

# **ATTACHMENT A**

## **Final Factual Report on the Geotechnical Investigation for the Seepage Collection Pond and Polishing Pond Dams**

November 15, 2010

Project No. 08-1118-0043 (3200)

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**FINAL FACTUAL REPORT ON THE GEOTECHNICAL INVESTIGATION FOR THE SEEPAGE COLLECTION POND AND POLISHING POND DAMS, NICO COBALT-GOLD-BISMUTH-COPPER PROJECT**

Dear Sirs:

We are pleased to provide the above report. The report provides the results of the site investigation from March 12<sup>th</sup> to April 6<sup>th</sup> carried out by Golder; with drilling from March 20<sup>th</sup> to April 5<sup>th</sup>, 2010 at the sites of the proposed seepage collection pond and polishing pond dams, as well as the details of the monitoring wells installation downstream of the ponds for water quality baseline purposes.

For completeness, the results of the in-situ hydraulic conductivity tests in the two condemnation holes, drilled by Fortune at the proposed co-disposed tailings and waste rock areas. Similarly, the borehole records from studies in 2006 and 2003 are included.

We trust that this report meets with your expectations. If you have any questions or require clarification please do not hesitate to contact the undersigned.

Yours very truly,



Marc Rougier  
Project Manager

MR/mjs/dh/jm

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November 15, 2010



## NICO COBALT-GOLD-BISMUTH-COPPER PROJECT - CANADA

# Factual Report on the Geotechnical Investigation for the Seepage Collection Pond and Polishing Pond Dams

FACTUAL REPORT

**Submitted to:**  
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**Report Number:** 08-1118-0043 (3200)

2 copies - Fortune Minerals Limited  
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### 1.0 INTRODUCTION

Golder Associates Ltd. (Golder) has been retained by Fortune Minerals Limited (Fortune) to carry out a geotechnical site investigation at the sites of the proposed seepage collection pond and polishing pond dams for the NICO cobalt-gold-bismuth-copper project (NICO Project). The work was authorized as part of Golder's scope of work to carry out the engineering design studies of the proposed tailings and waste rock disposal facility.

The NICO Project is located approximately 160 kilometres (km) northwest of Yellowknife, Northwest Territories (NWT), within the Marian River drainage basin, approximately 10 km east of Hislop Lake at a latitude of 63 degrees and 33 minutes north, and a longitude of 116 degrees 45 minutes west as shown in Figure 1.

The geotechnical site investigation was supervised by Golder engineering staff between the periods from March 20<sup>th</sup> to April 05<sup>th</sup>, 2010. The geotechnical site investigation included drilling through overburden and bedrock, soil and rock sampling, logging, in-situ hydraulic conductivity testing, and installation of monitoring wells downstream of the ponds for water quality baseline purposes.

Two (2) condemnation holes were drilled at the co-disposed tailings and waste rock area by Fortune. Packer tests were carried out by Fortune in the upper bedrock zone of these holes and the results are included in this report for completeness.

This report presents the factual results of the geotechnical site investigation and laboratory tests of selected soil and rock samples. The report includes borehole records from selected previous investigations, for completeness.

### 2.0 PROJECT DESCRIPTION

The NICO Project comprises open pit and underground mining. Ore will be mined from underground mine workings during the first two years of mining. Open pit mining will commence at the same time as underground mining. According to the January 27, 2010 production schedule, 31 million tonnes (Mt) of ore will be mined over an 18 year mine life. Approximately 6.5 Mt of sub-economic ore and 90.3 Mt of mine rock will be produced during mining (Golder, 2010).

A mill will be constructed at the Project site for the purpose of creating a metallurgical concentrate which will be transported to an off-site metallurgical facility for further processing (Fortune, 2009).

In 2004 Golder carried out a site selection study for conventional slurry tailings and mine rock disposal (Golder 2004). Following the site selection study it was concluded that the valley immediately south of the Open Pit could be utilized for mine rock disposal and the valley to the north could be utilized for tailings storage (Golder, 2007).

A trade off evaluation of tailings and mine rock disposal alternatives for the NICO project was carried out by Golder based on revised 2010 life of mine (LOM) tonnage (Golder, 2010). It was concluded that thickened tailings and waste rock can be co-disposed in the basin north of the plant site. Seepage from the co-disposal area will be collected in three seepage collection ponds located downstream of the east side of the facility. The seepage water will be returned to the mill to meet make-up requirements and any excess water will be sent to the effluent treatment facility. The treated water will then be discharged to the polishing pond prior to finally discharge into the Peanut Lake.



## 3.0 SITE DESCRIPTION

### 3.1 Climate

The site has a continental-subarctic climate, marked by short summers with average temperatures of 15 degrees Celsius (°C). Winter temperatures range from -15 to -30 °C, with periodic lows of up to -45°C. The mean Freezing Index in the region ranges from 3,500 to 4,000 Degree Days (°C) (Boyd 1973).

Long-term mean precipitation for the Project area was estimated to be 343.5 mm. Approximately 48.2% of precipitation is expected to fall as snow. The mean annual snowfall was estimated to be 165.5 mm and the mean annual rainfall is estimated to be 177.9 mm.

The mean annual lake evaporation was estimated to be 478.5 mm and the relative humidity varies from 55.9% in June to 82.4% in October.

### 3.2 Topography

The NICO Project site has rugged topography. The project site terrain has been shaped by the action of glaciers which scoured the bedrock outcrops into round ridges and hills. Lakes and swamps of varying size are present in the low lying areas. Absolute elevations at the NICO Project site range from 150 to 350 meters above sea level (masl). While valley floors are densely wooded, the slopes and bedrock hills and ridges are sparsely covered with trees.

The proposed open pit is located on a ridge of exposed bedrock, which slopes down towards the Grid Stream depression.

### 3.3 Geology

The NICO deposit is located in the southern part of the Great Bear magmatic zone, comprising Paleoproterozoic volcanic and plutonic rocks exposed from the Great Slave Lake in the south to Great Bear Lake in the north (Golder, 2004).

The oldest exposed rocks in the area are metasedimentary rocks. The NICO deposit is hosted in Snare Group sedimentary rocks that comprise a 3 to 5 km wide succession of siltstone, impure dolomite, subarkosic wacke and arenite (Goad et al., 1998).

### 3.4 Permafrost Conditions

#### 3.4.1 Regional

The NICO Project is located within the zone of discontinuous permafrost (Crawford and Johnson, 1971). Within the discontinuous zone, permafrost occurs together with unfrozen ground. The permafrost zones are quite patchy depending on certain types of terrain, mainly peatlands. The annual thaw may reach a depth of 3 m and lenses of permafrost may form or disappear, depending on local short-term influences.

#### 3.4.2 Local

EBA (EBA, 2005b) described the permafrost conditions specific to the area located south of the current proposed plant site location and west of the current proposed polishing pond location as follows (area referred as "South Basin" at that time):



“The project site is located within a zone of discontinuous permafrost. Ice-rich organic soils were encountered overlying ice-rich perennially frozen glaciolacustrine and lacustrine clays and silts. Preliminary ground temperatures measured after thermistor installation suggests that the valley slopes of the proposed tailings dam abutments may be unfrozen.

Valley bottoms and depressions are underlain by frozen deposits of glacial and post-glacial origin, and also contain metasedimentary rocks. The predominant vegetation along the valley floor consists of a thick *Sphagnum* moss cover with relatively dense stands of black spruce forest, with some stunted trees leaning in random directions as a result the cyclical frost heave that occurs in fine-grained perennially frozen soils.

Unfrozen igneous rocks, predominantly volcanic in origin, comprise the surrounding hills and ridges, which overlie and intrude the metasedimentary rocks. The valley slopes, bedrock hills and ridges are sparsely vegetated with lodgepole pine, white spruce, white birch, and aspen. The hills and ridges exhibit well developed cryoplanation terraces (i.e. step-like features formed on exposed bedrock slopes due to intense frost wedging from snow banks) on their sides. Unconsolidated rock debris, boulders, and soil are found on the terraces and lower portions of the bedrock slopes.”

## 4.0 GEOTECHNICAL SITE INVESTIGATION

### 4.1 Previous Geotechnical Investigations

EBA Engineering Consultants Ltd. was retained by Fortune in 2004 to conduct a field investigation and provide feasibility stage information. The geotechnical site investigation was conducted in the fall of 2004 and comprised the drilling of six (6) boreholes along the then proposed alignment of a tailings dam in the South Basin; and five (5) boreholes at the proposed footprints of the process plant facilities. The site investigation included the installation of piezometers and thermistors at selected borehole locations.

In 2006 Golder conducted geotechnical site investigations along the proposed sedimentation pond dam and tailings dam alignments (7 boreholes, GA-06-07 to GA-6-13) and at the proposed site of the process facilities (3 boreholes, MC-06-20, MC-06-22 and MC-06-23). The site investigation included the installation of piezometers and thermistors at selected borehole locations. In 2003 Golder conducted geotechnical investigations of the open pit and underground workings. Three deep holes were drilled to collect rock mass and oriented core data (03-281 to 03-283) and were completed with standpipe piezometers.

The locations of these boreholes are shown in Figure 2.

Detailed records of the boreholes and drillholes are presented in Appendix A-1 (2006 data) and A-2 (2003 data).

### 4.2 Current Geotechnical Investigation

The current geotechnical site investigation was carried out from March 20<sup>th</sup> to April 5<sup>th</sup>, 2010. The investigation consisted of the following:

- Drilling, of seven (7) geotechnical boreholes (GA-10 series) located along the centerline of the currently proposed seepage collection and polishing pond dam alignments,
- Carrying out falling head tests in the upper bedrock zone of the geotechnical boreholes,



- Drilling of thirteen (13) boreholes for monitoring well installations located downstream of the proposed seepage collection ponds, plant site and polishing pond (GA-10 series); and
- Laboratory testing on representative samples.

The locations of the boreholes of the current investigation are shown on Figure 2.

Two condemnation holes (10-289 and 10-290) were drilled by Fortune at the currently proposed co-disposal area. Falling head permeability tests were carried out in the upper bedrock zone of each hole to determine the in-situ hydraulic conductivity of the rock. The locations of these holes are also shown on Figure 2.

### 4.3 Procedures

The following sections describe the site investigation methodologies, in-situ testing and laboratory testing that were carried out for the March/April 2010 investigation.

#### 4.3.1 Borehole Drilling

The field work was supervised by Golder personnel, who carried out the in-situ testing, logged the boreholes, and cared for the soil and rock samples. The locations of all the boreholes were staked out by Golder using a handheld GPS device.

Borehole drilling was performed by Foraco Drilling Ltd. of Kamloops using a skid-mounted BBS 25A diamond drill rig.

Due to the presence of ground frost and discontinuous permafrost at the NICO project site, it was not possible to use conventional overburden sampling and testing methods (such as split spoons or Shelby tubes and Vane test).

The drilling of frozen and unfrozen grounds was carried out by means of reaming HW or NW casings attached with a diamond drill shoe without the use of water. Continuous frozen samples up a maximum length of 1.5 m were recovered in the casings. The frozen samples were extruded by first heating the casing with a propane torch to release the frozen sample and then by pushing it out of the casing with an end-capped drill rod. Disturbed unfrozen samples were also recovered from inside the casings. Samples were logged after the extrusion. Where boulders were encountered, water was used when reaming the casings. An attempt was made to obtain a sample from borehole GA-10-14 using a 96 mm O.D. split spoon sampler.

Where bedrock was encountered, a minimum of 6 m of bedrock was cored using an HQ or NQ wireline core barrel.

All soil samples obtained were bagged and sealed, to limit moisture loss, and were shipped to Golder's Mississauga laboratory for further review and testing. Frozen samples were shipped without the provision of insulation. Selected rock cores were also shipped back to Golder's office for further review.

Geotechnical logging of the rock cores included the following for each drill run:

- Total Core Recovery (TCR);
- Rock Quality Designation (RQD);
- Solid Core Recovery (SCR);



- Geological description;
- Discontinuity type and surface description, and dip angle with respect to core axis;
- Fracture frequency in 25 cm interval;
- Weathering classification, and
- Rock strength (field classification).

The detailed records of the borehole and drillhole are presented in Appendix B. Photographs of the soil samples and rock cores are presented in Appendix C.

### 4.3.2 In-situ Hydraulic Conductivity Estimation

The in-situ hydraulic conductivities of the upper bedrock section of the geotechnical boreholes (GA-10-14, GA-10-16, GA-10-17, GA-10-19, and GA-10-22 to GA-10-24) were estimated in the field by the falling head test method. The tested section was isolated with a single packer located at the upper zone of the bedrock. Wireline pneumatic packers operated by Foraco Drilling Ltd. were used. Static groundwater levels in each borehole were measured prior to the falling head tests.

Detailed records and analyses of the test results are presented in Appendix D.

### 4.3.3 Monitoring Well Installation

Monitoring wells comprising 50 mm inner diameter PVC screens and risers were installed in the baseline water quality collection boreholes (designated as MW). Shallow (S) wells are positioned within the soil and deep well (D) in bedrock. The zones to be monitored were backfilled with silica sand. A seal comprising bentonite pellets was provided to isolate the zones from the overburden soils. The upper portions of the boreholes were left open to allow protective casings to be installed by Fortune personnel at a later date.

## 4.4 Laboratory Testing

A program of laboratory testing was carried out on selected soil samples and comprises the following:

- Moisture Content,
- Grain Size Distribution,
- Organic Contents,
- Specific Gravity
- Atterberg Limits,
- Moisture and Density Relationship (Standard Proctor Maximum Dry Density) of the Till, and
- Soil Water Characteristic Curve (SWCC) of the Till

Laboratory test results are summarized in Table 1. Laboratory testing records and results are presented in Appendix E.



### 5.0 SUBSURFACE CONDITIONS

The subsurface conditions at the NICO project generally consist of peat or topsoil at the ground surface of the valleys where the proposed Seepage Collection Pond Dams and the Polishing Pond Dams are located. The peat or topsoil is underlain by undifferentiated glacio-lacustrine deposits which are in turn underlain by glacial till or gravel, cobble and boulder materials overlying bedrock.

Table 2 summarizes the stratigraphies encountered. Figure 3 shows the subsurface conditions in a cross section through the proposed Seepage Collection Pond Dams (Section A-A) and the Polishing Pond Dams valleys (Section B-B). Figure 4 shows sections perpendicular to the proposed seepage collection pond dam axis (Sections C-C, D-D and E-E).

Based on the previous and current Golder's investigation, brief descriptions of the various strata are provided below.

#### 5.1 Seepage Collection Pond Dams

##### Topsoil and Peat

A thin layer of topsoil, 0.2 m thick comprising dark brown silty CLAY was encountered at the location of borehole GA-10-14.

Dark brown fibrous Peat were encountered in boreholes GA-10-15S to GA-10-17 and from GA-10-19 to GA-10-21D with thickness ranging from 0.4 m (GA-10-15S and GA-10-21D) to 4.5 m (GA-10-19).

The measured moisture contents of the peat ranged from 200% to 1200% and organic contents from 23% to 96%.

##### Glacio – Lacustrine Deposits

Glacio-lacustrine deposits comprising clayey SILT or sandy SILT are overlain by the peat deposit at the locations of boreholes GA-10-15S, GA-10-19 and GA-10-20D and extend to depths ranging from 3.9 m (GA-10-15S) and 8.8 m (GA-10-19) below the existing ground surface. The Glacio-lacustrine deposits generally have water contents in the range of 14% to 30%, liquid limits from 25.8% to 41.8%, plastic limits from 12.6% to 18.6% and plasticity indices from 12.3% to 23.5% indicating medium plasticity. The specific gravity of the Glacio-lacustrine ranges from 2.73 to 2.76.

Figures 5 and 6 show the grain size distribution and the plasticity chart of the glacio-lacustrine deposits, respectively. The results are similar to previous investigation by Golder (Golder 2007).

##### Glacial Till

Glacial till was encountered at the locations of boreholes GA-10-14, GA-10-15S, GA-10-16, GA-10-17 and GA-10-20D, beneath the peat or the glacio-lacustrine deposits and extended to depths ranging from 1.5 m (GA-10-14) to 8.3 m (GA-10-20D) below the existing ground surface. The till deposit is grey in colour and generally comprises of clayey SILT or sandy SILT with trace to some gravel and some cobbles and boulders. The till generally has water contents in the range of 14% to 30%, liquid limits from 22.5% to 36.1%, plastic limits from 12.6% to 21.0% and plasticity indices from 1.5% to 19.6% indicating low to medium plasticity. The specific gravity of the till ranges from 2.62 to 2.72.



Figures 7 and 8 show the grain size distribution and the plasticity chart of the glacial till, respectively. The results are similar to previous investigation by Golder (Golder 2007).

Standard Proctor Maximum Dry Density test result shows optimum moisture content of 15 % and a maximum dry density of 1.812 t/m<sup>3</sup>; the test was carried out for a combined sample of boreholes GA-10-14 and GA-1015S till samples (samples 1, 2, 7, 8 & 9).

The Soil Water Characteristic Curve (SWCC) of the combined till sample is presented in Attachment E.

### Cobble and Boulder Materials

At the location of borehole GA-10-18D, cobble and boulder materials were encountered at the ground surface and extended to a depth of 2.8 m. The matrix was washed away during drilling and was likely to contain sand and gravel.

### Bedrock

Slightly weathered to fresh bedrock was encountered beneath the glacial till or the cobble and boulder materials in all boreholes. The depth to rock ranges from 0.4 m (GA-10-21D) to 8.8 m (GA-10-19) below the existing ground surface.

A variety of rock types were encountered in the boreholes and the description of each type is summarized in Table 2.

The rock quality designation (RQD) of the bedrock ranged from 0% to 100 %. The total core recovery (TCR) ranged from 95% to 100%. Solid core recovery (SCR) values ranged from 20% to 100%. The fracture frequency index ranged from 0 to 15 fractures per 0.25 m. The dip angle varied from 5° to 88° to the core axis. The main discontinuity feature appears to be a rough planar joint fracture with a dip angle of 88°. Based on field identification, the bedrock can be described as slightly weathered to fresh (W2 to W1) and medium strong to very strong (R3 to R5).

Detailed descriptions of the bedrock are presented in the records of drillhole in Appendix B.

## 5.2 Polishing Pond Dams

### Topsoil and Peat

A thin layer of dark brown peat and clayey topsoil, less than 0.1 m thick, was encountered at the location of borehole GA-10-25D.

Dark brown fibrous Peat was encountered at the locations of boreholes GA-10-22, GA-10-23 and GA-10-26D with thickness ranging from 0.2 m to 0.3 m. The natural moisture content of the peat ranged from 204% to 438%.

### Glacio – Lacustrine Deposits

Glacio–lacustrine deposits comprising clayey SILT or silty CLAY are overlain by the topsoil or peat deposit at the locations of boreholes GA-10-22, GA-10-23, GA-10-25D and GA-10-26D and extend to depths ranging from about 0.6 m (GA-10-26D) to 1.7 m (GA-10-22) below the existing ground surface. The Glacio–lacustrine deposits generally have water contents in the range of 17% to 30%, liquid limits from 29.3% to 43.1%, plastic limits from 15.8% to 28.2% and plasticity indices from 10.7% to 25.3% indicating medium plasticity.



Figures 5 and 6 show the grain size distribution and the plasticity chart of the glacio-lacustrine deposits. The results are similar to previous investigation by Golder (Golder 2007).

### Cobble and Boulder Materials

At the location of all boreholes, except borehole GA-10-24, cobble and boulder materials were encountered underlying the glacio-lacustrine deposits and extended to depths ranging from 4.7 (GA-10-23) m to 8.3 m (GA-10-22). At the location of borehole GA-10-24, the cobble and boulder materials occurred at the ground surface and extended to a depth of about 2 m. The matrix within the cobble and boulder materials was washed away during drilling and was likely to contain sand and gravel.

### Bedrock

Fresh bedrock was encountered beneath the glacial till or the cobble and boulder materials in all boreholes. The depth to rock ranges from 2.0 m (GA-10-24) to 8.3 m (GA-10-22) below the existing ground surface.

A variety of rock types was encountered in the boreholes and the description of each type is summarized in Table 2.

The rock quality designation (RQD) of the bedrock ranged from 0 % to 100 %. The total core recovery (TCR) was 100%. Solid core recovery (SCR) values ranged from 15% to 100%. The fracture frequency index ranged from 0 to 15 fractures per 0.25 m. The dip angle varied from 15° to 81° to the core axis. The main discontinuity feature appears to be a rough planar joint fracture with a dip angle of 81°. Based on field identification, the bedrock can be described as fresh (W1) and medium strong to very strong (R3 to R5).

Detailed descriptions of the bedrock are presented in the records of drillhole in Appendix B.

### 5.3 East of the Plant Site

One borehole, GA-10-27D/S, was drilled for the purpose of installing a monitoring well at the east area of the Plant Site. The borehole indicates cobble and boulder materials occurred at the ground surface and extended to a depth of 3.4 m overlying bedrock. Rock type encountered in this borehole is summarised in Table 2.

### 5.4 Ground Ice Conditions

Only two boreholes drilled show significant presence of ground ice within the soil. The boreholes are GA-10-15S and GA-10-20D.

Ground ice descriptions are shown on the detailed records of borehole presented in Appendix B. Ground ice descriptions are based on procedures in accordance to ASTM D4083-89, "Standard Practice for Description of Frozen Soils (Visual-Manual Procedure)".

### 5.5 Groundwater Conditions

Table 3 and Figure 9 show the water levels recorded in the borehole upon completion of the drilling. The groundwater levels recorded were close to the existing ground surface and are not considered representative of the actual conditions due to frozen ground and the low permeability nature of the bedrock.



### 5.6 In-Situ Hydraulic Conductivity of Bedrock

In-situ hydraulic conductivities were estimated by the falling head tests carried out in boreholes and the results are summarized in Table 4. Figure 10 shows the in-situ hydraulic conductivity results from previous and current Golder's site investigations. Table 4 and Figure 10 include the in-situ hydraulic conductivity results obtained for the two condemnation holes (10-289 and 10-290). Detailed records of the falling head tests are presented in Appendix D.

The test results indicate that hydraulic conductivities of the upper 15 m of the bedrock vary widely with orders of magnitude ranging from E-10 m/s to E-06 m/s.

It should be noted that many of the current falling head tests were carried out in possibly frozen ground conditions resulting in low to no flow conditions and therefore the test results may not be representative.

The two condemnation holes indicate a global hydraulic conductivity of  $1.3 \times 10^{-6}$  m/s in borehole 10-289 and  $2.5 \times 10^{-8}$  m/s in borehole 10-290 over a bedrock depth of 60 some meters.

### 5.7 Permafrost Conditions

Monitoring data for the thermistors installed in 2003 and 2006 by Golder and in 2004 by EBA were made available to Golder. The data cover the period between April 2006 and March 2008 for the following boreholes (see also Figure 2):

- EBA-04-03 and EBA-04-05
- MC-06-23
- GA-06-07, GA-06-9, GA-06-09, GA-06-10, GA-06-11 and GA-06-13
- NICO-03-285

Copies of the thermistor monitoring records are attached in Appendix F.

An attempt was made to identify likely permafrost areas based on interpretation of the thermistor data. The interpretation included determination of thermal gradient and mean annual temperature at the ground. Table 5 summarizes the results of the interpretation and indicates that permafrost is present in the vicinity of boreholes EBA-04-05 and GA-06-7. The data also confirm that the NICO Project site is located within the zone of discontinuous permafrost.

## 6.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

**Standard of Care:** Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

**Basis and Use of the Report:** This report has been prepared for the specific site, design objective, development and purpose described to Golder by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of the report may alter the validity of the report. Golder can not be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.



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## GEOTECHNICAL INVESTIGATION REPORT

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The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client can not rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder can not be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.

Soil, Rock and Groundwater Conditions: Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgment, and boundaries between different soil, rock or geologic types or units may be transitional rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions.

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions. The environmental, geologic, geotechnical, geochemical and hydrogeologic conditions that Golder interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.



Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

Sample Disposal: Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

### 7.0 CLOSURE

We trust that the information presented in this report meets your current requirements. Should you have any questions or concerns, please do not hesitate to contact the undersigned.



## Report Signature Page

**GOLDER ASSOCIATES LTD.**

Handwritten signature of Peter Merry in black ink.

Peter Merry, P.Eng.  
Geotechnical Engineer

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Marc Rougier, P.Eng.  
Project Manager

IM/RW/WPM/MR/mjs

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# **TABLES**

**Table 1 - Summary of Laboratory Test Results  
NICO Cobalt-Gold-Bismuth-Copper Project**

Location	Borehole	Sample ID	Depth Interval (m vertical below ground surface)		Sample Type	Moisture Content (%)	Grain Size Distribution				Atterberg Limits			Specific Gravity	Organic Content	
			from	to			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	PL (%)	LL (%)	PI (%)			
Seepage Collection Pond Areas	GA-10-14	1	0.40	0.55	CA	19.4%	4%	32%	48%	16%	16.2%	23.7%	7.5%	-	-	
		2	0.79	1.40	DO	18.7%	3%	17%	48%	32%	14.4%	30.2%	15.8%	2.72	-	
	GA-10-15S	1	0.15	0.30	CA	202.7%	-	-	-	-	-	-	-	-	-	44.4%
		2	0.39	0.48	CA	-	0%	31%	61%	8%	34.4%	39.3%	4.9%	-	-	-
		3	1.48	1.58	CA	-	1%	43%	41%	16%	12.9%	18.4%	5.5%	-	-	-
		4	2.37	-	CA	26.1%	0%	20%	47%	33%	14.7%	27.0%	12.3%	-	-	-
		5	3.08	3.16	CA	29.3%	0%	8%	47%	45%	16.7%	34.0%	17.3%	-	-	-
		6	3.58	3.68	CA	26.5%	0%	10%	74%	17%	15.2%	38.7%	23.5%	2.76	-	-
		7	3.91	3.99	CA	13.9%	4%	38%	42%	16%	12.6%	25.8%	13.2%	2.72	-	-
		8	3.99	4.09	CA	16.7%	2%	19%	42%	38%	16.5%	36.1%	19.6%	-	-	-
	9	4.58	4.70	CA	15.1%	9%	20%	51%	20%	14.1%	28.7%	14.6%	-	-	-	
	GA-10-16	1	0.51	0.59	CA	365.8%	-	-	-	-	-	-	-	-	-	83.7%
		2	0.59	0.72	CA	280.8%	-	-	-	-	-	-	-	-	-	69.1%
		3	1.42	1.51	CA	30.0%	30%	41%	26%	4%	21.0%	22.5%	1.5%	2.62	-	-
	GA-10-17	1	0.15	0.22	CA	636.0%	-	-	-	-	-	-	-	-	-	3.5%
		2	1.67	-	WS	19.3%	0%	28%	68%	4%	-	-	-	-	-	-
	GA-10-19	1	0.25	0.31	CA	1217.5%	-	-	-	-	-	-	-	-	-	94.5%
		2	1.00	1.05	CA	1038.2%	-	-	-	-	-	-	-	-	-	94.0%
		3	4.42	4.62	CA	223.3%	-	-	-	-	-	-	-	-	-	23.3%
		4	8.55	8.75	WS	30.4%	0%	1%	51%	49%	17.2%	35.3%	18.1%	2.75	-	-
	GA-10-20D	1	0.30	0.36	CA	533.9%	-	-	-	-	-	-	-	-	-	95.9%
		2	1.20	1.26	CA	1143.7%	-	-	-	-	-	-	-	-	-	89.0%
		3	2.34	3.00	CA	-	0%	0%	38%	62%	18.6%	41.8%	23.2%	-	-	-
		4	3.00	3.36	CA	-	0%	1%	56%	43%	15.9%	32.8%	16.9%	-	-	-
5		4.56	6.23	CA	-	0%	1%	55%	44%	15.3%	37.6%	22.3%	2.73	-	-	
Polishing Pond Area	GA-10-22	1	0.23	0.33	CA	425.4%	-	-	-	-	-	-	-	-	70.9%	
		3	1.50	1.60	CA	27.9%	0%	4%	52%	44%	15.8%	34.9%	19.1%	2.75	-	
	GA-10-23	1	0.13	0.23	CA	204.0%	-	-	-	-	-	-	-	-	-	49.4%
		2	0.37	0.45	CA	-	3%	10%	58%	30%	18.8%	29.5%	10.7%	-	-	-
	GA-10-25D	1	0.50	0.60	CA	-	0%	13%	41%	45%	16.2%	29.3%	13.1%	-	-	-
		2	1.31	1.35	CA	16.8%	0%	10%	40%	50%	16.4%	41.7%	25.3%	2.68	-	-
	GA-10-26D	1	0.20	0.30	CA	438.3%	-	-	-	-	-	-	-	-	-	82.1%
		2	0.40	0.50	CA	29.9%	2%	12%	50%	36%	28.2%	43.1%	14.9%	2.50	-	-

Note:

- 1.- See Figure 2 for borehole locations.
- 2.- CA: casing sample.
- 3.- WS: washed sample.

**Table 2 - Borehole Stratigraphy Summary  
NICO Cobalt-Gold-Bismuth-Copper Project**

Borehole	Seepage Collection Pond Areas								Polishing Pond Area					East of Plant Site
	GA-10-14	GA-10-15S	GA-10-16	GA-10-17	GA-10-18D	GA-10-19	GA-10-20D	GA-10-21D	GA-10-22	GA-10-23	GA-10-24	GA-10-25D	GA-10-26D	GA-10-27D
Ice / Snow	---	---	0.00 - 0.10 m (ice)	---	---	0.00 - 0.08 m (snow)	0.00 - 0.06 m (snow) 0.06 - 0.08 m (ice) 1.94 - 2.34 m (ice) 2.55 - 3.00 m (ice) 3.36 - 4.01 m (ice) 4.23 - 4.41 m (ice)	---	0.00 - 0.15 m (ice)	0.00 - 0.02 m (ice)	---	0.00 - 0.10 m (ice)	0.00 - 0.03 m (snow)	---
Topsoil	0.00 - 0.17 m (silty CLAY)	---	---	---	---	---	---	0.00 - 0.39 m	---	---	---	0.10 - 0.18 m	---	---
Peat	-	0.00 - 0.39 m 0.79 - 0.98 m	0.10 - 1.36 m	0.00 - 0.61 m	-	0.08 - 4.62 m	0.08 - 1.94 m	---	0.15 - 0.33 m	0.02 - 0.23 m	---	---	0.03 - 0.35 m	---
Glacio-lacustrine Deposit	---	0.39 - 0.79 m (sandy SILT) 0.98 - 1.58 m (sandy SILT) 1.58 - 3.91 m (clayey SILT)	---	---	---	4.62 - 8.75 m (Silty CLAY/clayey SILT)	2.34 - 6.65 (clayey SILT interspread with ice lenses as above)	---	0.33 - 1.7 m (silty CLAY/clayey SILT)	0.32 - 0.71 m (clayey SILT)	---	0.18 - 1.35 m (clayey SILT/silty CLAY)	0.35 - 0.59 m (clayey SILT)	---
Till	0.17 - 1.52 m (clayey SILT)	3.91 - 4.85 m (clayey SILT)	1.36 - 1.71 m (sandy SILT/silty SAND)	0.61 - 2.94 m (silty CLAY)	---	---	6.65 - 8.29 m (clayey SILT with boulders and cobbles)	---	---	---	---	---	---	---
Cobbly and Bouldery Materials	---	---	---	---	0.00 - 2.78 m (SAND, BOULDERS AND COBBLES)	---	---	---	1.70 - 8.31 m (gravelly SAND with boulders and cobbles)	0.71 - 4.69 m (BOULDERS AND COBBLES)	0.00 - 1.96 m (SAND with boulders and cobbles)	1.35 - 5.30 m (BOULDERS AND COBBLES)	0.59 - 5.65 m (SAND with boulders and cobbles)	0.00 - 3.40 m (BOULDERS AND COBBLES)
Bedrock	1.52 - 8.94 m (FELDSPAR +/- AMPHIBOLE PORPHYRY)  RQD Min: 67.7 Max: 100 Average Weighted: 85.7	5.05 - 11.54 m (HETEROLITHIC BRECCIA)  RQD Min: 100 Max: 100 Average Weighted: 100	1.71 - 7.54 m (CORDIERITE SCHIST)  RQD Min: 0 Max: 100 Average Weighted: 91.4	2.94 - 9.24 m (CORDIERITE SCHIST)  RQD Min: 92.7 Max: 100 Average Weighted: 99.4	2.78 - 10.48 m (CORDIERITE SCHIST)  RQD Min: 80.1 Max: 100 Average Weighted: 88.7	8.75 - 14.17 m (CORDIERITE SCHIST)  RQD Min: 100 Max: 100 Average Weighted: 100	8.29 - 14.95 m (CORDIERITE SCHIST)  RQD Min: 90 Max: 100 Average Weighted: 97.6	0.39 - 20.38 m (LAPILLI TUFF)  RQD Min: 99.7 Max: 100 Average Weighted: 99.9	8.31 - 16.23 m (SUB ARKOSIC ARENITE)  RQD Min: 92.0 Max: 100 Average Weighted: 99.0	4.67 - 11.08 m (SUB ARKOSIC ARENITE)  RQD Min: 100 Max: 100 Average Weighted: 100	1.96 - 7.39 m (Mineralized)  RQD Min: 100 Max: 100 Average Weighted: 100	5.3 - 11.3 m (bedded TUFFS)  RQD Min: 100 Max: 100 Average Weighted: 100	5.65 - 12.33 m (FELDSPAR ALTERED RHYOLITIC VOLCANIC )  RQD Min: 0 Max: 100 Average Weighted: 59.7	3.4 - 8.5 m (SUB ARKOSIC ARENITE) 17.25 - 19.14 m (QUARTZ FELDSPAR PORPHYRY)  RQD Min: 58.0 Max: 100 Average Weighted: 91.5
End of Borehole	8.94 m In Bedrock	11.54 m in Bedrock	7.54 m in Bedrock	9.24 m in Bedrock	10.48 m in Bedrock	14.17 m in Bedrock	14.95 m in Bedrock	20.38 m in Bedrock	16.23 m in Bedrock	11.08 m in Bedrock	7.39 m in Bedrock	11.3 m in Bedrock	12.33 m in Bedrock	19.14 m in Bedrock

**Table 3 - Summary of Groundwater Level Elevations  
NICO Cobalt-Gold-Bismuth-Copper Project**

Location	Borehole	Purpose	Date	Water Level Elevation (m)	Ground Surface Elevation <sup>(1)</sup> (m)	Comments
Seepage Collection Pond Areas	GA-10-14	Geotechnical	21-Mar-10	216.55	217	- Water level measured for packer testing - Level assumed as static, water level still falling after 45 min
	GA-10-15S	Monitoring Well	25-Mar-10	DRY	212	- Water level measured before monitoring well installation
	GA-10-16	Geotechnical	25-Mar-10	216.03	216	- Water level measured for packer testing
	GA-10-17		26-Mar-10	211.25	216	- Water level measured for packer testing
	GA-10-18D	Monitoring Wells	27-Mar-10	216.00	216	- Water level measured before monitoring well installation
	GA-10-18S		27-Mar-10	215.51	216	- Water level measured before monitoring well installation
	GA-10-19	Geotechnical	28-Mar-10	215.63	218	- Water level measured for packer testing
	GA-10-21D	Monitoring Well	30-Mar-10	234.70	237	- Water level measured before monitoring well installation
Polishing Pond Area	GA-10-22	Geotechnical Boreholes	1-Apr-10	208.47	208	- Water level measured for packer testing, it is not considered representative (low in-situ hydraulic conductivity / frozen ground)
	GA-10-23		1-Apr-10	206.50	207	- Water level measured for packer testing - Level assumed as static, water level still falling after 55 min
	GA-10-24		2-Apr-10	207.57	208	- Water level measured for packer testing
Codisposed Tailings and Waste Rock Area	10-289	Condemnation Holes	10-Apr-10	232.57	232	- Water level measured for packer testing
	10-290		7-Apr-10	227.97	228	- Water level measured for packer testing - Level assumed as static, water level still falling after 40 min

## Note:

1. Ground surface elevation interpreted from topographic ground contours provided by Fortune.

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**Table 4 - Summary of In-situ Hydraulic Conductivity Tests in Upper Bedrock  
NICO Cobalt-Gold-Bismuth-Copper Project**

Borehole	Location	Date	Static Water Level (m vertical)	Interval (m vertical below ground surface)		Permafrost Evidence in Overburden	Type of Bedrock	In-Situ Hydraulic Conductivity (m/s)
				from	to			
GA-10-14	Seepage Collection Pond Areas	21-Mar-10	0.45 (below ground surface)	4.35	8.94	YES - to 0.94m	Feldespar with Amphibole Phorphyry	1.49E-07
GA-10-16		25-Mar-10	0.03 (above ground surface)	4.79	7.54	YES	Cordierite Schist	no flow <sup>(4)</sup>
GA-10-17		26-Mar-10	4.75 (below ground surface)	6.5	9.24	YES - to 0.61m <sup>(3)</sup>	Cordierite Schist	2.21E-08 <sup>(3)</sup>
GA-10-19		28-Mar-10	2.37 (below ground surface)	10.27	14.17	YES - to 4.62m <sup>(3)</sup>	Cordierite Schist	4.62E-09 <sup>(3)</sup>
GA-10-22	Polishing Pond Area	1-Apr-10	0.47 (above ground surface)	11.02	16.23	YES - to 1.70m <sup>(3)</sup>	Subarkosic Arenite with Magnetite Schist	1.84E-09 <sup>(3)</sup>
GA-10-23		1-Apr-10	0.50 (below ground surface)	6.68	11.08	YES - to 0.32m <sup>(3)</sup>	Subarkosic Arenite	8.50E-10 <sup>(3)</sup>
GA-10-24		2-Apr-10	0.43 (below ground surface)	4.19	7.39	Possible - drilled with water	Bedded Tuffs	no flow <sup>(4)</sup>
10-289 (Condemnation Hole)	Co-disposed Tailings and Waste Rock Area	10-Apr-10	0.57 (above ground surface)	3.29	61.87	Possible	1.56 - 4.60 m vertical below ground surface - Subarkosic Wacke	1.32E-06
4.60 - 21.08 m vertical below ground surface - Hetrolithic Breccias, weak potassic alteration								
Low RQD here may control the transmissivity of the test interval								
21.08 - 54.24 m vertical below ground surface - Subarkosic Wacke, weakly magnetic								
							54.24 - 65.41 m vertical below ground surface - Hetrolithic Breccias, minor potassic alteration, weakly magnetic	
10-290 (Condemnation Hole)		7-Apr-10	0.03 (below ground surface)	5.52	66.11	Possible	4.24 - 40.31 m vertical below ground surface - Subarkosic Wacke, bedded at 45-55 degrees TCA, weak-mod potassic	2.50E-08
						40.31 - 49.50 m vertical below ground surface - Hetrolithic Breccia, +/-subarkosic wacke, weak potassic, weak magnetite		
						49.50 - 59.26 m vertical below ground surface - Subarkosic Wacke, weak potassic, weak magnetic		
						59.26 - 76.62 m vertical below ground surface - Hetrolithic Breccias, biotite-amphibole-magnetite alteration, weak potassic		

## Notes:

- 1.- The in-situ hydraulic conductivity was estimated in the field using the falling head test, with a single packer.
- 2.- Hydraulic conductivities for the falling head tests were interpreted using the Hvorslev method.
- 3.- Unknown depth of frozen soil; drilled with water due to boulders/cobbles presence from this depth. GA-10-23 drilled with water from 0.71m. The test interval may occur in frozen rock, and result may not be representative.
- 4.- The interval is either very tight rock or very tight rock and frozen. Result is not representative.

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**Table 5 - Permafrost Occurrence Based on Interpretation of Thermistor Readings  
NICO Cobalt-Gold-Bismuth-Copper Project**

Borehole ID	General Location	Topography		Collar Elevation (m)	Geothermal Gradient (DT)	Permafrost (Yes/No)	Active zone thickness (m)	Estimated Permafrost Thickness (m)	Mean Annual Temperature, T <sub>m</sub>
		Hill	Valley						(°C)
NICO-03-285	West side of open pit	✓		281.0	1°C / 7m	No	-	-	-1
EBA-04-03	West of polishing pond	✓		213.0	1°C / 60m	No	-	-	1
EBA-04-05			✓	204.0	1°C / 2- ~ 30m	Yes	2	38 ~ 58	-2
MC-06-23	Plant site	✓		246.6	1°C / 35m	No	-	-	1
GA-06-07	Southwest of polishing pond		✓	201.2	1°C / 20 ~ 40m	Yes	4	36 ~ 76	-2
GA-06-09	Eastern boundary of co-disposal area	✓		223.8	1°C / 50m	No	-	-	0
GA-06-10		✓		216.0	1°C / 40m	No	-	-	0
GA-06-11			✓	216.4	1°C / 68m	Possible	-	-	0
GA-06-13		✓		237.1	1°C / 50m	No	-	-	1.5

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# FIGURES

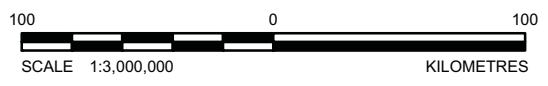


**LEGEND**

- NICO PROJECT
- TERRITORIAL CAPITAL
- POPULATED PLACE
- HIGHWAY
- EXISTING ALL-WEATHER ROAD
- EXISTING WINTER ROAD
- TERRITORIAL/PROVINCIAL BOUNDARY
- WATERCOURSE
- WATERBODY

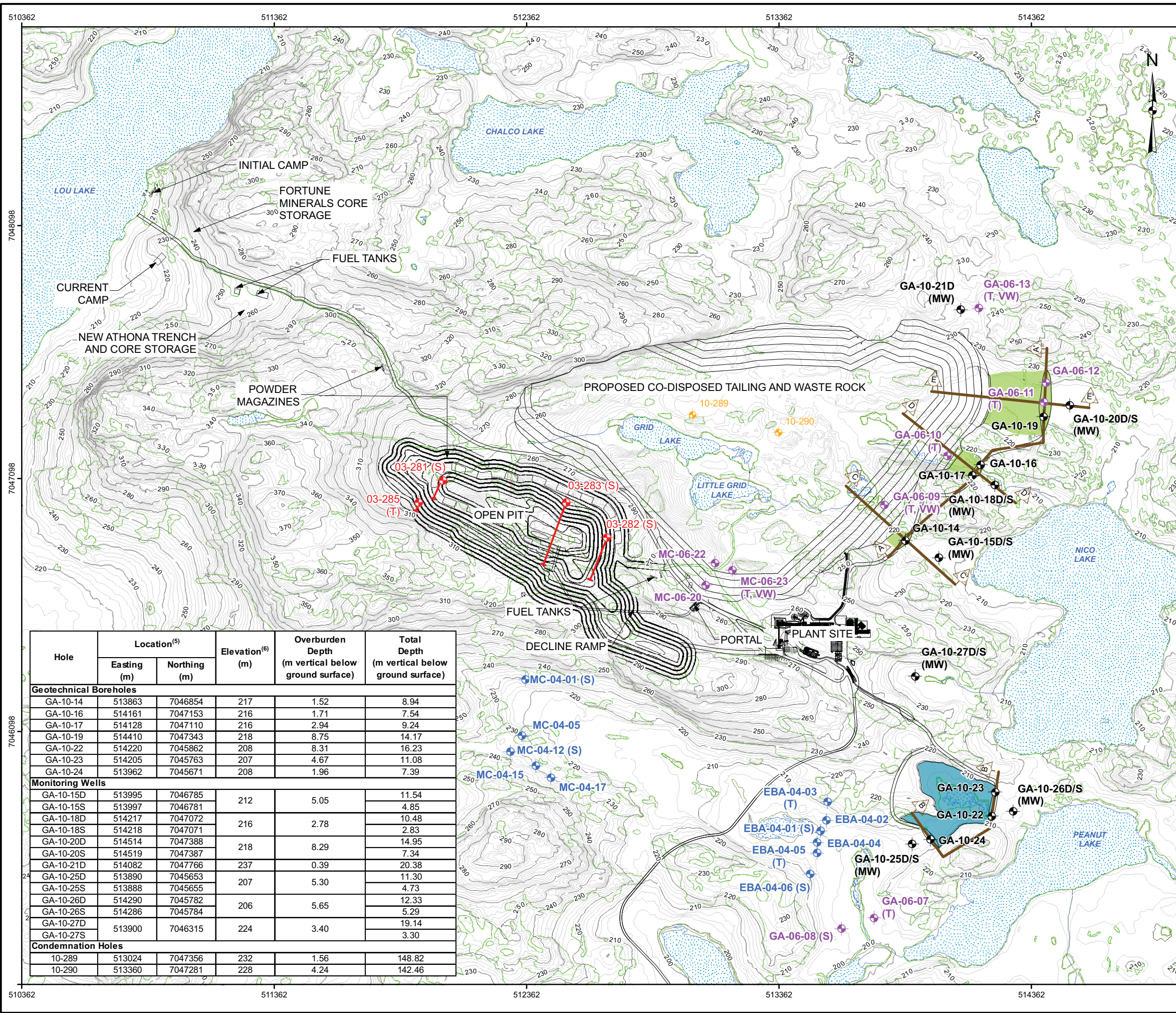
**REFERENCE**

Base data obtained from Atlas of Canada, DMTI and ESRI.  
 Projection: Canada Lambert Conformal Conic



PROJECT <b>FORTUNE MINERALS LIMITED</b> <b>NICO COBALT-GOLD-BISMUTH-COPPER PROJECT</b>	SCALE AS SHOWN    REV. 0	
<b>TITLE</b> <b>SITE LOCATION PLAN</b>		
 Golder Associates Mississauga, Ontario	FILE No. SiteLocation.mxd PROJECT No. 08-1118-0043 DESIGN CM 10 Dec. 2008 GIS SC 08 Jul. 2010 CHECK RW 08 Jul. 2010 REVIEW RW 08 Jul. 2010	<b>FIGURE: 1</b>

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**LEGEND**

**PREVIOUS INVESTIGATION**

- 03-382 (S) (NICO 2003/ GOLDER)
- GA-06-10 (GOLDER 2006)
- MC-06-23 (GOLDER 2006)
- MC-04-01 (EBA 2004)
- EBA-04-0 (EBA 2004)

**CURRENT INVESTIGATION**

- GA-10-25 (GOLDER 2010)
- 10-290 (FORTUNE 2010)

(S) - STAND PIPE  
(T) - THERMISTOR  
(VW) - VIBRATING WIRE PIEZOMETER  
(D/S MW) - DEEP OR SHALLOW MONITORING WELL

- RIVER/STREAM
- CONTOUR - 2M INTERVAL
- CONTOUR - 10M INTERVAL
- CROSS-SECTION
- EXISTING POND LAKE
- PROPOSED COLLECTION POND AND DAM AREA
- PROPOSED POLISHING POND

- NOTE**
- Plant site geotechnical holes not included on this figure.
  - March/April 2010 Drilling Locations were obtained using a handheld GPS Device.
  - Inclined Borehole

- REFERENCE**
- Topographic mapping obtained from Eagle Mapping, Fortune Minerals Limited, 2006 (File: Basemapping (FML, 20060718).dwg)
  - Advanced Exploration Infrastructure - Aker Solutions (File: 0000g001m1a.dwg., Received - August 19, 2009)
  - Open Pit Configuration - Provided by P & E Engineering (File: Phase 1A, 1, 2 & Ultimate Pit Polyline.dxf, Received October 22, 2009)
  - Co-Disposed Tailing and Waste Rock - Golder Associates (File: alternative3.dwg, October 2009).
  - Projection: UTM Zone11 Datum: NAD 83
  - Ground surface elevation interpreted from topographic ground contours shown on this figure.



