



A TETRA TECH COMPANY

September 30, 2011

ISSUED FOR USE  
EBA FILE: W14101068.037

Minto Explorations Ltd  
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**Attention:** Mr. John Knapp, General Manager

**Subject:** Mill Water Pond – 2011 Annual Review, Minto Mine, YT

## 1.0 INTRODUCTION

As requested, this letter presents a report by EBA, A Tetra Tech Company (EBA) resulting from a site visit completed to examine the current condition of the Mill Water Pond (MWP) at Minto Mine, YT. The intent of the site visit was to provide a geotechnical engineering report on the condition of the pond, in partial fulfillment of the requirements of the existing Quartz Mining Licence QML-0001. Also included is a review of the monitoring instrumentation data collected from the ground temperature cables and survey hubs.

EBA's last inspection of this facility was in April 2010. This inspection is summarized in EBA's letter report "Mill Water Pond – 2010 Annual Review, Minto Mine, YT" dated February 11, 2011. EBA has used this background information to assist in assessing the recent performance of the MWP.

## 2.0 OBSERVATIONS AND RECOMMENDATIONS

Mr. Chad Cowan, P.Eng., of EBA's Whitehorse office completed a site visit on August 25, 2011. Specific details are presented below, and are also noted on Figure 1 attached to this letter. Photographs were taken of the pond during the visit. Selected photos are attached while the remainder are available for review in the EBA files, if desired.

### 2.1 Observations

Observations noted during the site visit are as follows.

- The 600 mm dia. bypass pipe from the inlet culvert across the south slope to the outlet culvert (Photos 1 and 2) installed by Minto in April 2008 is still present. During the site visit, the inlet of this pipe was closed off to back up the water from entering the MWP or bypassing it entirely. Some water was however still entering the pond.
- As mentioned in previous inspection reports the bypass pipe and most of the associated metal clamp supports are still resting directly on portions on the liner.

- Although difficult to tell because of the water level within the MWP, the slopes of the cell still appear consistent with construction with no signs of slumping or bulging noted with the exception of what appears to be a minor bulge under the liner system in the vicinity of the southwest corner. This bulge is just visible (Photo 2) at the water level elevation at the time of the site visit. The potential bulge noted in the northeast corner during the 2007/2008 review does not appear to have changed over the past few years.
- The tear in the liner system, roughly 1 m in length, at the crest of the berm in the northeast corner noted since the 2007/2008 review is still present (Photo 3).
- There are two tears, the large tear roughly 1.5 m in length, is in the liner system north of the outlet culvert on the east side (Photo 4). During every inspection EBA has noted that the void beneath the larger tear is increasing in size due to water penetration from the surface.
- There was no water flow through the additional culvert installed on top of the berm in the southeast corner which allows the flow of surface runoff from two small settling ponds into the MWP. The two settling pond were full of sediment up to the bottom of the culvert.
- The water level was at the bottom of main outlet during the site visit allowing minimal discharge and no water was being discharged from the bypass outlet.

## 2.2 Recommendations

As previously stated in the 2010 review it is recommended that Minto personnel monitor the components of the installed bypass pipe system and miscellaneous piping to ensure they do not cause any negative effects on the MWP or its liner system. If the bypass pipe is not to be used in the future it should be removed from the system. If the bypass pipe is used in the future, this could result in wearing a hole in the liner.

Once the water level drops during regular operation, the observed bulge in the vicinity of the southwest corner should be inspected further.

The tear in the liner system in the northeast corner is near the crest of the slope and has minimal effect on the normal operation of the MWP. However, a patch should be installed when a qualified installer is on site to maintain the integrity of the liner. Deterioration of the subgrade material beneath the tear location has increased; therefore, additional fill will be required to support the liner patches. In the interim, pieces of liner should be placed over the tears, anchored at the crest and partially covered to reduce water infiltration into the base of the liner system.

The two tears in the liner system along the east sideslope is above the outlet culvert and will therefore not effect the normal operation of the pond. As shown on Photo 4, deterioration of the subgrade material beneath the tear locations has increased; therefore, it is recommend that additional subgrade material be placed beneath the liner and the liner patched as soon as possible. The subgrade material should be inspected prior to placement of the liner patches as additional fill will be required to support the liner. In the interim, a piece of liner should be placed over the tear and anchored to the MWP crest to reduce any water infiltration into the base of the liner system.

