Minto Explorations Ltd.
Whitehorse, Yukon

ISSUED FOR USE

PRELIMINARY DESIGN
PROPOSED SOUTHWEST WASTE DUMP
MINTO MINE, YUKON

W14101068.005

May 2008

EBA Engineering Consultants Ltd.
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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 for possible use in future reclamation. The IROD is to be used for storing 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.

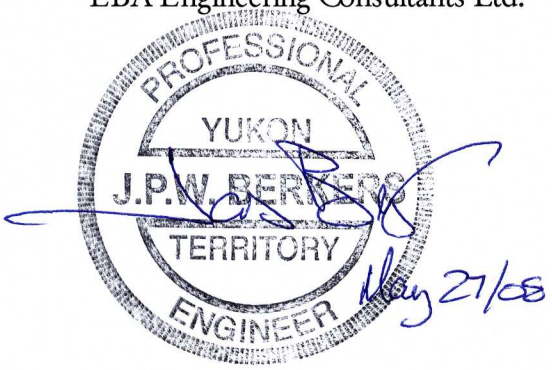
The recommendations prepared and presented in this report are based on the geotechnical data gathered by EBA from previous reports and site characterization programs. The provided data, in the form of geotechnical boreholes and associated laboratory index property test results, has been supplemented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

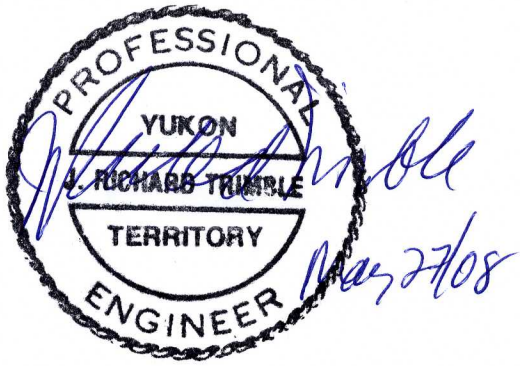
This report and the recommendations contained in it are intended for the sole use of Minto Explorations Ltd. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report if the information presented in this report 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.

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.





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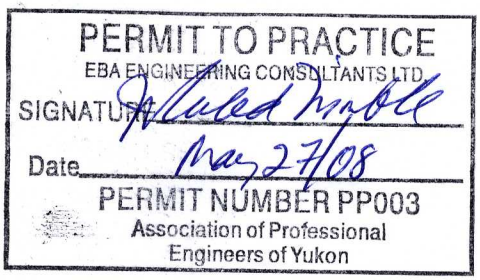

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FIGURES

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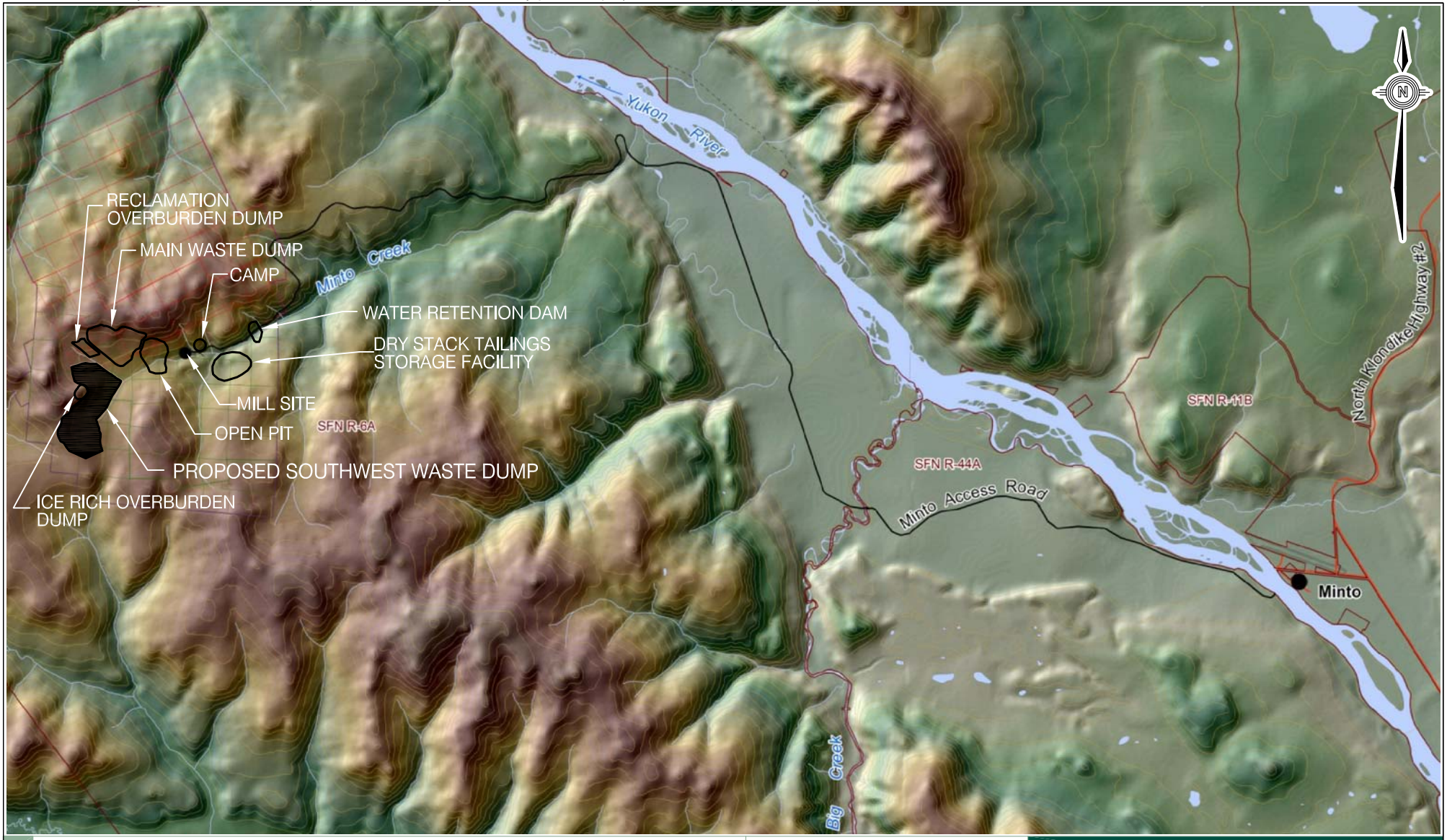


1000m 0 1000m 2000m 3000m 4000m

BAR SCALE

CLIENT

Minto Explorations Ltd.

Proposed Southwest Waste Dump
Minto Mine, YT

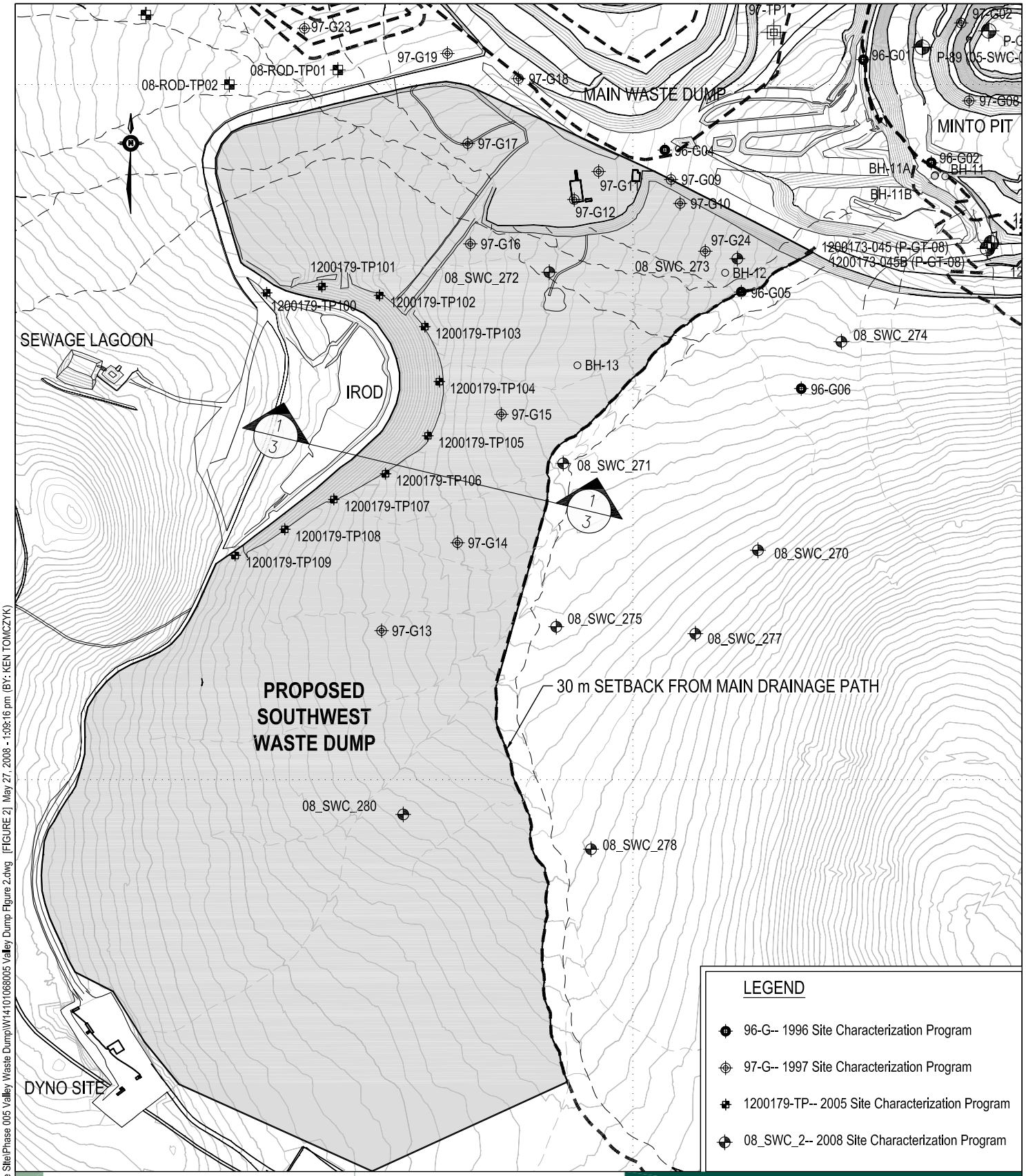
Location Plan

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
W14101068.005	KJT	JSB	0

OFFICE	DATE
EBA-WHSE	May 22, 2008

Figure 1



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CLIENT

Minto Explorations Ltd.

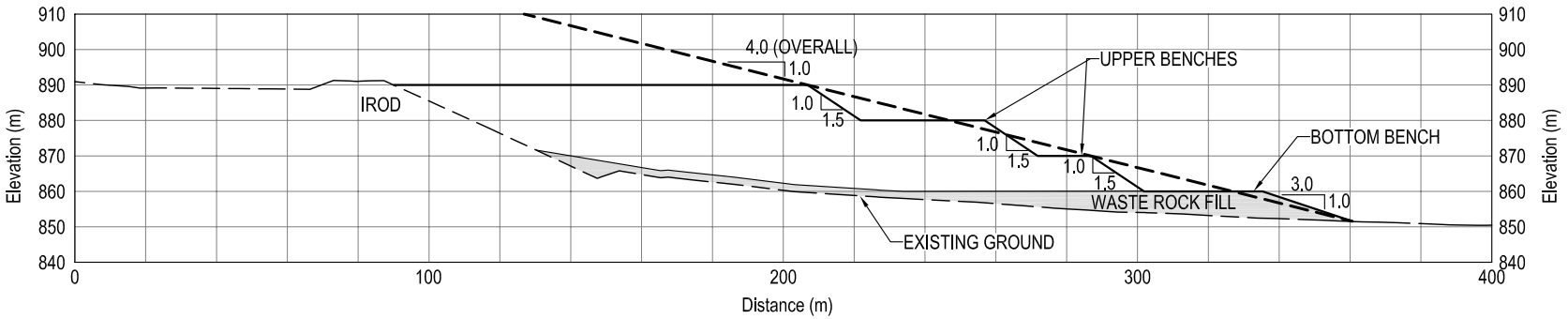
Proposed Southwest Waste Dump
Minto Mine, YT

Proposed Footprint Limit and Existing Geotechnical Information

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
	KJT	JPB	0
OFFICE	DATE		
EBA-WHSE	May 23, 2008		

Figure 2



1/2 SECTION 1
SCALE 1:2,000

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Scale: 1: 2 000 (metres)

CLIENT
Minto Explorations Ltd.

Proposed Southwest Waste Dump
Minto Mine, YT

Typical Preliminary Cross Section

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
W14101068.005	KJT	JPB	0
OFFICE: EBA-WHSE	DATE: May 26, 2008		

Figure 3

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.

8.0 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.

