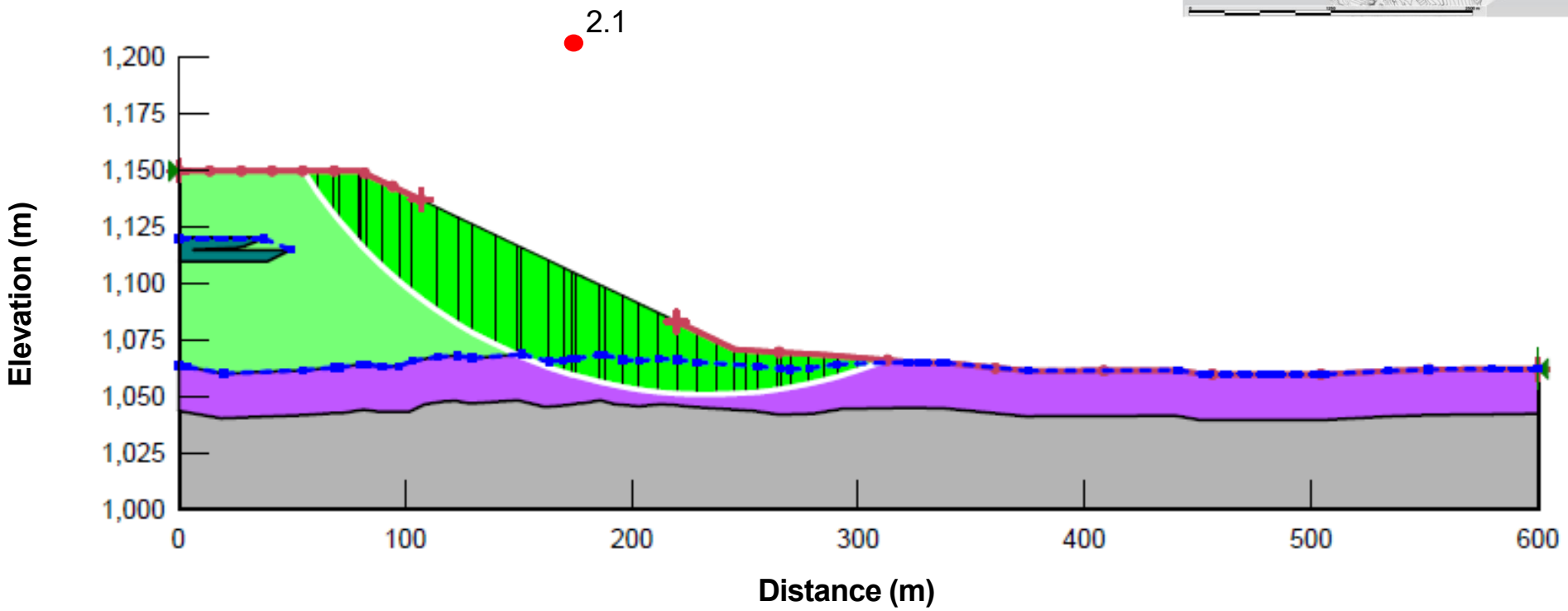
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-76**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

1. MODEL INCLUDES TWO PIEZOMETRIC LINES: ONE AT THE TOP OF THE TAILINGS, APPLIED ONLY TO THE TAILINGS, AND THE OTHER AT THE TOP OF THE TILL, APPLIED ONLY TO THE TILL.
2. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

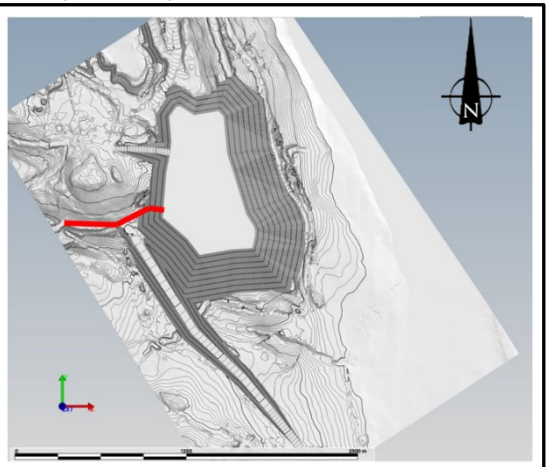
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 7 – STATIC LOADING

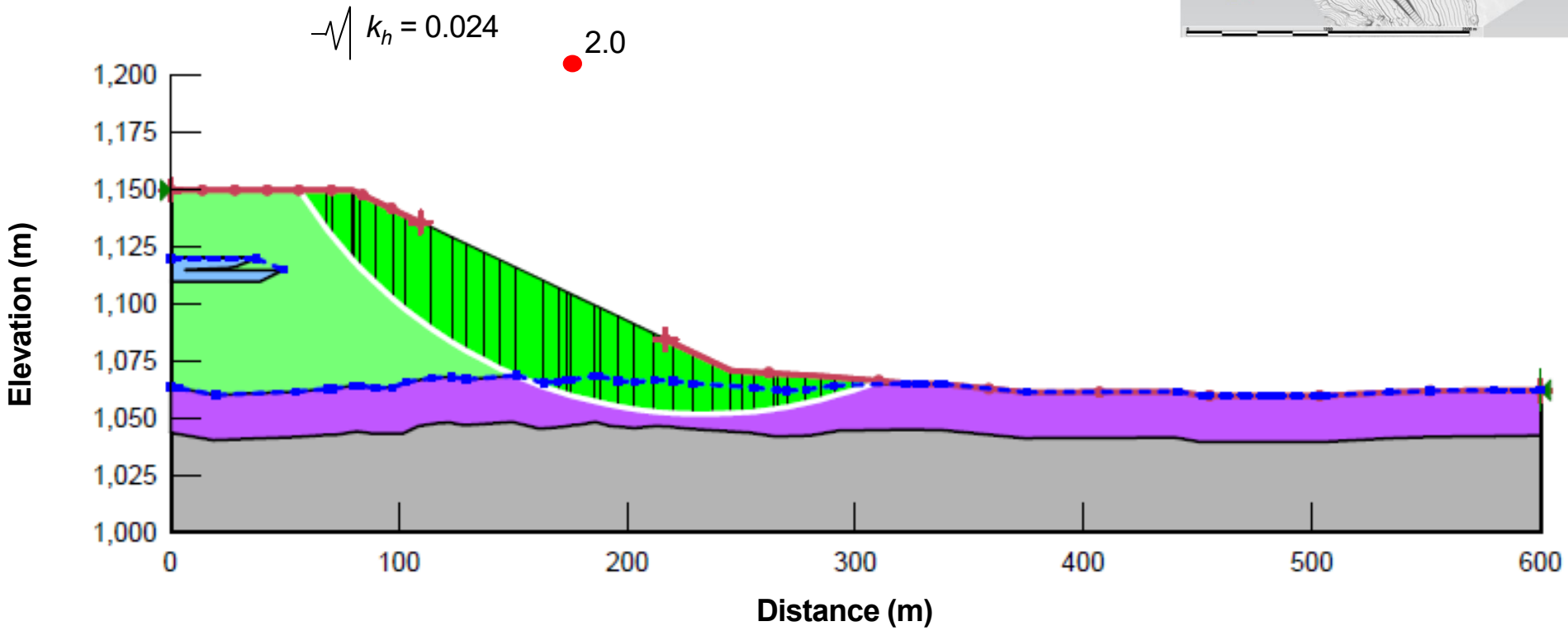
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-77**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 7 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-78

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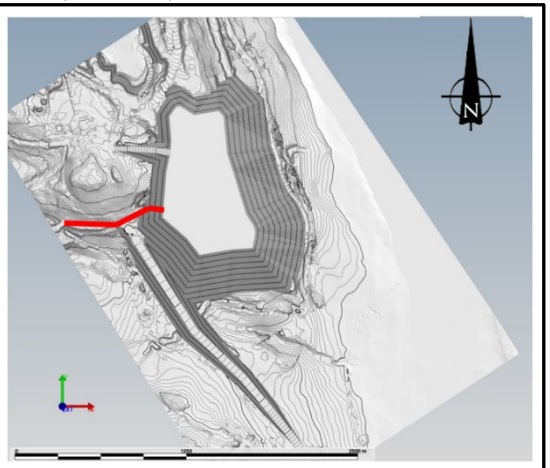
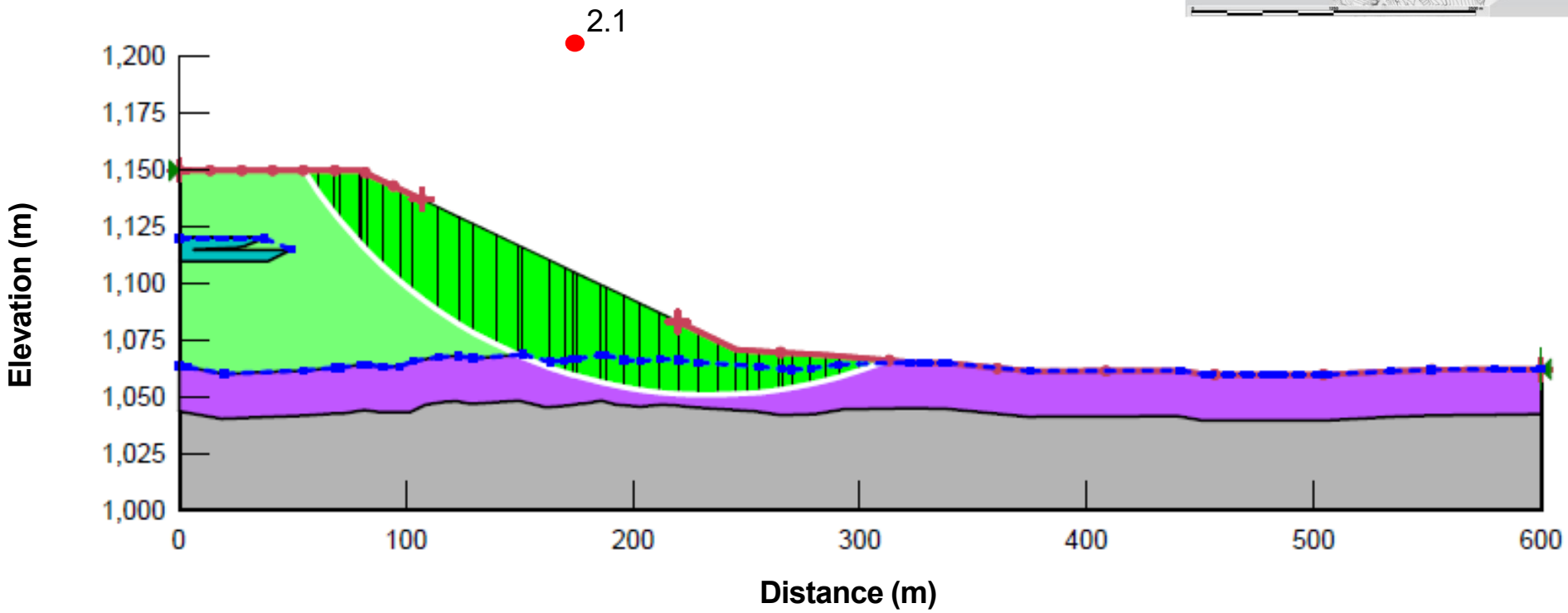
Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

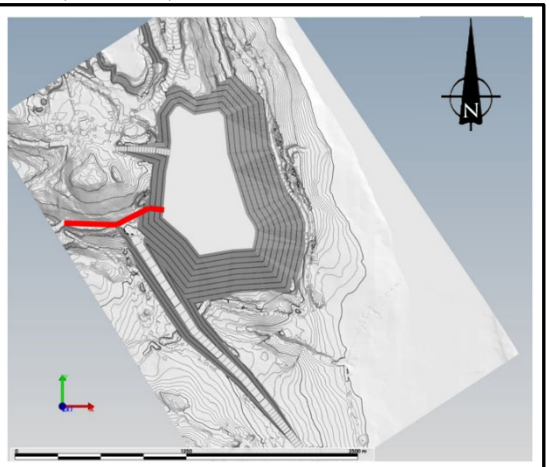
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

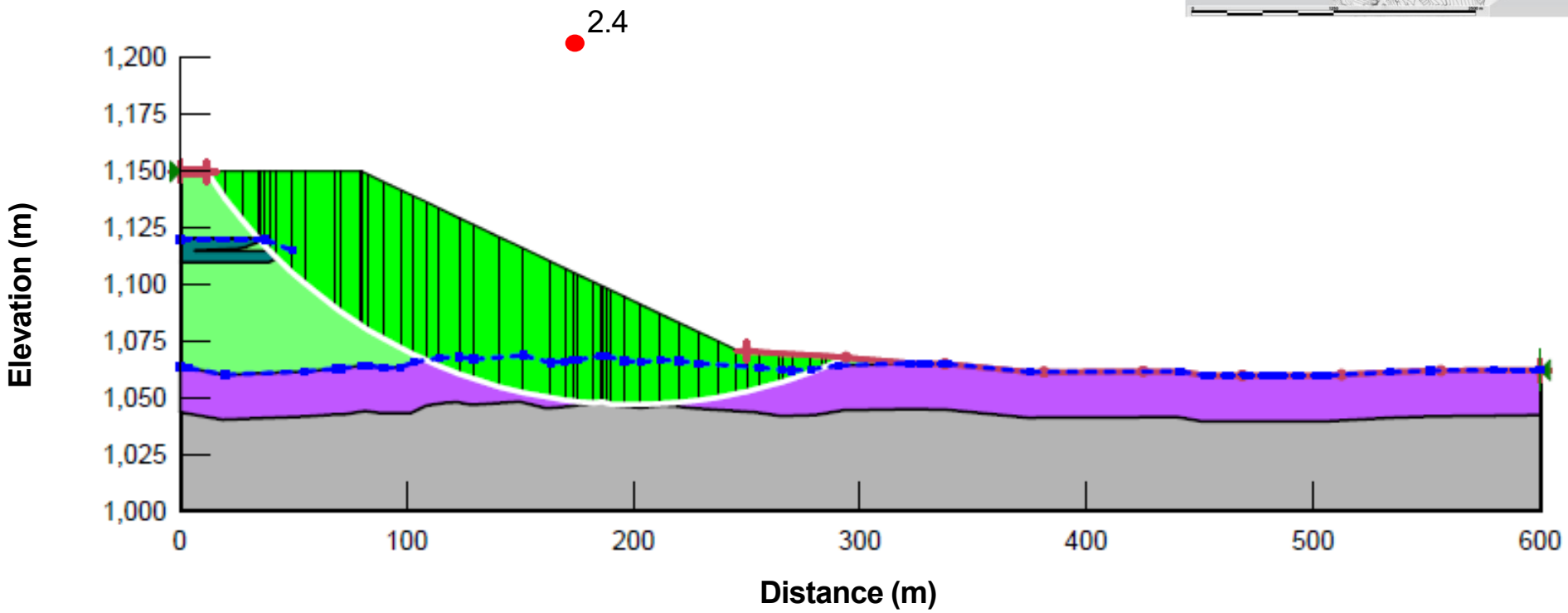
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 7 – POST EARTHQUAKE CONDITIONS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-79

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Tailings		17	Mohr-Coulomb: φ = 25°; *c* = 0 kPa
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

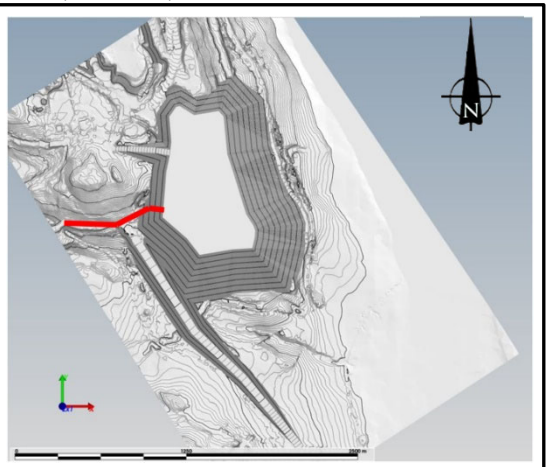
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 7 – STATIC LOADING
FAILURE THROUGH TAILINGS

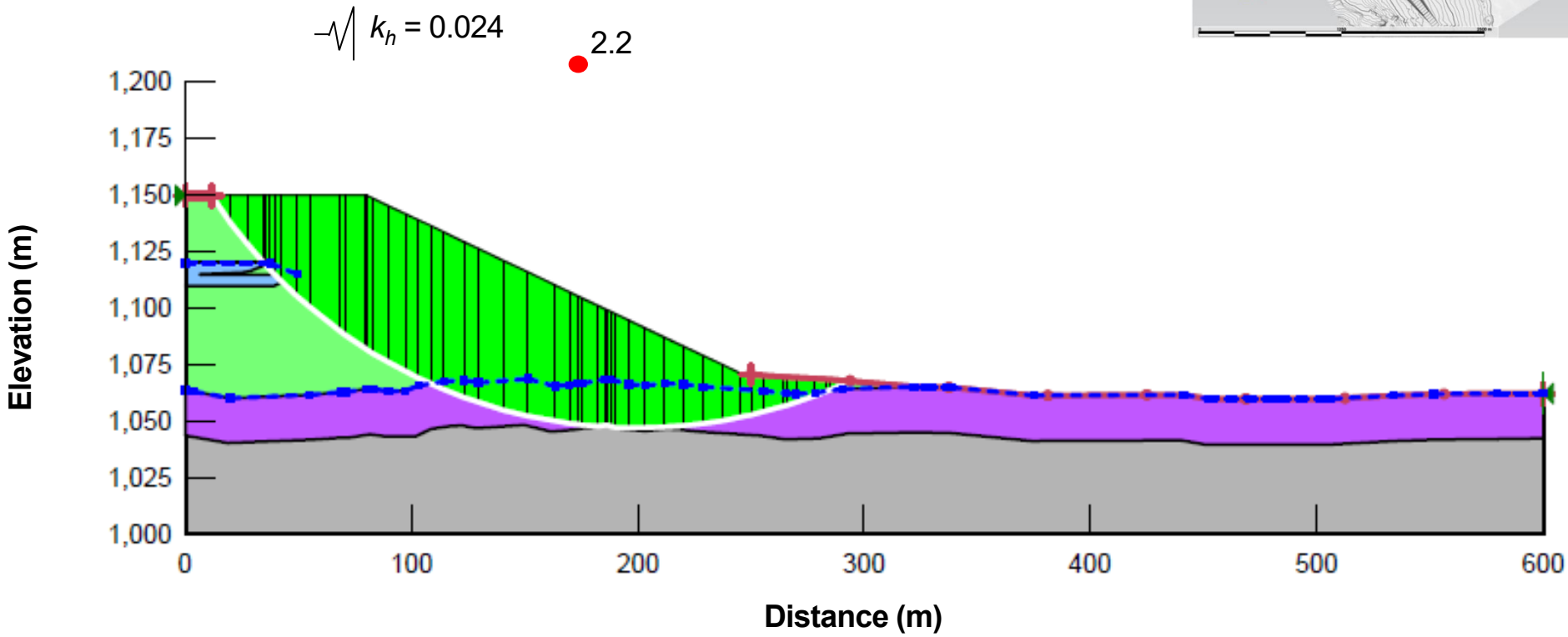
PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-80**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties

Materials	Colour	Unit Weight (kN/m^3)	Strength Parameters
Tailings		17	SHANSEP: τ/σ = 0.23
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

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CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

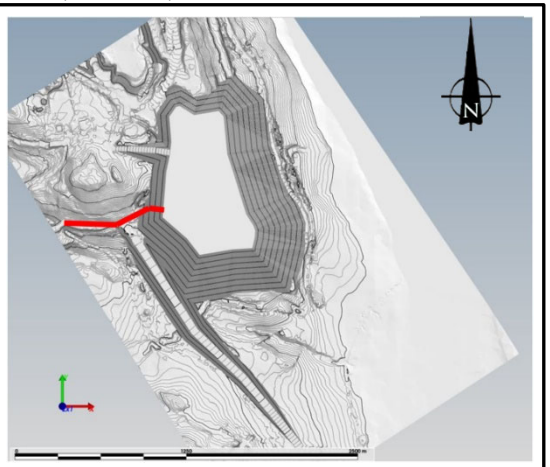
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

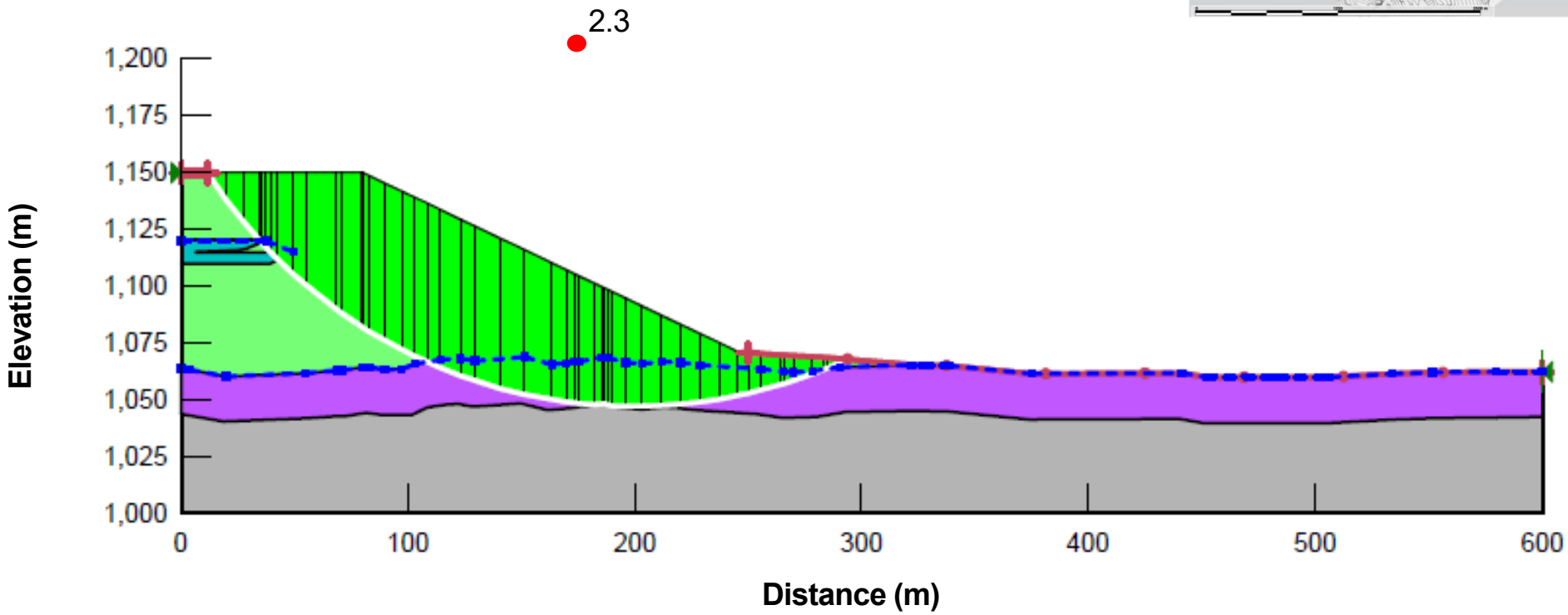
TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 7 – PSEUDO-STATIC LOADING
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F1-81

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F06%20Stability&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c

Material Properties			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Tailings		17	SHANSEP: τ/σ = 0.03
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





REFERENCES/NOTES

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2. GEOSTUDIO MODEL ANALYSIS FILE:: LOM_SERDS_06DEC2023.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

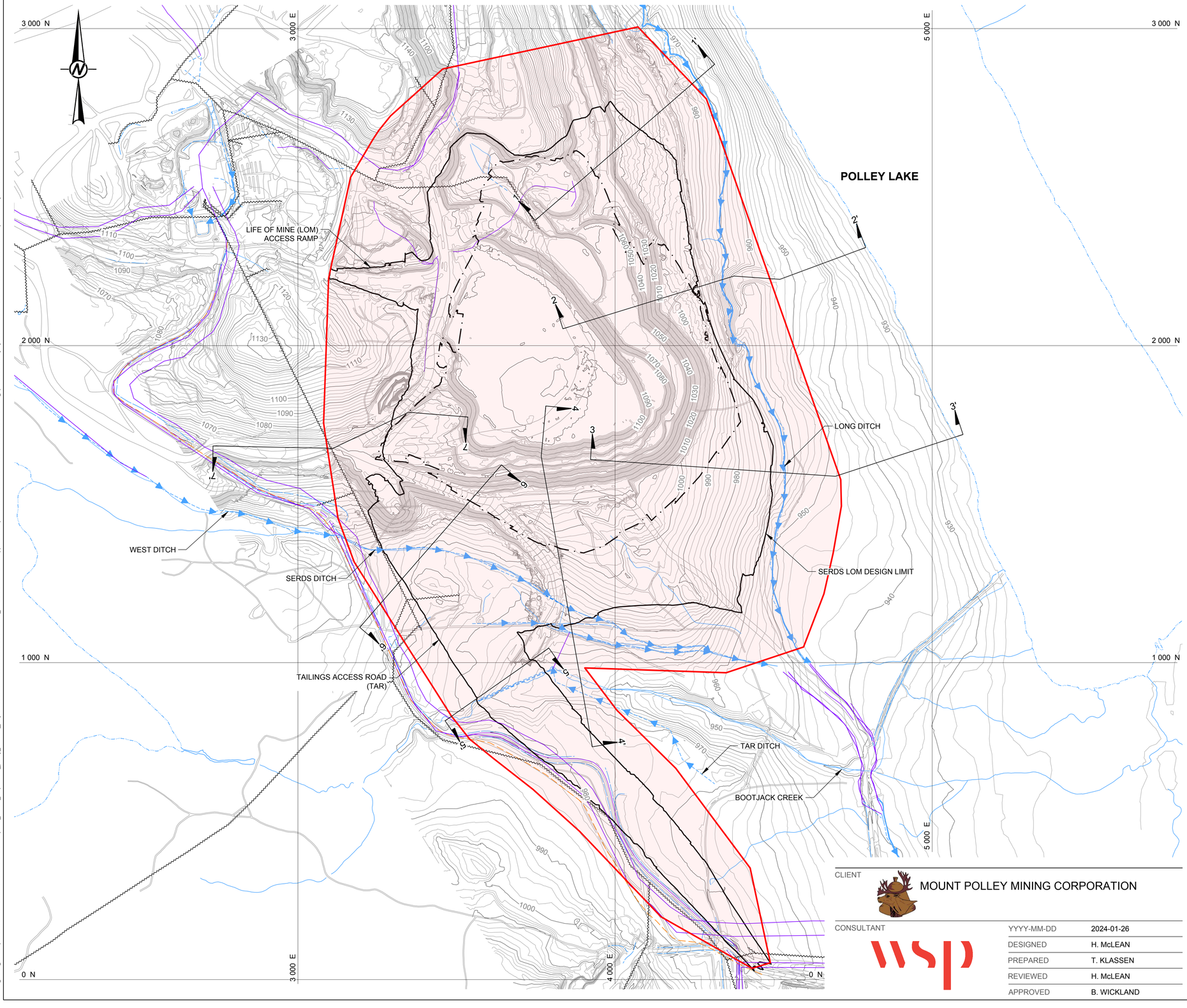
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
SLOPE STABILITY ANALYSIS RESULT
SECTION 7 – POST EARTHQUAKE CONDITIONS
FAILURE THROUGH TAILINGS

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F1-82**

F2 – Runout Analyses



LEGEND

- EXISTING GROUND CONTOURS (SEE REFERENCE 1)
- INITIAL TAILINGS CO-DISPOSAL FACILITY LIMITS
- SHORELINE (SEE REFERENCE 2)
- CLEAN WATER DITCH (SEE REFERENCE 2)
- CONTACT WATER DITCH (SEE REFERENCE 2)
- CULVERT (SEE REFERENCE 2)
- SITE ACCESS ROADS (SEE REFERENCE 2)
- TAILINGS LINE (SEE REFERENCE 2)
- PIPELINE (SEE REFERENCE 2)
- POWERLINES (SEE REFERENCE 2)
- SOUTHEAST ROCK DISPOSAL SITE (SERDS) LIFE OF MINE (LOM) DESIGN
- SERDS TAILINGS CO-DISPOSAL FACILITY LIMIT (SEE REFERENCE 3)
- POTENTIAL SERDS RUNOUT ZONE LIMITS
- SERDS RUNOUT ZONE DESIGN CROSS-SECTION LOCATION

NOTES

1. ALL UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES AND ELEVATIONS SHOWN ARE REFERENCED TO MINE GRID.
3. MAJOR CONTOUR INTERVAL 10 m, MINOR CONTOUR INTERVAL 2 m.
4. CONTACT WATER CHANNELS SHOWN ARE FOR CONDITIONS PRIOR TO SERDS LOM DEVELOPMENT.

REFERENCES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1m Contours.dxf" SURVEYED IN 2021, RECEIVED: 29 JULY 2021.
2. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg", RECEIVED: 5 SEPTEMBER 2014, AND FILE NAME: "211012 SERD Site Plan.dxf", RECEIVED: 12 OCTOBER 2021.
3. SOUTHEAST ROCK DISPOSAL SITE TAILINGS CO-DISPOSAL FACILITY DETAIL DESIGN. REPORT REFERENCE NO. 22514095-035-R-REV 2-91315.22, OCTOBER 2022.

NOT FOR CONSTRUCTION

0 200 400
1:6,000 METRES

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CLIENT: MOUNT POLLEY MINING CORPORATION

CONSULTANT: wsp

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DESIGNED	H. McLEAN
PREPARED	T. KLASSEN
REVIEWED	H. McLEAN
APPROVED	B. WICKLAND

PROJECT
SOUTHEAST ROCK DISPOSAL SITE (SERDS)
LIFE OF MINE (LOM) DESIGN

TITLE
RUNOUT ZONE

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
23590671	92200/92292/038	0	F2-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\complexdata\office\vancouver\CAD-GIS\Client\Imperial_metals_corp\mount_polley_mine\99_projects\23590671\92200\92292\Doc. 038\02_PRODUCTION\DWG\Appendices\ | File Name: 23590671-92200-92292-038-F2-1.dwg | Last Edited By: tyklassen Date: 2024-01-25 Time:9:09:19 AM | Printed By: TYKlassen Date: 2024-01-26 Time:11:17:15 AM

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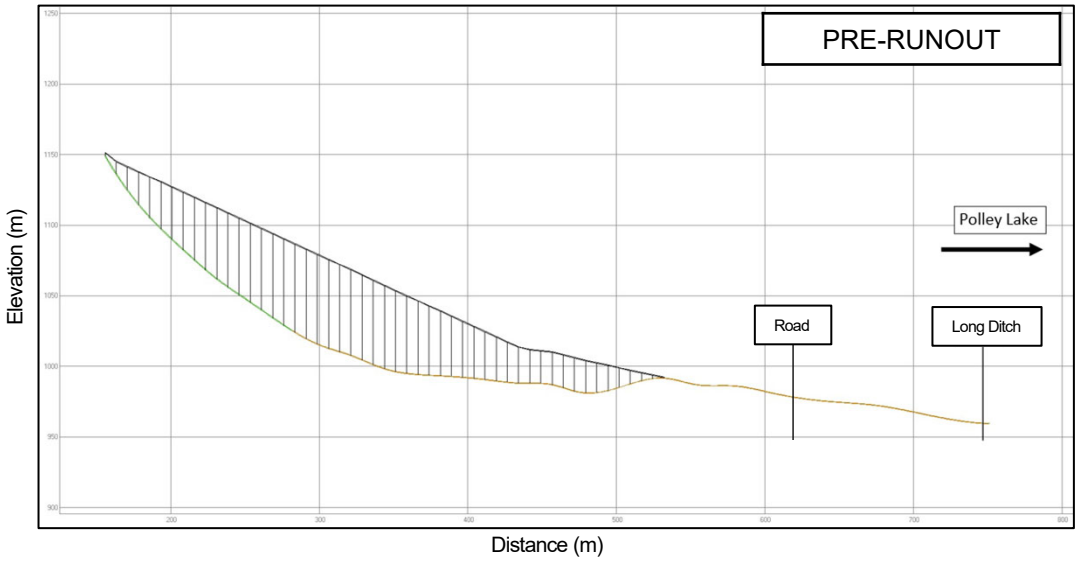
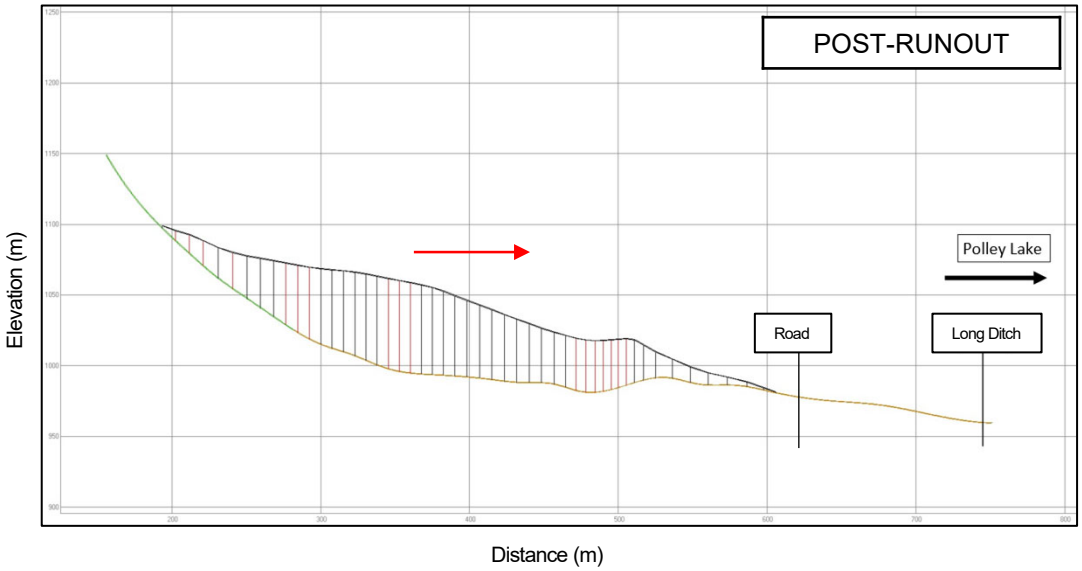
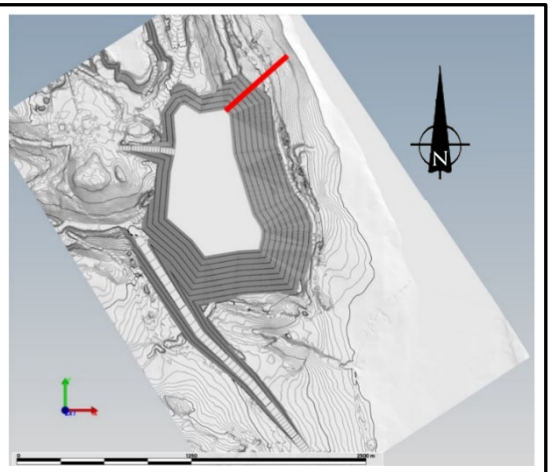






Material	Unit Weight (kN/m^3)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	174 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

