BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

VICTORIA GOLD CORPORATION

EAGLE GOLD PROJECT
DUBLIN GULCH, YUKON

FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

FINAL

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

234 St. Paul Street
Kamloops, BC V2C 6G4
Tel: 250.374.8600
Fax: 250.374.8606

January 20, 2012
Project No: 0792-005

Michael Padula
Victoria Gold Corporation
584 – Bentall #4
1055 Dunsmuir Street
PO Box 49215
Vancouver, BC
V7X 1K8

Dear Mr. Padula,

Re: Eagle Gold Project Feasibility Study Open Pit Slope Design Final Report

Please find attached a copy of the above referenced report. It has been our pleasure to work with the staff of Victoria Gold on this project.

Should you have any questions, please do not hesitate to contact the undersigned at 250-374-8600, Ext. 206.

Yours sincerely,

BGC ENGINEERING INC.
per:

H. Warren Newcomen, M.S., P.Eng., P.E.
Senior Geotechnical Engineer

Att.

HWN/ej

EXECUTIVE SUMMARY

BGC Engineering Inc. (BGC) conducted a geotechnical site investigation and design study for the open pit of the Eagle Gold Project to support feasibility level designs of the pit slope angles. The proposed open pit will be located in metasedimentary rocks of the Hyland Group and intrusive rocks associated with the Mid-Cretaceous Dublin Gulch Stock. The maximum depth of the proposed open pit is approximately 580 m.

BGC carried out site investigations to collect geotechnical data for the current study, including: geotechnical drilling, core orientation, packer testing, installation of piezometers and laboratory testing of rock samples. Geotechnical information collected by BGC from thirteen holes drilled between 2009 and 2011 has been used as the primary basis for the open pit geotechnical database. Additional data collected by Sitka (Sitka, 1996) and Knight Piesold (Knight Piesold, 1996), as well as outcrop mapping and geotechnical logging of exploration holes, have also been used for the design.

Five geotechnical units have been interpreted based on the geologic and geomechanical properties of the rocks encountered. They include: metasedimentary (SED), surface weathered metasedimentary (SSED), intrusive (INT), clay altered intrusive (CINT), and surface weathered intrusive (SINT). The unweathered / unaltered rocks are medium strong to very strong; the quality of the rock mass varies from fair to good. The surface weathered rocks are medium strong to very strong; the quality of the rock mass varies from poor to good. The clay altered intrusive rocks are weak to very strong; the rock mass quality varies from poor to fair. The metasedimentary rocks are strongly foliated with the foliation dipping at an average of 30° to the west-southwest.

The pit has been divided into design sectors based on proposed slope heights and the potential for structurally controlled failures. The slope designs developed for each design sector include: bench height, catch bench width, bench face angle, interberm / interramp angle, interberm / interramp height, geotechnical berm width, and overall angle. Designs have been developed for each of the geotechnical units; maximum interberm / interramp angles range from 31° to 43°. As part of the design process, BGC has also checked the “Final Pit” pit shell (Wardrop, November 15, 2011) to confirm that design parameters provided by BGC were properly applied. BGC’s design criteria have been met and the overall stability of the proposed slopes is confirmed based on the design factors of safety and assumed hydrologic conditions.

Achieving the proposed open pit slope design parameters will require depressurization of the rock mass and controlled blasting. Potential risks to the pit design include uncertainties in the geologic/geotechnical model for the east wall, which may undercut faulting parallel to foliation and several zones of intense faulting/alteration, possibly related to the intrusion. This wall will require completely depressurization to achieve the design angles. Hydrogeologic investigations and analyses to confirm that this is practically achievable are still underway.

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LIMITATIONS

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1.0 INTRODUCTION

BGC Engineering Inc. (BGC) has been retained by Victoria Gold Corp. (Victoria) to provide Feasibility Study (FS) level open pit slope geotechnical designs for the Eagle Gold Zone (EGZ) located within Victoria's Eagle Gold Project (the "Project"). This report summarizes previous work completed, the site geology as it pertains to slope stability, the data collected to develop open pit slope designs, and the methodologies and assumptions used. The open pit designs have been summarized for use by Victoria Gold's mine planners. Potential uncertainties and opportunities pertaining to the open pit slope designs have been summarized and recommendations for further work to address specific areas of the pit have been provided.

1.1. Previous Work

Mineral exploration activities have been carried out in the Dublin Gulch area since the late 1800's, with drilling of the EGZ initiated in 1978. Structural surface mapping data was collected in the late 1970's (Smit et al., 1995), and geotechnical drilling began in 1995 (Knight Piesold, 1996). Geological and engineering reports pertinent to the pit design work include:

- Knight Piesold Consulting, 1996. Report on the feasibility design of the open pit slopes (Ref. No. 1882/3) - Dublin Gulch Property (Yukon), for First Dynasty Mines.
- Sitka Corp., 1996. Field Investigation Report - Dublin Gulch Property (Yukon), for New Millennium Mining Ltd.
- Sitka Corp., 1996. Open Pit Geotechnical Design - Dublin Gulch Property (Yukon), for New Millennium Mining Ltd.
- Golder Associates, 2007. Technical Review of Dublin Gulch Pit Slope Designs (DRAFT), for KD Engineering Co.
- BGC Engineering, 2010. Pre-Feasibility Open Pit Slope Design, for Victoria Gold Corp.