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

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 EXPLORATIONS LTD.	TEST PIT NO: 96-G04
GEOTECHNICAL EVALUATION-WEST WASTE DUMP	DRILL: CME-75 C/W SOLID SHAFT AUGERS	PROJECT NO: 0201-11509
MINTO CREEK, YUKON	UTM ZONE: 8 N6944726.8 E384145.3	ELEVATION: 2787.30 (m)

SAMPLE TYPE ■ GRAB SAMPLE ⊘ NO RECOVERY ⊠ STANDARD PEN. ▤ 75 mm SPOON ▥ CRREL BARREL

SOIL DESCRIPTION

■ STANDARD PENETRATION ■ 10 20 30 40

PLASTIC M.C. LIQUID 24 48 72 96

■ PERCENT GRAVEL ■ 20 40 60 80

● PERCENT SAND ● 20 40 60 80

▲ PERCENT SILT OR FINES ▲ 20 40 60 80

◆ PERCENT CLAY ◆ 20 40 60 80

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0					MOSS, ORGANIC SILT
	■	1			SAND AND SILT – some gravel; fine to coarse angular sand; fine to medium angular gravel; frozen, Nbe; brown
1.0					– more gravel and sand with depth; grading into residuum
	⊠	2			– occasional zones of SILT – some sand throughout
2.0	■	3			
					GRAVEL AND SAND (residuum) – trace to some silt; occasional silt inclusions; fine angular gravel, some coarse; sand is angular to subangular; unfrozen; damp; dense; light brown
3.0	⊠	4			– slow, rough drilling
					– drilling refusal @ 3.7 m
4.0					END OF BOREHOLE @ 3.7 m
5.0					
6.0					

DEPTH(ft): 0.0, 2.0, 4.0, 6.0, 8.0, 10.0, 12.0, 14.0, 16.0, 18.0

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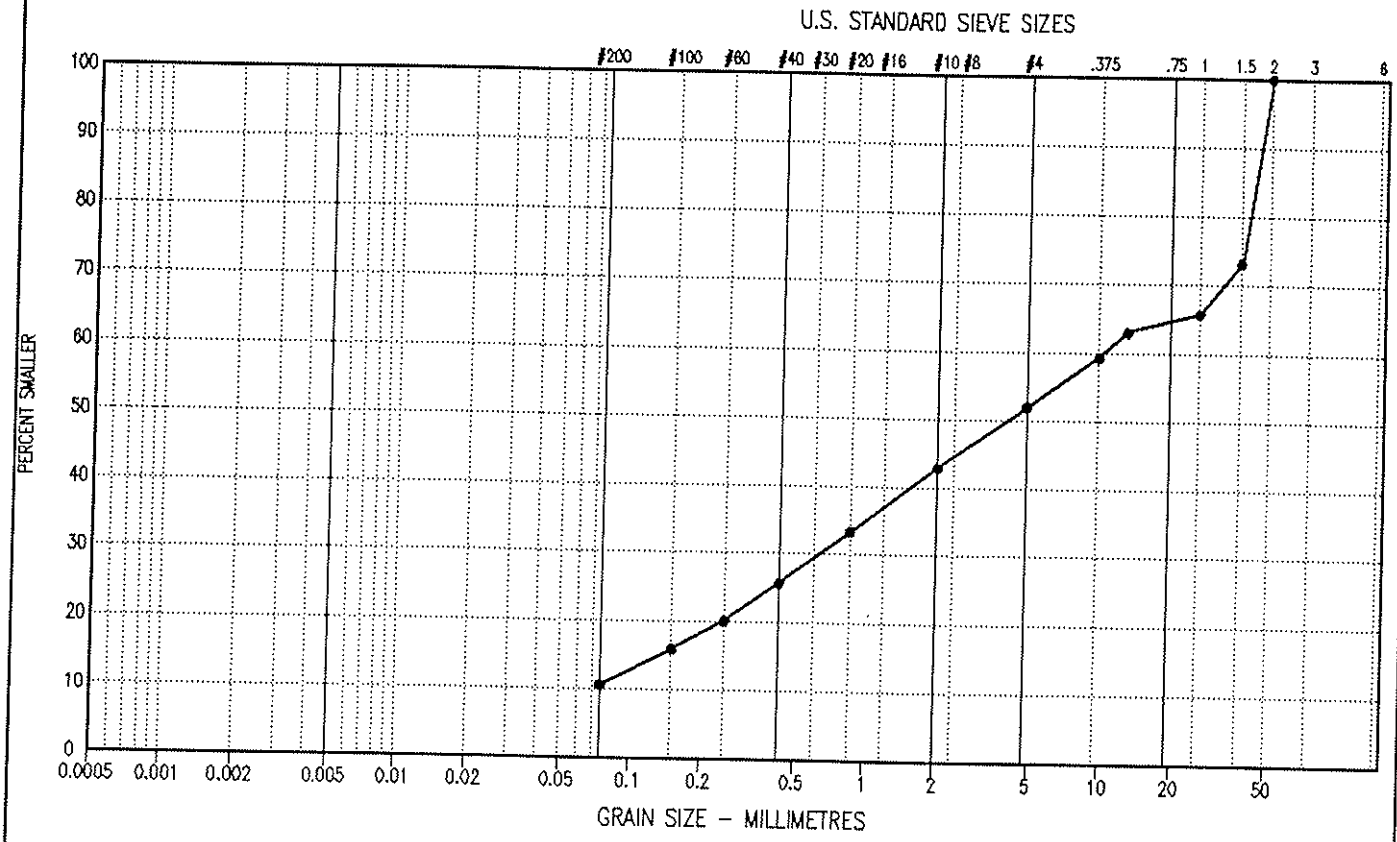
LOGGED BY: CRH	COMPLETION DEPTH: 3.7 m
REVIEWED BY: CRH	COMPLETE: 96/07/05
Fig. No:	Page 1 of 1

96/08/13 03:42PM (YUKON-6)

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION			Cu	Cc	U.S.C
			CLAY & SILT %	SAND %	GRAVEL %			
●—●	96-G04	3.10 – 3.60	10.6	41.4	48.0	143.3	0.6	GP-GM

Project: 0201-11509

Date Tested: 96/07/11 BY: AA

Tested in accordance with ASTM D422 unless otherwise noted.

MINTO CREEK MINE DEVELOPMENT	CLIENT: MINTO EXPLORATIONS LTD.	TEST PIT NO: 96-G05
GEOTECHNICAL EVALUATION-WEST WASTE DUMP	DRILL: CME-75 C/W SOLID SHAFT AUGERS	PROJECT NO: 0201-11509
MINTO CREEK, YUKON	UTM ZONE: 8 N6944522.9 E384254.8	ELEVATION: 2739.30 (m)

SAMPLE TYPE ■ GRAB SAMPLE ⊘ NO RECOVERY ⊠ STANDARD PEN. ☰ 75 mm SPOON ▯ CRREL BARREL

SOIL DESCRIPTION

■ STANDARD PENETRATION ■ 10 20 30 40

PLASTIC M.C. LIQUID 24 48 72 96

■ PERCENT GRAVEL ■ 20 40 60 80

● PERCENT SAND ● 20 40 60 80

▲ PERCENT SILT OR FINES ▲ 20 40 60 80

◆ PERCENT CLAY ◆ 20 40 60 80

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0					ORGANIC SILT/MOSS
		1			ORGANIC SILT – some clay, frequent organic inclusions; frozen, Nbe; strong organic odour
1.0		2			SAND – trace of silt; occasional silt inclusions; Vx,c 10 to 15% ICE; medium to coarse sand; light brown
					– grinding drilling below 1.5 m
2.0					SAND AND SILT – some gravel, trace of clay, occasional cobbles; low plastic; frozen, Vx,c 5 to 10% ICE; grey
		3			– some clay by 3.0 m – 15 to 20% ICE from 3.0 to 4.0 m – 10 to 15% below 4.0 m
4.0		4			
5.0					END OF BOREHOLE @ 5.2 m – samples below 1.5 m exhibit high dry strength
6.0					

DEPTH(ft): 0.0, 2.0, 4.0, 6.0, 8.0, 10.0, 12.0, 14.0, 16.0, 18.0

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LOGGED BY: CRH	COMPLETION DEPTH: 5.2 m
REVIEWED BY: CRH	COMPLETE: 96/07/04
Fig. No:	Page 1 of 1

96/08/13 03:43PM (YUKON-6)

MINTO CREEK MINE DEVELOPMENT	CLIENT: MINTO EXPLORATIONS LTD.	TEST PIT NO: 96-G06
GEOTECHNICAL EVALUATION-WEST WASTE DUMP	DRILL: CME-75 C/W SOLID SHAFT AUGERS	PROJECT NO: 0201-11509
MINTO CREEK, YUKON	UTM ZONE: 8 N6944384.2 E384340.8	ELEVATION: 2798.60 (m)

SAMPLE TYPE ■ GRAB SAMPLE ▨ NO RECOVERY ⊠ STANDARD PEN. ▤ 75 mm SPOON ▥ CRREL BARREL

SOIL DESCRIPTION

■ STANDARD PENETRATION ■ 10 20 30 40

PLASTIC M.C. LIQUID 24 48 72 96

■ PERCENT GRAVEL ■ 20 40 60 80

● PERCENT SAND ● 20 40 60 80

▲ PERCENT SILT OR FINES ▲ 20 40 60 80

◆ PERCENT CLAY ◆ 20 40 60 80

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0					ORGANIC SILT – frequent roots; soft; wet; black
	■	1			SAND AND SILT – trace of clay, occasional fine gravel; mica platelets dissemented throughout; fine to medium sand; low plastic; frozen, Nbe; brown
1.0					– more sand below 1.2 m
2.0	■	2			
3.0					ICE INCLUSION, 0.5 m in thickness
					SILT – trace to some fine sand; Vx; 15 to 20% ICE; brown; mild to strong organic odour
4.0					– some zones of ash
5.0	■	3			END OF BOREHOLE @ 5.3 m
6.0					

DEPTH(ft): 0.0, 2.0, 4.0, 6.0, 8.0, 10.0, 12.0, 14.0, 16.0, 18.0

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LOGGED BY: CRH	COMPLETION DEPTH: 5.3 m
REVIEWED BY: CRH	COMPLETE: 96/07/04
Fig. No:	Page 1 of 1

96/08/14 10:36AM (YUKON-6)

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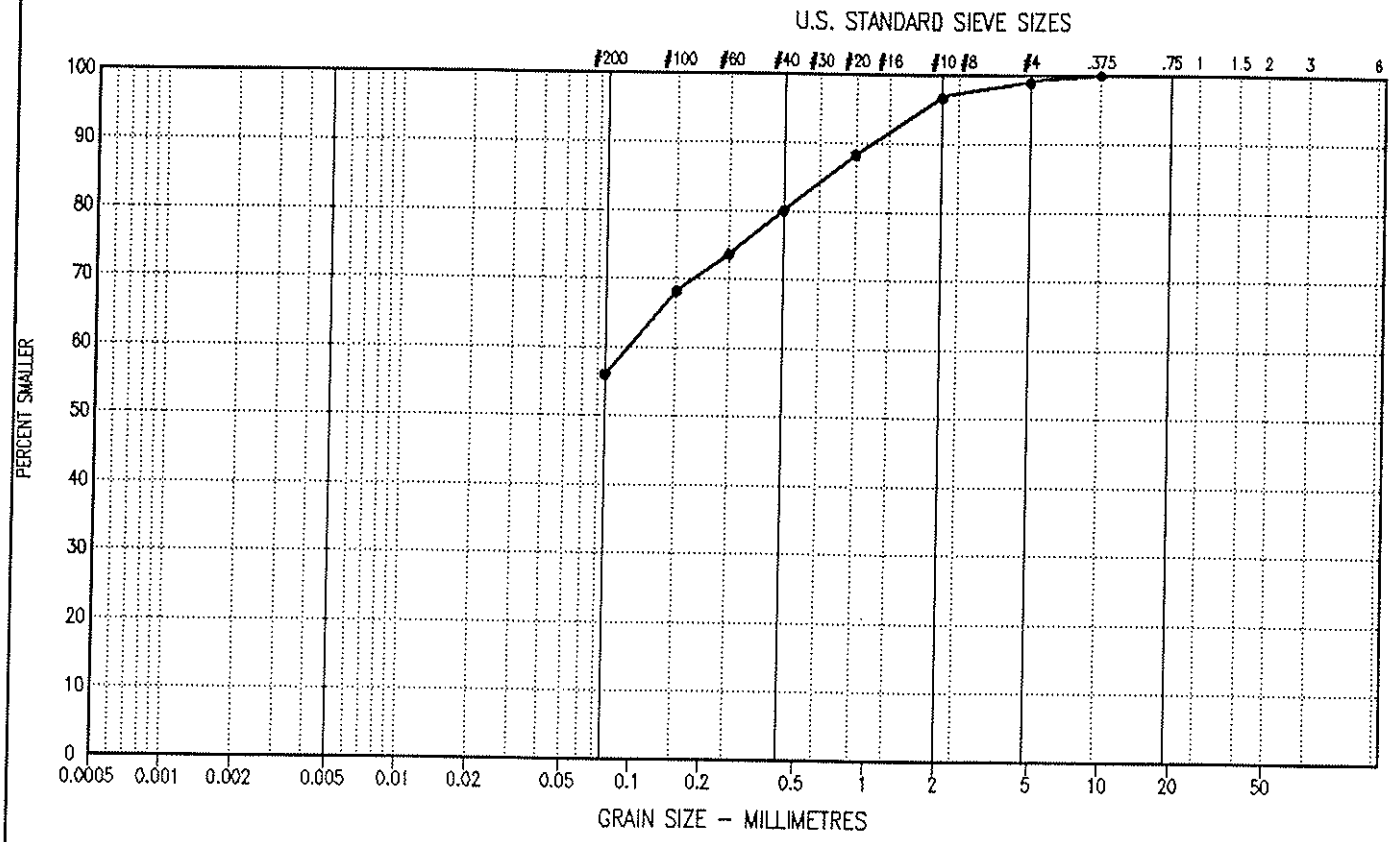
PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION			Cu	Cc	U.S.C
			CLAY & SILT %	SAND %	GRAVEL %			
●	96-G06	0.70 – 1.00	55.9	43.0	1.1	7.4	1.2	

Project: 0201-11509 Date Tested: 96/07/11 BY: AA

Tested in accordance with ASTM D422 unless otherwise noted.