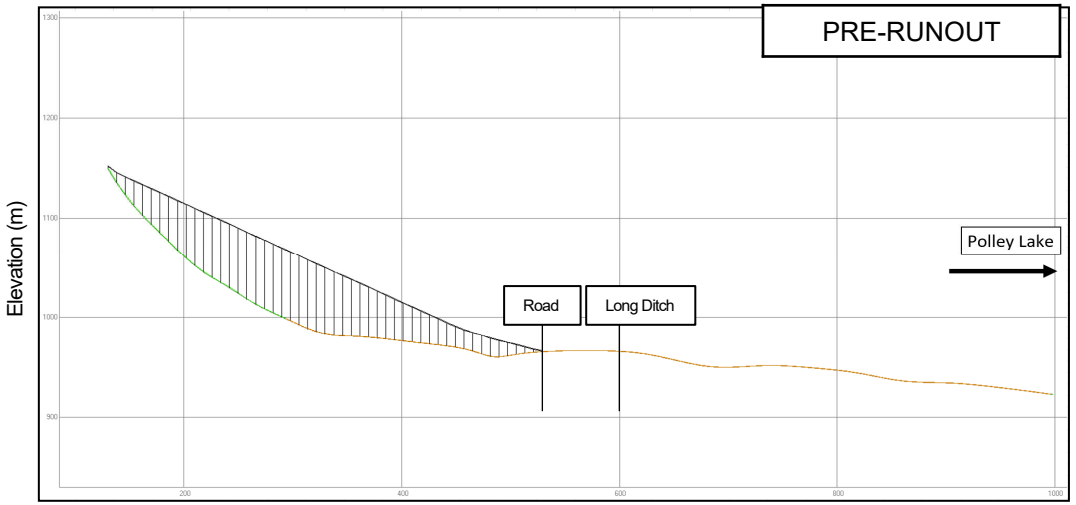
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

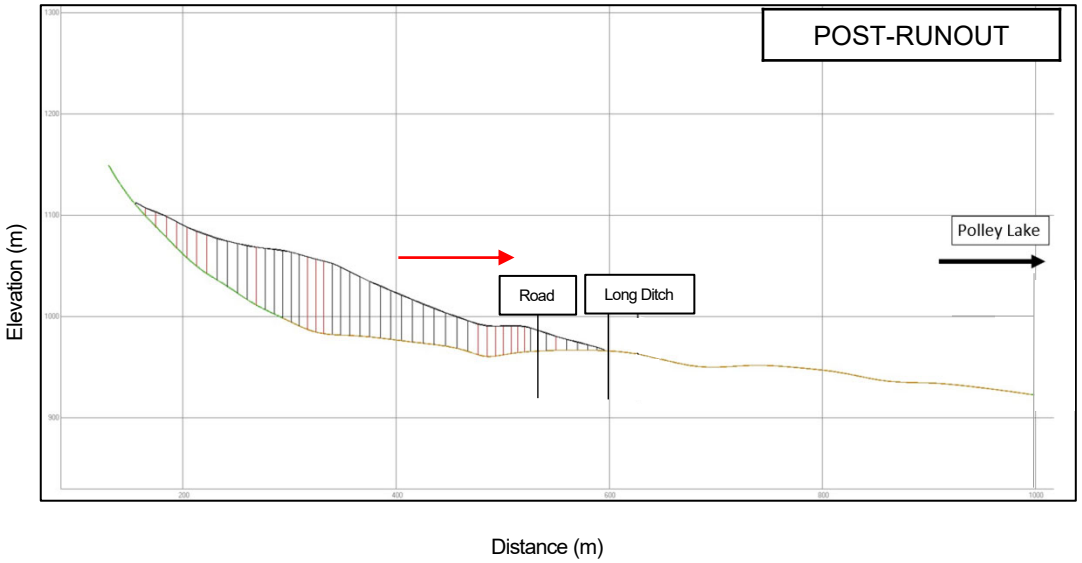
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

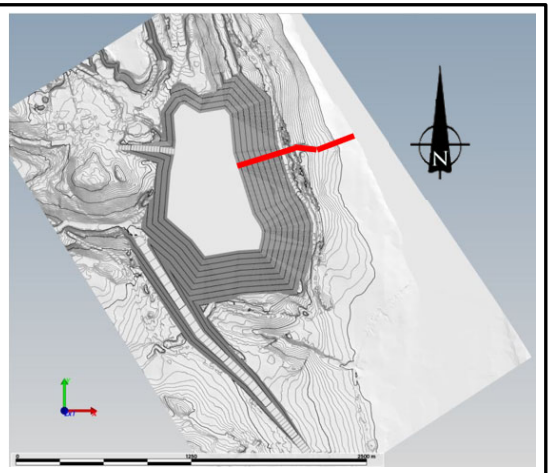
TITLE
RUNOUT ANALYSIS RESULT
SECTION 1 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-2**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	145 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

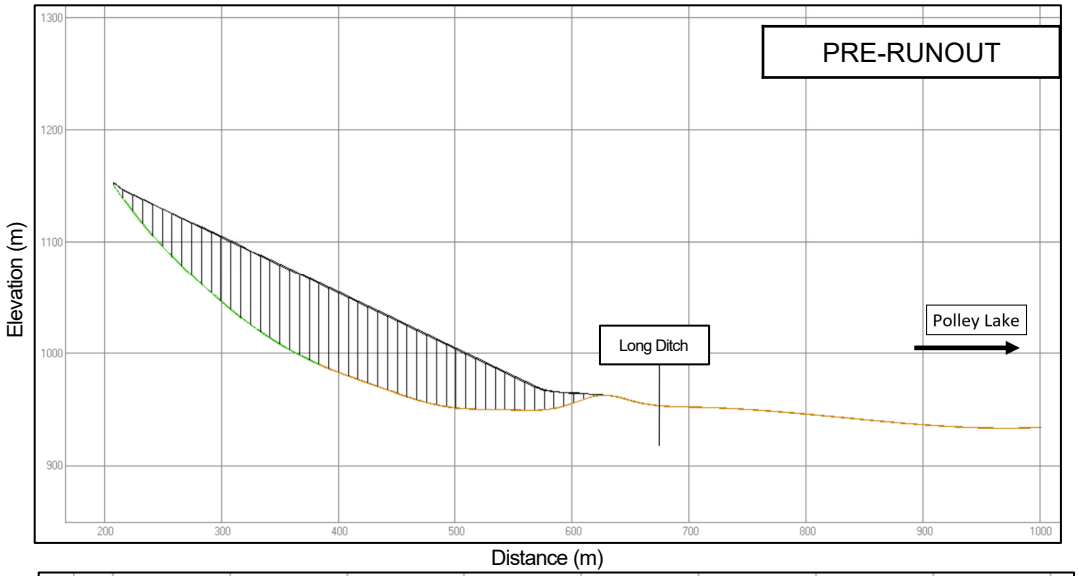
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

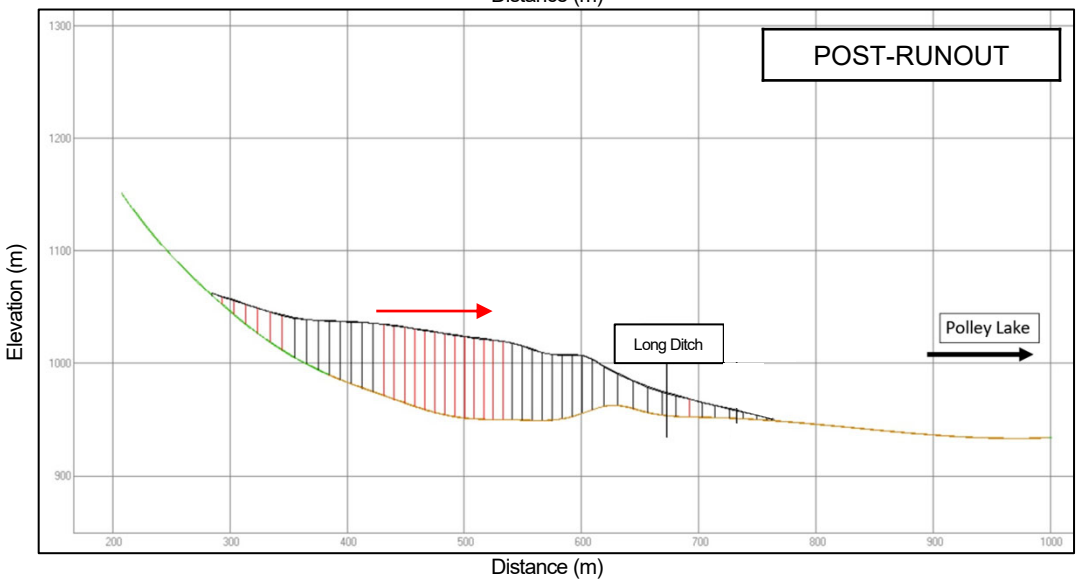
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

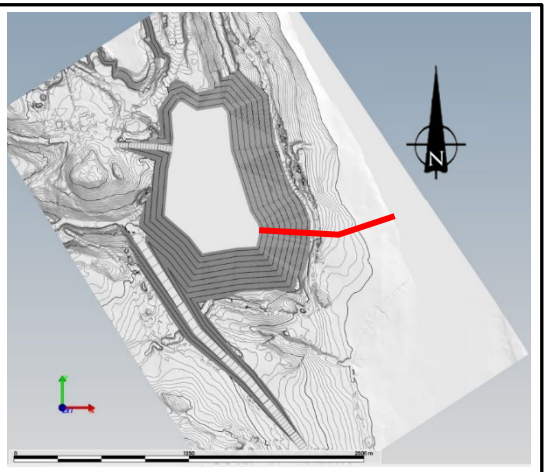
TITLE
RUNOUT ANALYSIS RESULT
SECTION 2 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-3**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	194 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

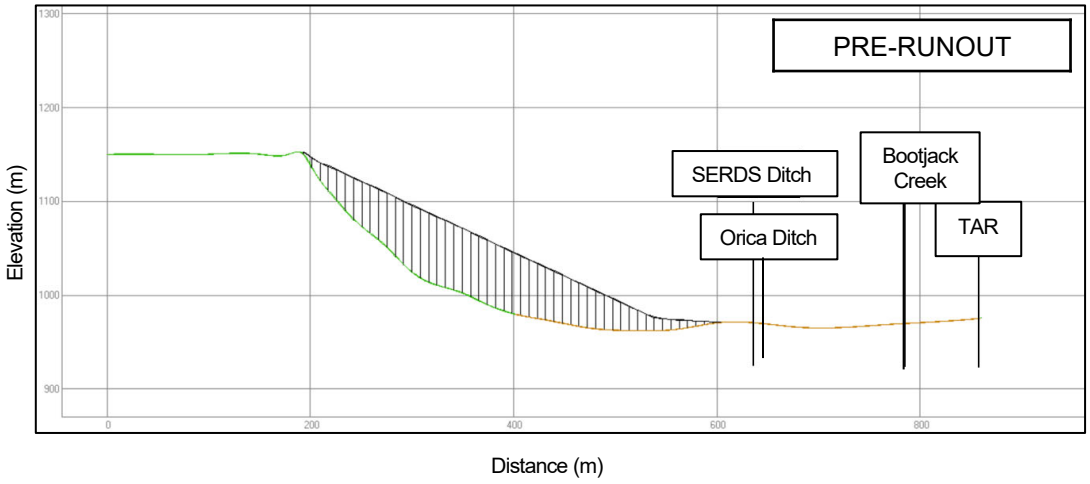
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

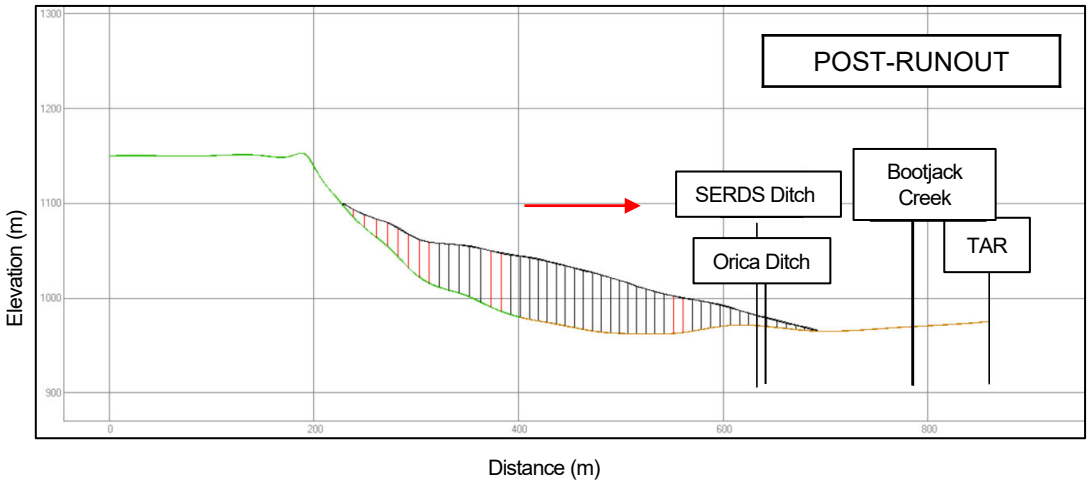
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

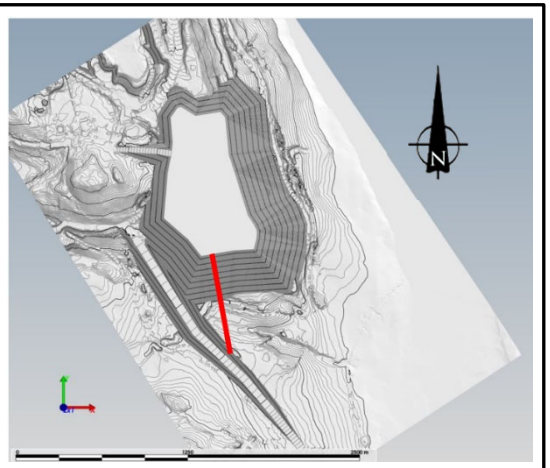
TITLE
RUNOUT ANALYSIS RESULT
SECTION 3 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-4**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	139 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
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CONSULTANT
wsp

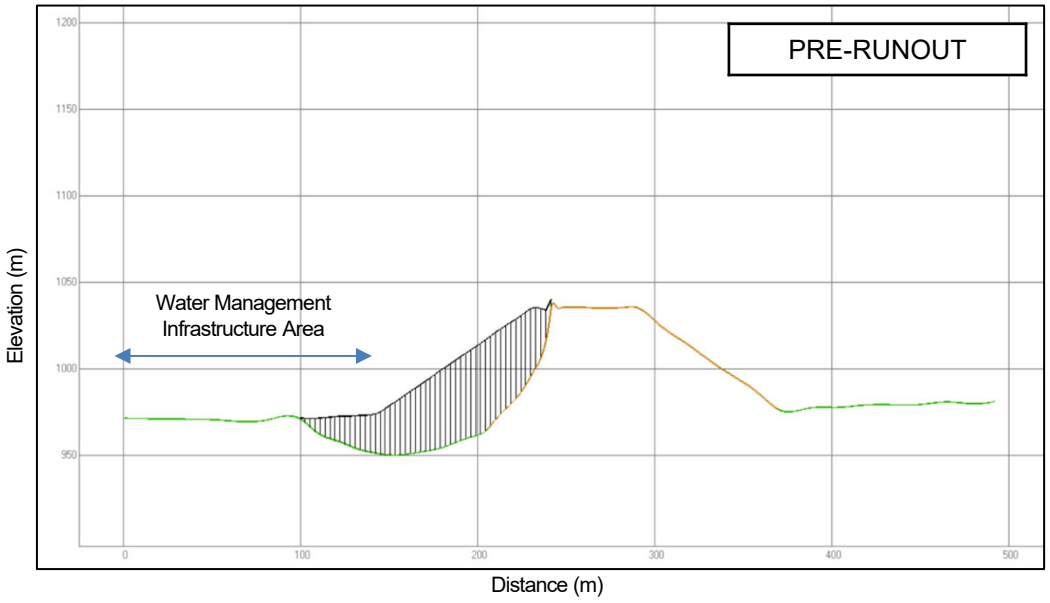
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

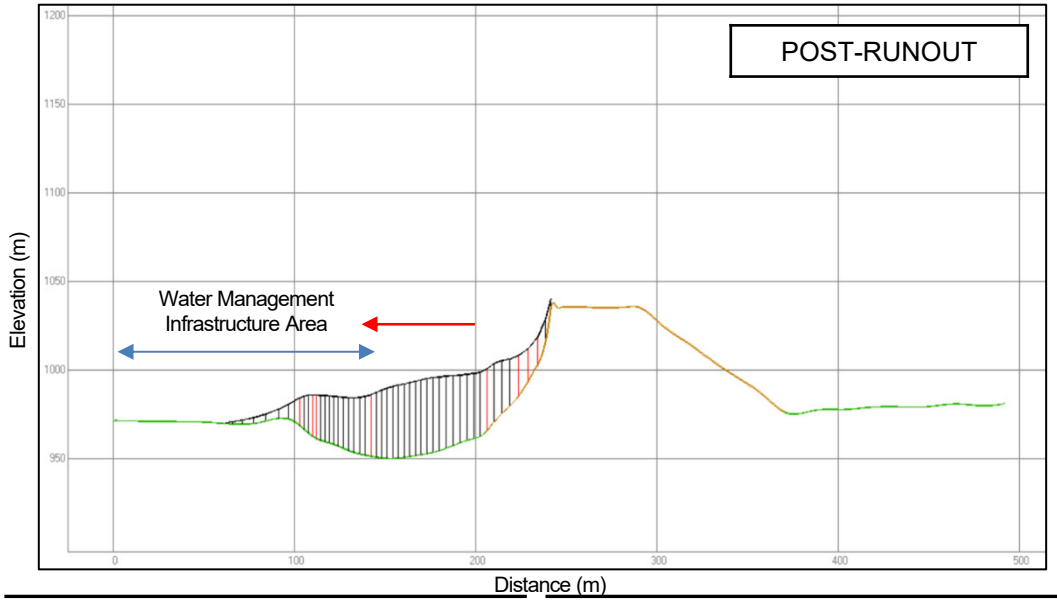
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

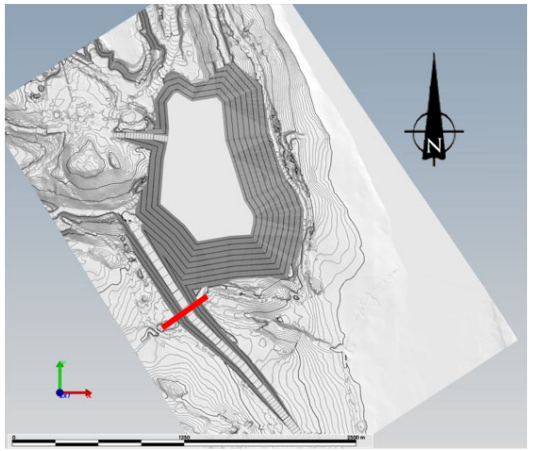
TITLE
RUNOUT ANALYSIS RESULT
SECTION 4 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-5**

https://goldersassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	83 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

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CONSULTANT
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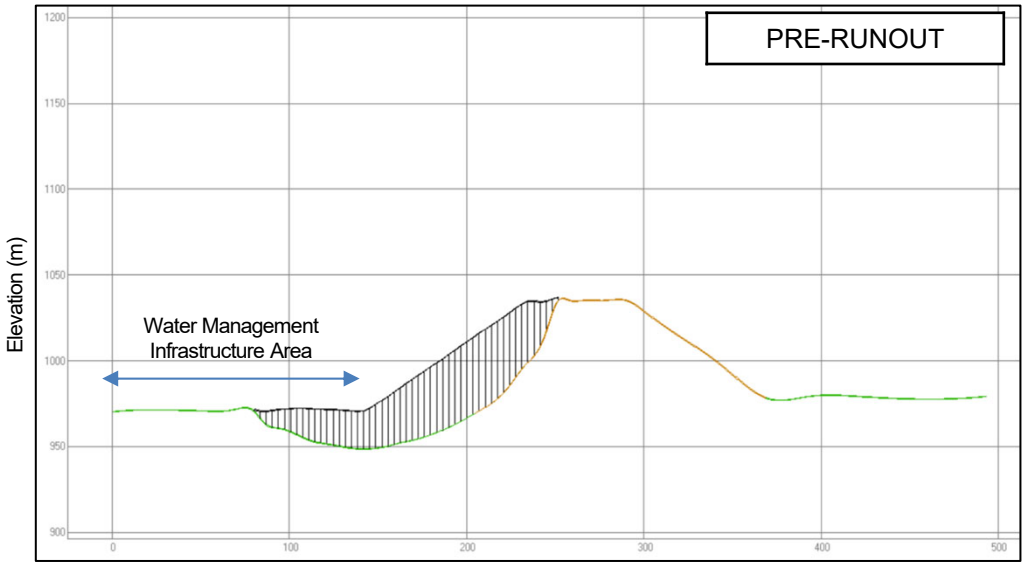
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

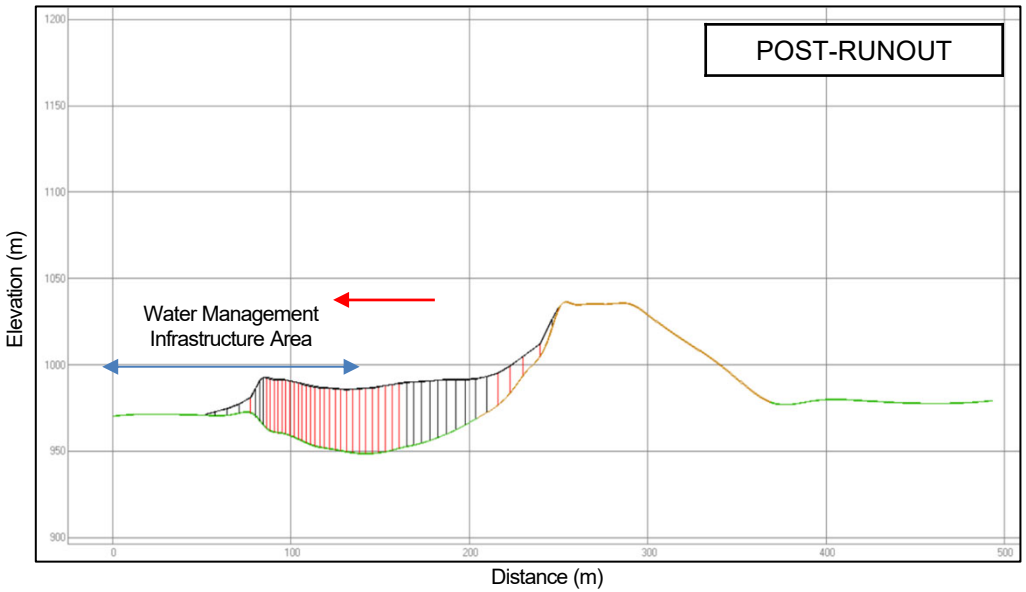
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

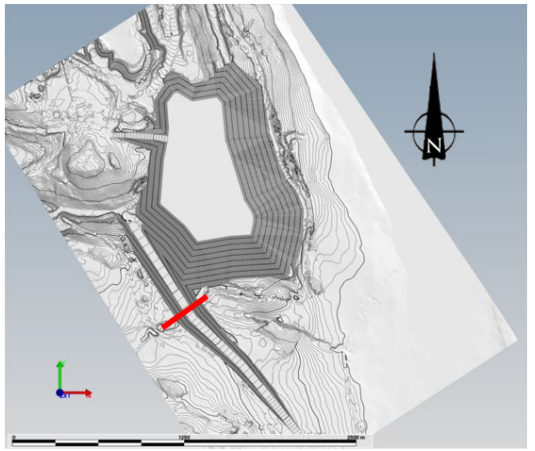
TITLE
RUNOUT ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-6**

https://goldersassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	84 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

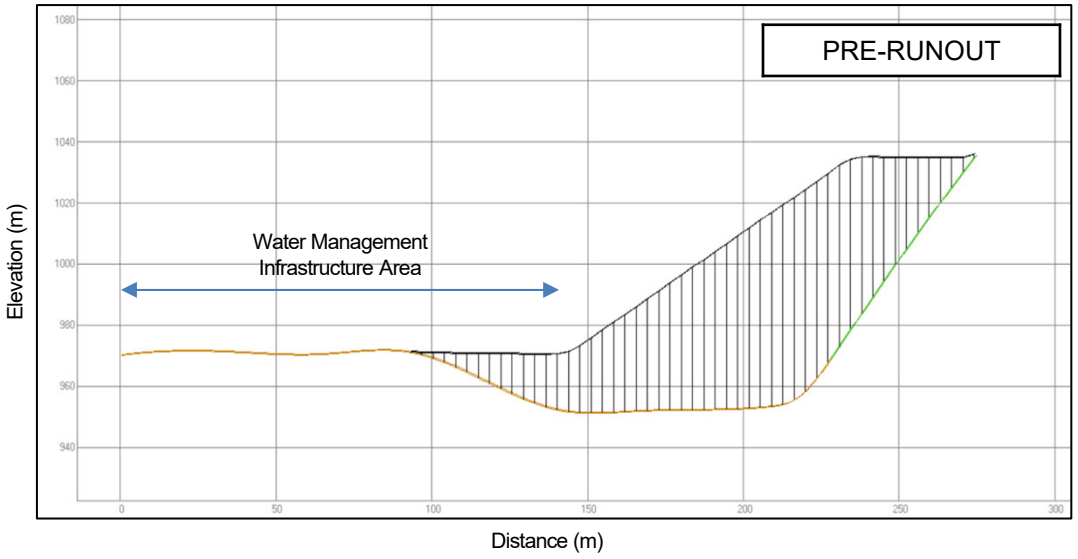
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

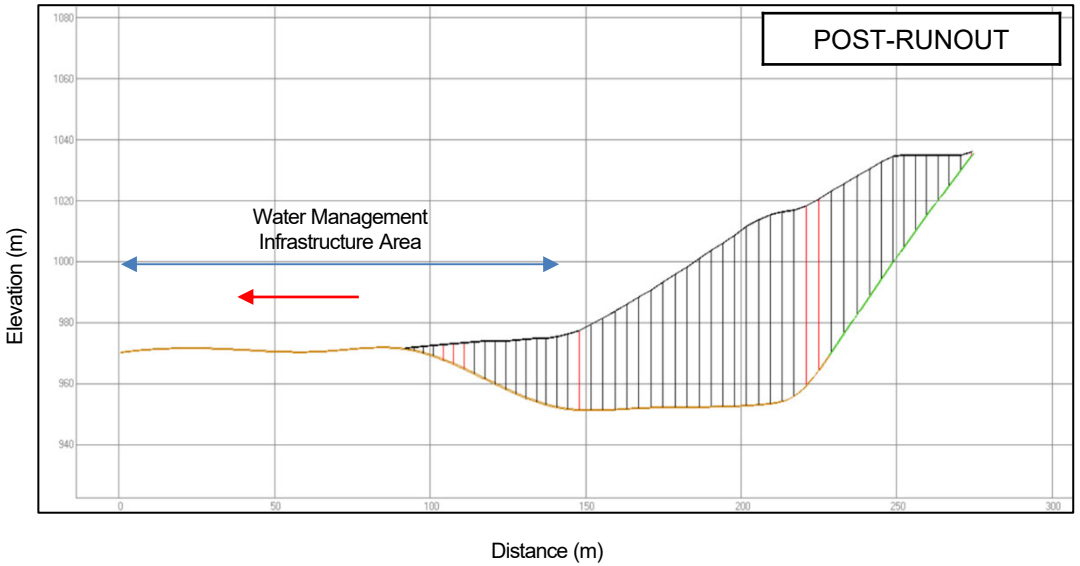
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

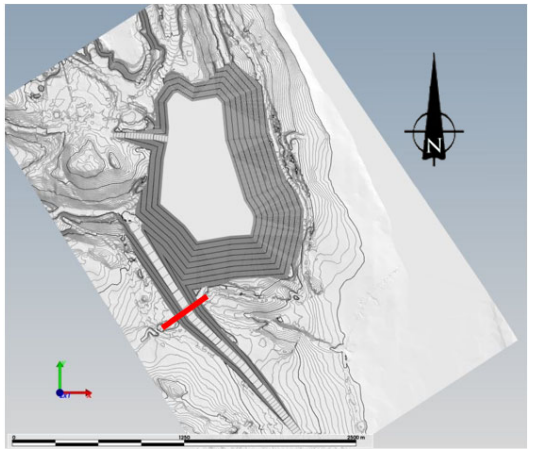
TITLE
RUNOUT ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – PSEUDO-STATIC LOADING
FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-7**

https://goldersassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	68 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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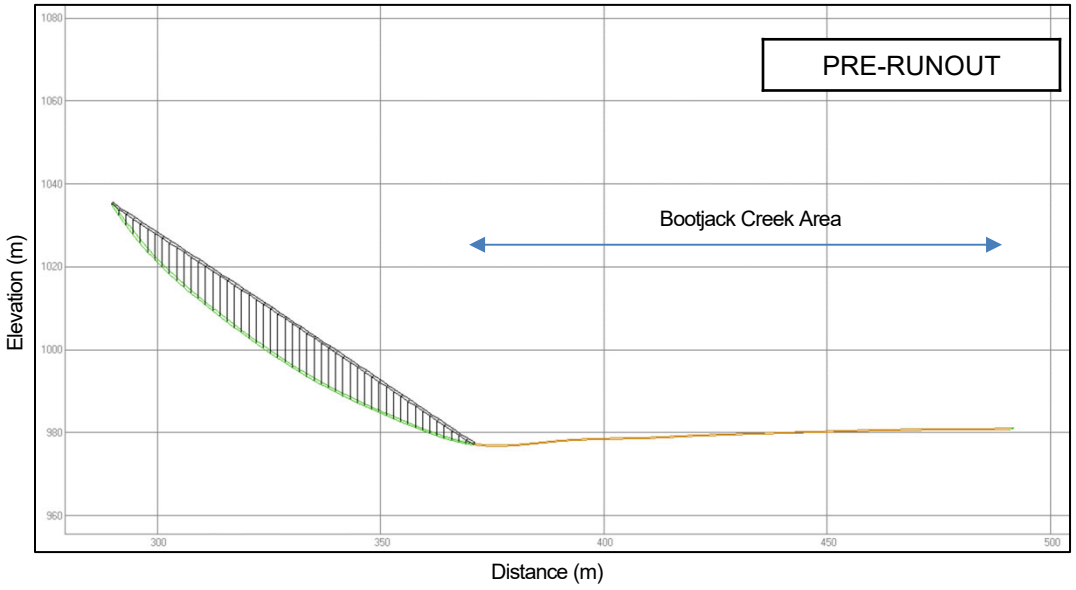
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

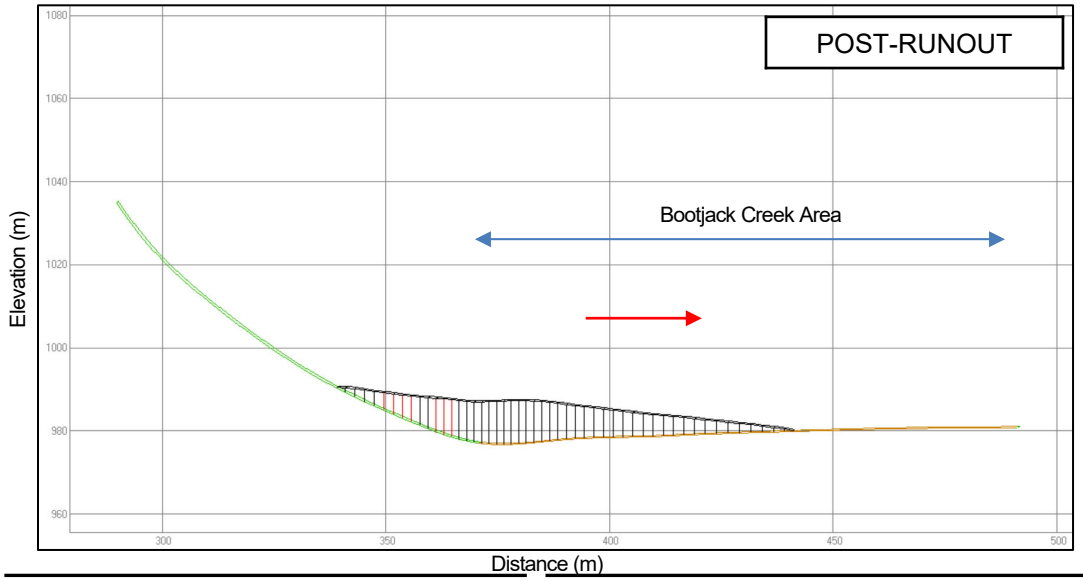
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

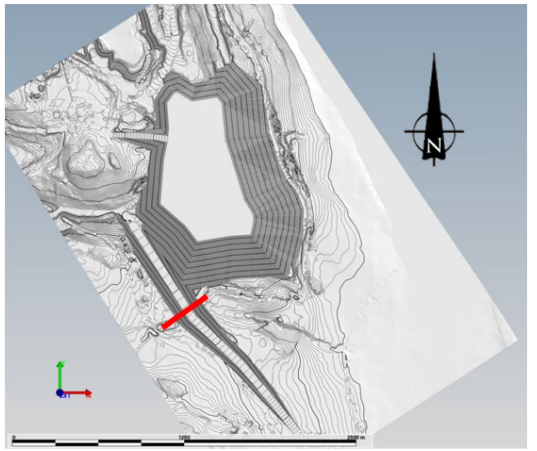
TITLE
RUNOUT ANALYSIS RESULT
SECTION 5 (EAST SIDE OF TAR) – PSEUDO-STATIC LOADING
BLOCK METHOD – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-8**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	70 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
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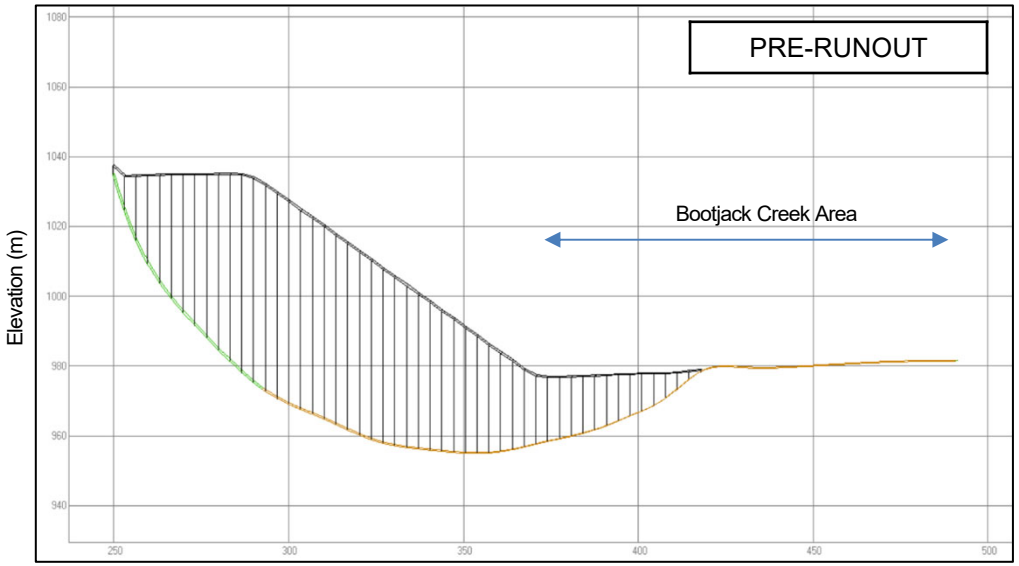
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