The settling ponds in the southeast corner of the MWP should be cleaned out to allow for collection of the sediment from surface runoff the flows into the MWD.

### **3.0 MONITORING INSTRUMENTATION DATA**

Two ground temperature cables (MWPT 1 and 2) and four survey hubs (MWPSH 1 to 4) were installed in November 2007 to provide a means of monitoring the foundation conditions of the MWP. The installation of these instruments is summarized in EBA’s letter report “Instrumentation Installation Report – Mill Water Pond” dated April 30, 2008.

The location of these instruments is shown in Figure 1.

#### **3.1 Ground Temperature Cables**

Ground temperature profiles from the two ground temperature cable locations are presented in Figures T1 and T2. The two profiles indicate that permafrost in the foundation soils within the vicinity of the pond has been maintained to date. The active layer extended to a depth of 4.3 m in August 2011, this is slightly deeper than the active layer depth noted in September 2010.

#### **3.2 Survey Hubs**

The last completed survey of the survey hubs was completed in May 2009 at which time three of four survey hubs were picked up. Survey hub MWPSH-2 was removed prior to December 2008 and will have to be reinstalled and a baseline elevation re-established. Survey hub MWPSH-1 was also removed after May 2009 and will require reinstallation and a baseline elevation re-established.

As noted in previous reviews, the minimum frequency of completing the surveys is specified in EBA’s report, “Instrumentation Installation Report – Mill Water Pond, Minto Mine Site, Yukon” dated April 30, 2008. This report states the survey hubs were to be surveyed on a quarterly basis for the first year and based on the results the frequency could be reduced to biannually. Based on the provided information, it is recommended that the survey hubs be surveyed on a monthly basis until consistency in the data can be noted. The frequency of the survey can then be reduced to biannually.

### **4.0 LIMITATIONS OF REPORT**

This report and its contents are intended for the sole use of Minto Explorations Ltd. and their agents. EBA, A Tetra Tech Company, 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 Minto Explorations Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in EBA’s General Conditions that are provided in Appendix A of this report.

## 5.0 CLOSURE

We trust this report meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Sincerely,  
EBA, A Tetra Tech Company