Hole	Location <sup>(5)</sup>		Elevation <sup>(6)</sup> (m)	Overburden Depth (m vertical below ground surface)	Total Depth (m vertical below ground surface)
	Easting (m)	Northing (m)			
<b>Geotechnical Boreholes</b>					
GA-10-14	513863	7046854	217	1.52	8.94
GA-10-16	514161	7047153	216	1.71	7.54
GA-10-17	514128	7047110	216	2.94	9.24
GA-10-19	514410	7047343	218	8.75	14.17
GA-10-22	514220	7045862	208	8.31	16.23
GA-10-23	514205	7045763	207	4.67	11.08
GA-10-24	513962	7045671	208	1.96	7.39
<b>Monitoring Wells</b>					
GA-10-15D	513995	7046785	212	5.05	11.54
GA-10-15S	513997	7046781			4.85
GA-10-18D	514217	7047072	216	2.78	10.48
GA-10-18S	514218	7047071			2.83
GA-10-20D	514514	7047388	218	8.29	14.95
GA-10-20S	514519	7047387			7.34
GA-10-21D	514082	7047766	237	0.39	20.38
GA-10-25D	513890	7045653			11.30
GA-10-25S	513888	7045655	207	5.30	4.73
GA-10-26D	514290	7045782			12.33
GA-10-26S	514286	7045784	206	5.65	5.29
GA-10-27D	513900	7046315			224
GA-10-27S			3.30		
<b>Condemnation Holes</b>					
10-289	513024	7047356	232	1.56	148.82
10-290	513360	7047281	228	4.24	142.46

PROJECT: FORTUNE MINERALS LIMITED  
NICO COBALT-GOLD-BISMUTH-COPPER PROJECT

TITLE: **GEOTECHNICAL SITE INVESTIGATION PLAN**

Filename: GeotechnicalInvestigationPlan.mxd

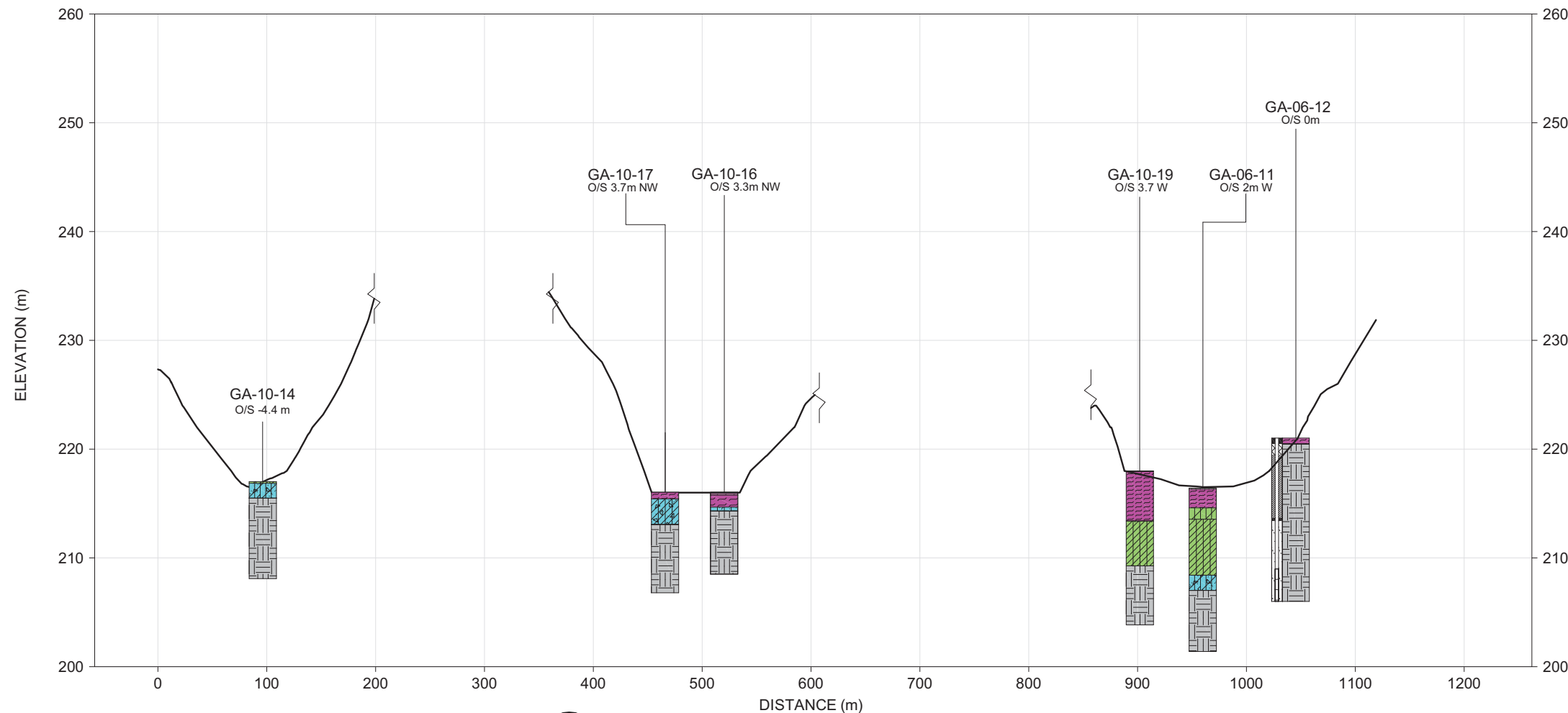
PROJECT No.	08-1118-0043	SCALE AS SHOWN	REV. 0
DESIGN	SC	14 Jan. 2009	
GIS	SC	19 Jul. 2010	
CHECK	RW	19 Jul. 2010	
REVIEW	MR	19 Jul. 2010	

**Golder Associates**  
Mississauga, Ontario

**FIGURE: 2**

G:\Projects\2008\08-1118-0043\_Nico\_Fortune\_Minerals\GIS\MXDs\Final\GeotechnicalInvestigationPlan\_July19\_2010.mxd

PLOT DATE: July 19, 2010  
 FILENAME: T:\Projects\2008\08-1118-0043 (FM, Yellowknife)\-KB-0811180043KB3.dwg



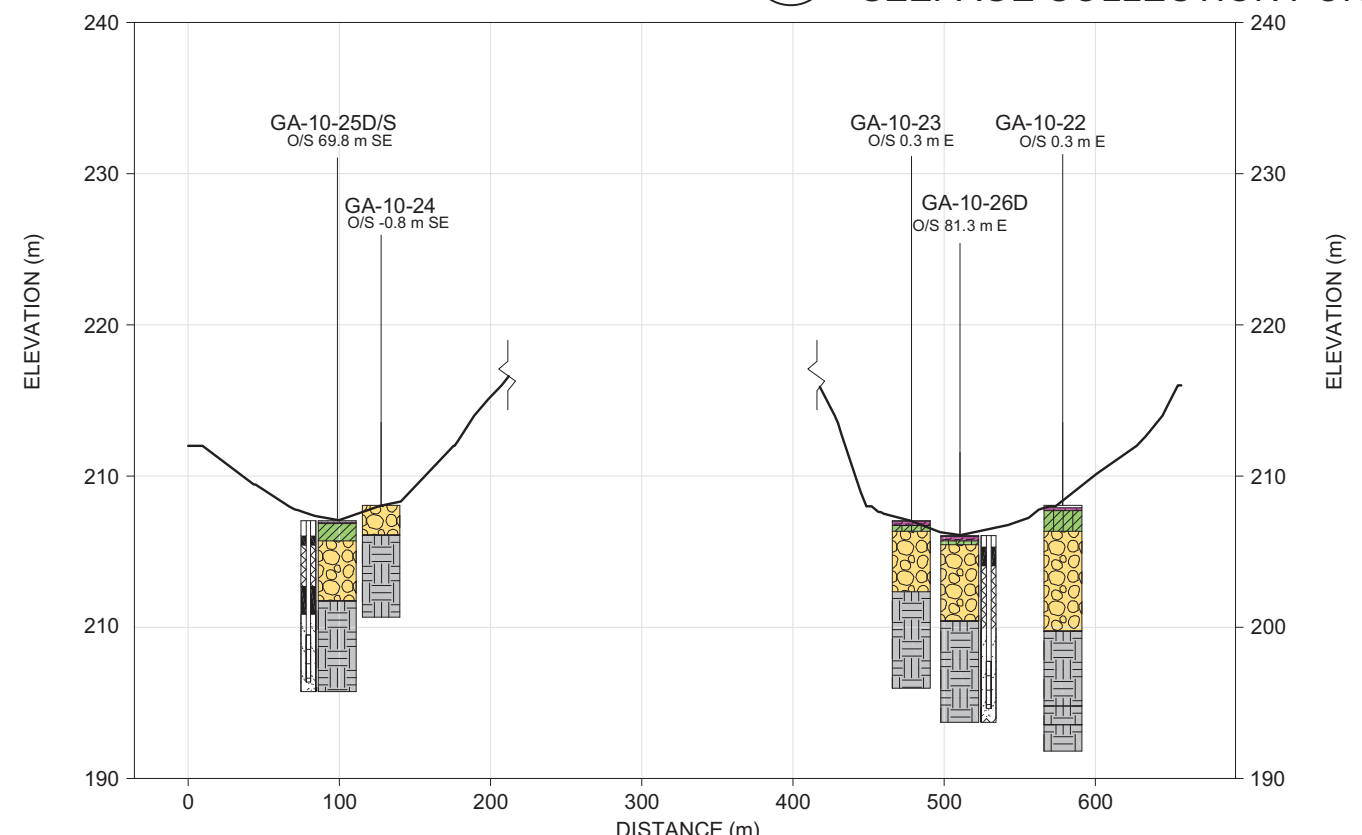
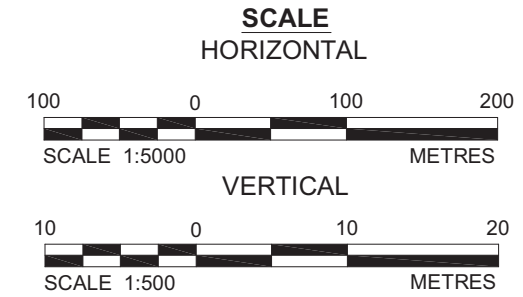
**A**  
**2** CROSS-SECTION A - A  
 SEEPAGE COLLECTION POND DAMS

**LEGEND:**  
 GA-06-12 O/S 0m GOLDER BOREHOLE (2006 AND 2010 INVESTIGATION) OFFSET IN METRES FROM SECTION LINE

**STRATIGRAPHY LEGEND:**

- ICE
- TOPSOIL/PEAT
- CLAYEY SILT / SANDY SILT / SILTY CLAY (TILL)
- CLAYEY SILT / SILTY CLAY / SANDY SILT / (GLACIO-LACUSTRINE DEPOSITS)
- SAND, GRAVEL, COBBLES AND BOULDERS
- BEDROCK

**NOTES:**  
 1. SEE APPENDICES FOR WELL COMPLETION DETAILS.



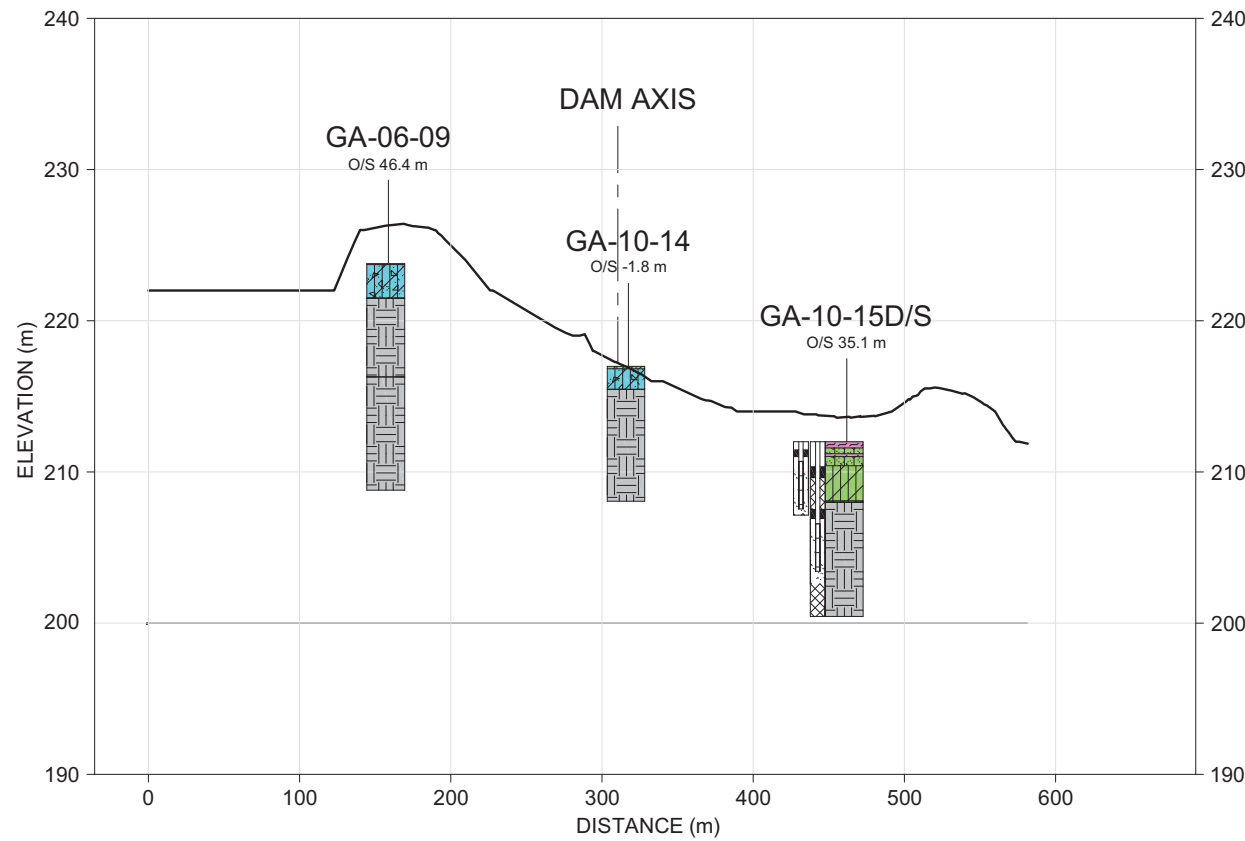
**B**  
**2** CROSS-SECTION B - B  
 POLISHING POND DAMS



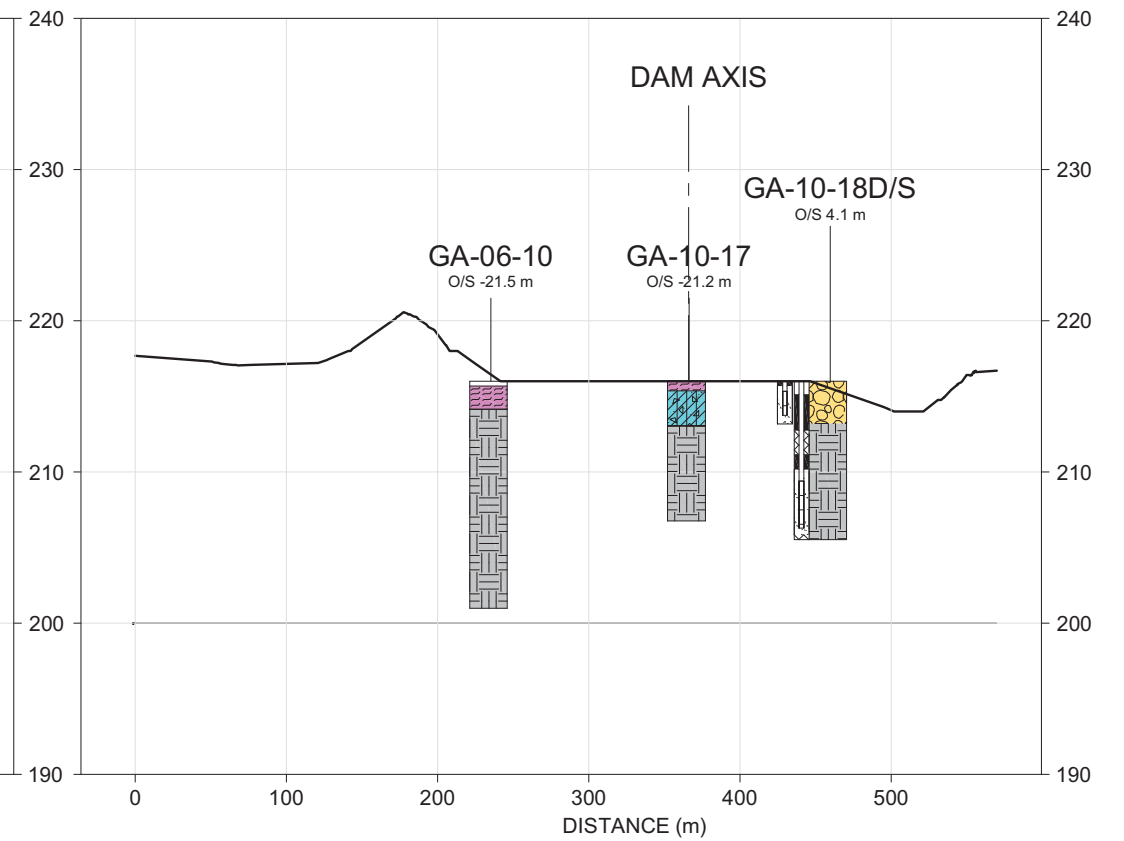
SCALE	AS SHOWN
DATE	Jul. 19, 2010
DESIGN	IM
CAD	TDR
CHECK	WPM
REVIEW	KAB

TITLE		<b>CROSS-SECTIONS A - A' AND B - B'</b>
PROJECT No. 08-1118-0043		
FIGURE	<b>3</b>	

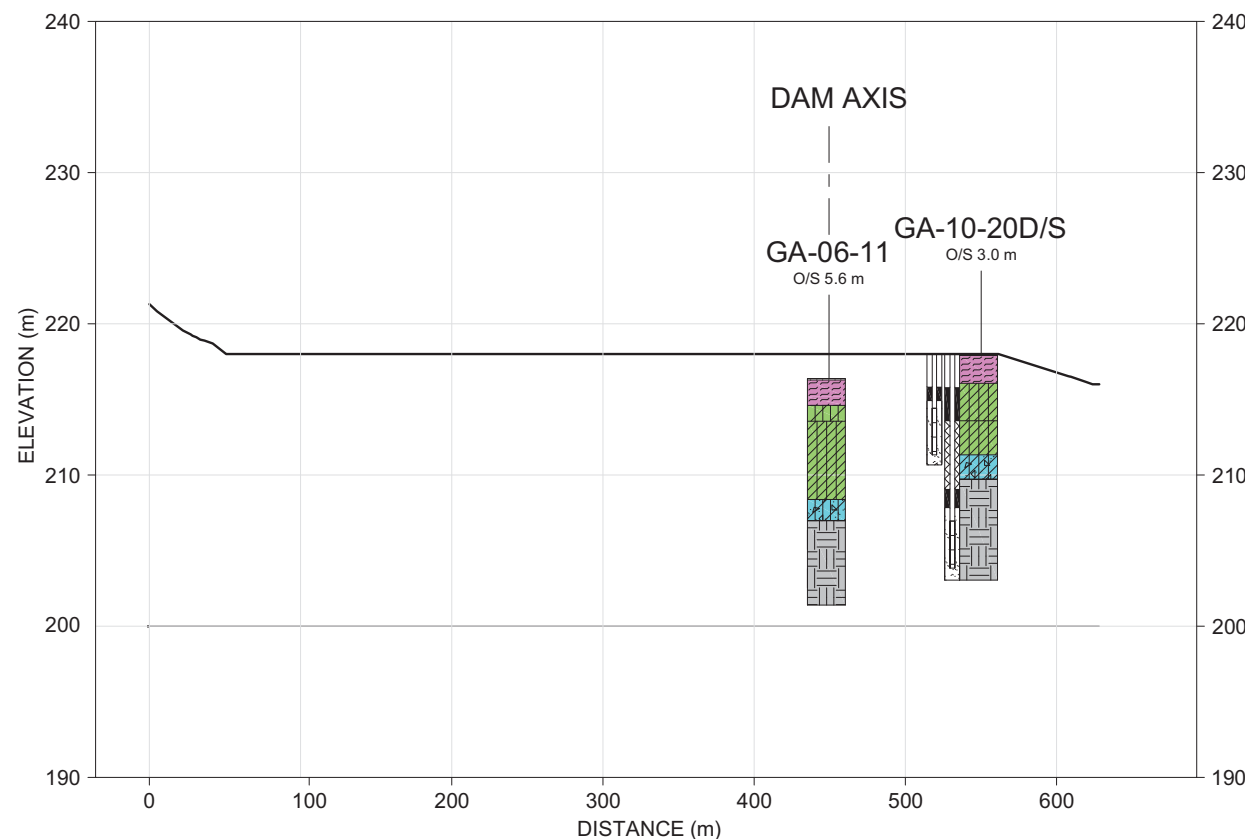
PLOT DATE: July 19, 2010  
 FILENAME: T:\Projects\2008\08-1118-0043 (FM, Yellowknife)\-KB-0811180043KB4.dwg



**C**  
**2** CROSS-SECTION C - C  
 SOUTH SEEPAGE COLLECTION POND DAM



**D**  
**2** CROSS-SECTION D - D  
 EAST SEEPAGE COLLECTION POND DAM



**E**  
**2** CROSS-SECTION E - E  
 NORTH SEEPAGE COLLECTION POND DAM

**LEGEND:**

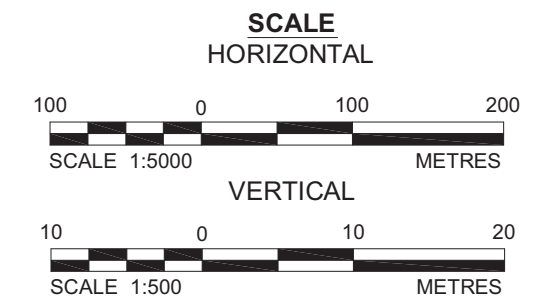
GA-06-12 O/S 0m GOLDER BOREHOLE (2006 AND 2010 INVESTIGATION) OFFSET IN METRES FROM SECTION LINE

**STATIGRAPHY LEGEND:**

- ICE
- TOPSOIL/PEAT
- CLAYEY SILT / SANDY SILT / SILTY CLAY (TILL)
- CLAYEY SILT / SILTY CLAY / SANDY SILT / (GLACIO-LACUSTRINE DEPOSITS)
- SAND, GRAVEL, COBBLES AND BOULDERS
- BEDROCK

**NOTES:**

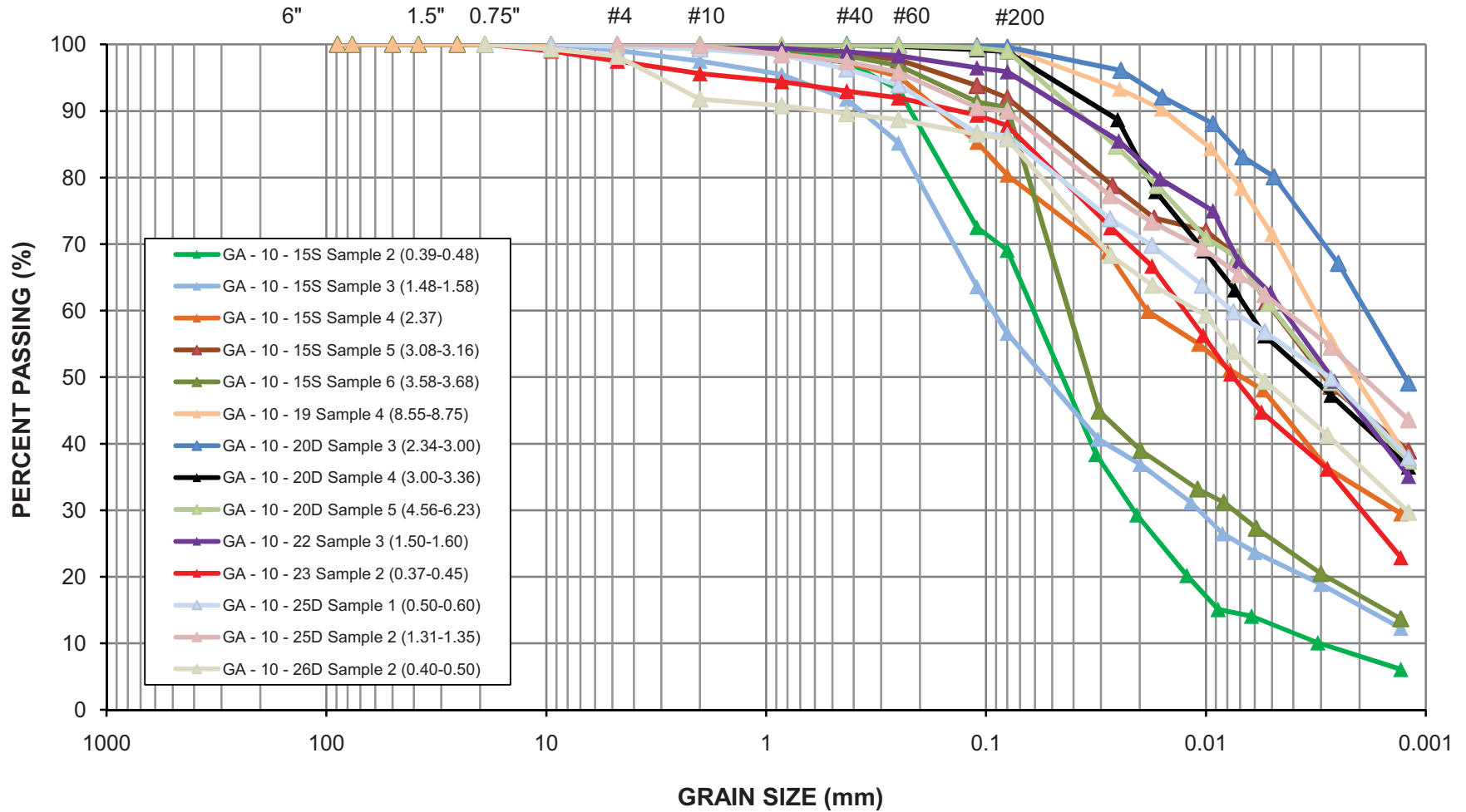
1. SEE APPENDICES FOR WELL COMPLETION DETAILS.



 <b>Golder Associates</b> Mississauga, Ontario, Canada	SCALE AS SHOWN	<b>CROSS-SECTIONS C - C',          D - D AND E - E'</b>
	DATE Jul. 19, 2010	
DESIGN IM	CHECK WPM	NICO PROJECT - FORTUNE MINERALS
CAD TDR	REVIEW KAB	
FILE No. 0811180043KB4.dwg	PROJECT No. 08-1118-0043	FIGURE <b>4</b>

UNIFIED SOIL CLASSIFICATION SYSTEM							
Boulder Size	Cobble Size	Coarse	Fine	Coarse	Medium	Fine	Silt & Clay Sizes
		Gravel Size		Sand Size			

U.S. STANDARD SIEVE SIZE (inch / mesh)

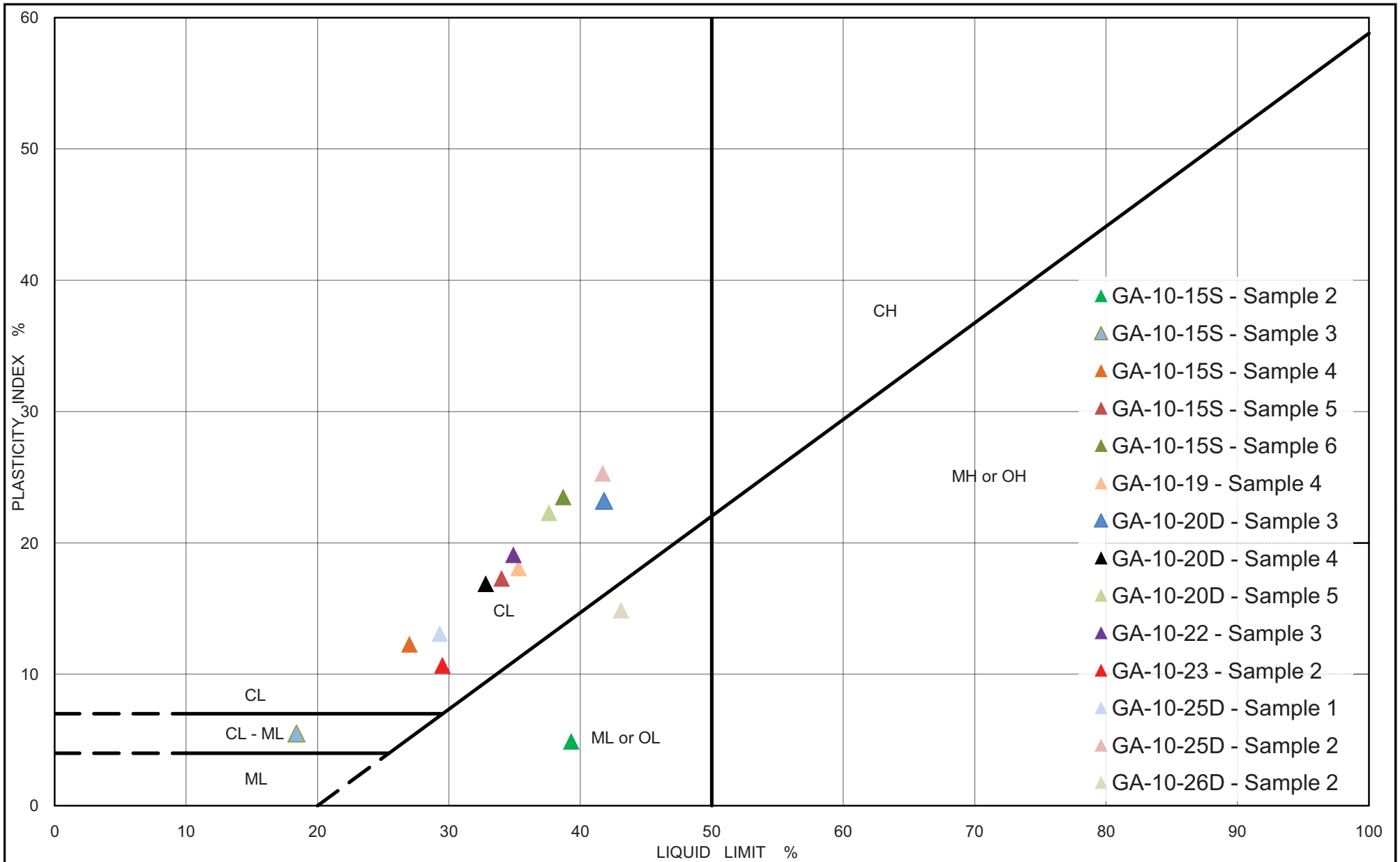


GRAIN SIZE DISTRIBUTION  
GLACIO-LACUSTRINE DEPOSITS

PROJECT NO: 09-1118-0007 (6000)	DATE:	July 2010
BY: IM	CHECK:	RW

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE 5



PLASTICITY CHART - GLACIO-LACUSTRINE DEPOSITS  
NICO COBALT-GOLD-BISMUTH-COPPER PROJECT

Figure No. 6

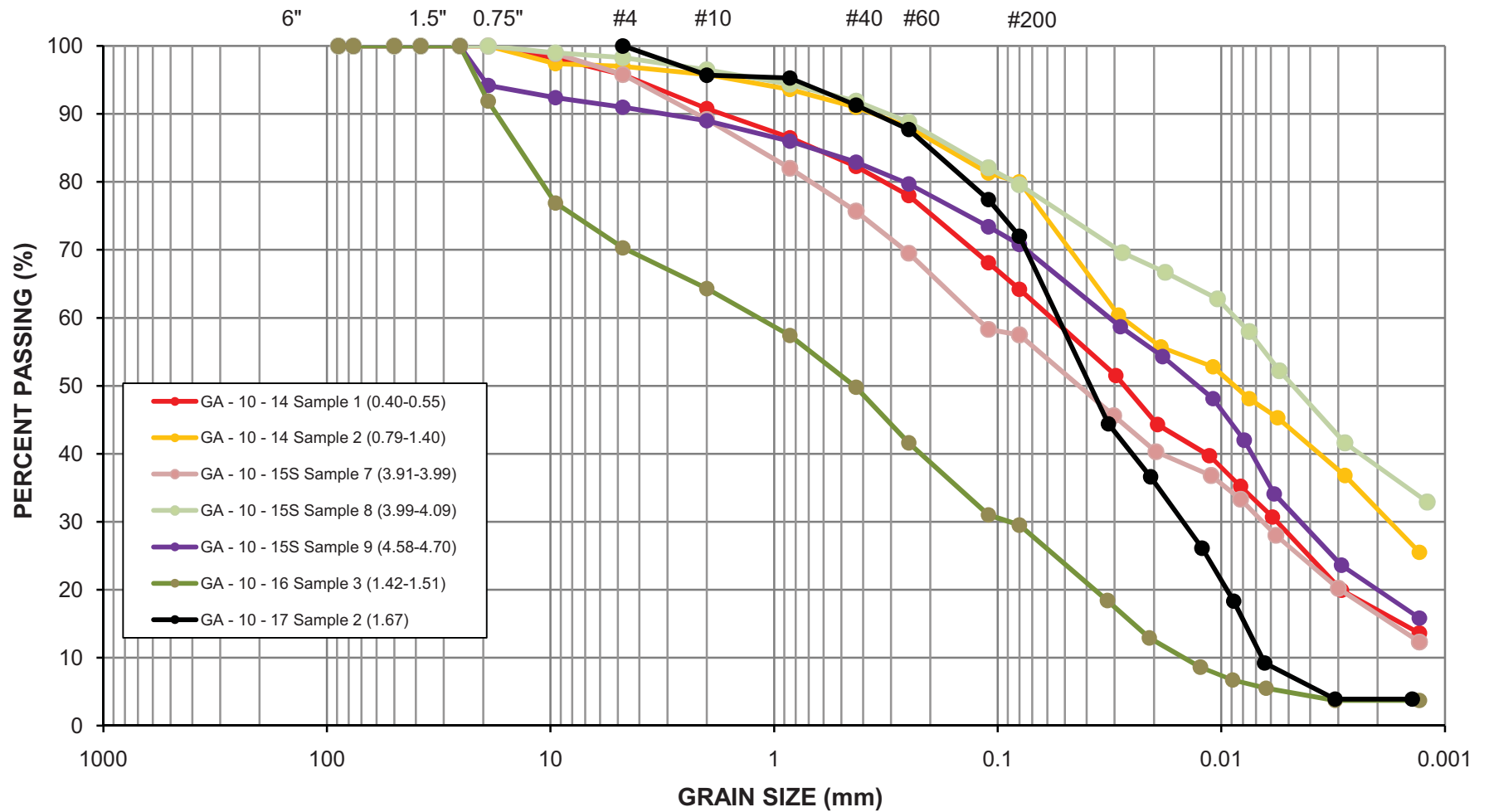
Project No. 08-1118-0043

Checked By: RW

UNIFIED SOIL CLASSIFICATION SYSTEM

Boulder Size	Cobble Size	Coarse	Fine	Coarse	Medium	Fine	Silt & Clay Sizes
		Gravel Size		Sand Size			

U.S. STANDARD SIEVE SIZE (inch / mesh)



GRAIN SIZE DISTRIBUTION  
GLACIAL TILL

PROJECT NO: 09-1118-0007 (6000)

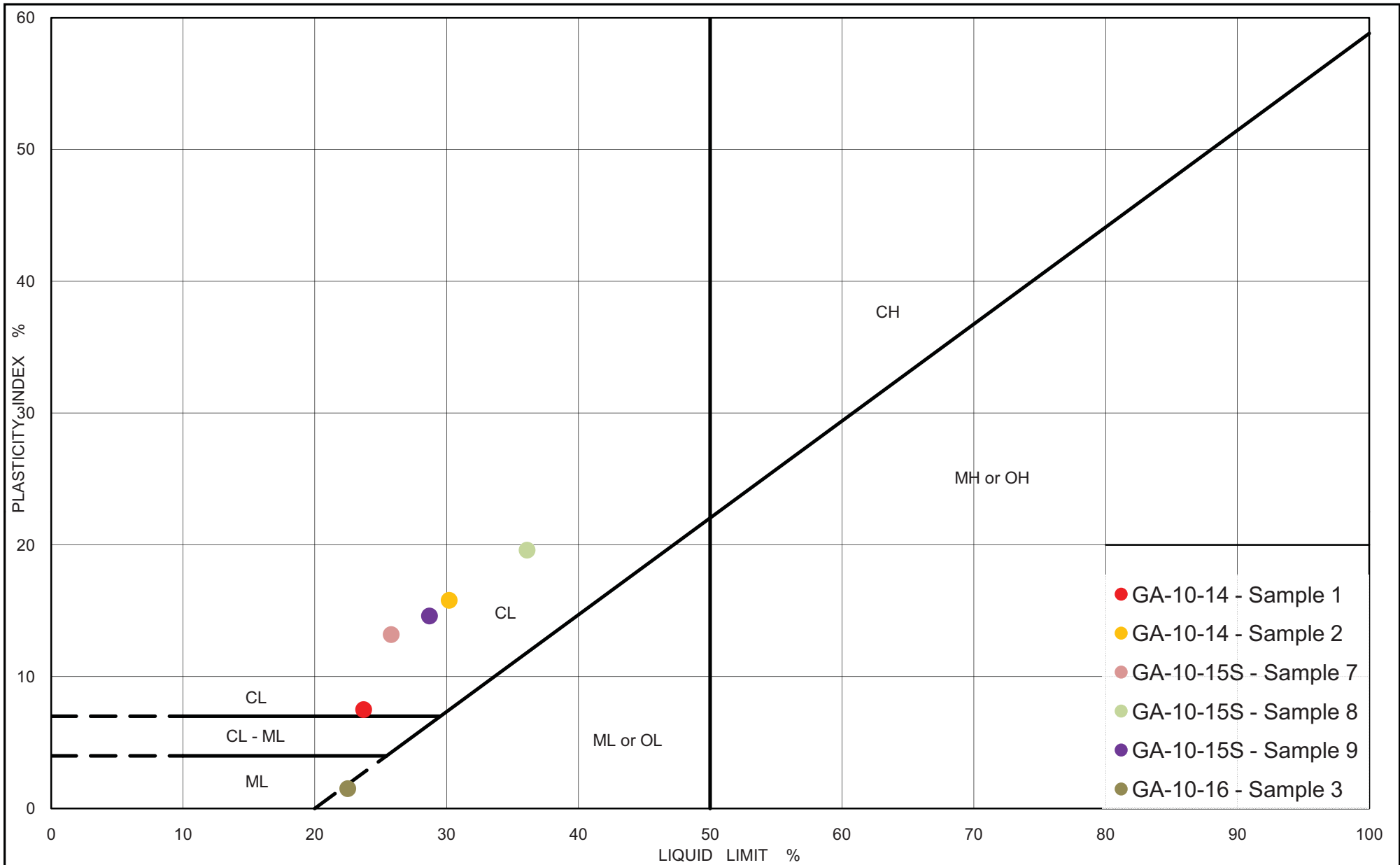
DATE: July 2010

BY: IM

CHECK: RW

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE 7

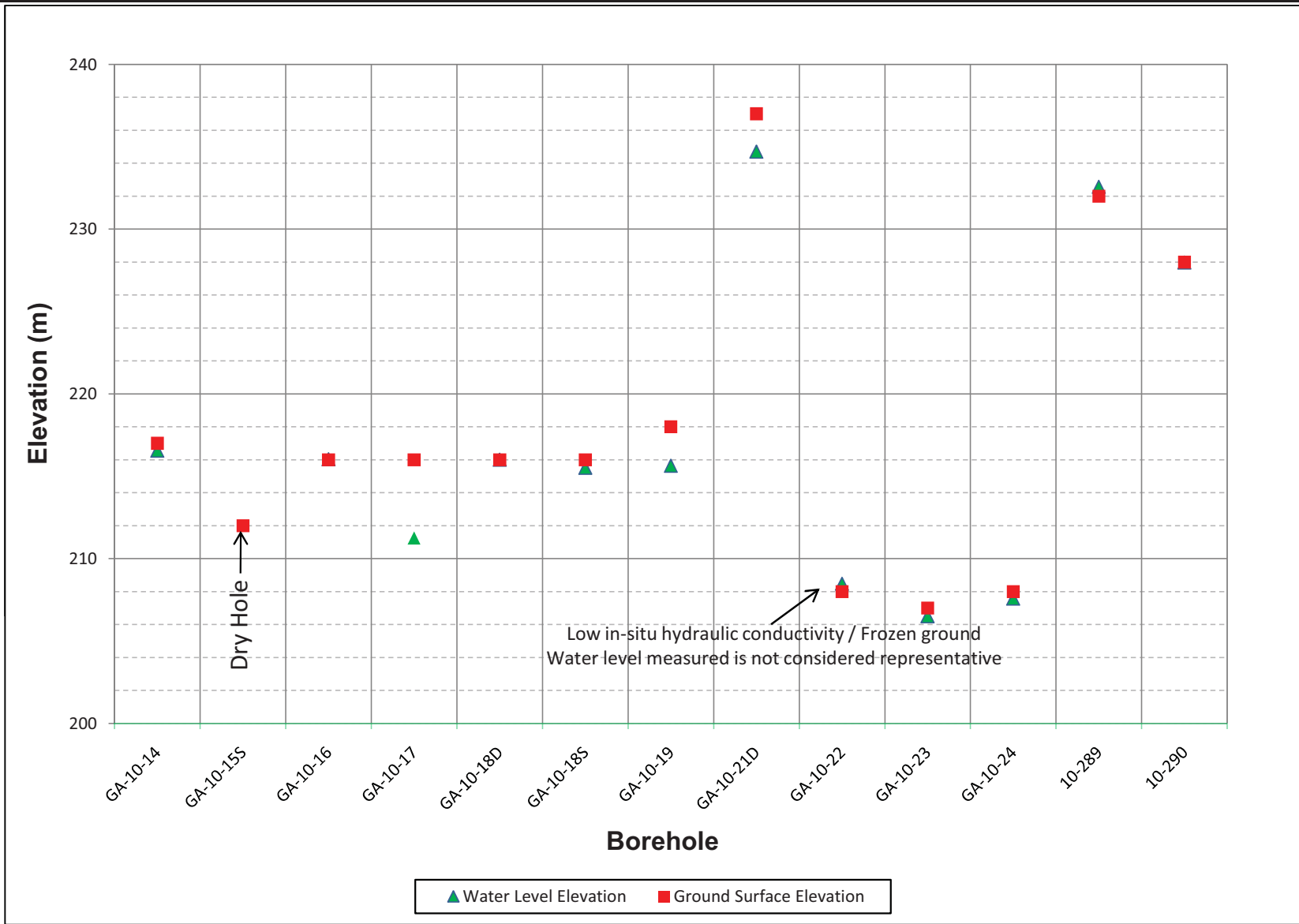


PLASTICITY CHART - GLACIAL TILL  
 NICO COBALT-GOLD-BISMUTH-COPPER PROJECT

Figure No. 8

Project No. 08-1118-0043

Checked By: RW

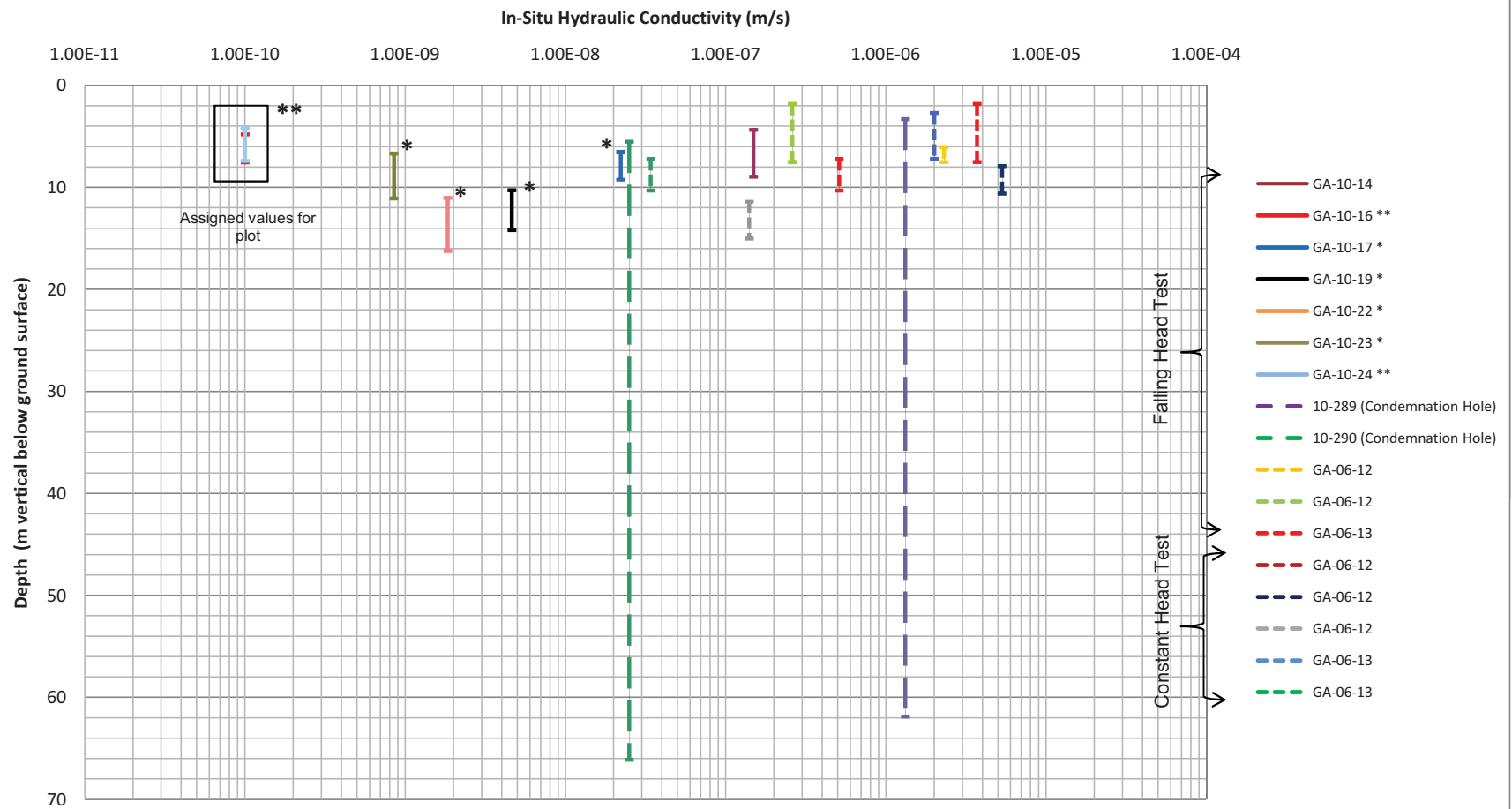


### Ground Water Levels Relative to Ground Surface Elevations

PROJECT NO: 08-1118-0043 (3200)      DATE: July 2010  
 BY: IM      CHECK: RW

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE 9



\* The test interval may occur in frozen rock, and result may not be representative.

\*\* The interval is either very tight rock or very tight rock and frozen. Result is not representative.



### Scatter Plot of In-Situ Hydraulic Conductivity vs. Depth

PROJECT NO: 08-1118-0043 (3200)    DATE: July 2010

BY: IM    CHECK: RW

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE 10



# **APPENDIX A-1**

## **Borehole Information from Investigations in 2006 by Golder**

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-07

SHEET 1 OF 2

LOCATION: N 7045150.0 ;E 513818.0

DRILLING DATE: Apr. 8 - 9, 2006

DATUM:

ELEVATION: 201 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>	
								WATER CONTENT PERCENT						
0	75 mm Ø PQ CORING	GROUND SURFACE		201.00										
		Frozen, light brown PEAT, fibrous		0.00										
		Frozen, damp, dark brown SILTY CLAY, some sand, trace black organic nodules, massive, medium plastic		0.10			Vx = 100%							
1					1	RC							1	
						2	RC							2
						3	RC	Vs = 70% 20 mm to 30 mm ice lenses at 40 mm interval; horizontal stratified or granular, soft				93		3
2						4	RC	Vr at 1.2 m to 1.7 m granular, hard Vs = 60% to 10 mm thick at 30 mm interval at 1.7 m depth						4
			Frozen, light grey SILT, some sand, trace clay, massive		198.63		5	RC	Vs = 30% 1 mm to 3 mm thick at 5 mm intervals, hard grey, nongranular					5
					2.37									6
3			Frozen, black, medium GRAVEL		197.95									
		Frozen, grey, SILTY SAND TILL, some to trace gravel, trace clay, stratified sand and silt layers 15 mm to 20 mm		3.08		6	RC							
4						7	RC							
						8	RC							
5						9	RC							
						10	RC	Possible thaw due to drilling with water						
6		GRAVEL and cobbles		195.03										
				5.97		11A	RC							
7		SEE SHEET 2 FOR LOG OF CORED BEDROCK		194.20										
				6.80										
8														
9														
10														

CONTINUED NEXT PAGE



DEPTH SCALE

1 : 50

LOGGED: DL

CHECKED: PM

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-07

SHEET 2 OF 2

LOCATION: N 7045150.0 ; E 513818.0

DRILLING DATE: Apr. 8 - 9, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	RECOVERY			R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W.Z.L. CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION			
								TOTAL CORE %	SOLID CORE %					TYPE AND SURFACE DESCRIPTION	10	10	10							
								88888888	88888888	88888888					10	10	10							
		CONTINUED FROM PREVIOUS PAGE		194.20																				
7		Metamorphosed SILTSTONE (BEDROCK) Slightly weathered, strong, dark, grey core is pitted Fresh, strong, light grey		6.80	11B								•	„J,N,PL,Ro none „J,N,IR,Ro none										
				193.78										•	„SHR,IR,Ro none									
				7.22	12									•	„J,N,PL,Ro Light grey hard									
8														•	„J,N,PL,VR none „J,N,PL,Ro Light grey hard „J,N,PL,Ro Light grey hard									
					13									•	„J,N,PL,Ro Light grey hard									
9														•	„J,N,PL,Ro Light grey hard „J,N,PL,Ro Light grey hard									
					14									•	„J,N,PL,Ro Light grey hard „J,N,IR,Ro Light grey hard „J,N,IR,Ro none									
10														•	„J,N,CU,Ro none „J,N,IR,Ro none									
					15									•	„J,N,PL,Ro Light grey hard „J,N,PL,Ro washed out									
11														•	„J,N,PL,Ro Light grey hard									
					16									•	„J,N,PL,Ro Light grey hard „J,N,PL,Ro Light grey hard									
12														•	„J,N,PL,Ro Light grey hard									
					17									•	„J,N,PL,Ro none „J,N,PL,Ro Light grey hard „J,N,IR,Ro none									
13														•	„J,N,PL,Ro Light grey hard „J,N,PL,Ro none									
					18									•	„SHR,IR,VR none „J,N,PL,Ro Light grey hard									
14														•	„J,N,IR,VR Light grey hard „SHR,IR,VR Light grey hard									
					19									•	„SHR,IR,VR Light grey hard									
15		END OF BOREHOLE		186.00 15.00																				
16																								

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-08

SHEET 1 OF 2

LOCATION: N 7045110.0 ; E 513687.0

DRILLING DATE: Apr. 11 - 12, 2006

DATUM:

ELEVATION: 202.4 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
0	75 mm Ø PC CORING	GROUND SURFACE		202.40									
		Frozen, dark brown CLAYEY SILT, some fine sand, rootlets, organics (TOPSOIL)		0.00	1	RC	Vr = 15% from 0 m to 0.1m, soft Dry/thawed from 0.1 m to 0.8 m						
		Frozen, loose, dry, brown CLAYEY SILT, with sand, trace gravel		0.10									
				201.61	2	RC							
				0.79	3	RC							
1		Frozen, loose, moist, brown, fine SAND, trace clay			4	RC	Vr = 30% random ice lens Ice, w/ CL Si					Grout	
					5	RC							
					6A	RC							
2		Frozen, grey, SANDY SILT, trace clay, appears to be stratified		200.54			Ne, hard (at 1.86 m)					Bentonite	
				1.86	7B	RC							
			200.18	7A	RC								
		Frozen, dark grey, SILTY SAND TILL, some to trace gravel, trace clay, occasional cobbles		2.22	7B	RC	Thawed due to heat from drilling						
3				8	RC						Sand		
4				9	RC								
5				10A	RC						Screen		
		Soft, wet, light grey, CLAY, massive, high plastic		197.31									
		SEE SHEET 2 FOR LOG OF CORED BEDROCK		5.09									
				5.18									
6		CONTINUED NEXT PAGE (ON ROCK LOG)											
7													
8													
9													
10		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032  
 LOCATION: N 7045110.0 ;E 513687.0  
 INCLINATION: -90° AZIMUTH: —

# RECORD OF DRILLHOLE: GA-06-08

SHEET 2 OF 2  
 DATUM:

DRILLING DATE: Apr. 11 - 12, 2006  
 DRILL RIG: BOYLES 29A  
 DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLOUR	% RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
										TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION	10	20	30				
										JN - Joint	BD - Bedding				PL - Planar	PO - Polished	BR - Broken Rock					
CONTINUED FROM PREVIOUS PAGE																						
		Reddish brown RHYOLITE (BEDROCK)		197.22	10A																	
		Slightly weathered, strong to very strong, moderately fractured		5.18	10B																	
6				11											JN,IR,Ro none							
				12											JN,IR,VR none							
				13											JN,ST,Ro none JN,PL,Ro none JN,ST,Ro none							Screen
7				195.15																		
		Slightly weathered, highly, fractured		7.25											JN,PL,Ro none SHR,Ro none JN,PL,Ro silty clay JN,PL,Ro grey hard JN,PL,Ro grey hard JN,PL,SM none JN,PL,Ro none SHR,Ro none							
8				14																		
				15											JN,PL,Ro none JN,IR,VR none JN,IR,VR none							
				16											JN,PL,Ro none SHR,Ro none							
				17											JN,PL,VR none SHR,Ro none							
				18											JN,IR,VR none							
				19											JN,IR,VR none JN,PL,Ro none SHR,Ro none							
9				191.12																		
		Colour change to grey at 11.30 m, fresh, moderately fractured, strong to very strong Rhyolite		11.28											JN,UN,Ro none JN,PL,Ro none SHR,Ro none JN,PL,VR none JN,IR,VR none JN,PL,Ro none							
10				18											JN,PL,VR none SHR,Ro none							
				19											JN,PL,Ro none JN,PL,Ro none JN,PL,Ro none JN,PL,Ro none JN,UN,VR none							
11				188.69											JN,PL,Ro none JN,PL,Ro none							
		END OF BOREHOLE		13.71																		
14																						
15																						

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Water level: On April 12, 2006 water at top of piezometer (0.35 m Stick-up). On April 13, 2006 water at top of piezometer.