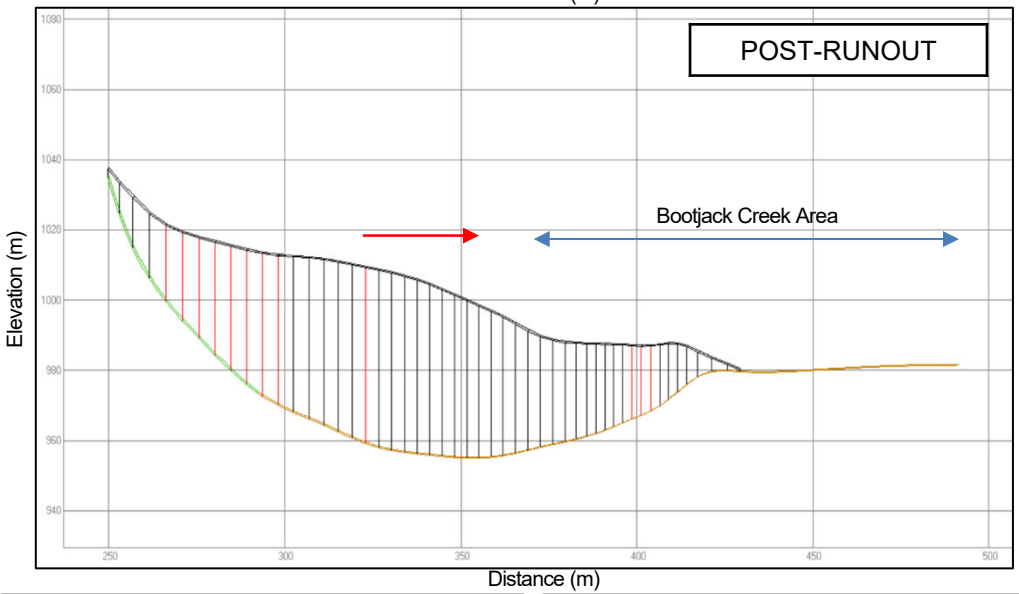
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

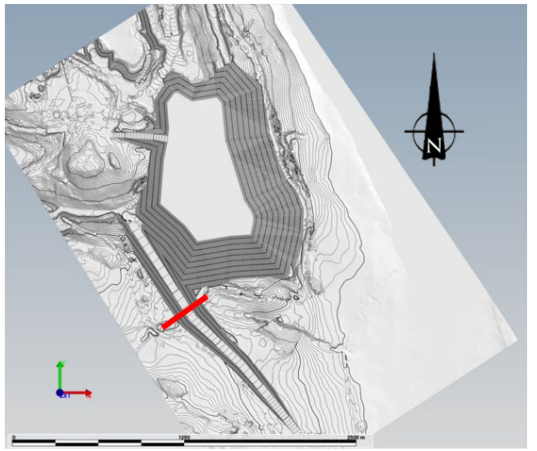
TITLE
RUNOUT ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-9**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m^3)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	60 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
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CONSULTANT
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YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
RUNOUT ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – PSEUDO-STATIC LOADING
FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-10**

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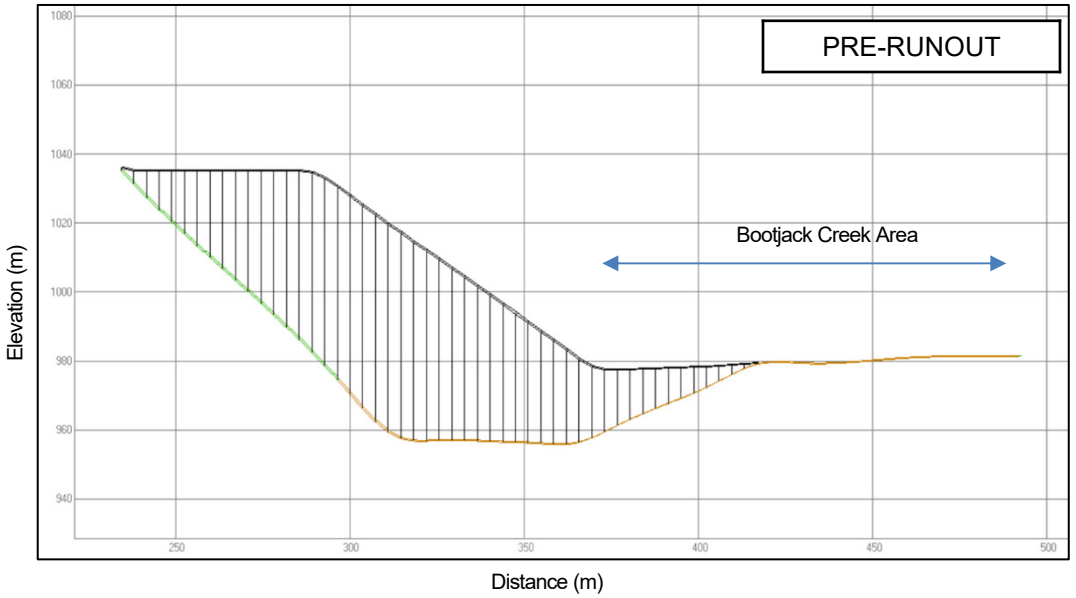

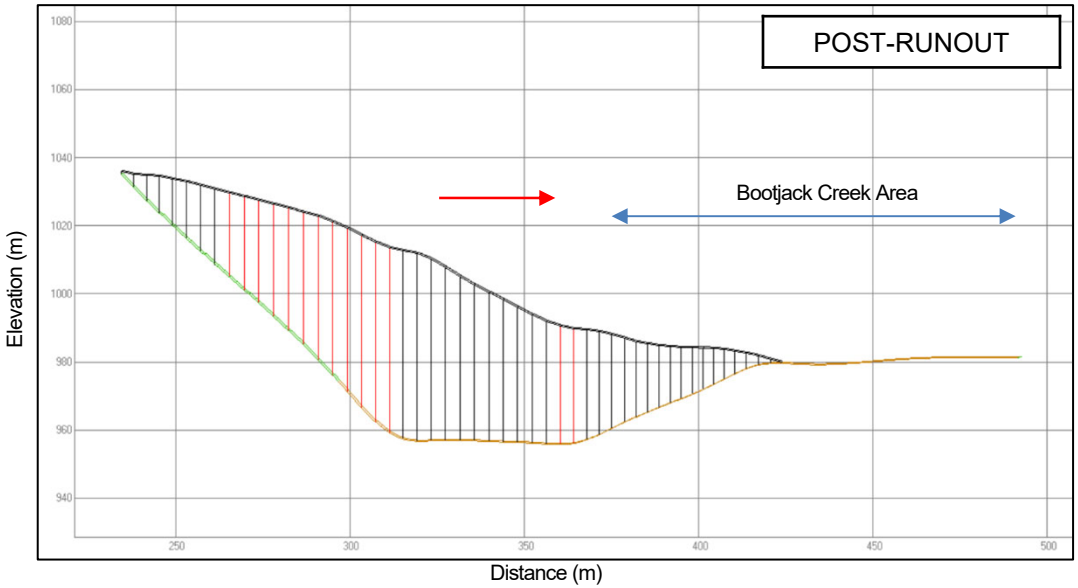

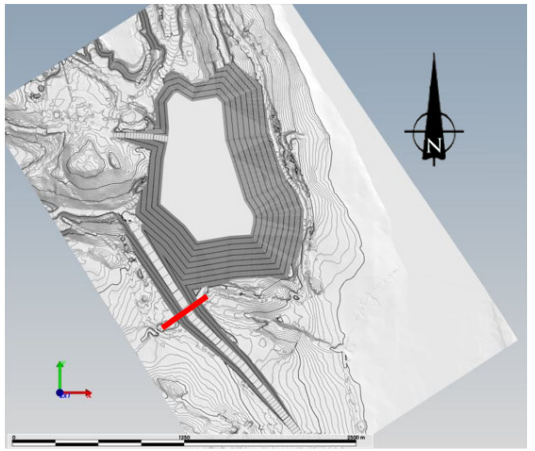

Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	51 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
RUNOUT ANALYSIS RESULT
SECTION 5 (WEST SIDE OF TAR) – PSEUDO-STATIC LOADING
BLOCK METHOD – FAILURE THROUGH GLU

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-11**

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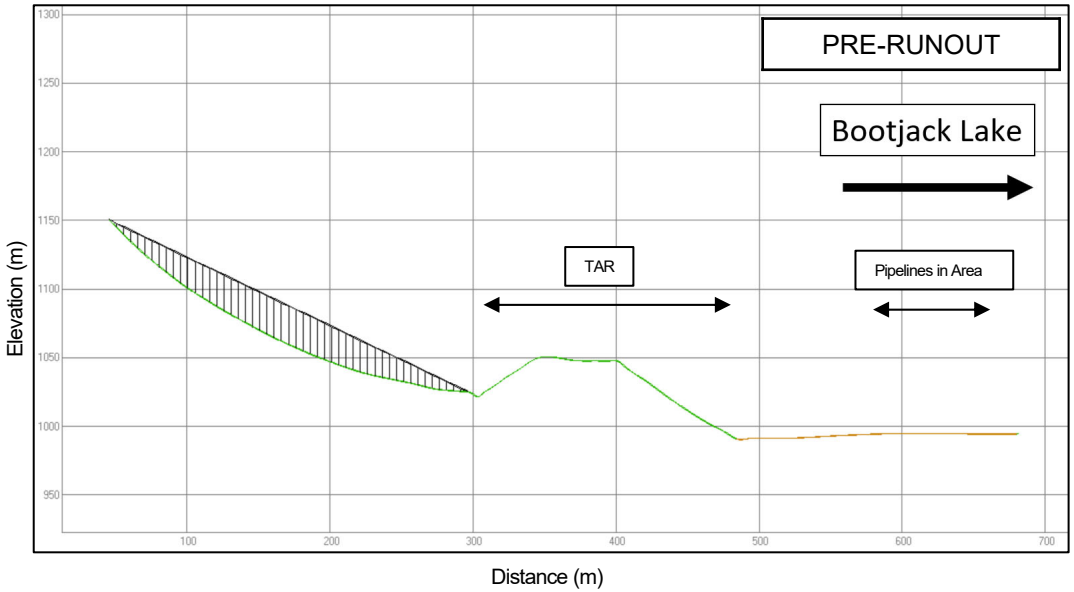

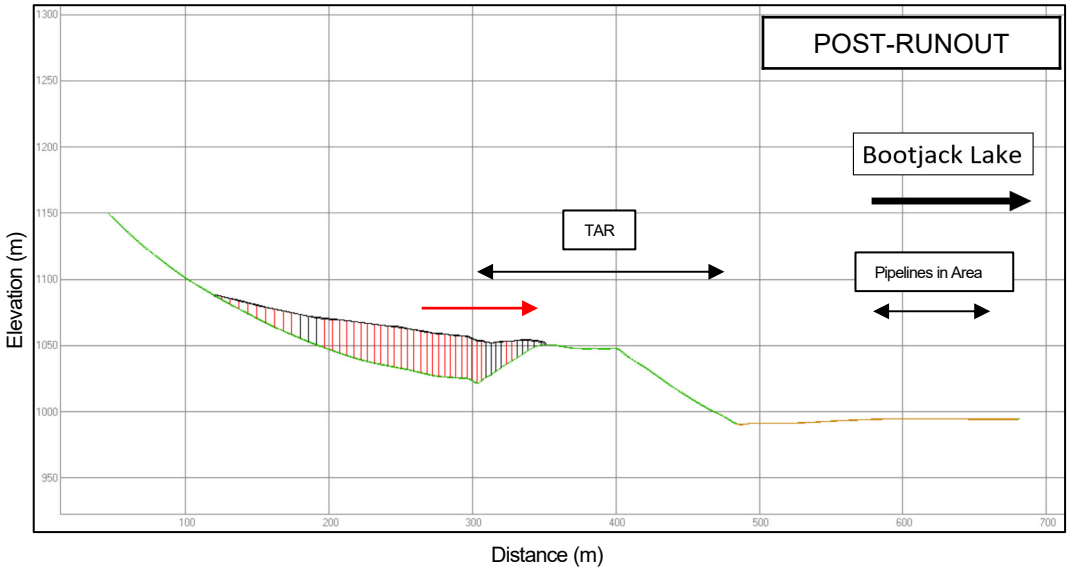

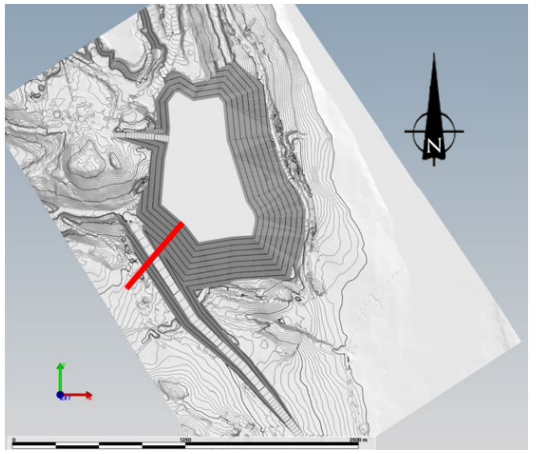

Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	55 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
RUNOUT ANALYSIS RESULT
SECTION 6 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-12**

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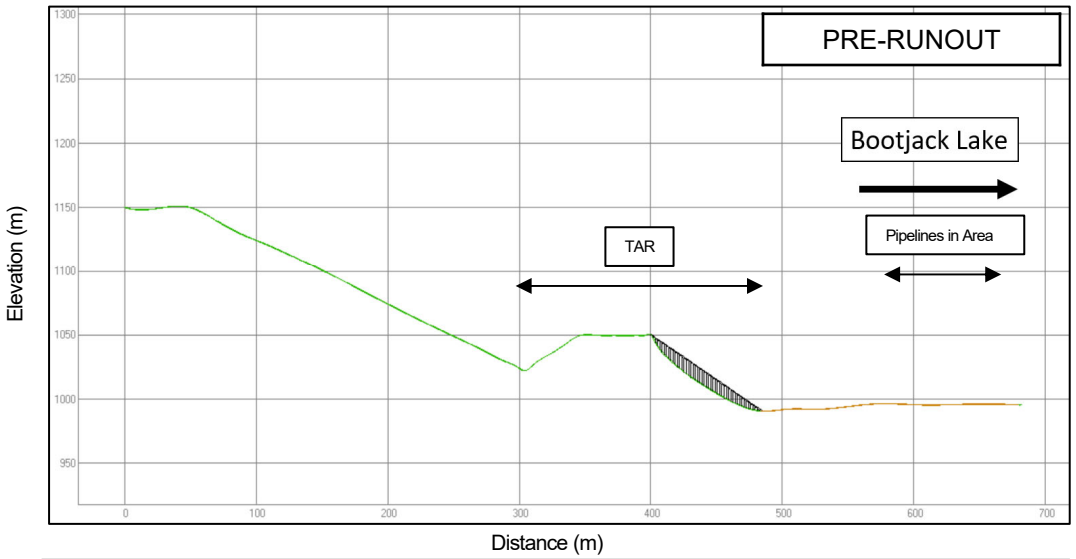
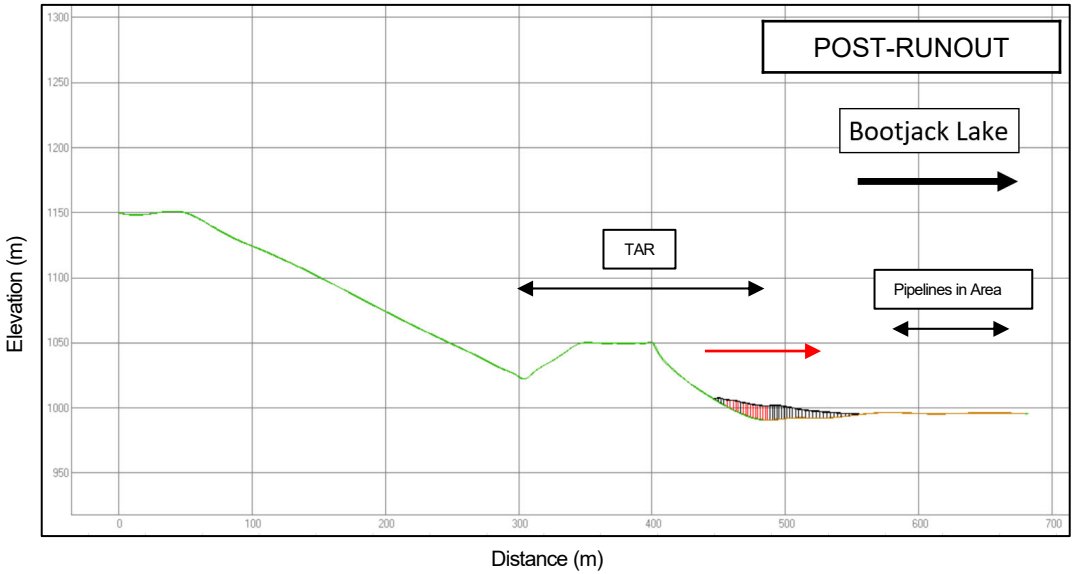
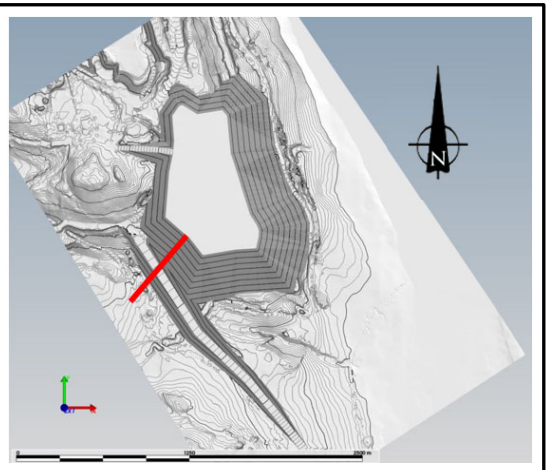






Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	72 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

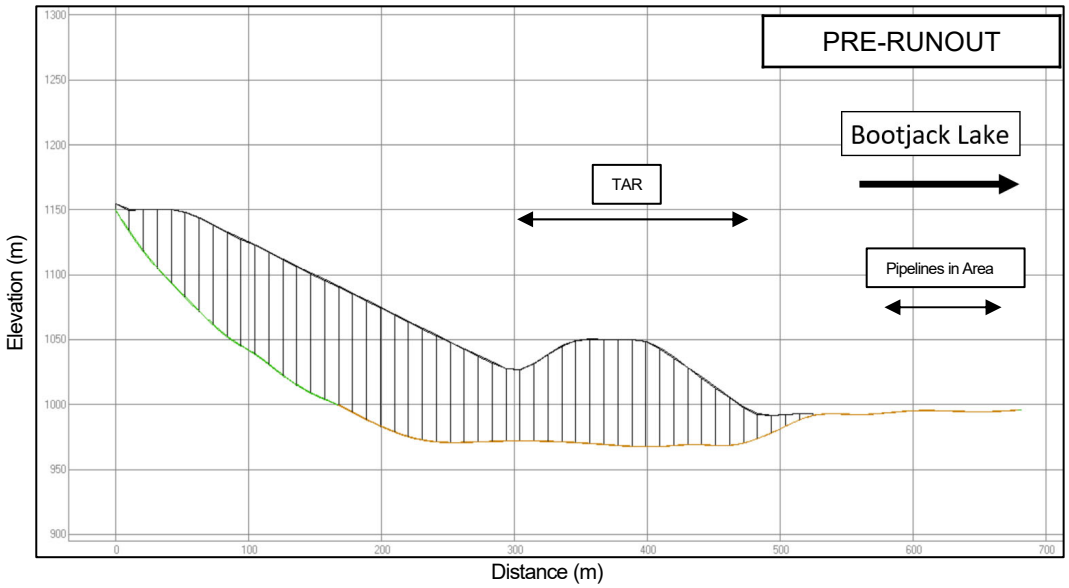
YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

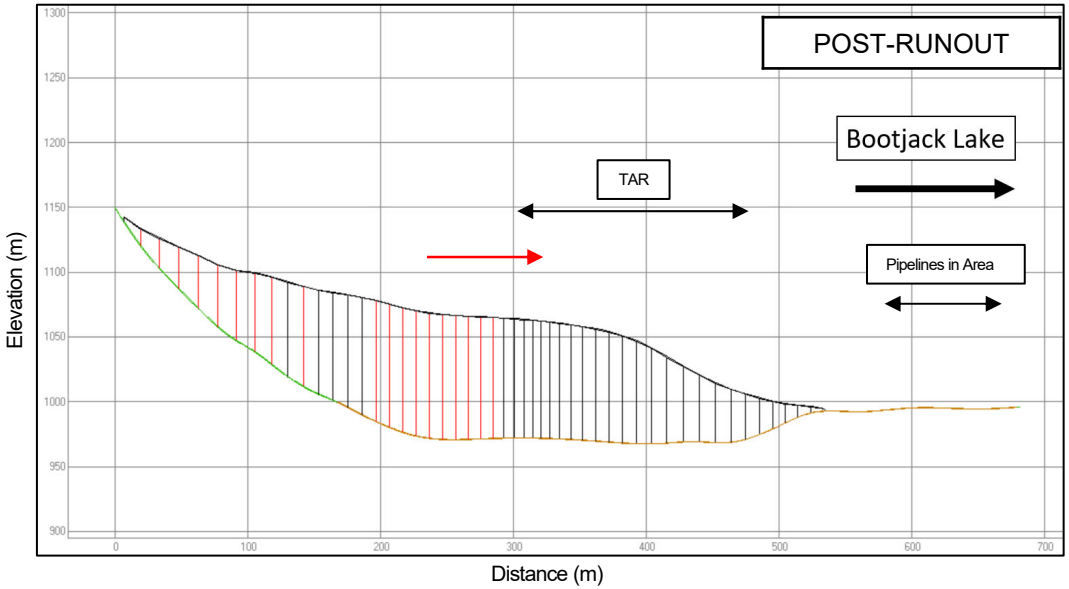
PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

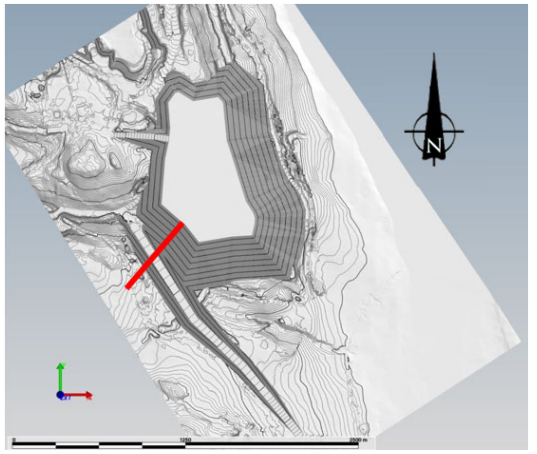
TITLE
RUNOUT ANALYSIS RESULT
SECTION 6 – PSEUDO-STATIC LOADING
FAILURE THORUGH TAR

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-13**

https://golderassociates.sharepoint.com/sites/10023g/90000%20SERDS%20Codisposal/Forms/AllItems.aspx?viewpath=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2FForms%2FAllItems%2Easpx&id=%2Fsites%2F10023g%2F90000%20SERDS%20Codisposal%2F91300%20Detail%20Design%2F91312%20Analyses%2F07%20Runout%2FDAN%2DW%20Models&viewid=2ed075ad%2Dde56%2D4318%2D8922%2D780be08c023c







Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	54 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
RUNOUT ANALYSIS RESULT
SECTION 6 – PSEUDO-STATIC LOADING
GLOBAL FAILURE

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	**92200/92292**	**0**	**F2-14**

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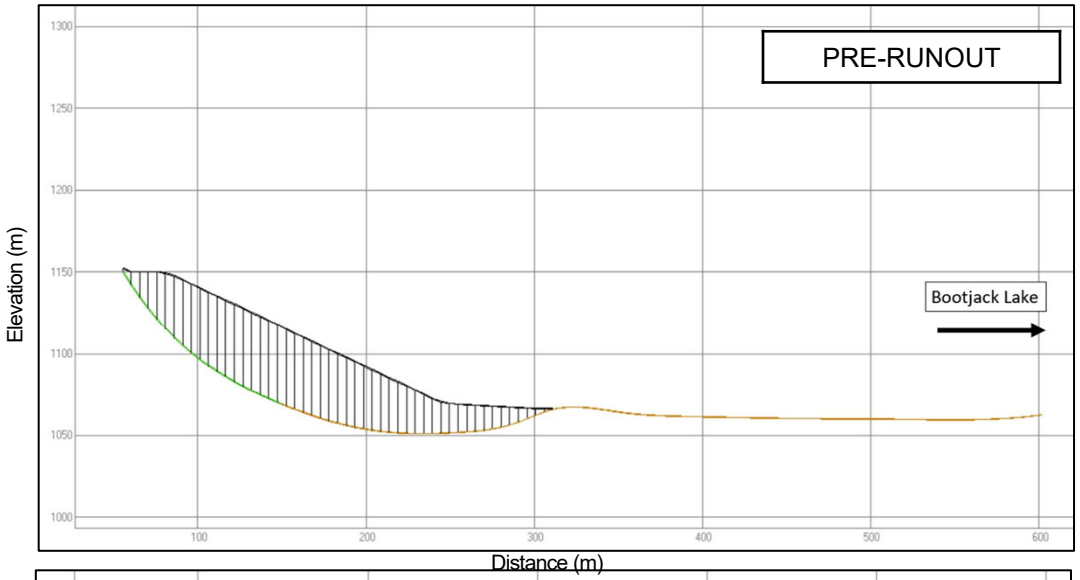
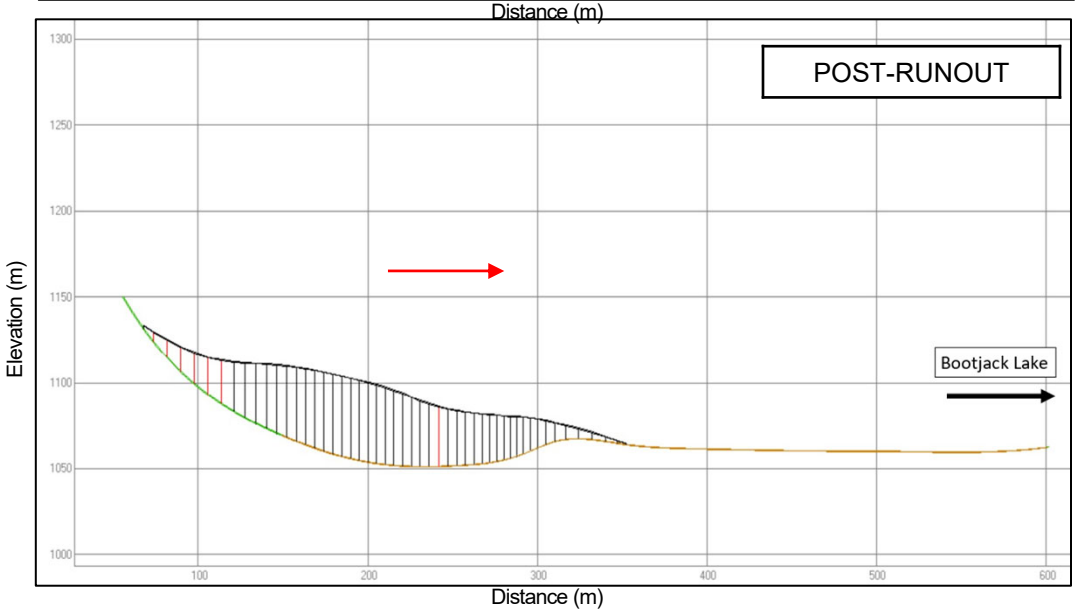
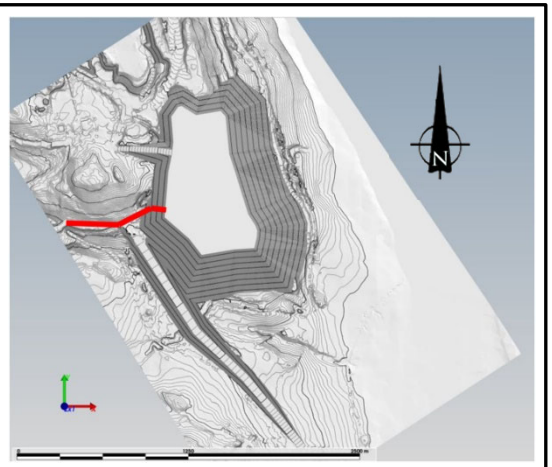






Material	Unit Weight (kN/m³)	Internal Friction Angle (degrees)	Dynamic Friction Angle (degrees)
Runout Path (Typical Foundation)	22.0	34.0	19.0
Waste Rock	19.6	37.0	18.5

RUNOUT DISTANCE	107 m

REFERENCES/NOTES

1. Runout distance refers to horizontal displacement at the toe.
2. Cross-section taken along haul ramp to west and Bootjack Lake

CLIENT
MOUNT POLLEY MINING CORPORATION

CONSULTANT
wsp

YYYY-MM-DD	2024-01-25
PREPARED	J. Graham
DESIGNED	J. Graham
REVIEWED	H. McLean
APPROVED	B. Wickland

PROJECT
SOUTHEAST ROCK DISPOSAL SITE
LIFE OF MINE DETAILED DESIGN

TITLE
RUNOUT ANALYSIS RESULT
SECTION 7 – PSEUDO-STATIC LOADING

PROJECT NO.	PHASE/TASK	REV.	FIGURE
23590671	92200/92292	0	F2-15

APPENDIX G

Code Requirements and Hazard Classification

G1 – Table of Concordance with BCHSRC and Permit M200

Source	Reference	Condition	Concordance	Comment
M-200	A.2.(f)	The Permittee is authorized under this permit (M-200) to store up to 3.6 Mt of tailings in the Southeast Rock Disposal Site (SERDS) Co-disposal Facility.	Yes	
	B.4.a.(i)	The Permittee shall ensure waste rock dumps are developed in accordance with the permitted design and recommendations prepared by a Professional Engineer.	Yes	Detail Design has been prepared by a Professional.
	B.4.b.(i)	The Permittee must ensure foundation preparation work for all waste rock dumps is completed as recommended by a Professional Engineer to provide a stable foundation for waste rock dump construction.	Yes	The design includes requirements for foundation preparation as recommended by a Professional Engineer.
	B.4.b.(ii)	The Permittee must ensure that a foundation inspection is completed by a Professional Engineer prior to waste rock dump construction to confirm that unsuitable materials have been removed from the footprint area and the foundation is suitable and as required by the design.	Yes	The design includes requirements that prepared foundations be inspected by a Professional Engineer, and the inspection documented.
	B.4.b.(iii)	The Permittee shall ensure that no weak, cohesive materials or snow is dumped on the outside edge of the waste rock dump platforms, unless approved by a Professional Engineer.	Yes	Condition is included in the design.
	B.4.b.(iv)	The Permittee must ensure waste rock dump platforms are constructed with a slope that promotes surface water drainage away from the waste rock dump face.	Yes	Condition is included in the design.
	B.4.b.(v)	The Permittee must ensure that a catch-bench of suitable width, or a designed impact berm, is established for boulder rollout protection in areas where waste rock dumps are to be constructed above active work areas or active roads.	Yes	Condition is included in the design.
	B.4.c.(i)	The Permittee shall develop and implement a waste rock dump monitoring program for all waste rock dumps.	Yes	See MO8 Rock and Overburden Spoil Dumping and Monitoring in Appendix B.
	C4.c.(ii)	The Permittee must ensure that the waste rock dump monitoring program includes: (g) Quantitative performance objectives (QPOs); (h) Tracking of advance rates in critical areas; (i) Rock quality monitoring where required (i.e. bog crossing); (j) Monitoring frequencies; (k) Frequency of engineering review of data; (l) Trigger-Action-Response plans (TARPs); (m) Monitoring data storage procedures; (n) Frequency of operational review and trigger threshold review; (o) Frequency of 3rd party data auditing; and (p) All other parameters recommended by the Professional Engineer.	Partial	Select items related to the design and operation are included in MO8 Rock and Overburden Spoil Dumping and Monitoring in Appendix B. Requirements for review of monitoring plans are included in the design report. Frequency of 3rd party audits are not included.
	C.4.c.(iii)	The Permittee shall ensure that waste rock dump development and monitoring is completed in accordance with the waste rock dump monitoring program.	Yes	See Appendix B.
	C.4.c.(iv)	The Permittee must ensure that the waste rock dump monitoring program is reviewed annually and updated as conditions warrant, or as directed by the Chief Inspector. The Permittee must submit the waste rock dump monitoring program to the Chief Inspector when updates are made.	Yes	The design includes a recommendation to review the monitoring program each year.
	C.4.d.(i)	The Permittee must ensure that waste dump design and stability performance for all dumps are reviewed annually and that this review includes an inspection of all dumps. The Permittee must submit an annual report documenting the review of waste dump design and stability performance to the Chief Inspector by March 31st of the year following review and inspection.	Yes	The design report includes this requirement.
	6.10.1	The Manager shall require a qualified person to The manager shall require a qualified person to: (1) prepare and maintain a plan pursuant to section 10 (1) of the Mines Act, consistent with good engineering practice for dumps, stockpiles, minor impoundments, roads, or ramps that are to be constructed as part of a dumping operation, the plan shall include monitoring for safety, (2) ensure that the construction is in accordance with the plan and any modification to the plan that has been approved by the manager, (3) communicate the accepted plan and any modifications to those persons responsible for and employed in the construction, (4) where material is to be dumped from a vehicle into a bin, raise, or other opening, provide and maintain a barrier of sufficient size and strength and anchored sufficiently to prevent the vehicle from inadvertently entering the bin, raise, or opening, (5) where dumping is prohibited or hazardous, prevent dumping by placing across the entrance a barrier sufficient to prevent access and a sign that reads “No entry for dumping purposes,” (6) appoint qualified persons to act as dump persons, and (7) prepare a procedure for controlling access to areas within the potential run-out zone of all dumps; this procedure will prohibit extended activities below active dumps and provide for a program of monitoring to allow work below inactive and dormant dumps, the procedure will include provisions for signage, work under adverse conditions and shall be reviewed annually.	Yes	See Appendix B for operating procedures.
	6.20.2	Dump Stability No person shall drive or operate a haulage vehicle in such a manner as to (1) dump from the vehicle at a location where the person has reasonable cause to believe that the ground is not capable of supporting the loaded vehicle, or (2) remove material from the bottom of a dump or stockpile if the person has reasonable cause to believe that a person may be injured as a result of the removal.		Not addressed in the design

Source	Reference	Condition	Concordance	Comment
M-200	6.20.3	Dumping Over Bank No person shall drive or operate a haulage vehicle, in such a manner as to dump material from the vehicle over a bank that is more than 3 m high, or dump within 3 m of the dump berm crest when the bank is more than 3 m high, except as described in section 6.10.1(4), unless a dump person is directing vehicles to the dumping position and a dump berm is in place.		See Appendix B
	6.20.4	Reverse When Dumping The driver of a haulage truck shall not (1) where the bank is more than 3 m high and the dumping position is within 3 m of the dump berm crest, move the vehicle backward to the dumping position or begin dumping until the driver has received directions from the dump person, (2) operate the vehicle in reverse for a distance greater than 4 truck lengths on a dump other than a bin, raise, or other opening referred to in section 6.10.1 (4), or (3) operate the vehicle in reverse for a distance greater than 4 truck lengths, on a stockpile, ramp, road, or a ramp or road that is under construction, unless the ramp or road has a positive gradient of more than 5% or the procedure is accepted as part of a permit application or work system approval.		See Appendix B
	6.20.5	Dump Person A dump person who is responsible for directing vehicles at a dump point shall (1) continually inspect the condition of the dump site and if abnormal or hazardous conditions are observed take corrective action to alleviate any danger to workers assigned to the dump, and (2) communicate immediately any abnormal or hazardous conditions found to the open pit shiftboss or, in the case of a mine with fewer than 6 employees, the supervisor.		See Appendix B
Health, Safety, and Reclamation Code	10.1.15 (a)	A major dump shall be designed in consideration of the Interim Guidelines of the British Columbia Mine Waste Rock Pile Research Committee.	Yes	The design criteria include BCWRPRC (1991).
	10.1.15 (b)	A major dump shall be designed so as to allow for re-contouring such that final reclamation is consistent with the approved end land use.	Yes	The slopes are 2H:1V which will allow recontouring.
	10.5.5	Major dumps shall be operated and monitored in accordance with the Interim Guidelines of the British Columbia Mine Waste Rock Pile Research Committee	Yes	The design includes monitoring requirements
	10.6.5	The long-term stability of exposed slopes of any major dump shall meet the criteria provided in the Interim Guidelines of the British Columbia Mine Waste Rock Pile Research Committee at the time of permitting or as amended by the chief inspector.	Yes	The design criteria include BCWRPRC (1991).
	10.7.11	Dumps shall be reclaimed to ensure long-term stability, and long-term erosion control.	Yes	The closure plan is to be developed and will include these considerations.