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G10
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2768.8'

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	SPT(N)	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0						MOSS AND ROOT MAT
		62				SILT - sandy, well graded sand, low plastic, soft, very moist, olive brown
1.0						- trace of fine grained gravel below 0.5 m
		63				- color changes to light greyish brown around 0.9 m
2.0						- becomes gravelly, fine to med. grained below 2.2 m
3.0		64				- 0.0 degree C. at 3.0 m - some visable ice inclusion Vr > 10% various depths from 3.2 m - 4.5 m
4.0						
		65				
5.0						- dense hard driling below 4.9 m
						SAND - silty, some gravel, coarse grained sand, fine to med. grained sub-angular gravel, moist, dense, light greyish brown
6.0		66		SM		
		67				- grinding and hard drilling below 6.7 m - broke off fish tail bit, lost in hole
7.0						END OF BOREHOLE @ 7.0 m (REFUSAL) - major slough throughout NOTE: Mine Coordinates N 10169.00 E 8357.00
8.0						
9.0						
10.0						

CONE PENETRATION 20 40 60 80

PLASTIC M.C. LIQUID 10 20 30 40

PERCENT GRAVEL 20 40 60 80

PERCENT SAND 20 40 60 80

PERCENT SILT OR FINES 20 40 60 80

PERCENT CLAY 20 40 60 80

INSTRUMENTATION DATA

DEPTH(ft) 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 32.0 34.0

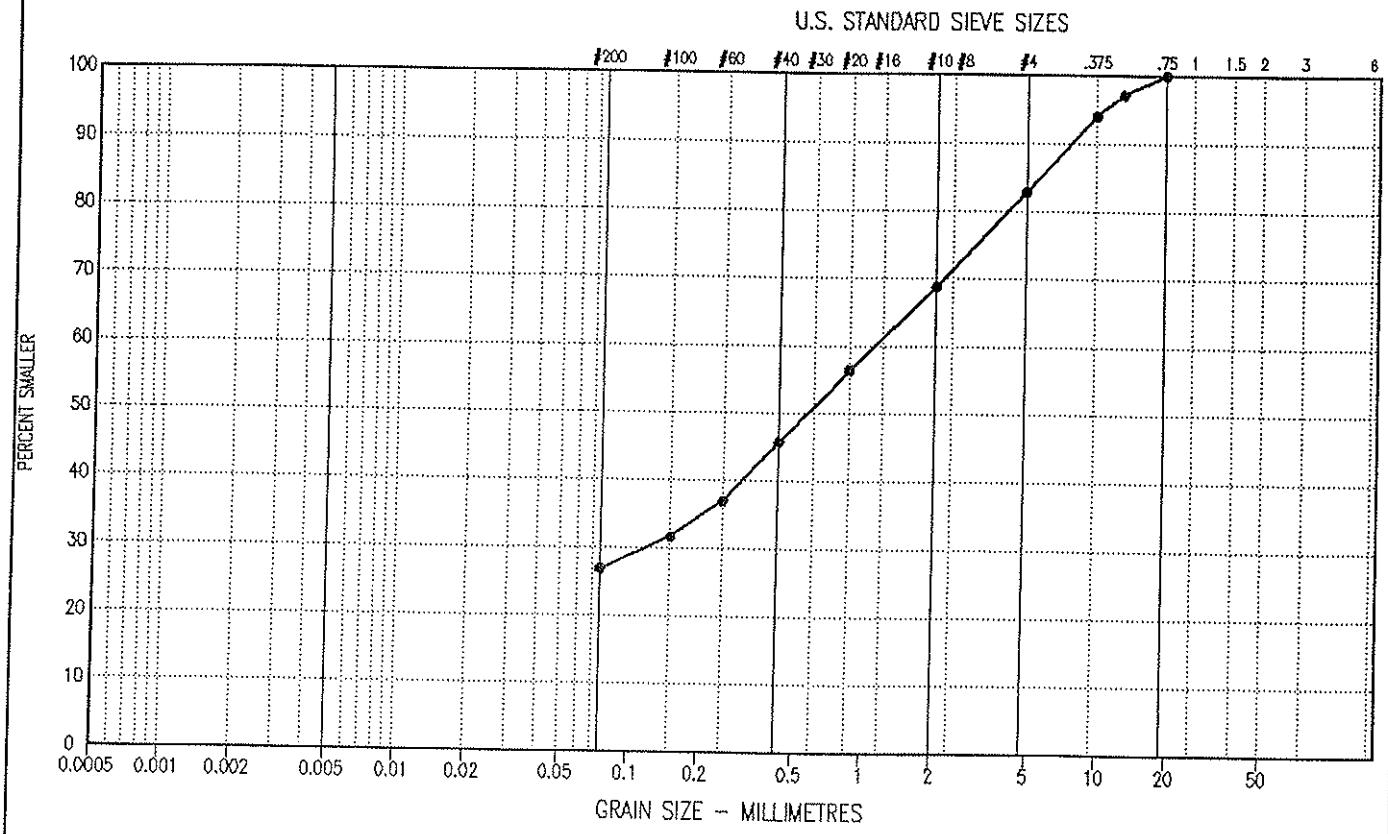
EBA Engineering Consultants Ltd. Whitehorse, Yukon	LOGGED BY: JSB	COMPLETION DEPTH: 7 m
	REVIEWED BY: CRH	COMPLETE: 97/09/11
	Fig. No:	Page 1 of 1

98/01/14 09:54AM (YUKON-10)

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION			Cu	Cc	U.S.C
			CLAY & SILT %	SAND %	GRAVEL %			
●——●	97-G10	5.90 – 6.10	26.9	55.9	17.2	42.4	0.5	SM

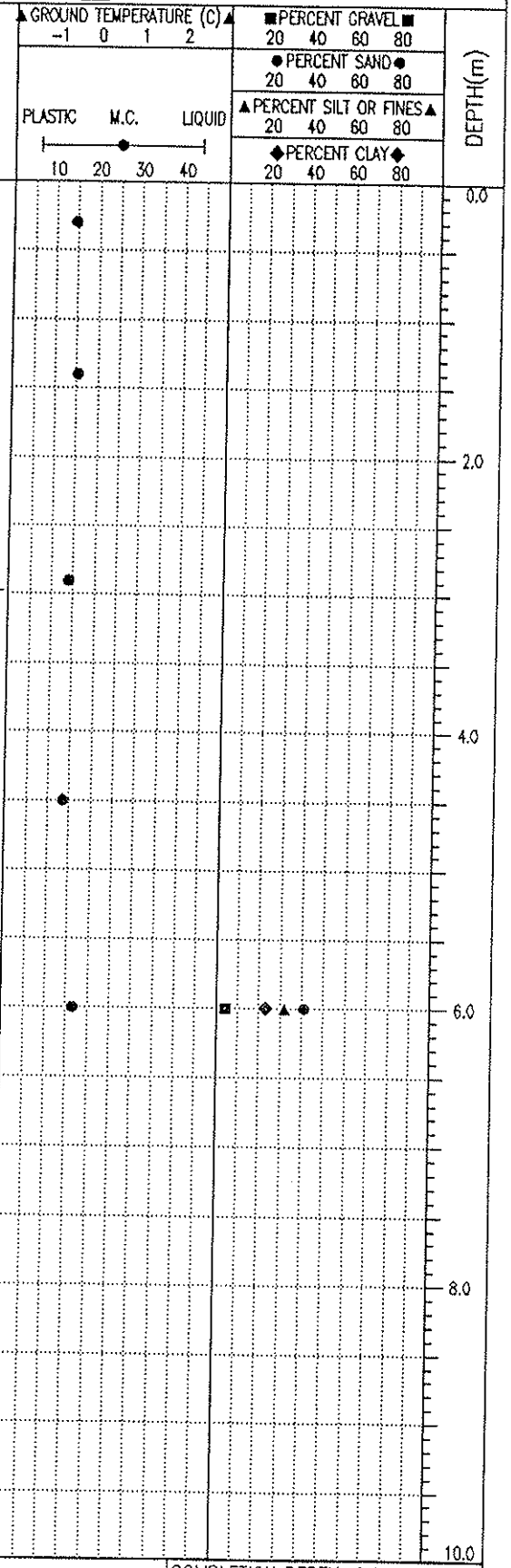
Project: 0201-97-11509 Date Tested: 97/10/20 BY: RS

Tested in accordance with ASTM D422 unless otherwise noted.

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G11
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2798.7'

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	GROUND ICE DESCRIPTION
0.0					MOSS AND ROOT MAT	UNFROZEN
		68			SILT & SAND - some clay, fine to med. grained sand, very moist, greyish brown	
1.0					- trace of fine grained sub-rounded gravel below 0.4 m	
		69			- sand content increases slightly below 0.4m	
2.0						
		70				
3.0						PERMAFROST -0.6 degree C. Nf
4.0					- moisture content decreases around 3.7 m	
		71			- coarse grained sand below 3.7 m	
5.0					- silt content decreases to some silt below 4.8 m	
6.0		72			- becomes silty, clayey below 5.9 m	
					END OF BOREHOLE @ 6.1 m (REFUSAL)	
7.0					- major slough throughout	
					- no water table encountered	
8.0					NOTE: Mine Coordinates N 10306.00 E 7968.00	
9.0						
10.0						



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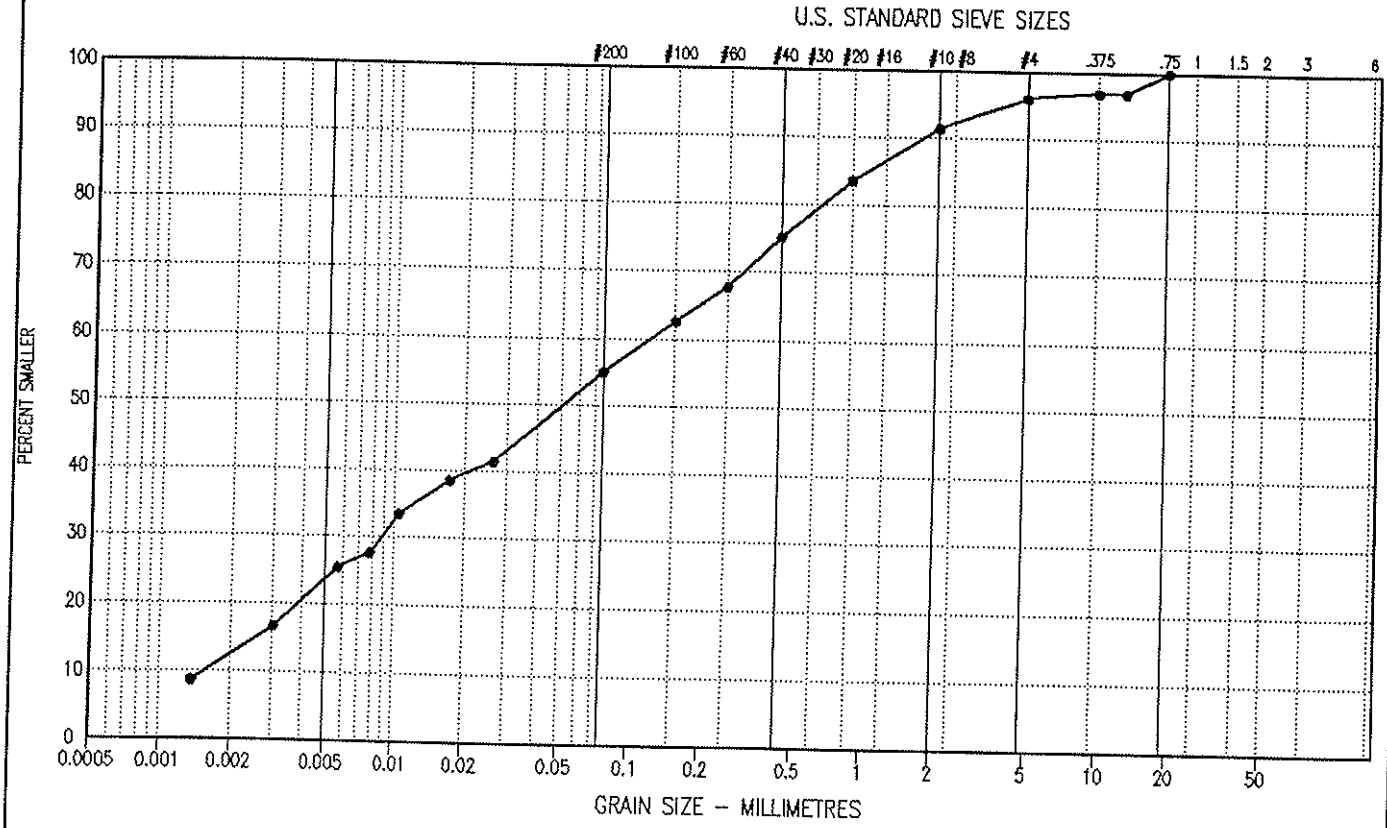
LOGGED BY: JSB	COMPLETION DEPTH: 6.1 m
REVIEWED BY: CRH	COMPLETE: 97/09/12
Fig. No:	Page 1 of 1