Engineering design work was previously completed to a level considered to be feasibility level (Sitka, 1996); however, changes in property ownership, a mineral resource update, new mine plan options, and changes to resource/reserve reporting requirements have resulted in a need to update the pit slope designs. Based on the amount of information available at the time, the 2010 BGC report was considered to be at a Pre-Feasibility Study (PFS) level. The current study is considered to be at a Feasibility Study (FS) level, as the current work incorporates additional geological information and geotechnical data collected since completion of the PFS, and supersedes all previous geotechnical design work.

Geological and hydrogeological studies completed by others have also been utilized in the current design study. The key reports include:

- GeoViro Engineering Ltd., 1996. Hydrogeology Characterization and Assessment – Dublin Gulch Gold Project (Yukon), New Millennium Mining Ltd.
- Sieb M and Anonby L, 1997. 1996 Final Exploration Program on the Dublin Gulch Property, New Millennium Mining Ltd.
- Rescan Engineering Ltd., 1997. Dublin Gulch Project Feasibility Report – Volumes 1-3, for New Millennium Mining Ltd.
- Wardrop, 2009. Technical Report on the Dublin Gulch Property, Yukon Territory, Canada, StrataGold Corp.
- Stantec, 2010. Environmental Baseline Report: Climate. For Victoria Gold Corp.

Previous geological assessments vary in scale and level of detail. Geological interpretations completed by Victoria staff in 2011 supersede previous work. Interpretations used in this report were provided by Victoria in the form of 3D geological solids representing the distribution of intrusive and metasedimentary rock units within the study area.

1.2. Current Work

BGC's scope of work for the FS includes engineering geology field investigations and geotechnical designs for a proposed open pit in the Eagle Gold Zone (Drawing 1). These designs are based on geological information provided by Victoria, geotechnical data collected by BGC from 2009 through 2011 and historical geotechnical data collected by others (Drawing 2). In addition to the slope designs for the open pit, BGC is providing geotechnical designs for the waste rock storage facilities and mine facilities (BGC, 2011b). BGC is also undertaking hydrogeologic field investigations to evaluate pit wall depressurization systems to support the feasibility level pit slope designs (BGC, 2012). Mine layout design and environmental assessments for the project are being provided by Wardrop, A Tetra Tech Company (Wardrop) and Stantec Inc. (Stantec), respectively.

This report summarizes the main elements of BGC's pit slope design study, including:

- The field investigations and geotechnical database (Section 2.0).
- The structural domains, i.e. the character and orientations of major structures and the rock mass fabric (Section 3.0).
- The geotechnical units and rock mass model i.e. the engineering properties of the EGZ rock mass (Section 4.0).
- Recommended FS open pit slope design criteria, design methodology, and design assumptions (Section 5.0).
- Important factors for consideration during the pit design and implementation of the design criteria (Section 6.0).
- A review of potential risks and opportunities related to the open pit slope geotechnical design (Section 7.0).
- Recommendations for additional work at future stages of study (Section 8.0).

The work completed for the current study and the data used is considered to be adequate for the development of a feasibility study level slope design. There are numerous assumptions that have been made with respect to the final highwall stability that will need to be investigated further at detailed design stage.

1.3. Study Location

The EGZ is located at the southwest end of the Dublin Gulch property in the Mayo Mining District, approximately 40 km northeast of Mayo, Yukon. The project area is located within a historically active mining region (Figure 1-1). Exploration targets and mines near the site include: Mt. Haldane, McQuestern, Keno Hill, and Brewery Creek.

