Minto Explorations Ltd. Whitehorse, Yukon

ISSUED FOR USE

PRELIMINARY DESIGN PROPOSED SOUTHWEST WASTE DUMP MINTO MINE, YUKON

W14101068.005

May 2008





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- Appendix B Site Characterization Programs Borehole and Testpit Logs



1.0 INTRODUCTION

1.1 GENERAL

The Minto Mine is a copper-gold mine located about 240 km north of Whitehorse, Yukon and is owned and operated by Minto Explorations Ltd. (Minto). The general location of the Minto Mine, along with its specific structures, is shown in Figure 1. The mine is being developed as an open pit mining operation and has been in production since June 2007. Development of the Area 1 Open Pit commenced with stripping in April 2006, and currently operates on an ongoing basis with either ore being stockpiled for processing and/or waste materials being disposed of at one of the waste dumps. There are currently three waste dumps permitted at the Minto Mine - the Main Waste Dump (MWD), the Reclamation Overburden Dump (ROD), and the Ice-Rich Overburden Dump (IROD). The MWD is used to store both non ice-rich overburden and waste rock materials while the ROD is used to store non ice-rich overburden. To date, Minto has only used the MWD and ROD for waste from the open pit.

To facilitate future reclamation and optimize current operations, Minto has proposed the design and construction of a fourth waste dump for the storage of non ice-rich overburden and waste rock materials. Consequently, EBA Engineering Consultants Ltd. (EBA) was retained by Minto to undertake the geotechnical design of this fourth waste dump, the Southwest Waste Dump (SWD).

This report presents the preliminary design of the proposed SWD based on the available data and previous geotechnical designs of the MWD, ROD, IROD, and the Dry Stack Tailings Storage Facility (DSTSF). Background information involving the proposed SWD, findings of several geotechnical characterization programs, which EBA conducted in 1996, 1997, and 2005, the proposed SWD footprint limit, and analytical work associated with the geotechnical design of the MWD, and DSTSF are summarized within this report. Furthermore, preliminary construction and monitoring recommendations for the SWD are included.

A detailed geotechnical design report will follow this preliminary report. Findings of a 2008 geotechnical characterization program, which SRK Consulting Inc. (SRK) conducted, the layout and geometry of the proposed SWD, and analytical work associated with the geotechnical design of the SWD will summarized within this detailed design report. Furthermore, construction and monitoring recommendations for the SWD will also be included.

EBA received approval from Minto to proceed with the geotechnical design of the SWD in May 2008.

This report is subject to the General Conditions provided in Appendix A.

1.2 SCOPE OF WORK

EBA's scope of work for this report was specifically the preliminary design of the proposed SWD, and did not include detailed geotechnical design and waste deposition planning.

1.3 REPORT FORMAT

This preliminary design report is contained in one volume and presents the main text together with the figures and appendices.

2.0 BACKGROUND INFORMATION

2.1 DESIGN INFORMATION

EBA developed the preliminary design for the proposed SWD from the following background information:

- A drawing supplied by Minto on May 21, 2008 that detailed the proposed footprint limit, and
- Several conversations and meetings with Minto involving the SWD's construction and intended use.

In addition, EBA also used the following information from EBA's files:

- A 1997 report (EBA, 1997) entitled "1996 Geotechnical Drilling Program" detailing the 1996 geotechnical investigation;
- A 1998 report (EBA, 1998a) entitled "1997 Geotechnical Program and Construction Inspection Reports" detailing the 1997 geotechnical investigations ;
- A 1998 report (EBA, 1998b) entitled "Geotechnical Evaluation, Proposed Main Waste Dump" summarizing the geotechnical design of the MWD;
- A 2006 report (EBA, 2006) entitled "Geotechnical Design, Ice-Rich Overburden Dump" summarizing the geotechnical design of the IROD;
- A 2007 report (EBA, 2007) entitled "Geotechnical Design Report, "Dry" Stack Tailings Storage Facility" summarizing the geotechnical design of the DSTSF; and
- A 2008 report (EBA, 2008a) entitled "Geotechnical Design, Proposed Reclamation Overburden Dump" summarizing the geotechnical design of the ROD.
- A 2008 letter report (EBA, 2008b) entitled "Dry Stack Tailings Storage Facility Construction Quality Assurance Data" summarizing the construction quality assurance data collected between July 25, 2007 and March 18, 2008 for the DSTSF.
- A 2008 letter report (EBA, 2008c) entitled "Instrumentation Installation Report Mill Water Pond" summarizing the instrumentation installation program for the Mill Water Pond.



3.0 WASTE SOURCING AND CHARACTERIZATION

3.1 WASTE SOURCING AND CHARACTERIZATION

Waste will be sourced from the Area 1 Open Pit and consist of predominately waste rock. Some non ice-rich overburden may also require storage within the SWD. This waste material is currently scheduled to be stored at the MWD and is consistent with the material placed to date within the MWD.

The current open pit development plan for the remainder of 2008 indicates that waste rock will be excavated from the north portion of the Area 1 Open Pit and require storage. This north portion of the Area 1 Open Pit is referred to as Phase 3 of the Area 1 Open Pit.

The open pit development plan is to be updated in the last week of May 2008; therefore, the volume of waste to be sourced and ultimately stored within the SWD and/or MWD can not be presented within this report. Figure 2 shows the area proposed for the SWD construction, between the MWD, up to the IROD, and south towards the Dyno site.

This information will be summarized in the detailed geotechnical design report.

4.0 SITE CHARACTERIZATION

4.1 SITE CHARACTERIZATION PROGRAMS

Four separate site characterization programs have been completed within the proposed SWD footprint. The first three programs were completed by EBA the fourth was completed by SRK. The first program was completed in July 1996 (EBA, 1997) and was comprised of investigating various areas of the site to evaluate future development. The second was completed in September and October 1997 (EBA, 1998a) and formed part of the geotechnical evaluation of the MWD (EBA, 1998b). The third program was completed in October 2005 and formed part of the geotechnical evaluation of the IROD (EBA, 2006). The fourth program was completed in March and April 2008 to conduct condemnation drilling within the area and supplement the data required for the SWD design.

4.1.1 1996 Site Characterization Program

The 1996 site characterization program included three boreholes drilled within the vicinity of the proposed SWD location. Only one (96-G05) of the three boreholes is located within the proposed SWD footprint while one (96-G04) is located north and the another (96-G08) is located east of the footprint. Figure 2 shows the location of these three boreholes. Borehole logs summarizing the soil and ground ice descriptions, as well as the laboratory index testing (moisture content and particle size distribution tests) are presented in Appendix B. Individual particle size distribution results are also presented in Appendix B with the associated borehole log.



4.1.2 1997 Site Characterization Program

The 1997 site characterization program included eleven boreholes drilled within the vicinity of the proposed SWD location. Nine of the eleven boreholes are located within the proposed SWD footprint while the remaining two are located north of the footprint. Figure 2 shows the location of these eleven boreholes, 97-G10 through –G19 and –G24. Borehole logs summarizing the soil and ground ice descriptions, as well as the laboratory index testing (moisture content and particle size distribution tests) are presented in Appendix B. Individual particle size distribution results are also presented in Appendix B with the associated borehole log.

4.1.3 2005 Site Characterization Program

The 2005 site characterization program included ten testpits excavated within the proposed SWD location along the design toe of the IROD. Figure 2 shows the location of these testpits, 1200179-TP100 through –TP109. Testpit logs summarizing the soil descriptions, as well as the laboratory index testing (moisture content and particle size distribution tests) are presented in Appendix B. Individual particle size distribution results are also presented in Appendix B with the associated testpit log.

4.1.4 2008 Site Characterization Program

The 2008 site characterization program was completed to conduct condemnation drilling for the area and provide additional subsurface information within the vicinity of the proposed SWD. The program included nine boreholes drilled within the vicinity of the proposed SWD location. Three of the nine boreholes are located within the proposed SWD footprint while the remaining six are located east of the footprint. Figure 2 shows the location of these nine boreholes, 08_SWC_270 through _280, excluding _276 and _279.

Borehole logs and associated laboratory index testing from the program are not currently available, but expected within the last week of May 2008. This information results will be included in the detailed geotechnical design of the SWD.