98/02/17 11:48AM (YUK-PT10)

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION CLAY %	SILT %	SAND %	GRAVEL %	Cu	Cc	U.S.C
●	97-G11	5.90 – 6.10	23.1	31.9	41.0	4.0	76.4	0.4	

Project: 0201-97-11509

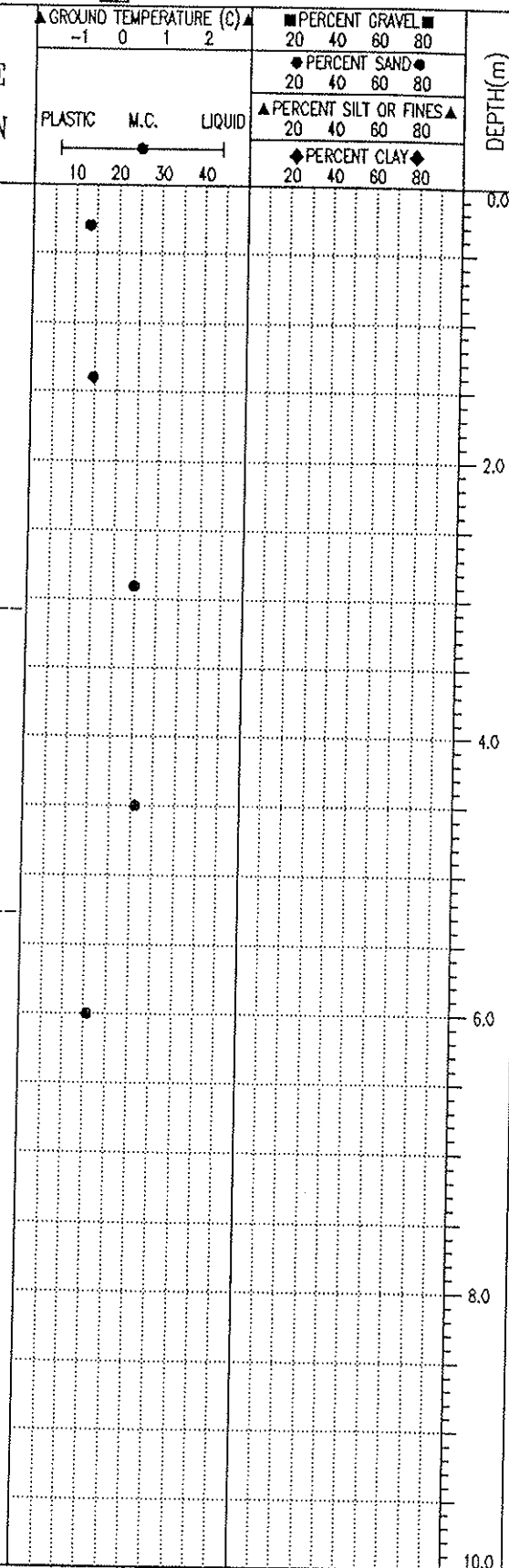
Date Tested: 97/10/21 BY: JSB

Tested in accordance with ASTM D422 unless otherwise noted.

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G12
GEOTECHNICAL EVAL. – WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: – N – E –	ELEVATION: 2793.9 '

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	GROUND ICE DESCRIPTION
0.0					MOSS AND ROOTMAT	UNFROZEN
		73			SILT & SAND – fine to med. grained sand, low plastic, soft, moist, greyish brown	
1.0					– water at 0.5 m	
		74			– trace of fine grained gravel below 0.5 m	
2.0					SAND – some silt, med. grained uniform sand, soft, wet, light greyish brown	
3.0		75				PERMAFROST
						–0.8 degree C.
						Nf
4.0					– drill slightly firmer below 3.7 m	Vx, <5%
		76				–0.9 degree C.
5.0					– trace of some gravel fine to med. grained below 4.9 m	
					– unfrozen below 5.2 m	UNFROZEN
6.0		77				
					END OF BOREHOLE @ 6.1 m	
					– major slough throughout	
					– water at 0.5 m	
7.0					NOTE: Mine Coordinate N 10170 E 7858	
8.0						
9.0						
10.0						



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LOGGED BY: JSB	COMPLETION DEPTH: 6.1 m
REVIEWED BY: CRH	COMPLETE: 97/09/12
Fig. No:	Page 1 of 1

98/02/17 11:50AM (YUK-PT10)

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G13
GEOTECHNICAL EVAL. – WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: – N – E –	ELEVATION: 2851.7'

SAMPLE TYPE ■ GRAB SAMPLE ⊘ NO RECOVERY ⊠ STANDARD PEN. ▤ 75 mm SPOON ▥ CRREL BARREL

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	GROUND ICE DESCRIPTION
0.0					MOSS AND ROOTMAT	UNFROZEN
	■	78			SILT & SAND – well graded sand, low plastic, wet, brownish black – trace of fine to med. grained gravel below 0.4 m	PERMAFROST Vx, 10 – 15%
1.0						
	■	79				–1.8 degree C.
2.0					SAND (RESIDUM) – gravelly, some silt, well graded sand, fine to med. grained angular gravel, moist brownish grey, no visable ice, poorly, bonded, Nf	
3.0	■	80				–0.8 degree C.
	■	81			– grinding and hard drilling below 3.1 m – fish tail replaced with button bit at 3.15 m – slow hard drilling continues – easier drilling below 3.5 m – grinding at 4.0 to 4.3 m Note: sample silty with ground up gravel, unable to determine temp at depth	
4.0	■	82				
5.0						
6.0					END OF BOREHOLE @ 5.8 m (REFUSAL) – some sloughing – no water table encountered NOTE: Mine Coordinates N 8108.00 E 7022.00	
7.0						
8.0						
9.0						
10.0						

GROUND TEMPERATURE (C) –1 0 1 2

PLASTIC M.C. LIQUID 10 20 30 40

■PERCENT GRAVEL■ 20 40 60 80

●PERCENT SAND● 20 40 60 80

▲PERCENT SILT OR FINES▲ 20 40 60 80

◆PERCENT CLAY◆ 20 40 60 80

DEPTH(m) 0.0 2.0 4.0 6.0 8.0 10.0

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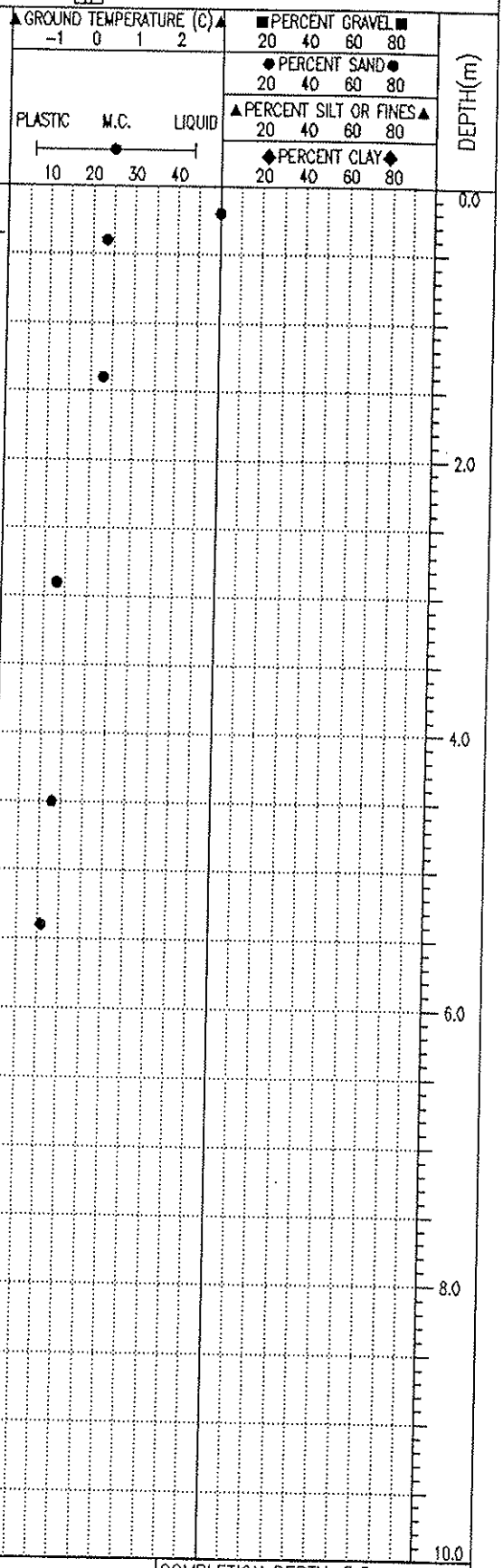
LOGGED BY: JSB	COMPLETION DEPTH: 5.8 m
REVIEWED BY: CRH	COMPLETE: 97/09/12
Fig. No:	Page 1 of 1

98/02/17 11:5 VM (YUK-PT10)

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G14
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2824.5 '

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	GROUND ICE DESCRIPTION
0.0		83			MOSS AND ROOT MAT	UNFROZEN
		84			SILT & SAND - well graded sand, low plastic, wet, brownish brown	PERMAFROST Vx, 10 - 15%
1.0					- color changes to greyish brown at 0.3 m	
		85			- trace of fine to med. grained sub-angular gravels	Vx, 10 -15%, Nf
2.0					- grinding below 1.8 m	Vx, <5% poorly bonded
3.0		86			SAND (RESIDUUM) - some gravel, some silt, med. to coarse grained sand, fine to med. grained angular gravels, moist, greyish brown	
4.0						
		87			- change fish tail bit to CRREL barrel	
5.0					- grinding and hard drilling below 4.9 m	
		88			- large cobble in CRREL barrel	
6.0					END OF BOREHOLE @ 5.5 m (REFUSAL)	
					- little to no slough	
7.0					- no water table encountered	
					NOTE: Mine Coordinates N 8535.00 E 7365.00	
8.0						
9.0						
10.0						



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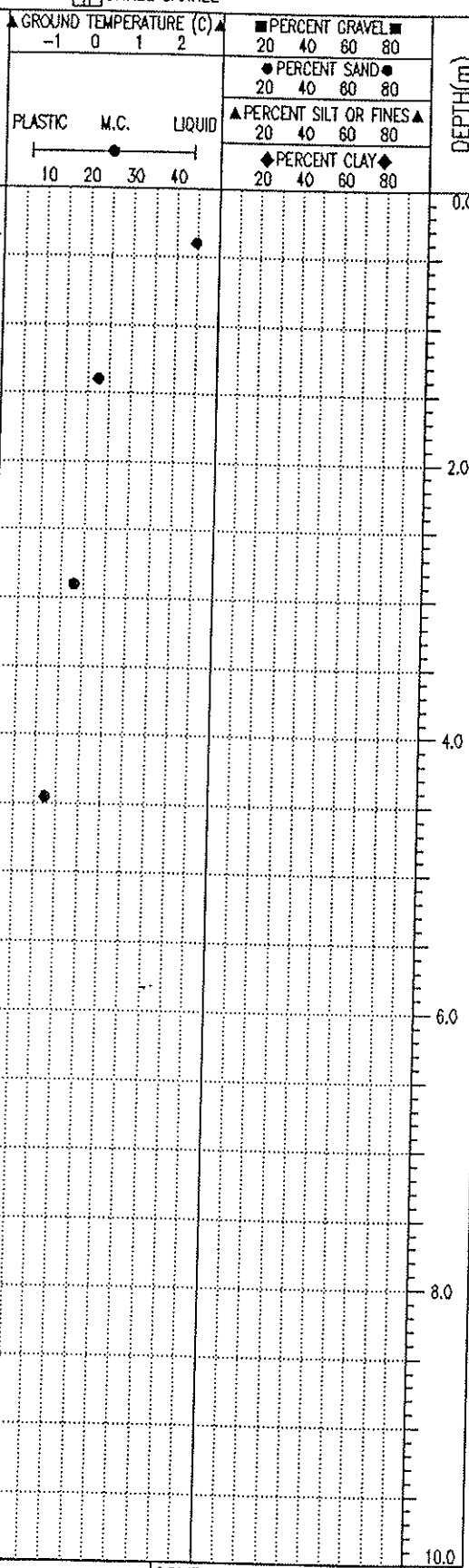
LOGGED BY: JSB	COMPLETION DEPTH: 5.5 m
REVIEWED BY: CRH	COMPLETE: 97/09/12
Fig. No:	Page 1 of 1