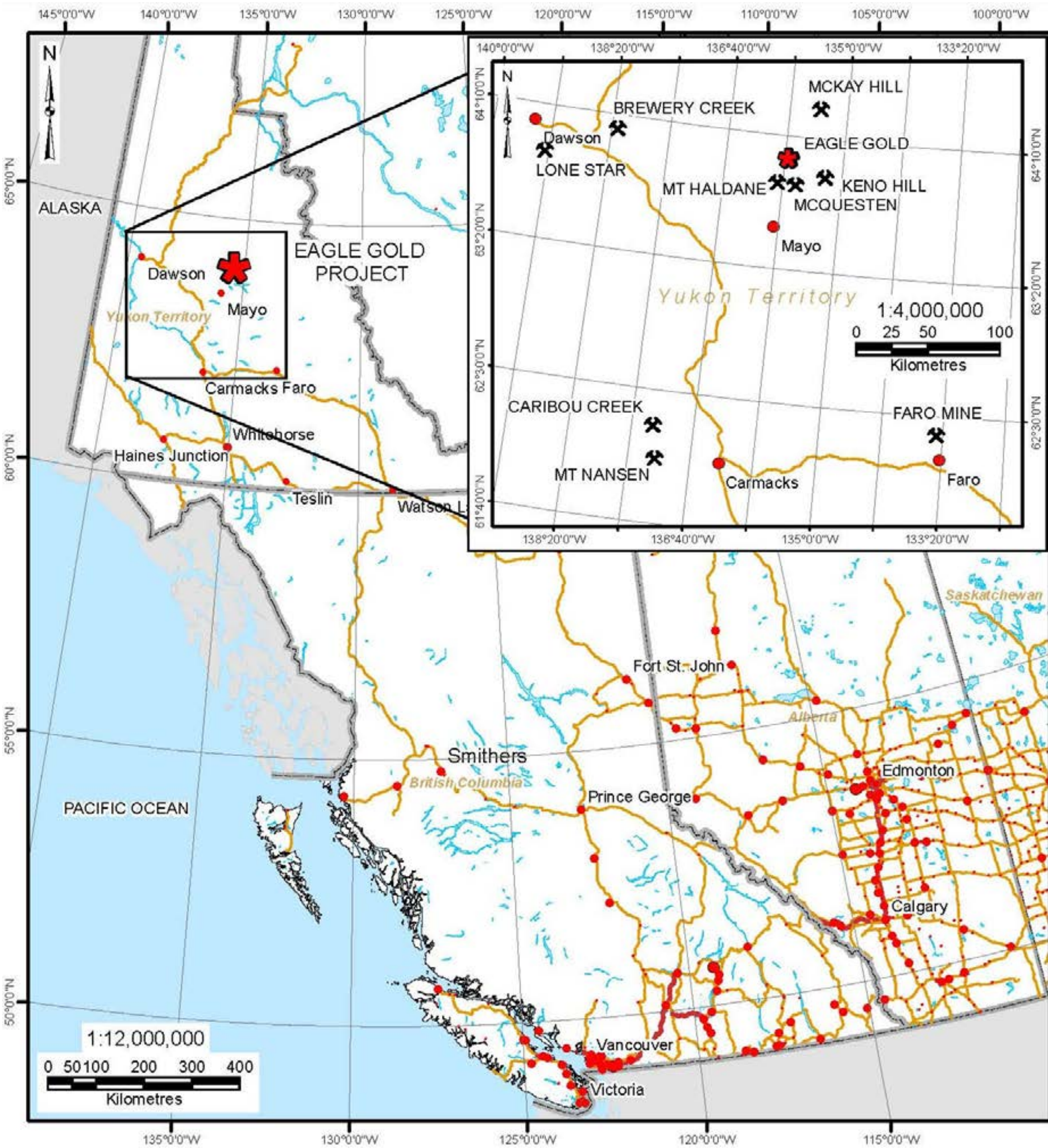

Figure 1-1. Eagle Gold Project Location

1.4. Area Physiography

The EGZ is located on the west flank of a ridge east of Haggart Creek (Drawing 1) near its confluence with Dublin Gulch. The ridge peak east of the EGZ is approximately 1400 metres above sea level (masl); with the valley floor to the west of the mineralized zone at an elevation of approximately 750 masl. The valley floor has been modified by extensive placer mining. The pit area has a northwest aspect sloping at approximately 15°, and is transected by the Eagle Pup and Stuttle Gulch drainages. Platinum Gulch is located on the south side of the proposed pit area.

1.5. Climate

The EGZ is located within the Stewart Plateau subdivision of the May Lake-Ross River Eco-region. The property is located in an area characterized by moderate total annual precipitation and extreme variations in temperature (Rescan, 1997). Average annual precipitation over the property ranges from 375 to 600 mm, half of which falls as snow (Rescan, 1997). Winter temperatures as low as -60°C have been recorded between October and April.

1.6. Geologic Setting and Overview

The Project area is underlain by Upper Proterozoic to Mississippian sedimentary rocks of the Selwyn Basin (Smit et al., 1995). Metamorphic rocks consisting of quartzites, schists, and phyllites of the Hyland Group represent the dominant country rock of the study area. These rocks have been folded and faulted on a regional scale and subsequently intruded by granitic rocks of the Tombstone suite during the Late Cretaceous. The Dublin Gulch Stock is the dominant intrusive rock of the study area hosting the mineralization targeted by ongoing exploration work, and is responsible for local alteration of the country rocks.

1.6.1. Regional Geology

The Project area is located approximately 100 km northeast of the Tintina Fault trench within the Tombstone Gold Belt of the Yukon Territory and is underlain by metamorphosed sedimentary rocks of the Selwyn Basin (Figure 1-2). The Selwyn Basin rocks are not part of an accreted terrane; however, deformation of these rocks is prevalent. Three major thrust faults have been identified at the regional scale near the project area. These are, from west to east, the Robert Service, Tombstone, and Dawson Faults. The Project area lies in the hanging wall of the Robert Service Thrust sheet where Hyland Group sediments juxtapose against Keno Hill Quartzites (Figure 1-2). Folding of the sedimentary and meta-sedimentary rocks is observed throughout the region with synclines and anticlines of multiple scales interpreted from surface mapping observations.

The EGZ, and other mineralized zones, are associated with the intrusion of the Mid-Cretaceous Tombstone Plutonic Suite (Stephens et al., 2004). These post-deformation intrusions host gold, silver, tungsten, lead and zinc deposits as veins, shears or skarns. The EGZ is an example of one of the vein hosted gold deposits of this group.