5.0 SITE CONDITIONS

5.1 SURFACE FEATURES

The proposed SWD site is located over gently sloping terrain in the upper portion of a valley, and is directly south of the MWD and east of the IROD. The proposed footprint limit, presented in Figure 2, enclosed by the main MWD haul road, the IROD and Dyno access road, the IROD and a 30 m offset from the main drainage of this valley that forms part of the upper extent of Minto Creek.

The proposed footprint is located on an east facing slope on the west side of the upper valley. The terrain steepens to the west and south of the proposed SWD site. Topographic information indicates the presence of several small ephemeral creeks that converge to the

middle of this upper valley into the main drainage. A few small ephemeral creeks enter the proposed footprint from the northwest between the IROD and Pelly laydown pad. These also converge to the middle of this upper valley into the main drainage. These creeks collect the surface run-off water and route it down the mountain side.

The site and adjacent area has sparse to locally dense tree cover. The area was subject to a forest fire in 1995 that has resulted in areas of fallen trees with deciduous species regrowth.

5.2 SUBSURFACE CONDITIONS

The geotechnical site characterizations indicate that the subsurface conditions within the majority of the proposed SWD footprint generally comprise a thin veneer of peat and vegetation overlying a silty sand colluvium overlying residual soil (residuum), which in turn overlies weathered bedrock (granodiorite).

Within the direct vicinity of the IROD, the subsurface conditions generally comprise a thin veneer of peat and vegetation overlying residual soil (residuum), which in turn overlies weathered bedrock (granodiorite).

5.2.1 Groundwater

Groundwater was noted at 0.5 m at 97-G12 and at 2.4 m at 97-G16 during the site characterizations. No other borehole or testpit completed within the vicinity of the proposed SWD site identified groundwater.

5.2.2 Permafrost

Permafrost was encountered in the majority of boreholes drilled during the 1996 and 1997 site characterization programs that are located within the proposed SWD footprint. The observed ice contents in these boreholes were logged as Nbe (Ice not visible – well bonded, excess ice) to Vx (Visible ice – individual ice crystals or inclusions) 5% to 20%. The active layer at the time of drilling varied between 0.3 m and 3.1 m.

Permafrost was not encountered in any of the testpits completed during the 2005 program and is not present beneath or upgradient of the IROD.

5.2.3 Bedrock

Depth to competent bedrock (granodiorite) at the design toe of the IROD was determined to range between 2.0 m and 3.1 m. The remainder of the boreholes within the vicinity of the proposed SWD terminated in the colluvial soils. Weathered bedrock outcrops are present within the vicinity of the IROD.

All boreholes completed during the 2008 program were terminated within bedrock. These results will better define the depths to bedrock throughout the proposed limit.



6.0 SOUTHWEST WASTE DUMP DESIGN

6.1 DESIGN CONSIDERATIONS

The primary considerations for the design of the proposed Southwest Waste Dump are summarized below.

- The proposed dump must be geotechnically stable at all stages of construction, with particular attention required to evaluate the effects of permafrost foundation conditions.
- Surface water management and control of both run-on and run-off water must be incorporated into the design.
- Field observation and performance monitoring must be incorporated into the design.
- The proposed SWD footprint has been offset 30 m from the main ephemeral Upper Minto creek southeast of the dump.
- It is Minto's intent to construct the dump in the same manner as the MWD, with a series of setbacks and benches to allow for continued progressive reclamation.
- The results from the 2008 site characterization program along with the open pit development plan will provide the necessary information required to complete the detailed geotechnical design. This information is to be completed by the last week of May 2008.

6.2 LAYOUT AND GEOMETRY

The proposed SWD footprint limit is presented in Figure 2. The geometry of the dump will be a crescent shaped structure with a series of main benches, much like the MWD. It is Minto's intent to construct the dump by placing the waste material at its angle of repose (approximately 1.5H:1V) with setbacks or benches at 10 m (vertical) intervals.

The layout and geometry of the dump has not been finalized due to the current open pit development plan being updated at this time and waste material quantities are unknown. The proposed layout and geometry will be presented in the detailed geotechnical design.

6.3 THERMAL EVALUATION

Thermal analyses are to be carried out to predict the permafrost response within the foundation soils. For this preliminary design, the results from the analyses carried out for the geotechnical design of the DSTSF (EBA, 2007) have been adopted. Although the fill material and placement rate will differ for the SWD, the main basis of the DSTSF analyses is valid for the SWD.

The DSTSF analyses indicate that the overall effect of the facility on the permafrost foundation will not be significant. However, a minimum 1.5 m thick drainage blanket constructed with waste rock material was incorporated into the design to drain potential excess pore water should permafrost degradation occur. Taking this design component



from the DSTSF for the SWD site (similar permafrost foundation conditions) the use of waste rock to construct the bottom bench of the SWD is recommended at this time.

In addition to the DSTSF analyses, readings from ground temperature cables installed at the DSTSF and the Mill Water Pond in November 2007 are available and presented in EBA, 2008b and EBA, 2008c. Readings to date indicate that at both locations, the placement of fill has not negatively affected the permafrost foundation soils.

The detailed geotechnical design report will summarize the thermal analyses completed for the SWD. Results from the 2008 site characterization program will be incorporated into these analyses.

6.3.1 Analysis Methodology

Analyses will be carried out using EBA's proprietary two-dimensional finite element computer model, GEOTHERM. The model simulates transient, two-dimensional heat conduction with change of phase for a variety of boundary conditions. The heat exchange at the ground surface is modelled with an energy balance equation considering air temperatures, wind velocity, snow depth, and solar radiation. The model facilitates the inclusion of temperature phase change relationships for soils, such that any freezing depression and unfrozen water content variations can be explicitly modelled. The model has been verified by comparing its results with closed-form analytical solutions and many different field observations.

6.4 STABILITY EVALUATION

Limit equilibrium analyses are to be conducted to determine the factor of safety against slope failure during construction and maintenance of the dump. This stability analyses will be carried out for a typical cross-section of the dump. At the time of this report, the layout and geometry of the proposed SWD has not been defined as discussed in Section 6.2; therefore, a typical cross-section is unavailable.

For this preliminary design, the results from the analyses carried out for the geotechnical design of the MWD (EBA, 1998b) and the DSTSF (EBA, 2007) have been adopted. Based on the results from the MWD design, Minto's plan to construct the dump by placing the waste rock material at its angle of repose (approximately 1.5H:1V) with setbacks or benches at 10 m (vertical) intervals is acceptable for the upper benches. The bottom bench and overall dump stability will be subject to the presence of permafrost foundation soils, similar to the DSTSF. It has been postulated, based on previous EBA experience, that some thaw at the base of the active layer will occur and that the shear strength acting along the thawed-frozen interface will be a controlling factor in the dump design. The focus of the stability analyses will therefore be a deep failure plane cutting through the dump to a receding permafrost interface in the foundation soil. The failure would then follow the potential weak layer and exit at the toe of the slope.



Permafrost ground ice conditions and the topography of the SWD and DSTSF sites are similar; therefore, the stability analyses completed for the DSTSF are valid for this preliminary design. Based on the results from the DSTSF design, an overall slope (resulting from the setbacks or benches) of 4H:1V can be assumed at this time. The slope of the bottom bench should be constructed to 3H:1V.

Figure 3 presents a typical preliminary cross section that includes the above mentioned recommended dump slopes.

The detailed geotechnical design report will summarize the stability analyses completed for the SWD based on the thermal analyses completed and the results from the 2008 site characterization program.

6.4.1 Analysis Methodology

Analyses will be conducted using the commercially available two-dimensional, limit equilibrium software, SLOPE/W (Geo-Slope International Ltd., GeoStudio 2007 (Version 7.03)). The principles underlying the method of limit equilibrium analyses of slope stability are as follows:

- A slip mechanism is postulated;
- The shear resistance required to equilibrate the assumed slip mechanism is calculated by means of statics;
- The calculated shear resistance required for equilibrium is compared with the available shear strength in terms of factor of safety; and
- The slip surface with the lowest factor of safety is determined through iteration.

A factor of safety is used to account for the uncertainty and variability in the strength and porewater pressure parameters, and to limit deformations.