98/02/17 11:52AM (YUK-PT10)

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G15
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2795 '

SAMPLE TYPE: GRAB SAMPLE; NO RECOVERY; STANDARD PEN.; 75 mm SPOON; CRREL BARREL

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	GROUND ICE DESCRIPTION
0.0					MOSS AND ROOT MAT	UNFROZEN
		89			SILT - sandy, fine to med. grained sand, very moist, greyish brown	
					SAND - same silt, trace of gravel, med. to coarse grained sand, fine grained angular gravel, soft, moist, grey	PERMAFROST
1.0						Vx, <5%
		90				-0.3 degree C. Vx, 15 - 20%
2.0						Vx, 10 - 15%
		91				-0.2 degree C.
3.0						
4.0						
		92				
					- hard drilling at 4.6 m - 4.9 m	
5.0					END OF BOREHOLE @ 4.9 m - some slough - no water table encountered NOTE: Mine Coordinates N 9147.00 E 7550.00	
6.0						
7.0						
8.0						
9.0						
10.0						



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LOGGED BY: JSB	COMPLETION DEPTH: *.*
REVIEWED BY: CRH	COMPLETE: 97/09/12
Fig. No:	Page 1 of 1

98/02/17 11:53AM (YUK-PT10)

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G16
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2814.3 '

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	SPT(N)	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0		93				MOSS AND ROOT MAT
						SILT & SAND - well graded sand, low plastic, wet, dark olive bown
1.0		94				SAND - silty, fine grained uniform sand, non-plastic, soft, moist, light greyish brown
2.0						
						- trace of fine grained angular gravel below 2.4 m
3.0		95				- sand becomes well graded below 2.4 m
						- moisture content increases to very moist below 2.7 m
4.0						- + 3.9 degree C. at 3.0 m
						- possible water table around 3.5 m
5.0		96				
		97				
6.0						END OF BOREHOLE @ 5.5 m (REFUSAL)
						- major slough throughout
						- possible water table at 2.4 m
						NOTE: Mine Coorindates N 9944.00 E 7376.00
7.0						
8.0						
9.0						
10.0						

CONE PENETRATION 20 40 60 80

PLASTIC M.C. LIQUID 10 20 30 40

PERCENT GRAVEL 20 40 60 80

PERCENT SAND 20 40 60 80

PERCENT SILT OR FINES 20 40 60 80

PERCENT CLAY 20 40 60 80

INSTRUMENTATION DATA

DEPTH(ft) 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 32.0 34.0

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REVIEWED BY: CRH | COMPLETE: 97/09/16
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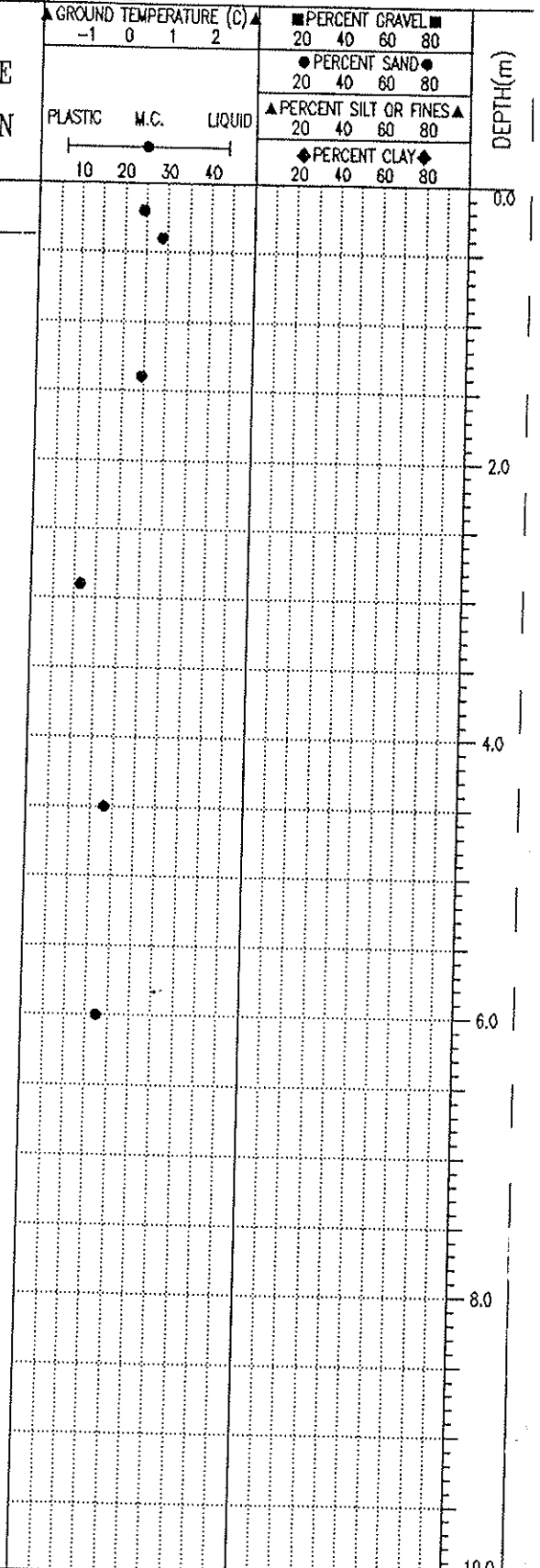
98/01/14 10:09AM (YUKON-10)

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD.	BOREHOLE NO: 97-G17
GEOTECHNICAL EVAL. - WASTE SUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2827.2 '

SAMPLE TYPE ■ GRAB SAMPLE ▨ NO RECOVERY ▩ STANDARD PEN. ▤ 75 mm SPOON ▥ CRREL BARREL

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	GROUND ICE DESCRIPTION
0.0	■	98			MOSS AND ROOT MAT	UNFROZEN
	■	99			SAND & SILT - trace of fine grained gravel, well graded sand, brownish grey	PERMAFROST Vx, <5%
1.0					- become some silt to silty below 0.3 m	
	■	100				Vx, 15 to 20%
2.0					- silt content increases to silty below 1.6 m - trace of clay below 1.6 m - gravel becomes fine to med grained below 1.6 m - color becomes grey below 1.6 m	
3.0	■	101			- some gravel below 3.0 m	Vx, <5%
4.0						
	■	102				
5.0						
6.0	■	103				
					END OF BOREHOLE @ 6.1 m - no water table encountered - some slough throughout NOTE: Mine Coordinates N 10416.00 E 7347.00	
7.0						
8.0						
9.0						
10.0						



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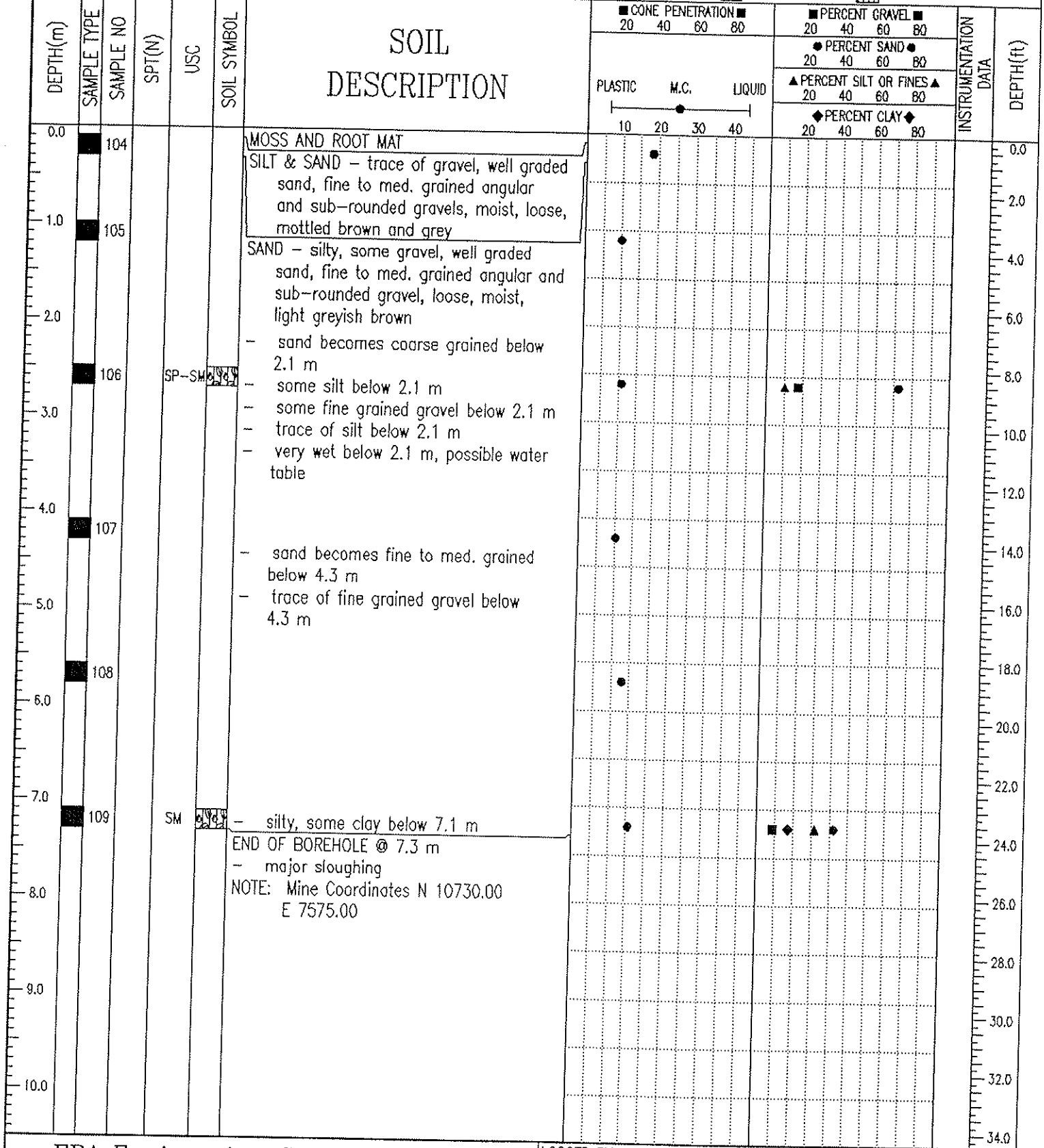
REVIEWED BY: CRH	COMPLETE: 97/09/12
Fig. No:	Page 1 of 1

98/02/17 11:54AM (YUK-PT10)

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G18
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2841.5 '

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



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	REVIEWED BY: CRH	COMPLETE: 97/09/13
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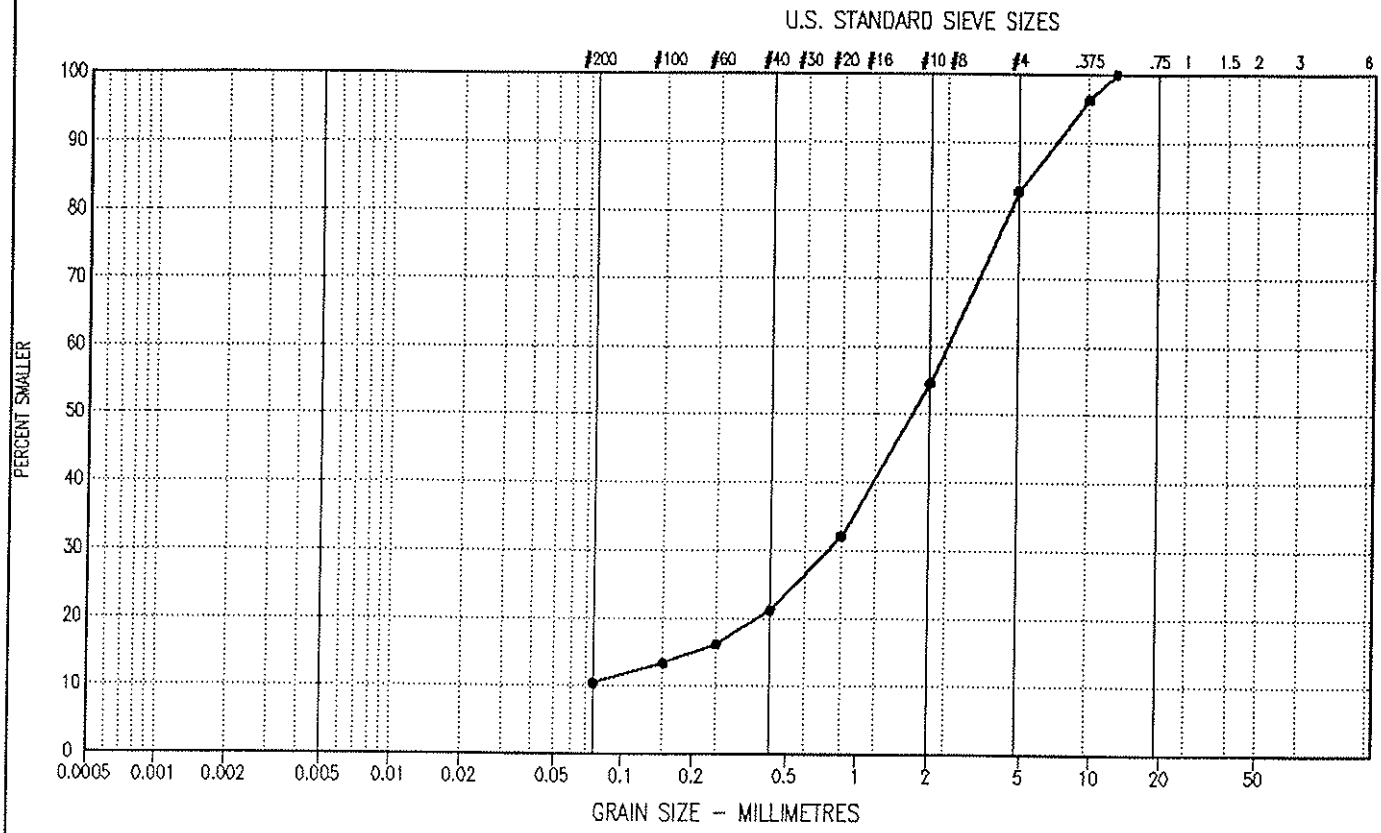
98/01/14 10:15AM (YUKON-10)