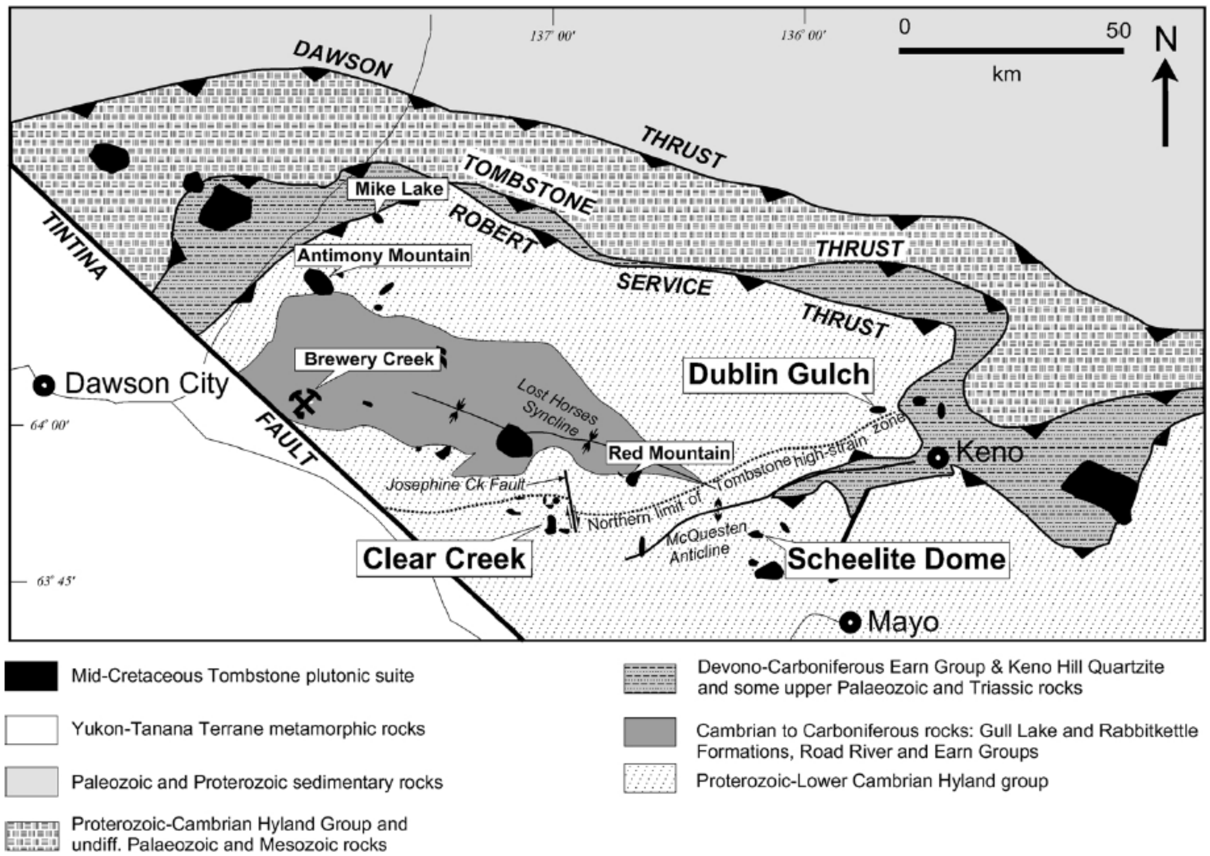

Figure 1-2. Regional geology setting of the Dublin Gulch area (after Stephens et al., 2004).

1.6.2. Lithologies of the Study Area

The bedrock of the EGZ and the property area is divided into two main units: the Hyland Group metasediments and the Dublin Gulch Stock. The bedrock units are described below. Overburden materials are also discussed briefly in this section.

The Hyland Group metasediments are the predominant country rock within the area of the EGZ. These rocks comprise a package of metamorphosed sediments consisting of quartz-rich and locally calcareous phyllite, mudstone, siltstone, quartzite, schists, minor carbonates, and quartz-biotite-andalusite schists. These rocks are foliated; in the EGZ area the foliation is generally moderately dipping (20° to 50°) to the southwest to northwest. Near the intrusive contact the metasediments have been hornfelsed, resulting in an apparent hardening of the rock.

The EGZ occurs near the southwest end of the Dublin Gulch Stock which trends northeast from Platinum Gulch. The surface expression of the stock in the EGZ area measures approximately 2 km in length by 0.5 km in width. The granodiorite of the stock is generally coarse grained. Dykes associated with the Dublin Gulch Stock consist of very fine grained diorite to granodiorite. The dykes tend to cut the stock and the metasediments, particularly along the south margin of the deposit area. For the purpose of the FS both the intrusive stock and the dikes are considered to be the same geologic unit. The granodiorite hosts the majority of mineralization via sheeted quartz veins (Smit et al., 1995). A three dimensional geologic model was provided to BGC by Victoria and was used as the basis for the distribution of the geotechnical units, structural domains, and design sector presented in this report. The geological boundaries can be seen in section in Drawings 3 to 8.

1.6.3. Bedrock Alteration

Alteration of the host bedrock in the Project area has occurred due to intrusion of the Dublin Gulch Stock. The Hyland Group sediments adjacent to the intrusion have been hornfelsed and skarns have developed in carbonate-rich units along the trend of the stock. Quartz veining related to the stock and the mineralization is observed to extend only locally into the Hyland Group sediments in the EGZ.

For geotechnical design purposes, the primary distinction in the study area is between the intrusive and the metasedimentary rocks. For geotechnical purposes, the intrusive rocks have been broken into three classes based on alteration and weathering: fresh and unaltered, clay altered, and weathered. The fresh and unaltered rocks at depth are generally strong to very strong. Some of the intrusives at depth are clay altered at the contact with the metasediments, resulting in a decrease in the intact strength of the rock. The spatial extent of the clay alteration is not well understood at this time; however, it has been postulated to be prevalent around the intrusive – metasedimentary contact and has been characterized as a separate geotechnical sub-unit. A surface weathered unit has also been identified as a distinct geotechnical unit in each of the primary rock types. These are described in detail in Section 4, and their impact on the pit design is described in Section 6.