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-09

SHEET 1 OF 3

LOCATION: N 7046782.0 ;E 513855.0

DRILLING DATE: Apr. 19 - 20, 2006

DATUM:

ELEVATION: 223.8 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
0	75 mm Ø PQ CORING	GROUND SURFACE		223.80									
		Loose, frozen, black to brown CLAYEY SILT, trace sand, peat, organics fibrous to amorphous (TOPSOIL) Brown CLAYEY SILT to SILTY CLAY, with to trace sand, trace gravel, low to medium plastic (GLACIAL TILL)		0.00 0.09	1A	RC	RC Vs = 50% at 0 m to 0.61 m						
					1B	RC	thawed between 0.61 to 1.0 m						
1					2	RC							
					3	RC	Nf = 1.2 m to 1.30 m Ice, w/ CL Si Vs = 20% at 1.4 m to 1.5 m Nf at 1.5 m to 1.8 m						
					4	RC	Vs = 30% 1.8 m to 1.9 m						
2				5	RC	Thawed due to 2.1 m to 2.3 m							
		occasional cobbles		221.51 2.29									
3													
					6A	RC							
4													
				219.29 4.51									
5		SEE SHEET 2 FOR LOG OF CORED BEDROCK				CONTINUED NEXT PAGE (ON ROCK LOG)							
6													
7													
8													
9													
10													
		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-09

SHEET 2 OF 3

LOCATION: N 7046782.0 ; E 513855.0

DRILLING DATE: Apr. 19 - 20, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLLOUR	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		10	5	1			
									88888888	88888888				TYPE	SURFACE	10	5	1			
		CONTINUED FORM PREVIOUS PAGE		219.29																	
5		Metamorphosed SILTSTONE (BEDROCK)  Light grey, fresh, strong to very strong, moderate to wide fracture spacing.		4.51																	
6					6B																
7					7																
8		Fine grained WACKE Fresh, strong to very strong, wide fracture spacing		216.30																	
9				7.50																	
10					8																
11					9																
12					10																
13																					
14																					

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-09

SHEET 3 OF 3

LOCATION: N 7046782.0 ; E 513855.0

DRILLING DATE: Apr. 19 - 20, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV.		PENETRATION RATE (m/min)	FLUSH	COLOUR	% RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/CL CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY			UNC Index	STRAIN	NOTES WATER LEVELS INSTRUMENTATION	
				DEPTH (m)	RUN No.					TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION	K	cm	sec					
		— CONTINUED FROM PREVIOUS PAGE —																					
15		Fine grained WACKE Fresh, strong to very strong, wide fracture spacing			10																		10
		END OF BOREHOLE  Relocated 19 m north due to accessibility concerns.			208.80 15.00																		

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-10

SHEET 1 OF 3

LOCATION: N 7046977.0 ;E 514103.0

DRILLING DATE: Apr. 21 - 22, 2006

DATUM:

ELEVATION: 216 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
0	75 mm Ø PQ CORING	GROUND SURFACE		216.00									
		ICE		0.00									
		Frozen, black, amorphous PEAT, trace silt and sand, wood fibres, organic odour		215.70	0.30	1	RC					373.3	1
1		Frozen, dark brown, clayey silt, trace sand, PEAT, amorphous with wood chunks and rootlet inclusions, organic odour		215.39	0.61							439.6	2
				214.17									3
2		SEE SHEET 2 FOR LOG OF CORED BEDROCK		1.83			CONTINUED NEXT PAGE (ON ROCK LOG)						
3													
4													
5													
6													
7													
8													
9													
10													
							CONTINUED NEXT PAGE						

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-10

SHEET 2 OF 3

LOCATION: N 7046977.0 ; E 514103.0

DRILLING DATE: Apr. 21 - 22, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY				UNC Index	STRAIN	NOTES WATER LEVELS INSTRUMENTATION			
								TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>						
								⊘	⊘				⊘	⊘	⊘	⊘	⊘	⊘						
		CONTINUED FROM PREVIOUS PAGE		214.17																				
2		Metamorphosed SILTSTONE (BEDROCK) Fresh, strong to very strong, moderate to widely spaced fractures		1.83									.JN,PL,VR none .JN,PL,Ro none											
3													.JN,PL,Ro none .JN,PL,Ro brown hard .JN,PL,Ro none									4		
4													.JN,PL,Ro clay coating .JN,IR,VR none .JN,PL,Ro grey hard .JN,PL,Ro none .JN,UN,VR none .JN,PL,Ro white hard .JN,PL,VR none .JN,PL,VR none									5		
5													.SHR,PL,VR grey hard .SHR,PL,VR grey hard to none										6	
6													.JN,UN,VR grey hard .JN,PL,VR grey hard .JN,PL,Ro white hard											
7													.JN,IR,VR none .JN,PL,Ro grey hard .JN,PL,Ro grey hard .JN,PL,Ro none .JN,PL,VR none .JN,UN,VR none .JN,PL,VR none											
8													.JN,PL,Ro none .SHR,PL,VR none											
9													.JN,PL,Ro none .JN,PL,Ro none											
10													.JN,PL,Ro none .JN,PL,Ro none .JN,PL,Ro none .JN,PL,VR crushed rock .SHR,PL,VR none											
11													.JN,PL,Ro none .JN,PL,VR none											
		CONTINUED NEXT PAGE																						

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-10

SHEET 3 OF 3

LOCATION: N 7046977.0 ; E 514103.0

DRILLING DATE: Apr. 21 - 22, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLOUR % RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION				
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		10	10	10							
									JN - Joint	FLT - Fault				BD - Bedding	FO - Foliation	PL - Planar	CU - Curved	PO - Polished				BR - Broken Rock			
		--- CONTINUED FROM PREVIOUS PAGE ---																							
12	50 mm Ø NQ-2 CORING	Metamorphosed SILTSTONE (BEDROCK) Fresh, strong to very strong, moderate to widely spaced fractures			7																	9			
13																									
14																									
15																									
15				END OF BOREHOLE			201.00 15.00																		10
16																									
17																									
18																									
19																									
20																									
21																									

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-11

SHEET 1 OF 2

LOCATION: N 7047187.0 ;E 514492.0

DRILLING DATE: Apr. 23, 2006

DATUM:

ELEVATION: 216.4 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
0	75 mm Ø PG CORING	GROUND SURFACE		216.40									
		ICE		0.00									
		Frozen, brown, fibrous PEAT, trace silt and clay, wood chunks, odour		0.10	1A	RC					1317.2	1	
1												2	
		Frozen, dark brown PEAT, some silt, trace fine sand, strong odour		215.18	1.22	1B	RC				300.8	3	
2			Frozen, compact, grey, CLAYEY SILT, some clay, trace organics, massive		214.60	1.80	1C	RC			108.1		4
						2	RC				112		
3			Frozen, soft to firm when thawed, light grey SILTY CLAY, trace fine sand, trace gravel, massive, medium to high plastic (inter layers of 0.10 m to 0.13 m ice lenses, clear stratified medium hardness)		213.56	2.84	3A	RC			114.8		
4													
5													
6													
7													
8		Frozen, light grey, (thawed by drilling) CLAYEY SILT, with to some sand, some to trace gravel and cobbles (sub-rounded to sub-angular up to 9 mm) (TILL)		208.40	8.00	4D	RC			99.4		7	
9													
10		SEE SHEET 2 FOR LOG OF CORED BEDROCK		207.00	9.40	5A	RC						

CONTINUED NEXT PAGE (ON ROCK LOG)

CONTINUED NEXT PAGE

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-11

SHEET 2 OF 2

LOCATION: N 7047187.0 ; E 514492.0

DRILLING DATE: Apr. 23, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	PENETRATION RATE (mm/min)	FLUSH	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
							TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>			
							88888888	88888888				88888888	88888888	88888888	88888888	88888888			
		CONTINUED FROM PREVIOUS PAGE		207.00															
10		RHYOLITE (BEDROCK) Dark grey and red, fresh, strong to very strong close to moderately fractured igneous rock		9.40														8	
				5B															
12	50 mm Ø NQ-2 CORING																	9	
13																			
14																			
15		END OF BOREHOLE		201.40														10	
				15.00															

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-12

SHEET 1 OF 3

LOCATION: N 7047274.0 ;E 514497.0

DRILLING DATE: Apr. 24 - 25, 2006

DATUM:

ELEVATION: 221 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
0	75 mm Ø P.Q. CORING	GROUND SURFACE		221.00									
		Dark brown, amorphous PEAT, some silt and sand (washed out by drilling), trace cobbles		0.00	1A	RC							Bentonite
1		SEE SHEET 2 FOR LOG OF CORED BEDROCK		220.46									
		Note: Relocated 17 m east due to accessibility concerns.		0.54									
CONTINUED NEXT PAGE (ON ROCK LOG)													
10		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-12

SHEET 2 OF 3

LOCATION: N 7047274.0 ; E 514497.0

DRILLING DATE: Apr. 24 - 25, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLOUR % RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA				HYDRAULIC CONDUCTIVITY			UNC Index	STRAIN	NOTES WATER LEVELS INSTRUMENTATION		
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION				K	cm/sec	MPa					
									88888888	88888888				PL - Planar	CU - Curved	PO - Polished	BR - Broken Rock	NOTE: For additional abbreviations refer to list of abbreviations & symbols.							
		CONTINUED FROM PREVIOUS PAGE		220.46																					
1		RHYOLITE (BEDROCK) Dark grey and red, fresh, strong to very strong close to moderately fractured igneous rock		0.54	1B																			Bentonite	
					2																			Backfill	
2																									
3					3																				
4																									Grout
5																									
6					4																				
7																									
8																									Bentonite
9					5																				Sand
10																									
		CONTINUED NEXT PAGE																							

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-12

SHEET 3 OF 3

LOCATION: N 7047274.0 ; E 514497.0

DRILLING DATE: Apr. 24 - 25, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY			UNC Index	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
													TYPE AND SURFACE DESCRIPTION	K, cm/sec	10	10	10			
--- CONTINUED FROM PREVIOUS PAGE ---																				
11	50 mm Ø NQ-2 CORING	RHYOLITE (BEDROCK) Dark grey and red, fresh, strong to very strong close to moderately fractured igneous rock		206.00	6									• J,N,PL,Ro none						Sand
12														• J,N,PL,Ro none						
13														• J,N,UN,VR 1 piece 3/4" gravel angular						
13														• J,N,PL,VR quartz hard						
13														• J,N,IR,VR none						
13														• J,N,PL,Ro none						
14	7	END OF BOREHOLE		15.00									• J,N,PL,VR none						Screen	
15													• J,N,PL,VR none							
15													• J,N,PL,Ro none							
16																				Ground water level: April 27, 2006 at 6.3 m, April 28, 2006 at 6.3 m.
17																				
18																				
19																				
20																				

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: GA-06-13

SHEET 1 OF 3

LOCATION: N 7047560.0 ; E 514235.0


DRILLING DATE: Apr. 26 - 27, 2006

DATUM:

ELEVATION: 237.1 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
		GROUND SURFACE		237.10									
0	75 mm Ø PQ CORING	Loose, beige to grey, COBBLES and BOULDERS, rounded to sub-angular, 0.1 m diameter (fines washed away during drilling)		0.00	1A	RC						1	
		SEE SHEET 2 FOR LOG OF CORED BEDROCK		236.56	0.54								
1		CONTINUED NEXT PAGE (ON ROCK LOG)											
2		CONTINUED NEXT PAGE											
3		CONTINUED NEXT PAGE											
4		CONTINUED NEXT PAGE											
5		CONTINUED NEXT PAGE											
6		CONTINUED NEXT PAGE											
7		CONTINUED NEXT PAGE											
8		CONTINUED NEXT PAGE											
9		CONTINUED NEXT PAGE											
10		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-13

SHEET 2 OF 3

LOCATION: N 7047560.0 ; E 514235.0

DRILLING DATE: Apr. 26 - 27, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	PENETRATION RATE (m/min)	FLUSH	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
							TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION	10	5	1				
							JOINT	FAULT				SHEAR	VEIN	CONJUGATE	BEDDING	FOLIATION			
		CONTINUED FORM PREVIOUS PAGE		236.56															
1		Plagio-biotite phyric intermediate volcanic, locally fragmental) (BEDROCK)  Fresh, strong to very strong, wide fracture spacing		0.54															
				1B														2	
																		3	
				2														4	
				2														5	
				3														6	
				3														7	
				4														8	
				4														7	
				5														8	
				5															

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DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: GA-06-13

SHEET 3 OF 3

LOCATION: N 7047560.0 ; E 514235.0

DRILLING DATE: Apr. 26 - 27, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec				UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
								TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		10	10	10	10			
								88888888	88888888				88888888	88888888	88888888	88888888	88888888	88888888			
11	50 mm Ø NG-2 CORING	— CONTINUED FROM PREVIOUS PAGE — Plagio-biotite phyrlic intermediate volcanic, locally fragmental) (BEDROCK)  Fresh, strong to very strong, wide fracture spacing		222.10 15.00									• J,N,PL,Ro red hard • J,N,PL,VR none • J,N,PL,VR none • J,N,UN,VR none • J,N,UN,VR none • J,N,PL,Ro none • J,N,PL,Ro none • J,N,PL,Ro none • J,N,UN,Ro none • J,N,PL,Ro none						9 10		
12																					
13																					
14																					
15		END OF BOREHOLE																			
16																					
17																					
18																					
19																					
20																					

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: MC-06-20

SHEET 1 OF 3

LOCATION: N 7046467.0 ;E 513147.0

DRILLING DATE: Apr. 13 - 15, 2006

DATUM:

ELEVATION: 249.4 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
		GROUND SURFACE		249.40									
0	75 mm Ø P.Q. CORING	Frozen, black, sandy silt TOPSOIL, trace clay, rootlets, organic matter		0.00	1	RC	Ne						
		Black, SILTY GRAVEL		0.51			Thawn (naturally)						
		No recovery, possible due to cobble in bond		0.67	2	RC							
1	65 mm Ø HQ CORING	Loose, sub-angular to sub-rounded, moist, brown, GRAVELLY SAND (TILL) some to trace silt, trace clay and cobbles		1.16			Thawed by drilling with water						
				248.24									
				1.16	3	RC							
2													
3													
4					4	RC							
					5	RC							
					6	RC							
5		SEE SHEET 2 FOR LOG OF CORED BEDROCK		244.98			CONTINUED NEXT PAGE (ON ROCK LOG)						
				4.42									
6													
7													
8													
9													
10													
		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: MC-06-20

SHEET 2 OF 3

LOCATION: N 7046467.0 ;E 513147.0

DRILLING DATE: Apr. 13 - 15, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	COLLOUR % RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W.L. CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>				
									88888888	88888888											
CONTINUED FORM PREVIOUS PAGE																					
5	65 mm Ø HQ CORING	Dark grey WACKE (BEDROCK) Slightly weathered, strong to very strong, highly fractured		244.98 4.42																	
6						7															
7	50 mm Ø NQ-2 CORING	Fresh to slightly weathered, very strong, moderate to wide spread fractures		241.63 7.77																	
8						9															
9																					
10																					
11																					
12																					
13																					
14																					
CONTINUED NEXT PAGE																					

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: MC-06-20

SHEET 3 OF 3

LOCATION: N 7046467.0 ; E 513147.0

DRILLING DATE: Apr. 13 - 15, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLOUR	% RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/LL CORE AXIS	DISCONTINUITY DATA			HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION
										TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION			1	2	3			
										JN - Joint	BD - Bedding				PL - Planar	PO - Polished	BR - Broken Rock						
		--- CONTINUED FROM PREVIOUS PAGE ---																					
		Fresh to slightly weathered, very strong, moderate to wide spread fractures																					
15		END OF BOREHOLE		234.40 15.00																			
16		Notes: 1. Location and testing prescribed by Met-Chem. 2. Borehole not backfilled. No instrument installed.																					
17																							
18																							
19																							
20																							
21																							
22																							
23																							
24																							

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: MC-06-22

SHEET 1 OF 3

LOCATION: N 7046560.0 ; E 513191.0

DRILLING DATE: Apr. 16 - 17, 2006

DATUM:

ELEVATION: 245.7 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
								WATER CONTENT PERCENT					
		GROUND SURFACE		245.70									
0	75 mm Ø P.Q. CORING	Frozen, black to brown PEAT, wood fibres		0.00 245.52 0.18	1	RC							
1		Sub-angular to sub-rounded, reddish brown GRAVELLY SAND (TILL), occasional cobbles, matrix washed away by drilling (visible in drill bit: silty sand, trace clay) cobble size up to 80 mm diameter, assorted mineralogy			2	RC							
2						3	RC						
3		SEE SHEET 2 FOR LOG OF CORED BEDROCK		242.50 3.20									
4		CONTINUED NEXT PAGE (ON ROCK LOG)											
5													
6													
7													
8													
9													
10		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: MC-06-22

SHEET 2 OF 3

LOCATION: N 7046560.0 ; E 513191.0

DRILLING DATE: Apr. 16 - 17, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV.		PENETRATION RATE (m/min)	COLLOUR (mm)	FLUSH % RETURN	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN ε	NOTES WATER LEVELS INSTRUMENTATION		
				DEPTH (m)	RUN No.				TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION	DISCONTINUITY DATA	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>					
		CONTINUED FROM PREVIOUS PAGE		242.50																			
4		Reddish brown potassium/Altered FELDSPAR PORPHYRY (BEDROCK) Slightly weathered, strong to very strong, highly fractured		3.20																			
5																							
6																							
7																							
8		Grey, fresh, strong to very strong, moderate to widely spaced fractures		238.08 7.62																			
9																							
10																							
11																							
12																							
13																							
		CONTINUED NEXT PAGE																					

50 mm Ø NO.2 CORING

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: MC-06-22

SHEET 3 OF 3

LOCATION: N 7046560.0 ; E 513191.0

DRILLING DATE: Apr. 16 - 17, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLOUR	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION	
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		10	10	10				
									88888888	88888888				88888888	88888888	88888888	88888888	88888888				
		— CONTINUED FROM PREVIOUS PAGE —																				
14	50 mm Ø NQ-2 CORING	Grey, fresh, strong to very strong, moderate to widely spaced fractures		7										„J,N,PL,Ro none								
15		END OF BOREHOLE		230.70										„J,N,PL,Ro red grey „J,N,PL,Ro red grey								
15		Note: 1. Location and testing prescribed by Met-Chem. 2. Borehole not backfilled. No instrument installed.		15.00										„J,N,PL,Ro white hard								
16																						
17																						
18																						
19																						
20																						
21																						
22																						
23																						

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF BOREHOLE: MC-06-23

SHEET 1 OF 3

LOCATION: N 7046528.0 ;E 513258.0

DRILLING DATE: Apr. 18, 2006

DATUM:

ELEVATION: 246.6 (APPROXIMATE) COORDINATE: UTM NAD 27 ZONE 11

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE		GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	TYPE		10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>		
								WATER CONTENT PERCENT					
		GROUND SURFACE		246.60									
0	75 mm Ø PQ CORING	Frozen, black TOPSOIL		0.04	1	RC							
		Loose, black GRAVELLY SAND (TILL), some sand, trace silt and clay, occasional cobbles, thawed, moist to dry (possibly due to drilling heat) rootlets, fines washed out below 0.3 m due to drilling with water			2	RC							
1		Boulders and Cobbles 13 mm diameter		245.38	3A	RC							
		SEE SHEET 2 FOR LOG OF CORED BEDROCK		1.22			CONTINUED NEXT PAGE (ON ROCK LOG)						
2													
3													
4													
5													
6													
7													
8													
9													
10													
		CONTINUED NEXT PAGE											

MIS-BHS 005 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: MC-06-23

SHEET 2 OF 3

LOCATION: N 7046528.0 ; E 513258.0

DRILLING DATE: Apr. 18, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	COLOUR	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec				UNC Index (MPa)	STRAIN	NOTES WATER LEVELS INSTRUMENTATION	
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		10	5	2	1				
									88888888	88888888				88888888	88888888	88888888	88888888	88888888	88888888				
		CONTINUED FROM PREVIOUS PAGE		245.38																			
2		K-Feldspar altered RHYOLITE (BEDROCK) Red to greyish, slightly weathered, weak to medium strength, highly fractured Rhyolite		1.22																			3
3																							
4																							
5																							
6		Grey, slightly weathered to fresh, weak to medium strength, moderately fractured Rhyolite		241.17																			
7				5.43																			
8																							
9																							
10																							
11																							
		CONTINUED NEXT PAGE																					

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM

PROJECT: 05-1117-032

# RECORD OF DRILLHOLE: MC-06-23

SHEET 3 OF 3

LOCATION: N 7046528.0 ; E 513258.0

DRILLING DATE: Apr. 18, 2006

DATUM:

INCLINATION: -90° AZIMUTH: —

DRILL RIG: BOYLES 29A

DRILLING CONTRACTOR: CONNORS DRILLING

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH	COLOUR (mm)	RECOVERY		R.Q.D. %	FRACT INDEX PER 0.3 m	DIP W/L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY K, cm/sec			UNC Index (MPa)	STRAIN ε	NOTES WATER LEVELS INSTRUMENTATION																								
									TOTAL CORE %	SOLID CORE %				TYPE AND SURFACE DESCRIPTION		10	10	10				10																							
									88888888	88888888				88888888	88888888	88888888	88888888	88888888				88888888																							
		— CONTINUED FROM PREVIOUS PAGE —																																											
12	50 mm Ø NQ-2 CORING	Grey, slightly weathered to fresh, weak to medium strength, moderately fractured Rhyolite			8																	9																							
15		END OF BOREHOLE		231.60 15.00																		10																							
16		Note: 1. Location and testing prescribed by Met-Chem.																																											
17																																													
18																																													
19																																													
20																																													
21																																													

MIS-RCK 008 051117032.GPJ GAL-MISS.GDT 21/12/06

DEPTH SCALE

1 : 50



LOGGED: DL

CHECKED: PM



# **APPENDIX A-2**

## **Selected Borehole Information from Investigation in 2003 by Golder**

TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281  
 Incl: - 45 °  
 Azimuth: 220 °  
 Elevation: Ground surface used as reference

Date Drilled: 2-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 2-Sep-03  
 Northing: 3+25 N  
 Easting: 25+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
	0	24	Overburden (Till) boulderly 22'-24' cased to 26'				24									
1	24	34	Dark Green Schist  31'-33' Minor Felsic/K-spar dyke	100%	78%	6	25	J			BC 3	1		R3	W1	NOT ORIENTED
						1	26	J			3	1				
						0	27									
						0	28									
						2	29	XJ	44	190	1	1				
						1	30	XJ	46	255	1.5	1				
						0	31									
						1	32	J	20		1.5	1				
						1	33	XJ	45							
						3	34	J	25/45		1.5	1				
2	34	44	some arsenopy bands massive	100%	96%	1	35	XJ	42		2	1		R3	W1	NOT ORIENTED
						1	36	XJ	45		1.5	1				
						0	37									
						0	38									
						0	39									
						0	40									
						0	41									
						2	42	XJ	45		1.5	1				
						1	43	FOL	75							
						0	44									
3	44	54				2	45						R3	W1	LOST PLASTECINE	
						0	46									
						1	47	XJ	40	165	1.5	1				
						1	48	XJ	25	165	1.5	1				
						2	49	FOL	78/70		1.5	1				
						0	50									
						0	51									
						0	52									
						0	53									
						0	54									
4	54	64		100%	98%	1	55	XJ	55	135	1	1				
						0	56									
						0	57									
						0	58									
						1	59	FOL	80							
						1	60	FOL	75		1.5	1				
						1	61	XJ	43	290	1.5	1				
						0	62									
						2	63	FOL	78/82		1.5	1				
						0	64									

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 1 OF 8

Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281  
 Incl: - 45 °  
 Azimuth: 220 °  
 Elevation: Ground surface used as reference

Date Drilled: 2-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 2-Sep-03  
 Northing: 3+25 N  
 Easting: 25+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
5	64	74	Dark Grey to Dark Green Medium strong Schist & Greywacke	100%	100%	1	65	FOL	25	000				R3	W1	POOR ORIENTATION	
						0	66										
						2	67	J	20	125	1	2					
						0	68										
						1	69	J	60	180	1	1					
						2	70	FOL	68/80	330	1	1					
						1	71	J	15	020	1.5	1					
						2	72	FOL	70	270							
						0	73										
						1	74	FOL	78	270	3	1					
6	74	84		100%	100%	0	75						R3	W1	GOOD IMPRESSION		
						0	76										
						1	77	FOL	78	270	1	1					
						2	78	FOL/J	78/30	270/090	3	1					
						0	79										
						0	80										
						0	81										
						2	82	FOL/J	80/45	235/070	1/1.5	1/1					
						1	83	J	60	125	1.5	1					
						0	84										
7	84	94		100%	100%	0	85						R3	W1	GOOD IMPRESSION		
						0	86										
						0	87										
						0	88										
						1	89	FOL	82	180	1	1					
						1	90	FOL	82	165	1	1					
						1	91	FOL	85	150	1	1					
						1	92	FOL	85	150	1	1					
						1	93	FOL	78	120	2	1					
						1	94	FOL	83	180	1	1					
8	94	104	grey dyke 97.5' to 99.5'	100%	100%	0	95						R3	W1	BAD IMPRESSION		
						0	96										
						1	97	FOL	80		1	1					
						0	98										
						1	99	FOL	80		2	1					
						1	100	CON	85		3	1					
						1	101	FOL	78		1	1					
						1	102	FOL	78		1	1					
						1	103	FOL	78		1	1					
						1	104	J	88								
9	104	114		100%	100%	0	105										
						0	106										
						1	107	FOL									
						0	108										
						0	109										
0	110																

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 2 OF 8

Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281 Date Drilled: 3-Sep-03 Date Logged: 3-Sep-03  
 Incl: - 45° Drill Rig: Boyles 25 A Northing: 3+25 N  
 Azimuth: 220° Drilling Contractor: Connors Easting: 25+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
9	104	114	"Zone" mainly k-spar altered sub-ark gwk (10% - 20%) interbedded	100%	100%	0	109							R3	W1	
						0	110									
						1	111	FOL	70		2	1				
						0	112									
						1	113	J	35		3	1				
						1	114	J	22		1.5	2				
10	114	124	Dark Green Schist, some red hem. bands	100%	75%	0	115							R3	W1	
						1	116	FOL	80		1.5	1				
						0	117									
						0	118									
						0	119									
						1	120	J	20	000						
						0	121									
						0	122									
						1	123	FOL	80	000	0.75					
						0	124									
11	124	134		100%	90%	1	125	J	58	210	3	1	R3	W1	EXCELLENT IMPRESSION	
						1	126	FOL	85	180	0.75					
						2	127	J	27/30	260/080	3	1				
						0	128	FOL	85	270	0.75					
						0	129	FOL	86	180	0.75					
						1	130	FOL	86	180	1.5	1				
						2	131	FOL	86	180	1	2				
						1	132	FOL	75	180	1	2				
						2	133	J	45/55		0.5	2				
						3	134	J	55	000	3	1				
12	134	144	134' - 137' Schist	100%	98%	1	135	FOL	76	300	1	1	R3	W1	GOOD ORIENTATION	
			0			136										
			2			137	FOL/J	76/23	290/100	1/2	1/1					
			2			138	J	56/30	115/080	3/1	1/1					
			0			139										
			0			140										
			3			141	J/F	50/70/76	110/110/000	1/2/1	1/1/1					
			0			142										
			1			143	FOL	75	290							
			0			144										
13	144	154	144' - 147.5' Schist/alt grewake	100%	98%	4	145	FOL	87		1	1	R3	W1	EXCELLENT ORIENTATION	
			0			146										
			0			147										
			2			148	J	36/26	110/230	1.5/0.5	1/1					
			1			149										
			0			150										
			0			151										
			1			152	FOL	83	320	1	1					
			0			153										
			1			154	J	60	200	2	1					

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 3 OF 8

Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281  
 Incl: - 45 °  
 Azimuth: 220 °  
 Elevation: Ground surface used as reference

Date Drilled: 3-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 3-Sep-03  
 Northing: 3+25 N  
 Easting: 25+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
14	154	164	149.5' - 158' Grewake Stiff Clay Gouge (grey) at 158' FOL    on contact	100%	89%	1	155	J	75	290	1.5	1		R3	W1		
						0	156										
						2	157	FOL	75/78	315							
						0	158										
						1	159	CON	90		1	1					
						1	160	FOL	76	270	1.5	1					
						1	161	J	19	030	1	1					
						0	162										
						1	163	FOL	84	260	1.5	1					
						0	164										
15	164	174	158' - 163' Schist 163'-164' GRWK 164'-166' Schist 166'-167.5' GRWK 167.5'-177' Schist	100%	92%	0	165										
						1	166	FOL	76	300	3	1					
						2	167	J	45	140	1.5	1					
						1	168	J	70	190	1.5	1					
						0	169										
						0	170										
						0	171										
						2	172	FOL/J	78/56	310/070	1	1					
						0	173										
						1	174	J	68	090	1.5	1					
16	174	184	177' - 191' GRWK	100%	97%	0	175	FOL	84	260	1	0.75					
						1	176	FOL	84	260							
						0	177										
						1	178	J	13	045	3	1					
						1	179	FOL	86	240	1.5	1					
						0	180										
						1	181	J	24		1.5	1					
						1	182	J	24		1.5	1					
						1	183	J	24		1.5	1					
						0	184										
17	184	194	191' - 198' Transition/GRWK	100%	100%	1	185	J	40		1.5	1					
						0	186										
						1	187	J	20		1.5	1					
						1	188	J	20		3	1					
						1	189	J	26	130	1.5	1					
						1	190	J	45	075	1.5	1					
						0	191										
						1	192	FOL	65	280	1.5	1					
						1	193	J	32	030	1.5	1					
						0	194										
18	194	204	198' - 202' GRWK	100%	100%	1	195	FOL	80	180	1	0.75					
						0	196										
						1	197	FOL	76		1.5	1					
						0	198										
						2	199	FX	90		3	1					

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 4 OF 8

Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Contact: CON  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281  
 Incl: - 45 °  
 Azimuth: 220 °  
 Elevation: Ground surface used as reference

Date Drilled: 3-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 3-Sep-03  
 Northing: 3+25 N  
 Easting: 25+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
18	194	204	202'-203' Schist Light Grey	100%	100%	0	200							R3	W1		
						0	201										
						1	202	FOL	70		1.5	1					
						1	203	FOL/J	63	260	1.5	1					
19	204	214	203' - 208' Schist Med Grey, banded	100%	100%	1	204	FOL/J	77	110							
						0	205										
						0	206	FOL	65	120	2	0.5					
						0	207										
						0	208	FOL	80	180	2	0.5					
						0	209										
						1	210	J	35	025	1.5	1					
						0	211										
						0	212										
						2	213	FOL	76	180	1.5	1					
20	214	224	208'-230' Dark Grey Schist Banded, py asseneon py bands	100%	100%	1	214	FOL	82	180	1.5	1					
						0	215										
						1	216	FOL	76	165	1.5	1					
						0	217										
						1	218	J	20	165	3	1					
						0	219										
						0	220										
						1	221	FOL	75		7.5	1					
						2	222	J/FOL	32/70	180/190	1.5/3	1/1					
						0	223										
21	224	234	230'-236' Grey Green GRWK	100%	100%	1	224	FOL	80	200	1.5	1					
						0	225	FOL	78	200							
						0	226										
						0	227										
						1	228	J	23	180	3	1					
						0	229										
						0	230										
						1	231	J	23	140	3	1					
						0	232										
						1	233	J	25	150	1	1					
22	234	244	236'-252' Schist Grey Green banded arseno py +py	100%	100%	1	234	J	25	150	1	1					
						0	235										
						1	236	FOL	80		1	1					
						1	237	FOL	80		1	1					
						0	238										
						0	239										
						1	240	J	15		1.5	1					
						1	241	FOL	88	250	1.5	1					
						1	242	FOL	85	250	2	0.75					
						1	243	FOL	82	270	1.5	1					
1	244	FOL	74	270	1.5	1											

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281  
 Incl: - 45 °  
 Azimuth: 220 °  
 Elevation: Ground surface used as reference

Date Drilled: 3-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 3-Sep-03  
 Northing: 3+25 N  
 Easting: 25+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
23	244	254	Grey-green Schist (banded) +py/arseno py	100%	100%	0	245							R3	W1	Good Clay
						1	246	FOL	75	280	1.5	1	Impression at 244'			
						1	247	FOL	80	270	1.5	1				
						0	248									
						1	249	J	18	165	3	1				
						0	250									
						0	251									
						2	252	FOL	80	200	1	1				
						0	253									
								252'-261.5'								
24	254	264	Greywake (green) grades to sandstone	100%	97%	1	254	B/FOL	80	190	1.5	1		R3	W1	Good Impression at 254'
						1	255	J	70	150	1.5	1				
						0	256									
						1	257	J	63	190	1	1				
						1	258	FOL	78	180	1	1				
						1	259	J	10	190	1.5	1				
						0	260									
						0	261									
						0	262									
						2	263	FOL	80	180	1	0.5				
		261.5'-272'														
25	264	274	Grey-Green Schist some GRWK bands	100%	100%	1	264	FOL	80	240	1.5	1		R3	W1	Poor Impression
						1	265	FOL	80		1.5	1				
						0	266									
						2	267	FOL	80		1	1				
						2	268	FOL	80		1	1				
						0	269									
						0	270									
						1	271	FOL	70	210	2	1				
						1	272	FOL	78	200	2	1				
						2	273	FOL	78	200	2	1				
		272'-273.5'														
26	274	284	Green GRWK Schist	100%	100%	1	274	FOL	80	220	2	1		R3	W1	Back oriented
						2	275	FOL	79	170	1.5	1				
						1	276	FOL	78	170	1.5	1				
						0	277									
						0	278									
						2	279	FOL	85	170	1.5	1				
						0	280									
						2	281	FOL/J	79/40	180/280	1.5/1.5	1/1				
						0	282									
						0	283									
		273.5'-276'														
27	284	294	Schist (Green Banded)	100%	100%	0	284							R3	W1	Poor Impression
						0	285									
						0	286									
						0	287									
						1	288	FOL	80		1.5	1				
						1	289	FOL	70		1.5	1				
						3	290	XJ	70		3	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281 Date Drilled: 3-Sep-03 Date Logged: 3-Sep-03  
 Incl: - 45 ° Drill Rig: Boyles 25 A Northing: 3+25 N  
 Azimuth: 220 ° Drilling Contractor: Connors Easting: 25+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
27	284	294	Schist Grey-Green	100%	100%	0	291										
						2	292	FOL	85		1	1					
						1	293	FX	80		1.5	1					
						1	294	FX	80		1.5	1					
28	294	304	302'-304' Altered Wake	100%	100%	0	295										
						0	296										
						0	297										
						0	298										
						0	299										
						1	300	FOL	80	060	1	0.5					
						0	301										
						2	302	J	43	240/082	1.5	1					
						0	303										
						0	304										
28	294	304	Banded Schist (Greenstone)	100%	100%	0	305										
						1	306	FOL	78	180	1.5	1					
						0	307										
						1	308	FOL	65	140	2	1					
						0	309										
						2	310	FOL	75	040/090	1	1					
						0	311										
						0	312										
						0	313										
						1	314	J	25	070	3	1					
29	304	314		100%	90%	0	315										
						1	316	FOL	76	185	1.5	1					
						2	317	FOL	76	215	1.5	1					
						0	318										
						3	319	J	10	030	3	1					
						1	320	J	15		3	1					
						1	321	J	30		3	1					
						0	322										
						1	323	FOL	85		1.5	1					
						1	324	FOL	85		1.5	1					
30	314	324		100%	91%	0	325										
						1	326	FOL	80		2	1					
						1	327	FOL	76		2	1					
						0	328										
						0	329										
						1	330	FOL	88		2	1					
						0	331										
						2	332	FOL	82	210	2	1					
31	324	334				1	333										
						1	334	FOL	86	225	2	1					
						2	335	FOL	85/80	270/240	1.5	1					
						0	336										

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-281  
 Incl: -45°  
 Azimuth: 220°  
 Elevation: Ground surface used as reference

Date Drilled: 3-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 3-Sep-03  
 Northing: 3+25 N  
 Easting: 25+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments						
									α DIP	β DIRECTION												
32	334	344	Green Schist	100%	100%	2	337	FOL	76	330	1.5	1										
						0	338															
						1	339	FOL	82	180	1.5	1										
						1	340	FOL	82	180	1.5	1										
						2	341															
						0	342	J/FOL	45/90	090/180	1/1.5	2/1										
						0	343															
						0	344															
33	344	354	Green Schist	100%	75%	3	345	FOL	80	000	0.5	1										
						3	346	FOL	85	240	1.5	1										
						0	347															
						3	348	FOL(2)/J	86/25	190/240	0.5/0.5	1/1										
						0	349															
						0	350															
						1	351	FOL	76		1	1										
						1	352	FOL	78		1	1										
						2	353	J/FOL	25/80		3/1	1/2										
						10	354	BC			1	2										
34	354	364	Footwall Siltstone Light Grey	100%	90%	0	355															
						2	356	J/FOL	33/76	070/180	3/0.5	1/2										
						1	357	FOL														
						1	358	FOL	85	150	1	1										
						0	359															
						1	360	FOL/B	82	170	1	2										
						1	361	FOL/B	80	150	1.5	1										
						0	362															
						0	363															
						2	364	FOL/B	81	190	1.5	2/1										
35	364	374	Footwall Siltstone Light Grey	100%	97%	0	365															
						0	366															
						0	367															
						1	368	J	65		3	1										
						0	369															
						0	370															
						0	371															
						0	372															
						1	373	FX	90													
						1	374	FOL	78	000	1.5	1										
36	374	384	Footwall Siltstone Light Grey	100%	100%	1	375	J	44	110	1	1										
						1	376	J	65	180	1	1										
						0	377															
						2	378	FOL	88		1.5	1										
						2	379	FOL	88		1.5	1										
						2	380	FOL	85		1.5	1										
						2	381	FOL	86		1.5	1										
						2	382	FOL	86		1.5	1										
3	383	J																				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



**TABLE 16  
CODING FORM FOR ORIENTED CORE**

**NOTE: Always measure surfaces at BOTTOM of core stick.**

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 5-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 5-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
	0	4	No Overburden Casing, Rhyolite, (alt. K-Feldspar)				1									
							2									
							3									
1	4	14	Rhyolite, R4, W1-2 Pink-Red, Block, with very closely spaced jointing	100%	5%		4	J								
							5	J								
							6	J								
							7	J								
							8	J								
							9	J								
							10	J								
							11	J								
							12	J								
							13	J								
							14	J								
2	14	24		100%	3%		15	J								
							16	J								
							17	J								
							18	J								
							19	J								
							20	J								
							21	J								
							22	J								
							23	J								
							24	J	47,56,25		1.5	1				
3	24	34			35%		25	J	47,23		1.5	1				
							26	J	38,27,27		1.5	1				
							27	J			1	1				
							28	J			1	1				
							29	J	27,23,67		1	1				
							30	J	40		1	1				
							31	J								
							32	J	67,47,23		1	1				
							33	J	50,61,71		1.5	1				
							34	J			1.5	1				
							35	J			1.5	1				
							36	J			1.5	1				
							37	J								
4	34	44		100%	47%		38	J	55		1.5	1/2				
							39	J	15,35,60		1.5	1				
							40	J								
							41	J	55		1.5	2/3				
							42	J								
							43	J	23,50,41		1.5	2				
							44	J	50		1.5	1				
5	44	54					45	J	68		1.5	1				
							46	J	38		1.5	1				
							47	J	78,42		1.5	1				
							48	J	60,28,15		3	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282 Date Drilled: 5-Sep-03 Date Logged: 5-Sep-03  
 Inclination: - 45 ° Drill Rig: Boyles 25 A Northing: 3+24 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 18+50 W  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
5	44	54	Red, m. Grey K-Spar Altered Rhyolite Close to very close Joint Spacing	100%	50%	5	49	J	38/46/68		1.5	2		R4	W1	
						5	50	J	46/46		1.5	2				
						3	51	J	42/42		1	1				
						2	52	J	85		1	2				
						3	53	J	25/90		1.5	1				
						3	54	J								
6	54	64		100%	68%	2	55	J	56		3	1				
						0	56	J								
						2	57	J	55/45		1	1				
						4	58	J	70/75/5/33		1	1				
						2	59	J	75		3	1				
						3	60	J	55/35		3	1				
						2	61	J	55/70		1	1				
						3	62	J	65/38/62		1-3	1				
						2	63	J	20/50		3	1				
						3	64	J	55		3	1				
						7	64	74		100%	75%	1	65	J	51	300
2	66	J	51/20	300/150	1.5							1				
1	67	J	75	045	1.5							1				
2	68	J	66/35	160/250	3/3							1/1				
2	69	J	58/30	030/120	1.5							1				
2	70	J	50/65	270/300	1.5/3							1/1				
1	71	J	45	300	1.5							1				
4	72	J	19/70/46	000/000/130	1/1/1.5							1/1/1				
2	73	J	72/55/30		1.5							1				
3	74	J	55/35	NA/225	1.5							1				
8	74	84		100%	77%							5	75	J		
						1	76	J	45	130	3	1				
						6	77	J			1.5	1				
						4	78	J			1.5	1				
						3	79	J			1.5	1				
						0	80									
						0	81									
						1	82	J	70		1.5	1				
						0	83									
						2	84	J	55/72		1.5	1				
						9	84	94		100%	88%	0	85			
2	86	J	38/20		1.5							1				
3	87	J			1.5							1				
0	88															
1	89	J	65	120	1.5							1				
1	90	J	42	240	1.5							1				
0	91															
0	92															
1	93	J	53	090	1.5							1				
1	94	J	45	110	1.5							2				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282 Date Drilled: 6-Sep-03 Date Logged: 6-Sep-03  
 Incl: - 45 ° Drill Rig: Boyles 25 A Northing: 3+24 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 18+50 W  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
10	94	104	Red, K-spar altered Rhyolite Strong to V. Strong Fresh, wide joint spacing	100%	44%		1	95	J	62		3	1	R4-R5	W1	
							3	96	J							
							5	97	J	60		3	1			
							4	98								
							3	99	J	37	280	1.5	1			
							6	100								
							1	101	J	11	275	1.5	1			
							2	102	J	43	000	1.5	3			
							2	103	J	54/45	310/330	1.5	1			
							2	104	J	44/30	050/240	1.5	1			
11	104	114		100%	84%		2	105	J	24/40	245/030	1.5	1			
							0	106								
							1	107	J	52	010	1.5	1			
							1	108	J	46	340	1.5	1			
							1	109	J	48	000	1.5	1			
							0	110		42	340					
							1	111	J	42	340	1.5	1			
							2	112	J	22/28	330/225	1.5	2			
							3	113	J	32/10/32	315/225/135	1.5	2			
							1	114	J	30	320	1.5	1			
12	114	124		100%	54%		3	115	J	40		1.5	1			
							2	116	J	40		1.5	1			
							0	117								
							0	118								
							0	119								
							2	120	J	42		1.5	1			
							1	121	J	15		1.5	1			
							1	122	J	42		3	1			
							2	123	J	56		1.5	1			
							2	124	J	35		1.5	1			
13	124	134		100%	85%		3	125	J	25/40		1.5	1			
							2	126	J	40/38		1.5	1			
							2	127	J	30		1.5	3			
							0	128								
							3	129	J	28/28/47	200/200/020	3/3/1.5	1			
							1	130	J	50	130	1.5	1			
							0	131								
							0	132								
							0	133								
							0	134								
14	134	144					135									
							136	J	48	050	3	1				
							137	J	25		3	1				
							138	J	30		3	1				
							139	J	30		3	1				
							140	J	45		1.5	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 6-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 6-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
14	134	144	Schist, Wacker bands	100%	86%	0	142							R3-R4	W1		
						0	143										
						1	144	J	37		3	1					
15	144	154	Schist  Wacke occasionally grades to unfoliated Schist	100%	89%	1	145	J	18	190	3	1					
						0	146										
						1	147	FOL	68	200	3	1					
						3	148	FOL/XJ	55/28	030/160	3	1					
						0	149	FOL	61	200	1	1					
						1	150	J	22	180	3	1					
						1	151	J	33	005	3	1					
						1	152	J	50/63	150/350	1.5	1					
						1	153	J	20	115	3	1					
						1	154	J	47	345	1.5	1					
16	154	164		100%	94%	0	155										
						1	156	J	26	270	1.5	1					
						1	157	J			1.5	1					
						0	158										
						0	159										
						0	160										
						0	161										
						1	162	J	60		1.5	2					
						1	163	J	55		1.5	2					
						0	164										
17	164	174	Schist  Wacke	100%	100%	0	165										
						0	166										
						0	167										
						0	168										
						0	169										
						0	170										
						1	171	J	20		3	1					
						0	172										
						0	173										
						1	174	J	30		1.5	1					
18	174	184	Altered Wacke (Schistose)  Wacke  Schist	100%	100%	1	175	J	25	185	1.5	1					
						1	176	J	25		1.5	1					
						2	177	J	80/15		1.5	1					
						0	178										
						0	179										
						1	180	J	15		3	1					
						0	181										
						1	182	J	30		3	1					
						0	183										
						0	184										
0	185																
0	186																
0	187	XJ	28		1.5	1											

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 6-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 6-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
19	184	194	Grey-Green SCHIST some visible mineralization bands	100%	100%	0	188							R3	W1	
						0	189									
						2	190	FOL	33	180	1.5	1				
						1	191	FOL	33	180	1.5	1				
						0	192									
						0	193									
						1	194	J	56	350	3	1				
20	194	204	Wacke	100%	100%	1	195	J	20	000	3	1				
						0	196									
						0	197									
						0	198									
						1	199	J	37	020	3	1				
						1	200	J	20	000	3	1				
						0	201									
						1	202	J/FOL	25	140	1.5	1				
						1	203	J/FOL	25	140	1.5	1				
						0	204									
21	204	214	Schist	100%	89%	1	205	J	25		1.5	1				
						5	206	J	45/37/55		1.5	1				
						2	207	J	28/25		1/3	2/1				
						3	208	J			1.5	1				
						2	209	J	25		1.5	1				
						0	210									
						0	211									
						6	212	J			1.5	1				
						5	213	J			1.5	1				
						4	214	J			1.5	1				
22	214	224	Wacke	100%	79%	BC	215				3	1				
						2	216	J	25	000	3	1				
						1	217	FOL	33	180						
						3	218	J/FOL			1.5	1				
						1	219	XJ	33	180	1.5	1				
						2	220	J/FOL	33/55	000/180	1.5	1				
						1	221	XJ	33	270	1.5	1				
						0	222									
						1	223	XJ	33	270	1.5	1				
						1	224	XJ	45	250	3	1				
23	224	234	Schist	100%	98%	1	225	J	33	000	1.5	1				
						0	226									
						1	227	J	72	080	1	1				
						0	228									
						2	229	J	45/76	060/255	1/1.5	1/1				
						2	230	J	53	225	1.5	1				
						0	231									
						0	232									
						1	233	J	50	220	3	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282 Date Drilled: 6-Sep-03 Date Logged: 6-Sep-03  
 Incl: - 45 ° Drill Rig: Boyles 25 A Northing: 3+24 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 18+50 W  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments			
									α DIP	β DIRECTION									
23	224	234	Schist	100%	100%	0	234							R3-R4	W1				
						2	235	J	75/55	085/120	1.5	1							
						0	236												
						0	237												
						0	238												
						0	239												
24	234	244	Wacke	100%	100%	0	240												
						0	241												
						1	242												
						1	243	J	75		3	1							
						1	244	J	75		1	2							
			Schist	100%	100%	1	245	J	50		1	2							
						1	246	J	75		1	1							
						2	247	J	55/75		2	1							
						0	248												
						1	249	FOL	75		3	1							
						0	250												
25	244	254	Schist	100%	100%	1	251	J	40		1.5	1							
						0	252												
						0	253												
						0	254												
			Wacke	100%	80%	2	255	FOL	78	135	1	1							
						2	256	J	43	120	1.5	1							
						3	257	J	70		1	1							
						1	258	FOL	66		3	1							
						2	259	FOL	58		1.5	1							
						1	260	J	90		1.5	1							
						4	261	J/FOL	50/25/75		1.5/1	1/1							
						1	262	FOL	70		1	1							
						2	263	J	38		1.5	1							
						2	264	J	40/28		1.5	1							
			Schist	100%	51%	10	265	BROKEN CORE				3	3						
						10	266												
						10	267												
						10	268												
						10	269												
						2	270	FX	80		1	3							
						2	271	J	65/45		1.5	3							
						0	272												
						2	273	FOL	81	220	1	0.75							
						2	274	J	55/15	150/100	3	1							
			Wacke	100%	85%	2	275	FOL	86/20	180/285	1.5/1.5	1/1							
						0	276												
						2	277	J	10/38		3	3							
						2	278	FOL/J	80/5		1.5/3	1/1							
						0	279												

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 7-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 7-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
28	274	284	Green Schist	100%	83%	0	280							R3-R4	W1	
						0	281									
						1	282	J	0	000	3	1				
						3	283	J	65/35/45		1.5	1				
						3	284	FOL	86		1.5	3				
29	284	294	Wacke, Grey F-m.gr.	100%	89%	3	285	FOL	76		1.5	1				
						4	286	FOL	76		1.5	1				
						0	287									
						1	288	J	23		3	1				
						0	289									
						1	290	J	36		3	1				
						1	291	J	5		3	1				
						0	292									
						0	293									
						3	294	FOL	75		1.5	1				
30	294	304	Schist	100%	100%	0	295									
						0	296									
						1	297	J	24	350	3	1				
						1	298	J	75	190	3	1				
						1	299	J	23	120	1.5	2				
						0	300									
						0	301									
						0	302									
						0	303									
						0	304									
31	304	314	Wacke	100%	100%	1	305	J	41		1.5	1				
						0	306									
						0	307									
						1	308	J	25		3	1				
						1	309	J	20		1.5	1				
						0	310									
						0	311									
						0	312									
						0	313									
						0	314									
32	314	324	Banded Schist	100%	100%	1	315	J	22		3	2				
						2	316	J	68		1.5	1				
						4	317	J	60/70		1	3				
						2	318	XJ	72		1	1				
						2	319	FOL	58		1	1				
						1	320	FOL	63		1	3				
						4	321	FOL/J	80/10		1/1.5	1/1				
						3	322	FOL	80		1	1				
						0	323									
						1	324	J	15		3	1				
1	325	XJ	70		1	3										

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfiled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 7-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 7-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
33	324	334	Green Schist	100%	100%		1	326	J	40		3	1	R3-R4	W1	
							1	327	J	8		1.5	1			
							0	328								
							2	329	FOL	70		1	1			
							2	330	J	23/60		1	1			
							0	331								
							0	332								
							1	333	FOL	70	310	1	1			
							1	334	J	36	80	1.5	1			
							34	334	344	Schist	100%	100%				
1	336	J	32	130	1.5	1										
0	337															
0	338															
0	339															
2	340	FOL	72	330	1	2										
1	341	J	18	110	1.5	3										
1	342	J	28	120	1.5	1										
1	343	FOL	80	230	3	1										
0	344															
35	344	354	Schist	100%	100%		1	345	FOL	80	270	1.5	1	R3-R4	W1	
							1	346	FOL	72	220	1.5	1			
							1	347	J	15	60	1.5	3			
							1	348	J	25	240	1.5	1			
							0	349								
							0	350								
							0	351								
							0	352								
							1	353	J	45	190	1.5	1			
							0	354								
36	354	364	Schist	100%	100%		0	355						R3-R4	W1	
							0	356								
							1	357	XJ	32	180	2	1			
							3	358	J	45/22/18	210/030/280	1.5/1.5/3	1/1/2			
							0	359								
							1	360	J	18	270	1.5	3			
							3	361	XJ	68/32	240/180	1.5/1.5	1/2			
							0	362								
							1	363	J	41	160	3	1			
							0	364								
37	364	374	Red, K-spar Dyke	100%	100%		0	365						R3-R4	W1	
							1	366	J	54	180	1.5	1			
							2	367	J	60/49		1.5	1			
							1	368	J	58		1.5	1			
							0	369								
							0	370								
							1	371	J	48		3	2			

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282 Date Drilled: 7-Sep-03 Date Logged: 7-Sep-03  
 Incl: - 45 ° Drill Rig: Boyles 25 A Northing: 3+24 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 18+50 W  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
37	364	374	Red Feldspar Porphyry Dyke (K-spar altered)	100%	100%	0	372							R4	W1	
						1	373	J	55		1.5	1				
						1	374	J	25		1.5	1				
38	374	384	Schist	100%	100%	0	375									
						0	376									
						1	377	J	48		1.5	1				
						0	378									
						0	379									
						1	380	J	37		1.5	1				
						1	381	J	37		1.5	1				
						0	382									
						0	383									
						1	384	FOL	65		2	1				
39	384	394	Dyke, Red Fractured Feldspar dyke porphyry	100%	78%	0	385									
						1	386	J	43	180	1.5	1				
						3	387	J	40/41/36	070/240/030	1.5	1				
						1	388	J	41	230	1.5	1				
						0	389									
						2	390	J	28/56	220/100	1.5	1				
						2	391	J	11/44	340/180	1.5	1				
						0	392									
						0	393									
						0	394									
40	394	404		100%	100%	0	395									
						2	396	J	33		1.5	1				
						1	397	J	35		3	2				
						1	398	J	40		1.5	1				
						1	399	J	40		1.5	1				
						1	400	J	67		1.5	1				
						2	401	J	44		1.5	1				
						1	402	J	45		1.5	1				
						2	403	J			1.5	1				
						1	404	J	35		1.5	1				
41	404	414		100%	73%	0	405									
						1	406	J	45		3	1				
						2	407	J	45		3	1				
						1	408	J	60		3	1				
						2	409	J	45/60		1.5	1				
						3	410	J								
						3	411	J	20		1.5	1				
						2	412	J	50/30		1.5	1				
						1	413	J	10		1.5	1				
						1	414	J	45		1.5	1				
42	414	424				3	415	J	50/45/15		1.5	1				
						3	416	J	28		1.5	1				
						1	417	J	28		1.5	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Filled:		Massive	
Rough and wavy	3.0	Unfilled:		Sand/Crushed Rock	4.0	One set	2.0
Smooth and wavy	2.0	Healed Fractures	0.75	Stiff Clay < 5mm	6.0	One plus random	3.0
Rough and planar	1.5	Staining only	1.0	Soft Clay < 5mm	8.0	Two sets	4.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Swell. Clay < 5mm	12.0	Two plus random	6.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Stiff Clay > 5mm	10.0	Three sets	9.0
		Clay coatings	4.0	Soft Clay > 5mm	15.0	Three plus random	12.0
				Swell. Clay > 5mm	20.0	Four or more sets	15.0
				Crushed rock	20.0		

Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ

PROJECT NO. FORTUNE 03-1117-029  
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TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: -45°  
 Azimuth: 200°  
 Elevation: Ground surface used as reference

Date Drilled: 8-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 8-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
42	414	424	Feldspar DYKE Fresh, v.strong closely jointed (k-spar altered) joint surfaces are fresh to grey-green stained	100%	93%	0	418							R5	W1	
						6	419	J			1.5	1				
						2	420	J	28/65	135/350	1.5	1				
						0	421									
						2	422	J	33/38	135/020	3	2				
						2	423	J	37/34	020/120	1.5	1				
						4	424	J	33	130	1.5	1				
						2	425	J	31/48	135/140	1.5/3	1/1				
						1	426	J	44	210	3	1				
						2	427	J	61/44	200/190	1.5	1				
43	424	434		100%	100%	1	428	J	15	335	1	2				
						2	429	J	32/32	020/000	1.5	1				
						0	430									
						0	431									
						1	432	J	30		1.5	1				
						0	433									
						0	434									
						2	435	J	54/23	115/105	1.5	1				
						1	436	J	52	255	1	1				
						1	437	J	55	150	1.5	1				
44	434	444	colour change Grey coloured feldspar DYKE	100%	80%	0	438									
						3	439	J	55/22/30	070/220/340	1.5	3				
						2	440	J	31/45	105/000	1.5	2				
						2	441	J	41/48	320/310	1.5	1				
						2	442	J	68	130	1.5	1				
						0	443									
						3	444	J	45	200	1	1				
						0	445									
						2	446	J	40/25	210/000	1.5/3	1/1				
						1	447	J	43	020	2	2				
45	444	454	DYKE resumes more red colour though some grey	100%	100%	1	448	J	40	175	1	2				
						0	449									
						1	450	J	45	195	1.5	2				
						0	451									
						1	452	J	48	315	3	1				
						1	453	J	36	200	1.5	1				
						0	454									
						0	455									
						2	456	J	44/24	320/030	1.5	2				
						1	457	J	33	240	3	1				
46	454	464		100%	94%	1	458	J	60	330	1.5	2				
						3	459	J	30	195	1.5	1				
						2	460	J	26/49	315/150	1.5	1				
						1	461	J	48	265	2	2				
						0	462									
						1	463	J	58	290	1	2				
						4	464	J	65	290	1	2				

<b>Joint Roughness, Jr:</b>		<b>Joint Alteration, Ja:</b>		<b>Joint Number, Jn:</b>	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 8-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 8-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
47	464	474	Light Organe Feldspar Porphyry DYKE strong to v.strong fresh, mod to wide joint spacing	100%	68%		2	465	J	65/30		1.5	1	R5	W1	
							2	466	J	66		1.5	1			
							2	467	J	38/35		1.5	1			
							2	468	J	55/60		1	1			
							5	469	J	42		1.5	1			
							2	470	J	60/50/25		1	1			
							1	471	J	45		1	1			
							1	472	J	44	280	1	1			
							3	473	J	49/44	235/280	1	2			
							2	474	J	55/28	290/065	1.5	1			
48	474	484		100%	48%		3	475	J	52/55	285/060	1	1			
							4	476	J	46	280	1	1			
							2	477	J	38/35	280/270	1	1			
							3	478	J	40/42	105/280	3	1			
							1	479	J	20	210	3	3			
							4	480	J	45		1	1			
							3	481	J	45		1	1			
							5	482	J	60		1.5	1			
							3	483	J	40		1	1			
							3	484	J	30/45		1.5	1			
49	484	494		100%	80%		6	485	J	40/45		1.5	1			
							4	486	J	65/35		1	2			
							2	487	J	65		1	2			
							3	488	J	39	005	3	1			
							2	489	J	28/60	005/010	3	2			
							1	490	J	43	000	3	2			
							3	491	J	38/38	350/270	3/1.5	2/2			
							1	492	J	28	345	1.5	1			
							1	493	J	45	260	1.5	1			
							2	494	J	57/47	180/270	1.5	2			
50	494	504	Greenstone Schist weakly bonded to massive	100%	79%		1	495	J	33	340	1.5	2	R3-R4	W1	
							2	496	J	33/65	340/160	1.5/3	1/1			
							1	497	J	20	280	2	2			
							5	498	J	42/57	000/180	1.5/3	1/1			
							1	499	J	55	120	1.5	1			
							1	500	FOL	58	280	1.5	1			
							1	501	J	40	110	3	1			
							2	502	FOL	58	300	3	1			
							2	503	FOL	68	260	1.5	1			
							1	504	FOL	65	260	1.5	1			
51	504	514		100%			0	505								
							0	506								
							0	507								
							1	508	J	70	105	1				2
							0	509								
							1	510	J	50	225	1.5				2

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 8-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 8-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
51	504	514	Greenstone SCHIST foliated to massive	100%	100%	1	511	J	55	005	1.5	1	R3-R4	W1		
						0	512									
						1	513	J	66	130	3	2				
						0	514									
52	514	524	Greenstone SCHIST grey WACKE	100%	89%	0	515						R3	W1		
						2	516	J	49/49	110/165	2	1				
						0	517									
						0	518									
						1	519	J	35	020	1.5	2				
						3	520	J	37/13/54	350/275/190	1.5	2				
						0	521									
						0	522									
						3	523	J	44/54/30	010/220/010	1.5	1				
						0	524									
53	524	534	Greenstone SCHIST dark green, massive to weakly foliated	100%	100%	1	525	J	25		1.5	2	R3	W1		
						0	526									
						0	527									
						0	528									
						1	529	J	25		1.5	2				
						0	530									
						1	531	J	38		3	1				
						0	532									
						0	533									
						0	534									
54	534	544	Same as before, mod. Foliated	100%	63%	2	535	J	28		1.5	1	R3	W1		
						3	536	J/FOL	13/75		1.5	1				
						0	537									
						2	538	J	58/25		3	2				
						4	539	J	65/20/24		3	2				
						2	540	J	26		1.5	1				
						0	541									
						2	542	J	45/25		1.5	1				
						1	543	J	34		1.5	2				
						2	544	J	30/32	280/120	3/1.5	1/2				
55	544	554	Same as before, mod. Foliated	100%	91%	0	545						R3	W1		
						3	546	J	35/15/25	000/230/350	3/1.5	1/1				
						0	547									
						3	548	J	40/20/32	340/220/070	1/1/3	1/1/1				
						1	549	J	14	250	1	2				
						1	550	J	17	250	1	2				
						0	551									
						1	552	J	16	055	1.5	2				
						0	553									
						1	554	J	23	060	1.5	1				
0	555															
						2	556	FOL	80/65	150/320	1	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 9-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 9-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
56	554	564	WACKE Greenstone SCHIST	100%	100%	0	557							R3-R4	W1	
						1	558	J	42	270	1	1				
						0	559									
						0	560									
						1	561	J	18	120	1	2				
						1	562	J	10	045	1.5	1				
						0	563									
57	564	574	Massive Schist or alt. Wacke Greenstone SCHIST	100%	98%	1	564	J	20		1	1				
						0	565									
						0	566									
						2	567	FOL	80		2	1				
						1	568	J	18		3	2				
						0	569									
						0	570									
						3	571	J	60/40/30		1.5	2				
						1	572	FOL	85		2	1				
						1	573	J	60		3	1				
58	574	584	Greenstone SCHIST	100%	96%	1	574	J	45		3	1				
						1	575	J	15		3	1				
						1	576	J	35		2	1				
						0	577									
						0	578									
						1	579	J	35		2	1				
						0	580									
						2	581	J/FOL	83		1	1				
						2	582	FOL	80		1.5	1				
						2	583	FOL	83		1	1				
59	584	594	Green Wacke	100%	96%	2	584	J/FOL	45/80		1/1	3/1				
						1	585	FOL	78		1.5	1				
						1	586	J	30		1.5	1				
						0	587									
						0	588									
						0	589									
						0	590									
						0	591									
						0	592									
						2	593	FOL/J	86/20		1.5/3	1/1				
60	594	604	Veined Greywacke	100%	100%	1	594	J	40		1	1				
						0	595									
						2	596	J	60/20		1/1.5	3/1				
						0	597									
						0	598									
						0	599									
0	600															
0	601															
0	602															

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: ground surface used as referen