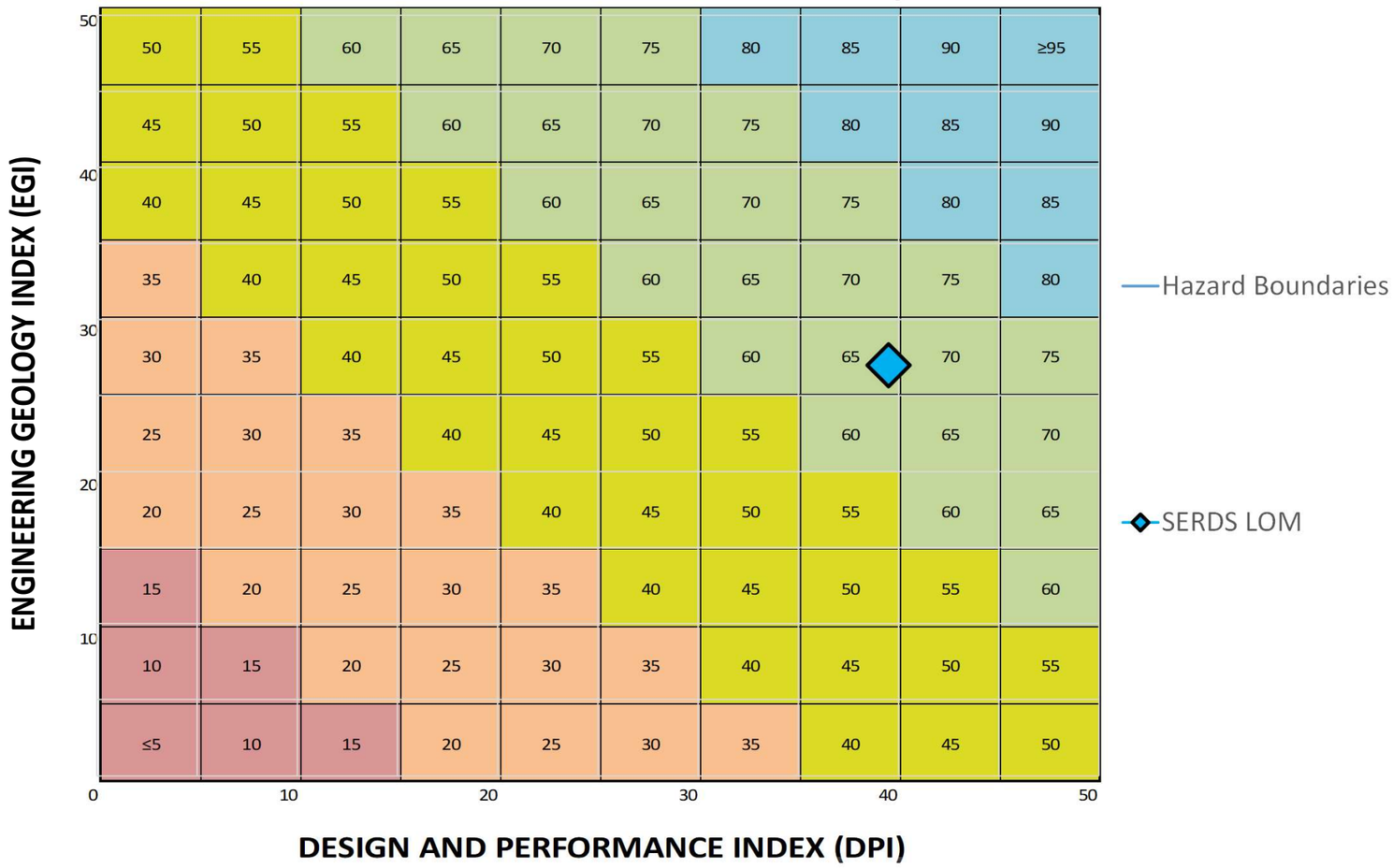
G2 – Waste Rock Dump Stability Rating and Hazard Classification

WASTE DUMP AND STOCKPILE STABILITY RATING AND HAZARD CLASSIFICATION (WSRHC) SYSTEM AFTER HAWLEY AND CUNNING (2017)

Project: 23590671
Client: Mount Polley Mining Corporation
Prepared by: HM 2023-11-01
Reviewed by: BEW 2023-11-02

Summary WRSHC Results

Waste Dump and Stockpile	Design and Performance Index (DPI)	Engineering Geology Index (EGI)	Waste Dump and Stockpile Stability Rating (WSR)	Waste Dump and Stockpile Hazard Class (WHC)
SERDS LOM	39.5	27	66.5	II



WASTE DUMP AND STOCKPILE STABILITY RATING AND HAZARD CLASSIFICATION (WSRHC) SYSTEM AFTER HAWLEY AND CUNNING (2017)

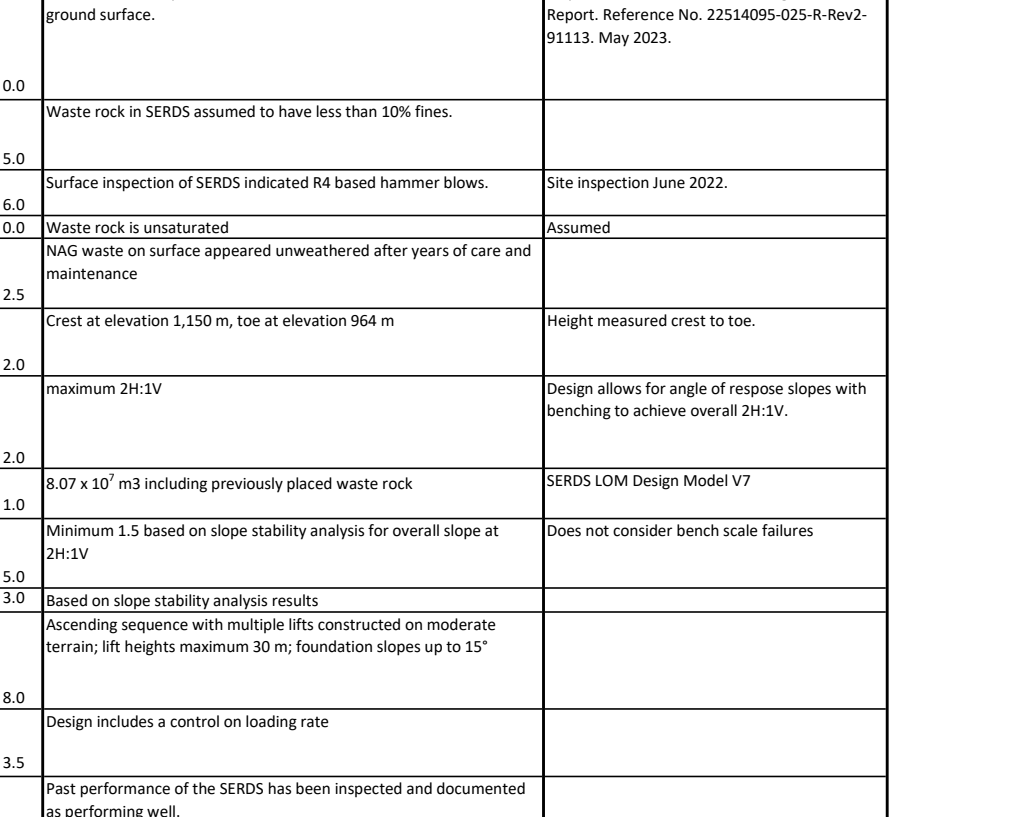
		SCRP	Rating	Notes	Source
Regional Setting	**Seismicity**	Very Low	2.0	Design earthquake PGA = 0.048 g, 1 in 2,475 year return period. The 1 in 1000 year event PGA is 0.026 g.	WSP. 2023. Site-specific seismic hazard assessment Mount Polley TSF Site, British Columbia. Prepared for WSP Canada Inc. Redmond Washington: WSP USA Inc. Reference No. 31404975.000; 01 February 2023.
	Total Annual Precipitation: Equivalent Rainfall	350-1000 mm	4.0	Annual average precipitation = 612 mm	Golder. 2022. Climate Baseline Update. Reference No. 22514095-066-R-Rev0-31547; 30 August 2022
Foundation Conditions	**Average overall foundation slope angle**	5-15°	4.0	The original topography of LOM SERDS area has maximum foundation slopes of 5 to 15 degrees	Longitudinal profile views of various options
	Foundation Shape	Gentle convex slope	1.0	Built on a nose hill with gentle slopes	Original site topography
	Overburden Type	Type IV	3.0	Till with measured friction angle of 34 degrees	Golder. 2023. 2021/2022 Southeast Rock Disposal Site Geotechnical Investigation Factual Report. Reference No. 22514095-025-R-Rev2-91113. May 2023.
	Overburden Thickness (m)	>5	0.0	Overburden thickness ranges from 11 - 20 m of till, glaciofluvial and glaciolacustrine deposits over bedrock bsaed on drilling and testpit investigations. Deposts of glaciofluvial and glaciolacustrine range from 1 - 5 m in thickness total.	Golder. 2023. 2021/2022 Southeast Rock Disposal Site Geotechnical Investigation Factual Report. Reference No. 22514095-025-R-Rev2-91113. May 2023.
	Undrained Failure Potential	Low	-2.5	Based on firm to very stiff till foundation	Golder. 2023. 2021/2022 Southeast Rock Disposal Site Geotechnical Investigation Factual Report. Reference No. 22514095-025-R-Rev2-91113. May 2023.
	Foundation Liquefaction Potential	Negligible	0.0	Firm to very stiff till	Golder. 2023. 2021/2022 Southeast Rock Disposal Site Geotechnical Investigation Factual Report. Reference No. 22514095-025-R-Rev2-91113. May 2023.
	Bedrock	Type C	2.0	Weathered bedrock presents as sand in borehole investigations using a sonic drill rig.	Golder. 2023. 2021/2022 Southeast Rock Disposal Site Geotechnical Investigation Factual Report. Reference No. 22514095-025-R-Rev2-91113. May 2023.
	Groundwater	High	0.0	Based on groundwater within 0.3 to 16.3 m of ground surface in the SERDS area. Two piezometers in GLU indicated heads above the ground surface.	Golder. 2023. 2021/2022 Southeast Rock Disposal Site Geotechnical Investigation Factual Report. Reference No. 22514095-025-R-Rev2-91113. May 2023.
Material Quality	**Gradation**	Coarse	5.0	Waste rock in SERDS assumed to have less than 10% fines.	
	Intact Strength and Durability	Type 4	6.0	Surface inspection of SERDS indicated R4 based hammer blows.	Site inspection June 2022.
	Material Liquefaction Potential	Negligible	0.0	Waste rock is unsaturated	Assumed
	Chemical Stability	Neutral/moderate	2.5	NAG waste on surface appeared unweathered after years of care and maintenance	
Geometry and Mass	**Height**	Moderate	2.0	Crest at elevation 1,150 m, toe at elevation 964 m	Height measured crest to toe.
	Overall Fill Slope Angle	25-30°	2.0	maximum 2H:1V	Design allows for angle of respose slopes with benching to achieve overall 2H:1V.
	Volume and Mass	Medium	1.0	8.07 x 10^7 m3 including previously placed waste rock	SERDS LOM Design Model V7
Stability Analysis	**Static Stability - Factor of Safety**	1.3-1.5	5.0	Minimum 1.5 based on slope stability analysis for overall slope at 2H:1V	Does not consider bench scale failures
	Dynamic Stability - Factor of Safety	>1.15	3.0	Based on slope stability analysis results	
Construction	**Construction Method**	Method V	8.0	Ascending sequence with multiple lifts constructed on moderate terrain; lift heights maximum 30 m; foundation slopes up to 15°	
	Loading Rate	Moderate	3.5	Design includes a control on loading rate	
Performance	**Stability Performance**	Very Good	15.0	Past performance of the SERDS has been inspected and documented as performing well.	

SERDS LOM Facility WRSHC Results

Regional Setting	6
Foundation conditions	7.5
Material Quality	13.5
Engineering Geology Index (EGI)	27

Geometry and Mass	5
Stability Analysis	8
Construction	11.5
Performance	15
Design and Performance Index (DPI)	39.5

Waste Dump and Stockpile Stability Rating (WSR)	66.5
Waste Dump and Stockpile Hazard Class (WHC)	II



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APPENDIX 4-6: TAILINGS ACCESS ROAD

REPORT

Review of the Proposed Tailings Access Road (TAR)

Mount Polley Mine

Submitted to:

Mount Polley Mining Corporation

PO Box 12
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Submitted by:

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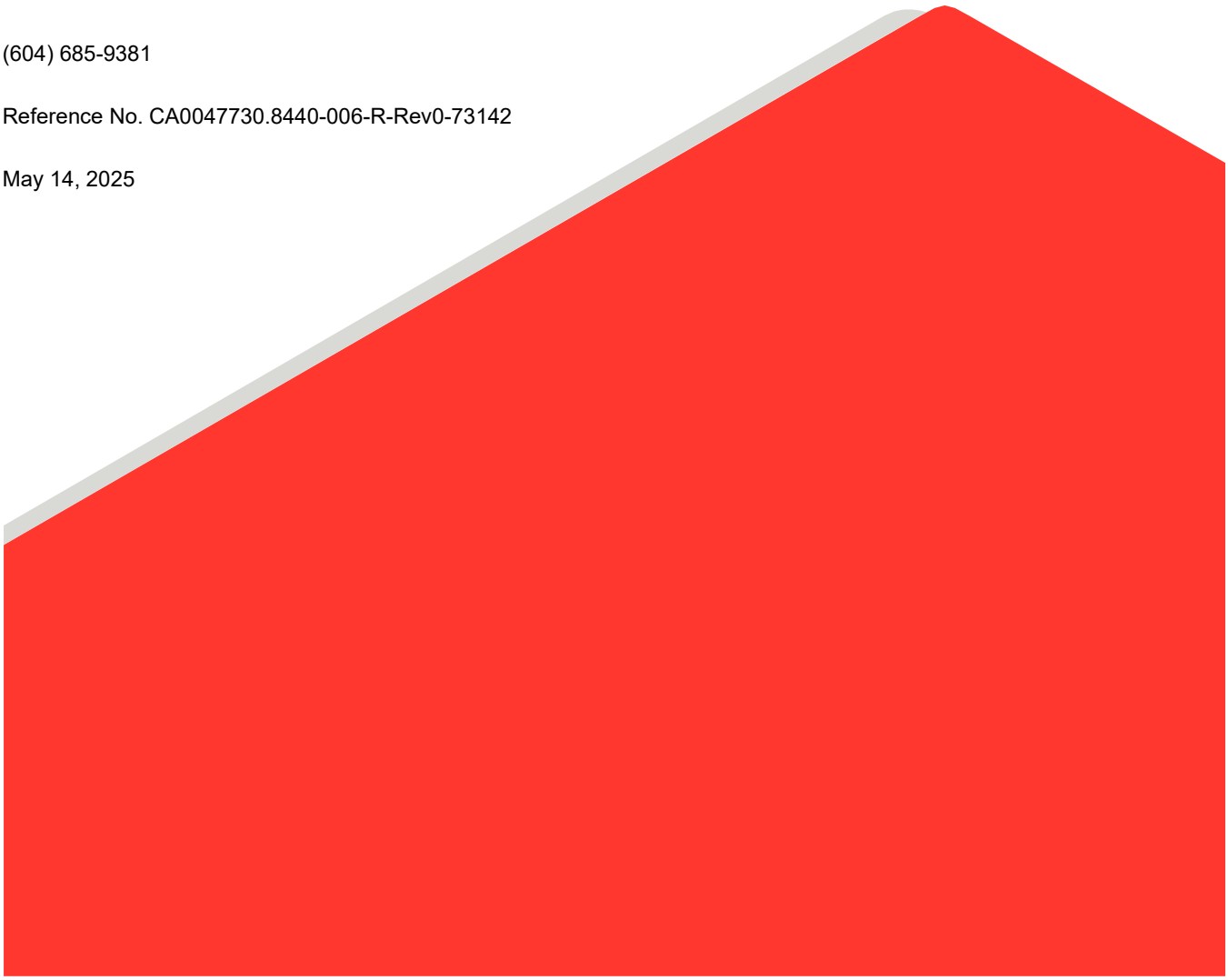
Reference No. CA0047730.8440-006-R-Rev0-73142

May 14, 2025



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Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. The number of testing and/or sampling locations may not be sufficient to determine all the factors that may affect construction methods and costs. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

Overall conditions can only be extrapolated to an undefined limited area around these testing and sampling locations. The conditions that WSP interprets to exist between testing and sampling points may differ from those that actually exist. The accuracy of any extrapolation and interpretation beyond the sampling locations will depend on natural conditions, the history of Site development and changes through construction and other activities. In addition, analysis has been carried out for the identified chemical and physical parameters only, and it should not be inferred that other chemical species or physical conditions are not present. WSP cannot warrant against undiscovered environmental liabilities or adverse impacts off-Site.

This limitations statement is considered an integral part of this report.

Table of Contents

STUDY LIMITATIONS ..... **ii**

1.0 INTRODUCTION **1**

2.0 PROPOSED TAILINGS ACCESS ROAD **1**

3.0 ENGINEERING GEOLOGY **3**

3.1 Regional Geomorphological Setting 3

3.2 Previous Field & Laboratory Investigations 3

3.2.1 SERDS Foundation Geological and Geotechnical Investigation 5

3.2.2 Site Investigations 5

3.2.3 Geological Model 5

3.2.4 Geotechnical Model 6

3.2.5 Geotechnical Properties Summary 6

4.0 TAR STABILITY CONSIDERATIONS AND DESIGN CRITERIA **7**

4.1 TAR Stability Considerations 7

4.2 Design Factor of Safety 7

4.3 Seismic Hazard Evaluation 9

4.4 Material Strength Parameters and Assumptions 9

5.0 GEOTECHNICAL ANALYSES **11**

5.1 Stability Analyses 11

5.1.1 Methodology 11

5.1.2 Results 11

5.2 Runout Analyses 12

5.2.1 Methodology 12

5.2.2 Results 13

6.0 ROCK ROLLOUT ASSESSMENT **15**

7.0 SETTLEMENT **17**

8.0 CONSTRUCTION AND OPERATIONAL CONSIDERATIONS **17**

8.1 Topsoil Management 17
8.2 Drainage 17
8.3 Road Geometry 17
8.4 Traffic Management 17
8.5 Interaction of the TAR with infrastructure 17
9.0 SUMMARY AND RECOMMENDATIONS 19
10.0 CLOSURE 19
REFERENCES 21

TABLES

Table 1: Summary of Interim Guidelines for Minimum Design Factors of Safety (BCMWRPRC 1991) 7
Table 2: Suggested Stability Criteria Factors of Safety (Hawley and Cunning 2017) 8
Table 3: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023) 9
Table 4: Material Strength Parameters Used in the TAR Stability Assessment 9
Table 5: TAR Stability Analysis Results 11
Table 6: Material Parameters for Runout Analyses 13
Table 7: Summary of Runout Analyses Results 13

FIGURES

Figure 1: Overall Mine Site and Tar Position 2
Figure 2: 2021/2022 SERDS Geotechnical Investigation Borehole Locations 4
Figure 3: Runout Shadow Figure 14
Figure 4: Rock Rollout Shadow 16
Figure 5: Proposed Tar Position and Adjacent Infrastructure 18

APPENDICES

APPENDIX A
Cross-section Review

APPENDIX B
Geotechnical Analyses

1.0 INTRODUCTION

This document outlines a design review conducted by WSP Canada Inc. (WSP) for Mount Polley Mining Corporation (MPMC), focusing on the stability of the proposed Tailings Access Road (TAR) at Mount Polley Mine, BC, including assessments of stability, runout potential, and rock rollout.

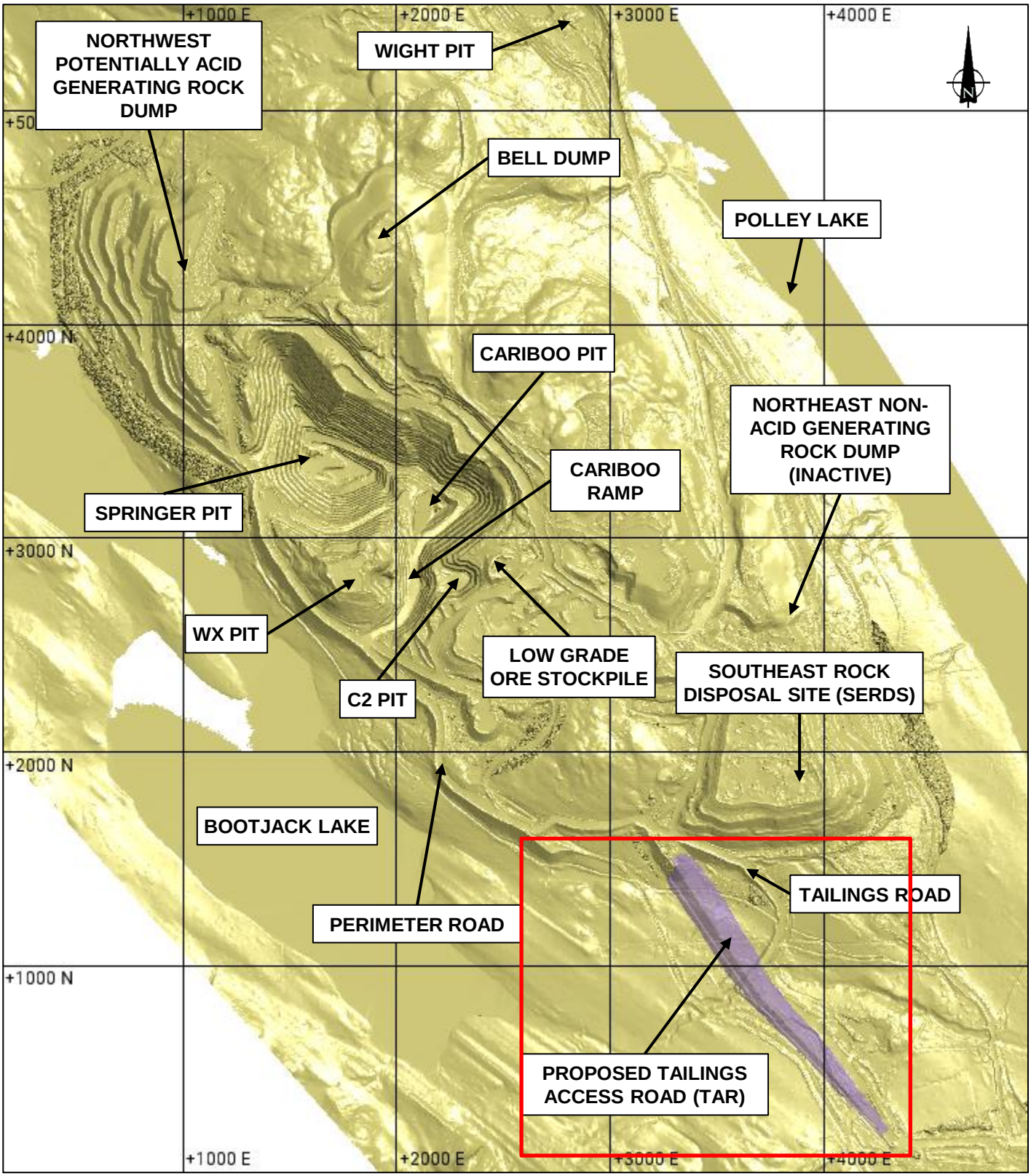
This report provides the following:

- a summary of the site and foundation conditions
- a description of the proposed TAR design
- a seismic hazard evaluation
- the results of the geotechnical analyses and rock roll-out assessment
- construction and monitoring considerations

The Study Limitations Section, which precedes this text, is an integral part of the report and must be read in conjunction with it. Excluded from this scope (and remaining the responsibility of MPMC) are surface water management systems, powerlines, pipelines, programs for waste rock geochemistry classification/verification and water quality updates.

2.0 PROPOSED TAILINGS ACCESS ROAD

An overall plan of the mine site, showing the location of the mining facilities, the pits, and the proposed TAR footprint, is shown in Figure 1.



REFERENCES AND NOTES

1. MT. POLLEY MINE SITE SURFACE: 2023 FLYOVER SIMPLIFIED_SURF.dxf. (PROVIDED BY CLIENT ON 09-01-2024)
2. TAR DESIGN SURFACE: 2025 TAR with Lower Tailing Line Design Clipped.dxf. (PROVIDED BY CLIENT ON 23-01-2025)

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	MEW
REVIEWED	GPK
APPROVED	YA

TITLE
PROPOSED TAILINGS ACCESS ROAD (TAR) ON TOPOGRAPHY SURFACE
PLAN VIEW

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

The proposed TAR will be located at the south end of the mine site. The access road will be constructed across low-lying areas of the Bootjack Creek and will join the existing haul road located to the southwest of the SERDS The TAR will have an elevation of approximately 1,050 m at the north end and will grade down to approximately 975 m elevation around mine grid 210 N. The proposed TAR will be approximately 870 m long and will have an average crest width of 40.2 m. The access road will be a haul road with 2-way traffic. The TAR will be constructed with non potentially acid generating waste rock.

3.0 ENGINEERING GEOLOGY

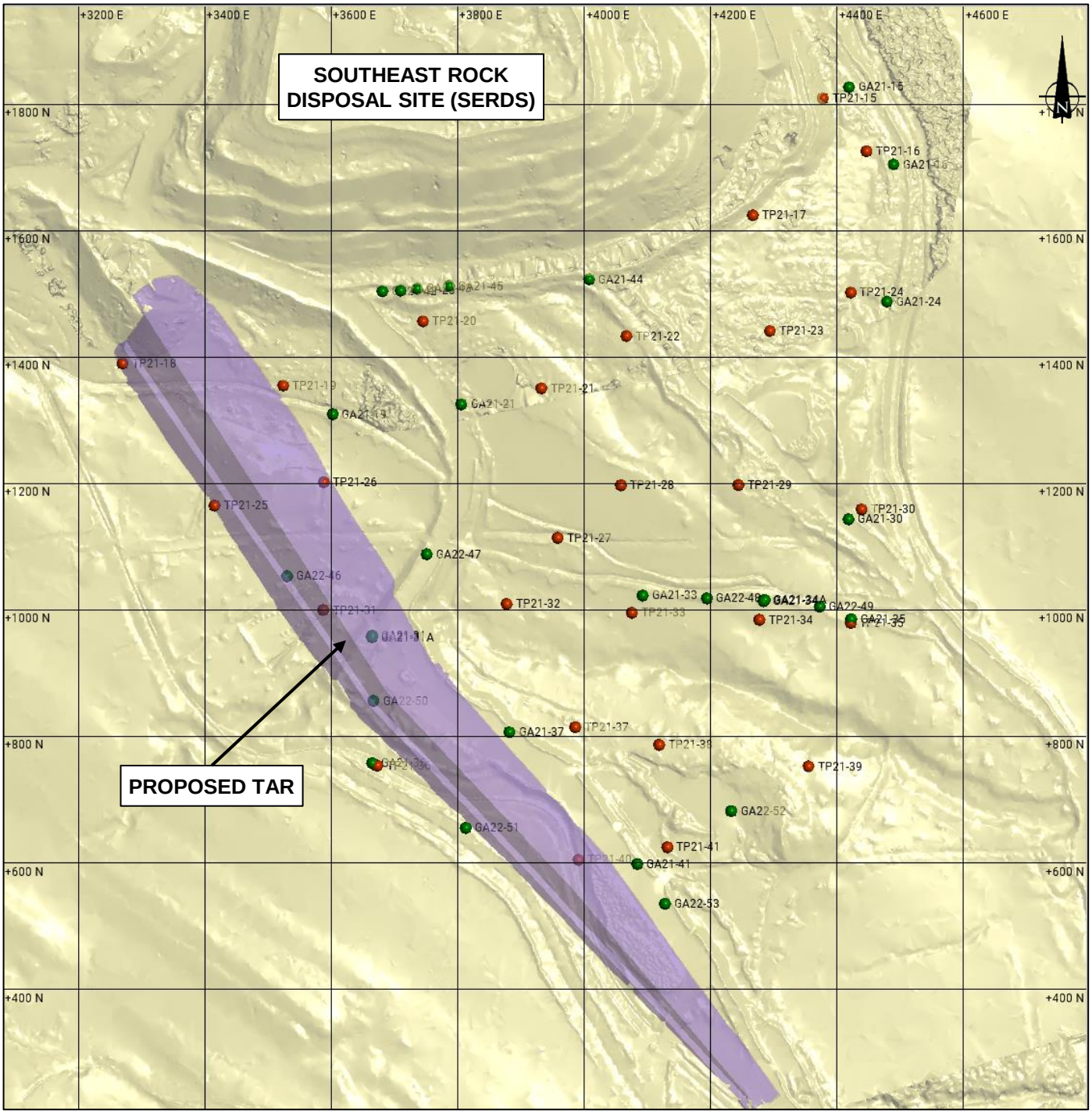
Topography and foundation conditions are discussed in this section of the report. Soil, bedrock and groundwater conditions are discussed based on the review of field and laboratory investigations that were previously carried out by WSP\Golder within or in the vicinity of the proposed TAR.

3.1 Regional Geomorphological Setting

The Mount Polley Mine area, is characterized by low mountains and hummocky bedrock dissected by streams and lakes, the Mount Polley Mine area's drainage is largely controlled by bedrock topography (Holland, 1976; McAndless & Taylor, 2006). Most regional stream valleys flow northwest, eventually draining southward into the lowlands north of Quesnel Lake's western arm (Bichler & Bobrowsky, 2003). This entire region was covered by the Cordilleran Ice Sheet during the late Pleistocene (Clague, 1987, 1988). The resulting gently undulating topography and surface features of the Quesnel Lake lowlands are products of glacial erosion, Quaternary sedimentation, and the development of a glacial lake environment during ice advance, retreat, and meltwater phases (Bichler & Bobrowsky, 2003). Evidence from glacial landforms indicates a prevailing northwesterly ice flow direction for the ice sheet in the Quesnel region (Clague, 1988; Bichler & Bobrowsky, 2003; Hashmi et al., 2015).

3.2 Previous Field & Laboratory Investigations

Field investigations were completed in 2021 and 2022 within the vicinity of the TAR footprint as part of the Southeast Rock Disposal Site (SERDS) geotechnical investigation (WSP 2023) as shown in Figure 2. The results of the field investigation and its applicability to the TAR are discussed in the following sections.



LEGEND	
●	2021/2022 TEST PITS
●	2021/2022 SONIC BOREHOLES

REFERENCES AND NOTES

1. MT. POLLEY MINE SITE SURFACE: 2023 FLYOVER SIMPLIFIED_SURF.dxf. (PROVIDED BY CLIENT ON 09-01-2024)
2. TAR DESIGN SURFACE: 2025 TAR with Lower Tailing Line Design Clipped.dxf. (PROVIDED BY CLIENT ON 23-01-2025)

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	MEW
REVIEWED	GPK
APPROVED	YA

TITLE
2021/2022 SERDS GEOTECHNICAL INVESTIGATION
BOREHOLE LOCATIONS
PLAN VIEW

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

3.2.1 SERDS Foundation Geological and Geotechnical Investigation

Section 3.0 of the SERDS LOM (WSP 2023) discusses in thorough detail the geological and geotechnical conditions of the TAR foundation, and this report maintains to outline a summary of their findings.

3.2.2 Site Investigations

The objectives of the investigations were twofold: first, to characterize the foundation conditions and establish the depth to bedrock; second, to evaluate the presence of Glaciolacustrine Units, which are weak layers that risk causing instability upon loading.

- The site geology interpretation relied on several investigations including:
  - Recent work in the SERDS area involving 33 test pits, 18 sonic boreholes (where pits couldn't reach bedrock), and lab testing.
  - Older test pits west of the SERDS area.

3.2.3 Geological Model

Based on the TSF area geologic model and investigation data (boreholes/test pits only), the site geology includes:

- Fills: Primarily waste rock.
- Topsoil.
- Glacial Deposits:
  - Till: Widespread (up to ~20 m thick), including basal and ablation types.
  - Glaciolacustrine Units (GLU): Interpreted as patchy/local, not as continuous layers. Found 0.3 m to 5.3 m thick within till in a few boreholes (~ 950-970 m elevation). The extent between boreholes is highly uncertain. The TAR footprint contains GLU thickness measurements from the adjacent boreholes are between 0.5 and 3 m.
  - Glaciofluvial (GF) Sediments: Layers up to ~4 m thick encountered.

Bedrock: Variably weathered, includes monzodiorite, monzonite, volcanics, and breccias.

Key Considerations & Uncertainties include:

- Geologic interpretations between investigation points carry uncertainty.
- GLU distribution is particularly uncertain due to its patchy nature.
- As-built surveys for the Pond and Southeast Pits were unavailable; analyses used historical drilling data near these areas, noting potential influence.
- The GLU found in the SERDS LOM (950-970 m) is at a higher elevation than the nearest upper GLU in the TSF area (<925 m).

3.2.4 Geotechnical Model

Key Investigation Findings & Interpretations:

- No GLU was found in any of the 33 test pits.
- GLU was logged in 5 boreholes, but subsequent interpretation suggested some occurrences were discontinuous pockets or till.
- A 3 m thick GLU deposit found beneath the Tailings Access Road (TAR) was included in stability analyses.

3.2.5 Geotechnical Properties Summary

- Till: Encountered in all test pits and boreholes. Generally, a firm to very stiff, low to medium plasticity, well-graded mix of clay, silt, sand, gravel, and cobbles. Design friction angle is 34° (c'=0 kPa), based on the lower bound of direct shear tests on remoulded samples.
- Glaciolacustrine Units (GLU): Interpreted as discontinuous pockets or layers ranging from centimetres to over 5 m thick. Typically laminated, firm to very stiff silty clay (sometimes sandy/gravelly) with medium plasticity (comparable to till) and high fines content (85-90%). Tested friction angles on remoulded samples ranged from~25° to 34°. The undrained shear strength properties are peak $Su/\sigma'v0 = 0.21 \bullet (OCR)^{0.65}$ and 86 kPa.
- Glaciofluvial (GF) Sediments: Encountered in 5 boreholes, mostly east of SERDS. Generally well-graded, non-cohesive sand and gravel with low fines (<12%).
- Bedrock: Encountered below overburden in most locations. Showed a weathered zone 3.5-6.6 m thick. Sonic drilling disturbance made differentiating weathered/intact rock difficult, with recovered weathered samples primarily well-graded gravel/sand with low fines.

Several sections were cut across the TAR to identify critical cross-sections for the slope stability and runout analyses and are presented in Appendix A.

4.0 TAR STABILITY CONSIDERATIONS AND DESIGN CRITERIA

4.1 TAR Stability Considerations

The Factor of Safety (FOS) is defined as the ratio of available foundation shear resistance under the toe wedge to the forces trending to produce translation of the toe. This potential failure mechanism will be applicable to portions of the TAR that are constructed over thin overburden soils that are underlain by bedrock.

