



November 17, 2020

Alexco Keno Hill Mining Corp.  
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ISSUED FOR USE  
FILE: 704-ENG.WARC03869-01  
Via Email: lbroughton@alexcoresource.com

**Attention:** Linda Broughton – V.P. Technical Services

**Subject:** 2020 Annual Geotechnical Inspection – Mining Related Structures  
Bellekeno Mine – Keno City, YT

## 1.0 INTRODUCTION

NND-EBA Land Protection Corp. operating as NELPCo Limited Partnership (NELPCo) was retained by Alexco Keno Hill Mining Corp. (Alexco) to complete the 2020 annual geotechnical inspection of structures related to development of the Bellekeno Mine near Keno City, Yukon. NELPCo is a limited partnership corporation owned by the NND Development Corporation (NNDDC) and Tetra Tech Canada Inc. (Tetra Tech). The inspection was conducted by Tetra Tech, NELPCo's exclusive engineering services provider. Authorization to complete this work was received by way of an Alexco purchase order (PO #23491) dated August 11, 2020.

## 2.0 SCOPE OF SERVICES

The following is Tetra Tech's scope of services for the 2020 annual inspection as was presented in the email submitted to Alexco on July 23, 2020:

- Complete a visual inspection of the earth structures identified by Alexco, which includes:
  - Bellekeno Mine
    - Potentially acid generating (PAG) waste storage facility;
    - Bellekeno Road waste rock pile;
    - Bellekeno 625 water treatment ponds;
    - Lightning Creek Bridge abutments (Bellekeno);
    - Lightning Creek Bridge abutments (Onek);
    - Mill water storage ponds; and
    - Dry Stacked Tailings Facility (DSTF).

The location of these structures is shown on Figure 1.

The work was also to include readings of the slope indicators and thermistor cables that are still operational within and around the dry stacked tailings facility.

Finally, an inspection report was to be prepared that documents the results of the inspection, including a summary of the stability, integrity, and status of all inspected structures, and any recommendations for remedial actions.

### **3.0 INSPECTION SUMMARY AND RECOMMENDATIONS**

The 2020 annual inspection was completed by Taylor Pasloski, P.Eng. on August 18, 2020 in the company of Don Curry. The following sections summarize observations for each structure and describe remedial actions required to improve stability, if necessary. The recommended remedial actions have been separated into geotechnical stability concerns and ongoing facility maintenance issues to assist in the prioritization of remedial efforts. Select photographs taken during the inspection are included where appropriate.

#### **3.1 Bellekeno Mine**

##### **3.1.1 PAG Waste Facility**

The PAG waste storage facility is located south of the Bellekeno portal, as shown on Figure 1. The facility has not been used since mining operations were suspended in 2013, but currently contains some volume of waste rock. At the time of the inspection, the perimeter berms appeared intact with no visible sign of instability (Photo 1). No remedial action is required.



**Photo 1 - Bellekeno PAG Storage Facility (August 18/20)**

### 3.1.2 Bellekeno Road Waste Rock Pile

The Bellekeno waste rock pile forms a portion of the Bellekeno Haul Road and is located north of the Bellekeno portal, as shown on Figure 1. At the time of the inspection the side slopes of the waste rock pile appeared to be intact and stable. No remedial action is required.



**Photo 2 – Bellekeno Road Waste Rock Pile/Haul Road (August 18/20)**

### 3.1.3 Bellekeno 625 Water Treatment Ponds

The Bellekeno 625 water treatment ponds are located north of the Bellekeno 625 portal, as shown on Figure 1. The facility consists of two water treatment ponds that were both operating at the time of inspection. The primary treatment pond was operating at the discharge invert elevation with a freeboard of 0.5 m below the perimeter berm crest at the time of the inspection. The secondary pond was also operating at the discharge elevation, with a freeboard of 0.5 m in the south end. Treated water discharges through an HDPE pipe onto the hillside above Lightning Creek. A small rip in the liner was identified at the south end crest of the secondary pond, above and outside the water pond. The rip appeared to be caused by equipment operating around the pond and should be monitored and repaired if conditions worsen and it could potentially affect pond water containment.





**Photo 3 - Bellekeno 625 Water Treatment Ponds (August 18/20)**

The pipe from the treated water pond discharges directly onto the natural soils above Lightning Creek without any protection from erosion. The discharge pipe was still unhooked at a coupler upstream from the original discharge location. The outlet of the pipe has subsided into the ground and only the top half of the pipe was exposed, and the ground was starting to erode. The pipe should be elevated or moved so that the outlet is unobstructed. If further erosion takes place, riprap armoring must be installed.



**Photo 4 - Bellekeno 625 Water Treatment Ponds, Discharge Location (August 18/20)**

### 3.1.4 Lightning Creek Bridge Abutments (Bellekeno Haul Road)

The Lightning Creek Bridge on the Bellekeno Haul Road is located southwest of Keno City, as shown on Figure 1. The bridge is a single span steel structure with a wooden deck founded on earthfilled timber cribbed abutments. The abutments were stable at the time of the inspection and are sufficiently protected by riprap armouring from erosion of Lightning Creek.

As identified in the previous year's inspection, the approaches and safety berms have undergone erosion and are starting to become undermined by washout. It is recommended that the eroded areas be backfilled with coarse rock and the berms built up to maintain stability. Debris (tires, etc.) accumulated on the downslope side should be removed before backfilling. If coarse rock is used for the safety berm surface drainage would not be impeded, but it must be directed so that the berm is not eroded away.



**Photo 5 - Bellekeno Haul Road, Approach Erosion (August 08/20)**

### 3.1.5 Lightning Creek Bridge Abutments (Onek Road)

The Lightning Creek Bridge on the Onek Road is located east of Keno City, as shown on Figure 1. The bridge is a single span steel structure founded on earth filled timber cribbing abutments. The abutments were stable at the time of the inspection and are sufficiently protected from erosion by riprap, as shown in Photo 6 below. No remedial action is required for the Lightning Creek Bridge on the Onek Road at this time.





**Photo 6 - Lightning Creek Bridge Abutments, Onek Road (August 18/20)**

### **3.1.6 Mill Water Storage Ponds**

The two mill water storage ponds are located at the Keno Hill District Mill Site, west of Keno City, as shown on Figure 1. At the time of the inspection the mill was not operating, but both ponds contained some water, with a freeboard of about 2 m below the perimeter berms in the older pond, and an estimated 6 m of freeboard in the newer pond. No remedial action is required for these ponds.



**Photo 7 - Mill Water Storage Ponds (August 18/20)**

The access road on the west side of the ponds has shown signs of erosion in three areas. The berms on the road should be restored to direct drainage away and reduce further erosion, and the safety berms should be restored. If necessary, surface drainage should be directed in a controlled manner to a riprap protected half-culvert down the slope.



**Photo 8 - Mill Storage Ponds, Access Road Erosion (August 18/20)**

### **3.1.7 Dry Stacked Tailings Facility**

The dry stacked tailings facility (DSTF) is located at the Keno Hill District Mill Site west of Keno City, as shown on Figure 1. No tailings have been placed on the DSTF since mining operations were suspended in 2013. The tailings placed to date have been regraded, covered with organic materials and glacial till, then seeded as part of the progressive reclamation activities.