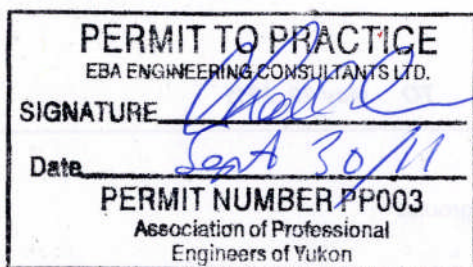


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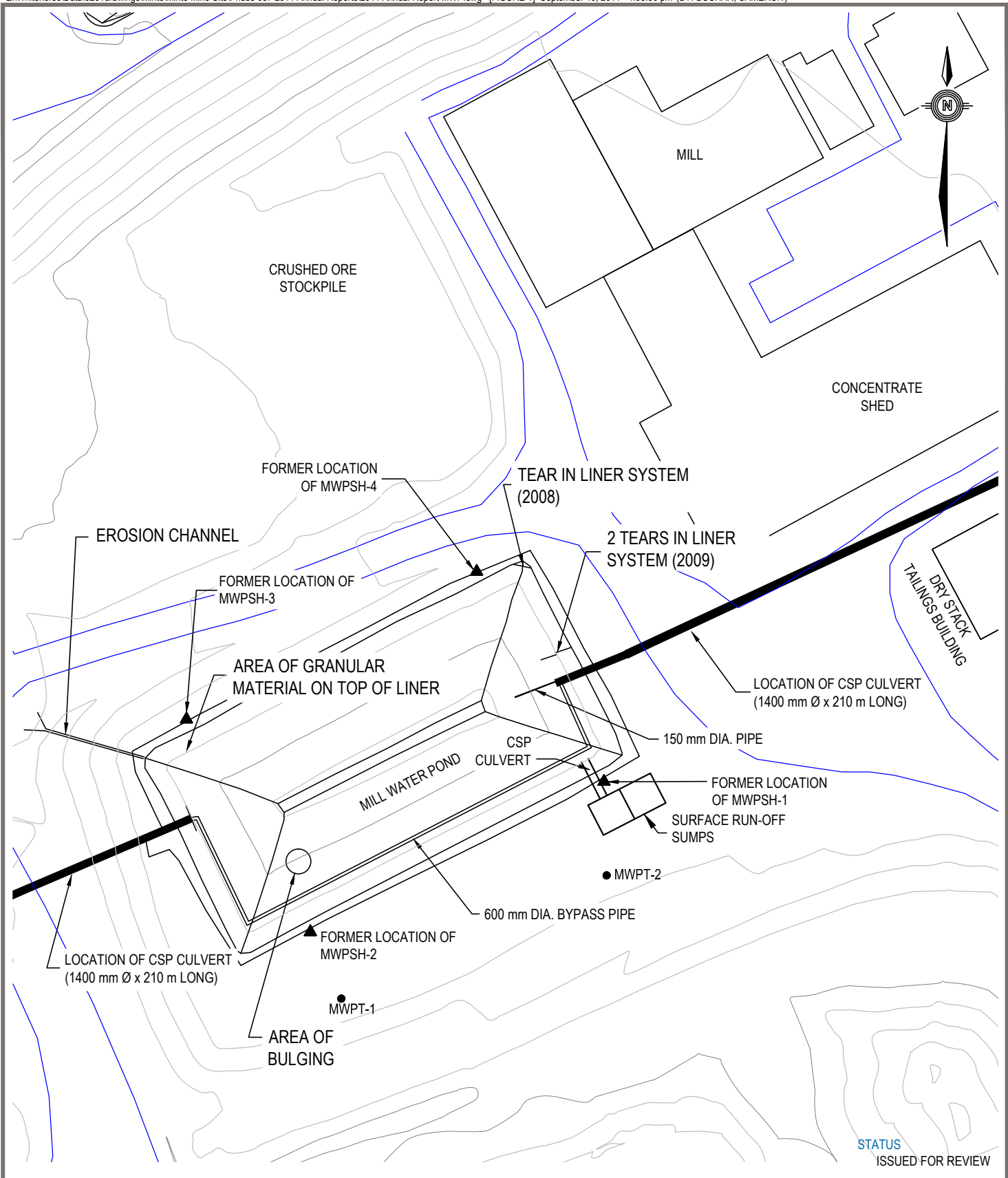
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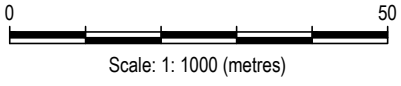
# FIGURES

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Figure I	Site Plan Showing Observations and Instrumentation Locations
Figure T1	Ground Temperature Profile MWPT 1
Figure T2	Ground Temperature Profile MWPT 2