4.2 Design Factor of Safety

The selection of design factors of safety for stability of the TAR are based on:

- The TAR is a purpose-built haul road providing access from the pit to the TSF. While not classified as a waste rock dump, its principal construction material will be waste rock generated by mining activities. Consequently, adopting a conservative approach, the project applies established waste rock design and stability guidelines to the TAR.
- The stability performance of waste rock dumps previously developed at Mount Polley as the construction of the TAR will predominantly be from waste rock.
- WSP established slope stability design acceptability criteria for the proposed TAR design. This determination was based on Hawley and Cunning (2017) and the British Columbia Mine Rock and Overburden Piles Research Committee (BCMWRPRC) Investigation and Design Manual (1991) as seen in Table 1.

Table 1: Summary of Interim Guidelines for Minimum Design Factors of Safety (BCMWRPRC 1991)

Stability Condition	Factor of Safety	
Stability of Dump Face	Case A	Case B
Short-term	1.0	1.0
Long-term	1.2	1.1
Overall Stability (Deep-seated stability)		
Short-term (Static)	1.3 to 1.5	1.1 to 1.3
Long-term (Static)	1.5	1.3
Long-term (Pseudo-static)	1.1 to 1.3	1.0
Case A • Low level of confidence in critical analysis parameters. • Possibly unconservative interpretation of conditions, assumptions. • Severe consequences of failure. • Simplified stability analyses method (chart, simplified method of slices). • Stability analyses method poorly simulates physical conditions. • Poor understanding of potential failure mechanisms.		
Case B • High level of confidence in critical analysis parameters. • Conservative interpretation of conditions, assumptions. • Minimal consequences of failure. • Rigorous stability analyses method. • Stability analyses method simulates physical conditions well. • High level of confidence of critical failure mechanism(s).		

The British Columbia Ministry of Water, Resources and Power Project Review Committee (BCMWRPRC, 1991) guidelines recommend a range of Factor of Safety (FoS) values based on the level of confidence in several factors: understanding of stability controls, input parameters, analysis methods, and consequences of failure.

For this analysis, a "**Case B**" level of confidence is deemed appropriate for all considered factors, based on the following justifications:

- Input Parameters: Extensive experience with waste rock dump construction at MPMC, combined with site-specific investigations and testing, provides a good understanding of geologic and hydrogeologic conditions, as well as the range of material strength parameters. The chosen strength parameters are considered reasonably conservative, further increasing confidence.
- Instability Mechanisms: Experience at Mt. Polley and other porphyry mines in the region offers a strong understanding of potential instability mechanisms in waste rock dumps.
- Analysis Methods: Rigorous limit equilibrium analyses, a well-established and accepted method, were employed for the stability assessment.
- Consequences of Failure: Safety analyses indicate minimal off-site risk from the proposed TAR: potential runout failures are not expected to reach Bootjack Lake (preventing environmental impact), nor would they affect any downslope roads or infrastructure (TSF, critical pipelines and powerlines).

Although haul road users (personnel and vehicles) face some operational risk, personnel exposure is minimized as no permanent stations will be located at the slope base or on the road.

The Hawley and Cunning (2017) suggested FOS based on the consequence of failure and the confidence in the factors that will control stability are shown in Table 2 with the grey highlighted box indicating the chosen category.

Table 2: Suggested Stability Criteria Factors of Safety (Hawley and Cunning 2017)

Consequences	Confidence	Minimum Static Factor of Safety	Minimum Pseudo-static Factor of Safety
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

Notes (abridged; for the complete stability acceptance criteria, refer to Hawley and Cunning 2017).

Consequence:

Low—Waste rock dumps and stockpiles with overall fill slopes less than 25 degrees 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 250 mm) annual precipitation.

Moderate—Waste rock dumps with overall fill slopes less than 30 degrees and less than 250 m high or response 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 (less than 250-1000 mm) annual precipitation.

High—Waste rock dumps with overall fill slopes more than 30 degrees 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 (more than 5 years) exposure for sites subject to high (1,000-2,000 mm) annual precipitation or intensive rainy season(s).

Confidence:

Low—limited confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Poorly defined or optimistic input parameters; high data variability.

Moderate—moderate confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Input parameters adequately defined, moderate data variability.

High—high confidence in foundation conditions, waste rock properties, piezometric pressures, analyses technique or potential instability mechanism(s). Well-defined, conservative input parameters adequately defined, low data variability.

4.3 Seismic Hazard Evaluation

Mount Polley Mine is in an area of relatively low seismicity in British Columbia. WSP developed a site-specific seismic hazard model for the Mount Polley Mine based on historical seismicity and a review of geological and paleo-seismological features (WSP USA 2023). Earthquake ground motion parameters calculated from the site-specific hazard model are presented in Table 3.

Table 3: Mount Polley Mine Seismic Hazard Values (after WSP USA 2023)

Exceedance Probability	Return Period[(1)] (Years)	Peak Ground Acceleration (g)
5% in 50 years	1,000	0.026
2% in 50 years	2,475	0.048 (Design Value)[(2)]
1% in 50 years	5,000	0.076
0.1% in 50 years	10,000	0.116

(1) Return periods are not exact representations of annual exceedance probabilities.

(2) Half the peak ground acceleration of the was applied as the design value horizontal coefficient in the stability analyses (Hynes-Griffin and Franklin 1984).

4.4 Material Strength Parameters and Assumptions

Material properties used for the proposed TAR stability assessments are based on the results from the SERDS 2021/2022 field investigations and laboratory testing (WSP 2023) and experience with waste rock material in the NW-PAG and the SERDS. The waste rock selected for constructing the TAR will be non-acid generating. Although the specific particle size distribution (gradations) of the waste rock sourced from the Cariboo-Springer Pit has not been formally measured or predicted, its characteristics have been observed over several years. Furthermore, it is assumed that the waste rock within the TAR structure will remain unsaturated. The material strength properties used in the stability assessment are shown in Table 4.

Table 4: Material Strength Parameters Used in the TAR Stability Assessment

Material	Unit Weight (kN/m^3)	Strength Model	Reference
Waste Rock	19.6	Non-linear strength function $\tau = 1.726\sigma^{0.899}$	Strength function of Leps (1970) for average quality rockfill, which will be most likely sourced from the Cariboo-Springer Pit which matches observations of waste rock placed in the SERDS
GLU	20	Mohr-coulomb Friction Angle, φ' = 24.6° Cohesion, c = 9.2 kPa Peak $Su/\sigma'v0 = 0.21 \bullet (OCR)^{0.65}$ Undrained Shear Strength = 86 kPa	Derived from testing (WSP 2023)

Table 4: Material Strength Parameters Used in the TAR Stability Assessment

Material	Unit Weight (kN/m^3)	Strength Model	Reference
Till	22	Mohr-coulomb Friction Angle, φ' = 34° Cohesion, c = 0 kPa	Derived from testing (WSP 2023)
Bedrock	Impenetrable		

The selection of slope stability analysis parameters was based on the following key assumptions:

- Waste Rock: Assumed to be free draining, meaning a water table or excess pore pressures are unlikely to develop within this material.
- Topsoil: Excluded from the stability assessment, as it is presumed this layer will be stripped from the TAR's foundation footprint before construction.
- Bedrock: Considered competent and strong enough to prevent foundation failure through the rock itself. It is therefore modelled as an infinitely strong, impermeable basal layer in the stability analyses.

5.0 GEOTECHNICAL ANALYSES

This section contains the slope stability and runout analyses for the proposed TAR design. The slope stability assessment was conducted on five cross sections at various positions along the TAR. The runout analyses utilized stability results from Section 900, as this section was deemed the worst-case scenario due to its high elevation combined with the presence of a GLU layer in the foundation.

5.1 Stability Analyses

The following sub-sections present the methodology and the results of the slope stability analyses. The design criteria for stability are presented in Section 4.0.

5.1.1 Methodology

Two-dimensional limit equilibrium slope stability analyses were completed using GeoStudio 2023.1 a commercially available software. Factor of safety (FoS) values were calculated using the Morgenstern-Price method.

- Cross section locations and analysis sections are presented with analysis results in Appendix A. Stability analyses consider foundation conditions based on the geologic model discussed in Section 3.0.
- Material parameters for foundation materials and waste rock are from Section 4.0.
- Analyses consider static loading and pseudo-static loading. Earthquake loading for pseudo-static analyses was based on values presented in Table 3, with half the peak ground acceleration applied as a horizontal coefficient in the stability analyses (presented with the analyses results in Appendix B).
- The groundwater table was assumed as a phreatic surface at surface of the till or foundation soils (ground surface) below the waste rock, and beyond the toe. The assumption is conservative with respect to stability.

5.1.2 Results

Results of stability analyses are presented in Table 5. The results indicate the design meets criteria for stability for initial and long-term conditions under static and pseudo-static loading.

The undrained state is critical for fine-grained soils like the clays typically found in GLU deposits, as it represents a scenario where there is no dissipation of pore water pressure under applied loads, which can significantly influence the soil's shear strength. All analyses and checks performed considering this undrained GLU layer have met the required safety factors and performance standards, indicating that the foundation is considered acceptable and robust for the anticipated loading conditions in the presence of this soil type.

Table 5: TAR Stability Analysis Results

Cross Section / Analysis Case	Loading Condition	Minimum Factor of Safety Criteria	Factor of Safety	Appendix B, Figure No.
Cross Section 100 (East side of TAR)	Static	1.2-1.3	2.0	B-1
	Pseudo-static	1.0-1.05	1.9	
Cross Section 100 (West side of TAR)	Static	1.2-1.3	3.9	B-2
	Pseudo-static	1.0-1.05	3.7	
Cross Section 400 (East side of TAR)	Static	1.2-1.3	1.7	B-3
	Pseudo-static	1.0-1.05	1.6	

Table 5: TAR Stability Analysis Results

Cross Section / Analysis Case	Loading Condition	Minimum Factor of Safety Criteria	Factor of Safety	Appendix B, Figure No.
Cross Section 400 (West side of TAR)	Static	1.2-1.3	2.3	B-4
	Pseudo-static	1.0-1.05	2.2	
Cross Section 900 (East side of TAR) with GLU – Drained	Static	1.2-1.3	1.5	B-5
	Pseudo-static	1.0-1.05	1.4	
Cross Section 900 (East side of TAR) with GLU – Undrained	Static	1.2-1.3	1.5	B-6
	Pseudo-static	1.0-1.05	1.4	
Cross Section 900 (West side of TAR) with GLU – Drained	Static	1.2-1.3	2.0	B-7
	Pseudo-static	1.0-1.05	1.9	
Cross Section 900 (West side of TAR) with GLU – Undrained	Static	1.2-1.3	2.0	B-8
	Pseudo-static	1.0-1.05	1.9	
Cross Section 1300 (East side of TAR)	Static	1.2-1.3	1.6	B-9
	Pseudo-static	1.0-1.05	1.5	
Cross Section 1300 (West side of TAR)	Static	1.2-1.3	1.9	B-10
	Pseudo-static	1.0-1.05	1.8	
Cross Section 1600 (East side of TAR)	Static	1.2-1.3	1.6	B-11
	Pseudo-static	1.0-1.05	1.5	
Cross Section 1600 (West side of TAR)	Static	1.2-1.3	1.7	B-12
	Pseudo-static	1.0-1.05	1.6	

5.2 Runout Analyses

Runout analyses were completed to determine the potential zone of impact around the proposed TAR in the event slope instability and runout failure occurred.

5.2.1 Methodology

Runout analyses were completed using the two-dimensional runout modelling software DAN-W Release 10 (O. Hungr, Geotechnical Research Inc. 2008). This software is based on solving hydrodynamic equations which are applied to conservation of momentum for thin slices of a flowing mass. The analyses were only conducted for the deep-seated failures of cross section 900 for both the east and west sides of the TAR. Cross section 900 was identified as the most critical section based on the slope stability analyses for potential failure through the weak GLU layer below the proposed TAR.

The material properties used for the runout analyses are summarized in Table 6 and were determined using typical values based on previous runout analyses on waste rock failures and typical values determined from case studies compiled by Golder & Hungr (1994).

An internal friction angle of 37 degrees for the waste rock is used in the analyses based on the results of a review of shear strength data of the material. The internal friction angle is only applied to the slide mass. A dynamic or basal friction angle of 33.5 degrees was assigned for the waste rock and is based on back analyses of waste rock dump failures (Golder & Hungr 1994, Hawley and Cunning 2017). For the foundation materials, two conditions were considered in the runout analyses:

- Dry conditions – typical friction value of 19 degrees (Golder & Hungr 1994).
- Wet conditions – typical friction value of 14 degrees (Golder & Hungr 1994).

The 2D DAN-W runout models are run with 50 elements (default), no energy loss in the failed material, and with vertical slices.

Table 6: Material Parameters for Runout Analyses

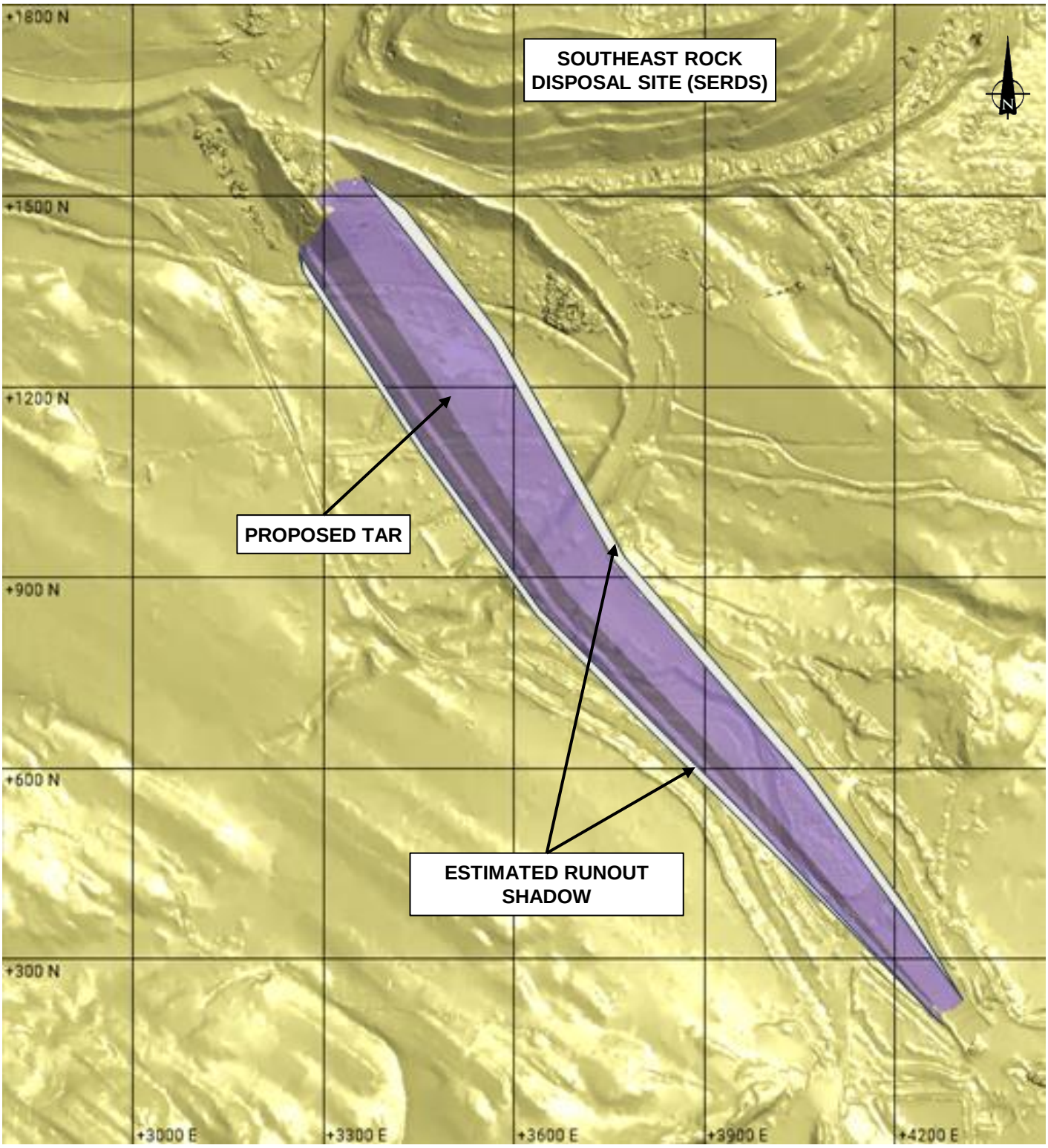
Material	Model Condition	Unit weight (kN/m^3)	Internal Friction Angle (°)	Dynamic Friction Angle (°)
Waste Rock	Dry (Internal)	19.6	37.0	33.5
Foundation Material	Dry (Basal)	20.0	34.0	19.0
	Wet (Basal)			14.0

5.2.2 Results

Table 7: Summary of Runout Analyses Results

Cross section / Analysis Case	Pseudo-Static Loading Factor of Safety	Runout Distance	Appendix B, Figure No.
Cross section 900 (East side of TAR)	1.5	Dry: 10 m	B-13
		Wet: 17 m	
Cross section 900 (West side of TAR)	2.0	Dry: < 1 m	B-14
		Wet: 2 m	

The results of the runout analyses (Table 7) are to be considered in conjunction with the results of the slope stability analyses. The results of the slope stability analyses indicate that the TAR achieves design criteria for slope stability. The results of the runout analyses indicate that failure debris would not have impact on the surrounding infrastructure (Figure 3).



REFERENCES AND NOTES

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CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	MEW
REVIEWED	GPK
APPROVED	YA

TITLE
RUNOUT SHADOW FOR PROPOSED TAR DESIGN
PLAN VIEW

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**3**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

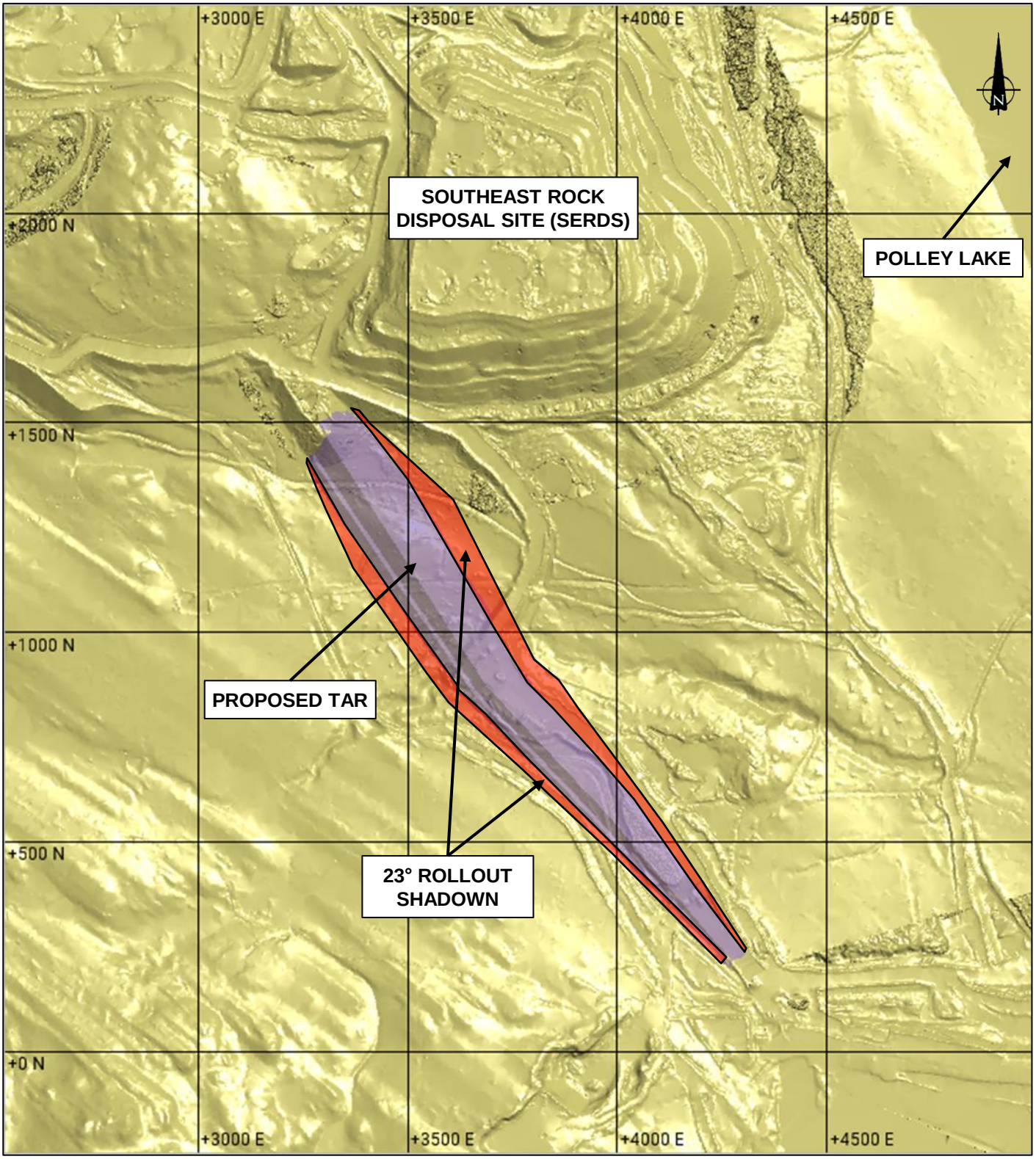
Based on the slope stability performance of the waste rock dumps at MPMC over the past 25 years, and on the slope stability analyses carried out for the proposed TAR design, there is a low probability that a failure would occur due to the relatively high FOS indicated by the slope stability analyses. To help reduce the potential for failure debris to runout to waste management infrastructure, it is recommended that only good quality rock be placed on the outside face of the TAR, and that all poor-quality material be placed in the centre of the TAR.

6.0 ROCK ROLLOUT ASSESSMENT

A rock rollout assessment was conducted for the proposed TAR design, focusing on the west and east sides above the tailings containment ditch and culverts. The assessment assumed rocks originate from the crest of the TAR, representing the highest elevation and therefore the maximum potential energy for rollout.

The predicted rollout distances are based on projecting a 23-degree shadow from the crest of either side of the TAR to the topography (Golder & Hungr 1994). The rollout shadow for the proposed TAR design is plotted over the topography in Figure 4. The portions of the TAR without a lift should potentially have a berm at the toe of the TAR.

The rock rollout potential of the proposed TAR should be continuously monitored. If rocks reach other infrastructure despite the efforts of constructing free dump piles, it may be necessary to consider additional rock rollout mitigation structures or to adjust the design of the TAR.



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CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	MEW
REVIEWED	GPK
APPROVED	YA

TITLE
ROCK ROLLOUT SHADOW FOR PROPOSED TAR DESIGN
PLAN VIEW

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

7.0 SETTLEMENT

Potential settlement issues related to site conditions primarily involve the foundation materials beneath the Tailings Access Road (TAR). These materials could consolidate under the load from waste rock placement, resulting in settlement that could potentially contribute to slope failure. Differential settlement might also occur due to variations in soil thickness, compressibility, and loading across the TAR footprint. However, the design does not include elements like liners or filters that are sensitive to such differential movements. Furthermore, significant settlement originating within the underlying bedrock is not considered credible, particularly as there are no known underground workings below the TAR that could cause subsidence. Considering these factors, significant settlement impacting the overall performance of the TAR is judged to be unlikely.

8.0 CONSTRUCTION AND OPERATIONAL CONSIDERATIONS

While the proposed TAR design is expected to have adequate slope stability during construction, specific measures are recommended to mitigate potential consequences should instability occur. To limit potential runout distance, it is advised that only good quality rock be placed on the outer dumping face, confining poor-quality material to the center or east side of the TAR. Additionally, constructing berms along the edge of the TAR is recommended to help contain rock rollout.

8.1 Topsoil Management

WSP will verify that Mount Polley has removed all topsoil and suitable reclamation materials from the proposed TAR footprint. To prevent water accumulation between the TAR toe and the windrow, which could lead to slope instability, the windrowed organic material must be moved back approximately 5 meters from the TAR footprint's toe.

8.2 Drainage

Mount Polley is to ensure proper drainage is essential to prevent water accumulation, which can weaken the road and lead to instability. Ditches, culverts, and cross-slopes must be designed to effectively channel water away from the road surface. Erosion control measures are vital to prevent sediment runoff.

8.3 Road Geometry

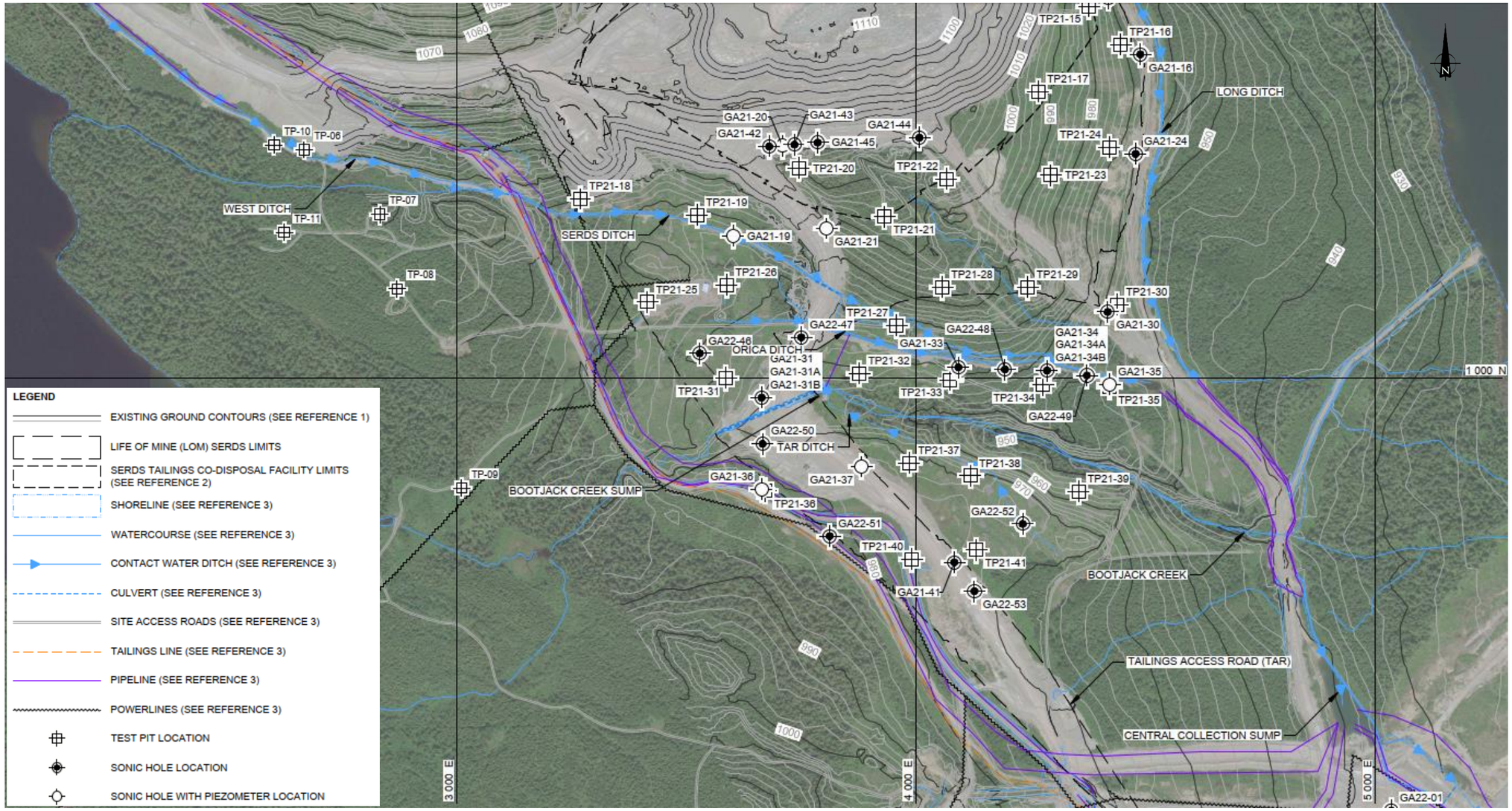
Road width, grades, and curve radii must be designed to accommodate the size and turning radius of haul trucks. Safe sight distances are essential to prevent collisions (Tannont and Regensburg 2001). Grades should be optimized to minimize fuel consumption and maximize truck efficiency.

8.4 Traffic Management

Safety berms, guardrails, and adequate lighting are essential to prevent accidents. Traffic management plans should be implemented to ensure safe vehicle movement. Regular inspections and maintenance are crucial to identify and address potential hazards.

8.5 Interaction of the TAR with infrastructure

As depicted in Figure 4, the infrastructure adjacent to the proposed TAR includes two culverts to be built by Mount Polley beneath it, and the Tailings Containment Ditch to its west. The TAR itself will end at the designed spillway within the tailings storage facility (TSF). Crucially, throughout the construction and operational phases, material originating from the TAR must be removed to ensure culverts and ditches remain unobstructed.



REFERENCES AND NOTES

1. EXISTING GROUND CONTOURS PROVIDED BY MPMC, FILE NAME: "1 m Contours.dxf"(RECEIVED 21 JULY 2021)
2. EXISTING SITE FEATURES PROVIDED BY MPMC, FILE NAME: "MtPolley2013-Pln.dwg" (RECEIVED: 5 SEPTEMBER 2014), FILE NAME: "211012 SERD Site Plan.dxf" (RECEIVED 12 OCTOBER 2021)
3. AERIAL PHOTO PROVIDED BY MPMC, FILE NAME: "MountPolley_21Jun2021_15cm_Colr.ecw" (RECEIVED: 27 SEPTEMBER 2021).

CLIENT
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LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	MEW
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

TITLE
POSITION OF THE PROPOSED TAR AND ADJACENT INFRASTRUCTURE

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

9.0 SUMMARY AND RECOMMENDATIONS

The slope stability analysis results for the proposed TAR design indicate that it will meet the design acceptance criteria for slope stability under static and pseudo-static loading conditions. The runout analyses results indicate that under wet foundation conditions, it is likely that failure debris would reach the Tailings Containment Ditch.

Recommendations for the proposed TAR construction include:

- All impacted critical mining infrastructure (Powerlines, TSF and pipelines) are to be relocated prior to the TAR construction.
- The interface of the TAR with the TSF infrastructure including roads, spillways, piping, and embankments is to be developed and finalized prior to placement of fills for the TAR.
- Surface water management systems are to be updated and implemented prior to operation of the TAR. The TAR will bury existing surface water collection ditching on the east and south sides. The system must accommodate the TAR.
- Construct berms at the edge of each catch-bench and free dump along the entire lift prior to constructing the next lift to limit rock rollout.
- Pre-shift operational inspections of the tip head are required to confirm the stability of the dumping and dozing area. Specifically check for the formation of tension cracks, ponding water, and significant observable settlement. Finding any of these necessitates applying additional operational controls and consulting with WSP.
- Readings from vibrating wire piezometer VW129092 in borehole GA21-31 are required as soon as TAR fill placement covers the borehole. This borehole contains an identified glacial lacustrine unit (GLU), and monitoring its excess pore water pressure during fill advancement provides an indication of potential instability. Regular review of the monitoring results by the engineering team is necessary.

10.0 CLOSURE

The reader is referred to the Study Limitations, which precedes the text and forms an integral part of this technical memorandum. The reader’s attention is specifically drawn to this information, as it is essential that it be followed for the proper use and interpretation of this report.

We trust this technical memorandum satisfies your current requirements. If you have any questions or require further assistance, please do not hesitate to contact the undersigned.

Signature Page

WSP Canada Inc.