Earthquake loading has been modeled using pseudostatic peak horizontal ground acceleration.

6.4.2 Design Criteria

The guidelines for minimum design factor of safety will be adopted from the British Columbia Interim Guidelines for Investigation and Design of Mine Dumps (Waste Rock Design Manual).



7.0 SURFACE WATER MANAGEMENT

As previously indicated, the topographic information presented in Figure 2 indicates the presence of several small ephemeral creeks that converge to the middle of this upper valley into the main drainage. A few small ephemeral creeks enter the proposed footprint from the northwest between the IROD and Pelly laydown area. These also converge to the middle of this upper valley into the main drainage. These creeks collect the surface run-off water and route it down the mountain side.

Once the layout and geometry of the dump has been finalized, any concerns with these ephemeral creeks can be addressed. Given the proposed SWD footprint limit includes a 30 m setback from the main ephemeral drainage of Upper Minto creek, it is not anticipated that surface water management will cause much concern for the dump stability.

The few small ephemeral creeks entering the proposed footprint from the northwest between the IROD and Pelly laydown will have to be addressed in the detailed geotechnical design. This run-on water must be able to pass through or be diverted around the dump location and not pond within or in the vicinity of the dump.

8.0 CONSTRUCTION RECOMMENDATIONS

Preliminary construction recommendations for the SWD are summarized below.

- Subgrade preparation for the proposed SWD is not required. The organic mat should remain undisturbed.
- Only waste rock material sourced during pit development it should be used within the exterior slope of the dump. Should non ice-rich overburden be sourced and stored at the SWD, it must be placed within the interior of the dump.
- Minto must monitor the overburden material to determine whether it should be stored within the SWD (non ice-rich) or IROD (ice-rich).
- A monitoring program must be incorporated to provide photographs and record (as built) information of the construction progress.
- Regular visual inspections by EBA and/or Minto should be completed to note potential areas of instability.



9.0 PERFORMANCE MONITORING

Performance monitoring is an integral part of the design, construction, and operation of the SWD. This section describes a recommended minimum monitoring program for the construction and operation phases of the dump.

The results of the monitoring program can be the basis of an adaptive management process that continually reviews the operation of the dump.

A monitoring program must be incorporated to provide photographs and record (as built) information of the construction progress.

9.1 VISUAL MONITORING

This monitoring should include the following:

- Inspection of the external slopes for any signs of distress;
- Inspection of the crest of the dump for any signs of transverse cracking; and
- Inspection of the dump toe for any signs of seepage from the base.

9.2 OVERBURDEN MATERIAL MONITORING

Monitoring of the overburden waste soils should be completed during open pit development to ensure only non ice-rich overburden waste is placed in the proposed SWD. Ice-rich waste should be placed in the IROD.

9.3 GROUND TEMPERATURE CABLES

Ground temperature cables are to be installed to monitor the thermal regime of the foundation soils. The location and quantity will be determined once the layout and geometry of the dump is known.

9.4 PIEZOMETERS

Vibrating wire piezometers are to be installed to confirm the assumed phreatic surfaces used for the stability analyses and monitor any build up of pore water pressure. The location and quantity will be determined once the layout and geometry of the dump is known.

9.5 DEFORMATION SURVEYS

The breaklines (crest and toes) of the SWD should be surveyed at the completion of each main construction phase to determine the record (as built) geometry and to establish a basis for determining future deformations. These same breaklines should be resurveyed and reviewed in the summer of each year, or periodically at the discretion of the Geotechnical Engineer, to monitor deformation movements.



10.0 LIMITATIONS

Geological conditions are innately variable and are seldom spatially uniform. At the time of this report, information on stratigraphy at the project was at identified borehole locations from past studies. In order to develop recommendations from this information, it is necessary to make some assumptions concerning conditions other than at the specifically tested locations. Adequate monitoring should be provided during construction to check that these assumptions are reasonable.

The recommendations prepared and presented in this report are based on the geotechnical data gathered by EBA from previous reports and site characterization programs. The provided data, in the form of geotechnical boreholes and associated laboratory index property test results, has been supplemented by EBA's direct observations of the site.

This report and the recommendations contained in it are intended for the sole use of Minto Explorations Ltd. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report if the information presented in this report is used or relied upon by any party other than that specified above for the proposed SWD. Any such unauthorized use of this report is at the sole risk of the user. Additional information regarding the use of this report is presented in the attached General Conditions, which form a part of this report.



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11.0 CLOSURE

EBA trusts that this report satisfies your requirements. Please do not hesitate to contact the undersigned should you have any questions or comments.

Respectfully Submitted, EBA Engineering Consultants Ltd.



prepared by: Jason P.W. Berkers, P.Eng. Project Engineer Direct Line: 867.668.2071 x233 jberkers@eba.ca



reviewed by: J. Richard Trimble, M.Sc. (Eng.), P.Eng. Project Director, Yukon Region Direct Line: 867.668.2071 x222 rtrimble@eba.ca

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REFERENCES

- EBA, 1997. "1996 Geotechnical Drilling Program". Minto Explorations Ltd. Minto Mine Property, Yukon. (EBA Project No. 0201-11509, dated January 1997).
- EBA, 1998a. "1997 Geotechnical Program and Construction Inspection Reports". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. 0201-11509, dated February 1998).
- EBA, 1998b. "Geotechnical Evaluation, Proposed Main Waste Dump". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. 0201-11509, dated April 1998).
- EBA, 2006. "Geotechnical Design, Ice-Rich Overburden Dump". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. 1200173, dated January 2006).
- EBA, 2007. "Geotechnical Design Report, "Dry" Stack Tailings Storage Facility". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. 1200173, dated January 2007).
- EBA, 2008a. "Proposed Reclamation Overburden Dump". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. W14101068.004, dated February 2008).
- EBA, 2008b. "Dry Stack Tailings Storage Facility Construction Quality Assurance Data". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. W14101068.001, dated April 10, 2008).
- EBA, 2008c. "Instrumentation Installation Report Mill Water Pond". Minto Explorations Ltd. Minto Mine, Yukon. (EBA Project No. W14101068.003, dated April 30, 2008).













APPENDIX

APPENDIX A GENERAL CONDITIONS



GEOTECHNICAL REPORT – GENERAL CONDITIONS

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

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 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.

3.0 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.

4.0 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.

5.0 SURFACE WATER AND GROUNDWATER CONDITIONS

Surface and groundwater conditions mentioned in this report are those observed at the times recorded in the report. These conditions vary with geological detail between observation sites; annual, seasonal and special meteorologic conditions; and with development activity. Interpretation of water conditions from observations and records is judgmental and constitutes an evaluation of circumstances as influenced by geology, meteorology and development activity. Deviations from these observations may occur during the course of development activities.

6.0 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.

7.0 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.



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.

9.0 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.

10.0 DRAINAGE SYSTEMS

8.0

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.

11.0 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.

12.0 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.

13.0 STANDARD OF CARE

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

14.0 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.

15.0 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), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that 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. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that 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.