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION			Cu	Cc	U.S.C
			CLAY & SILT %	SAND %	GRAVEL %			
●	97-G18	2.50 – 2.70	10.3	72.4	17.3	35.0	3.2	SP-SM

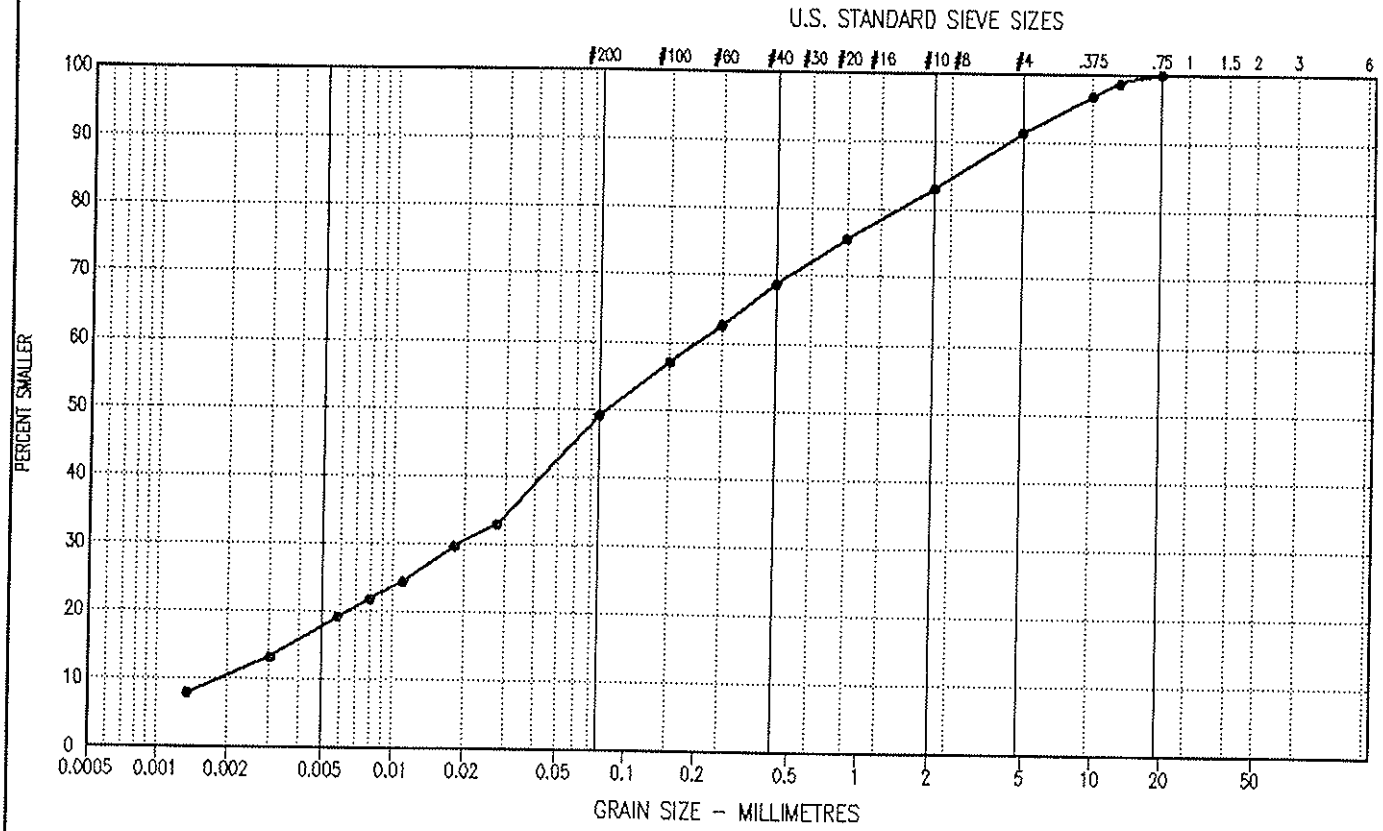
Project: 0201-97-11509 Date Tested: 97/10/20 BY: RS

Tested in accordance with ASTM D422 unless otherwise noted.

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C
			CLAY %	SILT %	SAND %	GRAVEL %			
●—●	97-G18	7.10 – 7.30	17.3	31.8	42.2	8.7	100.5	0.9	SM

Project: 0201-97-11509 Date Tested: 97/10/27 BY: JSB

Tested in accordance with ASTM D422 unless otherwise noted.

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G19
GEOTECHNICAL EVAL. – WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: – N – E –	ELEVATION: 2857.7′

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

SOIL DESCRIPTION

CONE PENETRATION 20 40 60 80

PLASTIC M.C. LIQUID 10 20 30 40

PERCENT GRAVEL 20 40 60 80

PERCENT SAND 20 40 60 80

PERCENT SILT OR FINES 20 40 60 80

PERCENT CLAY 20 40 60 80

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	SPT(N)	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0						MOSS AND ROOTMAT
		110				SILT & SAND – trace of gravel, well graded sand, fine to med. grained sub-rounded gravel, soft, moist, dark olive brown
1.0		111				SAND – silty, trace of gravel, well graded sand, fine to med. grained sub-rounded gravel, loose, moist, greyish brown
						– water table at 1.2 m possibly lower at sand seam below 2.1 m
2.0		112				– 0.3 m thick layer of med. to coarse grained sand, trace of silt, loose, very wet, grey
		113				
3.0						
4.0		114		SM		– sand becomes med to coarse grained below 3.7 m
						– some silt below 3.7 m
						– trace of fine grained sub-rounded gravels
5.0						– gravel content increases below 4.1 m
						– becomes silty below 4.4 m
		115				
6.0						
						– drilling slightly harder below 6.1 m
7.0		116				
8.0						
		117				
9.0						END OF BOREHOLE @ 8.8 m
						– borehole sloughing
						– water around 1.2 m
10.0						NOTE: Mine Coordinates N 10837.00 E 7237.00

INSTRUMENTATION DATA

DEPTH(ft): 0.0, 2.0, 4.0, 6.0, 8.0, 10.0, 12.0, 14.0, 16.0, 18.0, 20.0, 22.0, 24.0, 26.0, 28.0, 30.0, 32.0, 34.0

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REVIEWED BY: CRH	COMPLETE: 97/09/13
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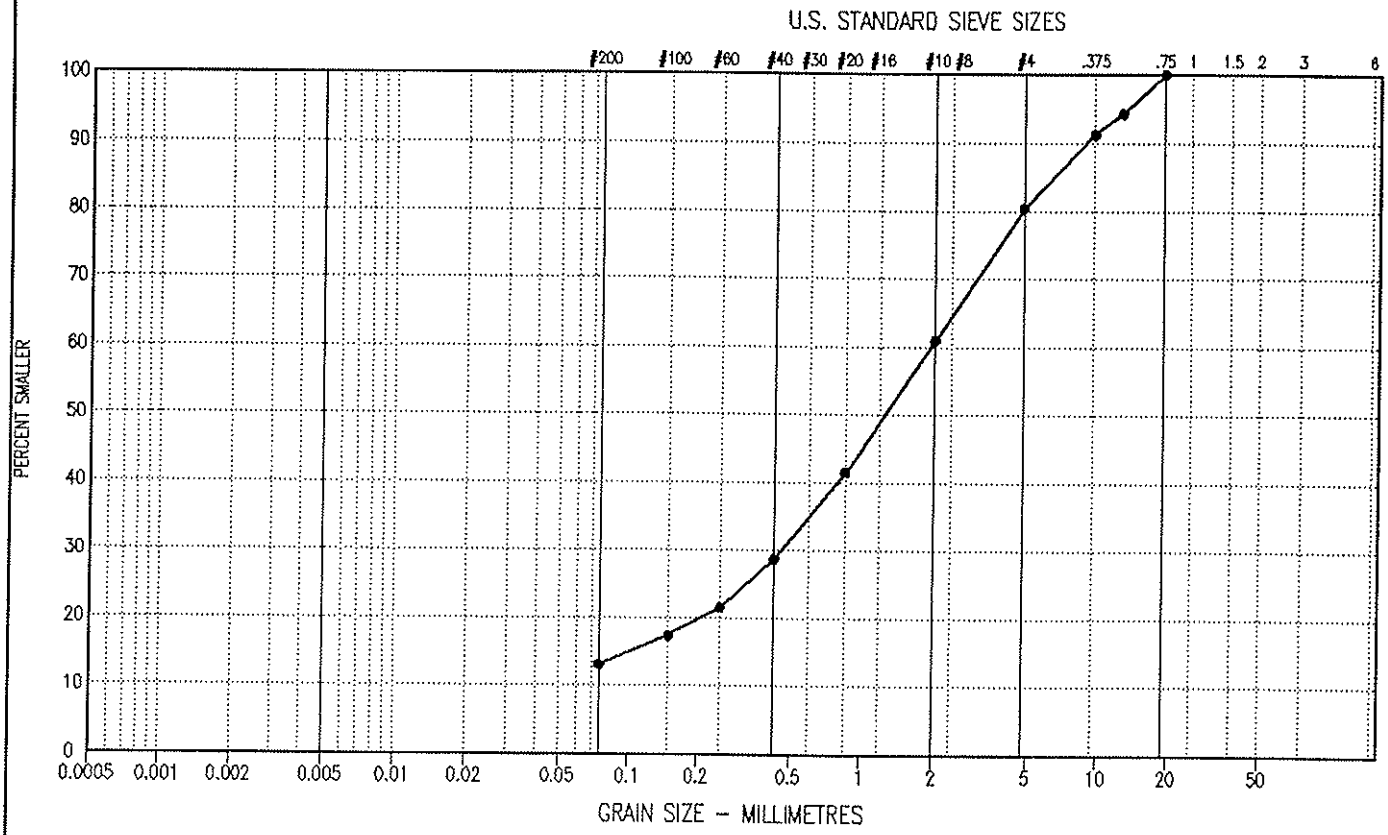
98/01/14 10:46AM (YUKON-10)

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION			Cu	Cc	U.S.C
			CLAY & SILT %	SAND %	GRAVEL %			
●—●	97-G19	4.10 – 4.30	13.0	67.5	19.5	33.7	2.0	SM

Project: 0201-97-11509 Date Tested: 97/10/20 BY: RS

Tested in accordance with ASTM D422 unless otherwise noted.