2025-05-14

Yogendran Arunachellan
Geotechnical Specialist

Marc Rougier, P.Eng.
Senior Geotechnical Engineer

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Engineers & Geoscientists BC
Permit #1000200

YA/MR/na/anr

https://wsponline.sharepoint.com/sites/gld-10023g/2025 deliverables1/ca0048300.8430 deliverables/002_issued/006-r-73142-mount polley tailing access road/rev0/ca0047730.8430-006-r-rev0-73142-mount polley tailings access road 14may_25.docx

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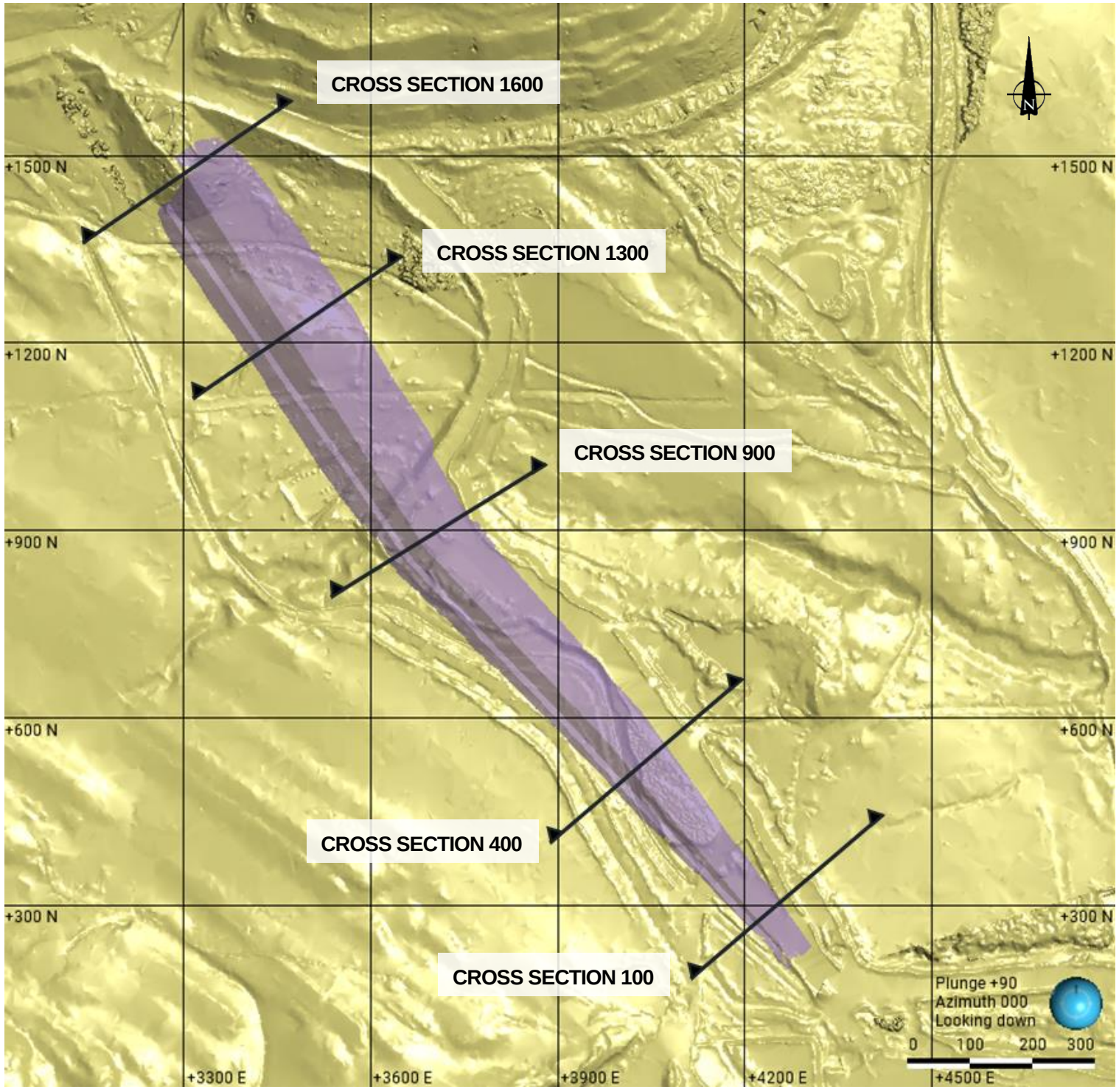
APPENDIX A

Cross-section Review



LEGEND	
	TOPOGRAPHY SURFACE
	TAR DESIGN SURFACE

NOTES/REFERENCES

1. MT. POLLEY MINE SITE SURFACE: 2023 FLYOVER SIMPLIFIED_SURF.dxf. (PROVIDED BY CLIENT ON 09-01-2024)
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CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

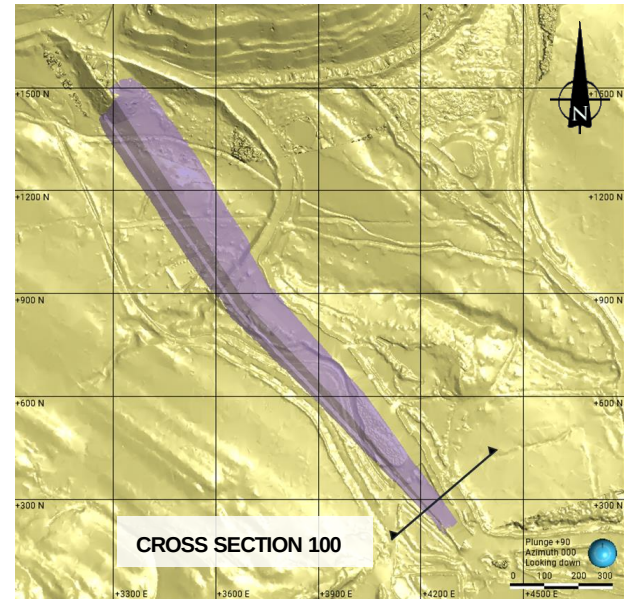
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

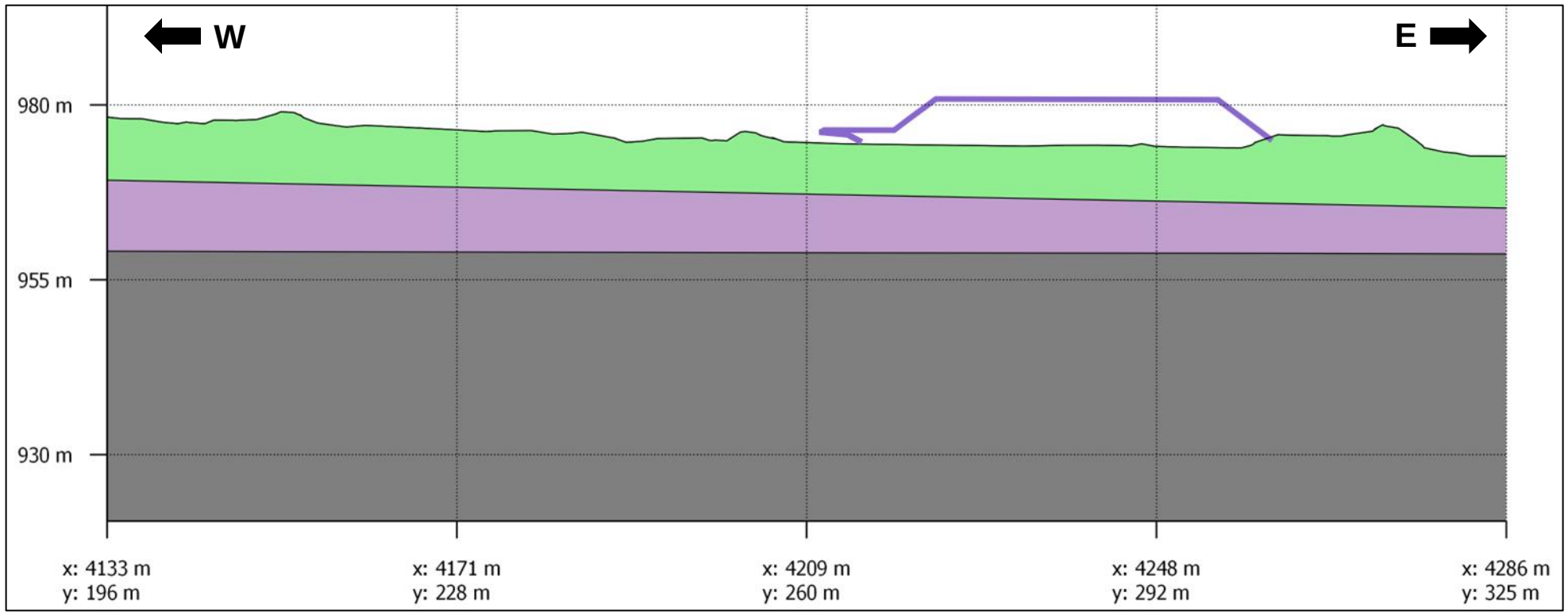
TITLE
CROSS SECTION LOCATIONS

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	A-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25 mm
0

LEGEND	
	TAR DESIGN SURFACE
	FILL
	TILL
	BEDROCK





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wsp

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DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

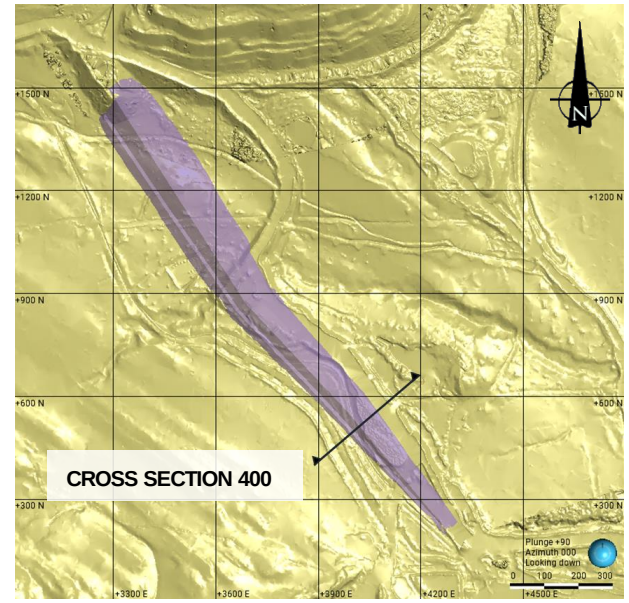
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

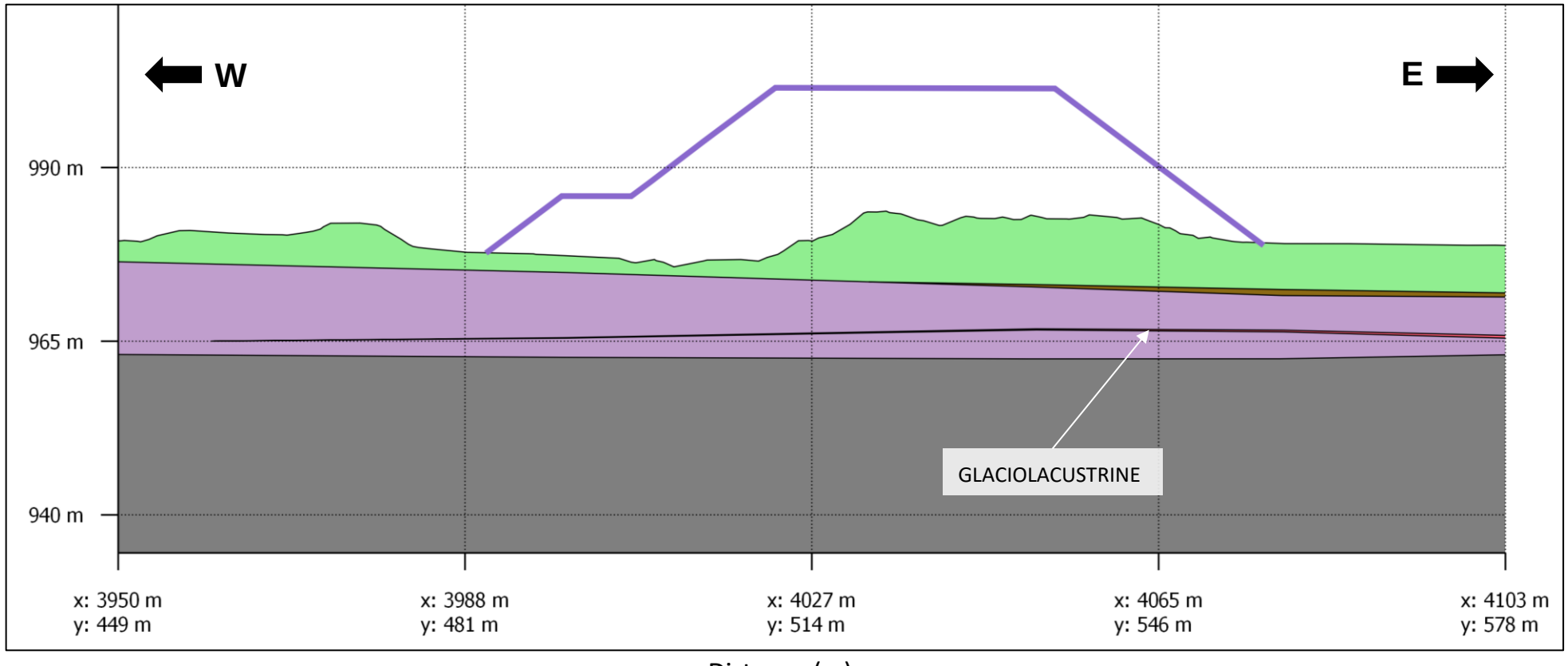
TITLE
CROSS SECTION 100

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	A-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25 mm
0

LEGEND	
	TAR DESIGN SURFACE
	FILL
	TOPSOIL
	TILL
	GLACIOLACUSTRINE
	BEDROCK





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APPROVED	YA

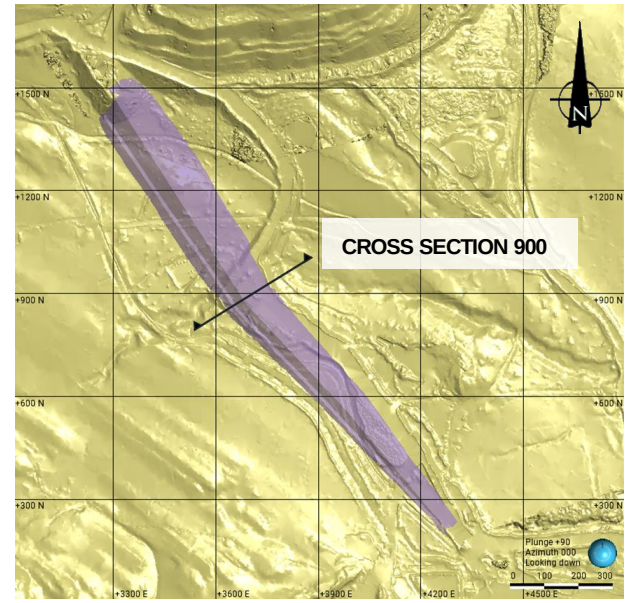
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

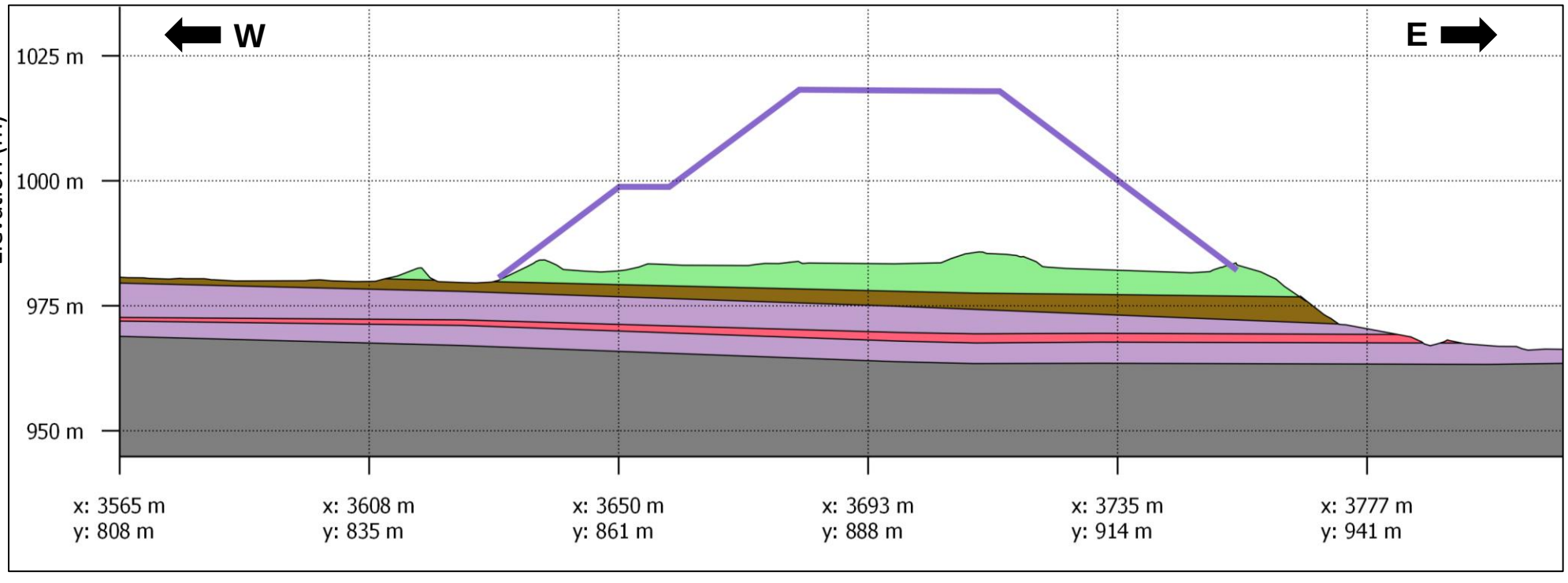
TITLE
CROSS SECTION 400

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	A-3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25 mm
0

LEGEND	
	TAR DESIGN SURFACE
	FILL
	TOPSOIL
	TILL
	GLACIOLACUSTRINE
	BEDROCK





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wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

TITLE
CROSS SECTION 900

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	A-4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
25 mm
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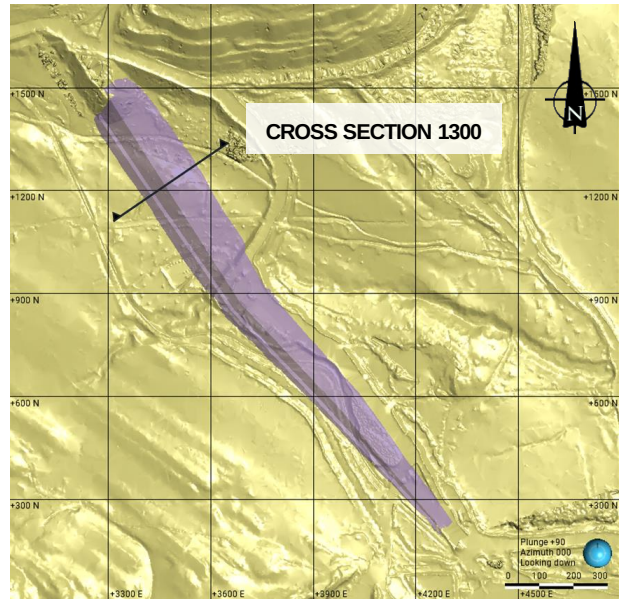
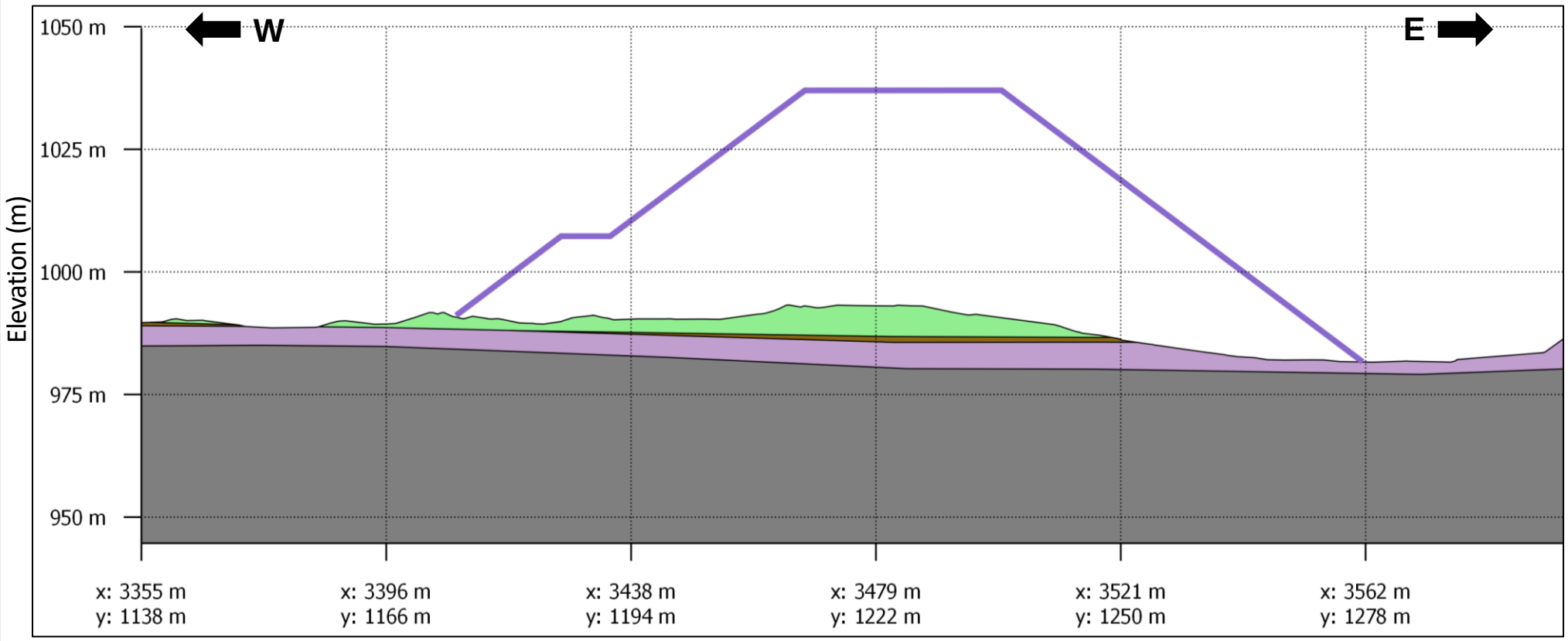
LEGEND	
	TAR DESIGN SURFACE
	FILL
	TOPSOIL
	TILL
	BEDROCK





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YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

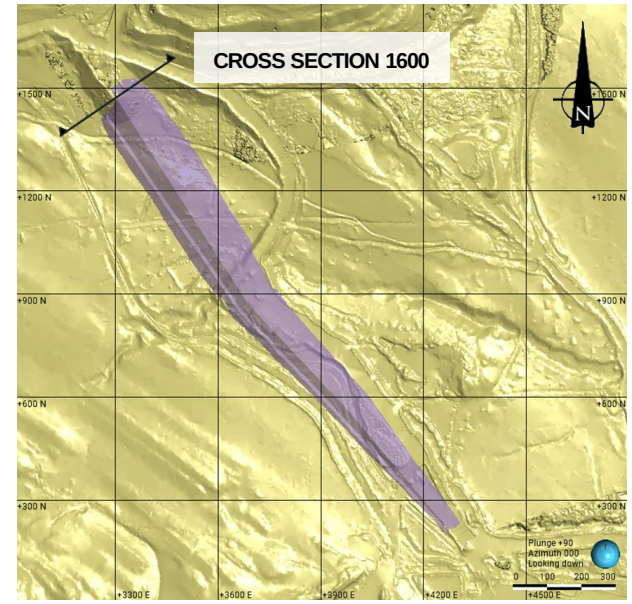
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

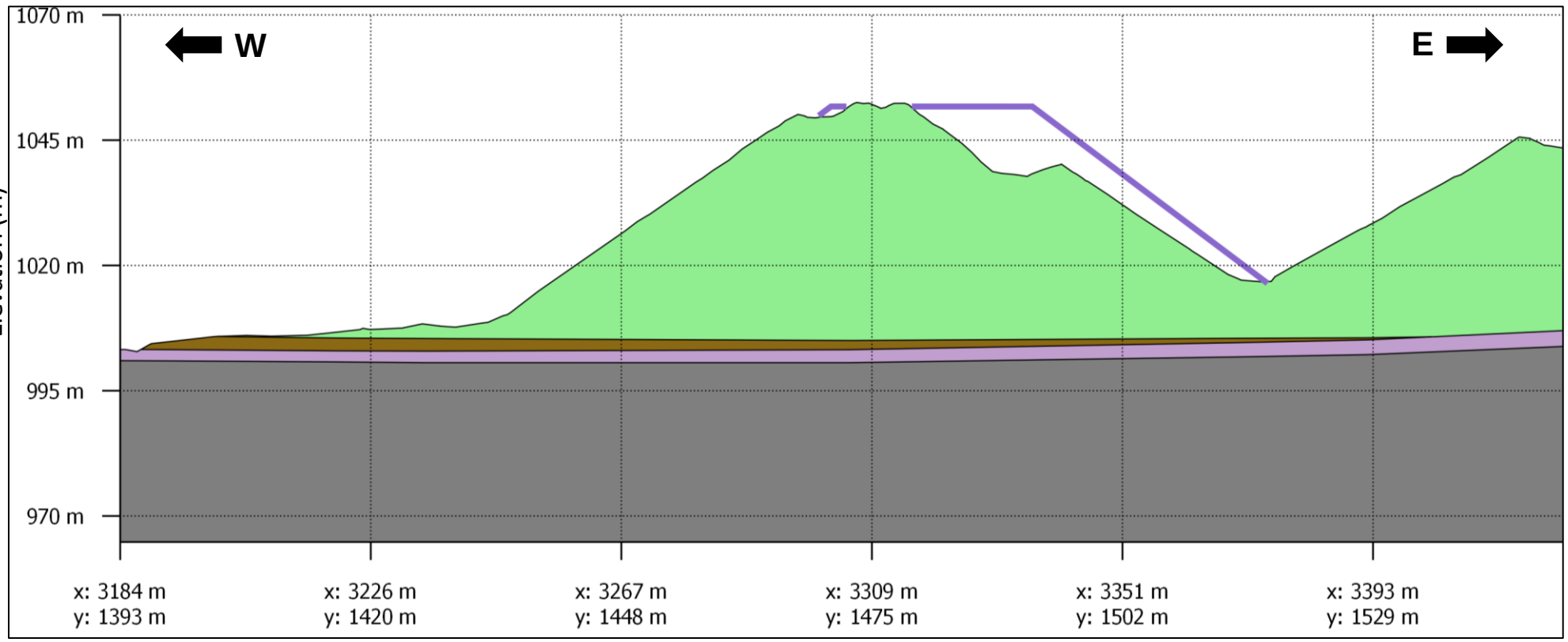
TITLE
CROSS SECTION 1300

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	A-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

LEGEND	
	TAR DESIGN SURFACE
	FILL
	TOPSOIL
	TILL
	BEDROCK





NOTES/REFERENCES

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CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

TITLE
CROSS SECTION 1600

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	A-6

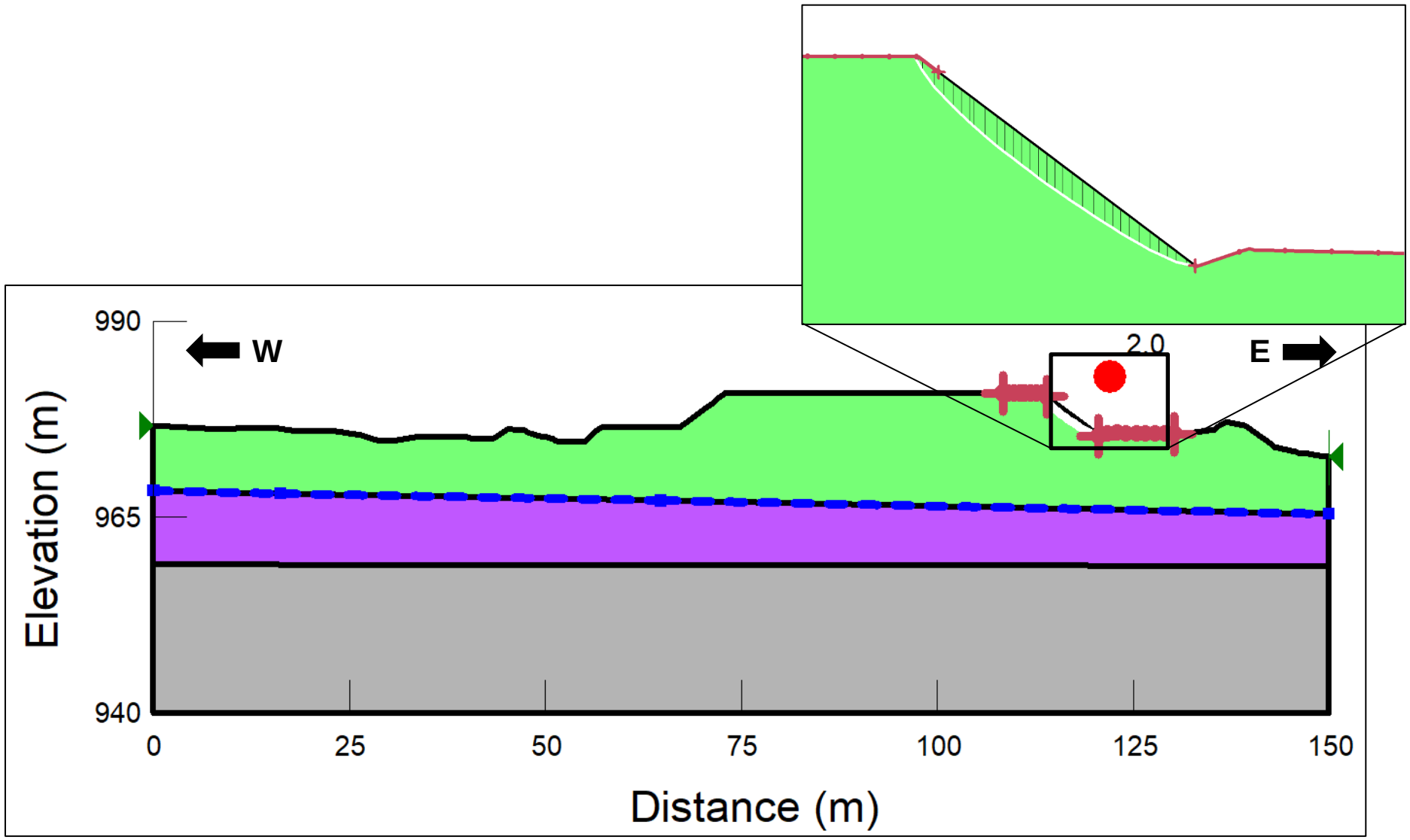
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

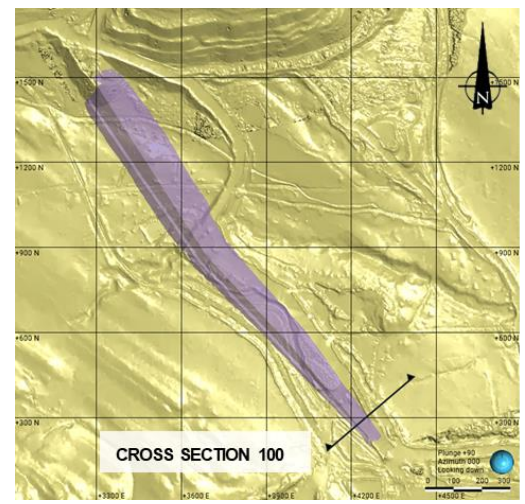
APPENDIX B

Geotechnical Analyses

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**2.0**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.9**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m^3)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250212.GSZ

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

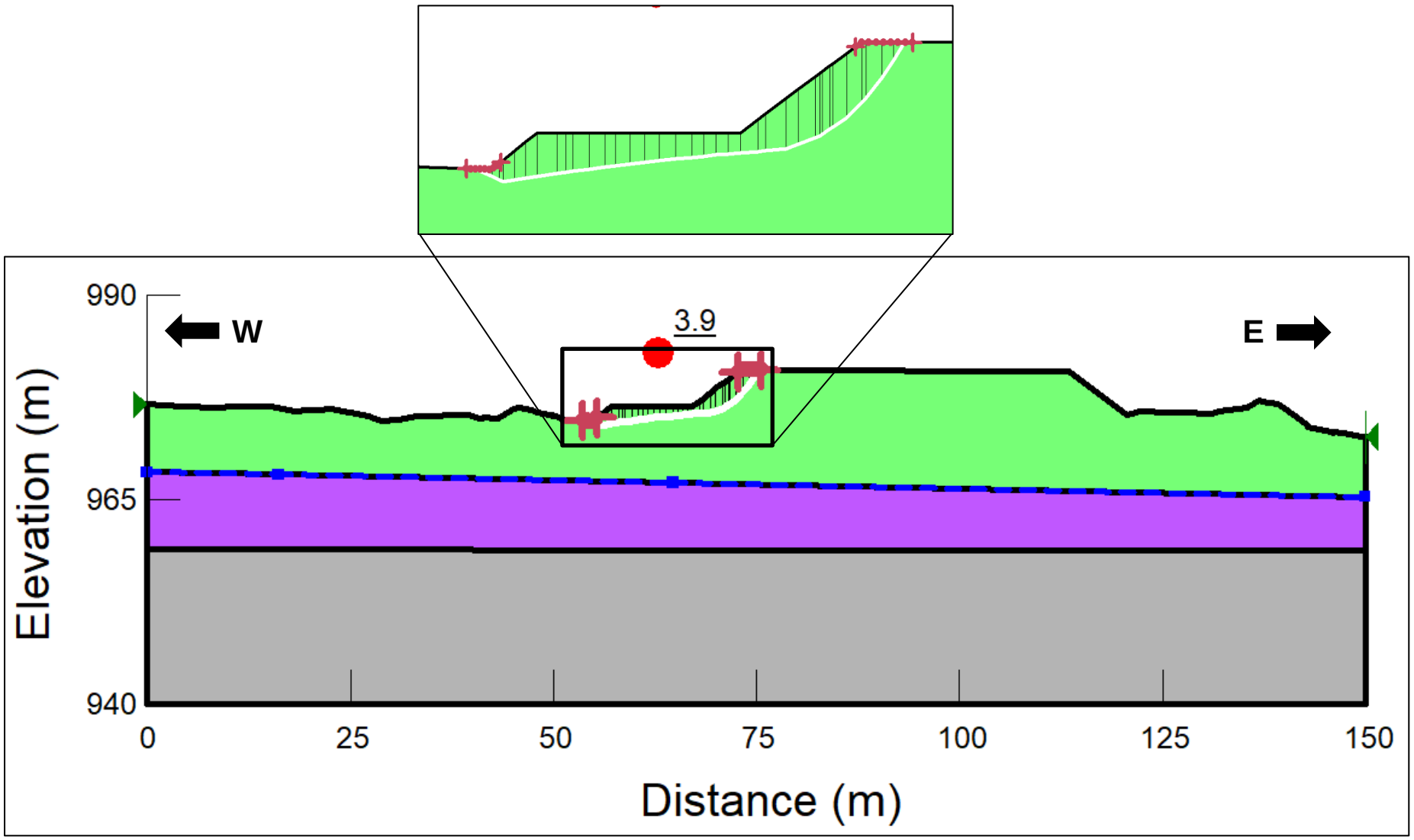
TITLE
TAR STABILITY ANALYSIS RESULTS
SECTION 100 (EAST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

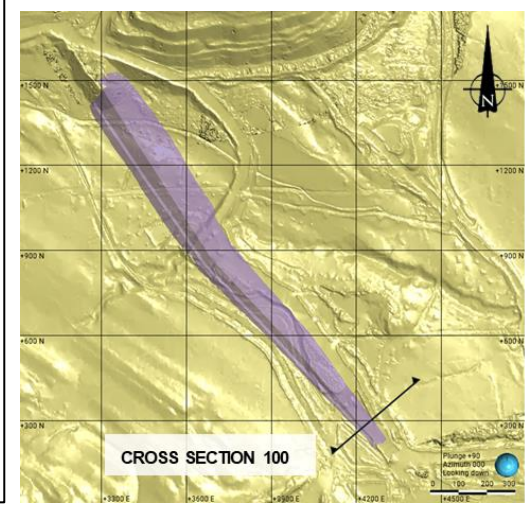
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25 mm
0

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**3.9**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**3.7**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m^3)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250212.GSZ

CLIENT
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LIKELY, BC

CONSULTANT
wsp

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PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

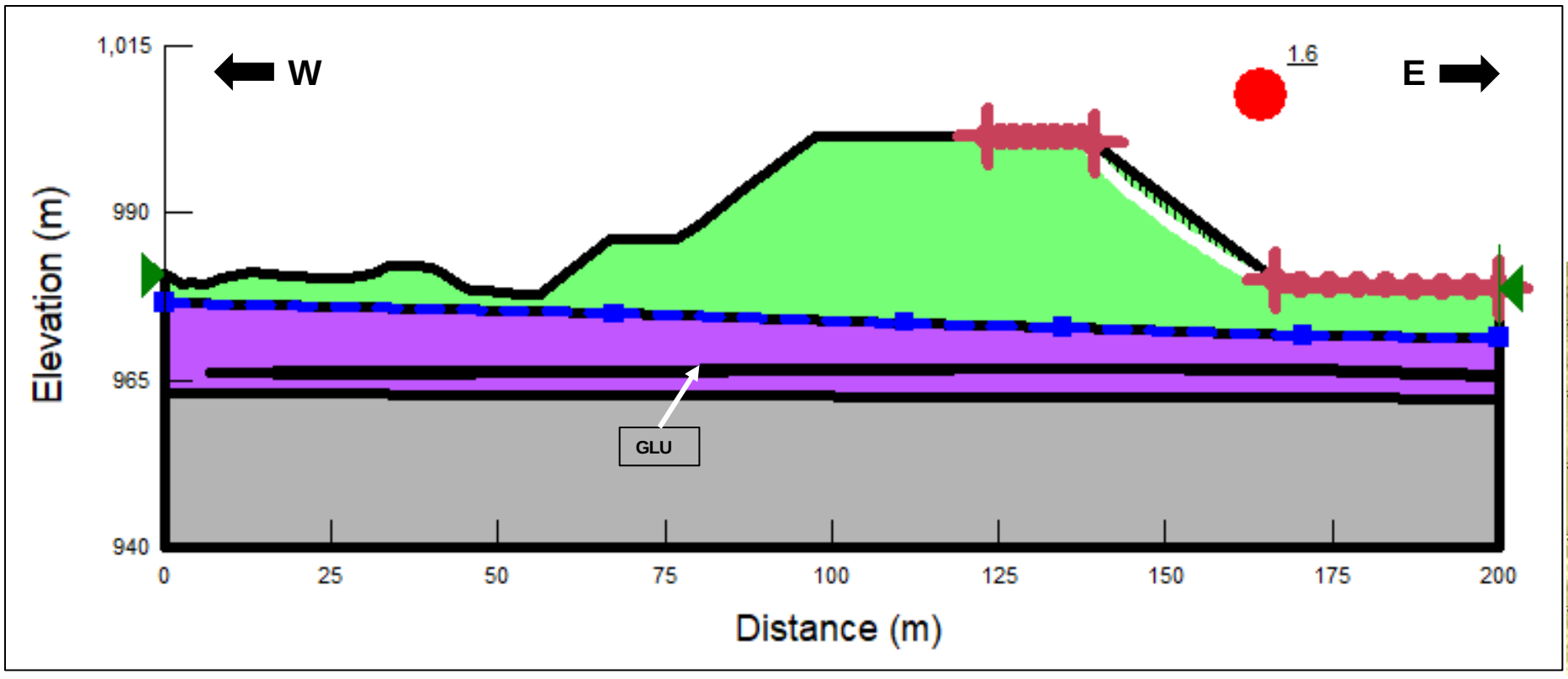
TITLE
TAR STABILITY ANALYSIS RESULTS
SECTION 100 (WEST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