APPENDIX

APPENDIX B SITE CHARACTERIZATION PROGRAMS - BOREHOLE AND TESTPIT LOGS



MINTO CREEK MINE	DEVELOPMENT	CLIENT: MINTO EXPLORAT	IONS LTD.		TEST PIT NO: 96-GO	4
GEOTECHNICAL EV	LUATION-WEST WASTE DUMP	DRILL: CME-75 C/W SOL	ID SHAFT AUGERS		PROJECT NO: 0201-11509	
SAME E TYDE		UTM ZONE: 8 N6944720	S.8 E384145.3		ELEVATION: 2787.30 (m)	
	GRAB SAMPLE / NO RECOVERY	STANDARD PEN.	75 mm SP00N		RREL BARREL	
DEPTH(m) AMPLE TYPE SAMPLE NO USC	าดี B DESCRI	IL PTION	PLASTIC M.C.	40 40	■ PERCENT GRAVEL ■ 20 40 60 80 ● PERCENT SAND ● 20 40 60 80 ▲ PERCENT SALT OR FINES ▲ 20 40 60 80	
			24 48 72			
	MOSS, ORGANIC SILT SAND AND SILT - some grad coarse angular sand angular gravel; froze - more gravel and sar grading into residuum - occasional zones of sond throughout GRAVEL AND SAND (residuum silt; occasional silt ind fine angular gravel, so sand is angular to sul unfrozen; damp; dense - slow, rough drilling - drilling refusal @ 3.7 m	ivel; fine to ; fine to medium n, Nbe; brown ad with depth; n SILT - some) - trace to some clusions; ome coarse; congular; e; light brown m				
0						1 1
EBA Engi	neering Consultant	s Ltd.	D BY: CRH VED BY: CRH		COMPLETION DEPTH: 3.7 m	mmm



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MINTO	CRE	EK	MINE	DEVE	ELOPMENT	CLIENT: MINTO EXI	PLORATIC	ONS LTD	•			TEST	PIT N	0:	96-	-G05	
GEOTE		ICAL	- EVA	LUATI	ON-WEST WASTE DUMP	DRILL: CME-75 C,	/W SOLI	d shaft	AUGE	RS		PROJ	ECT N	10: 02	01-1	1509	
MINIO	CRE	£Κ,	YUK	ON		UTM ZONE: 8 N6	944522.	9 E3842	254.8			ELEV	ATION:	2739	1.30 (1	n)	
SAMPL	. [TP1	-	GR	AB SAMPLE [] NO RECOVE	RY 🔀 STANDARD	PEN.	75	mm SI	POON		RREL (BARREI	*			
	Ш	9		Ы				■ SI/ 10	NDARD 20	PENETR/	40		■ P 20	ercent 40	CRAVE 60	. II 80	
H(r		Ч	Ŋ	YMB	SC SC)IL							20	PERCEN	T SAND	•	
EPT		MP	S		ההמכת	Τρητολι							A PERC	ENT SIL	T OR FI	NES A	
	SA	S		Sol		IFTION		PLASIN I		I.U.		ļ	20	40	60	80	
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					ORGANIC SILI/MOSS												Ē
					ORGANIC SILT - some clo	iy, frequent organic											1111
Ĺ					inclusions; frozen,	Nbe; strong											
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- 1.0		2			inclusions: Vy c 10	1510ngl silt											
F	.	-			medium to course	sand: light brown		•									1 LEU
		Ì				sand, agar biowa											E L
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ĺ					SAND AND SILT - some of	iow_i_o_m											- LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
	ĺ				clay, occasional co	bbles: low											1 L
2.0					plastic; frozen, Vx,c	5 to 10% ICE;											Ē
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					- samples below 1.5 n	n exhibit hígh											Ē
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				Wh	<u>itehorse, Yukon</u>	·····	Fig. No							30/0	- <u></u> F	age 1	<u>^</u>

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Ļ						fine gravel; mica p	lotelets	1										
F						dissemented throu	ghout; fine to			()			·······				•	
F						medium sand; low	plastic; frozen,											
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THE	MINT	0 PF	ROJEC				CLIENT: MINTO EXPL	D EXPLORATIONS LTD						BOREHOLE NO: 97-G10							
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- 2.0										,									- 6.0		
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Project: 0201-97-11509

Date Tested: 97/10/20

BY: RS

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	GEOTI	ECH	NICA	_ EVAI		WASTE DUMP AREA	DRILL: CME-	-75 c/w	SOLID SHAFT	AUC	GER	S			PRO	JEC	T NC): 02	01-	97-1	150	9
	MINIC		REEK,	YUK)N		UTM ZONE:	<u>– N –</u>	E						ELE	/ATI	ON:	2798	3.7			
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	Н(п	Ē	щ	S	YMB MB	SOIL		GF	ROUND ICE	Γ							2	PER	CENT	SAND))	1 Ê
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	Δ	SA	Ś		Sol		IVIN	DE	SCRIPTION	ľ	می۔ بر		M.U.	•	Q		2			<u>i0 8</u>	0	
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Ē			68			SILT & SAND - some clay.	fine to med.		ZEN													L 0.0
F						grained sand, very mois	st, greyish					Ī	· · · · · ·]						Ē
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BY: JSB

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THE MINTO PRO	JECT	CLIENT: MINTO EXPLOR	VATIONS LTD	BOREH	OLE NO: 97-G12	
GEOTECHNICAL E	EVAL – WASTE DUMP AREA	DRILL: CME-75 c/w	SOLID SHAFT AUGERS	PROJE	CT NO: 0201-97-1150	09
MINTO CREEK, Y	UKON	UTM ZONE: - N -	E	ELEVAT	ION: 2793.9 *	
SAMPLE TYPE	GRAB SAMPLE	(🛛 STANDARD PEN.	75 mm SPOON	CRREL BARREL		
	5		GROUND TE	MPERATURE (C).	PERCENT GRAVEL	Τ
	u (≞) SOIL	GR	UND ICE		PERCENT SAND	4 ^
					APERCENT SILT OR FINESA	
SAM D		.ON DES	CRIPTION PLANK	a.c. ElQUID .●	20 40 60 80	
. 0.0			10 20	30 40	♦PERCENT CLAY 20 40 60 80	
73	SILT & SAND - fine to med.	JUNERUZ	EN			F
	low plastic, soft, moist, g	reyish				E
	brown					-
- 1.0	- trace of fine grained gray	vel below				.E
74	0.5 m					F
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	SAND - some silt, med. grain	ed uniform				Ę
- 2.0	sond, sort, wet, light grey	ish brown				Ē.
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75						Ę
3.0 /5						E
		PERMAFR	ost			F
		-0.8 deg Nf	ree C.			Ę.
	- drill slightly firmer below 3	3.7 m Vx, <5%				F
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5.0	- trace of some gravel fine	to med.				- -
	grained below 4.9 m					Ē
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0.0	END OF POPEHOLE & C1 -					- 6,
	- major slough throughout					-
	- water at 0.5 m					-
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EEDECENDEL WAL WASTE DURP AREA IPRUE CMIC-75 of % SUID SMFT AUGERS PROJECT ND: 0201-97-11500 SMAPLE TYPE Extension Extensintension Extensintension	THE	MINT	0 PR	STEC.	ſ		CLIENT: MINT	D EXPLORATIONS LTD						B	ORE	HOLE	NC); C	17-	<u>G1</u>	ζ	
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20 79 20 SND (RESDUM) - gravely, some sit, weil gravely, some sit, weil gravel, motist brownish gray, no visable ice, poorly, bonded, Mf 30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 80 -30 90 -30 90 -30 90 -30 90 -30 90 -30 90 -30 90 -50 - -50 - -50 - -50 - -50 - -50 - -50 - -50 - -50 - -50 - <td< td=""><td>- 1.0</td><td></td><td></td><td></td><td></td><td>below 0.4 m</td><td>J</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Ē</td><td></td></td<>	- 1.0					below 0.4 m	J														Ē	
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GEOT	ECH	NICA	l. EVAL		WASTE DUMP AREA	75 c/w SOLID SHAFT AUGERS PROJECT NO: 0201-97-11509								
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THE	VINTO	PROJE	CT		CLIENT: MINT	D EXPLORATIONS LTD		BORFH	OF NO. C	7_015	
GEOT	ECHNI	CAL EV	AL	WASTE DUMP AREA	DRILL: CME-	-75 c/w SOLID SHAFT	AUGERS	PROJEC	T NO 020	1-07-1150	10
MINT) CRE	EK, YU	KON		UTM ZONE:	- N - E -		ELEVAT	ION: 2795	<u>- 37~1150</u>	
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ЦЦ	JA ,	ung	me(ering consultan	ts Ltd.	REVIEWED BY: CR	RH .	COMPLE COMPLE	TE: 97/00/	: *.* /12	
702717 15534	(MK-P	101	<u></u>	<u>nitehorse, Yukon</u>		Fig. No:				Page 1 of	F 1