1.6.4. Overburden in the Project Area

Overburden material in the open pit area was difficult to recover with diamond drilling techniques; however, extensive test pitting in the area around the pit has been carried out for the mine infrastructure site investigation (BGC, 2011a). The overburden in the open pit area consists of a thin layer of organic soil comprised of roots, moss, silt and sand overlying a layer of colluvium of varying thickness (Bond, 1997). The colluvium ranges from loose to compact and consists of boulders and cobbles with some silt and sand, to silty sand with some gravel. The colluvium was typically underlain by a variable thickness layer of highly weathered metasedimentary or intrusive rock. The metasediments were typically observed to be weathered to silt and clay, with some to trace gravel to highly weathered sand and gravel with cobbles and trace to some silt and clay. The intrusive rock (e.g. granodiorite) was typically observed to be either completely weathered to a silty sand or sandy silt, or highly weathered to a poorly graded sand.

The base of the overburden was difficult to define in the open pit area, and as a result, the depth of casing installed or the depth of zero to limited recovery has been used as an indicator of the depth of overburden around the pit. The overburden extends to an average depth of about 10 m below ground surface, and has been observed to be as thick as 36 m below ground surface in the proposed open pit area.

1.6.5. Structural Geology of the Project Area

Major geological structures within the Project area include faults and folds. Distinct structural fabrics are observed in the meta-sedimentary rocks of the Hyland Group and the intrusive rocks of the Dublin Gulch stock, and are supported by mapping and drilling completed in the study area. An overview of the structural geology model is provided below, with additional details in Section 3.0.

1.6.5.1. Faults

The Project area is situated within a zone of regional faulting and compression, however, regional scale faults that have been mapped in the study area do not appear to intersect the proposed open pit (Stephens et. al, 2004). The trace of the Robert Service Thrust fault is interpreted north and east of the Project area (Figure 1-2). The fault dips to the southwest; at an unknown dip. While the regional fault is not mapped in the proposed pit area, a pervasive fabric associated with this (and other) regional thrusts may be visible in the Project area (Smit et al., 1995). The interpreted surface trace of the Haggart Creek Normal Fault coincides with the Haggart Creek drainage, 1 km west of the EGZ. This fault strikes north-south and dips to the west; the dip is unknown. Numerous structural discontinuities observed in geotechnical drill holes have been logged as faults. These are interpreted to be ‘project scale’ faults (Section 3.2.).

In the metasedimentary rocks, five main fault sets have been observed (Drawing 9). These include one pervasive fault set parallel to the widely observed foliation (Drawing 10) and four weaker fault sets; two of the fault sets have strikes approximately orthogonal to the foliation, one sub-vertical and one opposite the foliation. One of the sets (Set FF1) strikes subparallel to the Haggart Creek Fault. A weaker set (FB2) dipping moderately to the northwest and a sub-horizontal dipping set (FI1) were also observed. In the Intrusive structural domain, several faults were also observed (Drawing 11). Some of the fault sets had similar orientations to those noted in the metasediments; however, a set parallel to the foliation was notably absent. The faults in both the intrusive and metasedimentary unit range in thickness and character from a few centimeters of broken rock infilling to several meters of poor recovery and broken rock in a clayey gouge matrix. The spatial extents of the faulting can be seen in the borehole logs (Appendix A) and the geotechnical sections (Drawings 3 to 8).

Zones of weak rock and large scale faulting up to 13 m thick were encountered in the metasediments in drillholes 09-BGC-GTH-2a and 10-BGC-GTH-06. One fault zone was interpreted to be dipping to the west at an unfavourable angle of approximately 25°. Based on observations along cross-section A (Drawing 3), it appears that these zones could be continuous; however, this feature could not be three-dimensionally rectified during 2011 drilling and therefore the cause for the weak rock and faulting in the east wall of the proposed pit could not be confirmed. Therefore, there remains some uncertainty as to whether or not this fault feature is a result of gravitational movement (BGC, 2010b) or tectonism.

1.6.5.2. Foliation

The metasedimentary rocks in the EGZ exhibit a pervasive foliation fabric in both the quartzites and the phyllites. The foliation typically dips from northwest to southwest at 20° to 50° (Drawing 10). Sub-horizontal foliation was observed in test trenches during previous and current investigation programs, and was also indicated in the oriented core data. The sub-horizontal foliation is believed to be associated with the surface weathered metasedimentary rock. However, the presence of thrust faulting in the region implies that flat structures cutting across the foliation could also occur in the deposit.

At the regional scale, there appears to be evidence of foliation folding along a northeast to southwest system of synclines and anticlines. Local folding is observed in outcrop features observed but it is unclear if this is a result of regional folding or faulting in the pit area. The foliation in the metasediments was observed in every drill hole that intersected metasedimentary rock and as such, it has been assumed for the FS level designs that the foliation represents a strong anisotropy in the metasedimentary rockmass and is persistent throughout the EGZ. The foliation measurements taken from drilling are displayed in Drawing 10.

1.7. Hydrogeologic Setting

The hydrostratigraphy of the site consists of overburden that is composed of a thin veneer of colluvium in the uplands; along with alluvium, glacial till, and reworked placer tailings in the valley bottoms; all overlying bedrock. The results of hydraulic tests conducted in the bedrock show that the hydraulic conductivity of the intrusive and metasediment units is generally similar, although considerable variations are apparent for each unit at any given depth (i.e. two to four orders of magnitude). A general trend of decreasing permeability with depth is discernable from the data. Additional details on the hydrogeology of the study area and how it could impact the pit slope designs are provided in the prefeasibility hydrogeologic report: “Pre-Feasibility Open Pit Depressurization” (BGC, 2010a). Additional interpretations will be available in early 2012 as soon as Feasibility level open pit depressurization evaluations are completed.