Marker posts previously installed at BH37 and BH40 to identify instrument locations were knocked down and should be re-installed.

Several tension cracks on the DSTF surface that were observed last year have been repaired by shallow excavation, backfilled with the excavated material capped with glacial till, and then compacted with the backhoe bucket. The location of the cracks is shown on Figure 1. All of these locations should continue to be monitored and repaired as necessary over the year so that the potential for water ingress into the DSTF is reduced. Ideally, the repairs should be capped higher than the surrounding terrain to keep surface runoff water away.

It is recommended that the locations of all these tension cracks be mapped, and new locations (if any), along with associated photographs, be added to an annual survey and submitted to the geotechnical engineer. The annual survey should be done in the spring, prior to any repairs.





**Photo 9 – DSTF Surface Showing some Repaired Tension Cracks (August 18/20)**

The diversion ditch around the side and base of the DSTF was cleaned out, but in the process the slope of the DSTF was locally increased. This area should be monitored for stability and erosion, and then repaired as required. The placement of riprap armouring in the ditch would assist in slowing runoff water velocity and minimizing future erosion/transport of tailings down the ditch.





**Photo 10 - DSTF Diversion Ditch (August 18/20)**

### **3.1.8 Instrumentation**

Performance of the DSTF is monitored by taking regular readings on the instrumentation installed during and after construction. DSTF instrumentation consists of seven ground temperature cables installed to monitor permafrost (six in natural soils adjacent to the DSTF and one through tailings placed within the DSTF footprint), and three slope indicators installed to monitor lateral movement of the foundation soils. The locations of installed DSTF instrumentation are shown on Figure 2.

It should be noted that some critical instrumentation located within and adjacent to the DSTF is in need of repair and/or replacement. As further described below, the ground temperature cable in the centre of the DSTF (BH40) is the most critical of these installations and must be replaced as soon as a drill is available.

#### **3.1.8.1 Background Ground Temperature Readings**

Updated ground temperature readings were collected from five of the six ground temperature cables installed in natural soils adjacent to the DSTF during the inspection. Readings were not collected from BH17 as the protective steel casing has been damaged, making the ground temperature cable inaccessible. The protective casing should be repaired or removed to allow for instrumentation readings.

As indicated on the updated ground temperature profiles included in Appendix B, the ground temperatures near surface have stabilized. Ground temperature at depth have indicated that ground temperature has decreased over the last few years. Some of the beads on ground temperature cables indicating temperatures less than  $-3^{\circ}\text{C}$  may

have been compromised and continued annual instrumentation readings are recommended to monitor ground temperature conditions.

The ground temperature cable installed in BH40, which extends through the tailings and into the foundation soils below to DSTF has been damaged and requires replacement. This is a critical installation needed to confirm design assumptions and provide ongoing temperature monitoring.

Access to BH15 and BH18 has overgrown with vegetation over the years and should be cleared to allow access for future monitoring.

### **3.1.8.2 Slope Indicator Readings**

An updated lateral movement profile developed from readings collected from the slope indicators installed in BH36 and BH38 in natural soils adjacent to the DSTF is included in Appendix C. Lateral movement that ranged from 50 mm to 80 mm was identified in BH38. Tetra Tech does not consider this movement to be of concern at this time, but annual monitoring should continue.

BH36 has also shown approximately 0.2 m of lateral displacement starting about 4 m below surface along the B-axis of the slope indicator (strike direction of the DSTF) since it was originally installed. Alexco has excavated an area to the north west of the slope indicator to use as a laydown area. The movement identified in BH36 is in the direction of the laydown, and the displacement is considered as “creep” (or relaxing) of the soil towards the excavation. The movement is not a concern at this time, but annual monitoring should continue.

Ice accumulated at the bottom two metres of BH38 and should be cleaned out and preserved using liquid suitable for use in permafrost conditions. The slope indicator located at BH28 is blocked and was not recorded. This instrument has been non-operational for several years and should be replaced.



## 4.0 CONCLUSION AND RECOMMENDATIONS

The structures inspected pose no significant risk to the environment or human health and safety in their current condition. The remedial actions recommended in the previous sections of this report are summarized in Table 1.

**Table 1 - Summary of Remedial Recommendations**

Structure	Stability Recommendations	Maintenance Recommendations
<b>BELLEKENO</b>		
PAG Waste Storage Facility	None	None
Bellekeno Road Waste Rock Pile	None	None
Bellekeno 625 Water Treatment Ponds	None	<ul style="list-style-type: none"> <li>▪ Small rip on northeast corner of secondary pond from equipment. Monitor the rip and repair if it gets worse;</li> <li>▪ Discharge line unhooked at coupler. Lift or move discharge hose to clear outlet. Monitor erosion and place riprap if required.</li> </ul>
Lightning Creek Bridge Abutments (Bellekeno Haul Road)	None	<ul style="list-style-type: none"> <li>▪ Remove debris on slope. Reconstruct safety berms to protect the edge of the bridge deck and the top of the abutments from surface water erosion.</li> </ul>
Lightning Creek Bridge Abutments (Onek Road)	None	None
Mill Water Storage Ponds	None	<ul style="list-style-type: none"> <li>▪ Access road erosion located at three spots on the west side. The safety berm should be restored to direct surface water drainage to an armoured location.</li> </ul>
Dry Stacked Tailings Facility	<ul style="list-style-type: none"> <li>▪ Repair or remove casing at BH17 to allow for ground temperature mentoring;</li> <li>▪ Install a new ground temperature cable to replace damaged cable at BH40;</li> <li>▪ Purge and clean BH38 and preserve using liquid suitable for use in permafrost conditions (silicone oil);</li> <li>▪ Replace the slope indicator located at BH28;</li> </ul>	<ul style="list-style-type: none"> <li>▪ Annual spring survey and photographs of tension cracks, prior to repairs</li> <li>▪ Continue annual instrumentation readings to monitor DSTF foundation conditions;</li> <li>▪ Restore marker posts on top of DSTF (mainly BH40 and BH37); and</li> <li>▪ Trim vegetation for future access to BH15 and BH18.</li> <li>▪ Monitor containment ditch slopes</li> </ul>

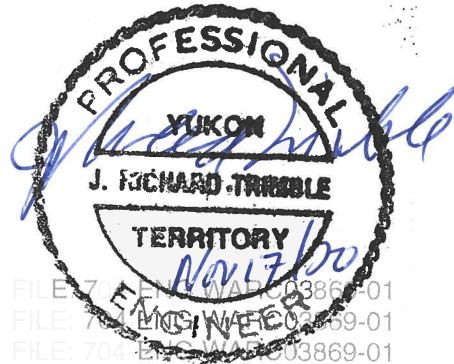
## 5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Alexco Keno Hill Mining Corp. and their agents. NELPCo Limited Partnership (NELPCo) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Alexco Keno Hill Mining Corp., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