THE MIN	TO PI	ROJEC	JT			CLIENT: MINTO EXP	LORATI	ONS L	LTD				B	OREH	IOLE	NO:	q	7–6	16
GEOTECH	INICA	l eva	L - 1	NASTE	E DUMP AREA	DRILL: CME-75 c,	/w SOL	ID SH	IAFT	AUGE	RS		P	ROJE	CT N	0: 0	201	-97-	1150
MINTO C	REEK	, YUK	ON			UTM ZONE: - N	– E -	-					EI	LEVA	TION:	281	4.3	1	
SAMPLE	TYPI	E	CR/	ib saj	MPLE NO RECOVER	STANDARD P	en. E	75	mm	SPOOL	1	CRI	REL B	ARREI					
BACKFIL		(PE	BEN BEN	TONIT	E PEA GRAVEL	[]]]SLOUGH	i	GRC	JUT		Ē		LL CU	ITTING	s l	Is	AND		
DF	0			6				2	■ CON 20	E PENE 40	TRATIO	N∎ 80	1	₩P 20	ERCE 40	IT GR	AVEL	1	Z
E L		E	U L	WB.	S	JIC							1	20	PERCE	NT S/	ND •	<u>~</u>	TATK
EP1	MPL	SPT	13	L S	חדפרנ	ΙΟΨΙΛΝΙ		DIACT	ne	ше		LIGIN		PERC	ENT S	ILT O	r fini	<u>xu</u> ES ▲	INEN DATA
A R	S			SOI	UPOCI.					M.U.			'	20	40	<u>60</u>		30	STRU
0.0					NOSS AND POOT WAT			1	0	20	<u>30</u>	40	ļ,	20	40	м СС 00	_AT Φ <u></u> ξ	0	Ň
	93				ISILT & SAND - well a	raded sand low				•									
-					plastic, wet, dark	olive bown	[]												
-10					SAND - silty, fine gra	ined uniform sand	,												
1.0					non-plastic, soft,	moist, light					·								
- 183 - 183	94				greyish brown				•										
- 2.0							.				ļ		ļ						
					- trace of fine grain	ied angular gravel	-												
3.0	95				Delow 2.4 m	I oradad halaw 0	4		•										
				}	 moisture content 	n groued below 2.4 Increases to venr	4 m -												
					moist below 2.7 m		ĺ.,												
					- + 3.9 degree C. c	it 3.0 m													4
4.0		Ì			 possible water tab 	le around 3.5 m													
			[
	96			Í				•••••••	•····					·····›.			·		
5.0																			ļ
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	97			Ļ	ND OF DODELLOLE & C				۲										ŀ
					IND UF BUKEHULE @ 5 - major slough throu	0.5 m (REFUSAL)													F
6,0				-	 possible water tabl 	e at 2.4 m	ļ							ļļ.			ļļ.		Ę
					IOTE: Mine Coorindates	N 9944.00													
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EBA	4 E	ngi	ine	erii	ng Consultan	ts Ltd.	LOGGET) <u>BY:</u>	JSB				C	OMPL	ETIO	N DE	PTH:	*,*	·····
		0	T177	· I - T	Vanna Valu		IKEVIEW	<u>en Bj</u>	r: Cl	<u> </u>			0	OMPL	ETE.	97/	09/1	16	

THE	MIN	TO I	PROJE	CT		CLIENT: MINTO	D EXPLORATIONS LTD.		BOREH	OLE NO. 07.	<u></u>	
GEO	TECH	INIC	AL EV/	<u>4L. –</u>	WASTE SUMP AREA	DRILL: CME-	.75 c/w SOLID SHAFT	AUGERS	PROIF	CT NO: 0201-0	<u>-017</u> 17_1150	0
MINT	<u>0 C</u>	REE	K,YUK(ON	·····	UTM ZONE:	- N - E -		FLEVAT	ION · 2827 2 /	7-1130	3
SAM	PLE	TYF	PE	GF	VAB SAMPLE NO RECOVER	Y STAND	ARD PEN. 75 mm	SPOON CRRE	L BARREL			
)EPTH(m)	MPLE TYPE	AMPI F NO	nsc	IL SYMBOL	SOIL	ΩN	GROUND ICE	A GROUND TEMPERA	TURE (C). 2	■PERCENT GF 20 40 Gi ● PERCENT S 20 40 Gi ▲ PERCENT SILT (AVEL III 3 80 AND • 3 80 3	PTH(m)
	R.	5 S		S0			DESCRIPTION	10 20 30	40	20 40 60	1 <u>80</u> :LAY♠ }80	DEI
		98			MOSS AND ROOT MAT	arained	UNFROZEN					E 0.0
		88			gravel, well graded sand, grey	brownish	PERMAFROST Vx, <5%					
F 1.0 E	7.5	100			- become some sit to sitty	/ Delow U.3 m		-	,	·····		
2.0		100			 silt content increases to 1.6 m 	silty below	Vx, 15 to 20%					
					 trace of clay below 1.6 m gravel becomes fine to m below 1.6 m 	n ned grained						2.0
- - 3.0		101			 some gravel below 3.0 m 	' 1.5 m	Vx, <5%	•				- - - -
					·							
- 4.0 -	1	02										- 4.0
5.0			-									-
- 6.0		03		E -	ND OF BOREHOLE @ 6.1 m no water table encountered			•				- 6.0
7.0				N	OTE: Mine Coordinates N 1041 E 7347.00	6.00						
~												
- 8.0												8.0
- 9.0												
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ជ	R۸	4	'nai	no	pring Conquilt		LOGGED BY: JSB				<u></u>	10.0
نثار	DA	, t	ungi	<u>пс</u> (ting consultan	is Ltd.	REVIEWED BY: CR	H	COMPLE	TE. 97/00/12	ş	
04747 14 E C		2 69747		₩h	<u>utehorse, Yukon</u>		Fig. No:	······································		10 37/03/12 C	000 1 05	

GEOIE	CHI	VICA	1 LVA	61	- 4786						1		- U/ 1	<i>J</i>
				1L	MA:	TE DUMP AREA	DRILL: CME-75 c/w	SOLID SHAF	T AUGERS	}	PROJE	CT NO: 0	201-97	-11509
DIVIN SAVDI			, YUF				UTM ZONE: - N -	<u>E –</u>			ELEVAT	ION: 284	1.5 1.	<u></u>
BACK!		<u>יייון (</u> דע	-		SKAB :	AMPLE NO RECOVER	Y XISTANDARD PEN.	75 mm	n SPOON		il Barrel			
DACA					אוטו	ITE [.] JPEA GRAVEL	[]]]]SLOUGH	GROUT		DRILL	CUTTING	s 🔤s/	AND	
Ē	TYPE	NO			i a	D D	OII	■ CC 20	NE PENETRA 40 60	(TION III 80	■P 20	ERCENT GRA	VEL ■ 80	NOI
TH	Щ	ЪЕ	PT()		3 8	۱ ۱					20	40 60	ND.● <u>BQ</u>	ANA A
B	AMF	SAM	S		Ē	E DESCI	RIPTION	PLASTIC	M.C.	LIQUID	▲ PERC 20	ENT SILT OF 40 60	I FINES	MN
					0				00 70			ERCENT CL	AY♦	-ISI-
0.0		104				MOSS AND ROOT MAT				40	20	40 60	80	
. [SILT & SAND - trace	of gravel, well graded							E
						sand, tine to med	l. grained angular			••••••				" E
- 1.0		INE				mottled brown an	gravels, moist, loose. d. arov							
ľ		103				SAND - silty, some a	ravel, well araded	♦					1	1 E
						sand, fine to med	arained angular and							
						sub-rounded grav	el, loose, moist,						÷	1 E
2.0					ļ	light greyish brow	'n							
						- sand becomes co	arse grained below							1
	1	06		SPS	MOYO	2.1 m								. E
,	ĺ					- some fine graine	J M Laraval halaw 2.1 m						•	
3.0			ĺ			- trace of silt below	2.1 m				••••			Ē
						- very wet below 2.	1 m, possible water							
						table	, ,							E
4.0														
	² 1(77												
		}				- sand becomes fin	e to med, arained							
						below 4.3 m	,							Ē
5.0						 trace of fine grain 	ed gravel below							E
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	1				aa	END OF BORFHOLF ON 7	<u>10wr/,im</u> 3 m	1				•		E2
		1				- major sloughing	.5 11							Ē
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EE	3A	Eı	ngi	ne	eri	ng Consultan	ts Ltd. LOG REV	<u>GED BY: JSE</u> Ewed by: C	3 RH		COMPLE COMPLE	TION DEP	<u>: : </u> 'TH: +,* 9/13	