Groundwater elevations measured in drillholes completed in the Project area (shown in Drawings 3 to 8) suggest that the water table is a subdued replica of topography, with depths to groundwater typically greater in the uplands than in the valley bottom. Groundwater enters the flow system from infiltration of precipitation and snowmelt, with lesser components supplied by surface water infiltration in creeks and gullies. Groundwater discharge zones are generally restricted to creeks, gullies, and breaks in slope.

2.0 GEOTECHNICAL PROGRAM

2.1. Overview

To support the development of FS level open pit slope designs, BGC has compiled available data from existing reports, databases, and geological models. To augment the 2009 geotechnical site investigation for the PFS and bring the geotechnical database up to FS level, BGC completed two site investigation programs from August 2010 to October 2010 and from June 2011 to July 2011. This work included drilling and logging five and three geotechnical core holes, respectively. The locations and orientations of the geotechnical holes drilled and logged for this study are summarized in Table 1 and shown in Drawing 2. Field point load testing of the core, packer testing of the rock mass, and piezometer installations were carried out at the site during drilling. A laboratory testing program to support core logging information and improve the estimates of rock mass properties in the Project area was also conducted on rock core samples collected following the site investigation program.

Geotechnical data collected by BGC during the 2009, 2010, and 2011 field programs were used for the interpretation of structural domains, rock mass classification and pit design criteria development. Geotechnical information collected in these drillholes is presented in Appendices A through C. Data from other sources was also used to assist in geologic interpretations and model confirmation.

2.2. Geotechnical Drilling Summary

A total of thirteen dedicated geotechnical holes were drilled during the field programs conducted by BGC between 2009 and 2011. The collar location, depth and orientation of these holes are given in Table 1 and shown on Drawing 2. Diamond drilling was completed by Lyncorp Drilling Services Inc using a triple-tube HQ (HQ3) core barrel system, which yields 61 mm diameter core. BGC staff performed geotechnical core logging at the drill rig (day and night shift), conducted hydrogeological (packer) tests at select intervals in the geotechnical core holes, and supervised the installation of piezometers. The Reflex Ace Core Orientation Tool (ACT) was used in all holes to orient the drill core for measurements of discontinuity orientations. Downhole surveys were also performed by Lyncorp staff at approximately 30 m intervals. After the core was transported to camp, additional geological logging was performed by Victoria staff, and point load testing and sampling was carried out by BGC staff.

The following geotechnical data were collected or calculated for each interval:

- Core recovery length (m)
- Rock quality designation (RQD) length (m)
- Number of natural discontinuities
- Longest stick length (m)

- Strength grade ("R", ISRM 1978)
- Weathering grade
- Average joint condition (RMR '76).

The following data were collected when logging individual discontinuities within the core run:

- Depth to discontinuity, along core axis (m)
- Discontinuity type
- Angle to core axis, Alpha (°)
- Beta angle (°)
- Infilling type
- Aperture (mm)
- Joint roughness co-efficient (JRC)
- Joint wall compressive strength ("R").

The locations of drillholes logged by BGC are shown in Drawing 2. Summary geotechnical borehole logs for each hole are provided in Appendix A.

2.3. Instrumentation

Nine vibrating wire piezometers (VWPs) were installed during the 2009 and 2010 field investigations. An additional four VWPs were installed in two of the three geotechnical holes drilled in 2011. The location and depth of the vibrating wire piezometers within the drillholes and the heads measured in those piezometers are shown in Drawings 2 to 8 and Appendix A.

Standpipe piezometers were installed in geotechnical holes 09-BGC-GTH3 and 09-BGC-GTH4 to facilitate groundwater sampling, as well as to provide water table elevations. Installation details are provided in the geotechnical logs in Appendix A.

2.4. Point Load Testing

Point load testing was completed by BGC staff at the site using a RocTest PIL7 point load testing machine. Point load testing results are provided on the geotechnical logs in Appendix A and were used to estimate rock mass strength ratings, as per the procedure described in Section 4.0.

2.5. Field Mapping

Mapping of geological structures and discontinuities was undertaken by Victoria staff in 2009 and 2010 and the information collected was provided to BGC. These data included the discontinuity type and orientation. Field mapping of discontinuities and geomechanical characterization of outcrops in the metasediments and intrusives was also carried out by BGC between 2009 and 2011. In addition to discontinuity type and orientation, information on the discontinuity persistence, aperture, infill characteristics, discontinuity spacing, the shape of the discontinuity, and the strength of the wall rock were also collected. Information from field mapping is included in Mine Site Infrastructure Factual Data Report (BGC, 2011a).

2.6. Laboratory Testing

Representative core samples collected during the geotechnical drilling program were tested in the laboratory to estimate intact compressive strength, tensile strength and shear strength parameters for the FS design work. Testing was conducted by Golder Associates geotechnical laboratory in Burnaby, B.C. A summary of the tests performed and final testing reports are provided in Appendix C. The results of the tests are discussed in Section 4.0.

2.7. Geological Logs

All geotechnical holes from the 2009, 2010, and 2011 program have been logged for lithology and alteration by Victoria Gold geologists. These logs were provided to BGC and used to assign geotechnical units for the EGZ.

2.8. Geological Maps and Sections

The geological maps and sections presented in the report are based on 3D geological solids representing the intrusive and metasedimentary units provided by Victoria Gold.