## 6.0 CLOSURE

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

Respectfully submitted,  
NELPCo Limited Partnership



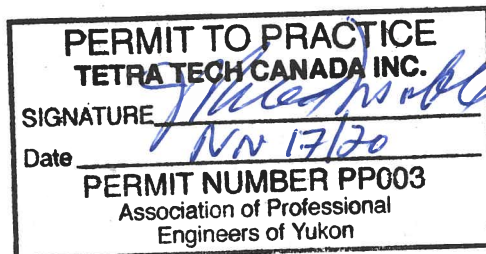
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/cr

Enclosed:

- Figure 1 – Site plan showing structure locations
- Figure 2 – Site plan showing borehole and instrument locations
- Appendix A – NELPCo's limitations on the use of this document
- Appendix B – Ground temperature readings
- Appendix C – Slope indicator readings

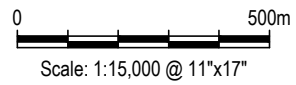
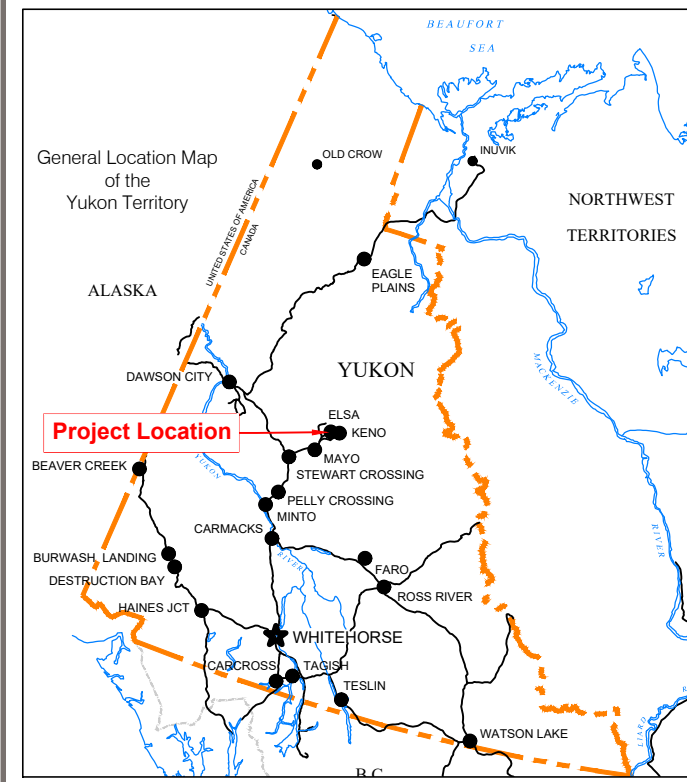
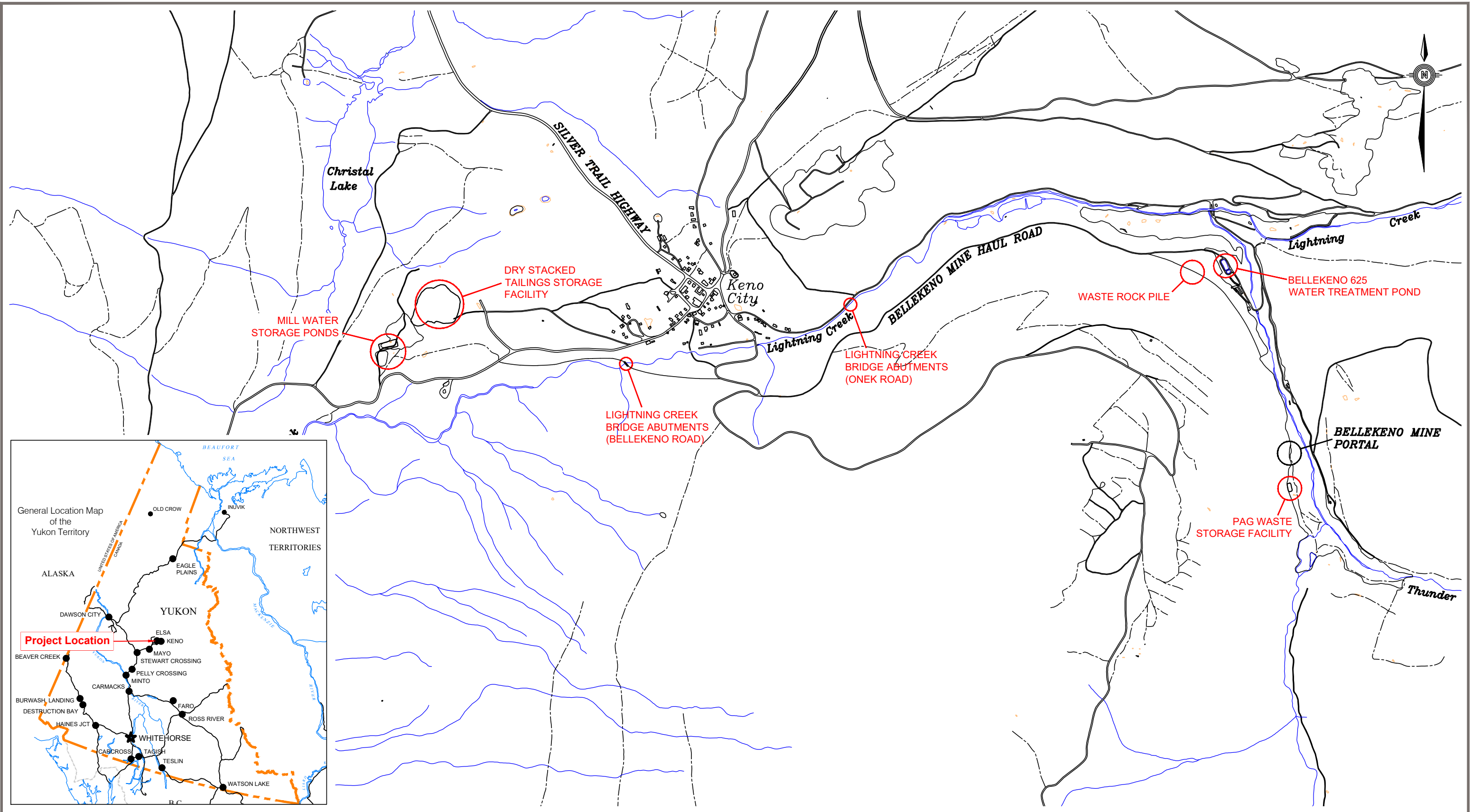




# FIGURES

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- |          |   |
|----------|---|
| Figure 1 | Site Plan Showing Structure Locations               |
| Figure 2 | Site Plan Showing Borehole and Instrument Locations |

Q:\Whitehorse\Drawings\Keno\ENG.WARC03869-01 - 2020 Structures Inspection\ENG.WARC03869-01 Fig\_1\_RO.dwg [FIGURE 1] August 28, 2020 - 1:37:11 pm (BY: PASLOSKI, TAYLOR)