Date Drilled: 9-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 9-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments			
									α DIP	β DIRECTION									
60	594	604	Grey to Green Greywacke	100%	100%	2	603	FOL	83		1.5	1		R3	W1				
						0	604												
61	604	614	Greenstone SCHIST	100%	100%	1	605	J	35		1.5	1							
						0	606												
						0	607												
						0	608												
						0	609												
						0	610												
						0	611												
						1	612	FOL	70							2	1		
						0	613												
						0	614												
62	614	624	Grey Greenwacke Occasional Schisty zone	100%	100%	0	615												
						0	616												
						0	617												
						0	618												
						0	619												
						0	620												
						0	621												
						1	622	FOL	78							2	2		
						0	623												
						0	624												
63	624	634	Greenstone Schist Foliated, joints widely spaced	100%	100%	0	625												
						0	626												
						1	627	CON	56						1	1			
						1	628	J	45						3	1			
						0	629												
						0	630												
						0	631												
						0	632												
						0	633												
						1	634	J	35						3	1			
64	634	644		100%	100%	0	635												
						0	636												
						1	637	J	25						2	2			
						3	638	J	10/25/54						1.5	1			
						1	639	J	45						3	1			
						0	640												
						0	641												
						0	642												
						0	643												
						0	644												
65	644	654		100%	100%	2	645	FOL/J	80/80	270/090	3/1	1/2							
						2	646	FOL	85/68	180/180	1/3	1/3							
						0	647												
						0	648												

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 9-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 9-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
65	644	654	Greenstone SCHIST Foliated, Joint spacing moderate to wide			0	649							R3	W1	
						0	650									
						0	651									
						1	652	J	23	010	3	1				
						0	653									
						1	654	FOL	60	080	3	1				
66	654	664				0	655									
						2	656	FOL	76	220	1	2				
						0	657									
						0	658									
						0	659									
						1	660	FOL	85	340	1	0.5				
67	664	674		100%	100%	1	661	J	26	000	3	1				
						0	662									
						0	663									
						0	664									
						1	665	FOL	90	000	1.5	1				
						0	666									
68	674	684	Grey Greywacke			0	667									
						1	668	J	16		1.5	1				
						0	669									
						0	670									
						0	671									
						0	672									
69	684	694	Greenstone SCHIST	100%	100%	0	673									
						0	674									
						0	675									
						0	676									
						1	677	FOL	89		1	1				
						1	678	J	49		2	1				
69	684	694	Greenstone SCHIST	100%	100%	0	679									
						0	680									
						0	681									
						2	682	J	10/45		2	1				
						2	683	J	45	020	1	2				
						0	684									
69	684	694	Greenstone SCHIST	100%	100%	0	685									
						1	686	J	28		3	1				
						0	687									
						0	688									
						0	689									
						1	690									
69	684	694	Greenstone SCHIST	100%	100%	1	691	FOL	83		1	1				
						0	692									
						0	693									
						0	694									

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 9-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 9-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
70	694	704	Greenstone SCHIST	100%	100%	1	695	FOL	81		2	1	R3-R4	W1		
						3	696	FOL	78		2	2				
						0	697									
						0	698									
						0	699									
						1	700	J	23		1	2				
						0	701									
						1	702	J	40		3	1				
						0	703									
						0	704									
71	704	714	Greenstone massive to v.weak foliated Schist	100%	100%	0	705						R3-R4	W1		
						1	706	J	45		1.5	1				
						2	707	FOL/J	85/53		2	2				
						0	708									
						1	709	J			1	2				
						2	710	FOL	85							
						1	711	FOL	85		2	2				
						0	712									
						1	713	J	32	120	1.5	1				
						1	714	J	30	116	3	1				
72	714	724	Greenstone SCHIST	100%	100%	0	715						R3-R4	W1		
						0	716									
						0	717									
						0	718									
						0	719									
						2	720	FOL	85		1	2				
						2	721	FOL	90		1	2				
						0	722									
						0	723									
						0	724									
73	724	734	Greenstone SCHIST	100%	94%	0	725						R3-R4	W1		
						0	726									
						2	727	J	45/30		1.5	2				
						1	728	FOL	90		1.5	1				
						2	729	FOL	85		2	2				
						0	730									
						2	731	FOL/J	85/55		2	2				
						1	732	J	27		3	2				
						0	733									
						0	734									
74	734	744	Greenstone SCHIST	100%	94%	0	735						R3-R4	W1		
						2	736	J/FOL	55/78	165/250	2/1	1/1				
						0	737									
						2	738	FOL	80	235	2	2				
						1	739	J	47	065	3	1				
1	740	FOL	83	270	1	2										

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-282  
 Incl: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 10-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 10-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
74	734	744	Greenstone SCHIST	100%	95%	1	741	FOL	79	235	2	2		R3	W1	
							742	FOL	79	230	2	2				
							743	J/FOL	30/83	040/050	1.5/2	2/1				
75	744	754	Greenstone SCHIST with pink-orange 1mm to 5mm bands (on foliation)	100%	93%	0	744									
							745	J	35	185	1	2				
							746									
							747									
							748									
							749	FOL	80	120	1	1				
							750									
							751									
							752									
							753	FOL	85	215	1	1				
76	754	764	Greenstone SCHIST with 1mm-5mm pink-orange bands (on foliation)	98%	98%	2	754	FOL	85	215	1.5	1				
							755									
							756	FOL	84	215	2	1				
							757	FOL	76	215	2	1				
							758	FOL			1	2				
							759									
							760									
							761	FOL			2	1				
							762	J			1	3				
							763	FOL			1	3				
77	764	774	Greenstone SCHIST with 1mm-5mm pink-orange bands (on foliation)	100%	100%	0	764									
							765									
							766									
							767	FOL			2	2				
							768	FOL	87		2	2				
							769	FOL	80		1	2				
							770									
							771	FOL	80		1	2				
							772									
							773									
78	774	784	Greenstone SCHIST with 1mm-5mm pink-orange bands (on foliation)	100%	100%	1	774									
							775	FOL	65	180	3	1				
							776	FOL	65	160	1.5	1				
							777									
							778									
							779	FOL	81	150	1	2				
							780	J/J	28/28	020/160	3/3	1/1				
							781	FOL	75	180	2	1				
							782									
							783	J	30	215	3	1				
							784	FOL	78	180	2	2				
							785	FOL	80		2	2				
							786	J	55		2	2				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



**TABLE 16  
CODING FORM FOR ORIENTED CORE**

**NOTE: Always measure surfaces at BOTTOM of core stick.**

Hole No: Nico-03-282  
 Inclination: - 45 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 10-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 10-Sep-03  
 Northing: 3+24 N  
 Easting: 18+50 W  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
79	784	794	Greenstone SCHIST	100%	89%	2	787	FOL/J	80/36		1/1	2/1	R3	W1		
						1	788	FOL	70		1	2				
						0	789									
						0	790									
						0	791									
						1	792	FOL	58		1	2				
						1	793	FOL	68		2	2				
						2	794	FOL	75		2	2				
80	794	804	Wacke Siltstone  Breccia F.A. Porphyry Angular Fragments in a Schistose to Wacke Matrix	100%	100%	0	795						R3	W1		
						1	796	J	58		1	2				
						1	797	J	58		3	2				
						0	798									
						0	799									
						3	800	FOL/J	75/65/50		3/3	2/3				
						2	801	FOL	90	000	3	1				
						0	802									
81	804	814	Wacke Siltstone  Breccia F.A. Porphyry Angular Fragments in a Schistose to Wacke Matrix	100%	100%	0	803						R3	W1		
						2	804	J	56/35	000/105	2/3	2/1				
						0	805									
						1	806	J	58	175	3	1				
						0	807									
						0	808									
						1	809	J	65	000	1.5	3				
						0	810									
82	814	824	Wacke Siltstone  Breccia F.A. Porphyry Angular Fragments in a Schistose to Wacke Matrix	100%	100%	1	811	J	56	015	3	1	R3	W1		
						0	812									
						1	813	J	70	140	3	1				
						0	814									
						2	815	J	56	125	1.5	1				
						1	816	J	60	130	1	2				
						0	817									
						1	818	J	41	110	3	1				
83	824	834	Wacke Siltstone  Breccia F.A. Porphyry Angular Fragments in a Schistose to Wacke Matrix	100%	100%	0	819						R3	W1		
						1	820	J	28	260	3	3				
						0	821									
						0	822									
						2	823	J	47	150	1.5	2				
						0	824									
						1	825	J	23	135	3	3				
						0	826									
83	824	834	Wacke Siltstone  Breccia F.A. Porphyry Angular Fragments in a Schistose to Wacke Matrix	100%	100%	1	827	J	45	175	3	1	R3	W1		
						1	828	J	58	210	1.5	2				
						0	829									
						0	830									
						0	831									
						0	832									
						0	833									
						0	834									

<b>Joint Roughness, Jr:</b>		<b>Joint Alteration, Ja:</b>		<b>Joint Number, Jn:</b>	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO.: 03-1117-029  
 LOGGED BY: Marc Rougier  
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**Type:**  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 12-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 12-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
1	0	15	Rhyolite red, fresh, v.strong joint surface fresh to grey stained, planar, smooth to rough	100%	66%	0	1							R5	W1	
						0	2									
						5	3	J	30/45	1	2					
						2	4	J	78	1	2					
						2	5	J	65	1	2					
						4	6	J	45	1	2					
						2	7	J	55	1	2					
						2	8	J	30	1	2					
						0	9									
						3	10	J	68	1	2					
						0	11									
						2	12	J	40	1	2					
						3	13	J	68	1	2					
						5	14	J								
						2	15	J	65/128	1	2					
2	15	25		100%	83%	0	16									
						1	17	J	58	1	2					
						1	18	J	35	1	1					
						2	19	J	35/23	1	2					
						2	20	J	85	1.5	1					
						0	21									
						0	22									
						0	23									
						0	24									
						1	25	J	80	2	2					
3	25	35		100%	80%	0	26									
						0	27									
						0	28									
						0	29									
						0	30									
						0	31									
						1	32	J	15	1	2					
						3	33	J	77/5/5	1	2					
						1	34	J	28	010	1.5	1				
						0	35									
4	35	45				3	36	J	BC	1.5	1					
						3	37	J	5	1.5	2					
						3	38	J	1	1	2					
						3	39	J	3/43	1	2					
						3	40	J	3/43	1	2					
						0	41									
						1	42	J	1	2	1					
						1	43	J	75	1.5	1					
						0	44									
						0	45									

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 12-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 12-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
5	55	65	Rhyolite red, strong to v.strong fresh 50' Breccia/Contact Zone Rhyolite Clasts in Greenstone Greenstone Wacke 55'	100%	50%	1	46	J	80	270	2	2	R5	W1		
						1	47	J	85	085	3	2				
						1	48	J	65		2	2				
						2	49	J	70		2	2				
						2	50	J	70		1.5	2				
						3	51	J	70		1.5	2				
						3	52	J	72		1.5	3				
						1	53	J	20		2	2				
						1	54	J	18		2	2				
						3	55	J	66/20	210/330	1.5/2	1/1				
6	65	75	Schistose/ Altered Grewacke/ Schistose/ 63' Grey Greywacke py/arcemopy	100%	100%	0	56						R3	W1		
						1	57	J	25	120	2	2				
						0	58									
						0	59									
						0	60									
						1	61	J	80		3	1				
						0	62									
						0	63									
						0	64									
						0	65									
7	75	85	Grey Greywacke py/arcemopy	100%	100%	0	66						R4	W1		
						1	67	J	15		3	1				
						1	68	J	10		2	1				
						0	69									
						0	70									
						1	71	J	55		1.5	1				
						0	72									
						0	73									
						2	74	J	78/75							
						1	75	J	68		1.5	1				
8	85	95	Banding/foliation apparent in Wacke	100%	100%	0	76						R4	W1		
						1	77	J	20	320	2	2				
						0	78									
						1	79	J	15	150	1.5	2				
						2	80	J/FOL	28/58	320/180	3	2				
						0	81									
						1	82	FOL	63	180	1	2				
						0	83									
						2	84	J/FOL	3/60	000/195	2/2	2/1				
						0	85									
9	95	105		100%	100%	0	86					R4	W1			
						0	87									
						0	88									
						0	89									
						1	90	FOL	72	180	2				1	
						1	91	FOL	56	180	3				2	

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 12-Sep-03 Date Logged: 12-Sep-03  
 Incl: - 65 ° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
9	95	105	Bedded (foliated) light grey WACKE	100%	100%	1	92	FOL	58	170	1.5	3		R3-R4	W1	
						0	93									
						0	94									
10	105	115	Schist 95'-95.75'	100%	100%	1	95	J	40	050	2	2				
						1	96	FOL	63	165	1	2				
						0	97									
						0	98									
						1	99	J	51	180	3	1				
						0	100									
						0	101									
						0	102									
						1	103	J	45		2	1				
						1	104	J	3		1.5	1				
11	115	125	Schist	100%	100%	1	105	FOL	55		1.5	1				
						1	106	FOL	55		1.5	1				
						0	107									
						1	108	FOL	68		1	1				
						0	109									
						0	110									
						1	111	FOL/J	33	200	3	1				
						1	112	J	18	165	1.5	1				
						0	113									
						1	114	J	18	165	1.5	1				
12	125	135	Schist, green	100%	100%	1	115	J/FOL	4/80	090/240	3/1.5	1/1				
						1	116	J	45	300	3	2				
						0	117									
						0	118									
						2	119	J/FOL	30/69	000/170	3/1.5	1/1				
						1	120	FOL	40	180	1	1				
						0	121									
						0	122									
						0	123									
						0	124									
13	135	145	WACKE	100%	100%	1	125	J	14		3	2				
						2	127	J/FOL	36/6	005/190	3/1.5	1/1				
						1	128	FOL	56	190	1	1				
						1	129	FOL	60	175	1	4				
						1	130	J	20		1	2				
						0	131									
						0	132									
						0	133									
						2	134	FOL/J	68/15		3/1	1/2				
						2	135	FOL	58		1.5	1				
14	145	155	WACKE	100%	100%	1	136	FOL								
						1	137	FOL	62		1.5	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 13-Sep-03 Date Logged: 13-Sep-03  
 Incl: - 65° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
14	145	155	Wacke Weak SCHIST  WACKE Grey m.gr. foliated to massive	100%	83%	2	138	J	25/38		1.5	1		R4	W1	
						1	139	FOL	54		1.5	1		R2	W2	
						6	140	FOL	54		1	1				
						1	141	FOL								
						2	142	FOL/J	80/30		3	1		R3-R4	W1	
						0	143									
						1	144	FOL	68		1	2				
15	155	165		100%	100%	0	145									
						0	146									
						0	147									
						0	148									
						1	149	FOL	70	160	1.5	1				
						0	150									
						0	151									
						2	152	FOL/J	62/38	150/330	1.5/2	2/2				
						2	153	FOL	62	160	1	2				
						1	154	J	45	000	1.5	1				
16	165	175		100%	100%	1	155	J	30	120	1.5	1				
						0	156									
						2	157	J/FOL	35/50	325/145	1.5/2	1/2				
						1	158	J	37	085	2	2				
						0	159									
						0	160									
						0	161									
						1	162	J	5	325	3	1				
						1	163	J	38	185	1.5	1				
						0	164									
17	175	185	Schist Wacke Schist Wacke Schist	100%	100%	0	165									
						0	166									
						0	167									
						0	168									
						0	169									
						0	170									
						2	171	FOL	58	185	1	1				
						2	172	FOL/J	58/35	185/170	1/3	1/2				
						0	173									
						0	174									
18	185	195	Wacke	100%	100%	1	175	FOL	50	180	3	1				
						1	176	FOL	65	180	1.5	1				
						2	177	FOL	58/65	180/180	1/1	1/1				
						0	178									
						0	179									
						0	180									
						0	181									
2	183	FOL/J	55/28	180/140	1.5	1										

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 13-Sep-03 Date Logged: 13-Sep-03  
 Incl: - 65° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments					
									α DIP	β DIRECTION											
18	185	195	Light grey, m.gr. massive to weakly foliated GREYWACKE	100%	100%	1	185	J	32	020	1.5	2		R3-R4	W1						
							0	186													
							0	187													
19	195	205			100%	100%	0	188													
							0	189													
							0	190													
							0	191													
							0	192													
							0	193													
							0	194													
							2	195	J/FOL	23/59	070/180	3/1	1/2								
20	205	215		Foliated Greenstone SCHIST	100%	100%	2	196	FOL/J	50/30	180/120	1/1.5	2/1								
			1				197	FOL	50	180	1	2									
			2				198	FOL	65	185	1	2									
			0				199														
			2				200	FOL	53/60	175	2	1									
			1				201	FOL	60	175	2	1									
			0				202														
			0				203														
			0				204														
			0				205														
21	215	225	Greywacke	100%	92%	0	206														
						0	207														
						0	208														
						4	209	J	58/40		1.5/1.5	1/1									
						1	210	J	45		3	1									
						0	211														
						3	212	FOL/J/J	65/42/26		1.5/1.5/1	1/1/2									
						2	213	J/FOL	25/72		1.5/1	1/2									
						0	214														
						0	215														
22	225	235	Greywacke	100%	100%	0	216														
						0	217														
						5	218	J/FOL	36/65		1.5/1.5	1/1									
						0	219														
						0	220														
						0	221														
						0	222														
						1	223	FOL	65		1	1									
						0	224														
						1	225	J	10	180	3	2									
23	235	245	Greywacke	100%	100%	1	226	FOL	60	180	2	2									
						1	227	J	78	310	1	2									
						1	228	J	55	055	1.5	2									
						0	229														
						0	230														

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 13-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 13-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments						
									α DIP	β DIRECTION												
23	235	245	Greywacke	100%	100%	0	231															
						0	232															
						1	233	J	18	190	1	2										
						1	234	FOL	63	190	1.5	1										
						1	235	FOL	63	190	1.5	1										
24	245	255	Greywacke	100%	100%	1	236	J	5	080	1.5	1										
						0	237															
						0	238															
						0	239															
						1	240	J	50	000	1	2										
						0	241															
						0	242															
						0	243															
						0	244															
						1	245	J	58	020	1.5	1										
25	255	265	Greywacke	100%	91%	1	246	FOL	58	210	2	1										
						1	247	J	25	030	3	1/2										
						0	248															
						0	249															
						2	250	FOL	53	180	1.5	1										
						0	251															
						3	252	J	25/56/65	090/010/335	5/1.5/1	2/1/1										
						0	253															
						2	254	J	47	105	2	1										
						2	255	J	35	090	1	2										
26	265	275	Broken Core	100%	90%	0	256															
			1			257	J	55	080	3	2											
			1			258	J	44	080	2	2											
			2			259	J	35/31	120/300	2	2											
			0			260																
			1			261	J	22		3	2											
			3			262	J	31/20/40		1.5	2											
			0			263																
			1			264	J	52		1	1											
			0			265																
27	275	285	Greywacke	100%	91%	1	266	J/FOL	45		1.5	1										
						0	267															
						0	268															
						1	269	J	51		1.5	1										
						3	270	J	50/50/45		1.5	1										
						0	271															
						1	272	J	55		1.5	1										
						1	273	J	65		1.5	1										
						2	274	J	50/15		1.5/1	1/3										
						0	275															
1	276	J	70	070	1.5	1																

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 13-Sep-03 Date Logged: 13-Sep-03  
 Incl: - 65 ° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
28	275	285	Wacke, grey, veined	100%	78%			J	49	075	3	1		R4	W1	
									50	000	1.5	1				
									40/47/66	280/120/260	1.5	1/3				
									58/18	315/105	1.5/2	1/1				
									40	285	2	1				
			Schist						70/55/65		1.5/1/1.5	1/4/1				
									30/45		1/1	1/2				
29	285	295	Wacke	100%	100%			J	15	180	3	2				
									23	109	1	2				
30	295	305	Wacke	100%	67%			J	20	120	1.5	1				
									20	120	1.5	1				
									26	180	2	1				
									51	330	1.5	1				
									30/35	005/025	3/3	1/1				
									22	130	1.5	1				
									65/37/60	210/315/020	1.5	1				
									65	210	1.5	1				
									52/31/15	020/170/000	3/1.5	1				
31	305	315	Wacke	100%	63%			J			1.5	1				
									58/52		3	1				
									36/50/61		1.5	1				
			Black Schist						53		1.5	1				
									52/25/50		3	1				
									60/33		1.5	1				
32	315	325	Wacke					FOL	47/10/55		1.5	1				
									25/40/48/70		1.5	1				
									Broken Core							
			Broken Core													
			Red Schist						80		3	2				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 7 OF 21

Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 16-Sep-03 Date Logged: 16-Sep-03  
 Incl: - 65° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments							
									α DIP	β DIRECTION													
32	315	325	Red Schist			0	323																
			4			324																	
33	325	335	Green Schist	100%	89%	1	325	FOL	60		1	2											
			Wacke			0	326																
						0	327																
			0			328																	
			1			329	J	37		1.5	1												
			1			330	FOL	58		1	1												
			0			331																	
			1			332	J	40		1	1												
			0			333																	
			4			334	J	55/35		1	1												
2	335	J	43/65		1.5	1																	
34	335	345	Green Schist grading to light green foliated	100%	90%	0	336																
						0	337																
						0	338																
						0	339																
						0	340																
						2	341	FOL	70/65		1	1											
						1	342	J	55		1.5	1											
						3	343	J	48/65/45		1.5	1											
						0	344																
						1	345	FOL	58	180	1.5	1											
35	345	355	Wacke transition zone	100%	84%	1	346	J	15	160	2	1											
						1	347	J	42	050	1.5	1											
						1	348	J	55	010	1.5	1											
						0	349																
						1	350	J	21	245	3	1/2											
						3	351	J	75/56	000/180	1	1											
						3	352	J	25/65		1	1											
						1	353	J	65		1	1											
36	355	365	Green Schist	100%	58%	1	354	FOL	60		1	1											
						1	355	FOL	60		1	1											
						3	356	FOL	55		1	1											
						2	357	J/FOL	40/75		1	1											
						1	358	J	50		1.5	1											
						0	359																
						2	360	J	15/45		1	1											
						3	361	FOL/J	55/42		1	1											
37	365	375	Gouge (4mm) @ 362'	100%	58%	4	362	FOL/J	65/55		1	1											
						2	363	J	65		1.5	1											
						4	364	J	65/50/35	000/000/NA	3	1											
						2	365	J	58/55	000	1.5	1											
						2	366	J	50/10	010/275	1.5/1.5	1/1											
						2	367	J	30/37	150/020	1.5	1											
37	365	375	Wacke	100%	58%	2	368	J	43/50	195/310	1.5	1											
						2	368	J	43/50	195/310	1.5	1											

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 13-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 13-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
37	365	375	Green Schist	100%	87%	2	369	J	80/13	350/340	1/2	1/1					
						0	370										
						1	371	J	30	350	1.5	1					
						1	372	FOL	58	150	2	1					
						1	373	FOL	58	150	2	1					
						1	374	J	60	355	2	1					
						2	375	J	68	005							
38	375	385	Green Schist	100%	83%	1	376	J	55		1	1					
						2	377	FOL/J	55/0		1/1	1/1					
						1	378	FOL	45		1	1					
						4	379	J	58/0/35/40		3	1					
						1	380	FOL	55		1.5	1					
						0	381										
						1	382	FOL	65		3	1					
						2	383	FOL	56		1	2					
						2	384	FOL/XJ	54/32		1/3	1/1					
						1	385	J	35		3	1					
39	385	395	Wacke	100%	83%	2	386	FOL/XJ	43/51		3/1	1/1					
						3	387	J	45		1.5	1					
						1	388	J	50		1.5	1					
						1	389	FOL	50		2	1					
						1	390	J	50		1.5	1					
			1			391	J	63		1.5	1						
			1			392	J/FOL	54/58	180/015	3/1	1/1						
			1			393	J	58	015	1	1						
			4			394	J	55	000	1.5	1						
			1			395	J	47	000	1	2						
40	395	405	Schist	100%	100%	1	396	J	67	000	2	1					
						1	397	J	60	000	2	1					
						1	398	J	60	010	1.5	1					
						1	399	FOL	55	160	3	1					
						0	400										
			1			401	J	50	320	2	1						
			2			402	J	45	320	1.5	1						
			1			403	FOL	62	170	1.5	1						
			1			404	J	30	145	3	1						
			0			405											
41	405	415	Wacke	100%	100%	1	406	J	38	060	3	1					
						0	407										
						0	408										
						1	409	J	58	170	2	1					
						1	410	J	44	000	1.5	1					
			0			411											
			2			412	J	25	220	3	1						
			1			413	J	48	175	1	2						
			0			414											

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 13-Sep-03 Date Logged: 13-Sep-03  
 Incl: - 65° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments			
									α DIP	β DIRECTION									
41	405	415	Green Schist	100%	83%	0	415												
						0	416												
						1	417	J	36	255	3	1							
						2	418	FOL	60/52	160/195	1.5/1	1/2							
						1	419	J	50	210	1	1							
						1	420	FOL	50	185	1	1							
						3	421	FOL	50/60	185/170	1	1							
						1	422	FOL	60	180	1.5	1							
						3	423	FOL	60	165	1	1							
						3	424	FOL	52	180	1	1							
42	415	425	Wacke	100%	83%	3	425	FOL	45	170	1	1							
						2	426	FOL	70	180	1	3							
						1	427	J	75	120	1.5	1							
						0	428												
						0	429												
						0	430												
						1	431	J	60	180	1.5	1							
						1	432	J	30	015	1.5	2							
						0	433												
						3	434	FOL	66	180	1.5	1							
43	425	435	Greenstone Schist with wacke	100%	100%	0	435												
						2	436	FOL	60	180	1.5	1							
						0	437												
						0	438												
						1	439	FOL	65	175	1.5	1							
						0	440												
						1	441	FOL	65	175	1.5	1							
						0	442												
						0	443												
						1	444	FOL	65	165	1.5	1							
44	435	445	Schist	100%	100%	2	445	FOL	65	165	3	1							
						1	446	J	48	075	1.5	1							
						2	447	FOL	58	175	1.5	2							
						0	448												
						0	449												
						0	450												
						1	451	J	30	005	1.5	1							
						1	452	FOL	60	165	3	1							
						1	453	FOL	63	185	3	1							
						1	454	FOL	63	170	3	1							
45	445	455	Greywacke	100%	100%	0	455												
						0	456												
						1	457	FOL	47	195	1	2							
						0	458												
						0	459												
						0	460												
						1	461												
						1	462												
						1	463												
						1	464												
46	455	465	Schist	100%	100%	0	465												
						0	466												
						0	467												
						0	468												
						0	469												
						0	470												
						0	471												
						0	472												
						0	473												
						0	474												

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 14-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 14-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
46	455	465	Wacke	100%	100%	1	461	FOL	65	180	1.5	1		R3	W1	
						0	462									
						0	463									
						1	464	FOL	50	190	2	1				
						0	465									
47	465	475	Wacke	100%	100%	0	466							R3	W1	
						1	467	FOL/J	53/68	175/000	1.5/1.5	1/1				
						0	468									
						0	469									
						0	470									
						1	471	J	30	010	1.5	1				
						1	472	FOL	57	173	1.5	1				
						1	473	FOL	55	190	1.5	1				
						0	474									
						0	475									
48	475	485	Schist stained and stron black and green foliation banding	100%	100%	2	476	FOL	53	180	1.5	1		R3	W1	
						1	477	FOL	57	185	1	1				
						0	478									
						0	479									
						3	480	FOL	56	180	1	2				
						2	481	J/FOL	22/58	035/185	3/1	1/2				
						3	482	FOL	56	180	1.5/1	2/2				
						0	483									
						1	484	FOL	56	180	1.5	1				
						1	485	FOL	66	180	1.5	1				
49	485	495	light green Schist foliated to massive	100%	100%	0	486							R3	W1	
						0	487									
						0	488									
						0	489									
						0	490									
						0	491	FOL	61	180	1.5	1				
						0	492									
						0	493									
						1	494	FOL	55	180	1.5	1				
						0	495									
50	495	505		100%	100%	0	496							R3	W1	
						0	497									
						0	498									
						1	499	FOL	60	180	1	1				
						0	500									
						0	501									
						2	502	J/FOL	22/66	160/180	1/1	2/1				
						0	503									
						1	504	J	60	180	1	2				
						0	505									
0	506															

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 11 OF 21

Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 14-Sep-03 Date Logged: 14-Sep-03  
 Incl: - 65 ° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
51	505	515	Greenstone Schist	100%	100%	0	507							R3	W1		
						0	508										
						0	509										
						1	510	J	11	130	1.5	2					
						0	511										
						1	512	FOL	65	170	1.5	1					
						0	513										
						0	514										
52	515	525	Greenstone Schist	100%	100%	1	515	J	40	030	2	2					
						0	516										
						0	517										
						0	518										
						0	519										
						1	520	J	35	320	1.5	1					
						0	521										
						0	522										
53	525	535	Greenstone Schist	100%	100%	0	523										
						0	524										
						0	525										
						0	526										
						1	527	FOL	64	190	1.5	1					
						0	528										
						0	529										
						2	530	FOL	61	180	1.5	2					
54	535	545	Greenstone Schist	100%	100%	0	531										
						0	532										
						0	533										
						1	534	FOL	66	175	1.5	1					
						0	535										
						0	536										
						3	537	FOL	76	210	2	1					
						1	538	FOL	66	240	1	1					
55	545	555	Wacke Greenstone Schist	100%	100%	1	539	FOL	73	210	1	1					
						0	540										
						0	541										
						0	542										
						0	543										
						1	544	J	25	020	3	1					
						0	545										
						1	546	FOL	64	170	3	1					
55	545	555	Greenstone Schist	100%	100%	0	547	FOL	64	170	3	1					
						0	548										
						0	549	FOL	69	170	3	1					
						0	550										
						0	551										
						0	552	FOL	70	160	2	1					

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 12 OF 21

Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 15-Sep-03 Date Logged: 15-Sep-03  
 Incl: - 65 ° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
55	545	555	Greenstone Schist	100%	100%	1	553	FOL	63	180	2	1		R3	W1	
						1	554	FOL	68	185	1.5	1				
						1	555	FOL	68	185	1.5	1				
56	555	565	Greenstone Schist	100%	100%	0	556									
						0	557									
						0	558									
						0	559									
						1	560	J	15	300	1.5	2				
						0	561									
						0	562									
						0	563									
						1	564	FOL	67	185	1.5	1				
						1	565	FOL	67	185	2	1				
57	565	575	Greenstone Schist	100%	100%	1	566	FOL	70		1	2				
						1	567	FOL	69		1	2				
						0	568									
						0	569									
						0	570									
						0	571									
						0	572									
						0	573									
						0	574									
						0	575									
58	575	585	Greenstone Schist	100%	100%	0	576									
						1	577	J	20	135	1	2				
						0	578									
						0	579									
						1	580	J	16	265	1	2				
						0	581	FOL	61	180	2	1				
						0	582									
						0	583									
						0	584									
						0	585	J	25		1.5	2				
59	585	595	Greenstone Schist	100%	100%	0	586									
						1	587	XJ	58	000	1.5	1				
						0	588									
						0	589									
						1	590	XJ	52	000	1.5	1				
						1	591	FOL	58	180	1	2				
						1	592	J	37	270	1	1				
						1	593	XJ	55	000						
						1	594	J	35	075	3	1				
						1	595	XJ	53	000	1	1				
60	595	605	Greenstone Schist	100%	100%	2	596	XJ/FOL	62/62	000/180	1.5/2	1/1				
						1	597	FOL	58	180	2	2				
						2	598	FOL	58							

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

**Type:**  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 14-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 14-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
60	595	605	Greenstone Schist	100%	100%	10	599		Broken Core		3	1		R3	W1	
						3	600	FOL			1	1				
						10	601		Broken Core		3	1				
						10	602		Broken Core		3	1				
						10	603		Broken Core		3	1				
						1	604	J			3	1				
						10	605		Broken Core		3	4				
61	605	615	Greywacke	100%	100%	10	606		Broken Core		3	1		R3	W1	
						10	607		Broken Core		3	1				
						10	608		Broken Core		3	1				
						10	609		Broken Core		3	1				
						1	610	FOL			1	1				
						0	611									
						0	612									
1	613	J	30		1	2										
1	614	J	30		1	2										
0	615															
62	615	625	Grades to Greenstone Schist	100%	100%	0	616							R3	W1	
						0	617									
						0	618									
						0	619									
						1	620	J	18		1	3				
						0	621									
						0	622									
						1	623	J	12		1	1				
						1	624	FOL	60		1.5	1				
						0	625									
63	625	635	Grades to Greenstone Schist	100%	100%	1	626	J	38		1.5	1		R3	W1	
						0	627									
						2	628	FOL	63		1.5	1				
						0	629									
						0	630									
						0	631									
						0	632									
						2	633	XJ	35	000	1.5	1				
						2	634	J/XJ	22/32	080/000	1/1.5	1/1				
						0	635									
64	635	645	Grades to Greenstone Schist	100%	100%	0	636						R3	W1		
						0	637									
						0	638									
						1	639	FOL	65	180	1.5	1				
						1	640	FOL	65	180	1.5	1				
						0	641									
						1	642	FOL	66	180	1.5	1				
						0	643									
						0	644									

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: 16-Sep-03 Date Logged: 16-Sep-03  
 Incl: - 65 ° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200 ° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments		
									α DIP	β DIRECTION								
64	635	645	Greenstone Schist	100%	100%	0	645							R3	W1			
65	645	655				1	646	XJ	45	000	1.5	1						
						0	647											
						0	648											
						0	649											
						0	650											
						1	651	J	13	100	1	1						
						1	652	FOL	68	180	1.5	1						
						0	653											
						0	654											
						0	655											
						0	656											
						66	655	665	100%	100%	1	657	J			70	040	3
0	658																	
0	659																	
0	660																	
0	661																	
0	662																	
2	663	FOL	70	165	1.5						1							
0	664																	
0	665																	
67	665	675	100%	100%	0						666							
					1						667	J	3	090	1	4		
					1						668	J	7	270	1	4		
					1	669	J	8	075	1	4							
					1	670	J	44	000	1.5	1							
					1	671	J	37	180	3	1							
					0	672												
					1	673	J	15	065	1.5	1							
					0	674												
					1	675	J	37	065	3	1							
					68	675	685	100%	100%	0	676							
										0	677							
1	678	J/CON	25	045						3	2							
1	679	FOL	63	180						1	1							
1	680	FOL	58	170						1	1							
0	681																	
1	682	FOL	66	150						1.5	1							
0	683																	
0	684																	
0	685	FOL/J	67/11	170/110						1.5/1.5	1/2							
69	685	695	Wacke								2	686	FOL	62/64		1	1	
											0	687	J/FOL	30/51/50		2/1	1/2	
					0	688												
					3	689	J	70/35/20			1	2						
					2	690		70/35			1/1	4/2						

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Massive	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 16-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 16-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
69	685	695	Wacke R3, w1	100%	80%	3	691	J	65/72		1	2				
							692	J	70/45		2	2				
							693	J	30/25/55		1.5	2				
							694	J/Fol	25/58		3/1	1				
							695	Fol	58		1	1				
70	695	705	Greenstone Schist R3, W1	100%	87%	1	696	J	55		1.5	1				
							697				1.5	2				
							698									
							699	Fol	65		1.5	1				
							700	Fol	62		1	2				
							701	J	50		1	2				
							702	XJ	30		1	1				
							703	J	10/20/35		2	2				
							704									
							705									
71	705	715	Wacke R3, W1	100%	87%	3	706	J/Fol	38/85		1/1.5	2/1				
							707	J	45		3	2				
							708	J/Fol	60/65		1	2				
							709	J/Fol	23		1	2				
							710	J/Fol	40/45/70		1	4				
							711									
							712									
							713	J	14	110	1	1			Oriented	
							714	Fol	67	180	1	1			assuming Foliation	
							715	J/Fol	28/67	285/180	1.5	1			B=180 °	
72	715	725	Greenstone Schist R3, W1	100%	100%	1	716	J	17	-	1	1				
							717	Fol	65	180	1	2				
							718	Fol	65	180	1	2				
							719	Fol	68	180	1	2				
							720									
							721									
							722	J	47/40		1	2				
							723									
							724									
							725									
73	725	735	Greenstone Schist R3, W1	100%	100%	0	726									
							727									
							728									
							729									
							730									
							731	J	40		1.5	1				
							732									
							733									
							734									
							735									
						0	736									

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 16-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 16-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments	
									α DIP	β DIRECTION							
74	735	745	Wacke, R3, W1 Schist, R3, W1 Grey Schist R2,1 R3 Foliated Schist	100%	95%	1	737	J	20/56		3	2					
						1	738	Fol	56	180	1	2					
						0	739										
						1	740	Fol	63	180	1	2					
						3	741	Fol	72/67	189	1	2					
						2	742	Fol	62	180	1	1					
						1	743	Fol	67	180	1	2					
						0	744										
75	745	755	Foliated Schist	100%	100%	0	746										
						0	747										
						2	748	Fol	63	185	1	2					
						0	749										
						2	750	Fol	67	180	1.5	1					
						1	751	Fol	71	185	1.5	1					
						1	752	Fol	70	180	1.5	1					
						1	753	Fol	70	180	1.5	1					
76	755	765	Foliated Schist	100%	100%	1	756	Fol	67	195	1	1					
						0	757										
						1	758	Fol	68	190	1.5	1					
						0	759										
						0	760										
						0	761										
						0	762										
						0	763										
77	765	775	Foliated Schist	100%	100%	1	765	Fol	66	165	1.5	1					
						0	766										
						1	767	Fol	72	200	1.5	1					
						0	768										
						0	769										
						0	770										
						1	771	Fol	70	180	1.5	1					
						1	772	Fol	70	180	3	1					
78	775	785	Foliated Schist	100%	100%	0	773										
						0	774										
						0	775										
						0	776										
						1	777	J	18	125	1	3					
						0	778										
						0	779										
						0	780										
0	781																
1	782	Fol	72	190	2	1											

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
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Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283 Date Drilled: Sep 16 and Sep 17, 2003 Date Logged: Sept 16 and Sep 17, 2003  
 Incl: - 65° Drill Rig: Boyles 25 A Northing: 400 N  
 Azimuth: 200° Drilling Contractor: Connors Easting: 20+50  
 Elevation: Ground surface used as reference Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
78	775	785	GREENSTONE	100%	100%	1	783	Fol	75	160	1.5	1				
						1	784	Fol	69	160	1.5	1				
						0	785									
79	785	795	GREENSTONE SCHIST R3 / W1	100%	100%	0	786									Cored 4:50 PM
						0	787									
						1	788	Fol	70	175	3	1				
						1	789	Fol	70	175	2	1				
						0	790									
						0	791									
						0	792									
						0	793									
						1	794	Fol	70	175	3	1				
						1	795	Fol	70	175	2	1				Cored 5:20 PM
						80	795	805	WACKE R3 / W1	100%	100%	0	796			
0	797															
0	798															
0	799															
1	800	Fol	68	-	1.5							1				
0	801															
0	802															
0	803															
1	804	J	50	-	1.5							1				
0	805															failed imprint test
81	805	815	GREENSTONE SCHIST R3 / W1	100%	100%							0	806			
						0	807									
						0	808									
						0	809									
						0	810									
						1	811	Fol	63	190	1.5	3				Measurements
						1	812	Fol	68	190	1.5	2				relative to B=190
						1	813	J	28	020	1.5	1				for Foliation
						0	814									
						0	815									END OF SEP 16
						82	815	825	GREENSTONE	100%	100%	0	816			
0	817															
0	818															
1	819	J	54		2							1				
0	820															
0	821	J	72		1.5							1				
0	822	J	76		1.5							1				
0	823															
0	824															
0	825	Fol	75	210	3							1				8:10 AM
83	825	835	GREENSTONE	100%	100%							0	826			
						0	827									
						0	828	Fol	63	210	1.5	1				

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
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Type:  
 Joint: J, JN Fault: FLT  
 Fracture: FR, FX Bedding: B  
 Shear: SHR, SR Foliation: FO, FOL  
 Vein: V, VN Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 17-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 17-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments						
									α DIP	β DIRECTION												
83	825	835	GREENSTONE SCHIST R3 / W1	100%	100%	1	829	Fol	74	190	1.5	1										
						0	830															
						0	831															
						0	832															
						0	833															
						2	834	Fol	69/77	230/200	1.5/2	1/1										
						2	835	Fol	77/73	170	2/1.5	1/1										
84	835	845	GREENSTONE SCHIST R3 / W1	100%	100%	0	836															
						1	837	Fol	73	195	3	1										
						1	838	Fol	65	210	1	1										
						2	839	Fol	72/80	180	1	1										
						1	840	J	65	130	3	1										
						1	841	J	30	170	1.5	1										
						2	842	Fol	68/72	180	1	1										
						1	843	J	30	170	1.5	1									red stain	
						1	844	Fol	77	160	2	1										
						1	845	Fol	70	160	2	1										
85	845	855	GREENSTONE SCHIST R3 / W1	100%	100%	1	846	Fol	77	180	1.5	2										
						0	847															
						2	848	Fol	67/70	160/190												
						1	849	J	22	150	3	1										
						1	850	J	25	125	2	2										
						2	851	J/Fol	36/61	110/160	1	3									red stain	
						0	852															
						0	853															
						0	854															
						0	855															
86	855	865	GREENSTONE SCHIST R3 / W1	100%	100%	0	856															
						0	857															
						1	858	J	6	080	3	1										
						0	859															
						1	860	Fol	70	195	1.5	1										
						0	861															
						2	862	Fol	67	130	1	1										
						1	863	J	54	130	1	3										
						0	864															
						0	865															impression at 855', 10 AM
86	855	865	GREENSTONE SCHIST R3 / W1	100%	100%	2	866	Fol	70	150/170	1.5	1										
						0	867															
						1	868	Fol	70	165	1.5	1										
						1	869	Fol	65	060	2	1										
						1	870	J	11	270	1.5	1										
						0	871															
						2	872	Fol	75	210	1.5	1										
						1	873	J	75	260	3	1										
1	874	J	5	060	3	1																

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 19 OF 21

Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 17-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 17-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments							
									α DIP	β DIRECTION													
88	875	885	GREENSTONE SCHIST R3 / W1	100%	100%	0	875																
						0	876																
						0	877																
						0	878																
						0	879																
						3	880	Fol	75	190	1	2											
						1	881	Fol	72	180	1.5	1											
						1	882	Fol	70	190	1	1											
						0	883																
						1	884	Fol	68	195	3	1											
						2	885	FOL/J	70/45	195	1.5	1										imprint at 885	
						89	885	895	GREENSTONE SCHIST R3 / W1	100%	93%	0	886										
0	887																						
1	888	Fol	70	180	1.5							1											
1	889	Fol	71	190	1.5							1											
1	890	J	76	210	1.5							1											
0	891																						
0	892																						
0	893																						
2	894	Fol/J	67/02	180/085	1/3							1/3											
3	895	Fol	67	180	1							1											
90	895	905	GREENSTONE SCHIST R3 / W1	100%	100%							2	896	Fol	65		1	1					
												0	897										
						1	898	Fol	72	180	1	1											
						0	899																
						0	900																
						1	901	J	15		1.5	1											
						0	902																
						0	903																
						0	904																
						2	905	Fol	80		2	2											
						91	905	915	GREENSTONE SCHIST R3 / W1	100	73%	2	906	J	35/30		2	2					Perpendicular
												0	907										
0	908																						
0	909																						
2	910	J	55/25		3							1											
2	911	J/Fol	75/60		2/1							2/2											
0	912																						
3	913	J	60/60		3							3											
3	914	J	22		3							2											
1	915	J	18		3							2											
92	915	925	GREENSTONE SCHIST R3 / W1	100	73%							0	916										
												2	917	J	25		3	2					
						0	918																
						1	919	J	35		1.5	1											
						0	920																

Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	0.5
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO: 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 20 OF 21

Type:  
 Joint: J, JN      Fault: FLT  
 Fracture: FR, FX      Bedding: B  
 Shear: SHR, SR      Foliation: FO, FOL  
 Vein: V, VN      Cross-Joint: XJ



TABLE 16

CODING FORM FOR ORIENTED CORE

NOTE: Always measure surfaces at BOTTOM of core stick.

Hole No: Nico-03-283  
 Incl: - 65 °  
 Azimuth: 200 °  
 Elevation: Ground surface used as reference

Date Drilled: 17-Sep-03  
 Drill Rig: Boyles 25 A  
 Drilling Contractor: Connors

Date Logged: 17-Sep-03  
 Northing: 400 N  
 Easting: 20+50  
 Core Size: NQ2

RUN	From (ft)	To (ft)	Rock Type	TCR measured length (ft) or %	RQD measured length (ft) or %	Fractures / foot	Depth (ft)	Type	Orientation Dip/Dip Direction		Jr	Ja	Jn	Strength	Weath.	Imprint Depth/Comments
									α DIP	β DIRECTION						
92	915	925	SCHIST			3	921	F			1.5	1				
						0	922									
						0	923									
						0	924									
						1	925	J	13		1	1				
93	925	935	FOOTWALL Siltstone R4 / W1	100%	100%	0	926									
						0	927									
						0	928									
						2	929	J	60,5		1.5	1				
						1	930	J	68		1.5	1				
						1	931	J	25		1.5	1				
						0	932									
						0	933									
						0	934									
						0	935									Impression at 4 pm
94	935	945	End of Hole.	100%	100%	0	936									
						1	937	XJ	30	010	2	1				
						1	938									
						0	939	J/Fol	75	-170	1.5	1				
						1	940	XJ	30	000	3	1				
						1	941	XJ	30	000	3	1				
						0	942									
						1	943	J	62	-150	3	1				
						1	944	Fol	73	-135	1.5	1				
						0	945									

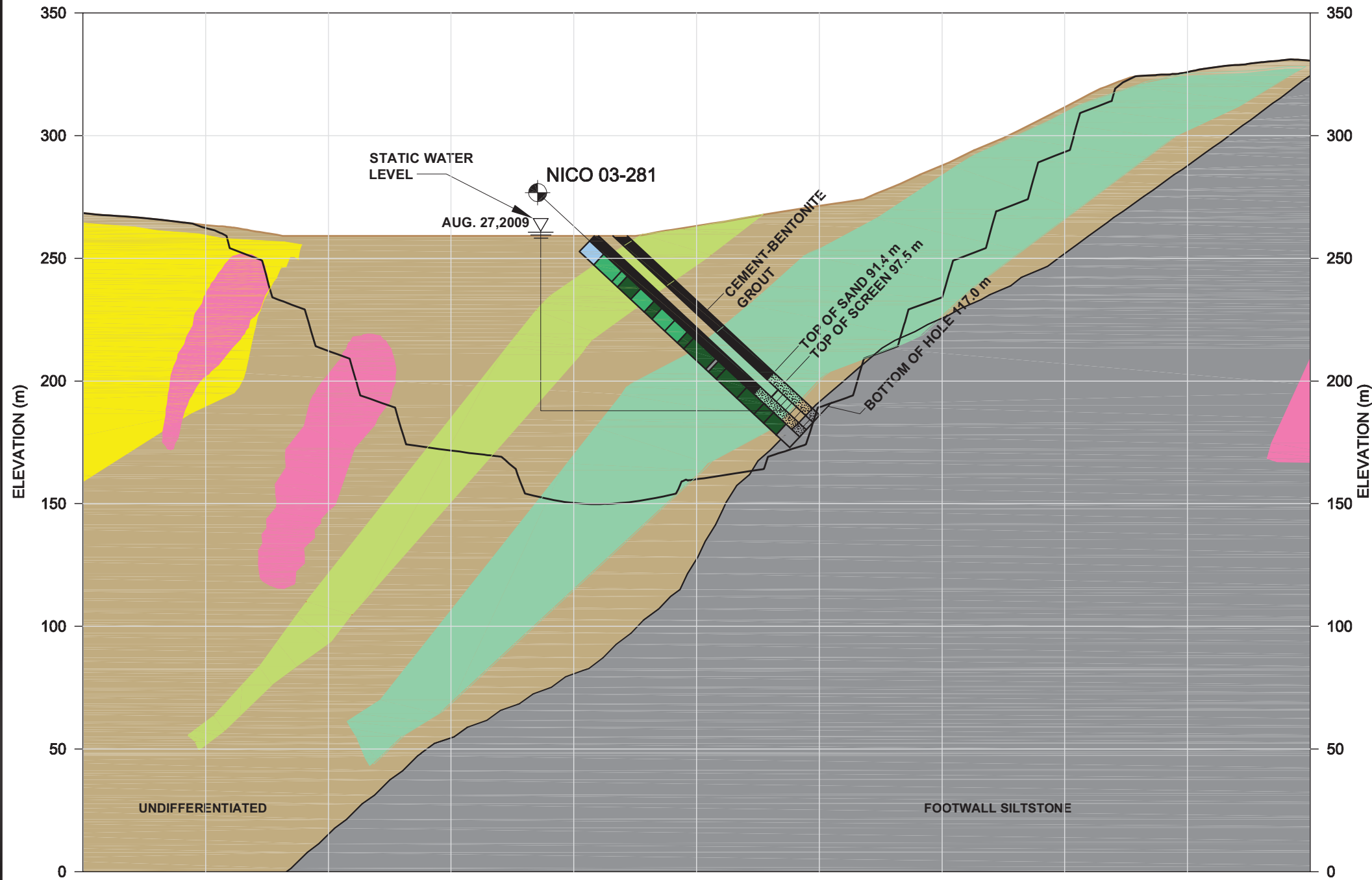
Joint Roughness, Jr:		Joint Alteration, Ja:		Joint Number, Jn:	
Rough and wavy	3.0	Unfilled:		Filled:	
Smooth and wavy	2.0	Healed Fractures	0.75	Sand/Crushed Rock	4.0
Rough and planar	1.5	Staining only	1.0	Stiff Clay < 5mm	6.0
Smooth/planar/filled	1.0	Slightly altered walls	2.0	Soft Clay < 5mm	8.0
Slickensided/planar	0.5	Silty/sandy coatings	3.0	Swell. Clay < 5mm	12.0
		Clay coatings	4.0	Stiff Clay > 5mm	10.0
				Soft Clay > 5mm	15.0
				Swell. Clay > 5mm	20.0
				Crushed rock	20.0

PROJECT NAME: FORTUNE  
 PROJECT NO. 03-1117-029  
 LOGGED BY: Marc Rougier  
 PAGE: 21 OF 21

Type:  
 Joint: J, JN  
 Fracture: FR, FX  
 Shear: SHR, SR  
 Vein: V, VN  
 Fault: FLT  
 Bedding: B  
 Foliation: FO, FOL  
 Cross-Joint: XJ



PLOT DATE: December 14, 2009  
 FILENAME: T:\Projects\2008\08-1118-0043 Fortune Minerals, Yellowknife - NICO Mine\1A-0811180043\A001.dwg



QUICK LOG TABLE NICO-03-281

FROM (m) *	TO (m) *	LITHOLOGY
0	7.92	Casing
7.92	17.95	BRS With/without mt
17.95	21.1	BRS With/without mt
21.1	28.48	BRS With mt
28.48	35.98	BRS With/without mt
35.98	40.32	BRS With mt
40.32	47.46	BRS With/without mt
47.46	54.44	BRS With/without mt
54.44	58.04	BRS With mt
58.04	70.29	BRS With mt
70.29	71.82	Siltstone
71.82	76.12	BRS With mt
76.12	87.61	BRS With mt
87.61	97.17	BRS With mt
97.17	102.57	BRS With mt
102.57	109.52	BRS With mt
109.52	117.04	Siltstone

\* DOWNHOLE MEASUREMENTS

**NOTES:**

- GEOLOGY, AND PIT SHELL INFORMATION WERE RECEIVED FROM GENE PURITCH INDEPENDANT MINE CONSULTANT (2009), AND FORTUNE MINERALS (JULY 2004).

**SIMPLIFIED BEDROCK LITHOLOGY**

I) IGNEOUS INTRUSIVES (DYKES)	III) SNARE GROUP METASEDIMENTARY ROCKS (SUB-ARKOSIC WACKES, DOLOMITES, ARENITES AND SILTSTONES)
<span style="display:inline-block; width:15px; height:15px; background-color:orange;"></span> FELDSPAR - PORPHYRITIC	<span style="display:inline-block; width:15px; height:15px; background-color:lightblue;"></span> UPPER ZONE
<span style="display:inline-block; width:15px; height:15px; background-color:yellow;"></span> QUARTZ - FELDSPAR	<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen;"></span> MIDDLE ZONE
	<span style="display:inline-block; width:15px; height:15px; background-color:lightyellow;"></span> LOWER ZONE
II) FABER LAKE GROUP VOLCANIC ROCKS	<span style="display:inline-block; width:15px; height:15px; background-color:brown;"></span> UNDIFFERENTIATED
<span style="display:inline-block; width:15px; height:15px; background-color:yellow;"></span> K-SPAR ALTERED RHYOLITE	<span style="display:inline-block; width:15px; height:15px; background-color:lightgrey;"></span> FOOTWALL SILTSTONE

**DETAILED DRILLHOLE LITHOLOGY**

<span style="display:inline-block; width:15px; height:15px; background-color:lightblue;"></span> CASING	<span style="display:inline-block; width:15px; height:15px; background-color:yellow;"></span> FP/QFP
<span style="display:inline-block; width:15px; height:15px; background-color:darkgreen;"></span> BRECCIA	<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen;"></span> RHYOLITE
<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen;"></span> BRS WITH MT	<span style="display:inline-block; width:15px; height:15px; background-color:lightgrey;"></span> SILTSTONE
<span style="display:inline-block; width:15px; height:15px; background-color:lightyellow;"></span> BRS WITH/WITHOUT MT	<span style="display:inline-block; width:15px; height:15px; background-color:darkgrey;"></span> SUBARKOSIC WACKE
	<span style="display:inline-block; width:15px; height:15px; background-color:blue;"></span> MAFIC DYKE

**BOREHOLE LOCATION**

NO.	NORTH (m)	EAST (m)	ELEV. (m)	AZIMUTH	DIP	DEPTH (m)
NICO 03-0281	7046896.38	512026.72	262.98	204.45°	-45°	117.04

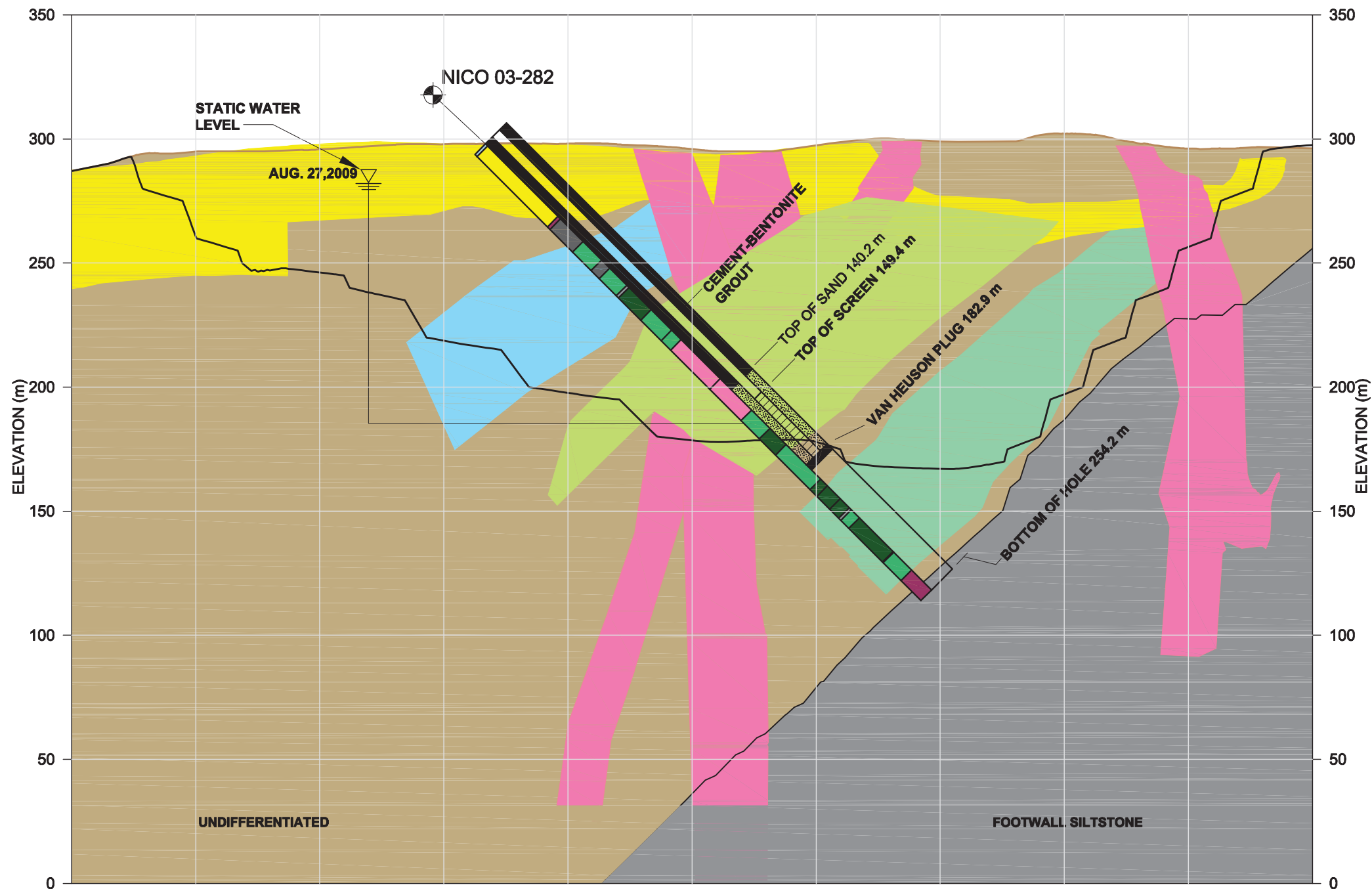


FILE No. 0811180043IA001.dwg  
 PROJECT No. 08-1118-0043 (3000) REV. A

SCALE	AS SHOWN
DATE	Dec. 14, 2009
DESIGN	CP
CAD	JFC
CHECK	LB
REVIEW	MR

TITLE	
<b>BOREHOLE NICO 03-281 SECTION THROUGH OPEN PIT SHOWING GEOLOGY</b>	
FORTUNE MINERALS LTD. NICO PROJECT	FIGURE <b>A1</b>

PLOT DATE: December 14, 2009  
 FILENAME: T:\Projects\2008\08-1118-0043 Fortune Minerals, Yellowknife - NICO Mine\1A-0811180043\A002.dwg



QUICK LOG TABLE NICO-03-282

FROM (m) *	TO (m) *	LITHOLOGY
0	1.22	Casing
1.22	41.3	Rhyolite
41.3	42.73	Breccia
42.73	55.65	Subarkosic Wacke
55.65	66.2	BRS With/without mt
66.2	70.8	Subarkosic Wacke
70.8	80.57	BRS With/without mt
80.57	81.8	Siltstone
81.8	94.47	BRS With mt
94.47	106.12	BRS With/without mt
106.12	111.5	BRS With/without mt
111.5	133.8	FP/QFP
133.8	151.69	FP/QFP
151.69	162.13	BRS With/without mt
162.13	171.33	BRS With mt
171.33	191.01	BRS With/without mt
191.01	194.89	BRS With mt
194.89	202.18	BRS With mt
202.18	207.34	BRS With mt
207.34	208.49	Siltstone
208.49	213.13	BRS With/without mt
220.13	232.31	BRS With mt
232.31	232.64	FP/QFP
232.64	242.86	BRS With/without mt
242.86	254.2	Breccia

\* DOWNHOLE MEASUREMENTS

**NOTES:**

- GEOLOGY, AND PIT SHELL INFORMATION WERE RECEIVED FROM GENE PURITCH INDEPENDANT MINE CONSULTANT (2009), AND FORTUNE MINERALS (JULY 2004).