2.9. Open Pit Shells

Preliminary open pit shells were generated by Wardrop using Whittle software to estimate pit extent, depth, and wall orientations, and to generate ore and waste tonnages using FS geotechnical designs provided by BGC. These pit shells were used to provide initial estimates of the proposed pit slope heights, final depth, and general slope orientations to guide the pit slope design process. A series of pit phases were developed by Wardrop and a detailed pit design was provided to BGC on May 18, 2011. This pit design was subsequently modified based on revisions to the block model, provided to Wardrop in early November, 2011. Following further pit design work by Wardrop, the ultimate pit phase, designated "pit_design_r5_phase4" was provided to BGC on November 15, 2011. This pit design forms the basis for our evaluations of the stability of the ultimate pit walls, as discussed in Section 5.4.

2.10. Data Confidence Levels and Limitations

Data available and utilized are considered to be appropriate for FS level open pit slope designs. The data density is adequate for a project of this scale and complexity; however, additional drilling will be required at the detailed design stage.

The application of geotechnical data collected by BGC should be limited to the proposed EGZ proposed open pit area. Extrapolation of rock mass quality or structural geology from the EGZ to surrounding areas may not be reasonable due to the natural variability of the study area geology.

3.0 STRUCTURAL DOMAINS

3.1. Overview

The structural geology in the Eagle Gold Zone will have a strong influence on the achievable wall angles for various potential pit wall orientations (Section 5). A structural geology compilation and preliminary structural geology model was developed as part of the PFS study (BGC 2010b). This compilation was updated for the FS with additional oriented core and surface mapping data collected during the 2010 and 2011 field programs.

3.2. Structural Domains

The Eagle Gold Zone has two distinct primary rock types and associated structural zones:

- Metasediments
- Intrusives.

The distribution of these primary rock types projected to the ground surface is shown in Drawing 2, and on the proposed open pit in engineering geology cross-sections shown in Drawings 3 thru 8. No structural differences were observed between the surface weathered and unweathered units; therefore these units were grouped together for kinematic stability analyses and design purposes. The clay altered intrusive sub-unit also showed similar structural fabric as the intrusive unit and was therefore grouped with the broader unit for purpose of structural zonation of the proposed open pit area.

3.2.1. Domain M (Metasediments)

The metasediments will be encountered predominantly in the upper sections of the northwest to west dipping walls, and to a lesser extent the upper portions of the southeast to south dipping walls of the proposed open pit. The controlling structures for the stability of the metasediments in the west dipping wall will be discontinuity set FB1, which is a west dipping fault set parallel to foliation, with an average dip of 34°. There are 4 additional fault sets in the metasediments, described as follows:

- FC1, which is sub-parallel to the Haggart Creek Fault and cross cuts the foliation parallel fault set
- FI1, a near horizontal set
- FF1, a near vertical set dipping to the north-northwest
- FB2, a steeply dipping set to the northwest.

The orientation, design strengths and significance of each of the design sets in the metasediments are summarized in Table 2. The interberm / interramp scale sets used for design are displayed in Drawing 9.

The rock mass fabric is defined by the structural discontinuity sets forming the individual blocks of the rock mass. The block sizes of the metasedimentary host rock in the EGZ are defined by foliation, faults, shears and joints, and are typically greater in the quartzites than the phyllites. Figures 3-1 (see Drawing 2 for location) and 3-2 show typical outcrops of quartzite and phyllite rock types. No phyllite outcrops were found within the open pit area; OC-BGC11-52 (Figure 3-2) is located near the proposed heap leach pad to the north of the pit. Outcrop mapping logs are included in Appendix B of the Mine Site Infrastructure Factual Data Report (BGC. 2011).

Figure 3-1. Metasedimentary - Quartzite Outcrop (OC-BGC11-16) Near Eastern Limit of Pit

Figure 3-2. Metasedimentary - Phyllite Outcrop (OC-BGC11-52)

3.2.2. Domain I (Intrusives)

The rock types grouped into the intrusive structural domain generally occur in the lower portions of the proposed final pit below the metasedimentary host rock. As a result, the intrusive rocks will play a significant role in the stability of the overall slopes of the pit. There are ten fault sets in the intrusive rocks, with associated sub-parallel jointing. The fault orientations and associated shear strengths have been used for the interberm / interramp scale slope designs. The orientation, design strengths, and significance of each intrusive design set are summarized in Table 3. The design sets used for interberm / interramp designs in the intrusive are displayed in Drawing 11.

The rock mass fabric is defined by the structural discontinuity sets forming the individual blocks of the rock mass. The block sizes in the intrusive rock are defined by faults, shears, and joints. The rock mass fabric of the granodiorite is influenced by the presence of pervasive sheeted quartz veins. These mineralized veins strike from 060° to 085° and dip approximately 60° to the south. The veins range in width from less than 1 mm to over 10 cm. Vein densities are generally greater near the margins of the stock. Figure 3-3 shows a typical outcrop of intrusive rock types (see Drawing 2 for locations). OC-BGC11-11 is located near the north extent of the proposed open pit. Outcrop mapping logs are included in Appendix B of the Mine Site Infrastructure Factual Data Report (BGC. 2011).