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THE	MIN	TO P	ROJE	CT			CLIENT: MINTO EX	PLORATI	ONS LTC)			BORE	IOLE N	10: 9	7-G	19	
GEOT	ECH	INIC/	VL EV/	<u> </u>	WASTI	E DUMP AREA	DRILL: CME-75	c/w SOL	ID SHAF	T AUG	ERS		PROJE	CT NO	: 0201	-97-	-11509	3
MINT	0 C	REEK	(, YUk	ON			UTM ZONE: - N	I E-	-				ELEVA"	TION: 2	2857.7	/		
SAM	PLE	TYP	E	GR	AB SA	MPLE 🛛 NO RECOVER	Y STANDARD I	PEN.	75 mr	n SPOC)N	CRRE	L BARREI	 L	•••••••			
BACK	(FIL	<u>L</u> T	YPE	BEI	NTONI	E 💽 PEA GRAVEL	III] SLOUGH	[GROUT		ĺ		CUTTING	s 🗄				
	L.									NE PEN	ETRATIC	DN m	∎F	ERCENT	GRAVEL		z	1
E	X	Ϊž	9		MBC N	l s	OIL.			40	00/	00	20	40 PERCEN	60 T SAND 4	<u>80</u>	AT 0	
PTH	L L	Ц	PT()	S	S								20	40	60 T 00 E	80	E E	H(f
DE	MA	N.S.	S		1	DESCI	RIPTION		PLASTIC	H .(C,	LIQUID	20	40	.1 OR FII 60	BQ BQ	120	
					<u> </u>					20	30	40	20	PERCEN	T CLAY	80	INN	
- 0.0		110				MOSS AND ROOTMAT												- 0.0
F	Γ	I				SILT & SAND - trace	of gravel, well gr	aded										È. '
E						sond, fine to me	1. grained sub-rol	unded										- 2.0
- 1.0		444	1			SAND - silty trace of	t dark onve prow	n j										E
Ę		111	1			sand, fine to me	1. arained sub-rov	unded i	•									- 40
F						gravel, loose, mo	ist, greyish brown				ļļ.							Ξ Ι
Ē						- water table at 1.	2 m possibly lowe	r at 🛛										<u> </u>
E 2.0		112				sand seam below	2.1 m									·····		- 0.0
F		112				- U.S m thick layer	at med, to coars	se	٠									Ē
F	120	113				verv wet, arev	je ur silt, luuse,	,	•									- 8.0
E-3.0								Ì										-
È								· 							1			- 10.0
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F						- sand becomes m	od to operation music											- 12.0 ,
4.0				ļ		below 3.7 m	ea lo course gran	ied									1	-
È		114		SM	2192	 some silt below 3 	.7 m		•						٠			- 14 0
-	ĺ					 trace of fine grain 	ned sub-rounded		•••••••								L L	
E ,						gravels	6 I I I										E	
- 5.U	ĺ					 gravel content inc becomes sitty bet 	reases below 4.1	m			·				·		Ē	- 16.0 -
				ļ		becomes sity bei	2# 7,4 11											-
-		15	ĺ		Í			''									Ē	- 18.0
E 6.0 [•								1	-
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E						5 5 7												- ',
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		10		1	Í				۲								Ē	240
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- 0.0														·····			Ē	- 26.0
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	1	17											·····				Ē	- 28.0
9.0					E	ND OF BOREHOLE @ 8	.8 m		ļ								ŀ	
					-	borehole sloughing											E	30.0
-						water around 1.2 r DTF: Mine Coordinatoo	ח N 10237 חח	ļ					····,				L.	
				ł		E 7237.00	n 10007.00										E	32.0
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<i></i> بد		- I.	·**8	WL WL	or 13 Stal	ano Vala	ILD LLU.	REVIEW	'ED BY:	CRH			COMP	LETE	97/09	/13		
8/01/14 10:41	6 44 (Y	UKON-1	0)	111	ntel	iorse, rukón		Fig. No	»:							Pa	ge 1 a	of 1



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BY: RS

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CEUI	TCF TECF			.GT ///	WACT		CLIENT: MINTO E	KPLORAT	IONS	LTD				BO	REHO	LEN	0: §	97-	G24	
MINT		REF			HASH	L DUMP AREA	DRILL: CME-75	c/w S0	UD S	SHAF	t aug	SERS		PR(JECI	r no:	020	1-97	-1150)9
SAME	기 F	TYP	F	ROIN CR	AR SA		UIM ZONE: I	N - E						ELE	VATIC)N: 2	752.8	31	*****	
RACK	(FII	T	YPF	BE				PEN.	<u>7</u>	5 mm	I SPOC	N	CRRE	L BAR	REL					*****
						<u>C [·]PEA URAVEL</u>	[]]]]SLOUGH	[<u>i</u> Gl	1005			DRILL	CUTT	INGS		SAND)		
~	Ŕ	9			5					■ COI 20	ne pen 40	NETRATIO 60	0N≣ 80		PER	CENT	GRAVE		z	Т
H(n	ЦЦ	μ.	E		MB	S	OIL								• PEI	RCENT	SAND	•	ATIC	
EPI	đ	MP	L dS	13	N.	ההמת	זארעזוורנור							2 A D		<u>40</u> 17 011 1	60 AB B	80		
	SA	55			S	DEOCI	VIPTION		PLA	SHC	H.	С.	Liquid	2	0 /	40 40	60 60	80	_ <u>_</u> 2°	1
0.0						1000 AUD DOOT				10	20	30	40	2	♦PEI 0 4	RCENT 40	CLAY	▶ 80	INS	
		147				MUSS AND ROOT MAT		ſ							_				-	ŧ
						sand fine graina	of gravei, well gra	ided												F
						moist, soft dark	alive brown	avel,											"	E
1.0		148				SAND & SILT trace	of annual 11													E
	\square					sand, fine argined	of gravel, well gr	aded		•										Ē
i						soft, moist, brown	ish arev	uver,	.	ļļ							ļļ.			F
.						 trace of clay belo 	w 1.5 m													F
						 becomes sandy. 	silt, trace of clov			÷	·····									Ē
		149	I			trace fine grained	gravel below 2.0	m												Ē
								.		····	•						<u> </u>			Ē
o	ļ				.	- clay content decre	eases below 2.8m	,												-
					.	 gravel becomes w 	ell graded below	2.8 m						Ť					1	-
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					-	- hard drillina, some	arindina helow			<u>.</u>	ļ									-
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					EN	ID OF BOREHOLE 7.6	n (REFUSAL)												Ē	
						no water table enco	untered			ļ						[]			Ē	2
						TE: Mine Coordinates	ng Ngazenn												Ē	
						E 8483.00	n 2240.VU				•••••••								E	29
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Ľŀ	۶A	۲I	ngi	nee	rin	g Consultan	ts Ltd.	LOGGED	BY:	JSB				COM	PLETI	on d	EPTH:	; +,+		
			~	Whi	teha	arse Yukon		INE VIEWE	n RJ	CR	:H		······	COM	PLETE	: 97	/09/	14		

Minto	Mine	De	evelo	pment 2005	Client: Sherwood M	lining C	orp.						TES	T PI	T N	D:	12	0017	3-TF	,100
Minto	Сорг	ber	Mine)	Excovator: CAT 410	6 C Ru	ober	Tir	e				PR(DJEC	T N	0: 1	2001	73		···· ,
Propo	sed	Ove	rbur	den Dump	6944700 N, 38347	73.6 E	, Z	8					ELE	VATI	ON:	0 m	}			
Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	GRAB SOIL DESCRIPT	TION	PI	ASTIC	C	M	.C.		LIQUID {		10 20 20	● PE ▲ PI ■ PE ▶ PEF	ERCEN 20 ERCEI 40 RCEN 40 RCENT	IT CLA 30 VT SIL 60 IT SAN 60 GRAV	Y ● 4(T ▲ 8(D ■ 8(8()	Depth(ft)
0.0				SAND (RESIDIUUM) — silty, trad	ce of aravel		20) 	40	<u>60</u>	8	0	+	20		40	60	80	1	- 0.0
- 1.0				- becomes some gravel, grained, angular 0.5 m - trace to some silt belo	fine to medium w 1.0 m									••••						5.0
- - - - - -				BEDROCK (GRANITE) – poor qu	ality, friable					· · · · · · · · · · · · · · · · · · · ·										
				– becomes more compete	ent with depth															
				END OF TESTPIT 3.0 m (REFUS	AL)															
]	EB	4	En	gineering Consulta	ants Ltd.	LOGO REVII Fig.	ED EWEI No:	BY: D BY	JSB 1: JR	T				OMP OMP	LETI	<u>ON [</u> : 05	DEPTI 5/10,	H: 3 n ∕16 Pc	n Ige 1	of 1