**SIMPLIFIED BEDROCK LITHOLOGY**

<b>I ) IGNEOUS INTRUSIVES (DYKES)</b>	<b>III ) SNARE GROUP METASEDIMENTARY ROCKS (SUB-ARKOSIC WACKES, DOLOMITES, ARENITES AND SILTSTONES)</b>
FELDSPAR - PORPHYRITIC	UPPER ZONE
QUARTZ - FELDSPAR	MIDDLE ZONE
<b>II ) FABER LAKE GROUP VOLCANIC ROCKS</b>	LOWER ZONE
K-SPAR ALTERED RHYOLITE	UNDIFFERENTIATED
	FOOTWALL SILTSTONE

**DETAILED DRILLHOLE LITHOLOGY**

CASING	FP/QFP
BRECCIA	RHYOLITE
BRS WITH MT	SILTSTONE
BRS WITH/WITHOUT MT	SUBARKOSIC WACKE
	MAFIC DYKE

**BOREHOLE LOCATION**

NO.	NORTH (m)	EAST (m)	ELEV. (m)	AZIMUTH	DIP	DEPTH (m)
NICO 03-0282	7046666.92	512681.41	298.00	202.25°	-44.5°	254.20

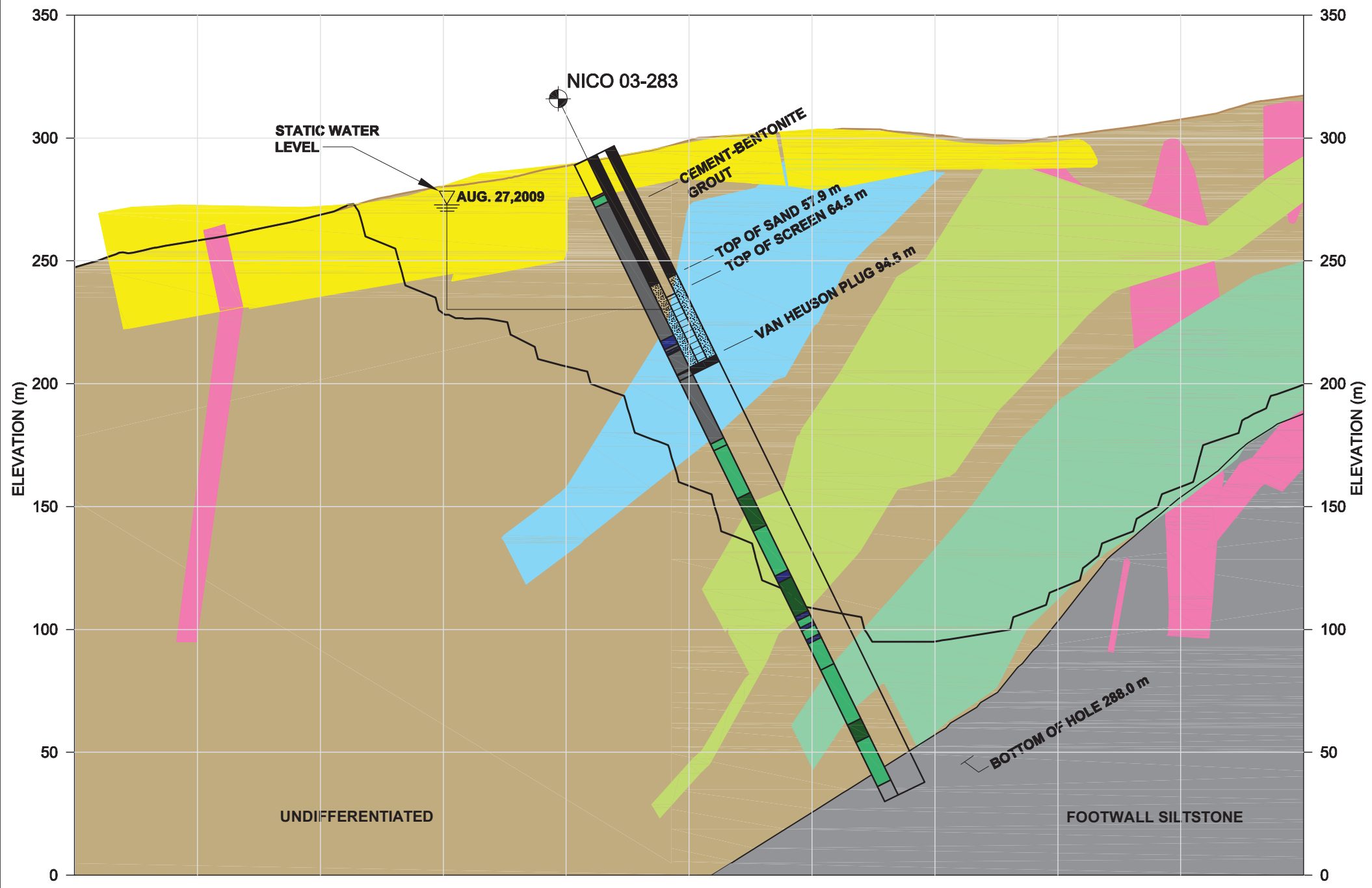


FILE No. 0811180043A002.dwg  
 PROJECT No. 08-1118-0043 (3000) REV. A

SCALE AS SHOWN  
 DATE Dec. 14, 2009  
 DESIGN CP  
 CAD JFC  
 CHECK LB  
 REVIEW MR

**TITLE**  
**BOREHOLE NICO 03-282 SECTION THROUGH OPEN PIT SHOWING GEOLOGY**  
 FORTUNE MINERALS LTD.  
 NICO PROJECT  
 FIGURE **A2**

PLOT DATE: December 14, 2009  
 FILENAME: T:\Projects\2008\08-1118-0043 Fortune Minerals, Yellowknife - NICO Mine\ -IA-\0811180043\A003.dwg



QUICK LOG TABLE NICO-03-283

FROM (m) *	TO (m) *	LITHOLOGY
0	15.2	Rhyolite
15.2	16.01	Breccia
16.01	19.23	BRS With/without mt
19.23	79.81	Subarkosic Wacke
79.81	83.49	Mafic Dyke
83.49	84.77	Subarkosic Wacke
84.77	85.67	Mafic Dyke
85.67	86.26	BRS With mt
86.26	94.9	Subarkosic Wacke
94.9	95.38	Mafic Dyke
95.38	97.63	Subarkosic Wacke
97.63	126.21	Subarkosic Wacke
126.21	129.26	BRS With/without mt
129.26	151.01	BRS With/without mt
151.01	165.74	BRS With mt
165.74	186.01	BRS With/without mt
186.01	189.12	Mafic Dyke
189.12	204.53	BRS With mt
204.53	206.31	Mafic Dyke
206.31	209.44	BRS With/without mt
209.44	210.89	Mafic Dyke
210.89	214.98	BRS With/without mt
214.98	216.7	Mafic Dyke
216.7	228.51	BRS With/without mt
228.51	253.34	BRS With/without mt
253.34	261.3	BRS With mt
261.3	281.23	BRS With/without mt
281.23	288.04	Siltstone

\* DOWNHOLE MEASUREMENTS

**NOTES:**

- GEOLOGY, AND PIT SHELL INFORMATION WERE RECEIVED FROM GENE PURITCH INDEPENDANT MINE CONSULTANT (2009), AND FORTUNE MINERALS (JULY 2004).

**SIMPLIFIED BEDROCK LITHOLOGY**

<b>I ) IGNEOUS INTRUSIVES (DYKES)</b>	<b>III ) SNARE GROUP METASEDIMENTARY ROCKS (SUB-ARKOSIC WACKES, DOLOMITES, ARENITES AND SILTSTONES)</b>
FELDSPAR - PORPHYRITIC	UPPER ZONE
QUARTZ - FELDSPAR	MIDDLE ZONE
<b>II ) FABER LAKE GROUP VOLCANIC ROCKS</b>	LOWER ZONE
K-SPAR ALTERED RHYOLITE	UNDIFFERENTIATED
	FOOTWALL SILTSTONE

**DETAILED DRILLHOLE LITHOLOGY**

CASING	FP/QFP
BRECCIA	RHYOLITE
BRS WITH MT	SILTSTONE
BRS WITH/WITHOUT MT	SUBARKOSIC WACKE
	MAFIC DYKE

**BOREHOLE LOCATION**

NO.	NORTH (m)	EAST (m)	ELEV. (m)	AZIMUTH	DIP	DEPTH (m)
NICO 03-0283	7046806.04	512518.70	291.49	210.70°	-64.50°	288.04



**Golder Associates**  
Mississauga, Ontario, Canada

FILE No: 0811180043IA003.dwg  
PROJECT No: 08-1118-0043 (3000) REV. A

SCALE	AS SHOWN
DATE	Dec. 14, 2009
DESIGN	CP
CAD	JFC
CHECK	LB
REVIEW	MR

**BOREHOLE NICO 03-283 SECTION THROUGH OPEN PIT SHOWING GEOLOGY**

FORTUNE MINERALS LTD.  
NICO PROJECT

FIGURE **A3**



# **APPENDIX B**

## **Record of Boreholes and Drillholes (2010)**

## LIST OF ABBREVIATIONS

The abbreviations commonly employed on Records of Boreholes, on figures and in the text of the report are as follows:

### I. SAMPLE TYPE

AS Auger sample  
 BS Block sample  
 CS Chunk sample  
 DO Drive open  
 DS Denison type sample  
 FS Foil sample  
 RC Rock core  
 SC Soil core  
 ST Slotted tube  
 TO Thin-walled, open  
 TP Thin-walled, piston  
 WS Wash sample

### II. PENETRATION RESISTANCE

#### Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg. (140 lb.) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) drive open sampler for a distance of 300 mm (12 in.)

#### Dynamic Cone Penetration Resistance; $N_d$ :

The number of blows by a 63.5 kg (140 lb.) hammer dropped 760 mm (30 in.) to drive uncased a 50 mm (2 in.) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in.).

**PH:** Sampler advanced by hydraulic pressure

**PM:** Sampler advanced by manual pressure

**WH:** Sampler advanced by static weight of hammer

**WR:** Sampler advanced by weight of sampler and rod

#### Piezo-Cone Penetration Test (CPT)

A electronic cone penetrometer with a 60° conical tip and a project end area of 10 cm<sup>2</sup> pushed through ground at a penetration rate of 2 cm/s. Measurements of tip resistance ( $Q_t$ ), porewater pressure (PWP) and friction along a sleeve are recorded electronically at 25 mm penetration intervals.

### III. SOIL DESCRIPTION

#### (a) Cohesionless Soils

Density Index (Relative Density)	N Blows/300 mm or Blows/ft.
Very loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very dense	over 50

#### (b) Cohesive Soils

#### Consistency

	$c_u, s_u$	
	kPa	psf
Very soft	0 to 12	0 to 250
Soft	12 to 25	250 to 500
Firm	25 to 50	500 to 1,000
Stiff	50 to 100	1,000 to 2,000
Very stiff	100 to 200	2,000 to 4,000
Hard	over 200	over 4,000

### IV. SOIL TESTS

w water content  
 $w_p$  plastic limit  
 $w_l$  liquid limit  
 C consolidation (oedometer) test  
 CHEM chemical analysis (refer to text)  
 CID consolidated isotropically drained triaxial test<sup>1</sup>  
 CIU consolidated isotropically undrained triaxial test with porewater pressure measurement<sup>1</sup>  
 $D_R$  relative density (specific gravity,  $G_s$ )  
 DS direct shear test  
 M sieve analysis for particle size  
 MH combined sieve and hydrometer (H) analysis  
 MPC Modified Proctor compaction test  
 SPC Standard Proctor compaction test  
 OC organic content test  
 $SO_4$  concentration of water-soluble sulphates  
 UC unconfined compression test  
 UU unconsolidated undrained triaxial test  
 V field vane (LV-laboratory vane test)  
 $\gamma$  unit weight

**Note: 1** Tests which are anisotropically consolidated prior to shear are shown as CAD, CAU.

## LIST OF SYMBOLS

Unless otherwise stated, the symbols employed in the report are as follows:

### I. General

$\pi$	3.1416
in $x$ ,	natural logarithm of $x$
$\log_{10}$	$x$ or $\log x$ , logarithm of $x$ to base 10
$g$	acceleration due to gravity
$t$	time
$F$	factor of safety
$V$	volume
$W$	weight

### II. STRESS AND STRAIN

$\gamma$	shear strain
$\Delta$	change in, e.g. in stress: $\Delta \sigma$
$\epsilon$	linear strain
$\epsilon_v$	volumetric strain
$\eta$	coefficient of viscosity
$\nu$	poisson's ratio
$\sigma$	total stress
$\sigma'$	effective stress ( $\sigma' = \sigma - u$ )
$\sigma'_{vo}$	initial effective overburden stress
$\sigma_1, \sigma_2, \sigma_3$	principal stress (major, intermediate, minor)
$\sigma_{oct}$	mean stress or octahedral stress = $(\sigma_1 + \sigma_2 + \sigma_3)/3$
$\tau$	shear stress
$u$	porewater pressure
$E$	modulus of deformation
$G$	shear modulus of deformation
$K$	bulk modulus of compressibility

### III. SOIL PROPERTIES

#### (a) Index Properties

$\rho(\gamma)$	bulk density (bulk unit weight*)
$\rho_d(\gamma_d)$	dry density (dry unit weight)
$\rho_w(\gamma_w)$	density (unit weight) of water
$\rho_s(\gamma_s)$	density (unit weight) of solid particles
$\gamma'$	unit weight of submerged soil ( $\gamma' = \gamma - \gamma_w$ )
$D_R$	relative density (specific gravity) of solid particles ( $D_R = \rho_s / \rho_w$ ) (formerly $G_s$ )
$e$	void ratio
$n$	porosity
$S$	degree of saturation

#### (a) Index Properties (continued)

$w$	water content
$w_L$	liquid limit
$w_p$	plastic limit
$I_p$	plasticity index = $(w - w_p)$
$w_s$	shrinkage limit
$I_L$	liquidity index = $(w - w_p)/I_p$
$I_C$	consistency index = $(w - w_p)/I_p$
$e_{max}$	void ratio in loosest state
$e_{min}$	void ratio in densest state
$I_D$	density index = $(e_{max} - e) / (e_{max} - e_{min})$ (formerly relative density)

#### (b) Hydraulic Properties

$h$	hydraulic head or potential
$q$	rate of flow
$v$	velocity of flow
$i$	hydraulic gradient
$k$	hydraulic conductivity (coefficient of permeability)
$j$	seepage force per unit volume

#### (c) Consolidation (one-dimensional)

$C_c$	compression index (normally consolidated range)
$C_r$	recompression index (over-consolidated range)
$C_s$	swelling index
$C_a$	coefficient of secondary consolidation
$m_v$	coefficient of volume change
$c_v$	coefficient of consolidation
$T_v$	time factor (vertical direction)
$U$	degree of consolidation
$\sigma'_p$	pre-consolidation pressure
OCR	over-consolidation ratio = $\sigma'_p / \sigma'_{vo}$

#### (d) Shear Strength

$\tau_p, \tau_r$	peak and residual shear strength
$\phi'$	effective angle of internal friction
$\delta$	angle of interface friction
$\mu$	coefficient of friction = $\tan \delta$
$c'$	effective cohesion
$c_u, s_u$	undrained shear strength ( $\phi = 0$ analysis)
$p$	mean total stress $(\sigma_1 + \sigma_3)/2$
$p'$	mean effective stress $(\sigma'_1 + \sigma'_3)/2$
$q$	$(\sigma_1 + \sigma_3)/2$ or $(\sigma'_1 + \sigma'_3)/2$
$q_u$	compressive strength $(\sigma_1 + \sigma_3)$
$S_t$	sensitivity

- Notes: 1  $\tau = c' + \sigma' \tan \phi'$   
 2 shear strength = (compressive strength)/2  
 \* density symbol is  $\rho$ . Unit weight symbol is  $\gamma$  where  $\gamma = \rho g$  (i.e. mass density  $\times$  acceleration due to gravity)

# LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

## WEATHERING STATE

**Fresh:** no visible sign of weathering.

**Faintly weathered:** weathering limited to the surface of major discontinuities.

**Slightly weathered:** penetrative weathering developed on open discontinuity surfaces but only slight weathering of rock material.

**Moderately weathered:** weathering extends throughout the rock mass but the rock material is not friable.

**Highly weathered:** weathering extends throughout rock mass and the rock material is partly friable.

**Completely weathered:** rock is wholly decomposed and in a friable condition but the rock texture and structure are preserved.

## BEDDING THICKNESS

<u>Description</u>	<u>Bedding Plane Spacing</u>
Very thickly bedded	> 2 m
Thickly bedded	0.6 m to 2m
Medium bedded	0.2 m to 0.6 m
Thinly bedded	60 mm to 0.2 m
Very thinly bedded	20 mm to 60 mm
Laminated	6 mm to 20 mm
Thinly laminated	< 6 mm

## JOINT OR FOLIATION SPACING

<u>Description</u>	<u>Spacing</u>
Very wide	> 3 m
Wide	1 - 3 m
Moderately close	0.3 - 1 m
Close	50 - 300 mm
Very close	< 50 mm

## GRAIN SIZE

<u>Term</u>	<u>Size*</u>
Very Coarse Grained	> 60 mm
Coarse Grained	2 - 60 mm
Medium Grained	60 microns - 2 mm
Fine Grained	2 - 60 microns
Very Fine Grained	< 2 microns

Note: \* Grains >60 microns diameter are visible to the naked eye.

## CORE CONDITION

### Total Core Recovery

The percentage of solid drill core recovered regardless of quality or length, measured relative to the length of the total core run.

### Solid Core Recovery (SCR)

The percentage of solid drill core, regardless of length, recovered at full diameter, measured relative to the length of the total core run.

### Rock Quality Designation (RQD)

The percentage of solid drill core, greater than 100 mm length, recovered at full diameter, measured relative to the length of the total core run. RQD varies from 0% for completely broken core to 100% for core in solid sticks.

## DISCONTINUITY DATA

### Fracture Index

A count of the number of discontinuities (physical separations) in the rock core, including both naturally occurring fractures and mechanically induced breaks caused by drilling.

### Dip with Respect to (W.R.T.) Core Axis

The angle of the discontinuity relative to the axis (length) of the core. In a vertical borehole a discontinuity with a 90° angle is horizontal.

### Description and Notes

An abbreviated description of the discontinuities, whether naturally occurring separations such as fractures, bedding planes and foliation planes or mechanically induced features caused by drilling such as ground or shattered core and mechanically separated bedding or foliation surfaces. Additional information concerning the nature of fracture surfaces and infillings are also noted.

### Abbreviations

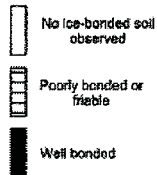
B - Bedding	P - Polished
FO - Foliation/Schistosity	S - Slickensided
CL - Cleavage	SM - Smooth
SH - Shear Plane/Zone	R - Ridged/Rough
VN - Vein	ST - Stepped
F - Fault	PL - Planar
CO - Contact	FL - Flexured
J - Joint	UE - Uneven
FR - Fracture	W - Wavy
MF - Mechanical Fracture	C - Curved
- Parallel To	
⊥ - Perpendicular To	

1. DESCRIBE SOIL INDEPENDENT OF FROZEN STATE	CLASSIFY SOIL BY THE UNIFIED SOIL CLASSIFICATION SYSTEM				
	MAJOR GROUP		SUBGROUP		
	Description (b)	Designation	Description (b)	Designation	
2. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF FROZEN SOIL (a)	Segregated ice not visible by eye	N	Poorly bonded or friable	Nf	
			Well bonded	No excess ice	Nbn
				Excess ice	Nbe
	Segregated ice visible by eye (ice less than 25mm thick)	V	Individual ice crystals or inclusions	Vx	
			Ice coatings on particles	Vc	
			Random or irregularly oriented ice formations	Vr	
			Stratified or distinctly oriented ice formations	Vs	
			Uniformly distributed ice	Vu	
	3. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF SUBSTANTIAL ICE STRATA (a)	Ice greater than 25mm thick	ICE	Ice with soil inclusions	ICE + Soil Type
				Ice without soil inclusions	ICE

(a) Reference ASTM D4063.

(b) Description of ice within frozen soil is based on visual examination of the sample in the field.

#### ICE BONDING SYMBOLS



#### DEFINITIONS

**Well Bonded** - Soil particles are strongly held together by the ice and the frozen soil possesses relatively high resistance to chipping or breaking.

**Poorly Bonded** - Soil particles are weakly held together by the ice and the frozen soil consequently has poor resistance to chipping and breaking.

**Friable** - Soil is easily broken up under light to moderate pressure.

**Ice Coatings** - Discernible layers of ice found on or below the larger soil particles in a frozen mass.

**Ice Crystal** - A very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in combination with other ice formations.

**Ice Segregation** - Growth of ice as distinct lenses, layers, veins, and masses in soils.



## FROZEN SOIL CLASSIFICATION



PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-14

SHEET 1 OF 1

LOCATION: N 7046854.0 ;E 513863.0

DRILLING DATE: March 20-21, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION		
								TOTAL CORE %	SOLID CORE %				10 <sup>9</sup>	10 <sup>8</sup>	10 <sup>7</sup>	R4	R3	R2	R1	W1	W2	W3		W4	
								% RETURN	%				K, m/sec	INDEX	TYPE AND SURFACE DESCRIPTION	INDEX	INDEX	INDEX	INDEX	INDEX	INDEX	INDEX			
		Continued from Borehole Log		215.48																					
2		Greenish pink, massive, fresh, moderately strong, FELDSPAR +/- AMPHIBOLE PORPHYRY		1.52																					
				1																					
				2																					
				3																					
				4																					
				5																					
6																									
7																									
8																									
9		END OF DRILLHOLE		208.06																					
				8.94																					

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

## RECORD OF BOREHOLE: GA-10-15S

SHEET 1 OF 1

LOCATION: N 7046781.0 ; E 513997.0

DRILLING DATE: March 23-25, 2010

DATUM: NAD83

ELEVATION: 212

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	WATER CONTENT PERCENT					
										Wp	W	WI			
0	Reamed HW Casing Dry	GROUND SURFACE		212.00										Stick-up: 0.80m	
		Brown to black, fibrous, PEAT, some roots, some wood		0.00				Frozen Soil						W OC	
		Grey, sandy SILT, trace roots with ice in laminar layers and lenses		211.61 0.39	1	100	2	CA	Vs,x - Stratified ice 0.5cm thick					MH	
		Black, PEAT, with ice in laminar layers and lenses		211.21 0.79 211.02					Vs,x - Stratified ice 0.5cm thick						
1		Brown, sandy SILT/silty SAND, fine sand, trace clay, with ice in laminar layers and lenses		0.98					Vs,x						
		Very soft to very stiff, moist, brown, clayey SILT, some sand, trace peat (Su = 0 to 150 kPa by pocket Penetrometer)		210.42 1.58					Frozen Soil						
2															
3															
4															
5		END OF BOREHOLE		207.15 4.85										Sand Caved	
														25/03/2010	

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 5/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-15D

SHEET 1 OF 2

LOCATION: N 7046785.0 ; E 513995.0

DRILLING DATE: March 21-23, 2010

DATUM: NAD83

ELEVATION: 212

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0		GROUND SURFACE See Borehole log GA-10-15S		212.00 0.00										Stick-up: 0.80m	
1	Reamed HW Casing Water													Open	
2														Bentonite	
3														Bridged/Possible caving	
4														Bentonite	
5			Green and red/pink, fresh, very strong HETEROLITHIC BRECCIA		206.95 5.05				See Drillhole GA-10-15D for details						Sand
6	HQ Core 76 mm I.D.													Screen and Sand	
7														Sand	
8														Caved	
9															
10		CONTINUED NEXT PAGE													

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 4/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-15D

SHEET 2 OF 2

LOCATION: N 7046785.0 ;E 513995.0

DRILLING DATE: March 21-23, 2010

DATUM: NAD83

ELEVATION: 212

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	HQ Core 76 mm I.D.	--- CONTINUED FROM PREVIOUS PAGE --- Green and red/pink, fresh, very strong HETEROLITHIC BRECCIA												Stick-up: 0.80m	
11															Caved
		END OF BOREHOLE		200.46											
				11.54											
12															
13															
14															
15															
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 4/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-15D

SHEET 1 OF 1

LOCATION: N 7046785.0 ; E 513995.0

DRILLING DATE: March 21-23, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	COLOUR % RETURN	RECOVERY			FRACT. INDEX PER 0.3 m	Broken Core	DIP W.I.L CORE AXIS	DISCONTINUITY DATA		HYDRAULIC CONDUCTIVITY				ROCK STRENGTH INDEX				WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION
							TOTAL CORE %	SOLID CORE %	R.Q.D. %				TYPE AND SURFACE DESCRIPTION		10 <sup>9</sup>	10 <sup>8</sup>	10 <sup>7</sup>	10 <sup>6</sup>	R <sub>4</sub>	R <sub>3</sub>	R <sub>2</sub>	R <sub>1</sub>	W <sub>1</sub>	W <sub>2</sub>	W <sub>3</sub>	W <sub>4</sub>	
							FLUSH	FLUSH	FLUSH																		
		Continued from Borehole Log		206.95																					Stick-up: 0.80m		
6		Green and red/pink, fresh, very strong HETEROLITHIC BRECCIA		5.05	1	100							JN,UN,Ro JN,IR,Ro JN,UN,Ro												Bentonite Sand		
7																									Screen and Sand		
8					2	100							JN,UN,VRo												Sand		
9																											
10																											
11					3	100							JN,PL,Ro JN,UN,VRo												Caved		
		END OF DRILLHOLE		200.46																							
				11.54																							
12																											
13																											
14																											
15																											

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 4/11/10 BR







PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-17

SHEET 1 OF 1

LOCATION: N 7047110.0 ;E 514128.0

DRILLING DATE: March 26, 2010

DATUM: NAD83

ELEVATION: 216

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0	Dry	GROUND SURFACE		216.00											
	Remained HW Casing	Black, fibrous, PEAT, some roots, lenses of ice		0.00	1	104	1	CA	Vx					W OC	
1	Water	Grey, silty CLAY, trace gravel, presence of cobbles and boulders (TILL)		215.39											
				0.61											
2	HQ Core						2	WS						MH DR	
3		Black to grey, fresh, very strong, laminated CORDIERITE SCHIST		213.06											
				2.94											
4															
5															
6	HQ Core														
	76 mm I.D.														
7															
8															
9															
		END OF BOREHOLE		206.76											
				9.24											
10															

▽  
26/03/2010

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.



PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-18S

SHEET 1 OF 1

LOCATION: N 7047071.0 ; E 514218.0

DRILLING DATE: March 27, 2010

DATUM: NAD83

ELEVATION: 216

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0	Reamed HW Casing Water	GROUND SURFACE		216.00									Stick-up: 0.85m		
		See Borehole log GA-10-18D		0.00											
3		END OF BOREHOLE		213.17 2.83											

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 5/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-18D

SHEET 1 OF 2

LOCATION: N 7047072.0 ;E 514217.0



DRILLING DATE: March 27, 2010

DATUM: NAD83

ELEVATION: 216

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
0	Reamed HW Casing Water	GROUND SURFACE		216.00									Stick-up: 0.80m		
		Boulders/cobbles, matrix washed away by drilling - Return water dark brown,		0.00										27/03/2010 At ground surface	
1													Open		
2													Bentonite		
3	HQ Core 76 mm I.D.	Dark grey, fresh, strong to very strong, CORDIERITE SCHIST		213.22			See Drillhole GA-10-18D for details								
					2.78										
4													Caved		
5													Bentonite		
6													Sand		
7															
8													Screen and Sand		
9															
10													Sand		

CONTINUED NEXT PAGE

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-18D

SHEET 2 OF 2

LOCATION: N 7047072.0 ;E 514217.0

DRILLING DATE: March 27, 2010

DATUM: NAD83

ELEVATION: 216

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	HQ Core 76 mm I.D.	--- CONTINUED FROM PREVIOUS PAGE --- Dark grey, fresh, strong to very strong, CORDIERITE SCHIST		205.52 10.48										Stick-up: 0.80m Sand Caved	
		END OF BOREHOLE													
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-18D

SHEET 1 OF 1

LOCATION: N 7047072.0 ; E 514217.0

DRILLING DATE: March 27, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY				ROCK STRENGTH INDEX				WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION
							TOTAL CORE %	SOLID CORE %				10 <sup>a</sup>	10 <sup>b</sup>	10 <sup>c</sup>	10 <sup>d</sup>	R4	R3	R2	R1	W1	W2	W3	W4	
							80000000	80000000				80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	
		Continued from Borehole Log		213.22																		Stick-up: 0.80m		
3		Dark grey, fresh, strong to very strong, CORDIERITE SCHIST		2.78																		Bentonite		
4					1	100																Caved		
5										JN,PL,Ro												Bentonite		
6					2	100				JN,PL,Ro JN,PL,SM JN,IR,Ro												Sand		
7	HQ Core 76 mm I.D.																							
8										JN,PL,SM												Screen and Sand		
9					3	100																		
10																						Sand		
11		END OF DRILLHOLE		205.52																		Caved		
12				10.48																				

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-19

SHEET 1 OF 2

LOCATION: N 7047343.0 ; E 514410.0

DRILLING DATE: March 28, 2010

DATUM: NAD83

ELEVATION: 218

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0		GROUND SURFACE		218.00											
		SNOW		0.00											
		Black to dark brown, fibrous, PEAT		0.08	1	100	1	CA					W OC		
1					2	100	2	CA					W OC		
2					3	100	3	CA							
3	Dry				4	100	4	CA							
4	Reamed HW Casing														
5		Brown to grey, silty CLAY, some gravel and sand (Glacial Lacustrine Deposit)		213.38 4.62			3	CA					W OC		
6		(Note: Presence of boulders/cobbles, matrix washed away by drilling)													
7	Water														
8															
9	HQ Core	Dark grey with some orange alteration, fresh, strong to very strong, CORDIERITE SCHIST		209.25 8.75			4	WS					MH DR		
10															
		CONTINUED NEXT PAGE													

28/03/2010

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-19

SHEET 2 OF 2

LOCATION: N 7047343.0 ; E 514410.0


DRILLING DATE: March 28, 2010

DATUM: NAD83

ELEVATION: 218

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10		--- CONTINUED FROM PREVIOUS PAGE --- Dark grey with some orange alteration, fresh, strong to very strong, CORDIERITE SCHIST													
11															
12	HO Core														
13															
14															
14		END OF BOREHOLE		203.83 14.17											
15															
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-19

SHEET 1 OF 1

LOCATION: N 7047343.0 ; E 514410.0

DRILLING DATE: March 28, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV.		PENETRATION RATE min(m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
				DEPTH (m)	209.25			TOTAL CORE %	SOLID CORE %				10 <sup>9</sup>	10 <sup>8</sup>	10 <sup>7</sup>	R4	R3	R2	R1	W1	W2	W3		W4
				DEPTH (m)	8.75			80	80				80	80	80	80	80	80	80	80	80	80		80
9	HQ Core	Continued from Borehole Log		209.25	8.75																			
		Dark grey with some orange alteration, fresh, strong to very strong, CORDIERITE SCHIST																						
10																								
11																								
12																								
13																								
14																								
14		END OF DRILLHOLE		203.83	14.17																			
15																								
16																								
17																								
18																								

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-20S

SHEET 1 OF 1

LOCATION: N 7047387.0 ; E 514514.0

DRILLING DATE: March 28, 2010

DATUM: NAD83

ELEVATION: 218

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
		GROUND SURFACE		218.00										Stick-up: 0.80m	
		See Borehole log GA-10-20D		0.00											
0															
1														Open	
2															
3														Bentonite	
4	Reamed HW Casing Water													Sand	
5														Screen and Sand	
6															
7														Sand	
		END OF BOREHOLE		210.66 7.34										Caved	
8															
9															
10															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 5/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.



PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-20D

SHEET 2 OF 2

LOCATION: N 7047388.0 ;E 514514.0

DRILLING DATE: March 29, 2010

DATUM: NAD83

ELEVATION: 218

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	HQ Core	--- CONTINUED FROM PREVIOUS PAGE --- Dark grey, fresh, strong to very strong, CORDIERITE SCHIST											Stick-up: 0.75m		
		10.52 m to 10.68 m slightly weathered zone of very weak rock												Bentonite	
11														Sand	
12														Screen and Sand	
13															
14		At 13.75m a 10 cm FELDSPAR PORPHYRY DYKE													
15		At 14.60m a 20 cm FELDSPAR PORPHYRY DYKE											Sand		
15		END OF BOREHOLE		203.05 14.95											
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-20D

SHEET 1 OF 1

LOCATION: N 7047388.0 ; E 514514.0

DRILLING DATE: March 29, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %				10 <sup>9</sup>	10 <sup>8</sup>	10 <sup>7</sup>	R4	R3	R2	R1	W1	W2	W3		W4
								88888888	88888888				88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888		88888888
		Continued from Borehole Log		209.71																	Stick-up: 0.75m			
9		Dark grey, fresh, strong to very strong, CORDIERITE SCHIST		8.29	1	100															Caved			
10					2	100															Bentonite			
11		10.52 m to 10.68 m slightly weathered zone of very weak rock			3	100					BC	JN,IR,VRo JN,ST,Ro									Sand			
12	HQ Core				4	100						JN,ST,Ro JN,ST,Ro JN,PL,SM									Screen and Sand			
13					5	100						JN,UN,Ro JN,ST,VRo JN,ST,Ro JN,ST,Ro JN,IR,VRo												
14		At 13.75m a 10 cm FELDSPAR PORPHYRY DYKE										JN,PL,SM												
15		At 14.60m a 20 cm FELDSPAR PORPHYRY DYKE										JN,ST,VRo										Sand		
15		END OF DRILLHOLE		203.05 14.95																				

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-21D

SHEET 1 OF 3

LOCATION: N 7047766.0 ; E 514082.0

DRILLING DATE: March 29, 2010

DATUM: NAD83

ELEVATION: 237

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	WATER CONTENT PERCENT					
										Wp	W	Wi			
0		GROUND SURFACE		237.00									Stick-up: 0.75m		
	Dry	Dark brown peaty silt (TOPSOIL)		0.00									Open		
	Reamed HW Casing	Dark grey, fresh, very strong, LAPILLI TUFF		236.61				See Drillhole GA-10-21D for details							
1				0.39											
2															
3															
4															
5	HQ Core 76 mm I.D.														
6															
7															
8															
9															
10															

CONTINUED NEXT PAGE

30/03/2010

Open  
Note: Unable to backfill hole due to frozen condition

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-21D

SHEET 2 OF 3

LOCATION: N 7047766.0 ;E 514082.0

DRILLING DATE: March 29, 2010

DATUM: NAD83

ELEVATION: 237

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10		--- CONTINUED FROM PREVIOUS PAGE --- Dark grey, fresh, very strong, LAPILLI TUFF												Stick-up: 0.75m	
11															
12															
13															
14															
15	HQ Core 76 mm I.D.														
16														Bentonite	
17														Sand	
18														Screen and Sand	
19															
20				217.00										Sand	
		CONTINUED NEXT PAGE													

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-21D

SHEET 3 OF 3

LOCATION: N 7047766.0 ;E 514082.0


DRILLING DATE: March 29, 2010

DATUM: NAD83

ELEVATION: 237

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
20		--- CONTINUED FROM PREVIOUS PAGE --- END OF BOREHOLE		20.00									Stick-up: 0.75m		
21													Sand Caved 		
22															
23															
24															
25															
26															
27															
28															
29															
30															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.





PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-22

SHEET 1 OF 2

LOCATION: N 7045862.0 ; E 514220.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

ELEVATION: 208

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0		GROUND SURFACE		208.00											
	Dry	ICE		0.00											
	Dry	brown-black, fibrous, PEAT, with wood and roots		0.15	1	100	1	CA							
	Water	Brown, silty CLAY/clayey SILT, trace sand, ice lenses and pockets of peat (boulders/cobbles from 0.45 m to 0.77 m)		207.67			2	CA							
	Water			0.33											
1	Dry														
	Dry						3	100							
				206.30			3	CA							
2		Boulders/cobbles, matrix washed away by drilling		1.70											
3															
4	Reamed HW Casing														
5	Water														
6															
7															
8															
				199.69											
				8.31											
9	NQ Core 60 mm I.D.	Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE													
10															
		CONTINUED NEXT PAGE													

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-22

SHEET 2 OF 2

LOCATION: N 7045862.0 ;E 514220.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

ELEVATION: 208

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	NQ Core 60 mm I.D.	--- CONTINUED FROM PREVIOUS PAGE ---													
		Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE													
11															
12															
13		Dark green, strong to very strong, fresh, MAGNETITE SCHIST		194.75	13.25										
14		Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE		193.50	14.50										
15															
16		END OF BOREHOLE		191.77	16.23										
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-22

SHEET 1 OF 1

LOCATION: N 7045862.0 ; E 514220.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %				10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	R4	R3	R2	R1	W1	W2	W3		W4
								80000000	80000000				80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000	80000000		80000000
		Continued from Borehole Log		199.69																				
9		Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE		8.31																				
	1			100									JN,UN,VRo											
		Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE		2																				
				100									JN,CU,Ro JN,UN,Ro											
		Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE		3																				
				100									JN,UN,Ro JN,UN,Ro											
		Dark green, strong to very strong, fresh, MAGNETITE SCHIST		194.75																				
				13.25																				
		Dark grey, fresh, strong to very strong, SUB ARKOSIC ARENITE		193.50																				
				14.50									JN,UN,Ro JN,UN,Ro											
		END OF DRILLHOLE		191.77																				
				16.23																				

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-23

SHEET 1 OF 2

LOCATION: N 7045763.0 ;E 514205.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

ELEVATION: 207

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>			10 <sup>-4</sup>	10 <sup>-3</sup>
										WATER CONTENT PERCENT					
		GROUND SURFACE		207.00											
0	Dry	ICE		0.02			ICE - Frozen surface water								
		Dark brown, peaty clay, (TOPSOIL)		206.68	1	111	1	Frozen Soil					W OC		
		Light brown and dark grey, silty CLAY/clayey SILT, trace sand, trace gravel, trace roots		0.32			2								
		Boulders/cobbles, matrix washed away by drilling - Return water light brown colour		206.29	2	100									
1				0.71									01/04/2010		
2	Reamed HW Casing Water														
3															
4															
5		Greenish grey with white veining (approximately 1 mm), fresh, medium strong to strong, SUB ARKOSIC ARENITE		202.33			See Drillhole GA-10-23 for details								
6				4.67											
7	NQ Core														
8															
9															
10															

CONTINUED NEXT PAGE

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-23

SHEET 2 OF 2

LOCATION: N 7045763.0 ;E 514205.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

ELEVATION: 207

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	NQ Core	--- CONTINUED FROM PREVIOUS PAGE ---													
		Greenish grey with white veining (approximately 1 mm), fresh, medium strong to strong, SUB ARKOSIC ARENITE													
11		END OF BOREHOLE		195.92											
				11.08											
12															
13															
14															
15															
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-23

SHEET 1 OF 1

LOCATION: N 7045763.0 ; E 514205.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY			R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %	FLUSH				K <sub>10</sub>	K <sub>5</sub>	K <sub>1</sub>	R <sub>4</sub>	R <sub>3</sub>	R <sub>2</sub>	R <sub>1</sub>	W <sub>1</sub>	W <sub>2</sub>	W <sub>3</sub>		W <sub>4</sub>
								100	100	100				10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	10 <sup>0</sup>		10 <sup>1</sup>
		Continued from Borehole Log		202.33																					
5		Greenish grey with white veining (approximately 1 mm), fresh, medium strong to strong, SUB ARKOSIC ARENITE		4.67								JN,IR,Ro													
6	1			100								JN,IR,Ro													
7													JN,CU,SM												
8	NQ Core																								
9																									
10																									
11																									
		END OF DRILLHOLE		195.92																					
				11.08																					

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-24

SHEET 1 OF 1

LOCATION: N 7045671.0 ; E 513962.0




DRILLING DATE: April 1, 2010

DATUM: NAD83

ELEVATION: 208

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0	Reamed HW Casing Water	GROUND SURFACE		208.00											
		Boulders/cobbles, matrix washed away by drilling - Return water brown, some coarse to medium sand visible, trace some peat		0.00				Possible Frozen							02/04/2010 
2	NQ Core	Dark green, fresh, strong, bedded TUFFS - Mineralized (arseno pyrite) from 2.02 m to 7.39 m		206.04 1.96				See Drillhole GA-10-24 for details							
3															
4															
5															
6															
7															
		END OF BOREHOLE		200.61 7.39											
8															
9															
10															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-24

SHEET 1 OF 1

LOCATION: N 7045671.0 ; E 513962.0

DRILLING DATE: April 1, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY				ROCK STRENGTH INDEX				WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %				10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	R4	R3	R2	R1	W1	W2	W3	W4		
								FLUSH	FLUSH				FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH	FLUSH		FLUSH
		Continued from Borehole Log		206.04																						
2		Dark green, fresh, strong, bedded TUFFS - Mineralized (arseno pyrite) from 2.02 m to 7.39 m		1.96				100																		
3																										
4																										
5																										
6																										
7																										
8		END OF DRILLHOLE		200.61																						
9				7.39																						
10																										
11																										

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10\_BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-25S

SHEET 1 OF 1

LOCATION: N 7045655.0 ; E 513888.0

DRILLING DATE: April 2, 2010

DATUM: NAD83

ELEVATION: 207

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0		GROUND SURFACE		207.00										Stick-up: 0.80m	
		See Borehole log GA-10-25D		0.00										Open	
1	Reamed HW Casing Water													Bentonite	
2														Caved	
3														Screen and Caved	
4														Screen and Sand	
5	HQ Core Water	END OF BOREHOLE		202.27 4.73										Sand	
6															
7															
8															
9															
10															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 5/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-25D

SHEET 1 OF 2

LOCATION: N 7045653.0 ; E 513890.0

DRILLING DATE: April 2, 2010

DATUM: NAD83

ELEVATION: 207

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %		SAMPLE No.	TYPE	WATER CONTENT PERCENT					
										Wp	W			Wi	W
0	Dry	GROUND SURFACE		207.00									Stick-up: 0.80m		
		ICE		0.00			ICE - Frozen surface water								
		Dark brown, no odour, peaty clay (TOPSOIL), lenses of ice		0.10			Vx								
		Dark brown, silty CLAY/clayey SILT, some sand		0.18			Vx								
1					1	92	Frozen soil					MH	Open		
							Possible Frozen								
2	Remained HW Casing			205.65											
	Water	Boulders/cobbles, matrix washed away by drilling - Return water brown to grey		1.35								MH DR	Bentonite		
3													Caved		
4															
5	HQ Core			201.70											
	Water			5.30			See Drillhole GA-10-25D for details						Bentonite		
6		Dark green, fresh, very strong, bedded TUFFS - Mineralized (arseno pyrite) from 5.30 to 6.50													
7													Sand		
8	HQ Core														
	76 mm I.D.														
9													Screen and Sand		
10															

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MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-25D

SHEET 2 OF 2

LOCATION: N 7045653.0 ;E 513890.0

DRILLING DATE: April 2, 2010

DATUM: NAD83

ELEVATION: 207

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	HQ Core 76 mm I.D.	--- CONTINUED FROM PREVIOUS PAGE ---												Stick-up: 0.80m	
		Dark green, fresh, very strong, bedded TUFFS - Mineralized (arseno pyrite) from 5.30 to 6.50													Screen and Sand
11		END OF BOREHOLE			195.70										Sand
				11.30											
12															
13															
14															
15															
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-25D

SHEET 1 OF 1

LOCATION: N 7045653.0 ; E 513890.0

DRILLING DATE: April 2, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY			R.Q.D. %	FRACT. INDEX PER 0.3 m	Broken Core	DIP W.T.L. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	HYDRAULIC CONDUCTIVITY K, m/sec			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %	FLUSH						10 <sup>a</sup>	10 <sup>b</sup>	10 <sup>c</sup>	R4	R3	R2	R1	W1	W2	W3		W4
								88888888	88888888	88888888						88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888		88888888
		Continued from Borehole Log		201.70																					Stick-up: 0.80m		
6		Dark green, fresh, very strong, bedded TUFFS - Mineralized (arseno pyrite) from 5.30 to 6.50		5.30																					Bentonite		
7					1		100																		Sand		
8	HQ Core 76 mm I.D.																										
9					2		100																			Screen and Sand	
10																											
11					3		100							JN,PL,Ro												Sand	
		END OF DRILLHOLE		195.70										JN,PL,VRo													
12				11.30																							
13																											
14																											
15																											

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-26S

SHEET 1 OF 1

LOCATION: N 7045784.0 ; E 514286.0

DRILLING DATE: April 3, 2010

DATUM: NAD83

ELEVATION: 206

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0		GROUND SURFACE See Borehole log GA-10-26D		206.00 0.00									Stick-up: 0.80m		
1													Open		
2													Bentonite		
3	Reamed HW Casing Water												Caved		
4													Screen and Caved		
5													Sand		
5		END OF BOREHOLE		200.71 5.29									Caved		
6															
7															
8															
9															
10															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 5/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-26D

SHEET 1 OF 2

LOCATION: N 7045782.0 ;E 514290.0

DRILLING DATE: April 3, 2010

DATUM: NAD83

ELEVATION: 206

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0	Dry	GROUND SURFACE		206.00										Stick-up: 0.90m	
		SNOW		0.05											
		Dark brown, fibrous, PEAT, some roots		205.65	1	100	1	CA							
		Dark grey, organic odour, clayey SILT, some sand, trace gravel, and ICE lenses		0.35			2	CA							
	Reamed HW Casing Water	Boulders/cobbles, matrix washed away by drilling -Return water contains fine SAND		205.41											
				0.59											
1															
2															
3															
4															
5															
6		Red, fresh, very strong, RHYOLITIC VOLCANIC, FELSPAR ALTERED		200.35											
				5.65											
7															
8	HQ Core														
9															
10															

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MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-26D

SHEET 2 OF 2

LOCATION: N 7045782.0 ;E 514290.0

DRILLING DATE: April 3, 2010

DATUM: NAD83

ELEVATION: 206

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
								Wp	W	Wi					
								10	20	30	40				
10	HQ Core	--- CONTINUED FROM PREVIOUS PAGE ---												Stick-up: 0.90m	
		Red, fresh, very strong, RHYOLITIC VOLCANIC, FELSPAR ALTERED													
11															Screen and Sand
12															Sand
		END OF BOREHOLE		193.67 12.33										Caved	
13															
14															
15															
16															
17															
18															
19															
20															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-26D

SHEET 1 OF 1

LOCATION: N 7045782.0 ;E 514290.0

DRILLING DATE: April 3, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DIP W.T.L. CORE AXIS	DISCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	HYDRAULIC CONDUCTIVITY K, m/sec			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %					10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	R4	R3	R2	R1	W1	W2	W3		W4
								88888888	88888888					88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888		88888888
		Continued from Borehole Log		200.35																		Stick-up: 0.90m			
6		Red, fresh, very strong, RHYOLITIC VOLCANIC, FELSPAR ALTERED		5.65	1	100																Caved			
7					2	100																Sand			
8					3	100							JN,UN,Ro JN,PL,SM JN,UN,SM												
9	HQ Core												JN,CU,Ro												
10					4	100							JN,IR,VRo JN,UN,Ro									Screen and Sand			
11					5	100							JN,UN,Ro JN,PL,SM												
12													JN,UN,Ro JN,PL,Ro									Sand			
				193.67																		Caved			
				12.33																					
13																									
14																									
15																									

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10\_BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-27S

SHEET 1 OF 1

LOCATION: N 7046315.0 ;E



DRILLING DATE: April 5, 2010

DATUM: NAD83

ELEVATION: 224

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
0	Reamed HW Casing Water	GROUND SURFACE		224.00										Stick-up: 0.87m	
		Boulders/cobbles, matrix washed away by drilling - Coarse to fine SAND, some clay		0.00				Possible Frozen							
2				220.70											
3		END OF BOREHOLE		3.30											
4															
5															
6															
7															
8															
9															
10															

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 5/11/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-27D

SHEET 1 OF 2

LOCATION: N 7046315.0 ;E

DRILLING DATE: April 4-5, 2010

DATUM: NAD83

ELEVATION: 224

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
										WATER CONTENT PERCENT					
		GROUND SURFACE		224.00										Stick-up: 0.80m	
0	Reamed HW Casing Water	See Borehole log GA-10-27S		0.00										Open	
1															
2														Caved	
3															
4		Dark green with orangey red banding, fresh, very strong, SUBARKOSIC ARENITE		220.60 3.40				See Drillhole GA-10-26D for details							
5															
6															
7	HQ Core														
8														Bentonite / Void due to bridging	
9		Orangey red with dark green bands, fresh, very strong, SUBARKOSIC ARENITE with FELDSPAR ALTERATION		215.50 8.50											
10															
		CONTINUED NEXT PAGE													

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.

PROJECT: 08-1118-0043 NICO Project

# RECORD OF Borehole: GA-10-27D

SHEET 2 OF 2

LOCATION: N 7046315.0 ;E

DRILLING DATE: April 4-5, 2010

DATUM: NAD83

ELEVATION: 224

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE			GROUND ICE DESCRIPTION	HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	NOTES WATER LEVELS INSTRUMENTATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	RECOVERY %	SAMPLE No.		TYPE	WATER CONTENT PERCENT					
										10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
		--- CONTINUED FROM PREVIOUS PAGE ---											Stick-up: 0.80m		
10	HQ Core	Dark green with orangey red banding, fresh, very strong, SUBARKOSIC ARENITE	[Strata Plot]	213.85 10.15											
11															
12															
13															
14															
15															
16		Orangey red with dark green bands, fresh, very strong, SUBARKOSIC ARENITE with FELDSPAR ALTERATION	[Strata Plot]	208.50 15.50											Sand
17															Screen and Sand
18		Pink, fresh, strong to very strong, QUARTZ FELDSPAR PORPHYRY	[Strata Plot]	206.75 17.25											
19															Sand
20		END OF BOREHOLE	[Strata Plot]	204.86 19.14											

MIS-BHS 005 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



LOGGED: I.M. / B.R.

CHECKED: R.W.