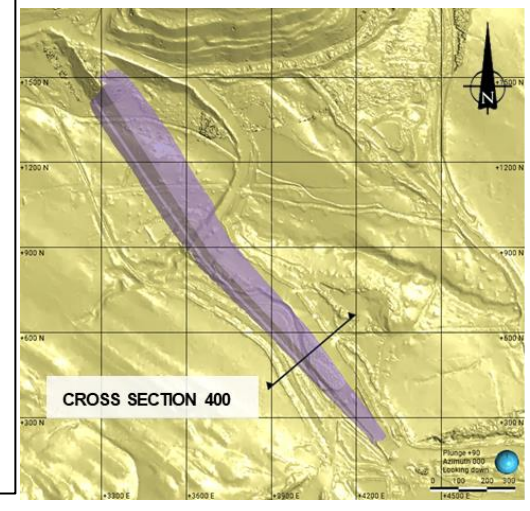
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-2**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25 mm
0

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**1.7**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.6**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
GLU		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
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YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

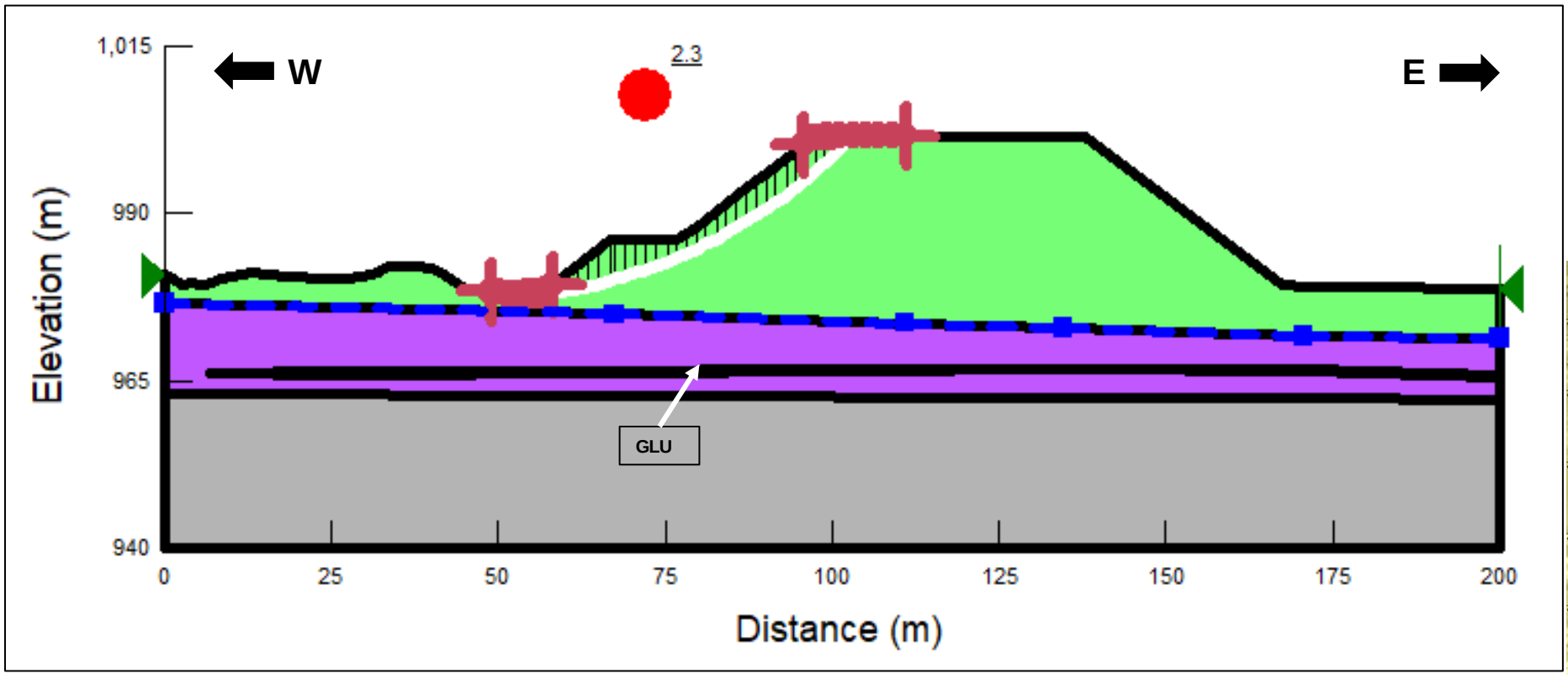
TITLE
STABILITY ANALYSIS RESULTS
SECTION 400 (EAST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

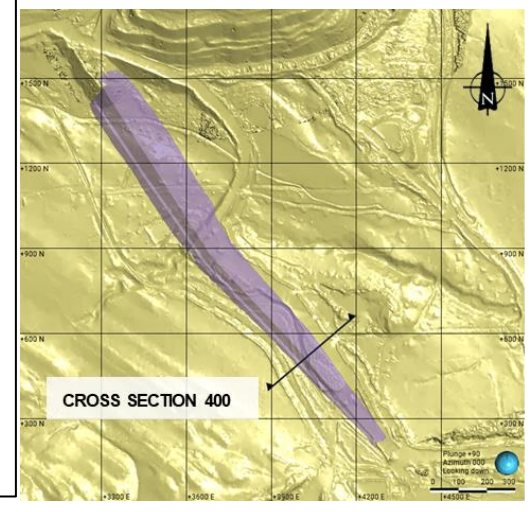
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-3**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25 mm
0

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**2.3**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**2.2**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
GLU		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

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LIKELY, BC

CONSULTANT
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YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

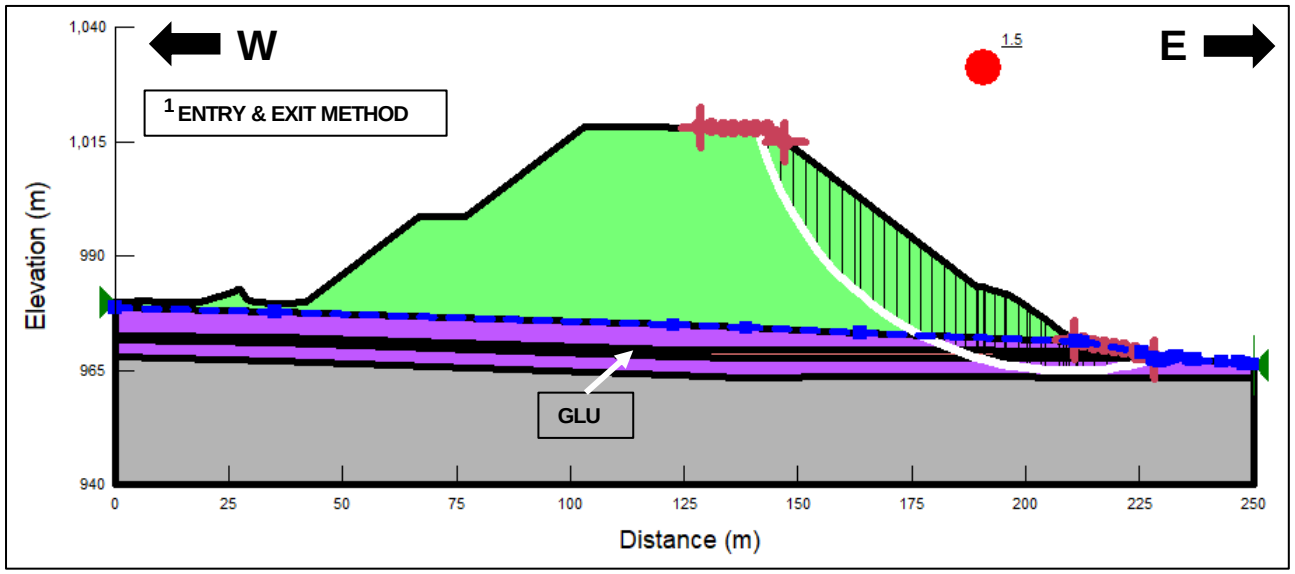
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

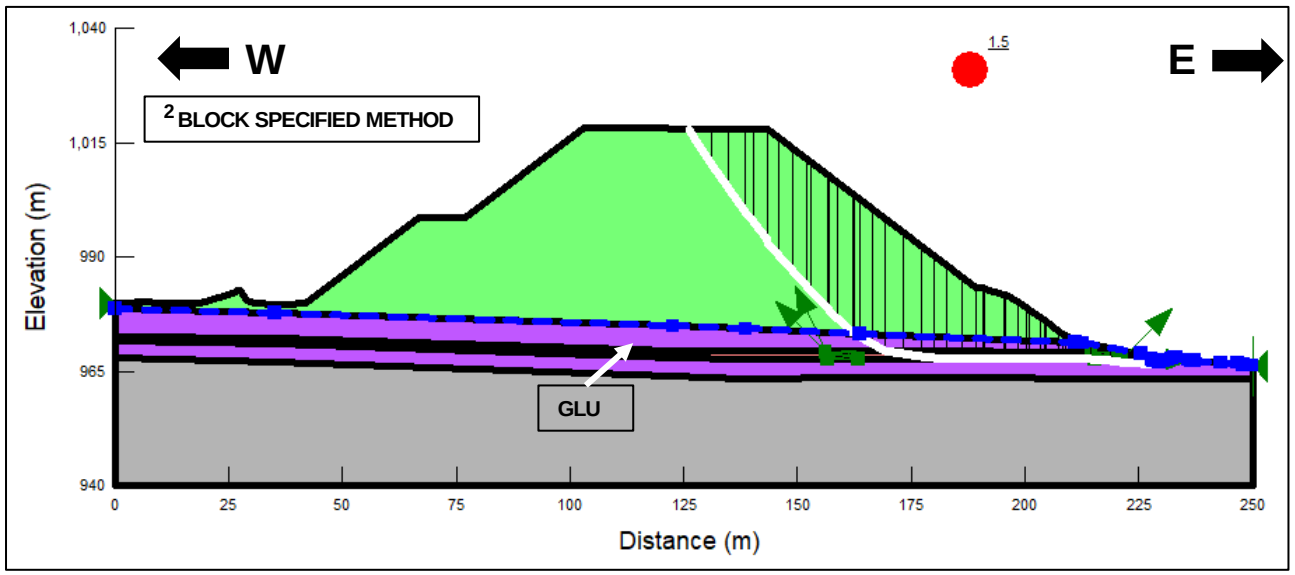
TITLE
STABILITY ANALYSIS RESULTS
SECTION 400 (WEST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-4**

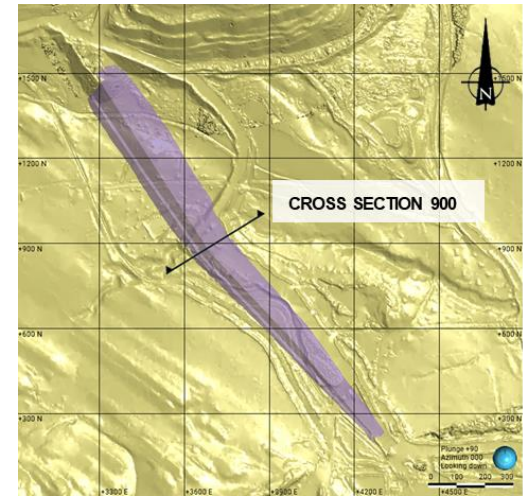
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

CONDITION	DESIGN CRITERIA	INDICATED FOS	
STATIC	1.2-1.3	1.5[1]	1.5[2]
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	1.4[1]	1.4[2]





MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
GLU - Drained		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	



NOTES/REFERENCES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

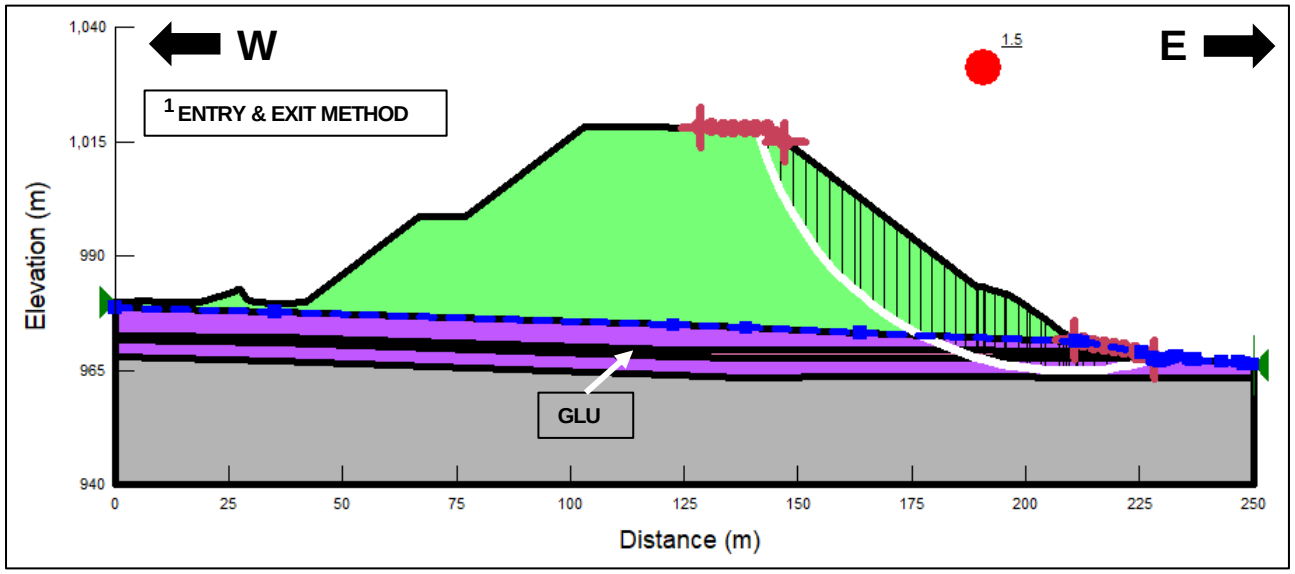
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

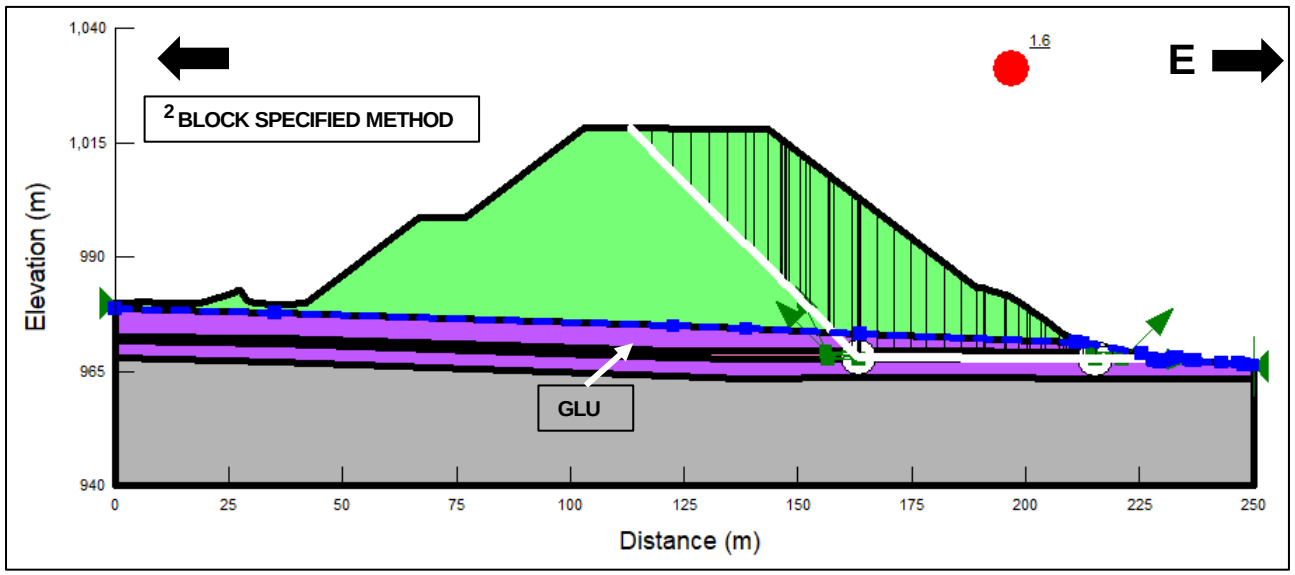
TITLE
STABILITY ANALYSIS RESULTS
SECTION 900 (EAST SIDE OF TAR) – DRAINED LOADING
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	B-5

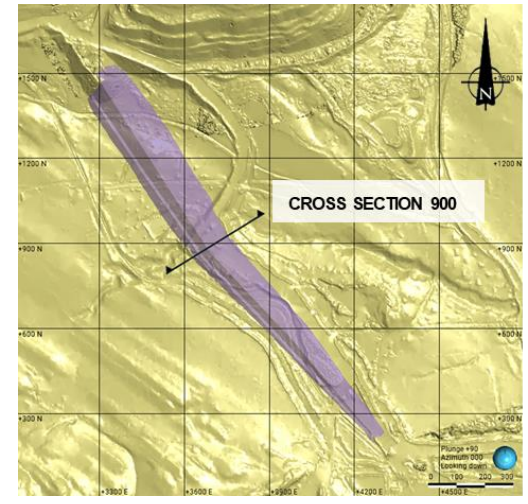
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
0 25 mm

CONDITION	DESIGN CRITERIA	INDICATED FOS	
STATIC	1.2-1.3	1.5[1]	1.6[2]
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	1.4[1]	1.5[2]





MATERIAL PROPERTIES			
Materials	Colour	Unit Weight (kN/m³)	Strength Parameters
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
GLU - Undrained		20	SHANSEP: su/σv=0.21xOCR^0.65; minimum strength = 86kPa
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	



NOTES/REFERENCES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

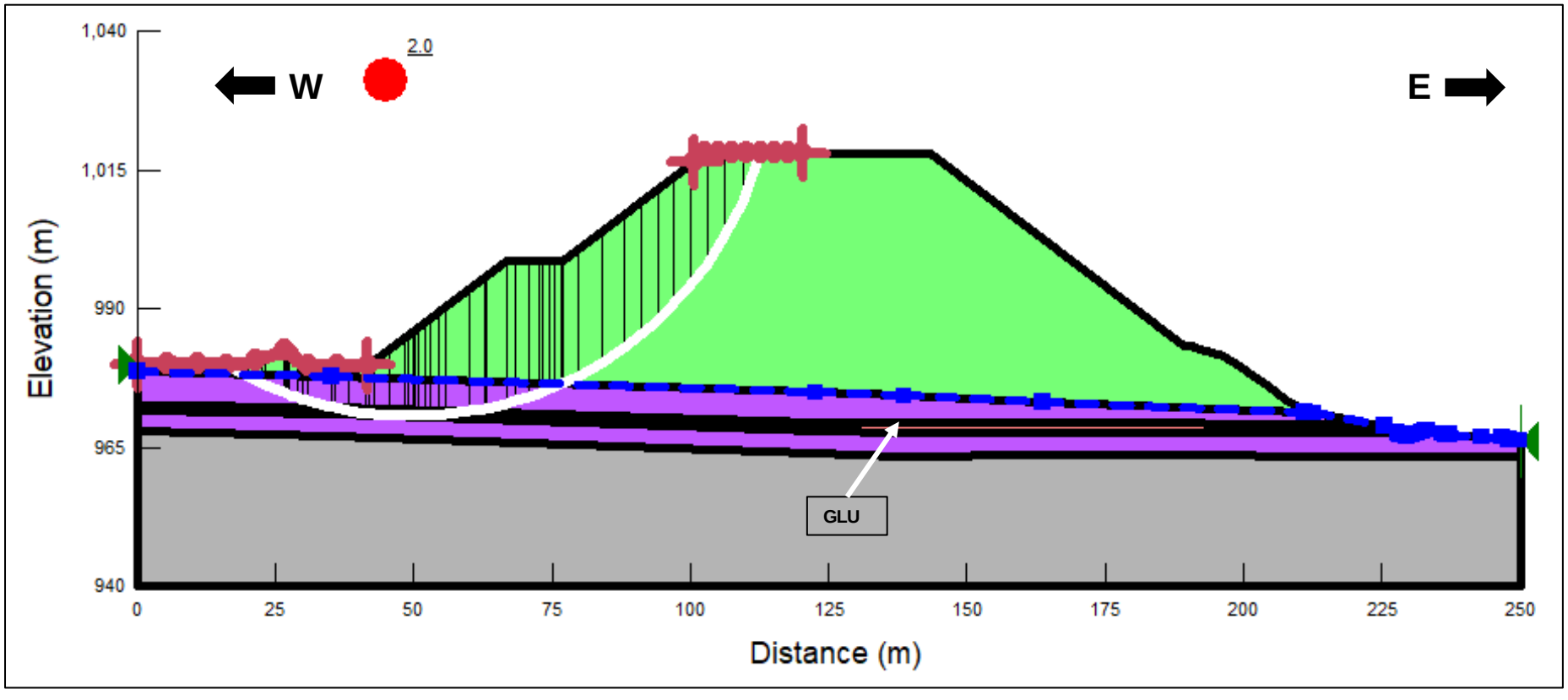
TITLE
STABILITY ANALYSIS RESULTS
SECTION 900 (EAST SIDE OF TAR) – UNDRAINED LOADING
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

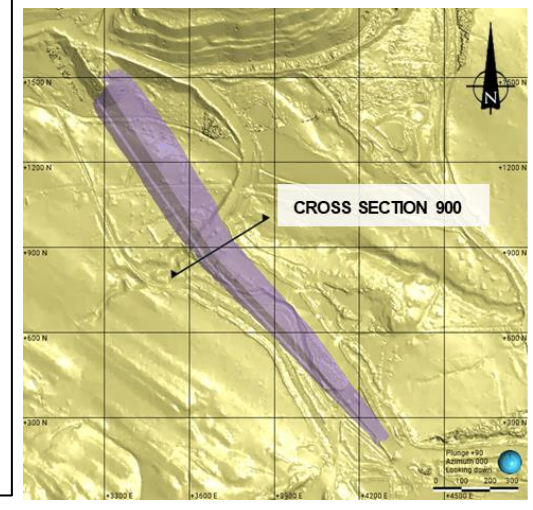
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	B-6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
0 25 mm

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**2.0**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.9**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
GLU		20	Mohr-Coulomb: φ = 24.6°; c = 9.2 kPa
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
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4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

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MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
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YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

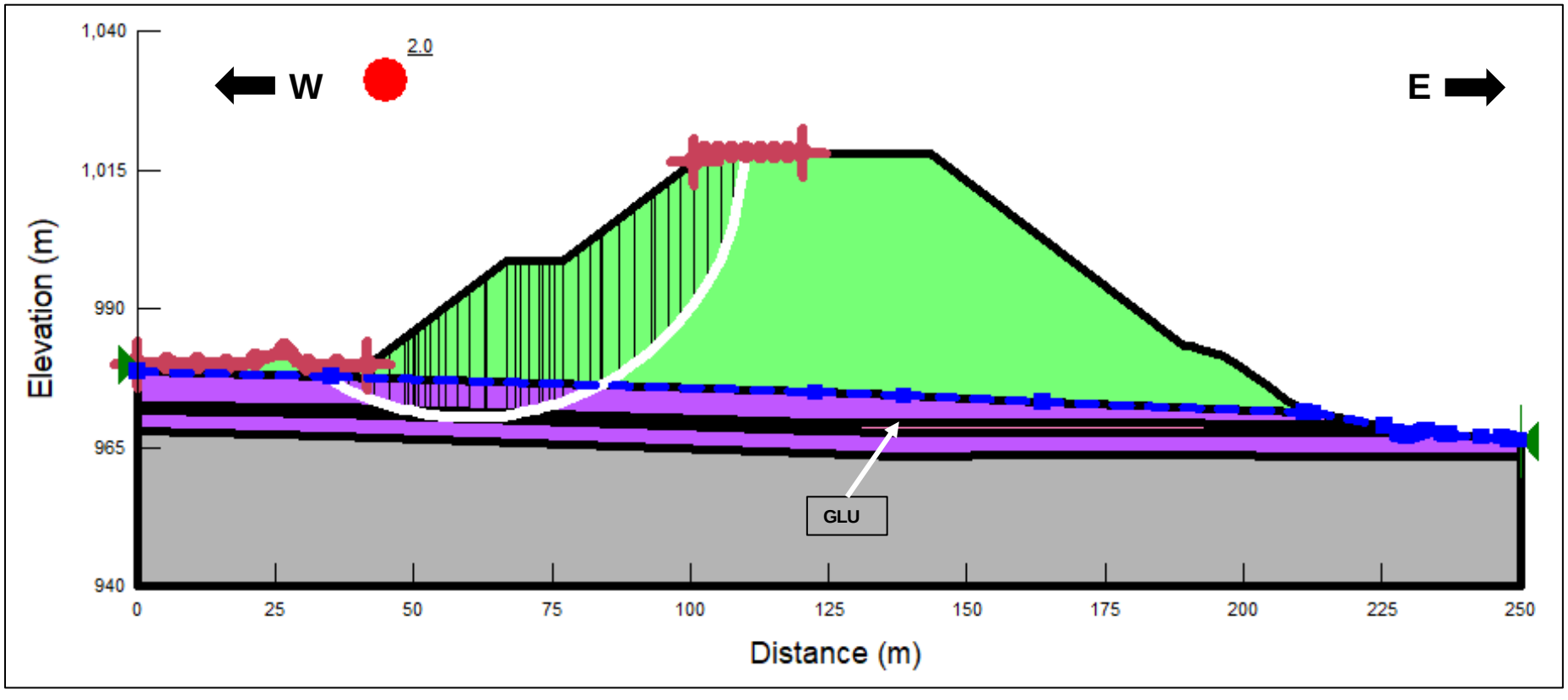
TITLE
STABILITY ANALYSIS RESULTS
SECTION 900 (WEST SIDE OF TAR) – DRAINED LOADING
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

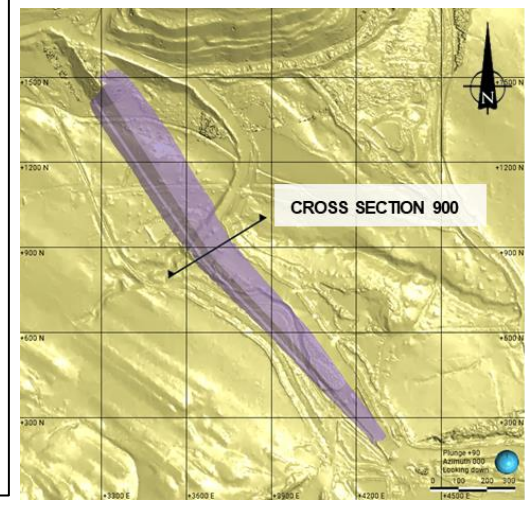
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-7**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
25 mm
0

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**2.0**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.9**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
GLU		20	SHANSEP: su/σv=0.21xOCR^0.65; minimum strength = 86kPa
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





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4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

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LIKELY, BC

CONSULTANT
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YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
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APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

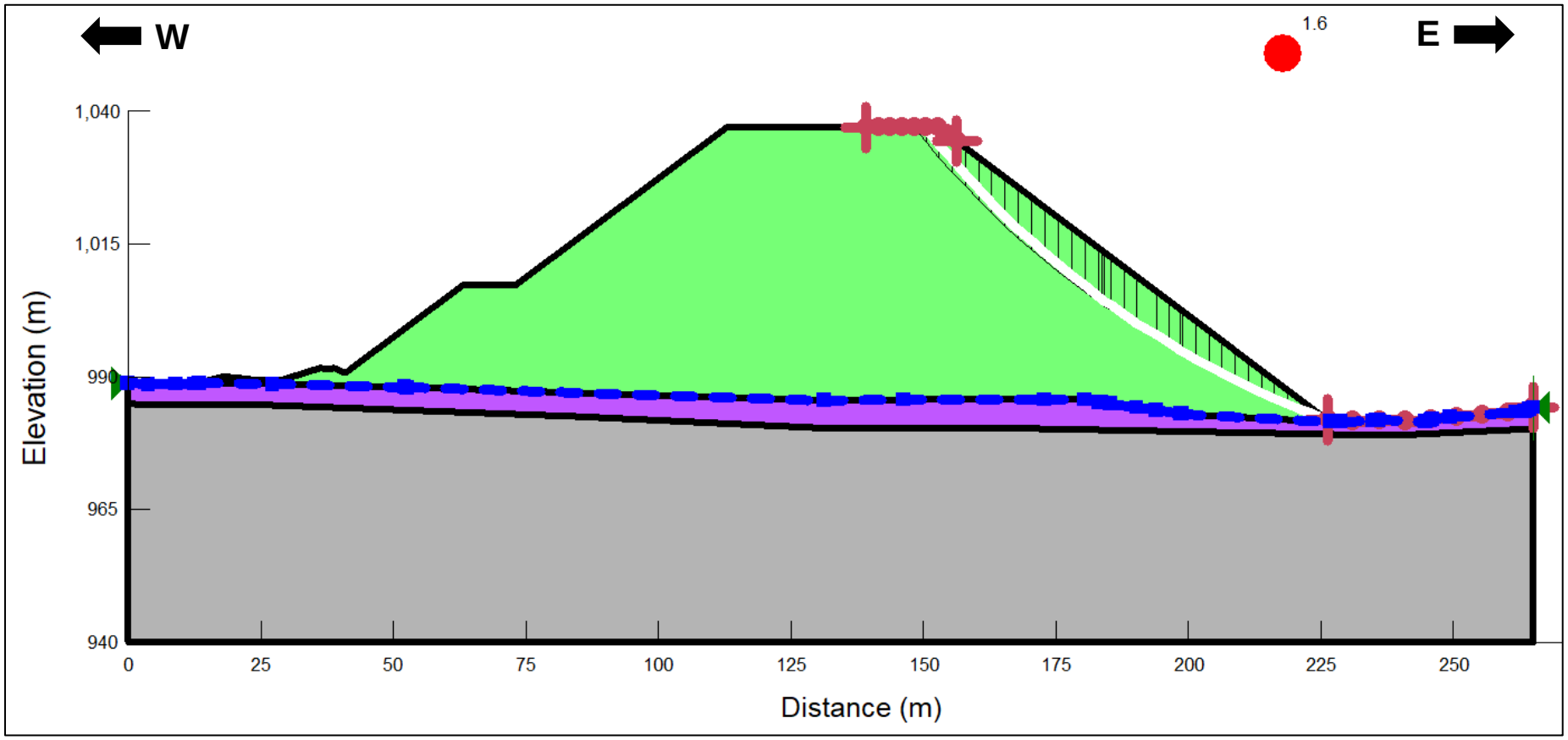
TITLE
STABILITY ANALYSIS RESULTS
SECTION 900 (WEST SIDE OF TAR) – UNDRAINED LOADING
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

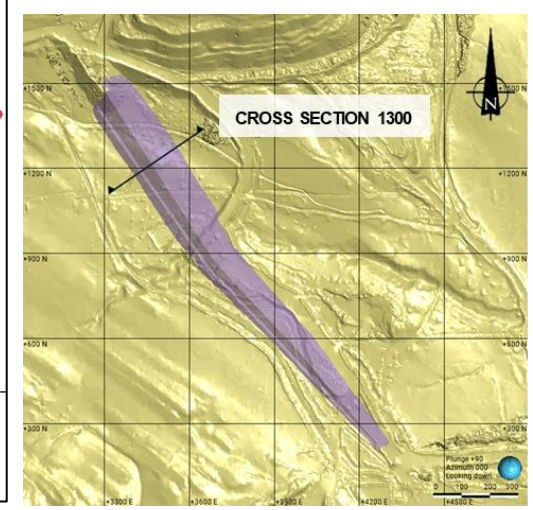
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-8**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
25 mm
0

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.5**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m³)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: φ = 34°; c = 0 kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

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2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

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LIKELY, BC

CONSULTANT
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YYYY-MM-DD	2025-05-13
PREPARED	AMK
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APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

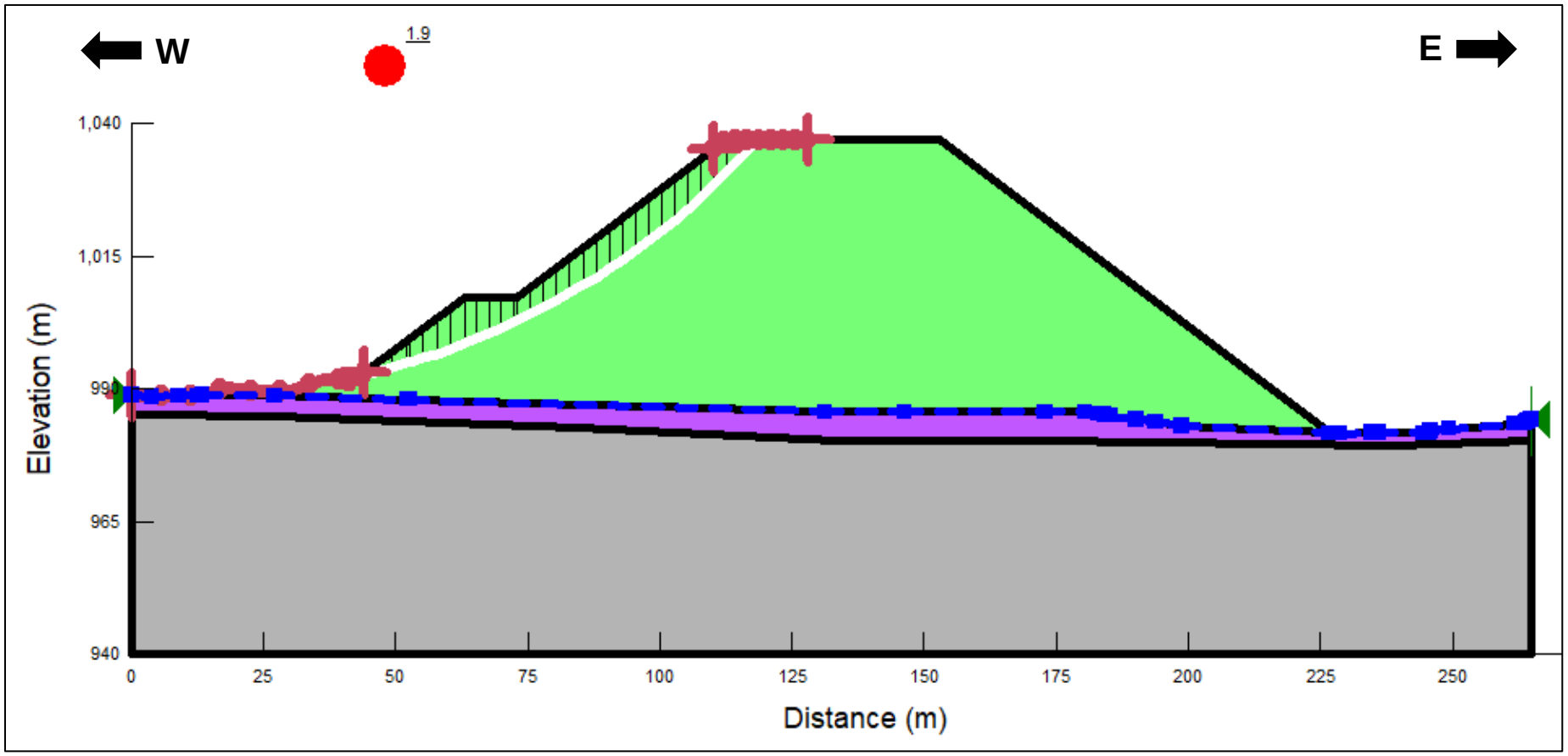
TITLE
STABILITY ANALYSIS RESULTS
SECTION 1300 (EAST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

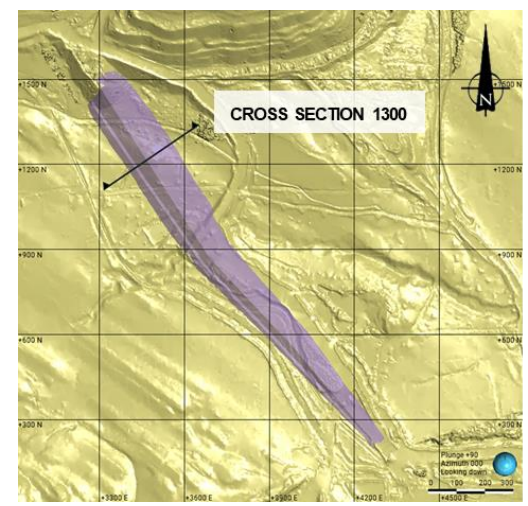
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-9**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0
25 mm

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**1.9**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.8**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m^3)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; c = 0 kPa
Bedrock		Impenetrable	





NOTES/REFERENCES

1. FOR PSEUDO-STATIC ANALYSIS, ONE-HALF THE PEAK GROUND ACCELERATION IS USED (½ X 0.048g = 0.024g) (HYNES-GRIFFIN AND FRANKLIN 1984).
2. SLIP SURFACES PRESENTED ARE STATIC ANALYSIS RESULTS.
3. WASTE ROCK ASSUMED FREE-DRAINING. WATER TABLE MODELLED AT FOUNDATION SOILS SURFACE.
4. GEOSTUDIO MODEL ANALYSIS FILE: TAR_STABILITY_20250416.GSZ.