THE MINTO PROJECT	CLIENT: MINTO EXPLORATIONS LTD	BOREHOLE NO: 97-G24
GEOTECHNICAL EVAL. - WASTE DUMP AREA	DRILL: CME-75 c/w SOLID SHAFT AUGERS	PROJECT NO: 0201-97-11509
MINTO CREEK, YUKON	UTM ZONE: - N - E -	ELEVATION: 2752.8'

SAMPLE TYPE: GRAB SAMPLE | NO RECOVERY | STANDARD PEN. | 75 mm SPOON | CRREL BARREL

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	SAMPLE TYPE	SAMPLE NO	SPT(N)	USC	SOIL SYMBOL	SOIL DESCRIPTION
0.0		147				MOSS AND ROOT MAT SILT - sandy, trace of gravel, well graded sand, fine grained sub-rounded gravel, moist, soft, dark olive brown
1.0		148				SAND & SILT - trace of gravel, well graded sand, fine grained sub-rounded gravel, soft, moist, brownish grey - trace of clay below 1.5 m
2.0		149				- becomes sandy, silt, trace of clay, trace fine grained gravel below 2.0 m
3.0						- clay content decreases below 2.8m - gravel becomes well graded below 2.8 m
4.0		150				- hard drilling, some grinding below 3.9 m
5.0						
6.0		151				
7.0		152				
8.0						END OF BOREHOLE 7.6 m (REFUSAL) - no water table encountered - some minor sloughing NOTE: Mine Coordinates N 9948.00 E 8483.00
9.0						
10.0						

CONE PENETRATION 20 40 60 80

PLASTIC M.C. LIQUID 10 20 30 40

PERCENT GRAVEL 20 40 60 80

PERCENT SAND 20 40 60 80

PERCENT SILT OR FINES 20 40 60 80

PERCENT CLAY 20 40 60 80

INSTRUMENTATION DATA

DEPTH(ft) 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 32.0 34.0

EBA Engineering Consultants Ltd. Whitehorse, Yukon	LOGGED BY: JSB REVIEWED BY: CRH Fig. No:	COMPLETION DEPTH: 7.6 COMPLETE: 97/09/14 Page 1 of 1

98/01/14 10:23AM (YUKON-10)

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP100
Minto Copper Mine	Excavator: CAT 416 C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944700 N, 383473.6 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	SOIL DESCRIPTION
0.0				SAND (RESIDIUUM) – silty, trace of gravel
				– becomes some gravel, fine to medium groined, angular 0.5 m
				– trace to some silt below 1.0 m
1.0				
2.0				
				BEDROCK (GRANITE) – poor quality, friable
				– becomes more competent with depth
3.0				END OF TESTPIT 3.0 m (REFUSAL)
4.0				

PLASTIC M.C. LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft)
0.0
5.0
10.0

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LOGGED BY: JSB	COMPLETION DEPTH: 3 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
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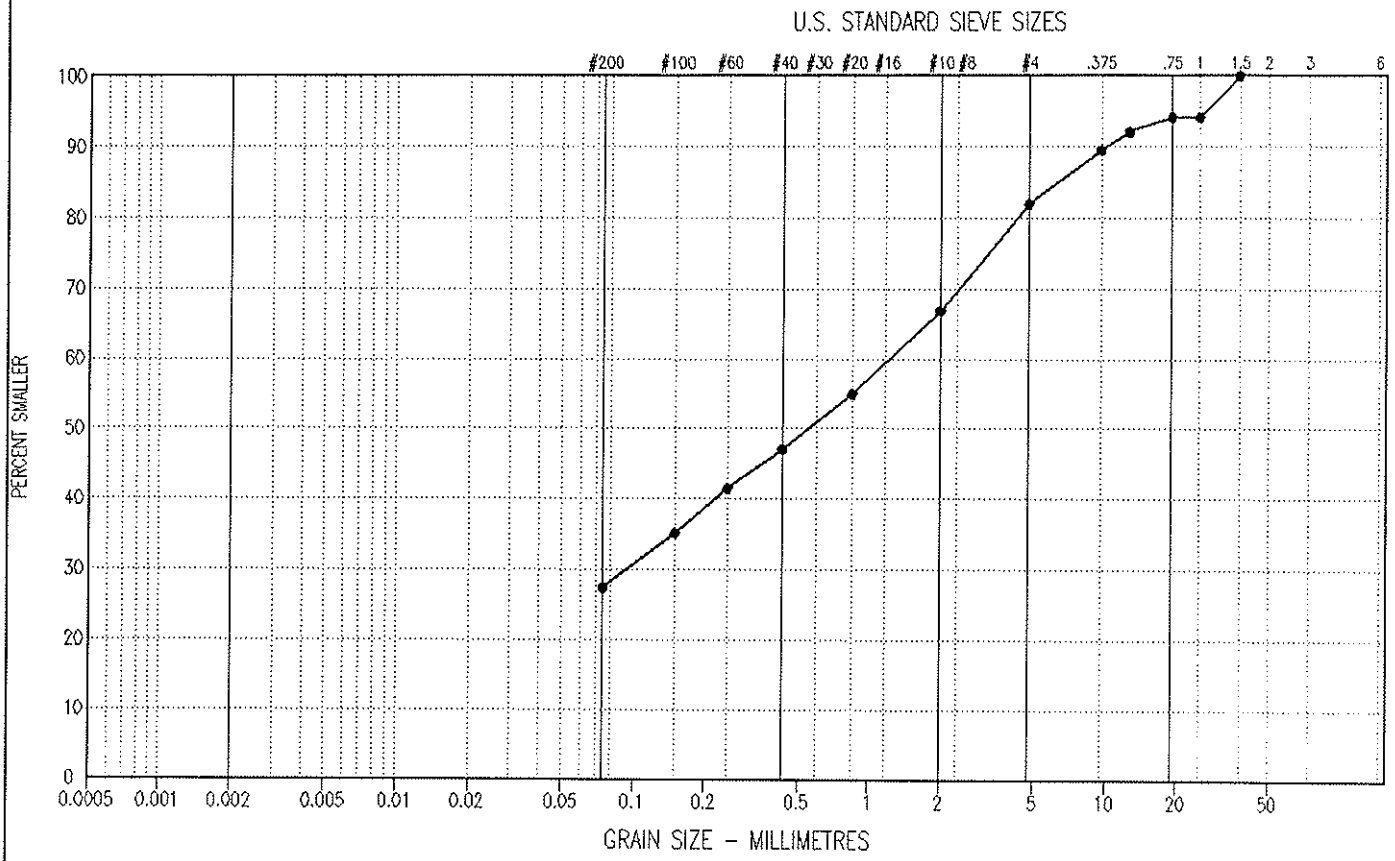
05/11/28 02:57PM (YUK-1P4)

EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C
			CLAY %	SILT %	SAND %	GRAVEL %			
●——●	1200173-100	0.50 – 0.70	--- 27 ---		54	19	–	–	

Project: 0201-1200173 Date Tested: 05/11/02 BY: JP

Tested in accordance with ASTM D422 unless otherwise noted.

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP101
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944709 N, 383553.1 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	SOIL DESCRIPTION
0.0				ORGANIC ROOT MAT
				SAND (RESIDIUUM) – silty, trace of gravel
				– trace to some silt below 0.3 m
1.0		■		
				– coorser grovels, some cobbles present below 1.8 m
2.0				
				BEDROCK (GRANITE) – poor quality, friable
				– more competent with depth
				END OF TESTPIT 2.7 m (REFUSAL)
3.0				
4.0				

PLASTIC M.C. LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft): 0.0, 5.0, 10.0

EBA Engineering Consultants Ltd.

LOGGED BY: JSB	COMPLETION DEPTH: 2.7 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
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05/11/28 02:57PM (YUK-TP4)

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP102
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
NW of Minto, YT	6944697 N, 383635.9 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	SOIL DESCRIPTION
0.0				SAND (RESIDIUUM) – silty, trace of gravel
				– trace to some silt below 0.4 m
				– some gravel, fine to medium grained, angular to 0.4 m
1.0				
2.0				
				BEDROCK (GRANITE) – poor quality, friable
				END OF TESTPIT 2.8 m (REFUSAL)
3.0				
4.0				

PLASTIC — M.C. — LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft): 0.0, 5.0, 10.0

EBA Engineering Consultants Ltd.	LOGGED BY: JSB
	REVIEWED BY: JRT
	Fig. No:
	COMPLETION DEPTH: 2.8 m
	COMPLETE: 05/10/16
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05/11/28 02:57PM (YUK-TP4)

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP103
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944651 N, 383701.1 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

SOIL DESCRIPTION

Depth(m) | SOIL SYMBOL | SAMPLE TYPE | SAMPLE NO

PLASTIC — M.C. — LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft)

0.0 — ORGANIC ROOT MAT

SAND (RESIDIUUM) – silty, trace of gravel

- trace to some silt below 0.4 m
- becomes gravelly, well graded, angular below 0.4 m

1.0

- cobbles encountered below 1.0 m
- some boulders present below 1.0 m

BEDROCK (GRANITE) – poor quality, friable around 1.6 m

2.0 — END OF TESTPIT 2.0 m (REFUSAL)

3.0

4.0

0.0
5.0
10.0

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LOGGED BY: JSB	COMPLETION DEPTH: 2 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
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05/11/28 02:57PM (YUK-TP4)

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP104
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
NW of Minto, YT	6944573 N, 383721.6 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

SOIL DESCRIPTION

Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	SOIL DESCRIPTION
0.0				ORGANIC ROOT MAT
				SAND (RESIDIUUM) – silty, trace of gravel, well graded sand, fine to medium grained angular gravel, compact, damp, reddish brown
				– trace to some silt below 0.4 m
				– becomes gravelly, well graded, angular below 0.4 m
				– cobbles below 0.7 m
1.0		■		
2.0				
3.0				BEDROCK (GRANITE) – poor quality, frioble
				– more competent with depth
				END OF TESTPIT 3.1 m (REFUSAL)
4.0				

PLASTIC M.C. LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft)
0.0
5.0
10.0

EBA Engineering Consultants Ltd.

LOGGED BY: JSB	COMPLETION DEPTH: 3.1 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
Fig. No:	Page 1 of 1

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

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP105
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
NW of Minto, YT	6944494 N, 383705.1 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	SOIL DESCRIPTION
0.0				ORGANIC ROOT MAT
		■		SAND (RESIDIUUM) – trace to some gravel, well graded sand, fine angular gravel, compact, damp, medium grey – trace to some silt below 0.4 m – becomes gravelly, well graded, angular below 0.4 m – cobbles encountered below 0.6 m
1.0				
				BEDROCK (GRANITE) – poor quality, friable
2.0				END OF TESTPIT 2.0 m (REFUSAL)
3.0				
4.0				

PLASTIC M.C. LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft): 0.0, 5.0, 10.0

EBA Engineering Consultants Ltd.	LOGGED BY: JSB
	REVIEWED BY: JRT
	Fig. No:
	COMPLETION DEPTH: 2 m
	COMPLETE: 05/10/16
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05/11/28 02:57PM (YUK-TP4)

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP106
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944439 N, 383645 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

SOIL DESCRIPTION

Depth(m) | SOIL SYMBOL | SAMPLE TYPE | SAMPLE NO

PLASTIC — M.C. — LIQUID (20 40 60 80)

● PERCENT CLAY ● (10 20 30 40)
▲ PERCENT SILT ▲ (20 40 60 80)
■ PERCENT SAND ■ (20 40 60 80)
◆ PERCENT GRAVEL ◆ (20 40 60 80)

Depth(ft)

0.0 — ORGANIC ROOTMAT

SAND (RESIDIUUM) – silty, trace of gravel

– trace to some silt below 0.5 m
below 0.5 m
– becomes gravelly, well graded, angular

– gravel content increases with depth around 1.0 m

– cobble sized pieces encountered around 1.5 m

BEDROCK (GRANITE) – poor quality, friable

END OF TESTPIT 2.7 m (REFUSAL)

1.0
2.0
3.0
4.0

0.0
5.0
10.0

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LOGGED BY: JSB	COMPLETION DEPTH: 2.7 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
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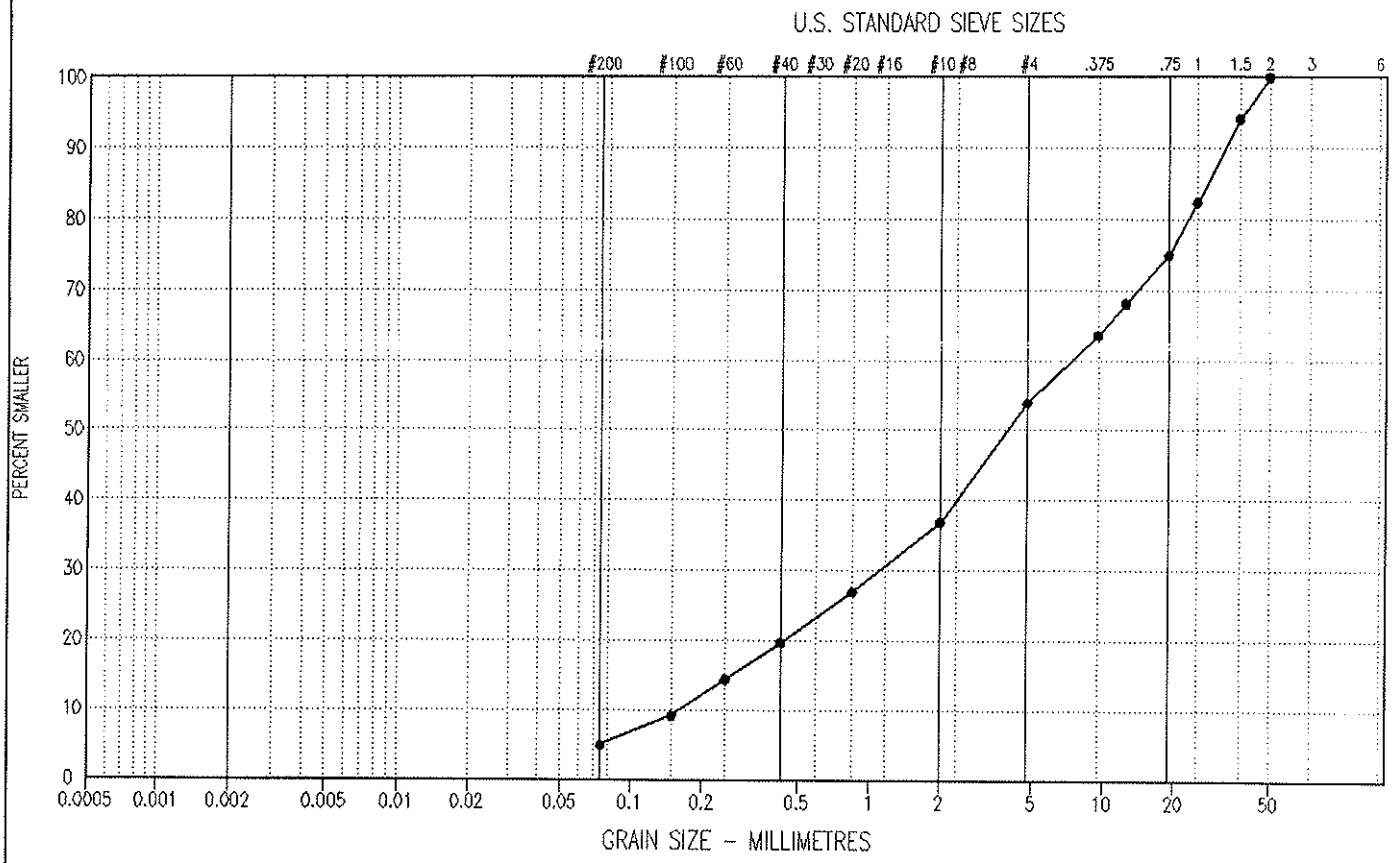
EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C
			CLAY %	SILT %	SAND %	GRAVEL %			
●——●	1200173-106	1.50 – 1.70	---	5 ---	48	47	46.7	1.1	SW

Project: 0201-1200173 Date Tested: 11/02/05 BY: JP

Tested in accordance with ASTM D422 unless otherwise noted.