PROJECT: 08-1118-0043 NICO Project

# RECORD OF Drillhole: GA-10-27D

SHEET 2 OF 2

LOCATION: N 7046315.0 ;E

DRILLING DATE: April 4-5, 2010

DATUM: NAD83

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: Diamond

DRILLING CONTRACTOR: Foraco

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (min/m)	FLUSH	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3 m	DISCONTINUITY DATA	HYDRAULIC CONDUCTIVITY			ROCK STRENGTH INDEX			WEATHERING INDEX				NOTES WATER LEVELS INSTRUMENTATION	
								TOTAL CORE %	SOLID CORE %				10 <sup>a</sup>	10 <sup>b</sup>	10 <sup>c</sup>	R4	R3	R2	R1	W1	W2	W3		W4
								88888888	88888888				88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888	88888888		88888888
		--- CONTINUED FROM PREVIOUS PAGE ---																			Stick-up: 0.80m			
14		Dark green with orangey red banding, fresh, very strong, SUBARKOSIC ARENITE					100					JN,UN,Ro									Sand			
15				208.50																				
16	HQ Core	Orangey red with dark green bands, fresh, very strong, SUBARKOSIC ARENITE with FELDSPAR ALTERATION		15.50																	Screen and Sand			
17				206.75																				
18		Pink, fresh, strong to very strong, QUARTZ FELDSPAR PORPHYRY		17.25			100					JN,PL,Ro												
19				204.86								JN,CU,VRo JN,PL,Ro JN,PL,Ro									Sand			
19		END OF DRILLHOLE		19.14								JN,UN,Ro												
20																								
21																								
22																								
23																								

MIS-RCK 025 0811180043.GPJ GAL-MISS.GDT 19/10/10 BR

DEPTH SCALE

1 : 50



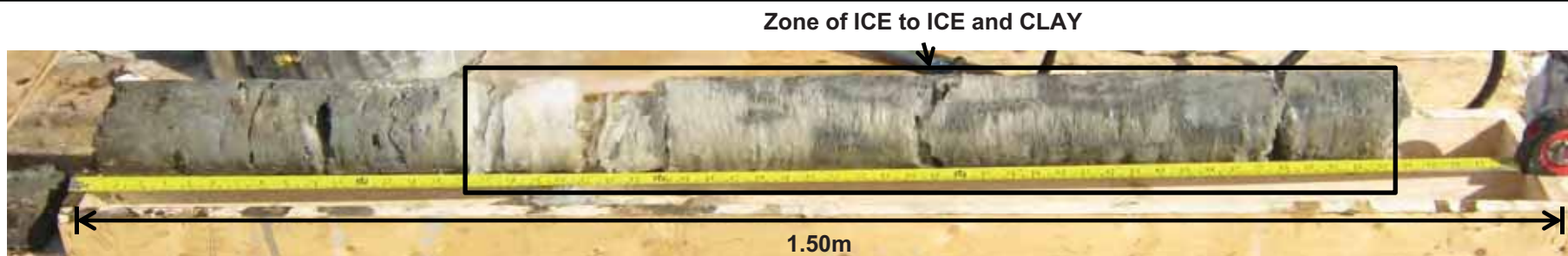
LOGGED: I.M. / B.R.

CHECKED: R.W.



# **APPENDIX C**

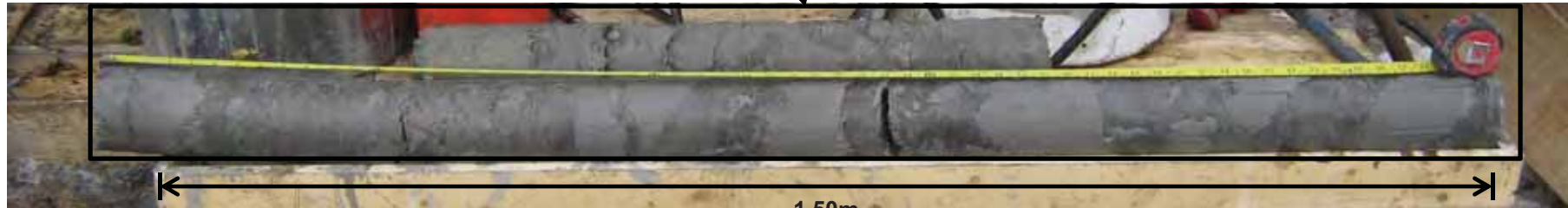
## **Photographs of Cores - Soil Cores - Rock Cores**



**Zone of ICE to ICE and CLAY**

1.50m

Depth: 2.34 m to 3.00 m




**Zone of Silty CLAY with pockets of ice**

1.50m

Depth: 4.56 m to 6.23 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

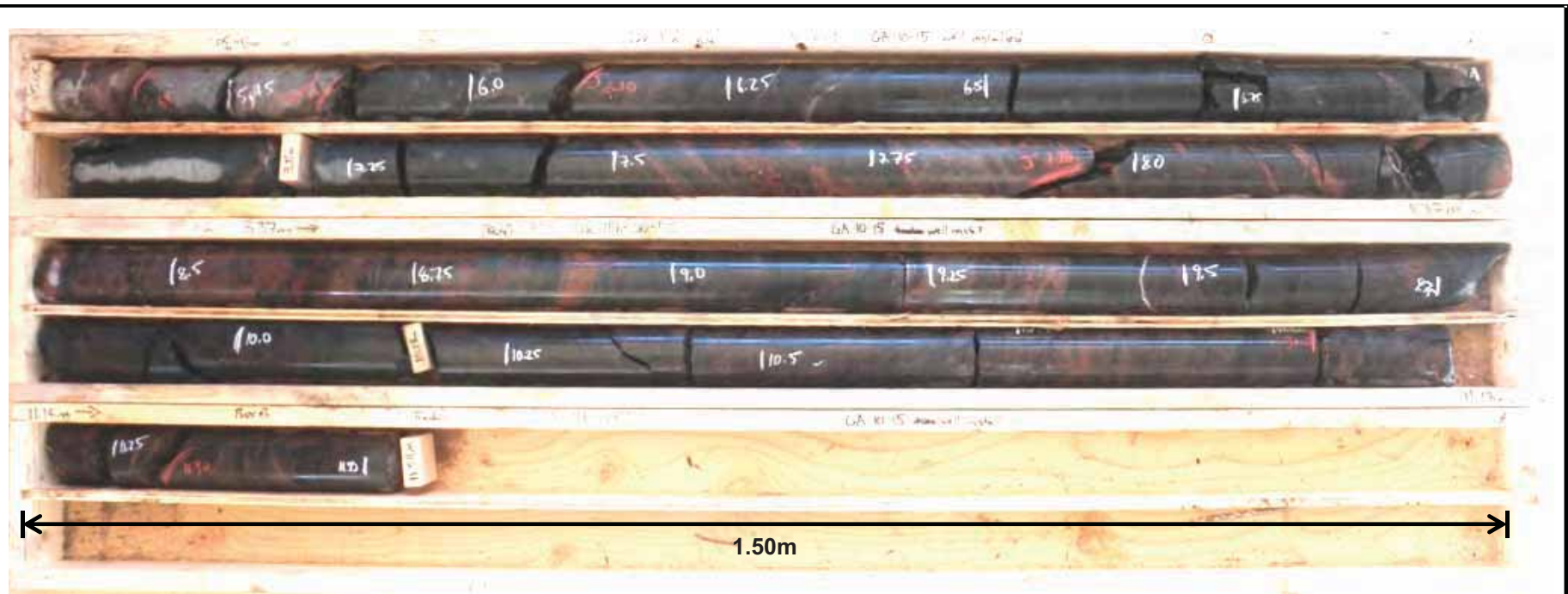
PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>			
TITLE	<b>Photograph of GA-10-20D Soil</b>			
	PROJECT No.	08-1118-0043	FILE No.	Core photos
	DESIGN	IM April 2010	SCALE	NTS REV
	CADD			
	CHECK	--		
	REVIEW			
			<b>Figure C1</b>	



Depth: 1.52 m to 8.94 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

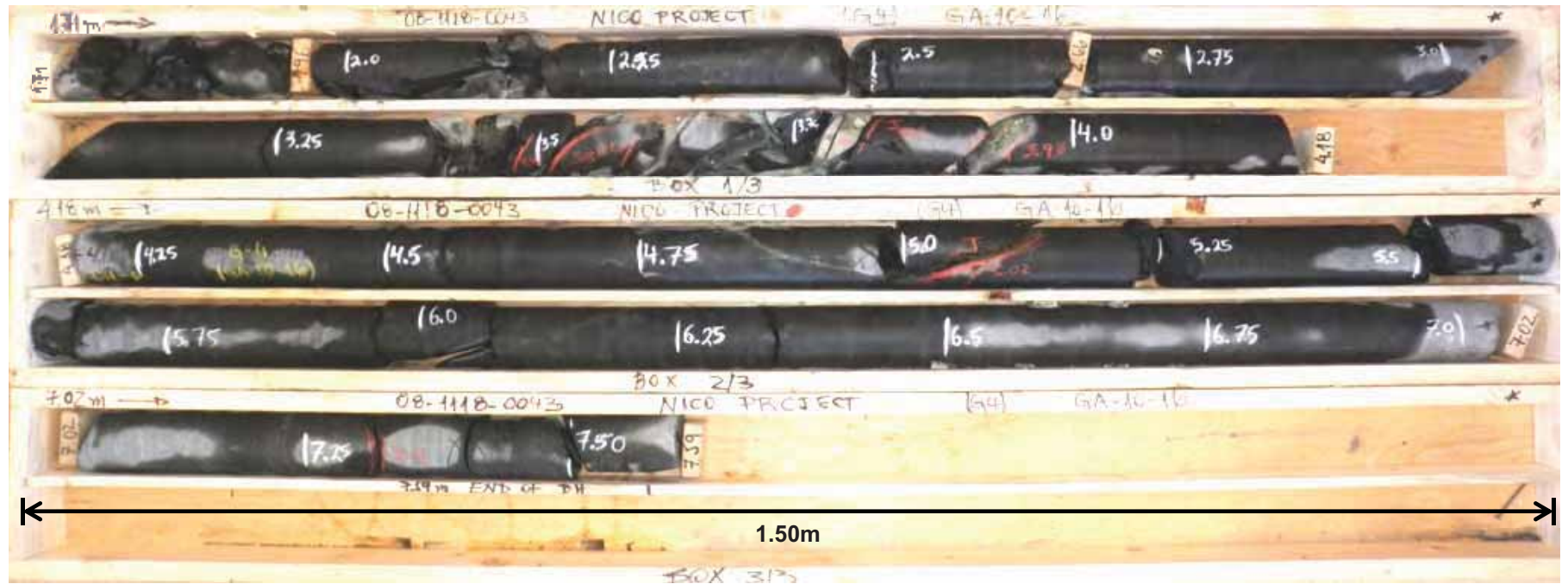
PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-14</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C2</b>	
REVIEW					



Depth: 5.05 m to 11.54 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-15D</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C3</b>	
REVIEW					



Depth: 1.71 m to 7.59 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

PROJECT	NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories				
TITLE	Photograph of GA-10-16				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		Figure C4	
REVIEW					



Depth: 2.94 m to 9.24 m

Note: Contrast and Brightness have been digitally adjusted to better display core features.


PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>			
TITLE	<b>Photograph of GA-10-17</b>			
	PROJECT No.	08-1118-0043	FILE No.	Core photos
	DESIGN	IM	April 2010	SCALE NTS REV
	CADD			
	CHECK	--		
	REVIEW			
			<b>Figure C5</b>	



1.50m

Depth: 3.28 m to 10.48 m

Note: Contrast and Brightness have been digitally adjusted to better display core features.


PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-18D</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C6</b>	
REVIEW					



1.50m

Depth: 8.75 m to 14.17 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

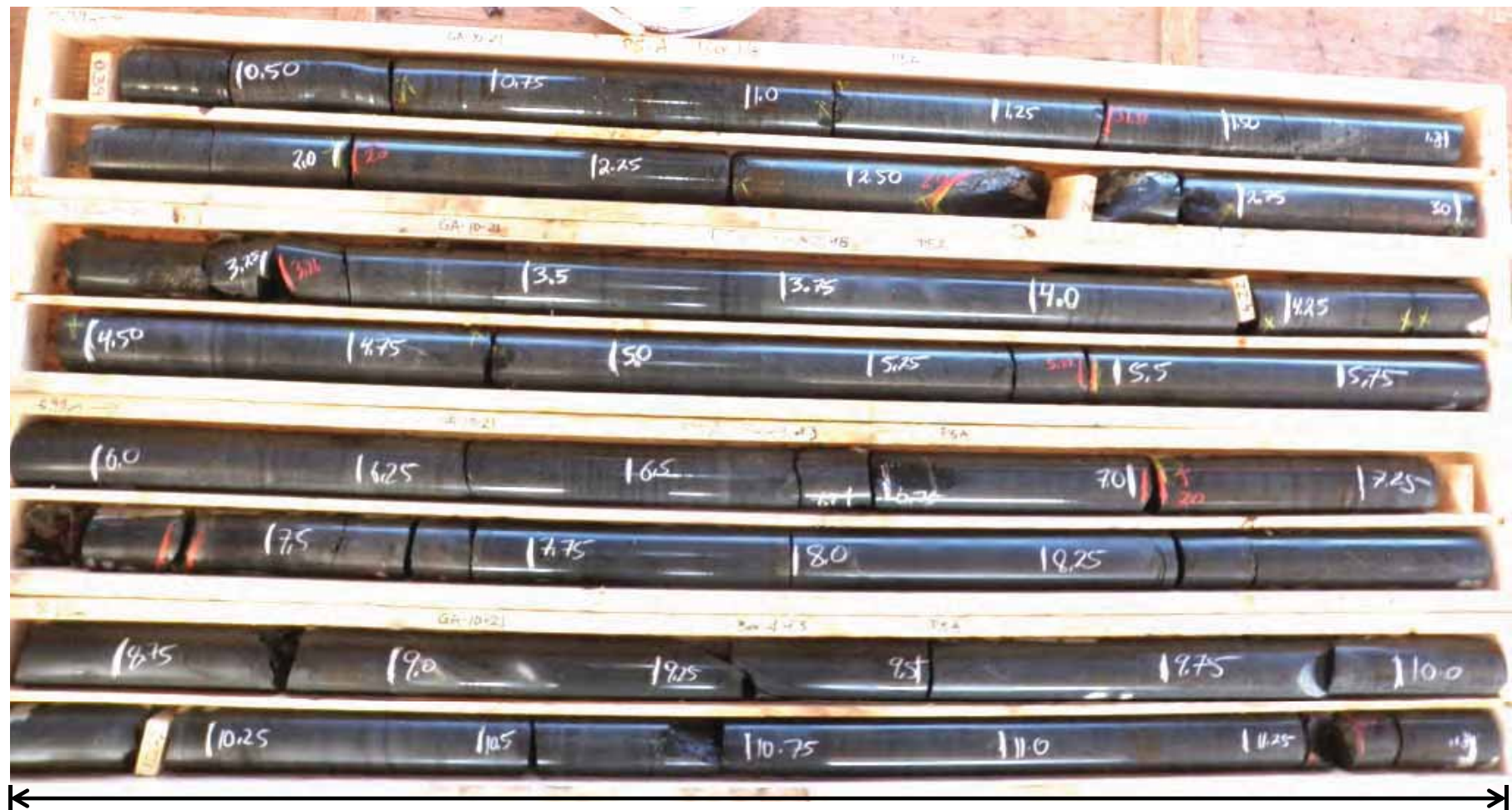
PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-19</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C7</b>	
REVIEW					

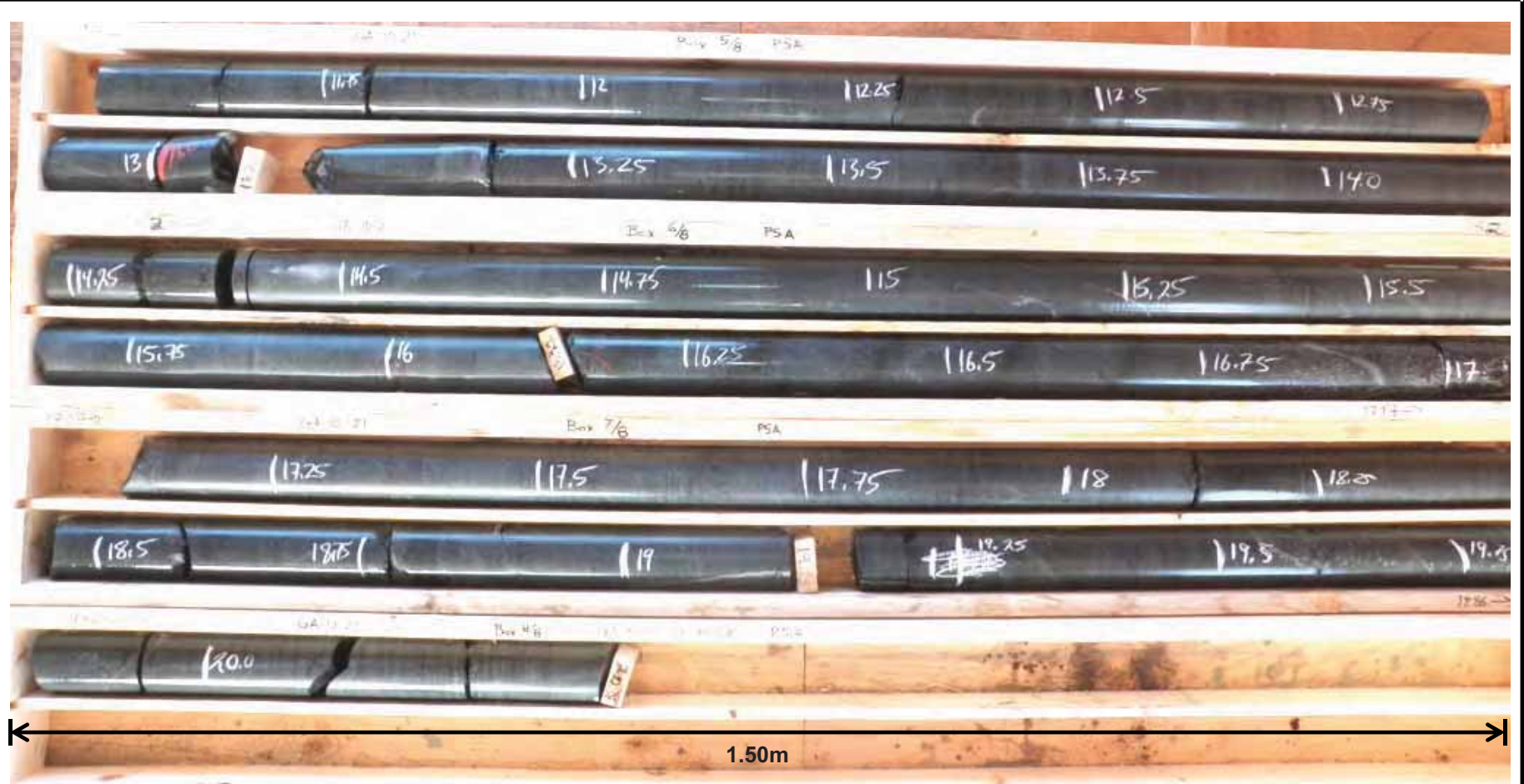


1.50m  
Depth: 8.29 m to 14.95 m

Note: Contrast and Brightness have been digitally adjusted to better display core features.


PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-20D</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C8</b>	
REVIEW					

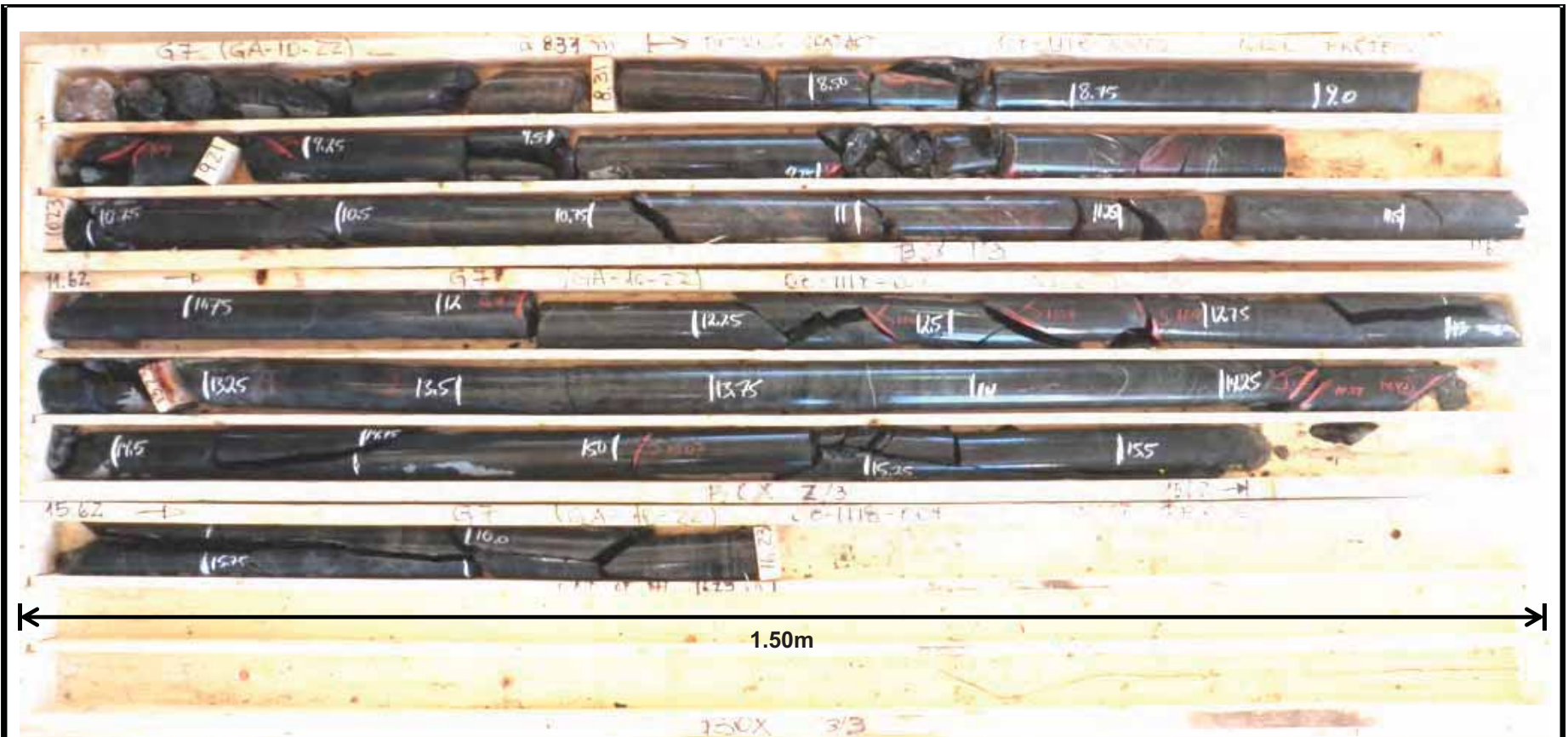




Depth: 11.53 m to 20.38 m

Note: Contrast and Brightness have been digitally adjusted to better display core features.


PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-21D (cont.)</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C10</b>	
REVIEW					



1.50m

Depth: 8.31 m to 16.23 m

Note: Contrast and Brightness have been digitally adjusted to better display core features.


PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-22</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C11</b>	
REVIEW					



1.50m

Depth: 4.67 m to 11.08 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

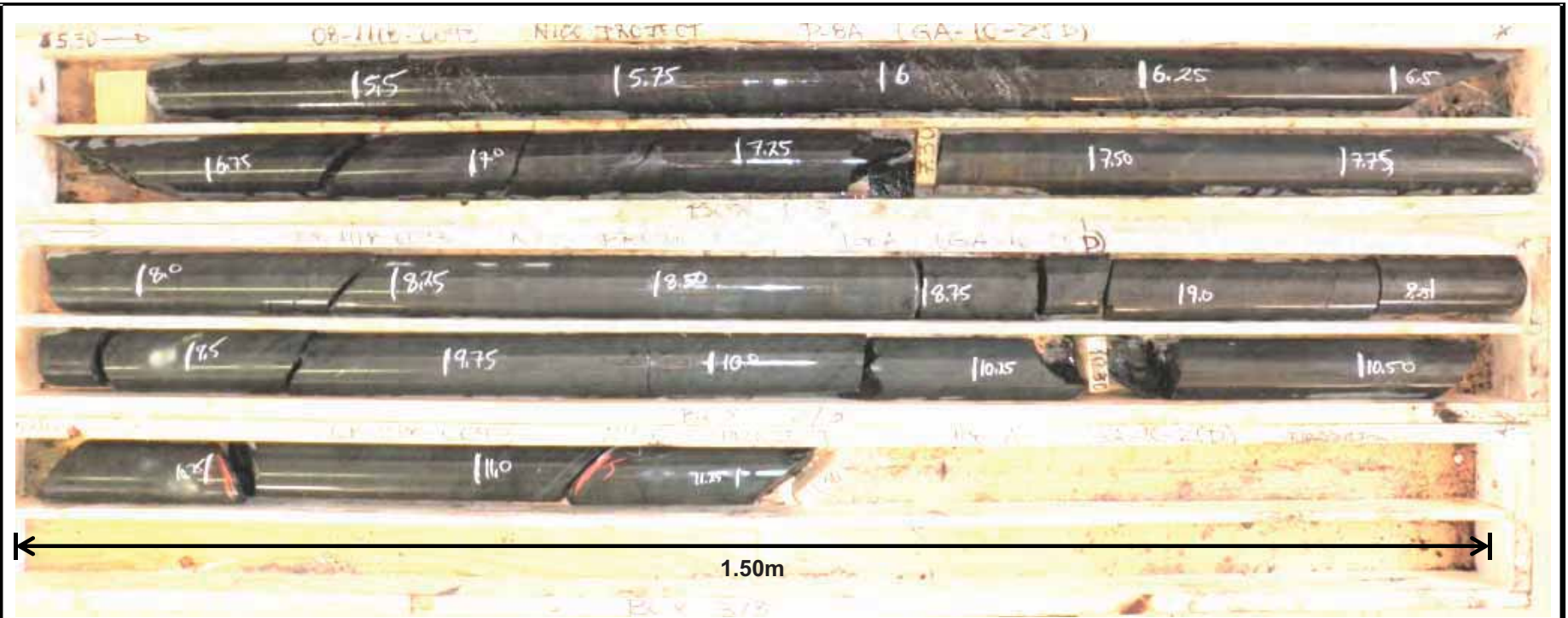
PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>			
TITLE	<b>Photograph of GA-10-23</b>			
	PROJECT No.	08-1118-0043	FILE No.	Core photos
	DESIGN	IM	April 2010	SCALE NTS REV
	CADD			
	CHECK	--		
	REVIEW			
			<b>Figure C12</b>	



Depth: 1.96 m to 7.39 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

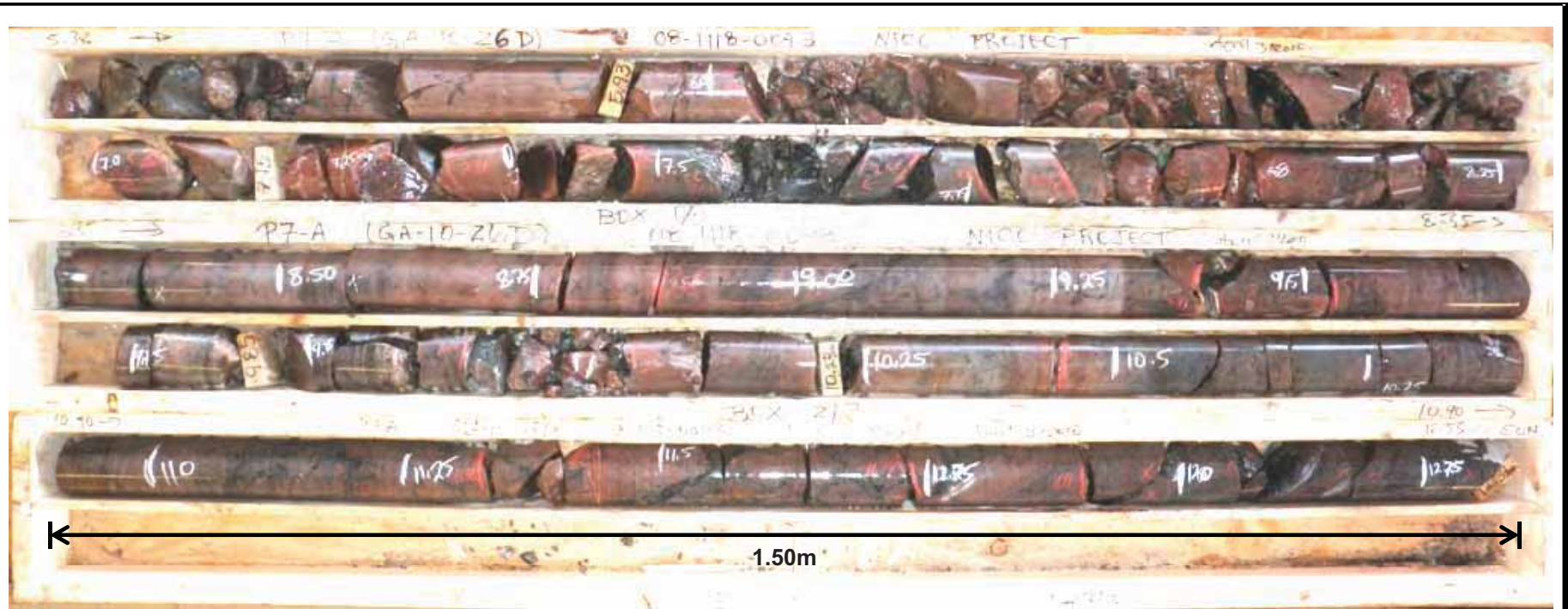
PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-24</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD				REV
	CHECK	--			
REVIEW					
					<b>Figure C13</b>



Depth: 5.30 m to 11.30 m


Note: Contrast and Brightness have been digitally adjusted to better display core features.

PROJECT		<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>			
TITLE		<b>Photograph of GA-10-25D</b>			
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD				REV
	CHECK	--			
	REVIEW				
					<b>Figure C14</b>



Depth: 5.38 m to 12.33 m

Note: Contrast and Brightness have been digitally adjusted to better display core features.

PROJECT	<b>NICO Cobalt-Gold-Bismuth-Copper Project Borehole Investigation Photos Northwest Territories</b>				
TITLE	<b>Photograph of GA-10-26D</b>				
	PROJECT No.	08-1118-0043	FILE No.	Core photos	
	DESIGN	IM	April 2010	SCALE	NTS
	CADD			REV	
	CHECK	--		<b>Figure C15</b>	
REVIEW					





# **APPENDIX D**

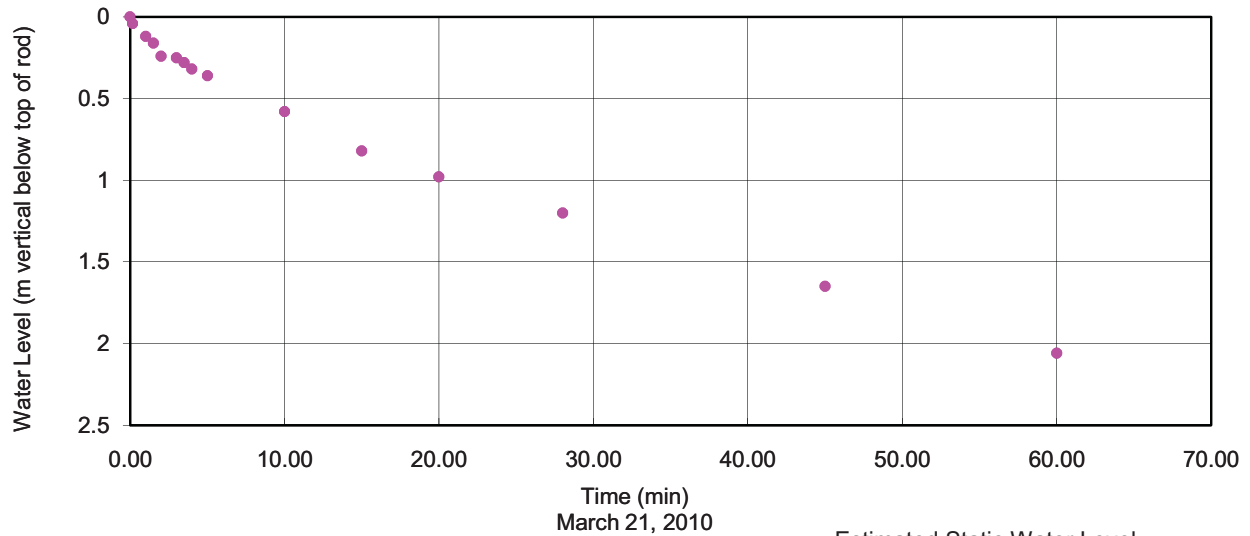
## **In-situ Hydraulic Conductivity Test Results**

# In-Situ Hydraulic Conductivity Test Report of GA-10-14

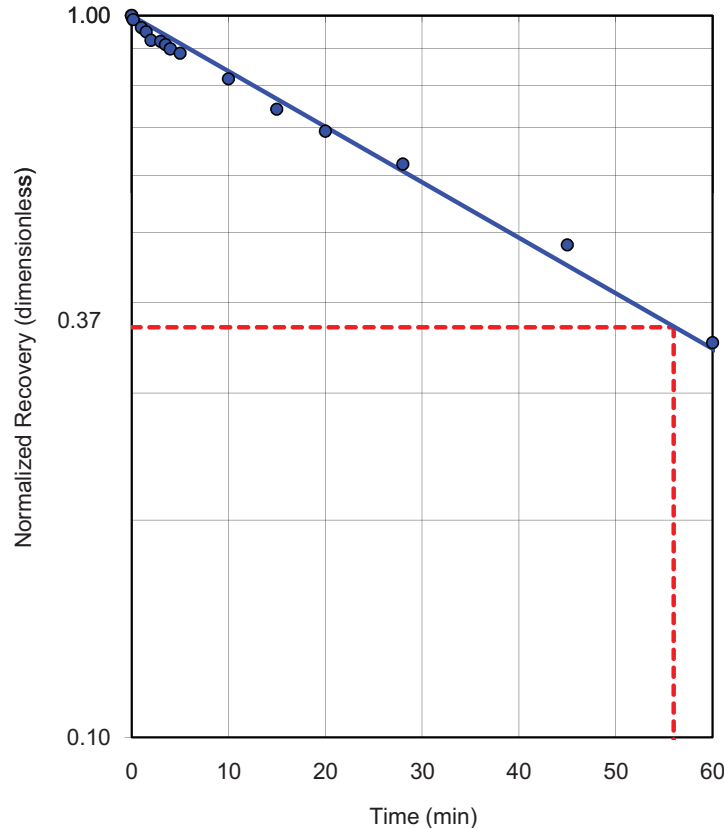
NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D1

GA-10-14  
Groundwater Level vs. Time



Normalized Recovery vs. Time



Estimated Static Water Level

3.18 m vertical below top of rod

Measuring Point Elevation

Rod was 2.73 m vertical above ground level

Representative Geologic Unit

Feldespar with Amphibole Phorphyry

Packer Interval

4.35 - 8.94 m vertical below ground surface

Time Lag ( $T_0$ ) = 56.00 min

Packer Interval ( $L$ ) = 4.59 m

Well Radius ( $r$ ) = 0.0318 m

Hole Radius ( $R$ ) = 0.0480 m

Hvorslev Analysis

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = 1.49E-07 \text{ m/s}$$

The test interval is considered to mainly occur below frozen ground based on the results of dry core drilling. Ice was observed to 0.94 m downhole.

DATE: April, 2010

PROJECT: 08-1118-0043



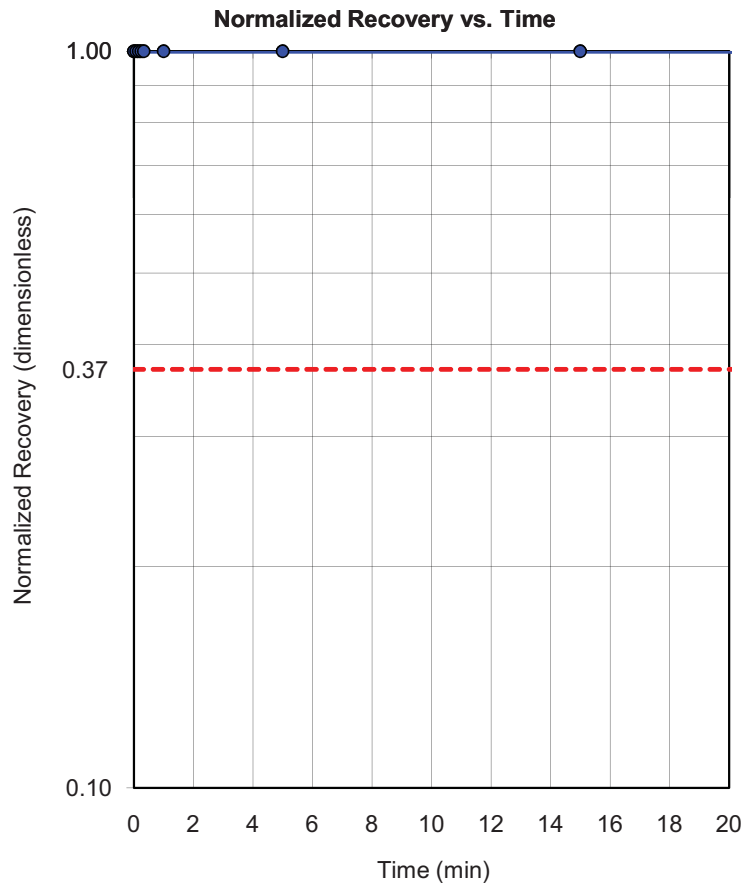
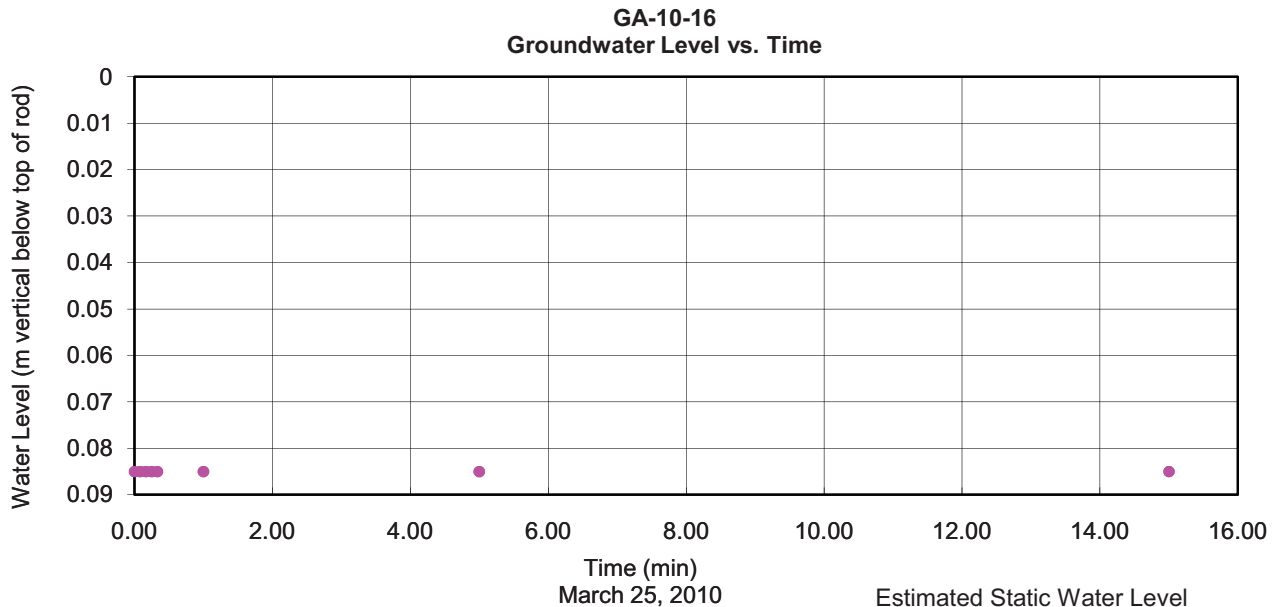
prepared by: IM

CHK: MR

# In-Situ Hydraulic Conductivity Test Report of GA-10-16

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D2



Estimated Static Water Level  
0.92 m vertical below top of rod

Measuring Point Elevation  
Rod was 0.95 m vertical above ground level

Representative Geologic Unit  
Cordierite Schist

Packer Interval  
4.79 - 7.54 m vertical below ground surface

Time Lag ( $T_0$ ) =

Packer Interval ( $L$ ) = 2.75 m

Well Radius ( $r$ ) = 0.0318 m

Hole Radius ( $R$ ) = 0.0480 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = \text{tight rock m/s}$$

The test interval is considered to mainly occur below frozen ground based on the results of dry core drilling. The interval is either very tight rock or very tight rock and frozen. Result is not representative.

DATE: April, 2010

PROJECT: 08-1118-0043



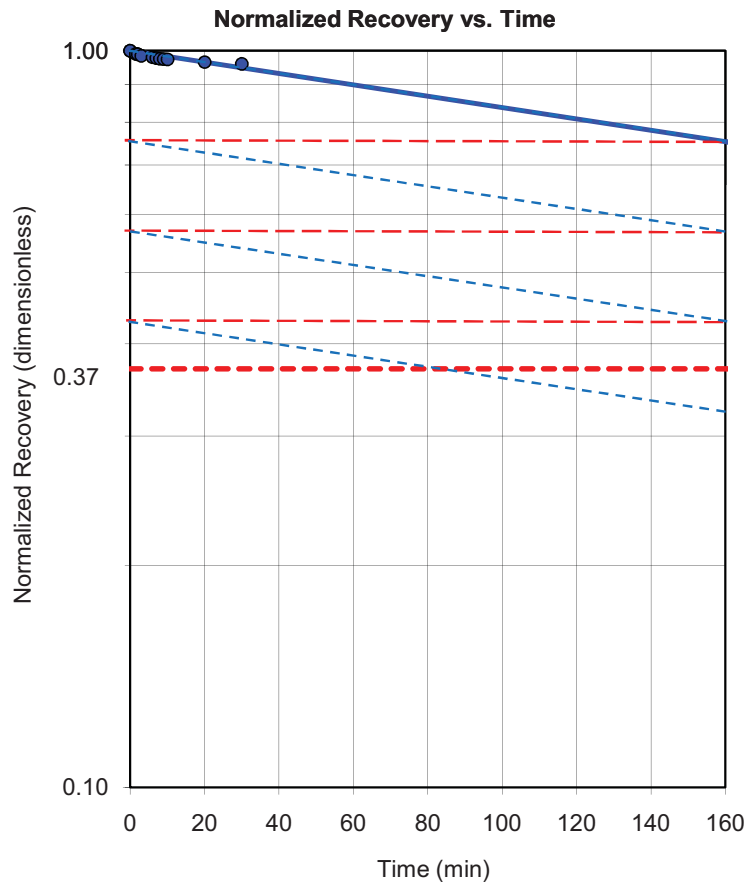
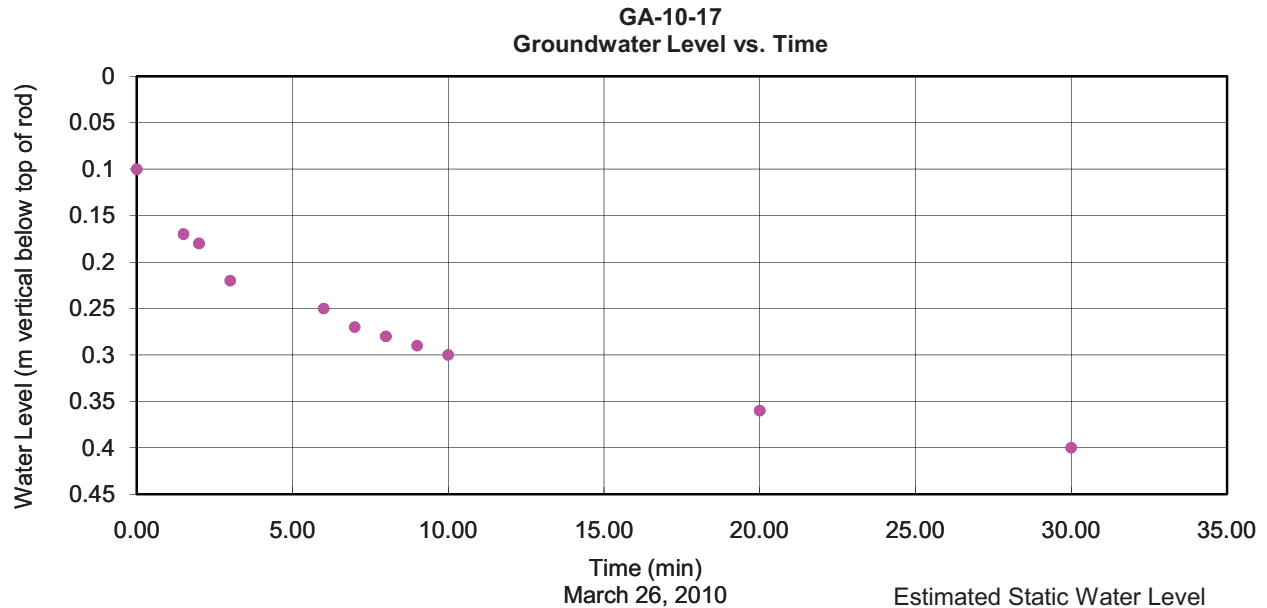
prepared by: IM

CHK: MR

# In-Situ Hydraulic Conductivity Test Report of GA-10-17

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D3



Estimated Static Water Level  
7.62 m vertical below top of rod

Measuring Point Elevation  
Rod was 2.87 m vertical above ground level

Representative Geologic Unit  
Cordierite Schist

Packer Interval  
6.50 - 9.24 m vertical below ground surface

Time Lag ( $T_0$ ) = 560.00 min  
 Packer Interval (L) = 2.74 m  
 Well Radius (r) = 0.0318 m  
 Hole Radius (R) = 0.0480 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = 2.21E-08 \text{ m/s}$$

The test interval may have occurred in frozen rock, and result may not be representative.

DATE: April, 2010  
 PROJECT: 08-1118-0043

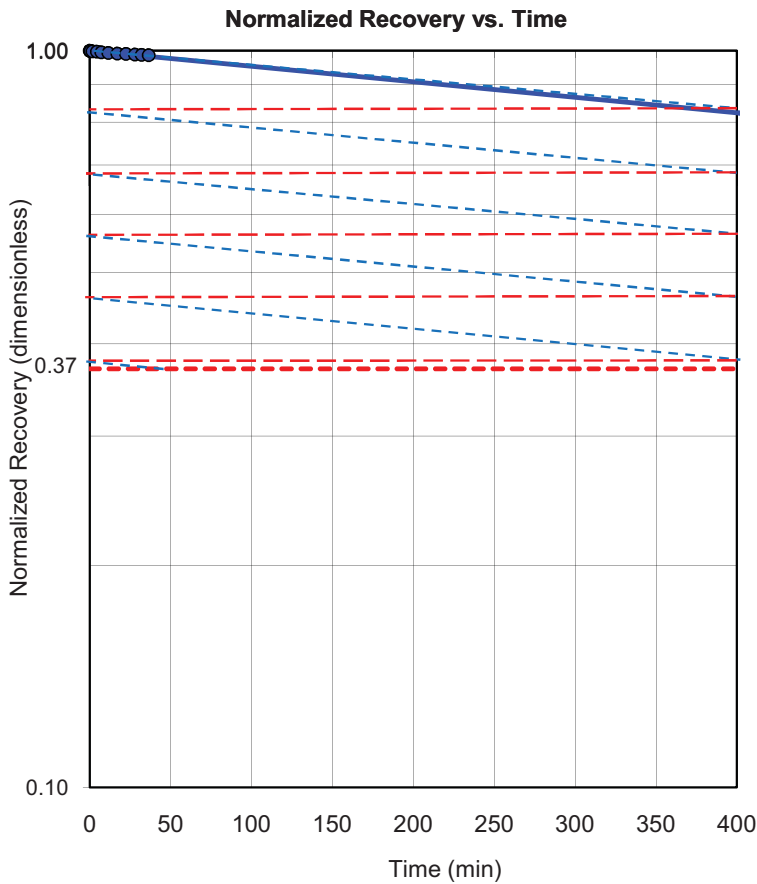
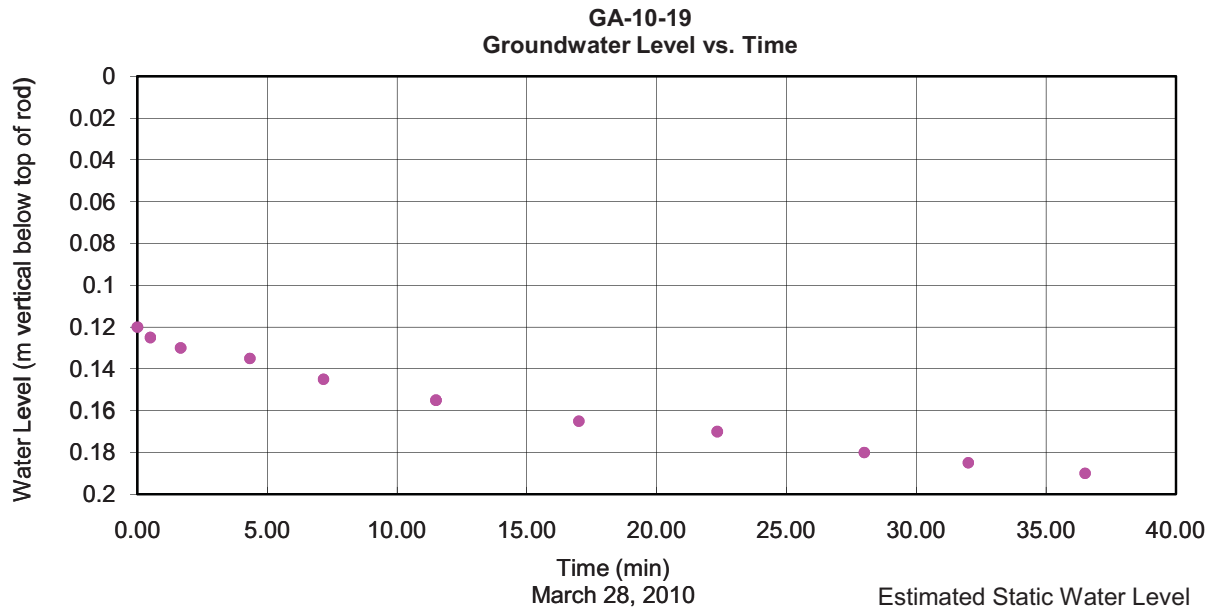


prepared by: IM  
 CHK: MR

# In-Situ Hydraulic Conductivity Test Report of GA-10-19

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D4



Estimated Static Water Level

5.24 m vertical below top of rod

Measuring Point Elevation

Rod was 2.87 m vertical above ground level

Representative Geologic Unit

Cordierite Schist

Packer Interval

10.27 - 14.17 m vertical below ground surface

Time Lag ( $T_0$ ) = 2050.00 min

Packer Interval ( $L$ ) = 3.9 m

Well Radius ( $r$ ) = 0.0318 m

Hole Radius ( $R$ ) = 0.0480 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = 4.62E-09 \text{ m/s}$$

The test interval may have occurred in frozen rock, and result may not be representative.

DATE: April, 2010

PROJECT: 08-1118-0043



prepared by: IM

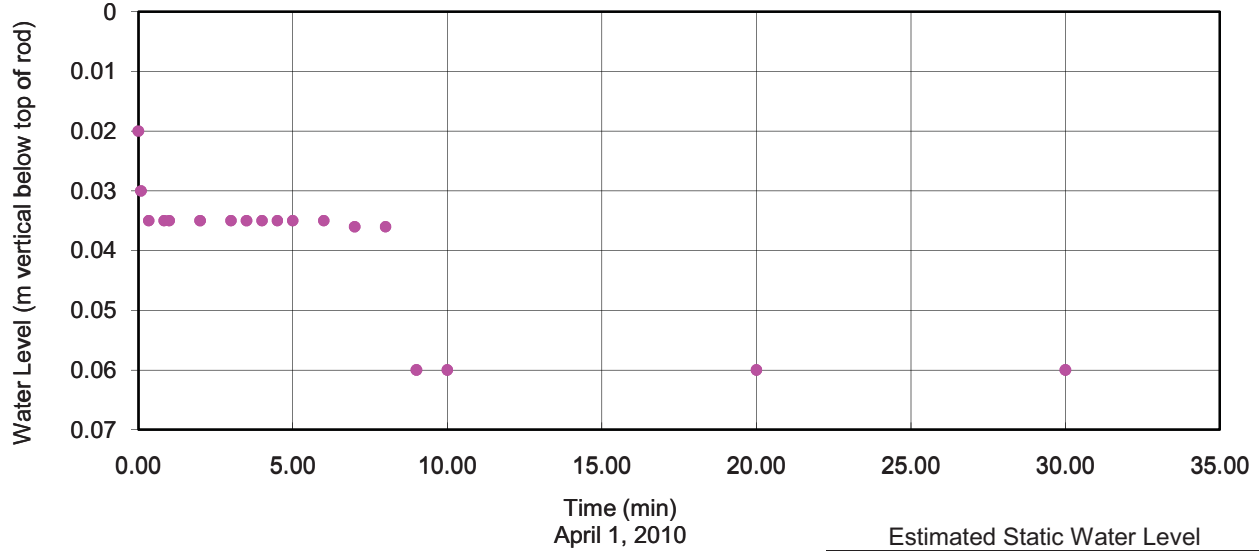
CHK: MR

# In-Situ Hydraulic Conductivity Test Report of GA-10-22

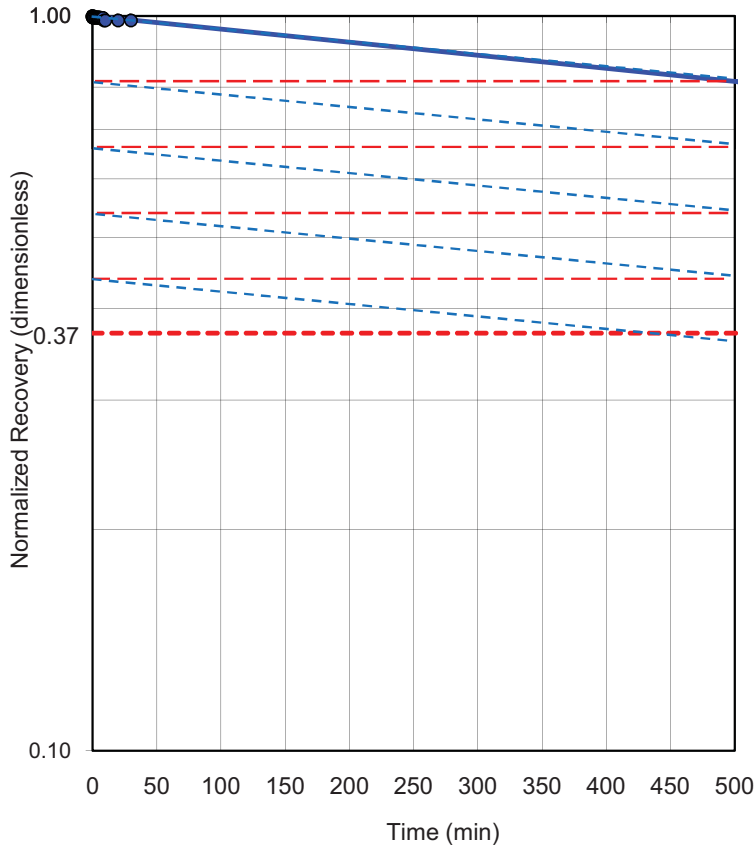
NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D5

GA-10-22  
Groundwater Level vs. Time



Normalized Recovery vs. Time



Estimated Static Water Level

2.75 m vertical below top of rod

Measuring Point Elevation

Rod was 3.22 m vertical above ground level

Representative Geologic Unit

Subarkosic Arenite with Magnetite Schist

Packer Interval

11.02 - 16.23 m vertical below ground surface

Time Lag ( $T_0$ ) = 2425.00 min

Packer Interval ( $L$ ) = 5.21 m

Well Radius ( $r$ ) = 0.0238 m

Hole Radius ( $R$ ) = 0.0379 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = 1.84E-09 \text{ m/s}$$

The test interval may have occurred in frozen rock, and result may not be representative.