**NOTES**  
 CONTOUR INFORMATION IS BASED ON DRAWING PROVIDED BY ALEXCO RESOURCE INC.



**2020 AKHM ANNUAL INSPECTION  
 BELLEKENO MINE SITE - KENO CITY, YUKON**

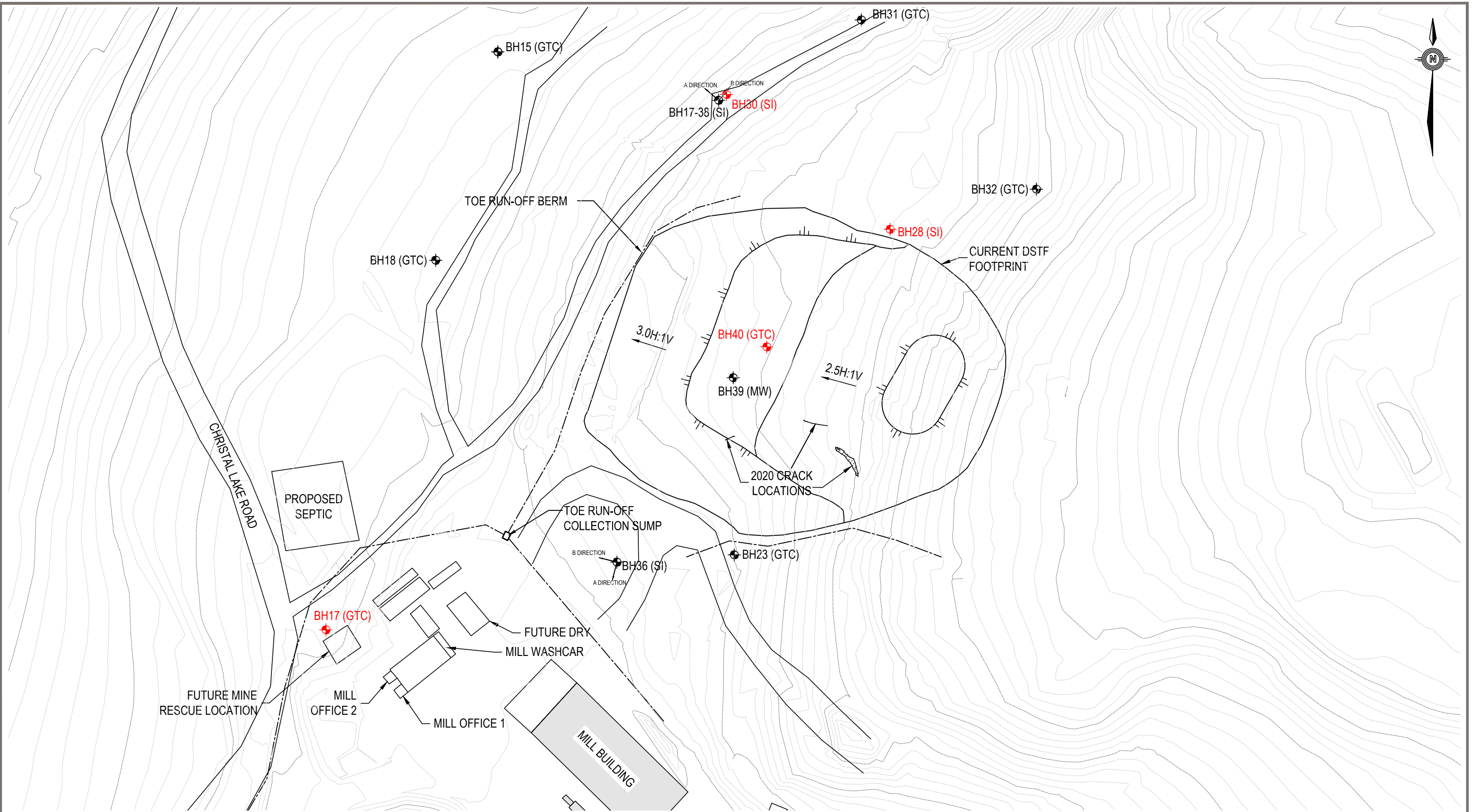
**SITE PLAN SHOWING  
 STRUCTURE LOCATIONS**

PROJECT NO. ENG.WARC03869-01	DWN TP	CKD JRT	REV 0
OFFICE EBA-WHSE	DATE August 24, 2020		

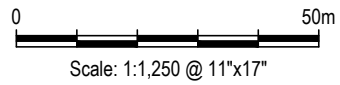
**Figure 1**



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**LEGEND**  
 GTC - GROUND TEMPERATURE CABLE  
 SI - SLOPE INDICATOR  
 MW - MONITORING WELL



**NOTE**  
 INSTRUMENTATION SHOWN IN RED HAS BEEN DAMAGED OR DESTROYED AND IS NOT READABLE. SOME OF THESE NEED TO BE REPAIRED AND/OR REPLACED. SEE ACCOMPANYING REPORT TEXT.

CLIENT



<b>2020 AKHM ANNUAL INSPECTION BELLEKENO MINE SITE - KENO CITY, YUKON</b>				
<b>SITE PLAN SHOWING BOREHOLE AND INSTRUMENTATION LOCATIONS</b>				
PROJECT NO. ENG.WARC03869-01	DWN TP	CKD JRT	REV 0	<b>Figure 2</b>
OFFICE EBA-WHSE	DATE August 24, 2020			

# APPENDIX A

## LIMITATIONS ON THE USE OF THIS DOCUMENT

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# LIMITATIONS ON USE OF THIS DOCUMENT

## GEOTECHNICAL

### 1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of NELPCO Limited Partnership's (NELPCo) Client (the "Client") as specifically identified in the NELPCO Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). NELPCO does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by NELPCO.

Any unauthorized use of the Professional Document is at the sole risk of the user. NELPCO accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where NELPCO has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by NELPCO during the performance of the work are NELPCO's professional work product and shall remain the copyright property of NELPCO.

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### 1.2 ALTERNATIVE DOCUMENT FORMAT

Where NELPCO submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed NELPCO's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by NELPCO shall be deemed to be the original. NELPCO will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of NELPCO's Instruments of Professional Service shall not, under any circumstances, be altered by any party except NELPCO. NELPCO's Instruments of Professional Service will be used only and exactly as submitted by NELPCO.

Electronic files submitted by NELPCO have been prepared and submitted using specific software and hardware systems. NELPCO makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 1.3 STANDARD OF CARE

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

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

### 1.4 DISCLOSURE OF INFORMATION BY CLIENT

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

### 1.5 INFORMATION PROVIDED TO NELPCO BY OTHERS

During the performance of the work and the preparation of this Professional Document, NELPCO may have relied on information provided by third parties other than the Client.