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP107
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944403 N, 383570 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

SOIL DESCRIPTION

Depth(m) | SOIL SYMBOL | SAMPLE TYPE | SAMPLE NO

PLASTIC — M.C. — LIQUID (20 40 60 80)

● PERCENT CLAY ● (10 20 30 40)
▲ PERCENT SILT ▲ (20 40 60 80)
■ PERCENT SAND ■ (20 40 60 80)
◆ PERCENT GRAVEL ◆ (20 40 60 80)

Depth(ft)

0.0 ORGANIC ROOTMAT

SAND – silty, gravelly, well graded sand, well graded angular gravels, compact, damp, reddish brown

– trace of silt around 0.5 m

– becomes trace to some fine to medium grained angular gravels around 0.7 m

1.0

BEDROCK (GRANITE) – poor quality, friable

– becomes more competent with depth

2.0

END OF TESTPIT 2.5 m (REFUSAL)

3.0

4.0

Depth(ft): 0.0, 5.0, 10.0

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LOGGED BY: JSB	COMPLETION DEPTH: 2.5 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
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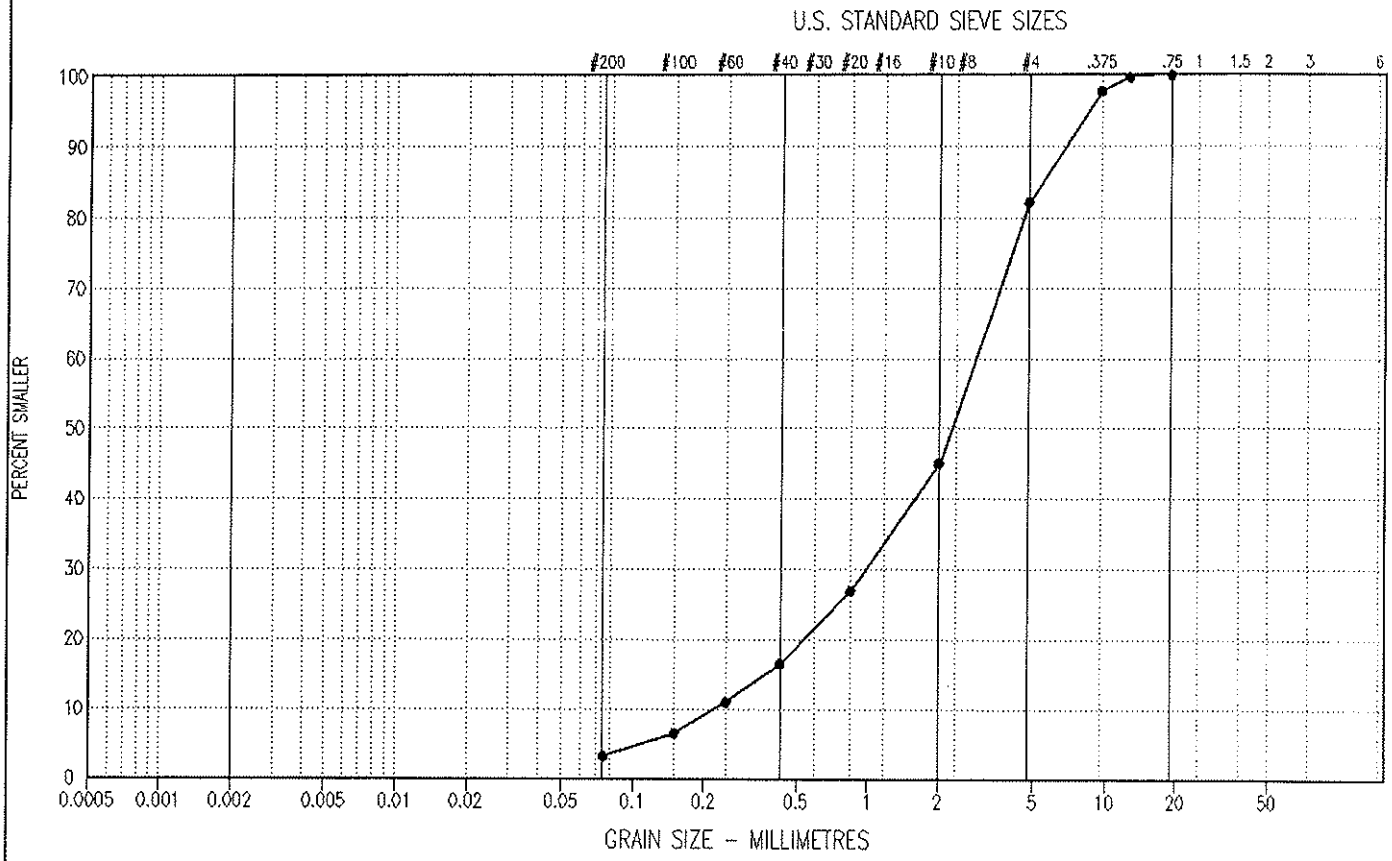
EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C
			CLAY %	SILT %	SAND %	GRAVEL %			
●——●	1200173-107	1.20 – 1.50	---	3 ---	79	18	13.6	1.5	SW

Project: 0201-1200173 Date Tested: 11/02/05 BY: JP

Tested in accordance with ASTM D422 unless otherwise noted.

Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP108
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944360 N, ~~6944322~~ 385500 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

SOIL DESCRIPTION

Depth(m) | SOIL SYMBOL | SAMPLE TYPE | SAMPLE NO

PLASTIC — M.C. — LIQUID (20 40 60 80)

● PERCENT CLAY ● (10 20 30 40)
▲ PERCENT SILT ▲ (20 40 60 80)
■ PERCENT SAND ■ (20 40 60 80)
◆ PERCENT GRAVEL ◆ (20 40 60 80)

Depth(ft)

0.0 — ORGANIC ROOT MAT

SAND (RESIDIUUM) – silty, trace of gravel, well graded sand, fine to medium grained angular gravels, reddish brown
– trace to some silt below 0.5 m

1.0 — – some gravel to gravelly around 1.0 m – 1.5 m

2.0 — BEDROCK (GRANITE) – poor quality, friable below 2.0 m

END OF TESTPIT 2.4 m (REFUSAL)

3.0

4.0

0.0
5.0
10.0

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LOGGED BY:	COMPLETION DEPTH: 2 m
REVIEWED BY:	COMPLETE: 05/10/16
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Minto Mine Development 2005	Client: Sherwood Mining Corp.	TEST PIT NO: 1200173-TP109
Minto Copper Mine	Excavator: CAT 416C Rubber Tire	PROJECT NO: 1200173
Proposed Overburden Dump	6944322 N, 383427.8 E, Z 8	ELEVATION: 0 m

SAMPLE TYPE ■ GRAB

Depth(m)	SOIL SYMBOL	SAMPLE TYPE	SAMPLE NO	SOIL DESCRIPTION
0.0				ORGANIC ROOT MAT
				SAND (RESIDUUM) – silty, trace to some fine gravel, well graded sand, reddish brown
				– less silt with depth around 0.5 m
1.0				
				– becomes grovelly, coarser grained around 1.2 m
2.0				BEDROCK (GRANITE) – HIGHLY FRACTURED – cobble sized pieces, coarser with depth
				END OF TESTPIT 2.7 m (REFUSAL)
3.0				
4.0				

PLASTIC M.C. LIQUID
20 40 60 80

● PERCENT CLAY ●
10 20 30 40

▲ PERCENT SILT ▲
20 40 60 80

■ PERCENT SAND ■
20 40 60 80

◆ PERCENT GRAVEL ◆
20 40 60 80

Depth(ft)
0.0
5.0
10.0

EBA Engineering Consultants Ltd.

LOGGED BY: JSB	COMPLETION DEPTH: 2.7 m
REVIEWED BY: JRT	COMPLETE: 05/10/16
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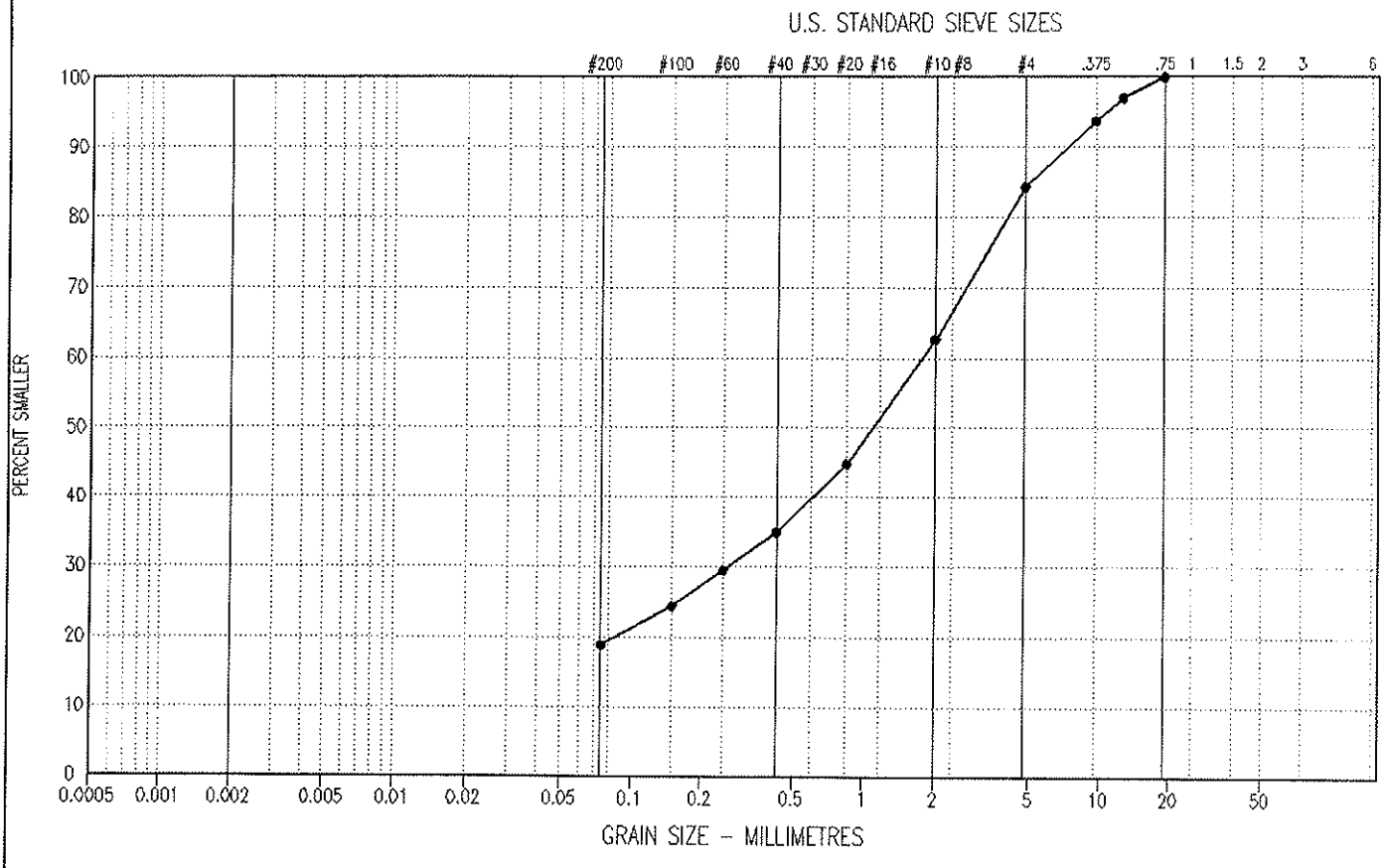
EBA Engineering

PARTICLE SIZE – ANALYSIS OF SOILS

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C
			CLAY %	SILT %	SAND %	GRAVEL %			
●——●	1200173-109	0.50 – 0.70	--- 19 ---		65	16	–	–	

Project: 0201-1200173 Date Tested: 05/11/02 BY: JP

Tested in accordance with ASTM D422 unless otherwise noted.