STATUS  
ISSUED FOR REVIEW



CLIENT  
**MINTO EXPLORATIONS LTD.**

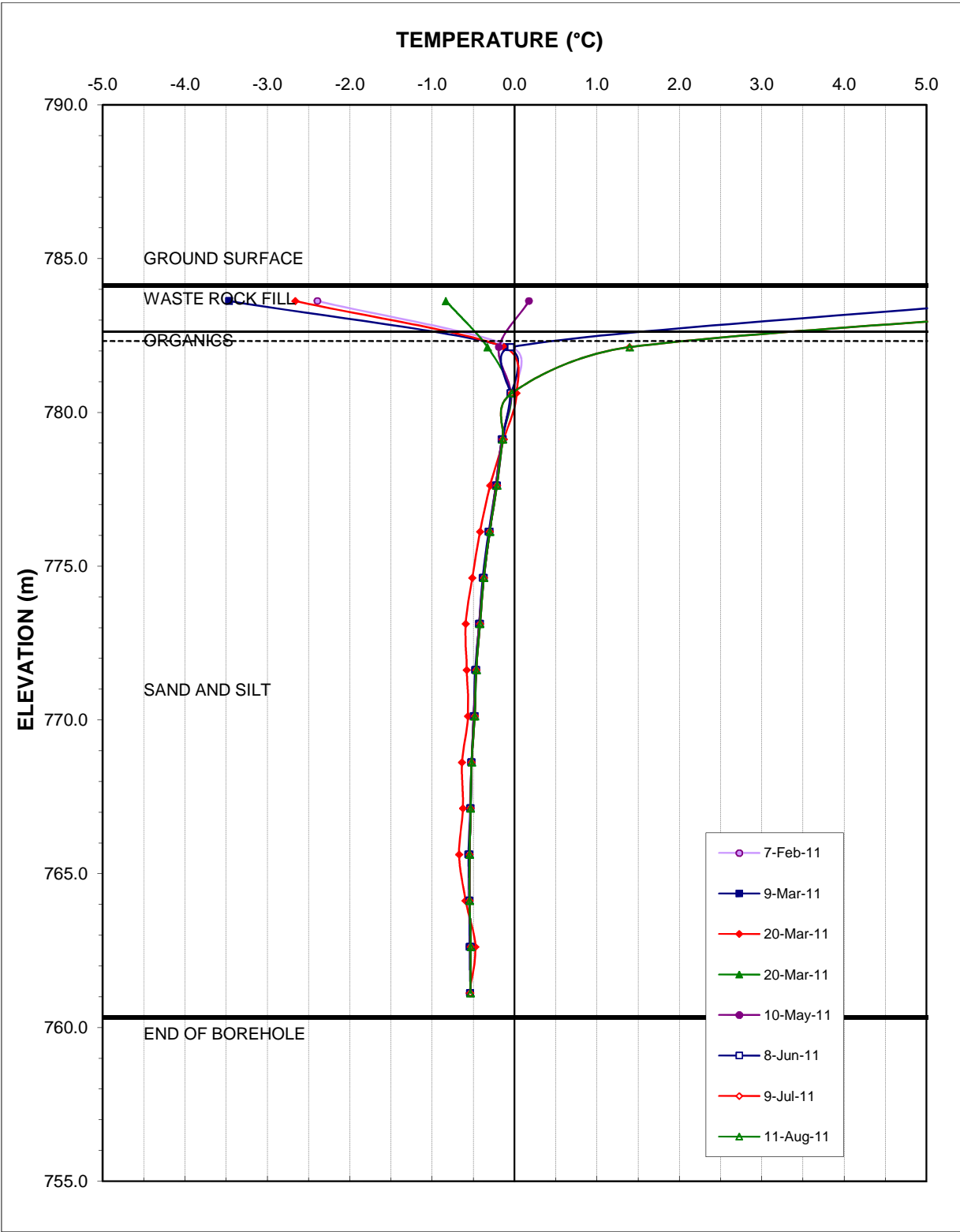
**MILL WATER POND - 2011 ANNUAL REPORT  
MINTO MINE, YUKON**

**SITE PLAN SHOWING OBSERVATIONS  
AND INSTRUMENTATION LOCATIONS**



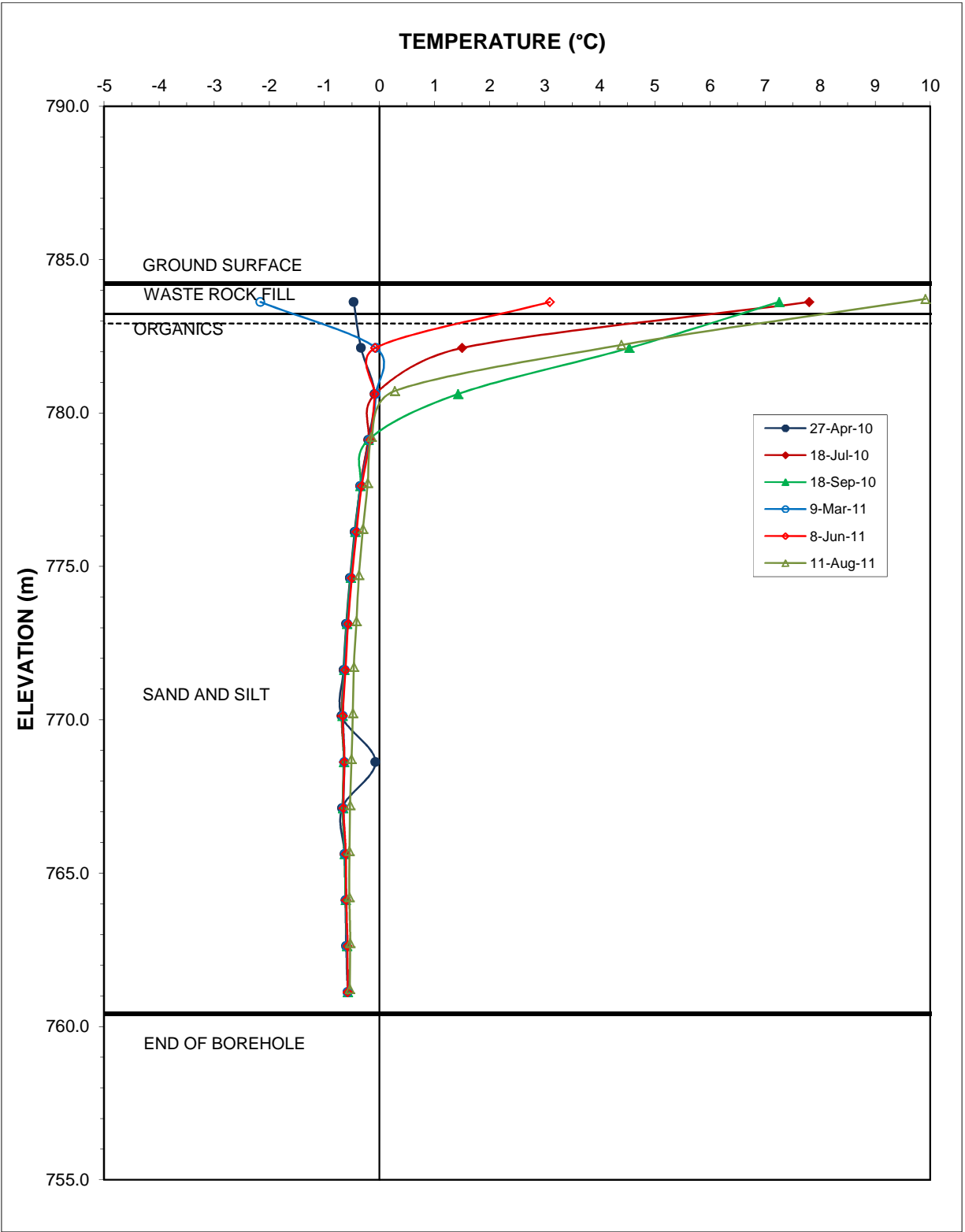
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OFFICE EBA-WHSE	DATE September 8, 2011		

**Figure 1**



Installed: November 2, 2007

Mill Water Pond  
Ground Temperature Profile - MWPT-1  
Figure T1



Installed: November 2, 2007

Mill Water Pond  
Ground Temperature Profile - MWPT-2  
Figure T2



# PHOTOGRAPHS

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- Photo 1      Looking South along the West side of the Mill Water Pond at the entry culvert and bypass pipe.
- Photo 2      Looking West along the South side of the Mill Water Pond at the bypass pipe.
- Photo 3      Tear in the liner system in Northeast corner of MWP.
- Photo 4      Two tears in liner system near the MWP discharge culvert.



**Photo 1**

Looking South along the West side of the MWP at the entry culvert and bypass pipe. (August 25, 2011)



**Photo 2**

Looking West along the South side of the Mill Water Pond at the bypass pipe. (August 25, 2011)



**Photo 3**

Tear in the liner system in Northeast corner of MWP. (August 25, 2011)



**Photo 4**

Two tears in liner system near the MWP discharge culvert. (August 25, 2011)

# APPENDIX A

## APPENDIX A GENERAL CONDITIONS

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# GENERAL CONDITIONS

## GEOTECHNICAL REPORT

This report incorporates and is subject to these "General Conditions".

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### 1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of EBA's Client. EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

### 2.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. EBA's instruments of professional service will be used only and exactly as submitted by EBA.

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

### 3.0 ENVIRONMENTAL AND REGULATORY ISSUES

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

### 4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

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

Classification and identification of geological units are judgmental in nature as to both type and condition. EBA 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.

### 5.0 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.

### 6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

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

## 7.0 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.

## 8.0 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.

## 9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

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

## 10.0 OBSERVATIONS DURING CONSTRUCTION

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

## 11.0 DRAINAGE SYSTEMS

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

## 12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

## 13.0 SAMPLES

EBA 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.

## 14.0 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.