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

### 1.6 GENERAL LIMITATIONS OF DOCUMENT

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

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

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

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



## 1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, NELPCO has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

## 1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. NELPCO does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

## 1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

## 1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. NELPCO does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

## 1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

## 1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

## 1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

## 1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

## 1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

## 1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

## 1.17 SAMPLES

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

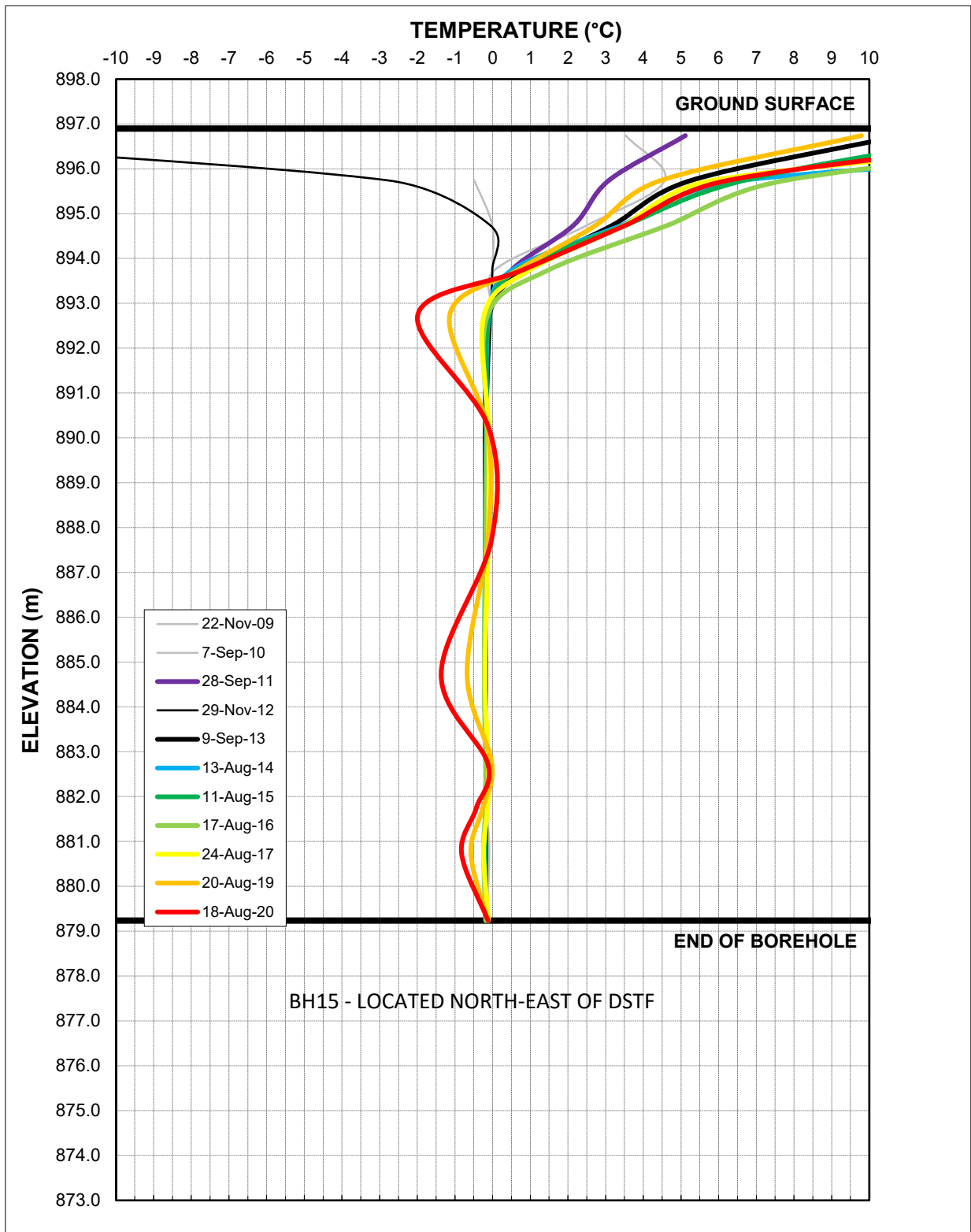
## 1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. NELPCO cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.