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Minto	Mine	De	velop	oment 2005	Client: Sherwood Minir	ng C	orp					•	TES	ST PI	T NC):	120	0173-	-TP101
Minto	Cop	ber	Mine		Excovator: CAT 416C	Rub	ber	Tire					PR	OJEC	T NO): 12	20017	13	
Propo	sed (Ove	rburc	len Dump	6944709 N, 383553.1	1 E	, Z	8					ELE	VATI	ON:	0 m			
(m)	SYMBOL J	E TYPE	LE NO	GRAB SOIL										10 20	● PE 2 ▲ PE	RCEN 20 IRCEN 40	T CLAY 30 T SILT 60	● <u>40</u> ▲80	(t)
Dep	SOIL	SAMPI	SAMF	DESCRIPT	TION	Pl	ASTI ⊢−−−−	C	M	.C.	c	LIQUID I		20	PER	RCENT	GRAVE	<u>80</u> L♦	Dep
0.0				ORGANIC ROOT MAT					40	<u> </u>			+			10	<u> </u>	80	_ 0.0
-				SAND (RESIDIUUM) — silty, trac	e of gravel	-													
- 1.0				— trace to some silt belo	w 0.3 m		•												
2.0				– coorser grovels, some o below 1.8 m	cobbles present														5.0
				BEDROCK (GRANITE) – poor qu	ality, friable														
				- more competent with d	epth AL)														
- 3.0 																			
	EB.	A	En	gineering Consulta	ants Ltd.	LOG REVI Fig.	GED EWE No:	BY: D BY	JSB (: JR	1			(COMF COMF	PLETI	ON D 2: 05)EPTH 1/10/	: 2.7 r 16 Pag	n e 1 of 1

Minto	Mine	Develo	pment 2005	Client: Sherwood Mi	ining I	Cor).					TE	ST F	N TI	0:	120	0173	5-TP	102
Minto	Сорре	er Mine	3	Excavator: CAT 416	iC Rul	bei	Tire	<u>}</u>				PR	OJE	CT N	0: 1	2001	73		
NW of	Minto	, YT		6944697 N, 38363	5.9 E	Ξ, Ζ	8					EL	EVAT	ION:	0 n	n			
Depth(m)	SOIL SYMBOL	SAMPLE NO SAMPLE NO	GRAB SOIL DESCRIPT	ION	F		[IC	M)	1(2(2(● P) ▲ P) ■ PI)	ERCE 20 ERCE 40 ERCE 40 RCEN	NT CLA 30 NT SIL 60 IT SAN 60 F GRAV	Y ● 40 I ▲ 80 D ■ 80 FI ▲		Depth(ft)
0.0			SAND (PESIDIUMA) Situ too	o of proval		2	0	40	60	:	80		20)	40	60	80		
0.0 			SAND (RESIDIUUM) — silty, trac — trace to some silt belo — some gravel, fine to m angular to 0.4 m	e of gravel w 0.4 m edium grained,	•														5.0
-			BEDROCK (GRANITE) – poor qu	olity, friable															
			END OF TESTPIT 2.8 m (REFUS/	AL)		GEF) RY.	A21								ΠΕΡΤΙ	+ 2 β	m	10.0
	EBA	Er	igineering Consulta	ants Ltd.	REV	iget IEW	D BY: ED B	JSB Y: JR	T				COM COM	PLET	ion E: 0	UEPTI 5/10	<u>+: 2.8</u> /16	m	
05/11/28 02	2:57PM (YU	K-1P4)			Fig.	No	;									. ,	Pa	ge 1	of 1

Minto	Mine	De	velop	oment 2005	Client: Sherwood Mi	ning (Cor	p.						TES	ΤP	IT N):	12	0017	3-TP	103
Minto	Сорр	ber	Mine		Excovator: CAT 416	C Rut	be	r Tir	е					PRC	DJEC	XT N	0: 1	2001	73		
Propo	sed (Ove	rburc	len Dump	6944651 N, 383701	1.1 E	., Z	8						ELE	VATI	ON:	0 п	<u> </u>			
SAMP		YPE	NO	GRAB											10	● PI	ERCEI 20 ERCE	NT CLA 30 NT SIL	Υ ● 4ι Τ▲)	()
epth(i	L SYN	APLE .	MPLE		иол	F	PLAS	TIC		M.C		1	OUD		20	🖬 PE	40 IRCEN	60 NT SAN	81 D 🖬 🛛	<u>)</u>	epth(f
	SOI	SAN	SA	DEOCIUL 1	IUN				40	• -	60	80	-1		20	Þ PEF	40 RCENT	OU F GRAV	EL 🍫	<u>י</u>	
0.0	<u> </u>	1		ORGANIC ROOT MAT													10			,	E 0.0
				SAND (RESIDIUUM) — silty, troc	e of gravel																L.L.
				— trace to some silt bel — becomes gravelly, well angular below 0.4 m	ow 0.4 m graded,																
- 1.0				– cobbles encountered t – some boulders presen	elow 1.0 m t below 1.0 m	•															
				BEDROCK (GRANITE) — poor qu around 1.6 m	ality, friable		· · · · · · · · · · · · · · · · · · ·														5.0
2.0				END OF TESTPIT 2.0 m (REFUS	AL)																
																					ian ian ma ma ma ma ma ma ma ma ma ma ma ma ma
- 3.0																					10.0
-																					
- - 4.0								<u> </u>										0.000			
	EB	A	En	gineering Consulta	ants Ltd.	REV	igel Tew	ED E	: JS 3Y: 1	JRT		_,,		$-\frac{1}{10}$	LOM COM	PLET	<u>ion</u> E: 0	DEPT 5/10	<u>H: 2</u> /16	m	
05/11/28 0	2:57PM (YUK	184)		·····	Fig.	No	:											Р	oge 1	of 1

Minto Mine	Develop	oment 2005	Client: Sherwood Mini	ng (orp.						TES	r Pit	NO	:	120	0173	5-TP	104
Minto Copp	er Mine		Excovotor: CAT 416C	Rub	ber	Tire					PRO	JECI	r nc): 12	2001	73		
NW of Minto	o, YT		6944573 N, 383721.	6 E	, Z	8					ELE	ATIC)N: () m				
Depth(m)	AMPLE TYPE TO	SOIL DESCRIPT	TION	P	ASTIC	······	м.	 C.	 U	QUID		10 20 20	PEF 2 ▲ PEI 4 1 PEF 4	RCEN O RCEN O RCENT O	T CLAY 30 T SILT 60 SAND 60	 40 80 80 		Depth(ft)
S(SIS				20		40)	80	4		20	PER	CENT	GRAVE	L 🗞]
		ORGANIC ROOT MAT SAND (RESIDIUUM) - silty, trac well graded sand, fine to angular gravel, compact, brown - trace to some silt belo - becomes gravelly, well below 0.4 m - cobbles below 0.7 m	e of gravel, medium grained damp, reddish w 0.4 m graded, angular		20		40	60	80			20	4			80		5.0
		BEDROCK (GRANITE) – poor qu – more competent with de END OF TESTPIT 3.1 m (REFUS/	olity, frioble epth AL)	LOGG	SED.	BY:	JSB						LETIC				m	10.0
EBA	\ En	gineering Consulta	ants Ltd.	REVI Fia.	EWEI	D BY	: JRT					OMPL	ETE	: 05	/10/	. 3.1 16 Po		of 1

05/11/28 02:57PM (YUK-TP4)