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

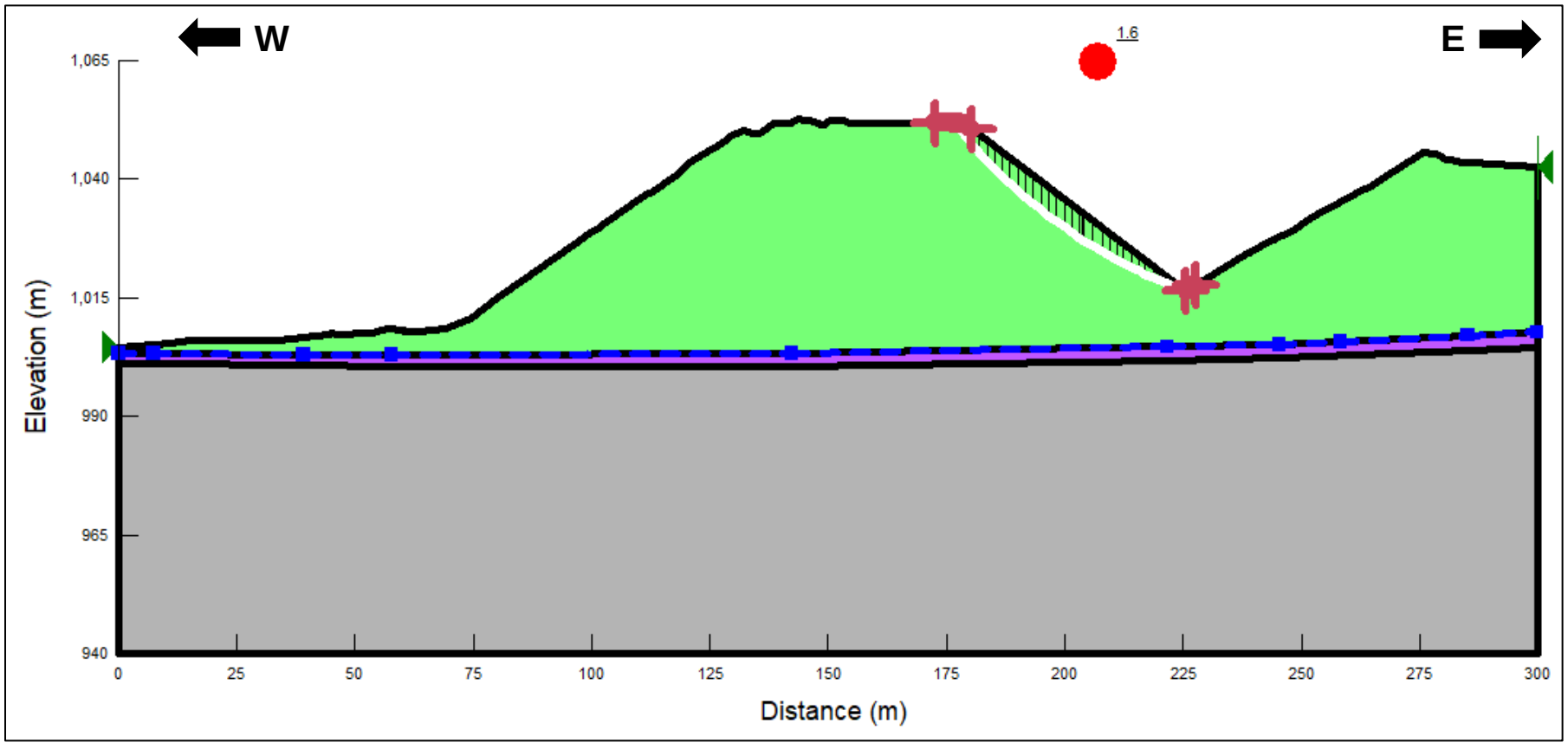
TITLE
STABILITY ANALYSIS RESULTS
SECTION 1300 (WEST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

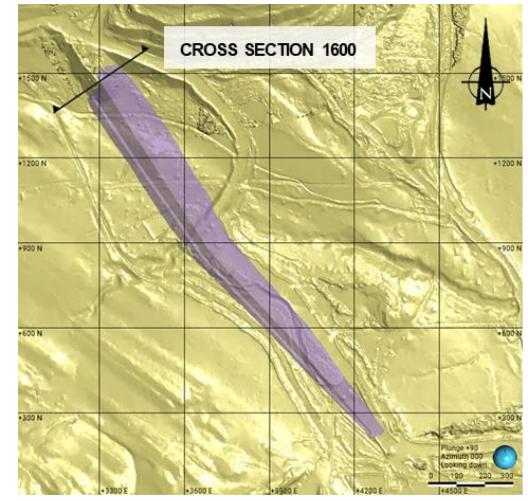
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-10**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0
25 mm

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**1.6**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.5**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m^3)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'_n{}^{0.899}$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





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PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

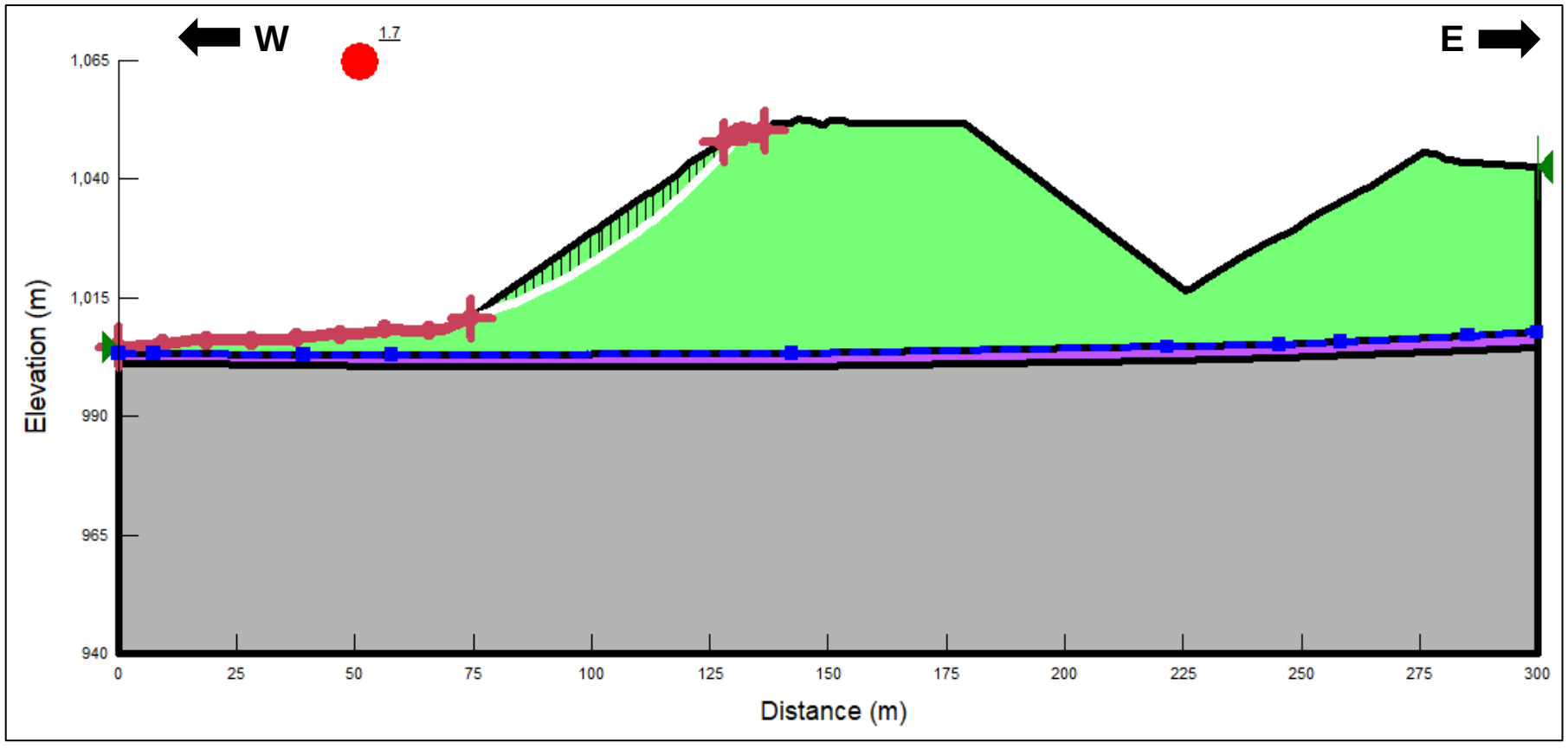
TITLE
STABILITY ANALYSIS RESULTS
SECTION 1600 (EAST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

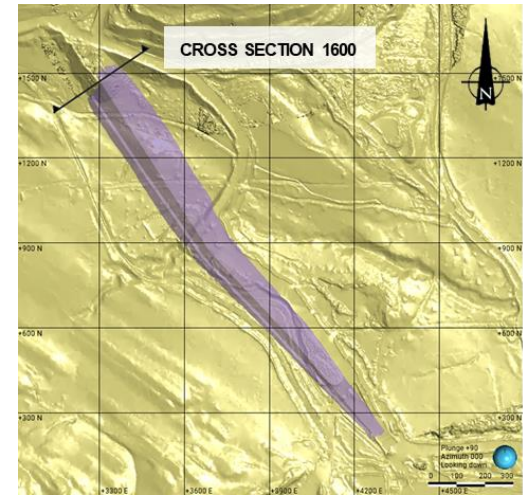
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-11**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
0 25 mm

CONDITION	DESIGN CRITERIA	INDICATED FOS
STATIC	1.2-1.3	**1.7**
PSEUDO-STATIC (LONG-TERM, 1-IN-2,475 YEAR EVENT; PGA 0.048)	1.0-1.05	**1.6**

MATERIAL PROPERTIES			
Materials	**Colour**	**Unit Weight (kN/m^3)**	**Strength Parameters**
Waste Rock		19.6	Leps Average: $\tau = 1.726 * \sigma'^{0.899}_n$
Till		22	Mohr-Coulomb: $\varphi = 34°$; $c = 0$ kPa
Bedrock		Impenetrable	





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PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

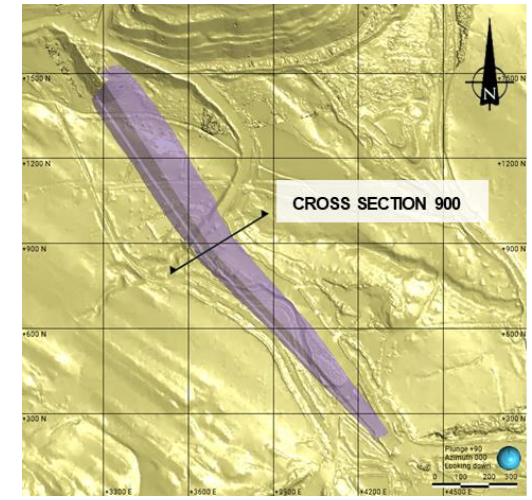
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

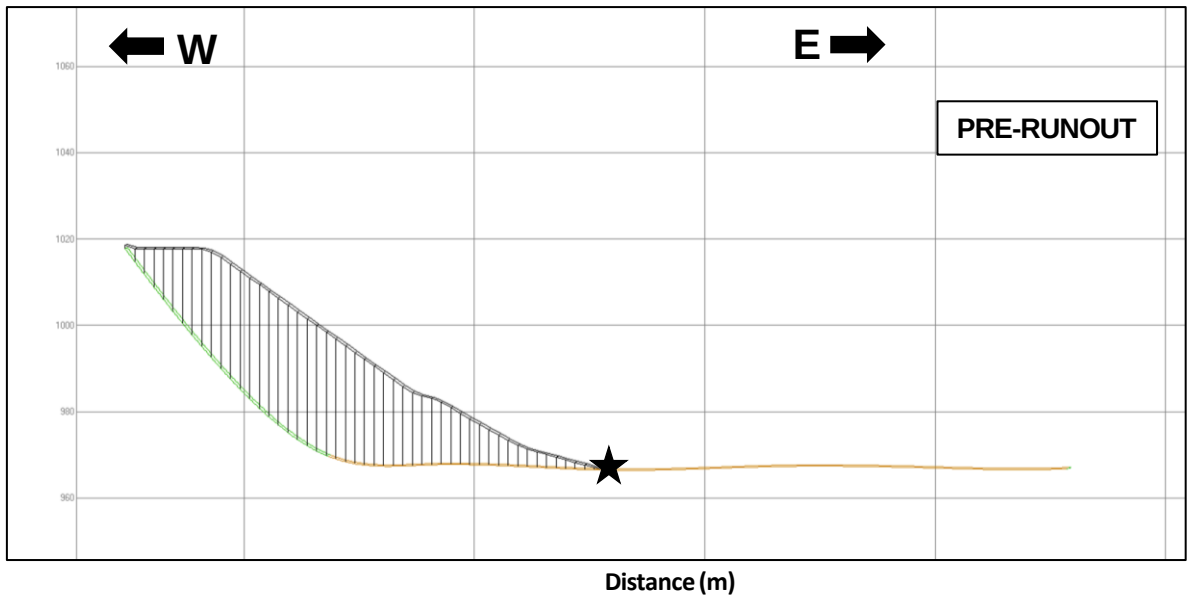
TITLE
STABILITY ANALYSIS RESULTS
SECTION 1600 (WEST SIDE OF TAR)
STATIC AND PSEUDO-STATIC ANALYSIS RESULTS

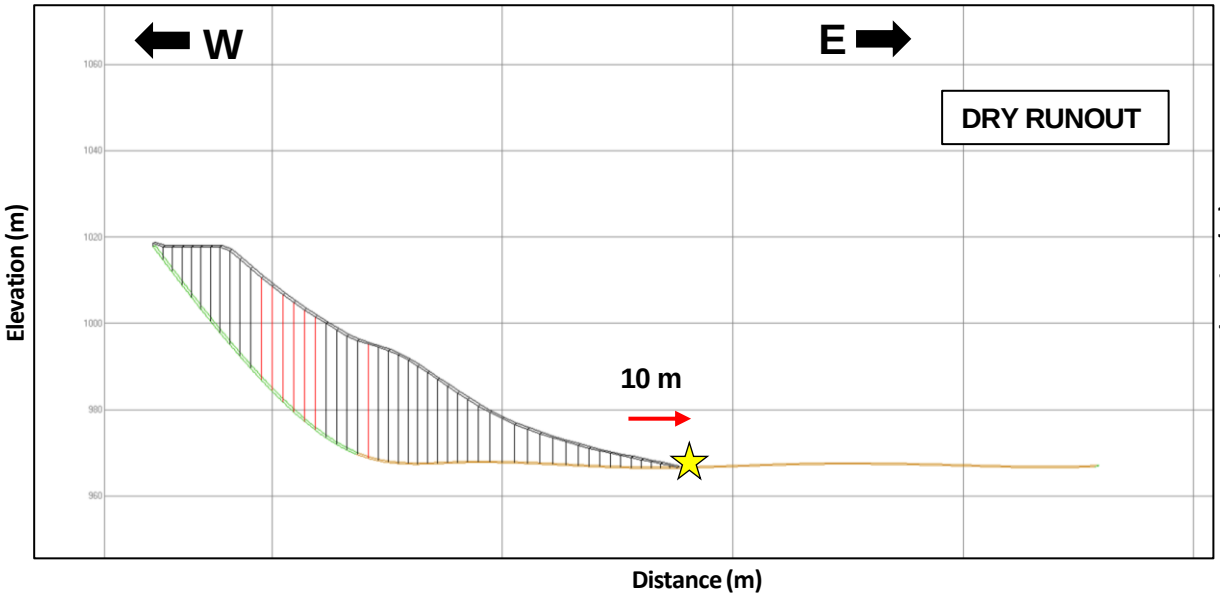
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	**73142**	**0**	**B-12**

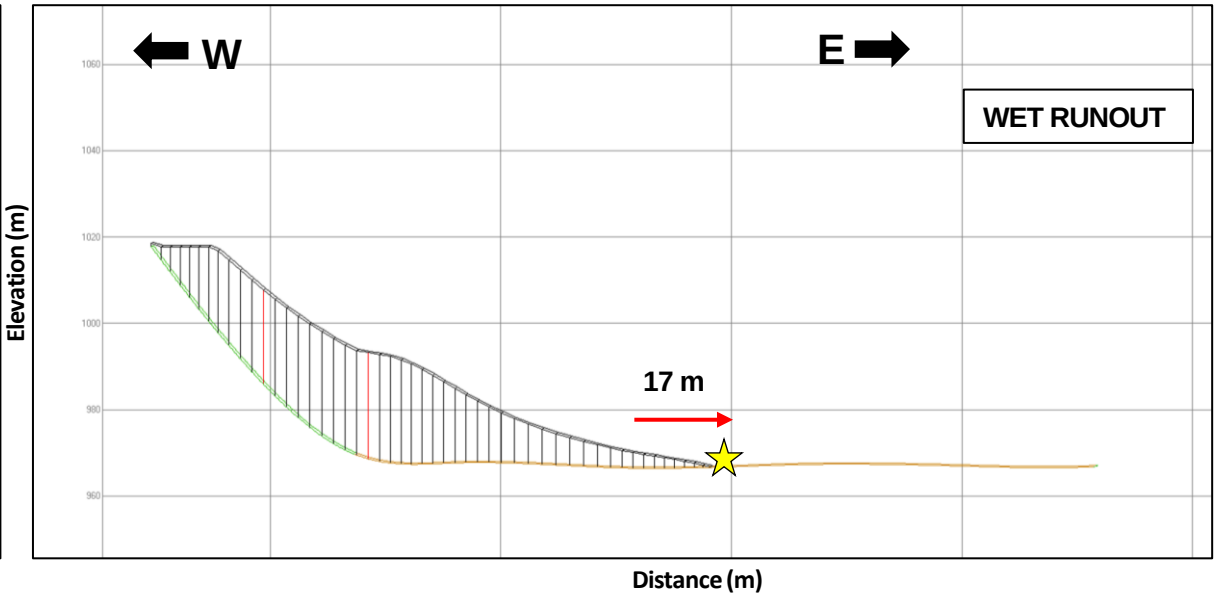
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
25 mm
0

MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	INTERNAL FRICTION ANGLE (°)	DYNAMIC FRICTION ANGLE (°)
WASTE ROCK		DRY (INTERNAL)	19.6	37.0	33.5
FOUNDATION MATERIAL		DRY (BASAL)	20.0	34.0	19.0
		WET (BASAL)			14.0









NOTES/REFERENCES

1. RUNOUT DISTANCE REFERS TO HORIZONTAL DISPLACEMENT AT THE TOE
2. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

CLIENT
MOUNT POLLEY MINING CORPORATION
LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

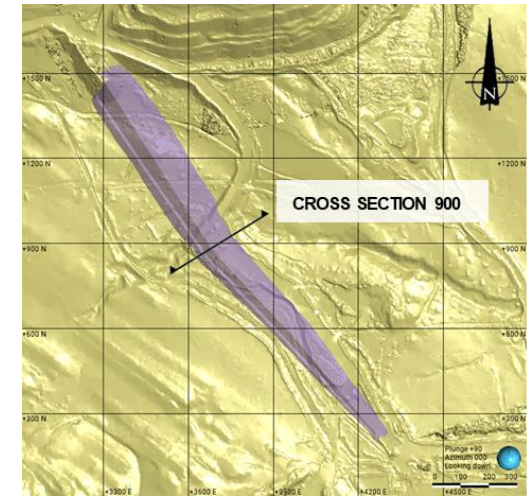
PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

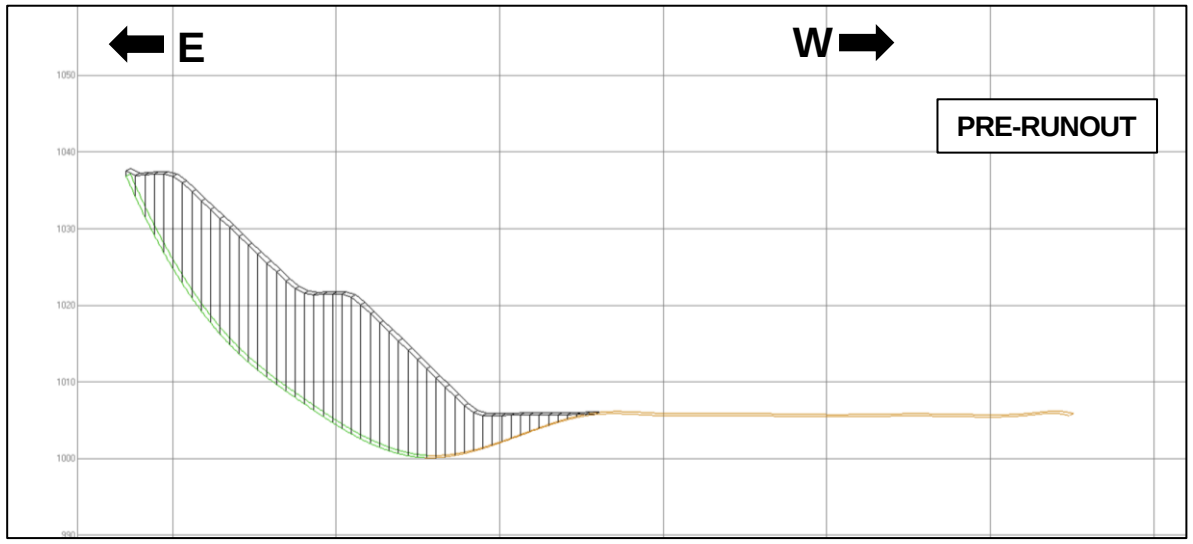
TITLE
RUNOUT ANALYSIS RESULTS
SECTION 900 (EAST SIDE OF TAR)

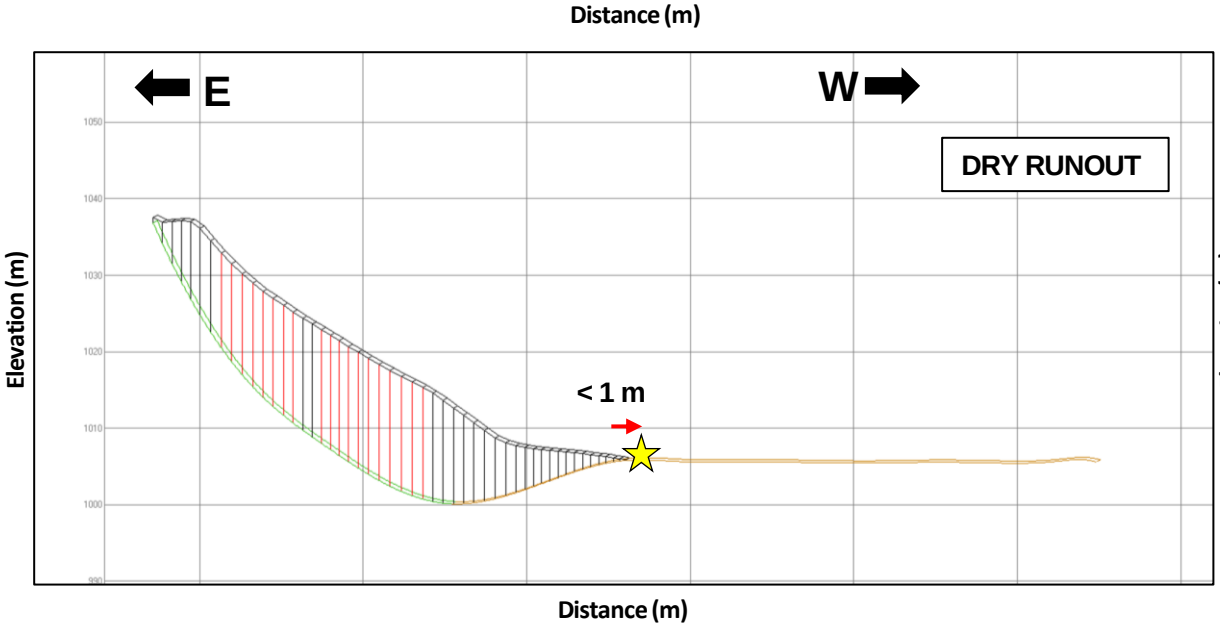
PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	B-13

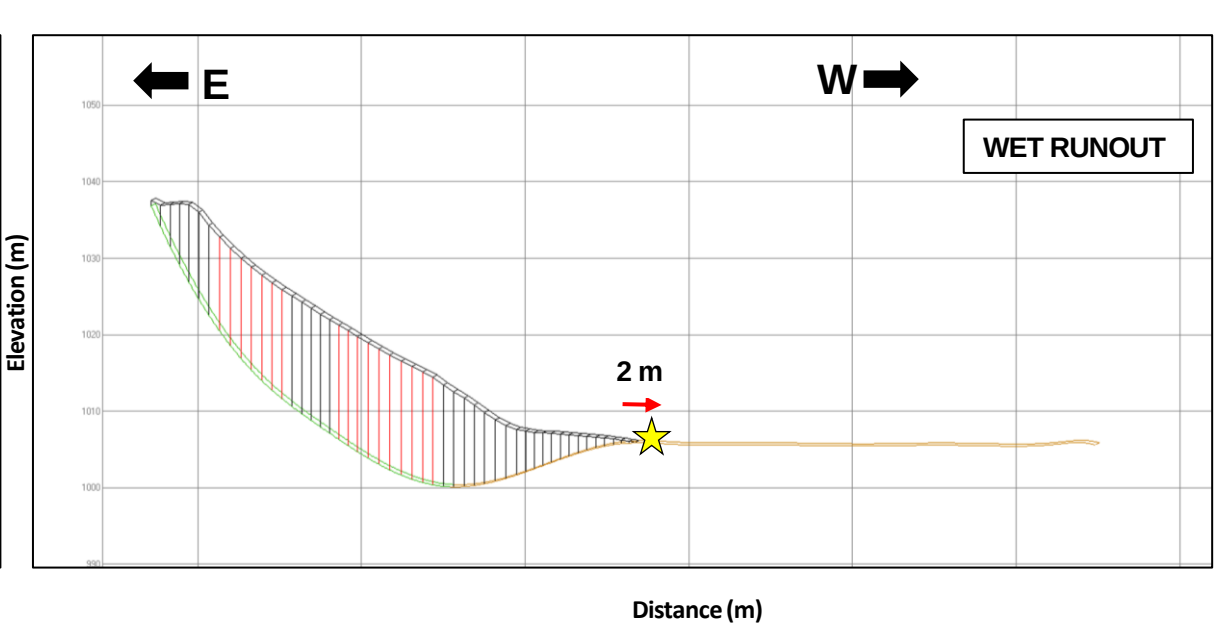
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0
25 mm

MATERIAL		MODEL CONDITION	UNIT WEIGHT (kN/m³)	INTERNAL FRICTION ANGLE (°)	DYNAMIC FRICTION ANGLE (°)
WASTE ROCK		DRY (INTERNAL)	19.6	37.0	33.5
FOUNDATION MATERIAL		DRY (BASAL)	20.0	34.0	19.0
		WET (BASAL)			14.0









NOTES/REFERENCES

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2. SIMPLIFIED (SMOOTHED) GEOMETRY USED FOR THE RUNOUT PATH OVER THE DOWNSTREAM TOPOGRAPHY.

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LIKELY, BC

CONSULTANT
wsp

YYYY-MM-DD	2025-05-13
PREPARED	AMK
DESIGNED	AGH
REVIEWED	GPK
APPROVED	YA

PROJECT
MOUNT POLLEY MINE
TAILINGS ACCESS ROAD (TAR) STABILITY ASSESSMENT

TITLE
RUNOUT ANALYSIS RESULTS
SECTION 900 (WEST SIDE OF TAR)

PROJECT NO.	PHASE	REV.	FIGURE
CA0048300.8430	73142	0	B-14

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
0 25 mm

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APPENDIX 4-7: FEASIBILITY OF IMPLEMENTING THE 2022 RECLAMATION AND CLOSURE PLAN UPDATE – MOUNT POLLEY TAILINGS STORAGE FACILITY

TECHNICAL MEMORANDUM

DATE November 18, 2025 **Reference No.** CA0047730.8440-070-TM-Rev0-53281

TO Richard Tuohey
Mount Polley Mining Corporation

CC John Thummerer

FROM Sophie Bainbridge and Germán Pizarro **EMAIL sophie.bainbridge@wsp.com**
german.pizarro@wsp.com

FEASIBILITY OF IMPLEMENTING THE 2022 RECLAMATION AND CLOSURE PLAN UPDATE – MOUNT POLLEY TAILINGS STORAGE FACILITY

As requested by Mount Polley Mining Corporation (MPMC), this technical memorandum has been prepared by the Mount Polley mine Tailings Storage Facility (TSF) Engineer of Record (EoR) to provide opinion on the feasibility of implementing the 2022 reclamation and closure plan update (MPMC 2022) for the elevation 987 m TSF configuration. Germán Pizarro, an employee of WSP Canada Inc. (WSP), has been the EoR for the Mount Polley mine TSF since February 2019.

As described in the 2022 reclamation and closure plan update, the TSF will remain a permanent structure, which will be reclaimed. The concept closure and reclamation configuration of the TSF includes a small permanent pond and wetland area on the surface, with maximum 2 horizontal to 1 vertical (2H:1V) embankment slopes, and a spillway for pond water level control (MPMC 2022). The current life of mine plan extends operations until 2031 and includes raising the TSF to a crest elevation of 987 m. The feasibility of implementing key reclamation activities is discussed in the following bullets:

- **Re-sloping and reclaiming the embankments**: the elevation 987 m TSF embankment configuration achieves the minimum factor of safety design criteria during operations (WSP 2025). The health, safety and reclamation code (HSRC) for mines in British Columbia specifies a minimum seismic design criteria for closure (i.e., 1 in 10,000 or maximum credible earthquake) which in this case is higher than the minimum seismic design criteria for operations (i.e., 1 in 2,475). Sensitivity analyses using a 1 in 10,000 seismic design event were completed as part of the elevation 987 m TSF raise design, which met the minimum factor of safety (WSP 2025). Modifications to the embankment buttress (e.g., widening or raising the buttress by placing additional rockfill) could be introduced if required to meet the minimum factor of safety.
  The embankment slopes between elevation 975.6 and 987 m is planned to be re-sloped to 2H:1V as part of reclamation, which does not negatively affect overall stability. Similarly, placement of a 0.3 m thick soil cover for reclamation of the embankment does not significantly affect overall stability. Further assessment of the overall embankment slope stability and long term erosion of the soil cover will be assessed as part of the feasibility level closure design to be completed by 2027.

- **Construction of spillway**: the elevation 987 m TSF raise is designed to store the probable maximum flood (PMF) and does not include a spillway. During the last 2 to 3 years of operation, deposition of tailings will be adjusted to move the TSF pond towards the north abutment and the pond volume will be progressively reduced in preparation for closure (WSP 2025). A spillway sized with capacity for the PMF will be constructed in native ground upstream of the north abutment. The spillway will be constructed at an invert elevation to limit the maximum pond size to not exceed approximately 15% of the tailings surface area. Tailings have been characterized as non-acid generating. The closure feasibility level spillway design prepared for an elevation 984 m TSF embankment (Golder 2015) will be updated as part of the feasibility level closure design to be completed by 2027.
- **Reclaiming the tailings surface**: during operations, tailings have been deposited from the crest of the embankment along the TSF. Subaerial beach slopes have varied between about 0.3 and 1%. A minimum beach length of 100 m is to be maintained between the TSF pond and the embankment during normal operations. During the last 2 to 3 years of operation, deposition of tailings will be adjusted to move the TSF pond towards the north abutment and the pond volume will be progressively reduced in preparation for closure (WSP 2025). Placement of a 0.1 m thick layer of soil cover for reclamation of the tailings surface upstream of the embankment is expected to be feasible based on experience to date. Ongoing construction of an upstream drain along the embankment near elevation 970 to 972 m will promote drainage and consolidation of tailings upstream of the embankment and further improve trafficability over the tailings surface. Areas closer to the pond are not expected to be immediately accessible but trafficability will improve with time as the pond size is reduced and is then controlled by the spillway. Surface grading of the tailings surface may be required to support drainage towards the spillway. Assessment of the consolidation of the tailings near and within the footprint of the operation pond location will be assessed as part of the feasibility level closure design to be completed by 2027.

Implementing the 2022 reclamation and closure plan update for the elevation 987 m TSF configuration is considered feasible.

Confirmation of end land uses and a corresponding geotechnical risk review of potential failure modes of the TSF closure and reclamation plan will be advanced as part of the feasibility level closure design to be completed by 2027. Design controls to mitigate remaining credible failure modes may be introduced as part of the feasibility level closure design where required or practical. An assessment of credible and non-credible failure modes for the elevation 987 m TSF raise design is presented in WSP (2025).

WSP Canada Inc.

2025-11-18

WSP Canada Inc.
Engineers & Geoscientists BC
Permit #1000200

Sophie Bainbridge, P.Eng.
Geotechnical Engineer

Germán Pizarro, P.Eng.
Principal Geotechnical Engineer

SB/GP/an/ar

https://wsponline.sharepoint.com/sites/gld-10023g/2025 deliverables1/ca0047730.8440 deliverables/002_issued/070-tm-53281-tsf closure concept/rev0/ca0047730.8440-070-tm-rev0-53281-tsf closure concept 18nov_25.docx

REFERENCES

Golder (Golder Associates Ltd.). 2015. Tailings Storage Facility Life of Mine Feasibility Design. Prepared for Mount Polley Mining Corporation. Golder reference number 1413803-072-R-Rev0-9000. November 3, 2015.

MPMC (Mount Polley Mining Corporation). 2022. Mine Plan and Reclamation Plan Update 2022.

WSP (WSP Canada Inc.). 2025. Tailings Storage Facility – Detailed Design to Elevation 987 m. Prepared for Mount Polley Mining Corporation. WSP reference number CA0047730.8440-004-R-Rev0-51293. July 21, 2025.