# APPENDIX B

## GROUND TEMPERATURE PROFILES

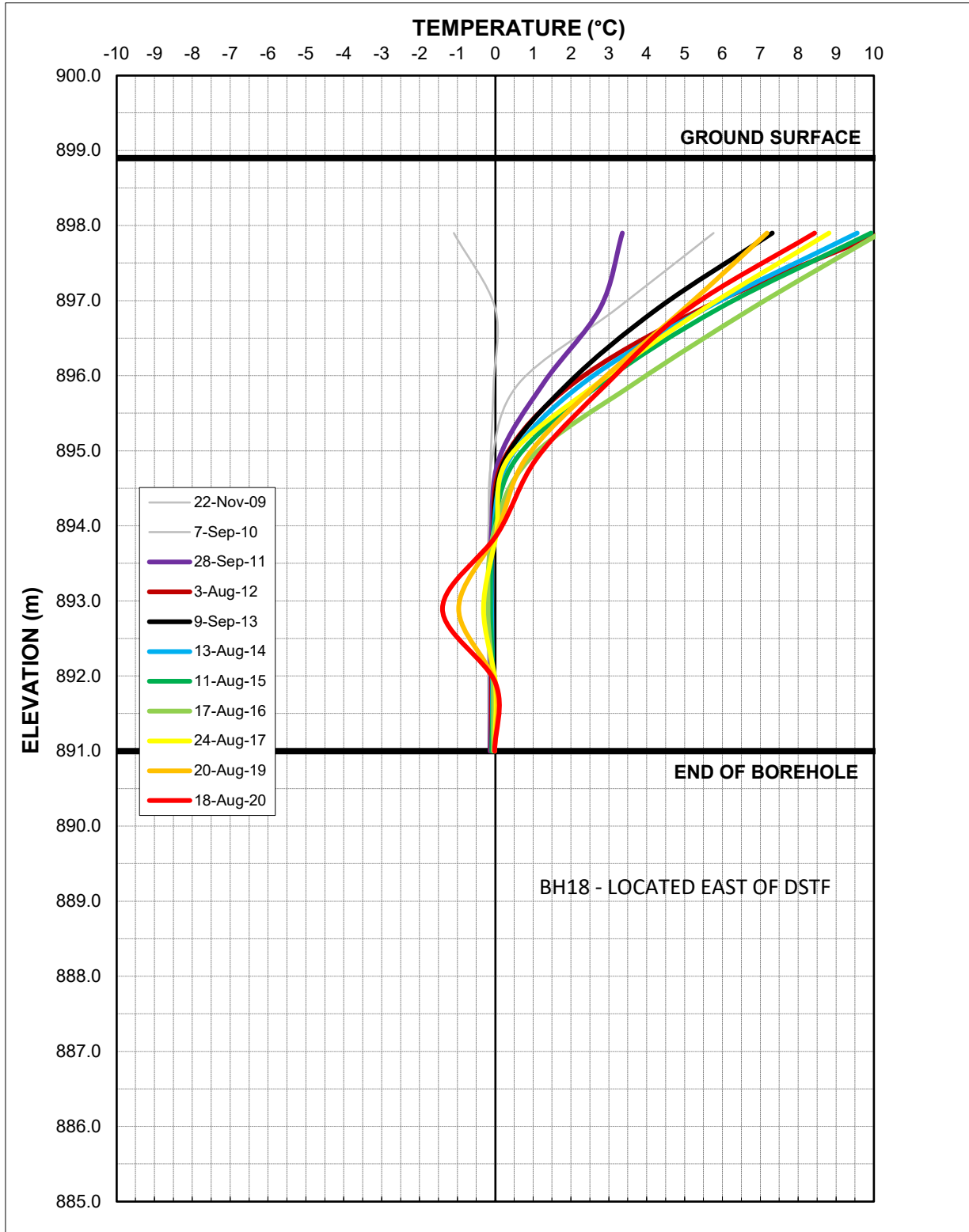
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 Last Updated     August 18, 2020  
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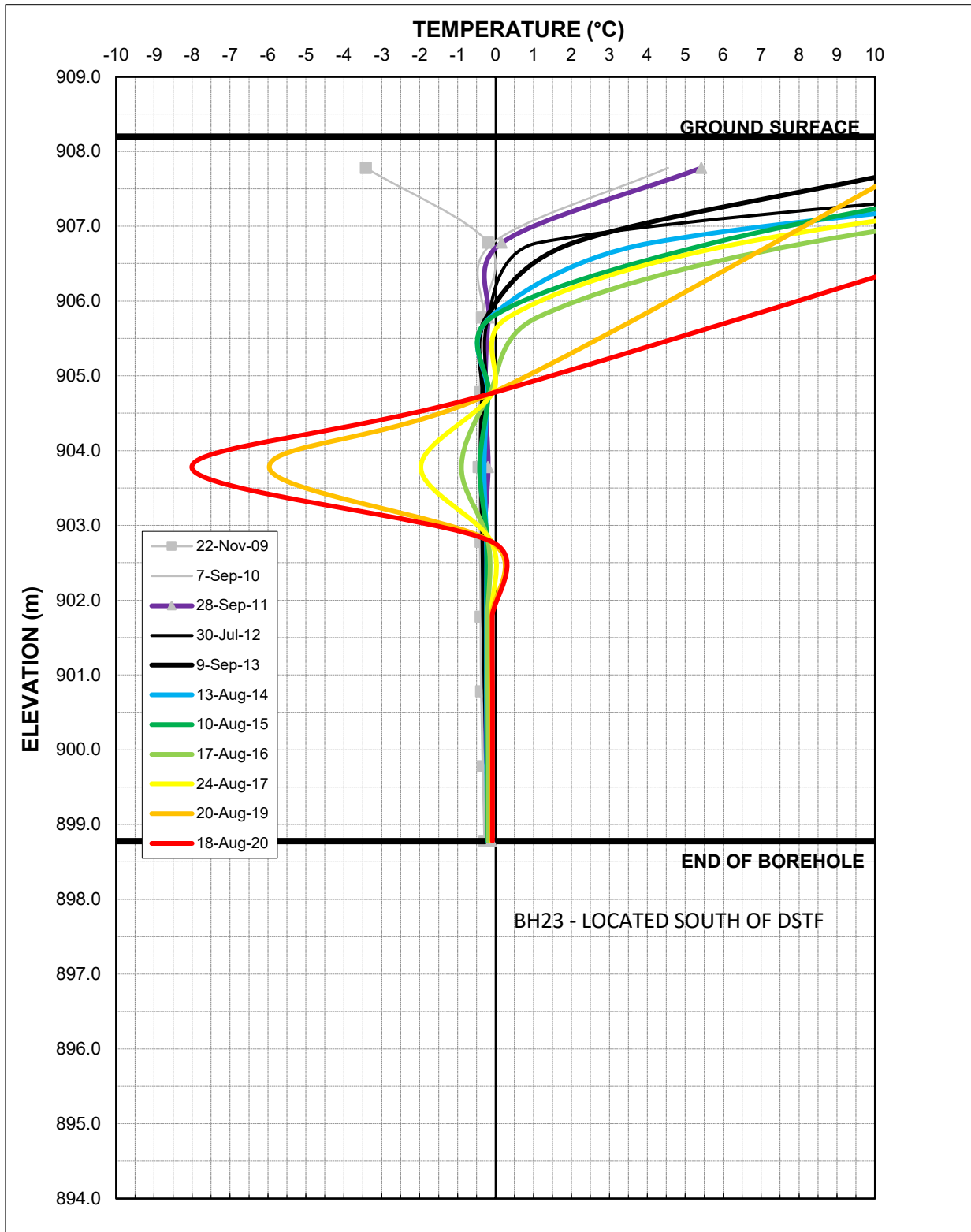
**Ground Temperature Profile**  
**Keno Hill District Mill Site Borehole BH15**  
**Figure T1**





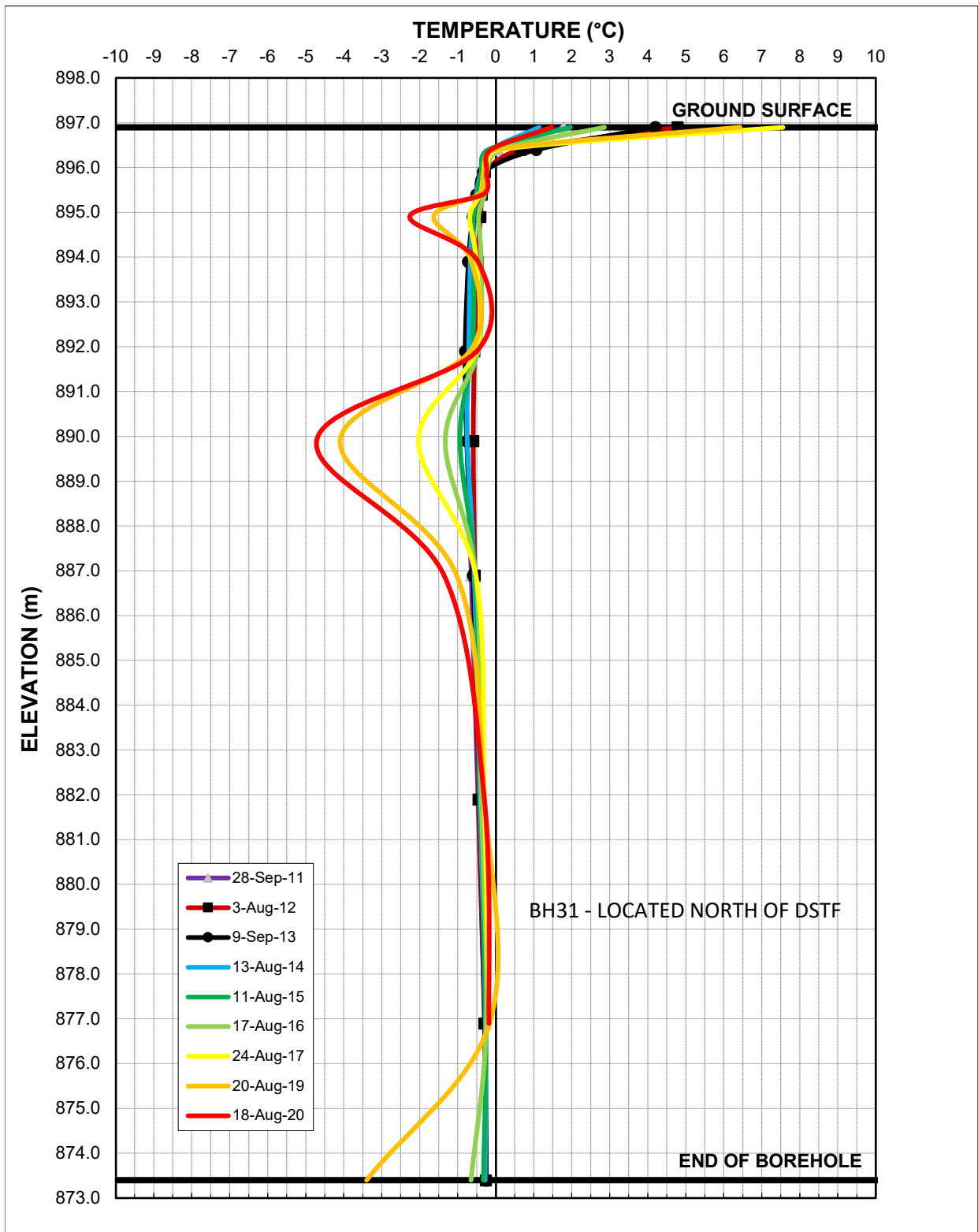
Install Date      September 2, 2009  
 Last Updated     August 18, 2020  
 Cable No:        2209