Minto Mine Developmer	nt 2005	Client: Sherwood N	lining Co	orp.				TE	IST PI	I NO:	12	00173	-TF
Minto Copper Mine		Excovotor: CAT 41	6C Rubb	er Ti	re			PI	ROJEC	T NO:	1200	173	
NW of Minto, YT		6944494 N, 38370	05.1 E,	Ζ8				El	EVAT	ON: 0	m		
Depth(m) Soll SYMBOL SAMPLE TYPE SAMPLE NO SAMPLE NO	srab SOIL DESCRIP'	TION	PU	ASTIC	k	I.C.	LIQUI)	10 20 20	 PERC 20 20 40 PERCI 40 PERCE 	ENT CL/ 30 ENT SIL 60 ENT SAI 60 NT GRA	40 .T▲ 80 VD ■ 80 VEL ◆	
0.0	RGANIC ROOT MAT			20	40	<u>60</u>	80		20	40	60	80	
	ND (RESIDIUUM) — trace to well graded sand, fine ar compact, damp, medium — trace to some silt bel	some gravel, ngular gravel, grey ow 0.4 m	•										
	 becomes grovelly, well below 0.4 m cobbles encountered b 	graded, ongular below 0.6 m											
- 1.0													
- BE	DROCK (GRANITE) – poor q	uality, friable							-				
- 2.0 EN	D OF TESTPIT 2.0 m (REFUS	SAL)											
- 3.0													
4.0	• • • • • • •				V. ICD							<u> </u>	
EBA Engii	neering Consult	ants Ltd.	REVIE Fig. 1	WED	BY: JF	RT			COMF	LETE:	05/10	<u>17. 2 m)/16</u> Po	i ge

Minto	Mine	Develo	pment 2005	Client: Sherwood Mi	ning C	orp.				TEST PIT NO: 1200173-TP106									
Minto	2	Excovator: CAT 416	C Rubt	er Ti	re			PROJECT NO: 1200173											
Propo	sed O	verbur	den Dump	6944439 N, 383645	5 E, Z	8				ELEV	ATION	: 0 m							
Depth(m)	SOIL SYMBOL	SAMPLE INPL	SOIL DESCRIPT	ION	PL			.C.			10 20 20 20 € Pf	40 80 80	Depth(ft)						
0.0			ORGANIC ROOTMAT			20	40	60	80		20	40	60	80	<u> </u>				
0.0 			ORGANIC ROOTMAT SAND (RESIDIUUM) - silty, trad - trace to some silt belo below 0.5 m - becomes gravelly, well - gravel content increas around 1.0 m - cobble sized pieces end 1.5 m BEDROCK (GRANITE) - poor qu	e of gravel w 0.5 m graded, angular es with depth countered around															
- 3.0	7BA	Fin	END OF TESTPIT 2.7 m (REFUS/	NL)		ED B1						FION D	EPTH:	2.7 m					
I		gmeering consulta	REVIE Fig. 1	WED lo:	BY: JR	ſ		COMPLETE: 05/10/16 Poge 1 of											



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Minto	Minto Mine Development 2005 Client: Sherwood											TEST PIT NO: 1200173-TP107									
Minto		Excovator: CAT 4160	C Rubł	ber	Tire				PROJECT NO: 1200173												
Propo	osed ()ver	burd	len Dump	6944403 N, 383570) E, Z	8					ELE	EVATIO	ON:	0 m						
SAMP	LE TY	ΈĘ		GRAB																	
	2	μ											10	• PEi 2	RCENT 20	CLAY 30	• 40				
E E	MB(Σ	Ž ш	SOIL									20	A PE	RCEN	SILT	A 80		E)		
spth	S		MPL	ΝΡΟΟΙΟΙ	יז∩אז							20 40 60 80							pth		
ă	Soll	SAM	SAI	DEPCULLI	IUN	10	⊷			·		10 20 40 6 ▲ PERCENT CR					<u> </u>	ð			
00							20	;	40	60	0 80		20	4	10	60	80				
-				ORGANIC ROUTMAT																	
F				well araded angular arave	ls. compact.														F		
-				damp, reddish brown	,																
F						٠															
				- trace of silt around 0.5 m																	
F																					
F				- becomes trace to some	e fine to medium																
				grained angular gravels a	ound 0.7 m																
- 1.0																			in the second se		
-																			-		
-			-		-114 - 6-1-61-	_															
				DEDRUCK (GRANNE) - poor qu	olity, triadle														Ē		
-						•							Ŷ						-		
-																	5.0				
ŀ																					
-																					
				 becomes more competi 	ent with depth																
- 2.0						•															
_																					
-																					
-																					
-																					
<u> </u>			-	END OF TESTPIT 2.5 m (REFUS	NL)									•					E		
-				Υ.	,														E		
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- 3.0																					
-																			- 10.0 E		
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4.0	4.0																				
EBA Engineering Consultants Ltd.							LOGGED BY: JSB							COMPLETION DEPTH: 2.5 m							
							No:	، ں ،	. 0111			Poge 1 o									



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Minto Mine Development 2005 Client: Sherwood							Cor	ρ.				TEST PIT NO: 1200173-T								
Minto	Minto Copper Mine Excovator: CAT 4 Proposed Overburden Dump 6944360 N, 694							r Tir	e				PROJECT NO: 1200173 ELEVATION: 0 m							
Propo								8												
SAMP	LE T	YPE [,]		GRAB	38§	250	ϕ						● PERCENT CLAY ●							
Ē	BOL	YPE	9 N	50	T									10	I ▲ PI	20 FRCFN	30 T.SILT	4	0	
th(r	SYM	Ш	Ē	00									20 40 60 80				0			
Dep			PTION		PLAS	TIC		M.C.		LIQUID		■ PERCENT SAND ■ 20 40 60					0			
	NS I	S	03				}	 ԴՈ	40	•	 0			20	🔶 PER	RCENT	GRAV	EL 🍫		
0.0 ORGANIC ROOT MAT				ORGANIC ROOT MAT				20	40	0		00		20		40	60	0	<u>v</u>	
-																				
-																				
-				SAND (RESIDIUUM) – silty,	trace of gravel,		•													
				well groaed sand, fine anaular aravels reddi	e to medium grained															
-				 trace to some silt 	below 0.5 m															
•																				
- 1.0				- some gravel to gr	avelly around															
				1.0 m - 1.5 m																
-																		ļ,		
					•															
2.0																				
- 2.0				BEDROCK (GRANITE) - poor quality, friable																
				below 2.0 m	n															
				FND OF TECTOIT 2 4 ~ (Dr																
-				LND OF FEDITIE 2.4 III (RE	I USAL)								.							
- 3.0																				
																			•	
-																				
4.0																				
]	EBA]	En,	gineering Consu	ltants Ltd.		GEC) BY	: ?Y•					COME		ON D	EPTH /10	1:21	m	
Ingine of the oonsultants Inta,				REVIEWED BY:							['	COMPLETE: 05/10/16								

Minto	Minto Mine Development 2005 Client: Sherwood								Mining Corp. TEST PIT NO: 1200173-T														
Minto	2	SC Rub	ber T	îre				P	PROJECT NO: 1200173														
Propo	sed	Ove	rbur	den Dump	6944322 N, 38342	7.8 E	Ζ8					E	LEVA	TION	: 0	m							
Depth(m)	LE T SOIL SYMBOL	SAMPLE TYPE 14	SAMPLE NO	SOIL DESCRIPT	'ION	PLASTIC M.C. LIQUIC																	
0.0				ORGANIC ROOT MAT				4	0	60	80		2	0	40	60)	80	- 0.0				
				SAND (RESIDUUM) — silty, traci gravel, well graded sond, — less silt with death arr	e to some fine reddish brown																		
- 1.0				- less sitt with depth on	Sund U.S m								* *				•						
- 2.0				- becomes grovelly, coa around 1.2 m	rser grained	•																	
				BEDROCK (GRANITE) - HIGHLY cobble sized pieces, coar END OF TESTPIT 2.7 m (REFUSA	-RACTURED - ser with depth L)																		
- 3.0																							
	EBA Engineering Consultants Ltd						SED E	BY: J:	SB IPT				COMPLETION DEPTH: 2.7 m										
							Fig. No:								Poge 1 of								

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