DATE: April, 2010

PROJECT: 08-1118-0043



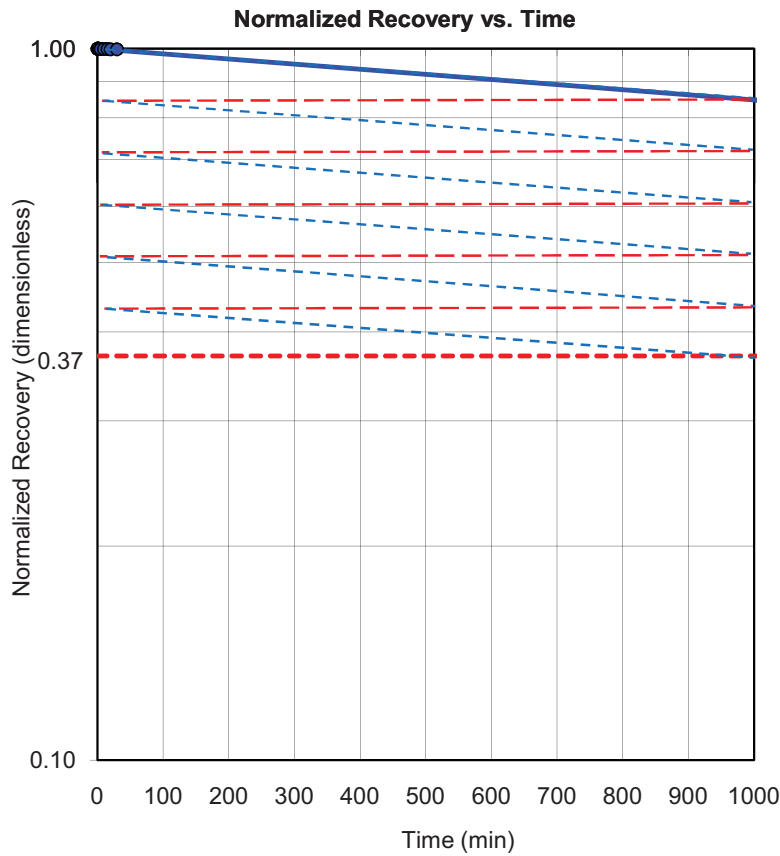
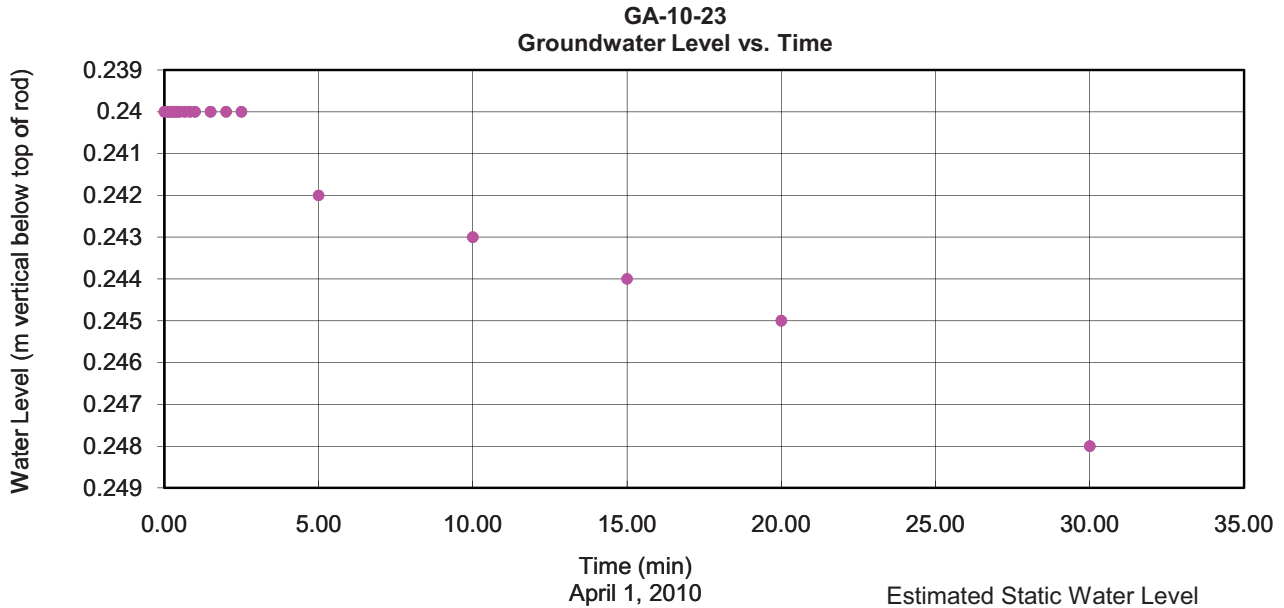
prepared by: IM

CHK: MR

# In-Situ Hydraulic Conductivity Test Report of GA-10-23

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D6



Estimated Static Water Level  
3.96 m vertical below top of rod

Measuring Point Elevation  
Rod was 3.46 m vertical above ground level

Representative Geologic Unit  
Subarkosic Arenite

Packer Interval  
6.68 - 11.08 m vertical below ground surface

Time Lag ( $T_0$ ) = 6000.00 min  
 Packer Interval (L) = 4.4 m  
 Well Radius (r) = 0.0238 m  
 Hole Radius (R) = 0.0379 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = 8.50E-10 \text{ m/s}$$

The test interval may have occurred in frozen rock, and result may not be representative.

DATE: April, 2010

PROJECT: 08-1118-0043



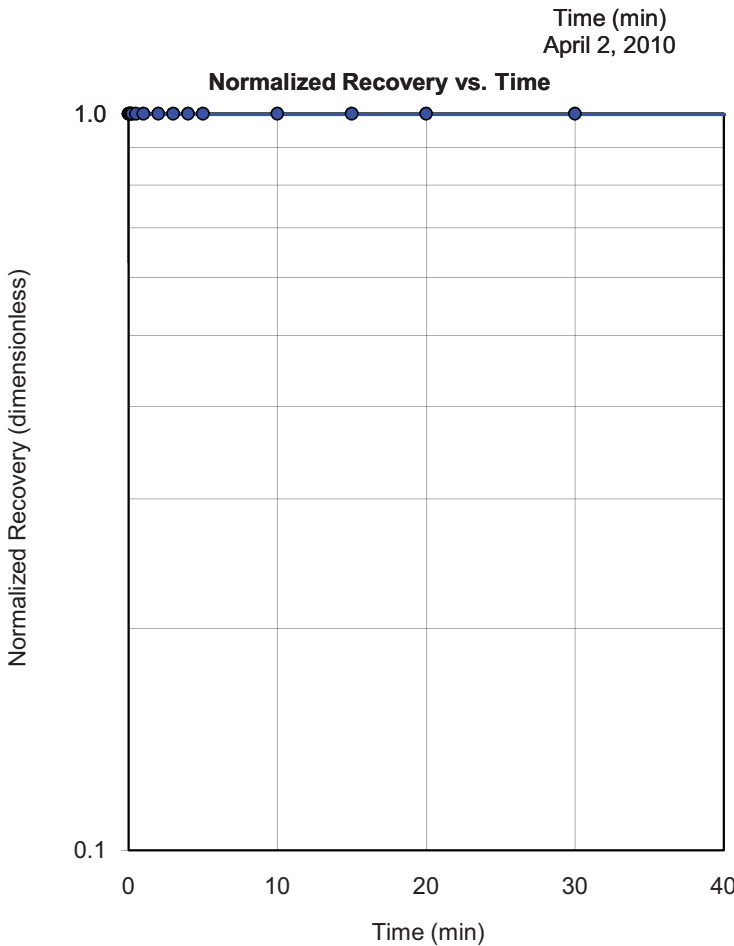
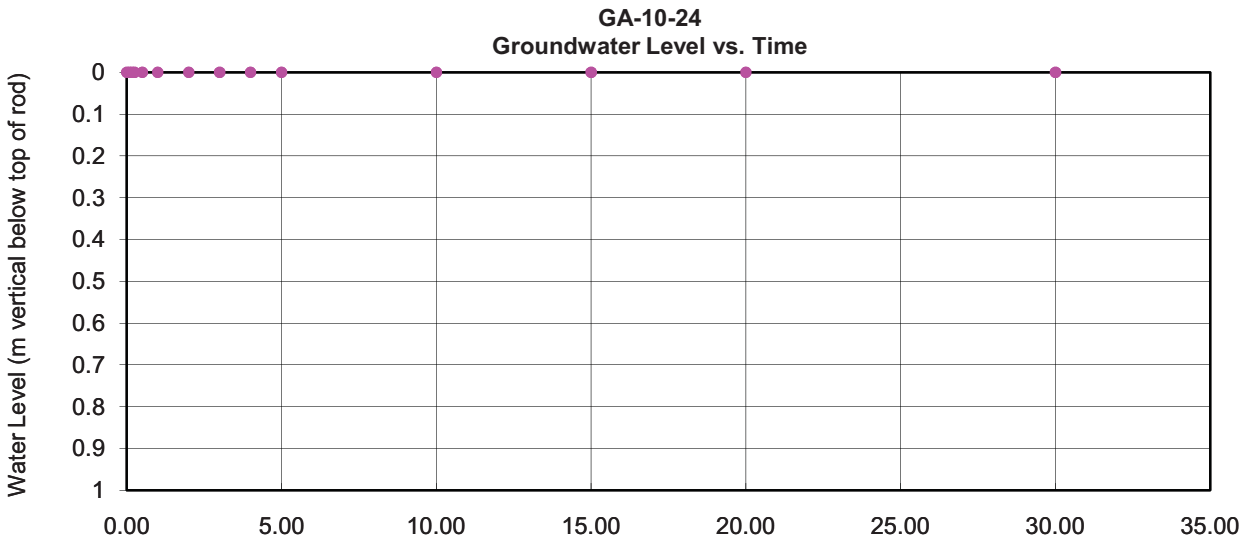
prepared by: IM

CHK: MR

# In-Situ Hydraulic Conductivity Test Report of GA-10-24

NICO Cobalt-Gold-Bismuth-Copper Project

FIGURE D7



Estimated Static Water Level

1.58 m vertical below top of rod

Measuring Point Elevation

Rod was 1.15 m vertical above ground level

Representative Geologic Unit

Bedded Tuffs

Packer Interval

4.19 - 7.39 m vertical below ground surface

Time Lag ( $T_0$ ) =

Packer Interval ( $L$ ) = 3.2 m

Well Radius ( $r$ ) = 0.0238 m

Hole Radius ( $R$ ) = 0.0379 m

Hvorslev Analysis

$$K = \frac{(r^2) \ln(L/R)}{2T_0L} = \text{tight rock} \quad \text{m/s}$$

**Possible test occurred in frozen ground. The interval is either very tight rock or very tight rock and frozen. Result is not representative.**

DATE: April, 2010

PROJECT: 08-1118-0043



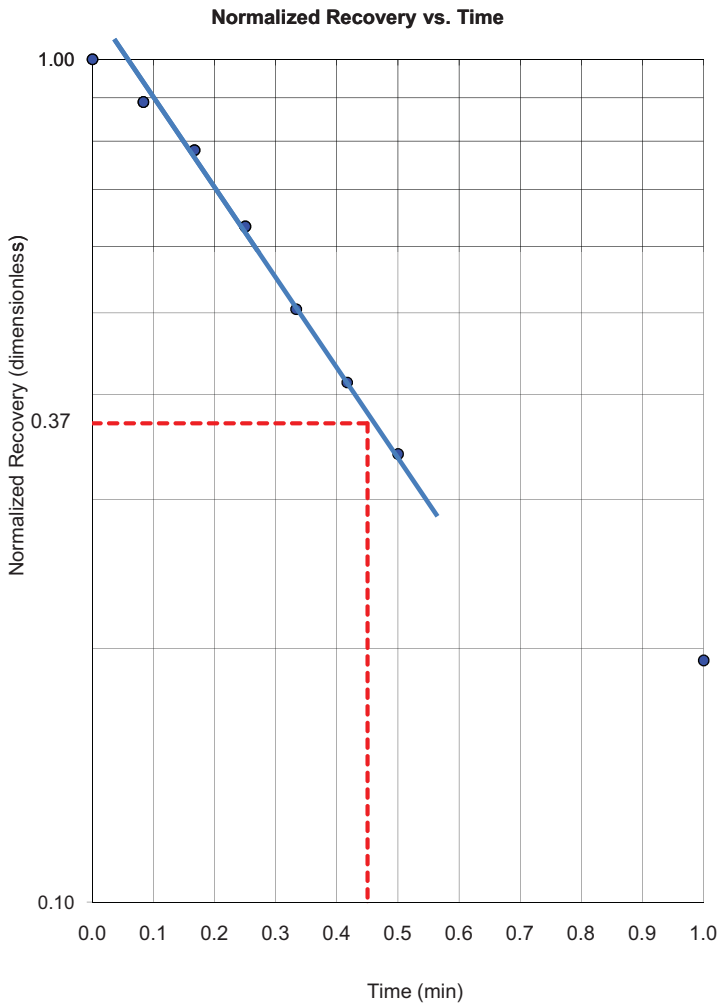
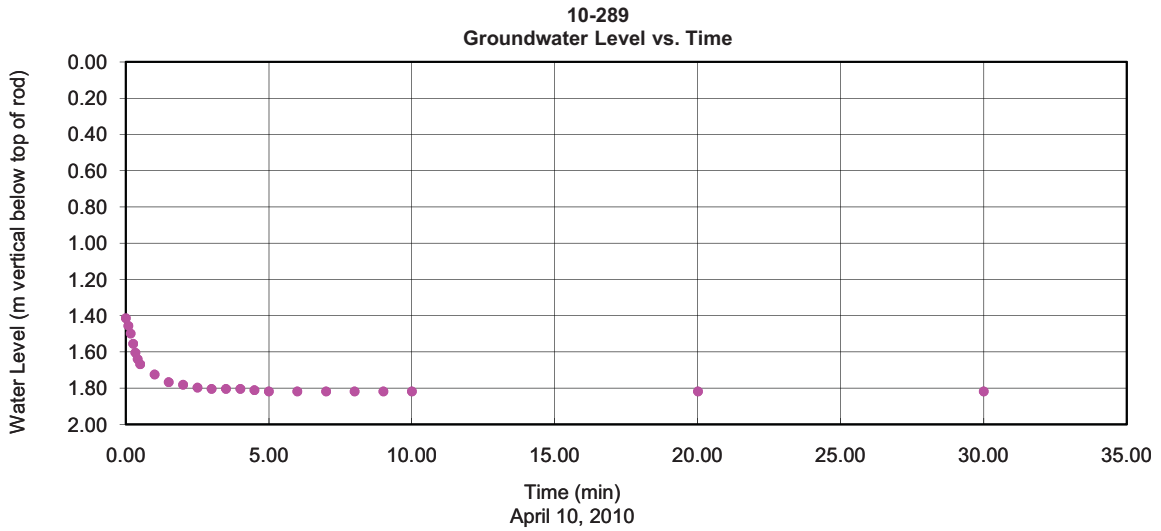
prepared by: IM

CHK: MR

**In-Situ Hydraulic Conductivity Test Report  
of 10-289 (Condemnation Hole)**

NICO Cobalt-Gold-Bismuth-Copper Project

**FIGURE D8**



Estimated Static Water Level

1.80 m vertical below top of rod

Measuring Point Elevation

Rod was 2.37 m vertical above ground level

Representative Geologic Unit

1.56 - 4.60 m vertical below ground surface - Subarkosic Wacke

4.60 - 21.08 m vertical below ground surface - Heterolithic Breccias, weak potassic alteration

21.08 - 54.24 m vertical below ground surface - Subarkosic Wacke, weakly magnetic

54.24 - 65.41 m vertical below ground surface - Heterolithic Breccias, minor potassic alteration, weakly magnetic

NOTE: Low RQD at 8.5 m to 10.5 m downhole (m vertical below ground surface).

Packer Interval

3.29 - 61.87 m vertical below ground surface

Time Lag ( $T_0$ ) = 0.45 min

Packer Interval ( $L$ ) = 58.58 m

Well Radius ( $r$ ) = 0.0238 m

Hole Radius ( $R$ ) = 0.0379 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(t/R)}{2T_0L} = 1.32E-06 \text{ m/s}$$

DATE: May, 2010

PROJECT: 08-1118-0043



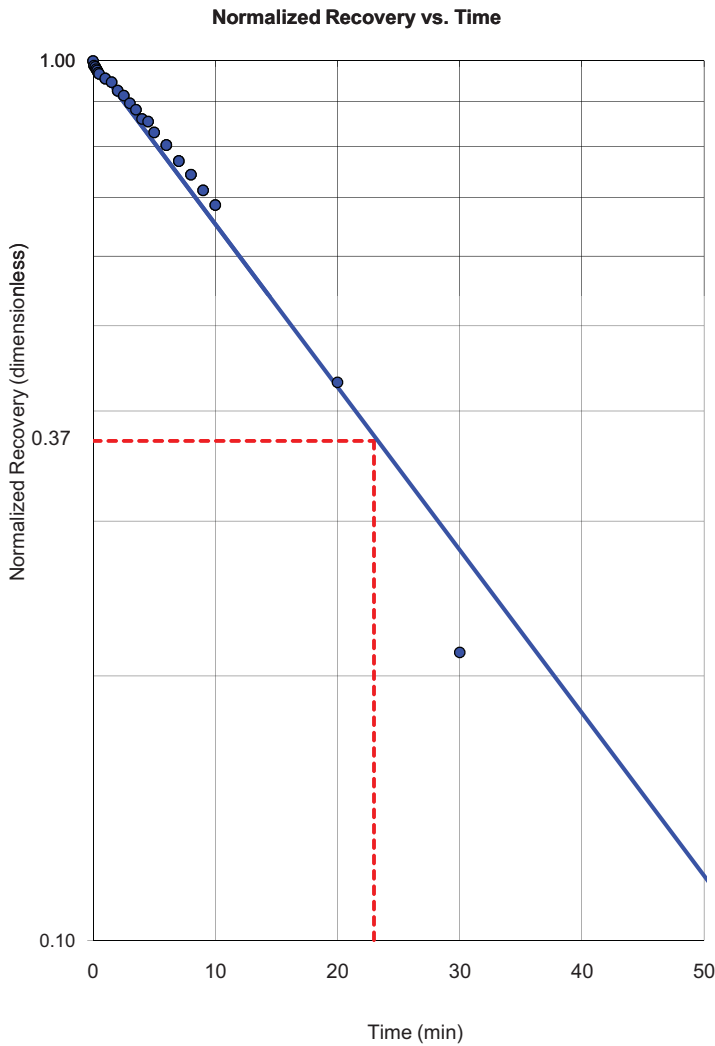
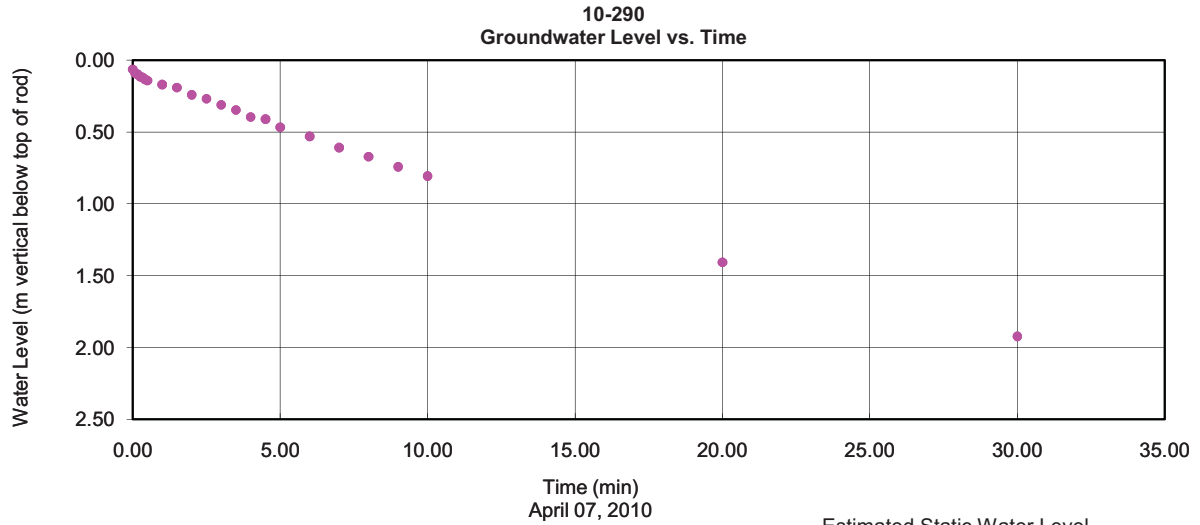
prepared by: IM

CHK: MR

**In-Situ Hydraulic Conductivity Test Report  
of 10-290 (Condemnation Hole)**

NICO Cobalt-Gold-Bismuth-Copper Project

**FIGURE D9**



Estimated Static Water Level

2.43 m vertical below top of rod

Measuring Point Elevation

Rod was 2.40 m vertical above ground level

Representative Geologic Unit

4.24 - 40.31 m vertical below ground surface -  
Subarkosic Wacke, bedded at 45-55 degrees  
TCA, weak-mod potassic

40.31 - 49.50 m vertical below ground surface -  
Hetroolithic Breccia, +/-subarkosic wacke, weak  
potassic, weak magnetite

49.50 - 59.26 m vertical below ground surface -  
Subarkosic Wacke, weak potassic, weak magnetic

59.26 - 76.62 m vertical below ground surface -  
Hetroolithic Breccias, biotite-amphibole-magnetite  
alteration, weak potassic

Packer Interval

5.52 - 66.11 m vertical below ground surface

Time Lag ( $T_0$ ) = 23.00 min

Packer Interval (L) = 60.60 m

Well Radius (r) = 0.0238 m

Hole Radius (R) = 0.0379 m

**Hvorslev Analysis**

$$K = \frac{(r^2) \ln(t/R)}{2T_0L} = 2.50E-08 \text{ m/s}$$

DATE: May, 2010

PROJECT: 08-1118-0043



prepared by: IM

CHK: MR



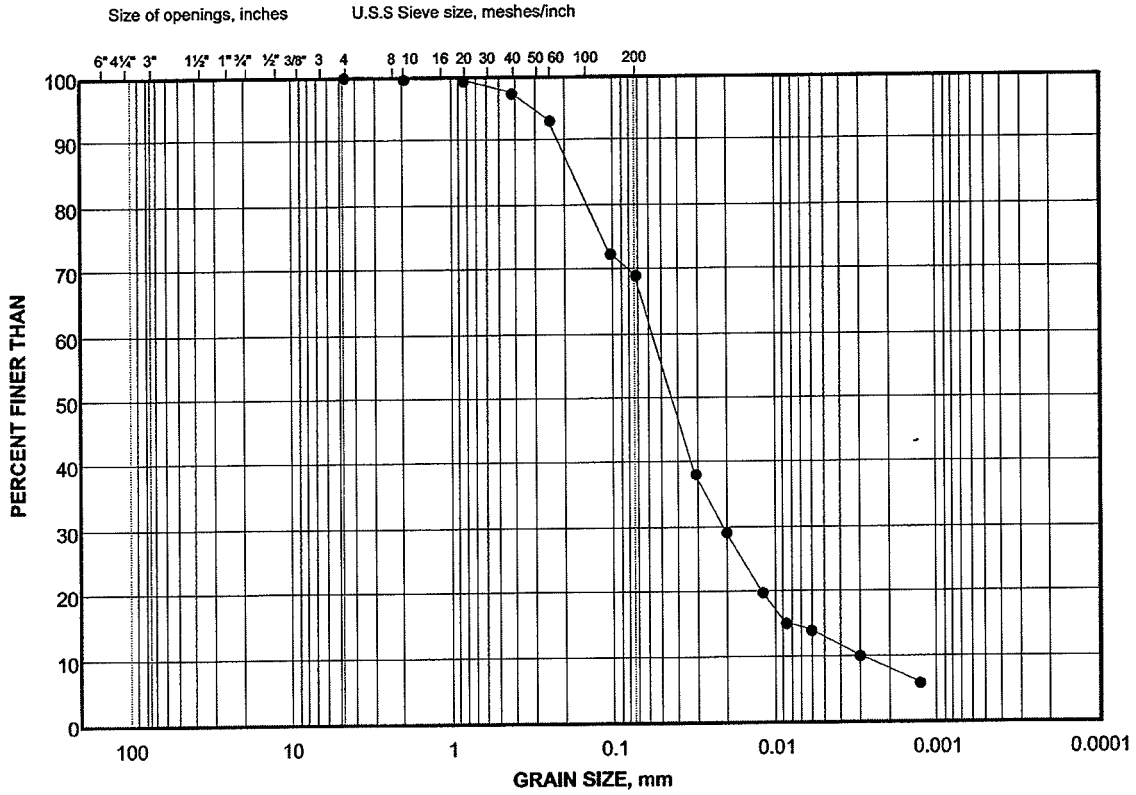
# **APPENDIX E**

## **Laboratory Test Results**



# GRAIN SIZE DISTRIBUTION

FIGURE



COBBLE	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY SIZES
SIZE	GRAVEL SIZE		SAND SIZE			FINE GRAINED

## LEGEND

SYMBOL	BOREHOLE	SAMPLE	DEPTH(m)
•	GA-10-15S	2	0.39 - 0.48

Project Number: 08-1118-0043

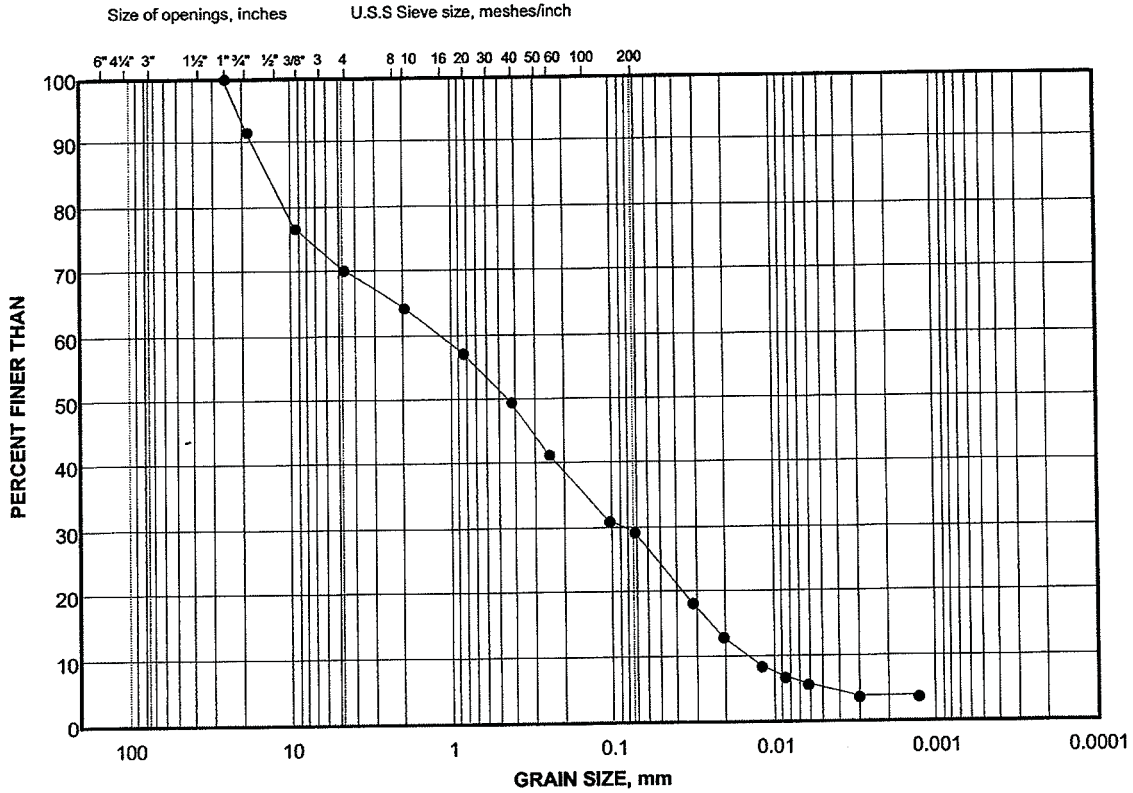
Checked By:                     

**Golder Associates**

Date: 25-May-10

# GRAIN SIZE DISTRIBUTION

FIGURE



COBBLE	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY SIZES
SIZE	GRAVEL SIZE		SAND SIZE			FINE GRAINED

## LEGEND

SYMBOL	BOREHOLE	SAMPLE	DEPTH(m)
•	GA-10-16	3	1.42 - 1.51

Project Number: 08-1118-0043

Checked By: \_\_\_\_\_

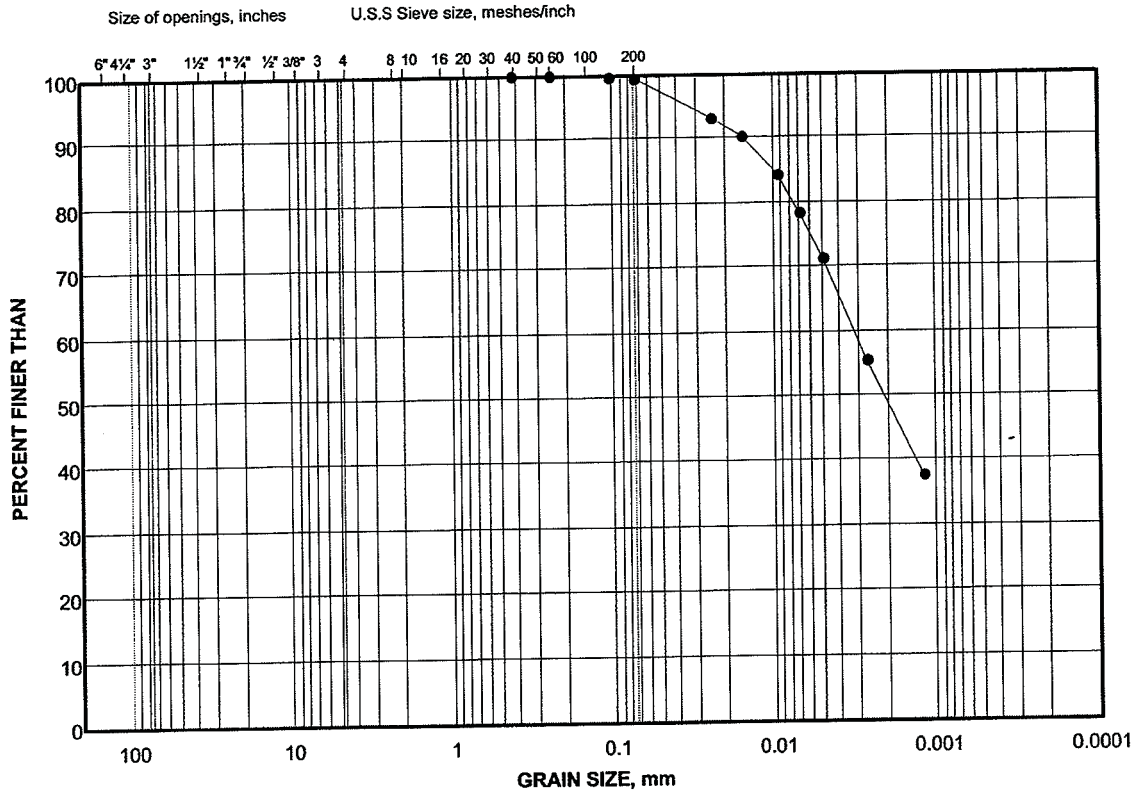
**Golder Associates**

Date: 14-Jun-10



# GRAIN SIZE DISTRIBUTION

FIGURE



COBBLE SIZE	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY SIZES
	GRAVEL SIZE		SAND SIZE			

## LEGEND

SYMBOL	BOREHOLE	SAMPLE	DEPTH(m)
•	GA-10-19	4	8.55 - 8.75

Project Number: 08-1118-0043

Checked By: \_\_\_\_\_ *Ro*

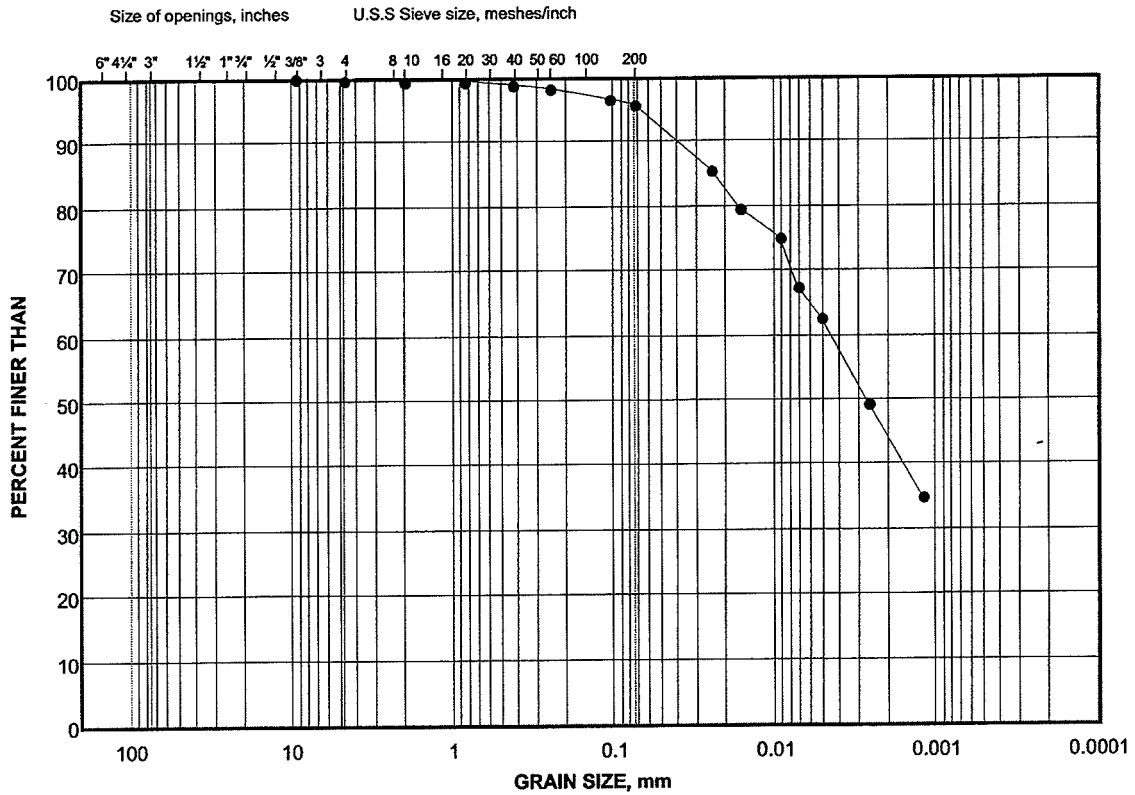
**Golder Associates**

Date: 25-May-10



# GRAIN SIZE DISTRIBUTION

FIGURE



COBBLE SIZE	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY SIZES FINE GRAINED
	GRAVEL SIZE		SAND SIZE			

## LEGEND

SYMBOL	BOREHOLE	SAMPLE	DEPTH(m)
•	GA-10-22	3	1.50 - 1.60

Project Number: 08-1118-0043

Checked By: \_\_\_\_\_ *fo*

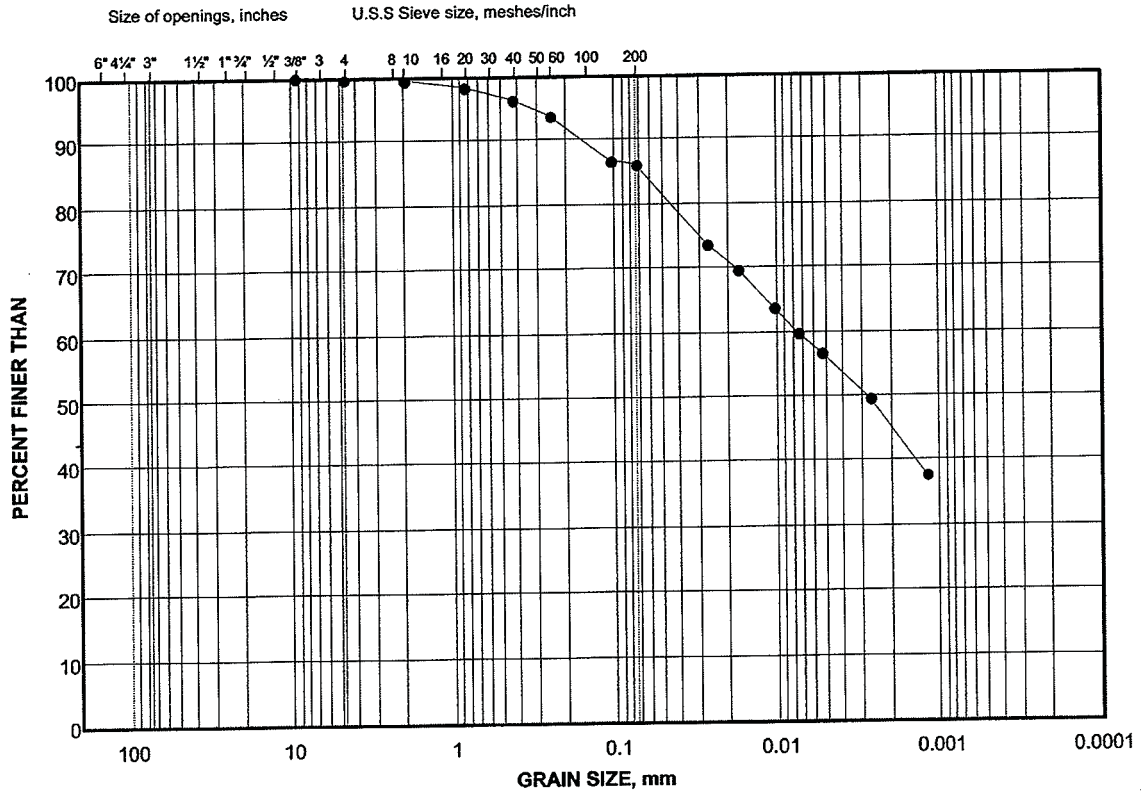
Golder Associates

Date: 25-May-10



# GRAIN SIZE DISTRIBUTION

FIGURE



COBBLE	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY SIZES
SIZE	GRAVEL SIZE		SAND SIZE			FINE GRAINED

## LEGEND

SYMBOL	BOREHOLE	SAMPLE	DEPTH(m)
•	GA-10-25D	1	0.50 - 0.60

Project Number: 08-1118-0043

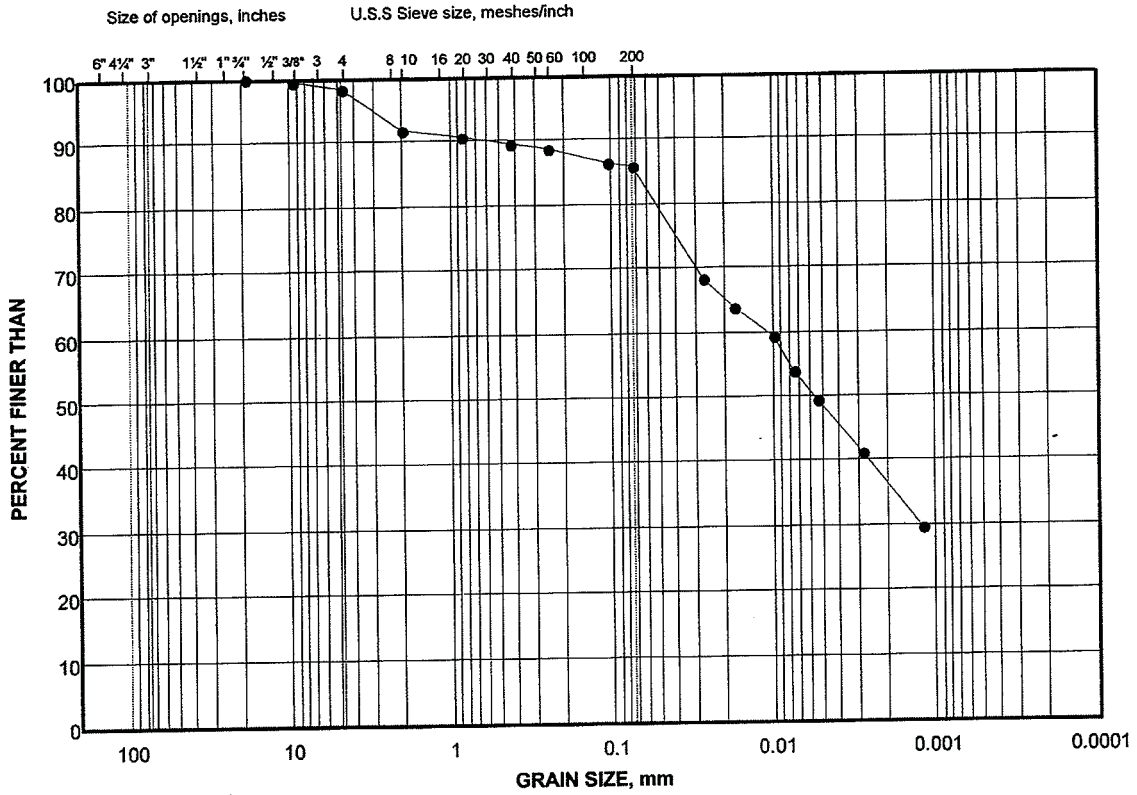
Checked By: \_\_\_\_\_ *fo*

**Golder Associates**

Date: 25-May-10

# GRAIN SIZE DISTRIBUTION

FIGURE



## ORGANIC CONTENT (BURNING METHOD)

BOREHOLE NUMBER		GA-10-15S		GA-10-16		GA-10-16	
SAMPLE NUMBER		1		1		2	
CRUCIBLE NUMBER		8A	6A	10	25	7	4
WEIGHT OF CRUCIBLE, g	W1	27.91	27.01	26.69	29.11	28.13	28.02
WEIGHT OF CRUCIBLE & AIR DRY SAMPLE, g	W2	46.99	47.15	36.13	39.69	42.66	43.79
WEIGHT OF AIR DRY SAMPLE (ORIGINAL), g	W2-W1	19.08	20.14	9.44	10.58	14.53	15.77
WEIGHT AFTER BURNING SOIL & CRUCIBLE, g	W3	38.56	38.15	28.22	30.85	32.62	32.88
WEIGHT OF ORGANICS, g	W2-W3	8.43	9.00	7.91	8.84	10.04	10.91
PERCENT OF ORGANICS, %	$((W2-W3)/(W2-W1)) \times 100$	44.18	44.69	83.79	83.55	69.10	69.18
<b>ORGANIC CONTENT, %</b>		<b>44.4</b>		<b>83.7</b>		<b>69.1</b>	
BOREHOLE NUMBER		GA-10-17		GA-10-19		GA-10-19	
SAMPLE NUMBER		1		1		2	
CRUCIBLE NUMBER		5	13	3	16	6	13A
WEIGHT OF CRUCIBLE, g	W1	27.49	28.58	29.20	28.57	28.74	26.29
WEIGHT OF CRUCIBLE & AIR DRY SAMPLE, g	W2	81.20	80.32	32.73	31.77	34.35	32.11
WEIGHT OF AIR DRY SAMPLE (ORIGINAL), g	W2-W1	53.71	51.74	3.53	3.20	5.61	5.82
WEIGHT AFTER BURNING SOIL & CRUCIBLE, g	W3	79.33	78.50	29.42	28.72	29.08	26.64
WEIGHT OF ORGANICS, g	W2-W3	1.87	1.82	3.31	3.05	5.27	5.47
PERCENT OF ORGANICS, %	$((W2-W3)/(W2-W1)) \times 100$	3.48	3.52	93.77	95.31	93.94	93.99
<b>ORGANIC CONTENT, %</b>		<b>3.5</b>		<b>94.5</b>		<b>94.0</b>	
BOREHOLE NUMBER		GA-10-19		GA-10-20D		GA-10-20D	
SAMPLE NUMBER		3		1		2	
CRUCIBLE NUMBER		12	2	17	4	2A	9
WEIGHT OF CRUCIBLE, g	W1	28.95	28.97	28.89	30.25	26.53	28.58
WEIGHT OF CRUCIBLE & AIR DRY SAMPLE, g	W2	48.81	48.43	38.45	40.07	32.67	35.03
WEIGHT OF AIR DRY SAMPLE (ORIGINAL), g	W2-W1	19.86	19.46	9.56	9.82	6.14	6.45
WEIGHT AFTER BURNING SOIL & CRUCIBLE, g	W3	44.12	43.94	29.28	30.66	27.19	29.30
WEIGHT OF ORGANICS, g	W2-W3	4.69	4.49	9.17	9.41	5.48	5.73
PERCENT OF ORGANICS, %	$((W2-W3)/(W2-W1)) \times 100$	23.62	23.07	95.92	95.82	89.25	88.84
<b>ORGANIC CONTENT, %</b>		<b>23.3</b>		<b>95.9</b>		<b>89.0</b>	
PROJECT NUMBER	08-1118-0043	DATE OF TESTING		10/10/2010			
TESTED BY	Larry / Lina	CHECKED BY		<i>fo</i>			

**Notes:**

1. Samples dried at 110 degree centigrade prior to testing.
2. Test performed according to ASTM D2974-87 Standard, test method C.
3. Organic matter determined by burning the oven dried samples in a muffle furnace at 440 degree centigrade.

### ORGANIC CONTENT (BURNING METHOD)

BOREHOLE NUMBER		GA-10-22		GA-10-23		GA-10-26D	
SAMPLE NUMBER		1		1		1	
CRUCIBLE NUMBER		7A	2	14	8A	5	9
WEIGHT OF CRUCIBLE, g	W1	27.14	28.10	27.84	28.84	27.51	28.59
WEIGHT OF CRUCIBLE & AIR DRY SAMPLE, g	W2	39.51	39.46	50.33	47.95	37.87	39.28
WEIGHT OF AIR DRY SAMPLE (ORIGINAL), g	W2-W1	12.37	11.36	22.49	19.11	10.36	10.69
WEIGHT AFTER BURNING SOIL & CRUCIBLE, g	W3	30.76	31.39	39.22	38.51	29.36	30.50
WEIGHT OF ORGANICS, g	W2-W3	8.75	8.07	11.11	9.44	8.51	8.78
PERCENT OF ORGANICS, %	$((W2-W3)/(W2-W1)) \times 100$	70.74	71.04	49.40	49.40	82.14	82.13
<b>ORGANIC CONTENT, %</b>		<b>70.9</b>		<b>49.4</b>		<b>82.1</b>	
PROJECT NUMBER	08-1118-0043	DATE OF TESTING		10/10/2010			
TESTED BY	Larry / Lina	CHECKED BY		<i>fo</i>			

**Notes:**

1. Samples dried at 110 degree centigrade prior to testing.
2. Test performed according to ASTM D2974-87 Standard, test method C.
3. Organic matter determined by burning the oven dried samples in a muffle furnace at 440 degree centigrade.

## SPECIFIC GRAVITY TEST RESULTS

### ASTM D 854-06 TEST METHOD A

---

PROJECT NUMBER	08-1118-0043
PROJECT NAME	Fortune Minerals / Nico Mine / Yellowknife
DATE TESTED	May, 2010

---

Borehole No.	Sample No.	Specific Gravity
GA-10-14	2	2.72
GA-10-15S	6	2.76
GA-10-15S	7	2.72
GA-10-16	3	2.62
GA-10-19	4	2.75
GA-10-20D	5	2.73
GA-10-22	3	2.75

Note: Test carried out on soil particles <4.75mm using distilled water.

Checked By: *po*

**Golder Associates**

## SPECIFIC GRAVITY TEST RESULTS

### ASTM D 854-98 TEST METHOD A

---

PROJECT NUMBER	08-1118-0043
PROJECT NAME	Fortune Minerals / Nico Mine / Yellowknife
DATE TESTED	May, 2010

---

Borehole No.	Sample No.	Measured Specific Gravity
GA-10-25D	2	2.68

---

Note: Test carried out on soil particles <4.75mm using kerosene.

Checked By: *fo*

**Golder Associates**

**SPECIFIC GRAVITY TEST RESULTS**

**ASTM D 854-98 TEST METHOD A**

---

PROJECT NUMBER	08-1118-0043
PROJECT NAME	Fortune Minerals / Nico Mine / Yellowknife
DATE TESTED	May, 2010

---

Borehole No.	Sample No.	Measured Specific Gravity
GA-10-26D	2	2.50

---

Note: Test carried out on soil particles <4.75mm using kerosene.