**Ground Temperature Profile**  
**Keno Hill District Mill Site Borehole BH18**  
**Figure T3**



Install Date      September 29, 2009  
 Last Updated     August 18, 2020  
 Cable No:        2210

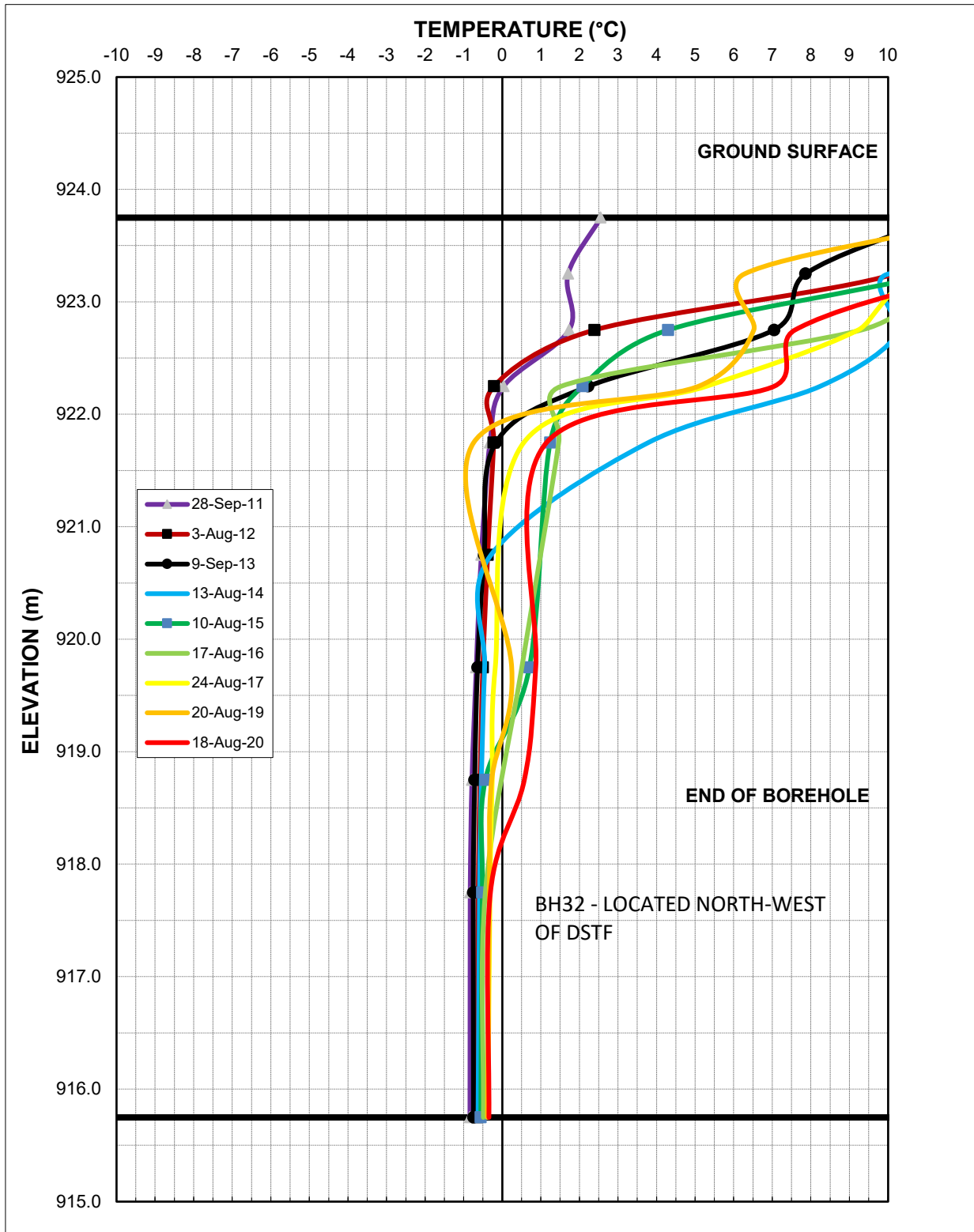
**Ground Temperature Profile**  
**Keno Hill District Mill Site Borehole BH23**  
**Figure T4**



Install Date      February 22, 2011  
 Last Updated     August 18, 2020  
 Cable No:        2263

**Ground Temperature Profile**  
**Keno Hill District Mill Site Borehole BH31**  
**Figure T5**





Install Date      February 22, 2011  
 Last Updated     August 18, 2020  
 Cable No:        2264

**Ground Temperature Profile**  
**Keno Hill District Mill Site Borehole BH32**  
**Figure T6**

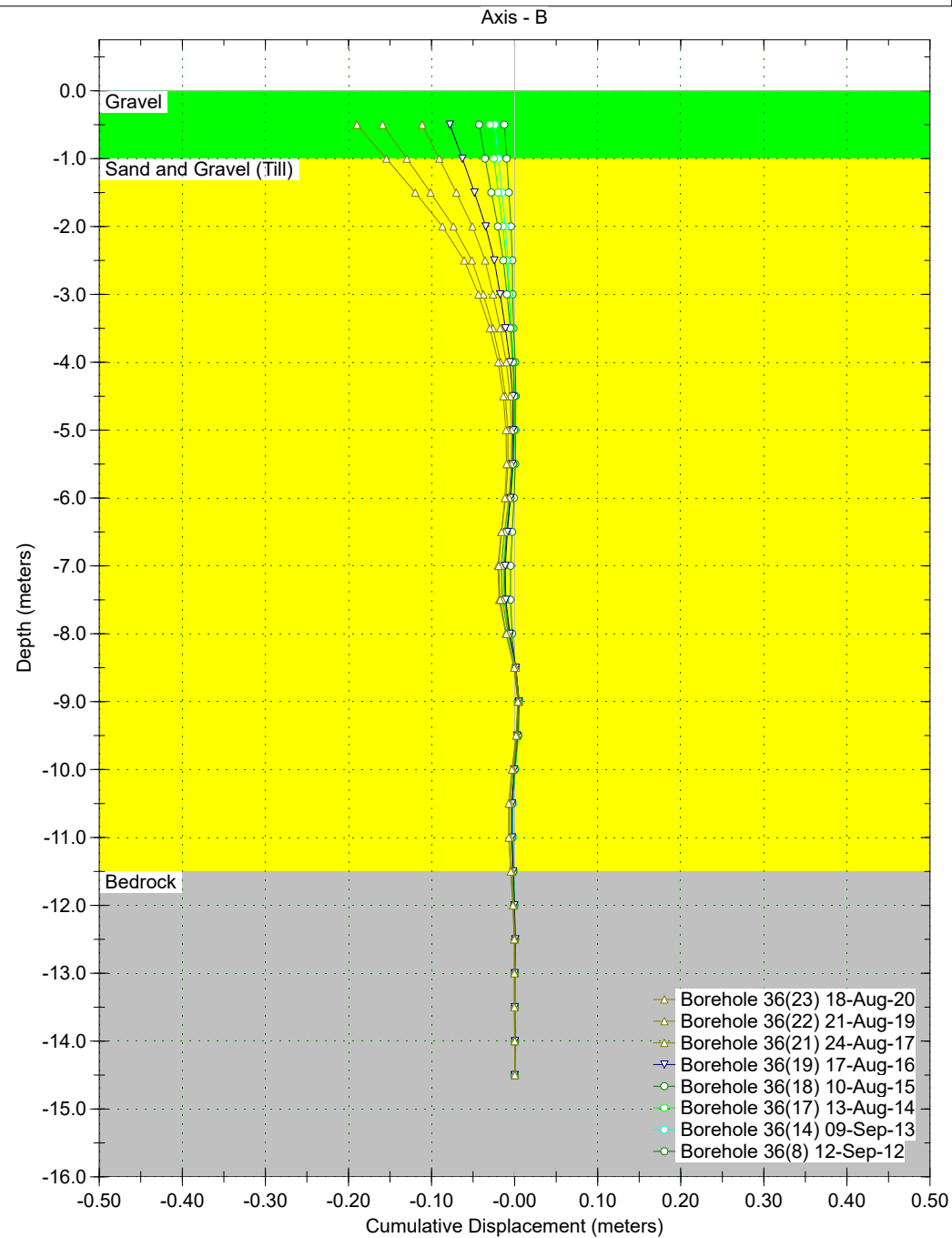
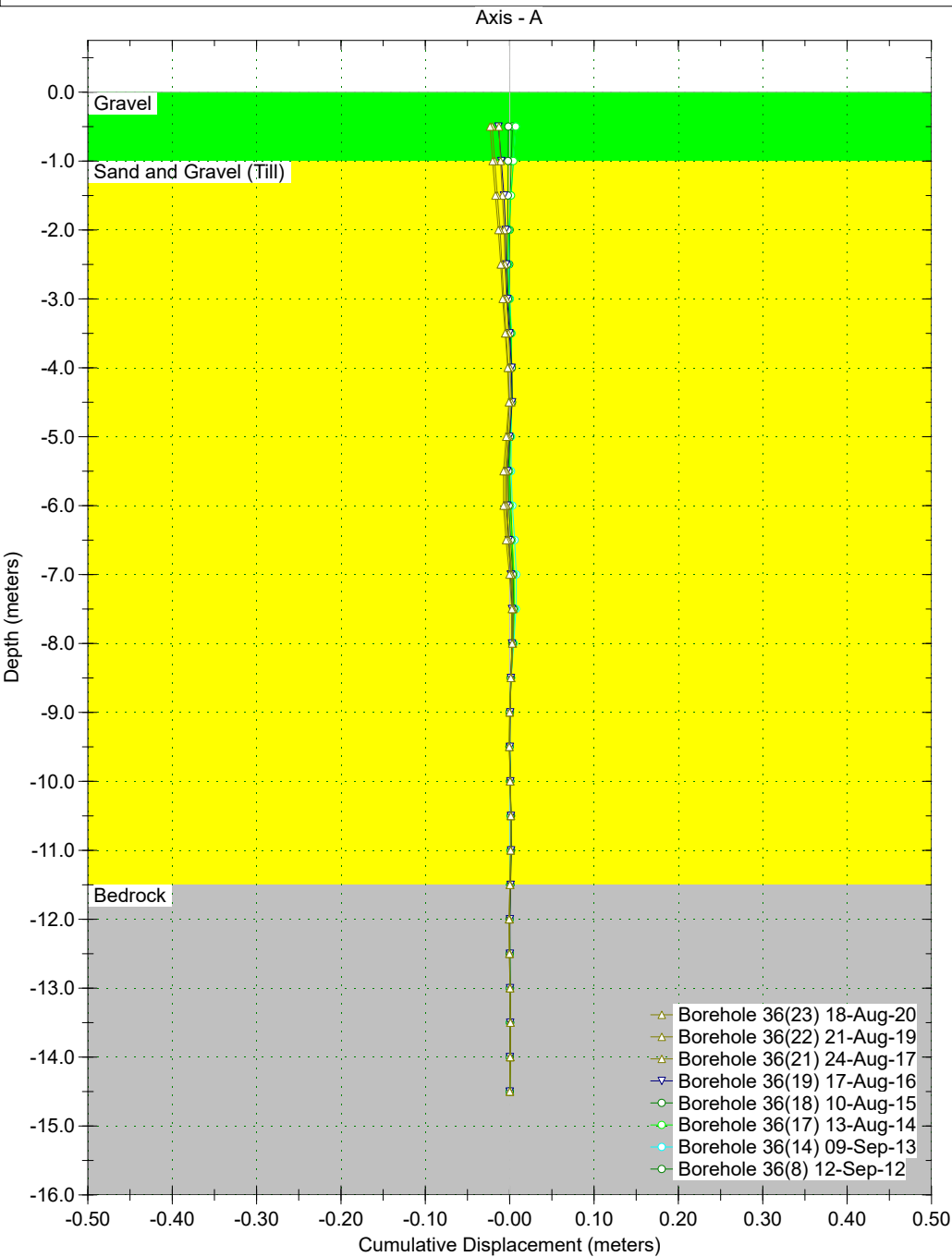
# APPENDIX C

## SLOPE INDICATOR PROFILES

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Borehole : Borehole 36  
Project : Keno Hill District Mill  
Location : DSTF  
Northing : 7086872  
Easting : 483931  
Collar : 908.1

Spiral Correction : N/A  
Collar Elevation : 0.00 meters  
Reading Depth : 14.5 meters  
A+ Groove Azimuth : 165  
Base Reading : 2011 Dec 14 16:52  
Applied Azimuth : 0.0 degrees





Borehole : Borehole 38  
 Project : Keno Hill District Mill  
 Location : DSTF  
 Northing : 7087034  
 Easting : 483969  
 Collar : 907.6

Spiral Correction : N/A  
 Collar Elevation : 0.00 meters  
 Reading Depth : 23.5 meters  
 A+ Groove Azimuth : 310  
 Base Reading : 2017 Aug 24 13:06  
 Applied Azimuth : 0.0 degrees