Checked By: *slu*

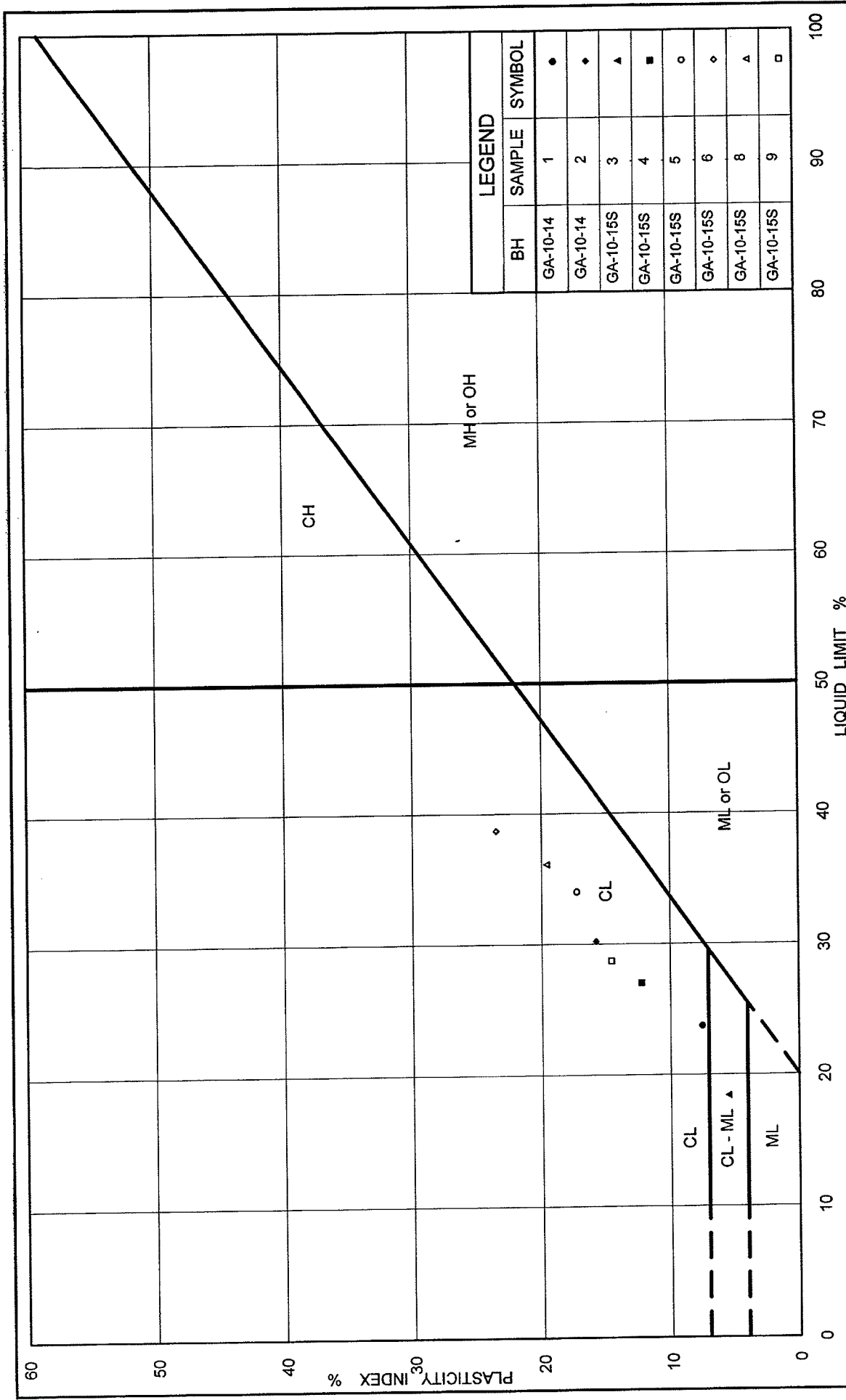
**Golder Associates**

## SUMMARY OF WATER CONTENT DETERMINATIONS

### ASTM D 2216-05

PROJECT NUMBER	08-1118-0043
PROJECT NAME	Fortune Minerals / Nico Mine / Yellowknife
DATE TESTED	May, 2010

Borehole No.	Sample No.	Depth (m)	Water Content (%)	Atterberg Limits LL, PL, PI
GA-10-14	1	0.40-0.55	19.4%	LL=23.7, PL=16.2, PI=7.5
GA-10-14	2	0.79-1.40	18.7%	LL=30.2, PL=14.4, PI=15.8
GA-10-15S	1	0.15-0.30	202.7%	
GA-10-15S	2	0.39-0.48		LL=39.3, PL=34.4, PI=4.9
GA-10-15S	3	1.48-1.58		LL=18.4, PL=12.9, PI=5.5
GA-10-15S	4	2.37	26.1%	LL=27.0, PL=14.7, PI=12.3
GA-10-15S	5	3.08-3.16	29.3%	LL=34.0, PL=16.7, PI=17.3
GA-10-15S	6	3.58-3.68	26.5%	LL=38.7, PL=15.2, PI=23.5
GA-10-15S	7	3.91-3.99	13.9%	LL=25.8, PL=12.6, PI=13.2
GA-10-15S	8	3.99-4.09	16.7%	LL=36.1, PL=16.5, PI=19.6
GA-10-15S	9	4.58-4.70	15.1%	LL=28.7, PL=14.1, PI=14.6
GA-10-16	1	0.51-0.59	365.8%	
GA-10-16	2	0.59-0.72	280.8%	
GA-10-16	3	1.42-1.51	30.0%	LL=22.5, PL=21.0, PI=1.5
GA-10-17	1	0.15-0.22	19.3%	
GA-10-17	2	1.67	636.0%	
GA-10-19	1	0.25-0.31	1217.5%	
GA-10-19	2	1.00-1.05	1038.2%	
GA-10-19	3	4.42-4.62	223.3%	
GA-10-19	4	8.55-8.75	30.4%	LL=35.3, PL=17.2, PI=18.1
GA-10-20D	1	0.30-0.60	533.9%	
GA-10-20D	2	1.20-1.26	1143.7%	
GA-10-20D	3	2.34-3.00		LL=41.8, PL=18.6, PI=23.2
GA-10-20D	4	3.00-3.36		LL=32.8, PL=15.9, PI=16.9
GA-10-20D	5	4.56-6.23		LL=37.6, PL=15.3, PI=22.3
GA-10-22	1	0.23-0.33	425.4%	
GA-10-22	3	1.50-1.60	27.9%	LL=34.9, PL=15.8, PI=19.1
GA-10-23	1	0.13-0.23	204.0%	
GA-10-23	2	0.37-0.45		LL=29.5, PL=18.8, PI=10.7
GA-10-25D	1	0.50-0.60		LL=29.3, PL=16.2, PI=13.1
GA-10-25D	2	1.31-1.35	16.8%	LL=41.7, PL=16.4, PI=25.3
GA-10-26D	1	0.20-0.30	438.3%	
GA-10-26D	2	0.40-0.50	29.9%	LL=43.1, PL=28.2, PI=14.9



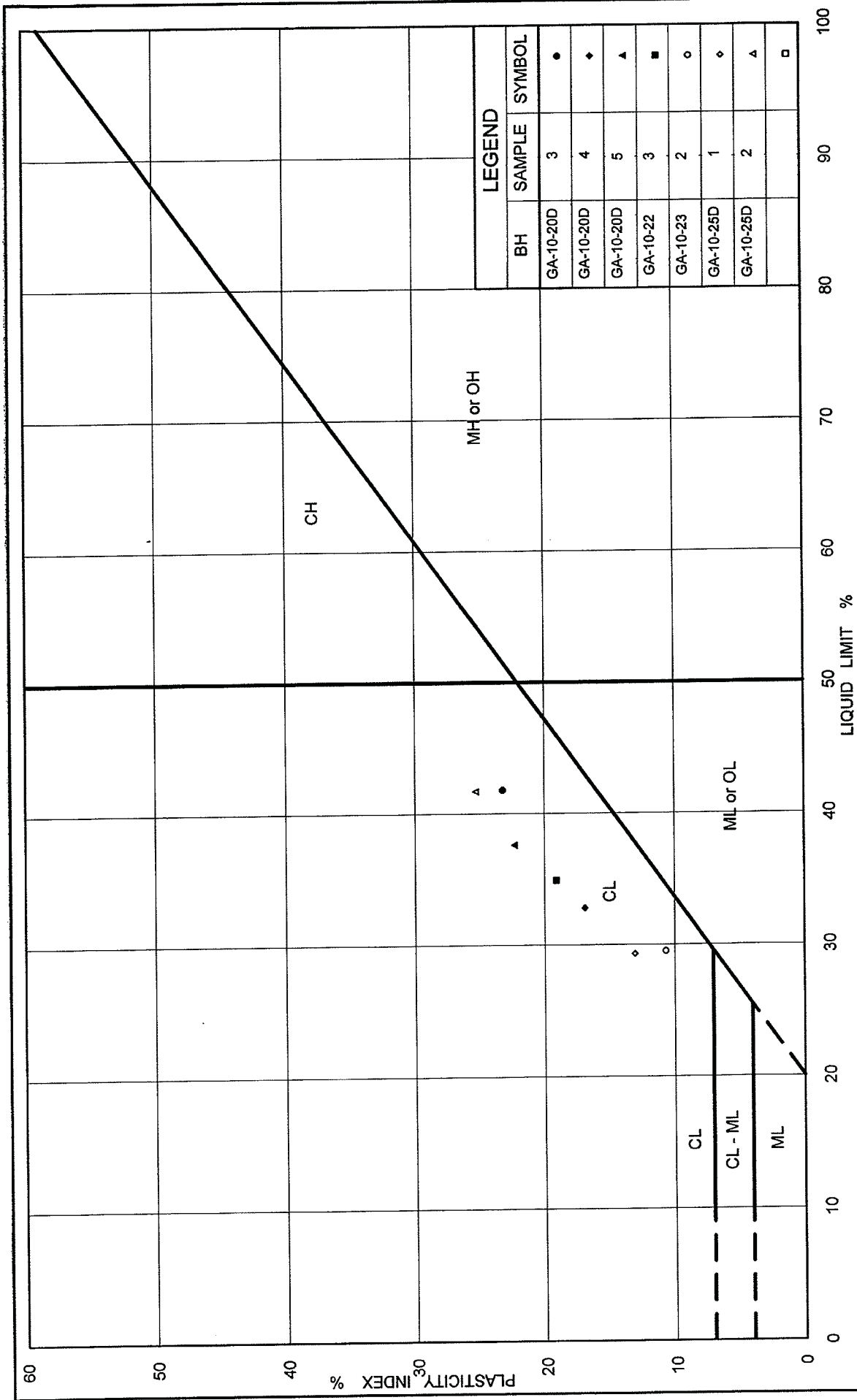
**PLASTICITY CHART**

Figure No. \_\_\_\_\_

Project No. 08-1118-0043

Checked By: *Ro*

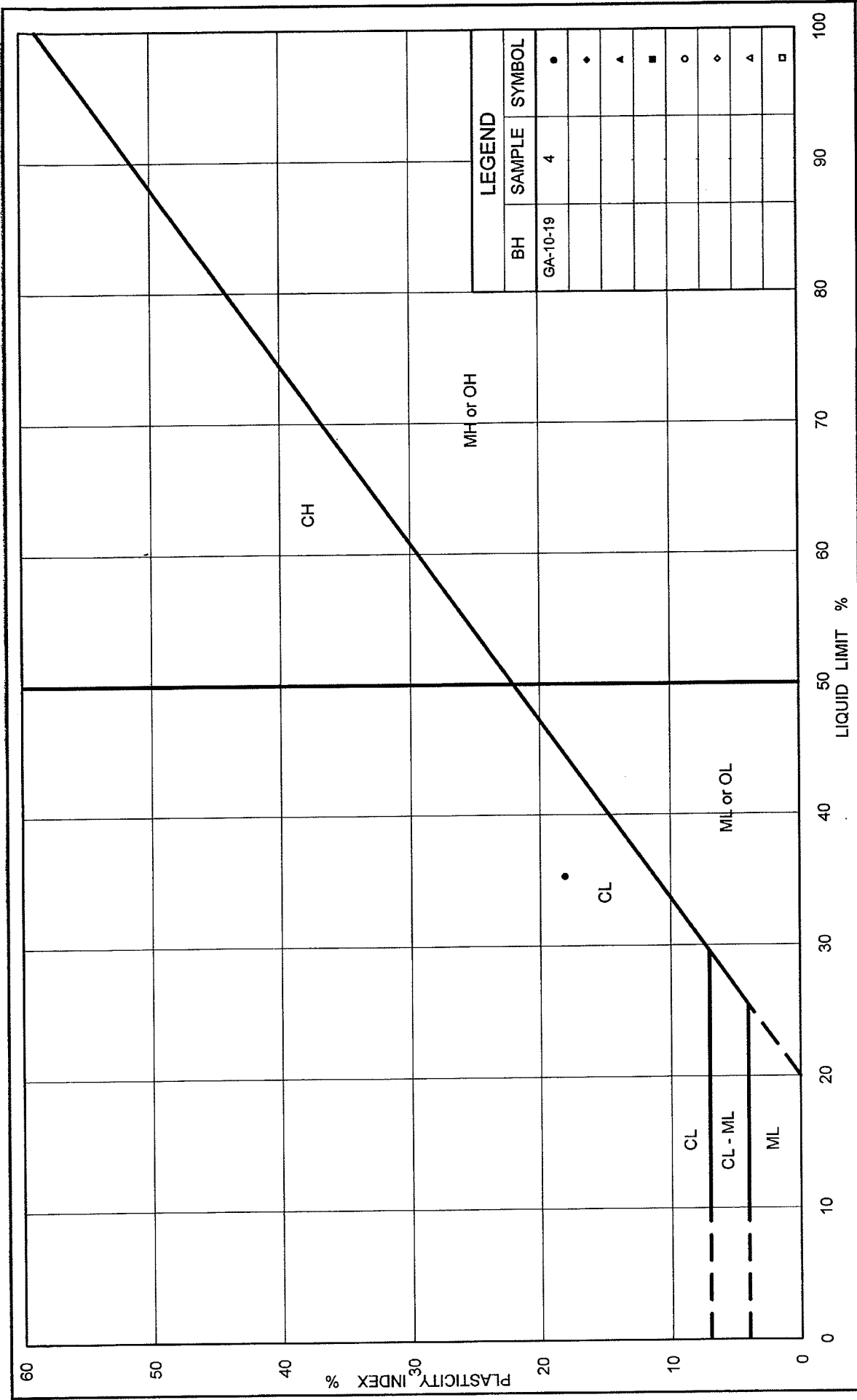




**PLASTICITY CHART**

Figure No.  
 Project No. 08-1118-0043  
 Checked By: *RL*





LEGEND		
BH	SAMPLE	SYMBOL
GA-10-19	4	•
		◊
		▲
		■
		◊
		▲
		◻



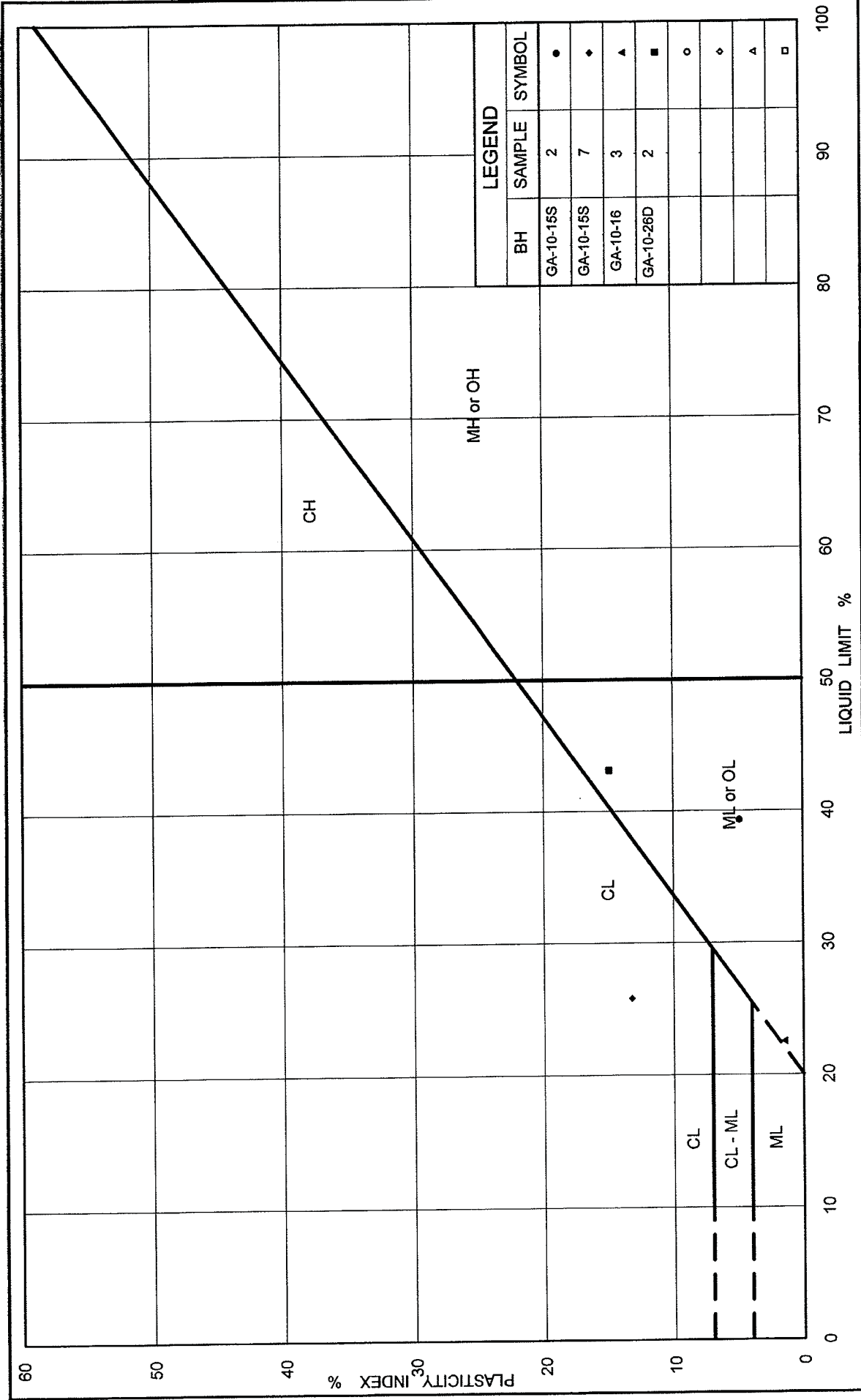
**Golder Associates**

## PLASTICITY CHART

Figure No. \_\_\_\_\_

Project No. 08-1118-0043

Checked By: *[Signature]*



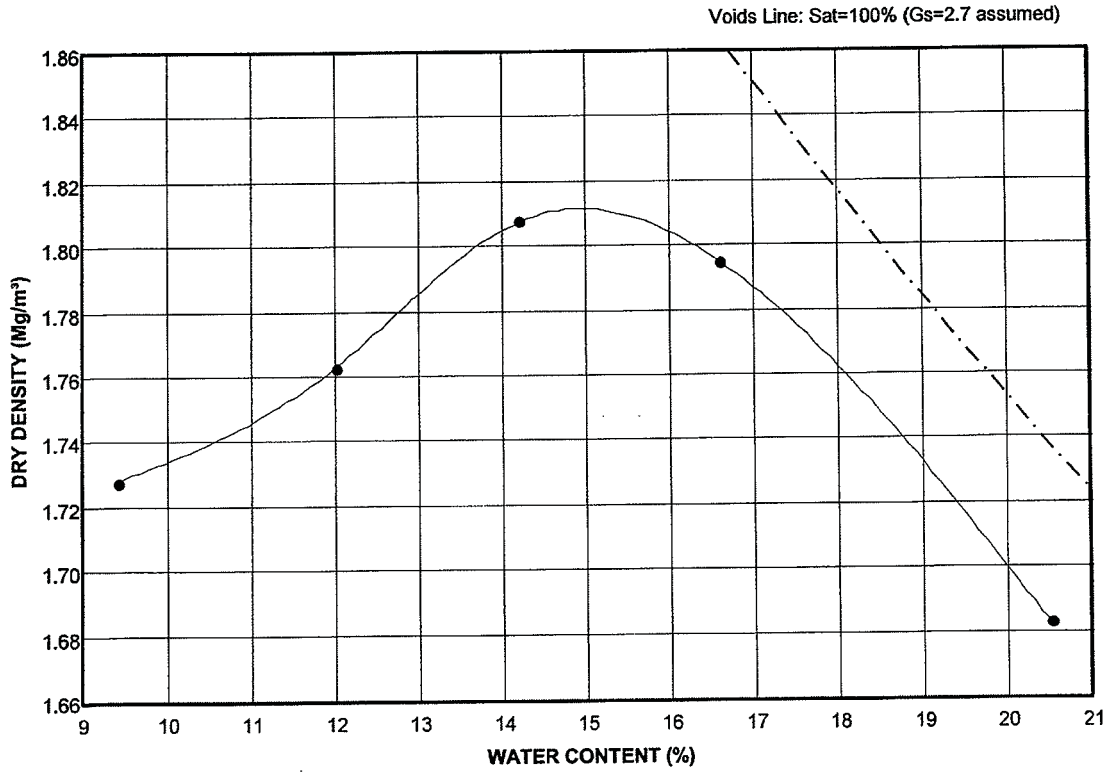
**PLASTICITY CHART**

Figure No. \_\_\_\_\_  
 Project No. 08-1118-0043  
 Checked By: *Wdy*



LABORATORY COMPACTION TEST

FIGURE



Standard  
Proctor Test Results

Borehole:  
GA-10-14 & GA-10-15S

Sample:  
1, 2, 7, 8 & 9

Max Dry Density:  
1.812 Mg/m³

Optimum Water  
Content: 15.0%

Natural Water  
Content:

Project Number: 08-1118-0043  
Checked By: \_\_\_\_\_

Golder Associates

LABID: 10-858  
Date: 14-Jun-10

## SUMMARY OF WATER CONTENT DETERMINATIONS

### ASTM D 2216-05

---

PROJECT NUMBER	08-1118-0043
PROJECT NAME	Fortune Minerals / Nico Mine / Yellowknife
DATE TESTED	June, 2010

---

Borehole No.	Sample No.	Depth (m)	Water Content (%)	Atterberg Limits LL, PL, PI
GA-10-14 & GA-10-15S	1, 2, 7, 8 & 9		17.7%	

## SOIL-WATER CHARACTERISTIC CURVE

Project #: 08-1118-0043

Phase: 3200 / 3230

Short Title: Fortune Minerals / NICO Mine / Yellowknife

Tested By: D.B.

Date: August 29, 2010

Sample: GA-10-14 &amp; GA-10-15S Samples 1, 2, 7, 8 and 9

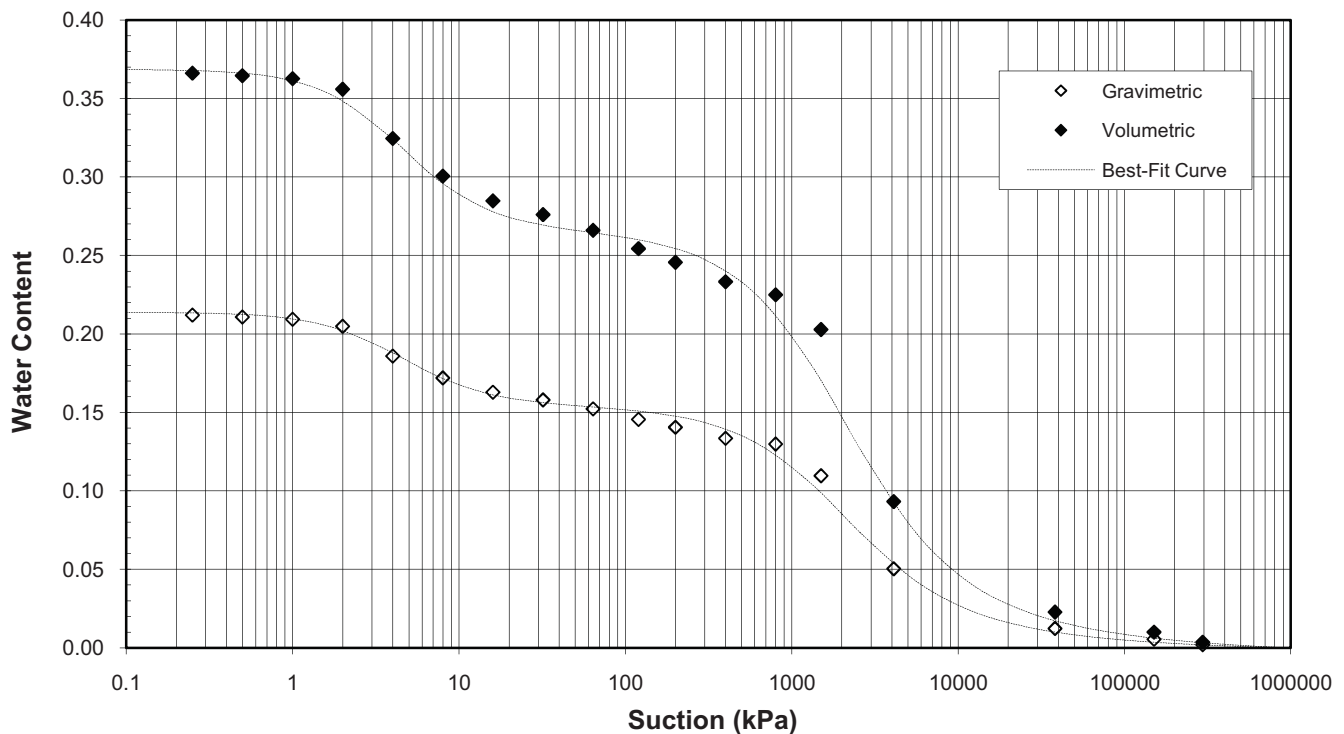
**Test Results:**

Suction (kPa)	Water Content	
	Gravimetric	Volumetric
0.25	0.212	0.366
0.5	0.211	0.365
1.0	0.209	0.363
2.0	0.205	0.356
4.0	0.186	0.325
8.0	0.172	0.301
16	0.163	0.285
32	0.158	0.276
64	0.152	0.266
120	0.145	0.254
200	0.140	0.246
400	0.133	0.233
800	0.130	0.225
1500	0.110	0.203
4100	0.050	0.093
38200	0.012	0.023
150300	0.005	0.010
295000	0.002	0.003

**Sample Data:**

Diameter:	63.95	mm
Height:	31.67	mm
Initial Water Content:	14.5	% (gravimetric, prior to saturation)
Dry Density:	1724	kg/m <sup>3</sup>
Material used passing:	4.75	mm sieve

Comments:



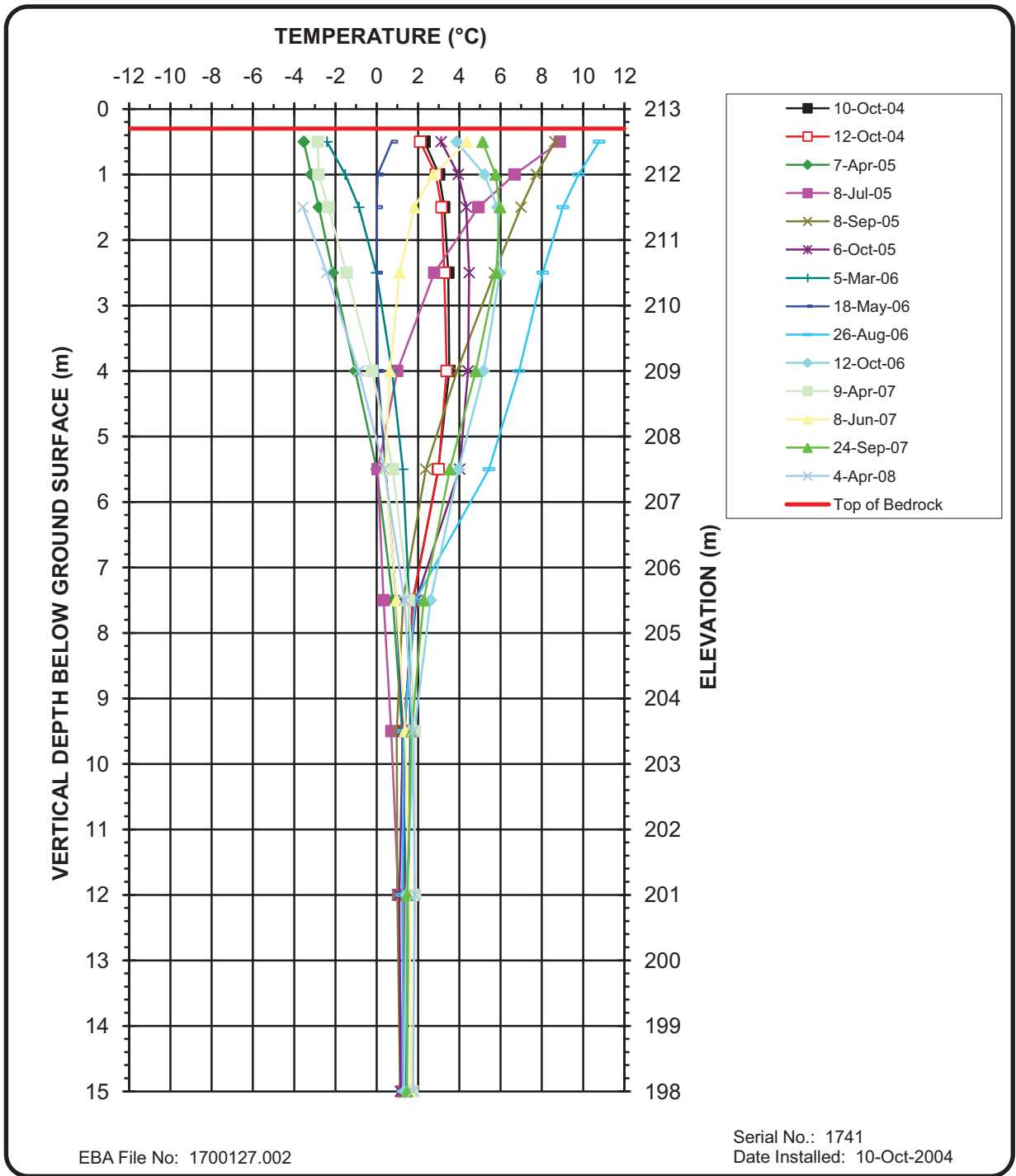
The testing services reported herein have been performed in accordance with the indicated recognized standard, or in accordance with local industry practice. This report is for the sole use of the designated client. This report constitutes a testing service only and does not represent any results interpretation or opinion regarding specification compliance or material suitability. Engineering interpretation can be provided by Golder Associates Ltd. upon request.



# **APPENDIX F**

## **Thermistor Monitoring Records**

**EBA-04-03**  
GROUND ELEVATION: 213.0 m



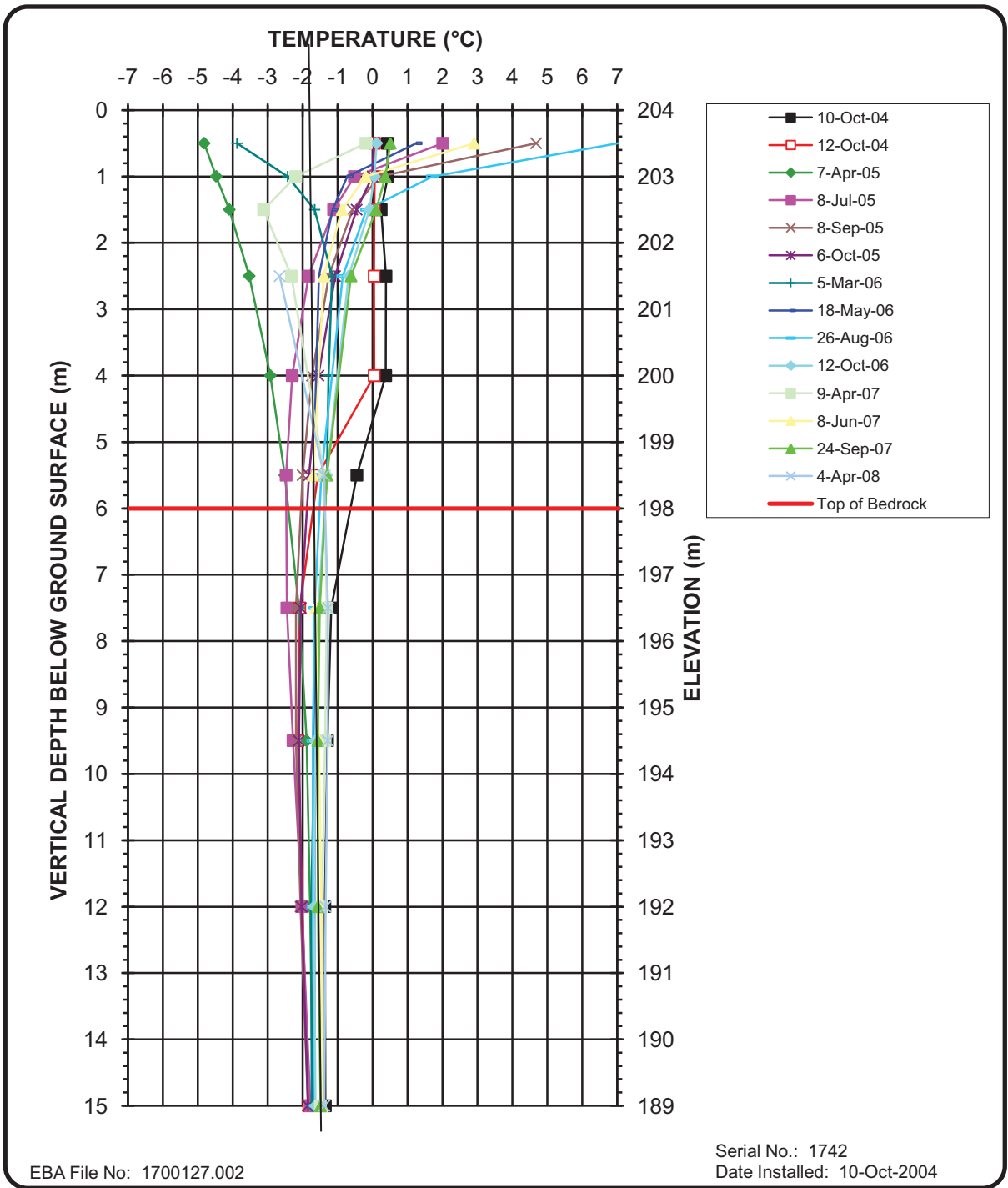
**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) October 10th and 12th 2004 readings are  
representative of latent heat during  
installation.

**EBA-04-05**

GROUND ELEVATION: 204.0 m

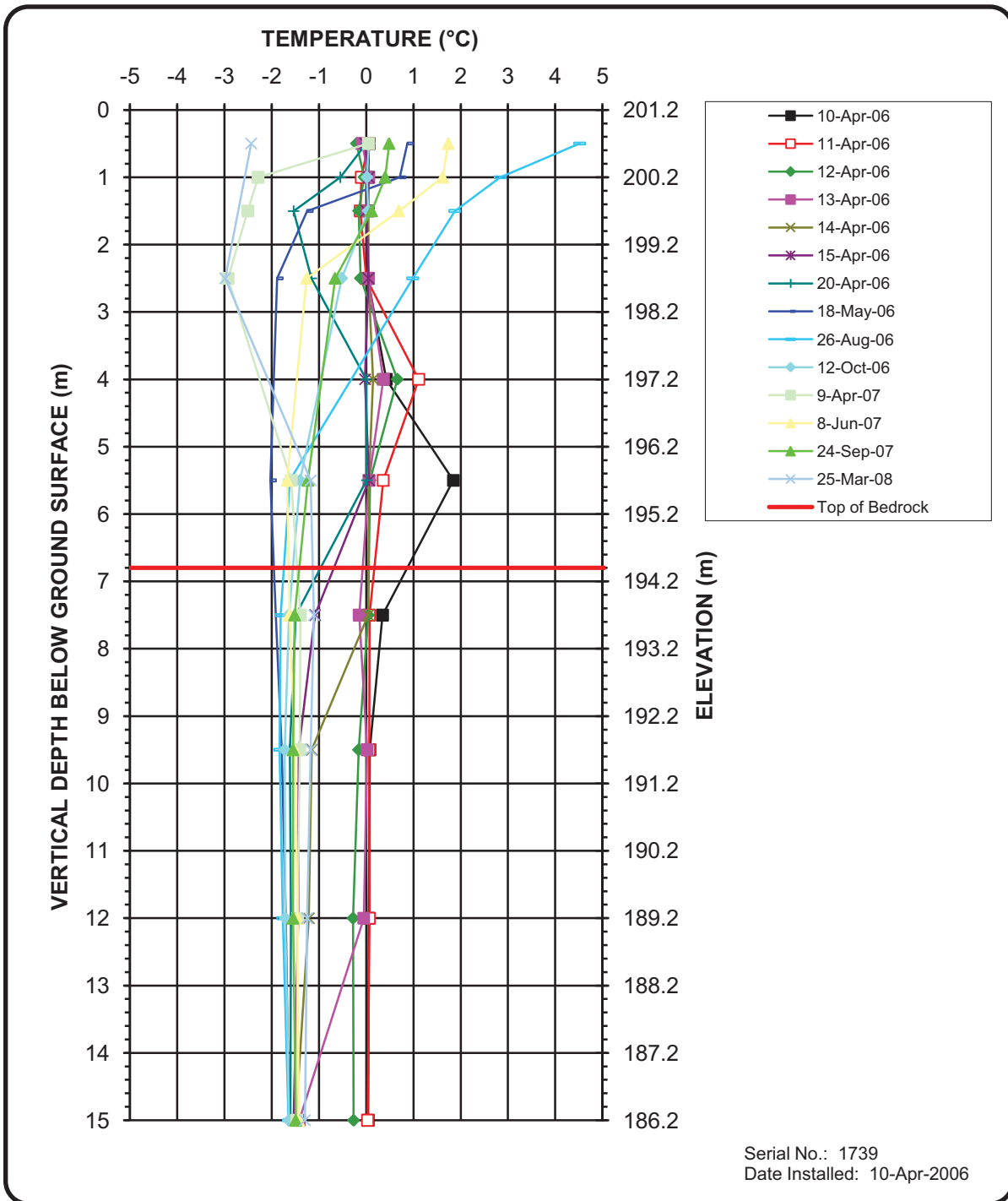


**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) October 10th and 12th 2004 readings are  
representative of latent heat during  
installation.

**GA-06-07**  
GROUND ELEVATION: 201.2 m

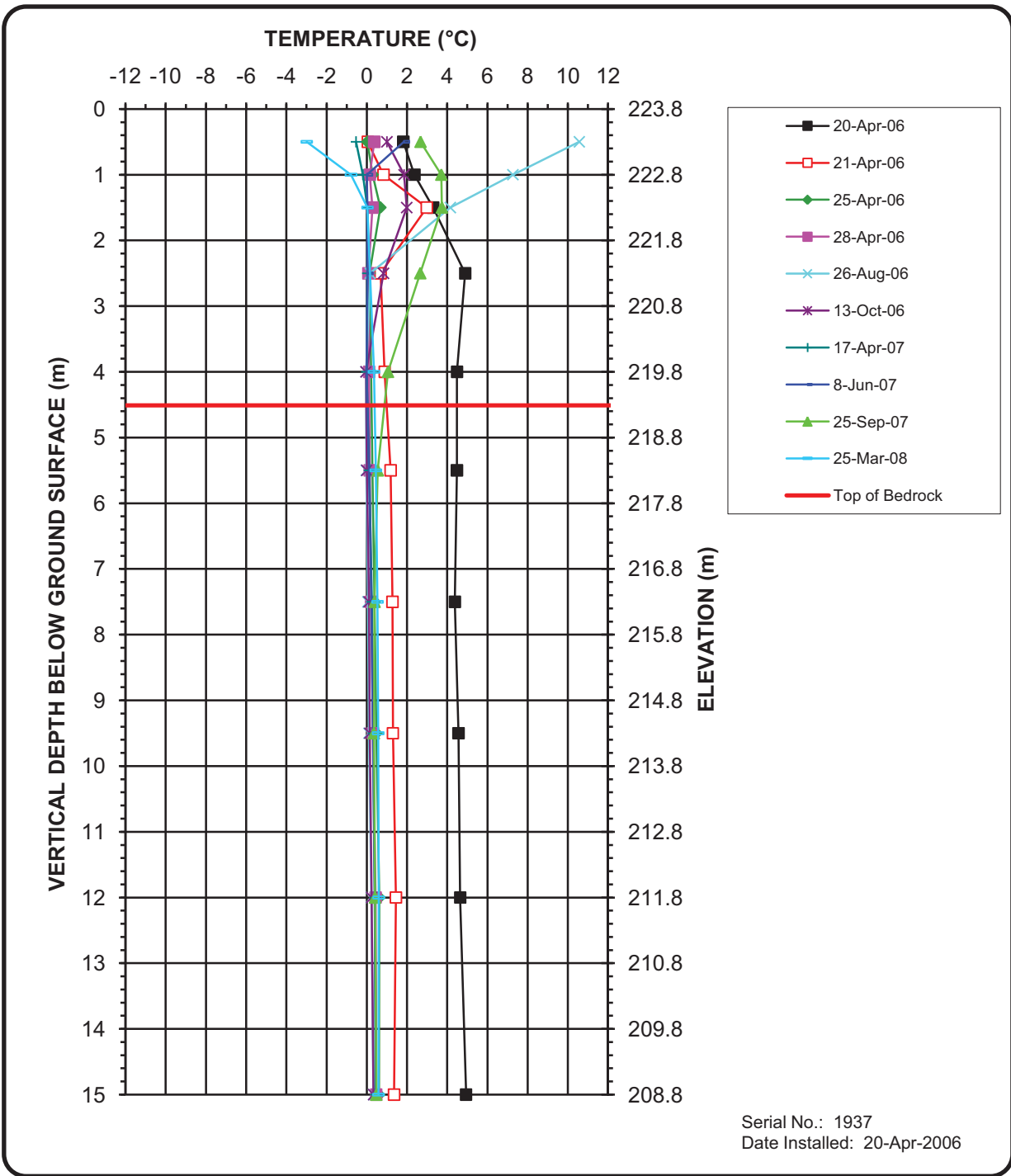


**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) April 10th - 13th 2006 readings are  
representative of latent heat during  
installation.

**GA-06-09**  
GROUND ELEVATION: 223.8 m

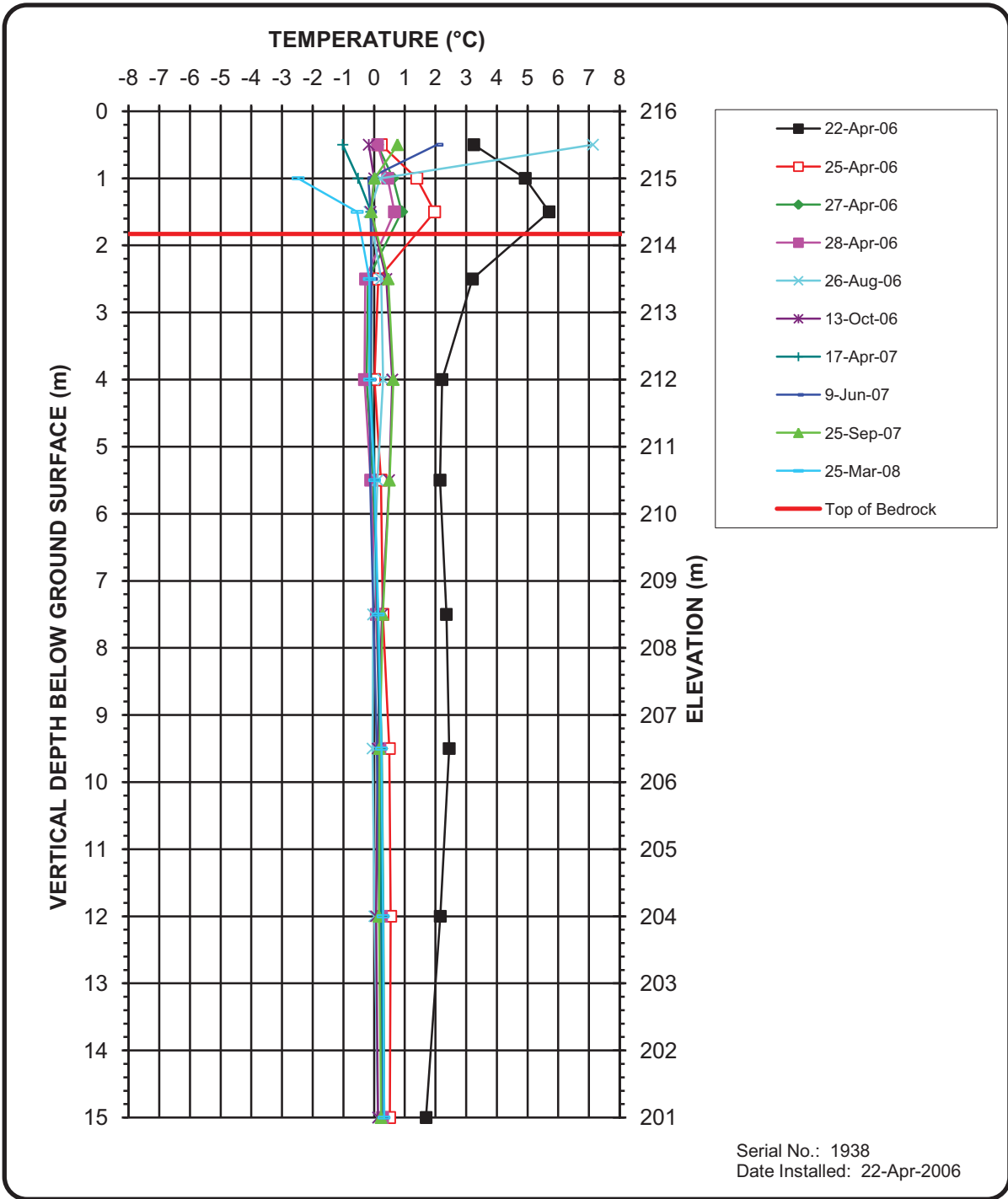


**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) April 20th and 21st 2006 readings are  
representative of latent heat during  
installation.

**GA-06-10**  
GROUND ELEVATION: 216.0 m

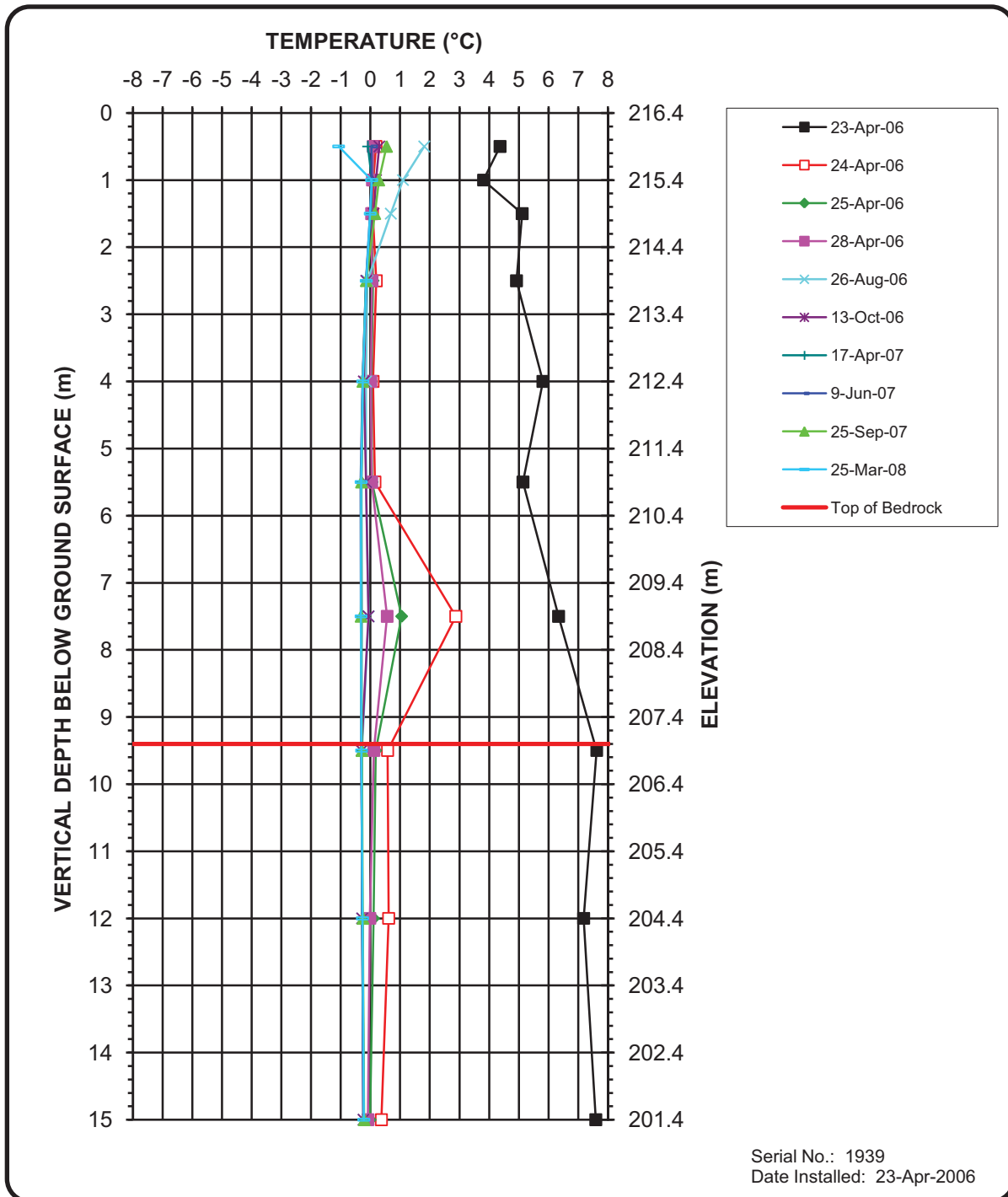


**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) April 22nd 2006 reading is  
representative of latent heat during  
installation.

**GA-06-11**  
GROUND ELEVATION: 216.4 m

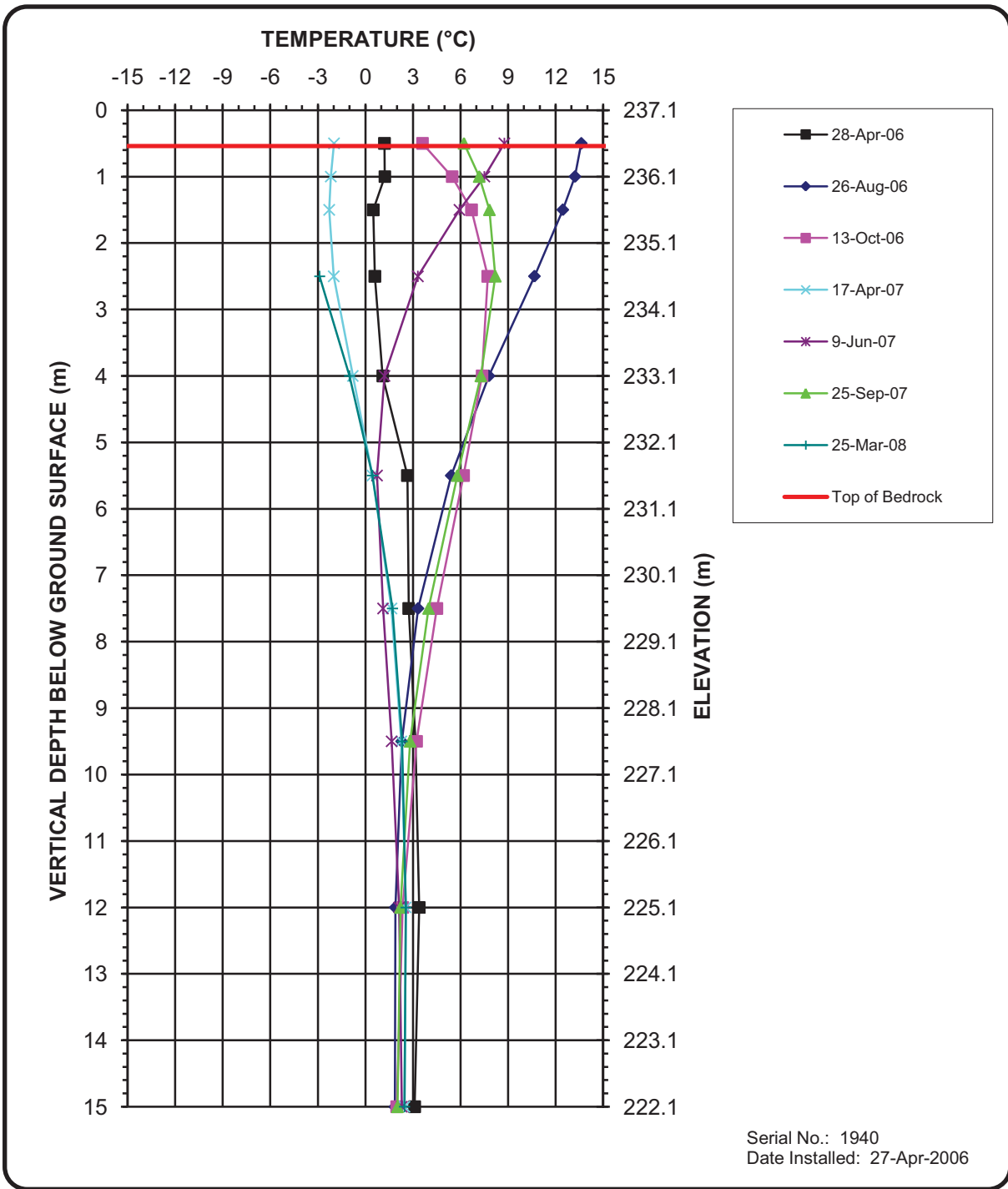


**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) April 23rd 2006 reading is  
representative of latent heat during  
installation.

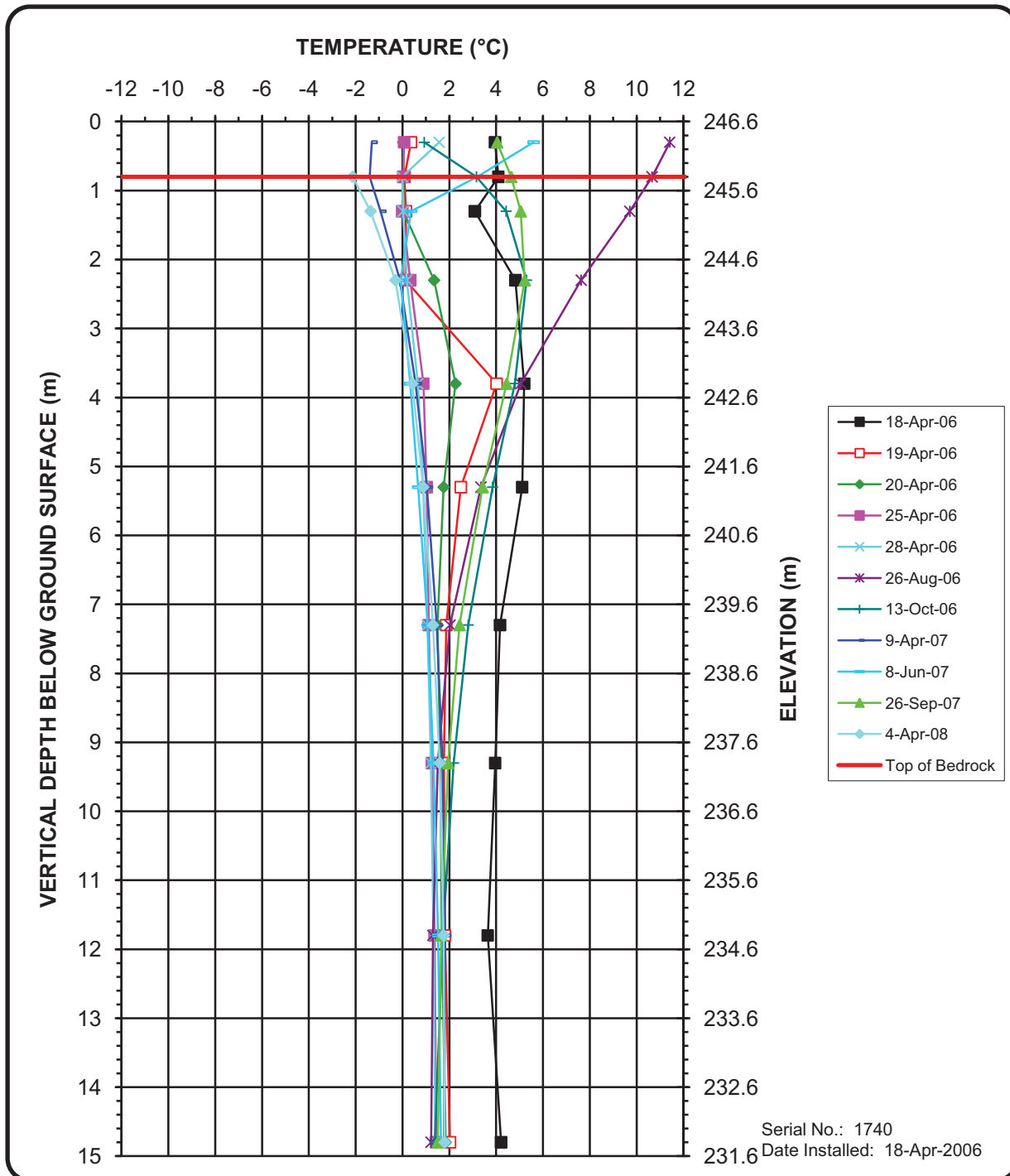
**GA-06-13**  
GROUND ELEVATION: 237.1 m



**Notes:**

- 1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

**MC-06-23**  
GROUND ELEVATION: 246.6 m

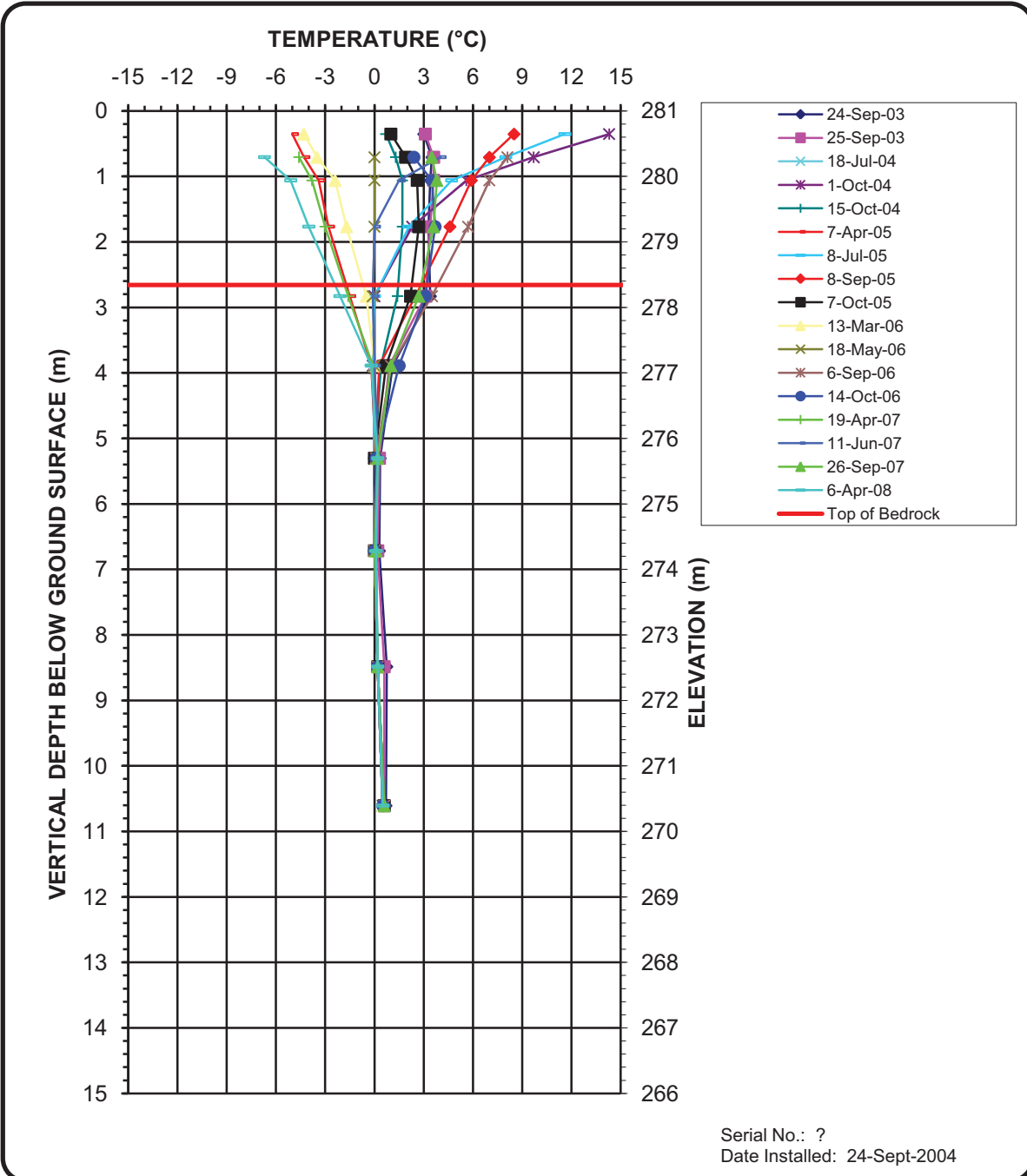


**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) April 18th and 19th 2006 readings are  
representative of latent heat during  
installation.

**NICO-03-285**  
GROUND ELEVATION: 281.0 m



**Notes:**

1) Surface elevations were derived from a digital topographic map.  
The actual elevations may be +/- 2m.

2) September 24th and 25th 2003 readings are representative of latent heat during installation.

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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South America	+ 55 21 3095 9500

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[www.golder.com](http://www.golder.com)

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