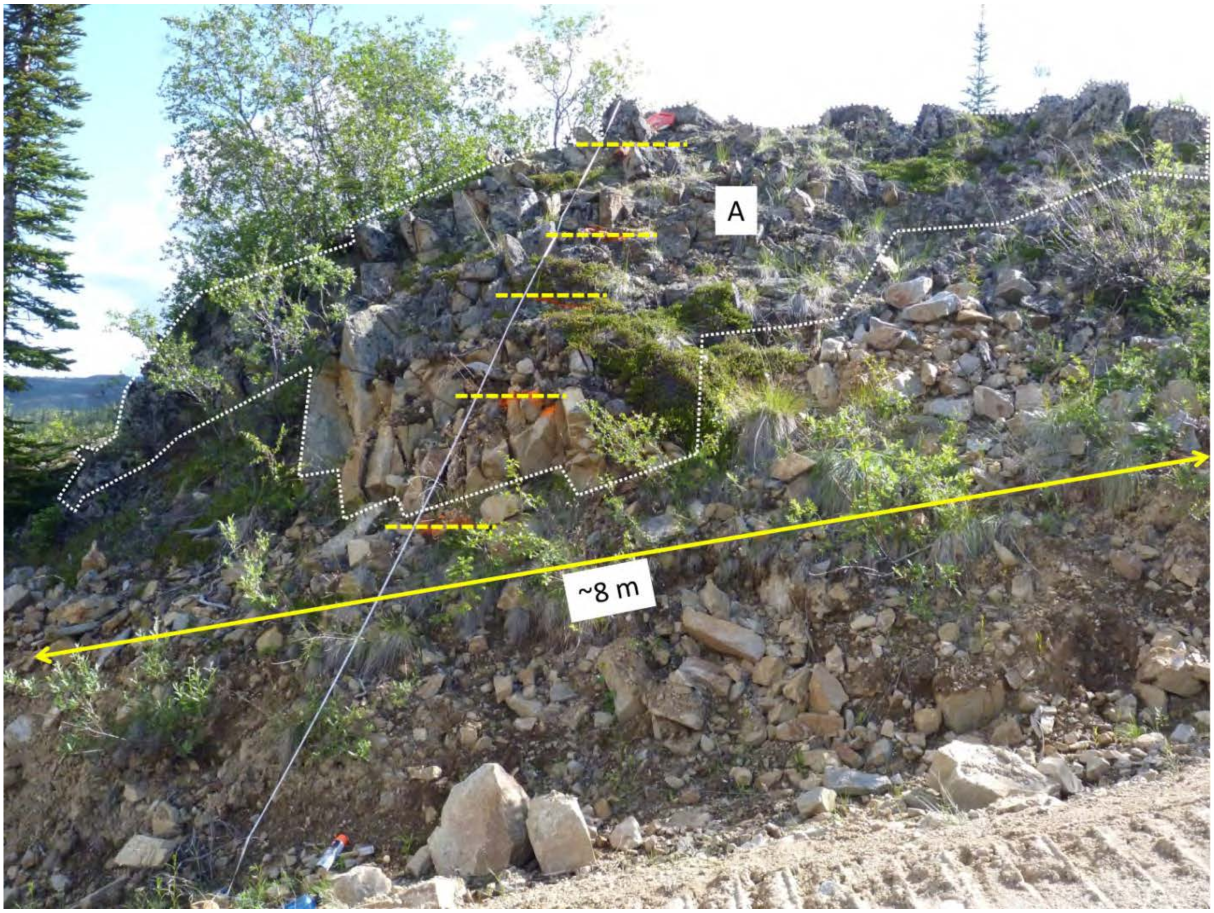

Figure 3-3. Intrusive Outcrop (OC-BGC11-11)

4.0 GEOTECHNICAL UNITS

4.1. Overview and Geotechnical Units

The geomechanical parameters of the rock mass at EGZ have been estimated based on the results of the 2009, 2010 and 2011 geotechnical drilling programs. Estimates are based on a combination of field observations of the rock (core and outcrop) and laboratory testing of representative core samples. The geomechanical properties, along with lithology and degree of weathering or alteration, have been used to group the rock mass into unique geotechnical units. Six geotechnical units have been defined at EGZ (Table 4), as follows:

- Fault Zones (FLTZ)
- Surface weathered intrusives (SINT)
- Clay altered intrusive sub-unit (CINT)
- Intrusives (INT)
- Surface weathered metasediments (SSED)
- Metasediments (SED).

The SINT and CINT are sub-units of the INT primary geotechnical unit. The SSED is a sub-unit of the SED primary geotechnical unit.

4.2. Intact Rock Properties

4.2.1. Strength Grade

Field estimates of intact rock strength, based on BGC's 2009, 2010 and 2011 geotechnical drilling programs from standard field tests and observations were made in the field using strength grades developed by the International Society of Rock Mechanics (ISRM, 1978). The strength estimates have been used to group the rocks into different geotechnical units. Site specific relationships have been developed between the point load index and Uniaxial Compressive Strength (UCS) laboratory testing results. An average strength grade was assigned for each drilled interval of rock core. The resulting cumulative fraction plot of strength grades for each geotechnical unit, based on core collected during BGC's geotechnical drilling program, is displayed in Drawing 12.

On average the metasedimentary units have a lower strength grade than the intrusive units, with median values of about R3.5 for the surface weathered medasedimentary unit (SSED), and R4 for the unweathered/unaltered intrusive unit (INT), the surface weathered intrusive (SINT), and the fresh metasedimentary unit (SED). Where the clay altered intrusive (CINT) was broken out from the other intrusive units, the average strength grade for this sub-unit was slightly lower at R3.5.

4.2.2. Point Load Index

Point load testing provides an index value (Is_{50}) that can be used to predict uniaxial compressive strength, where site specific correlation factors have been estimated through laboratory testing. Diametral (i.e. perpendicular to core axis) point load testing was conducted by BGC on rock samples from all core holes during the 2010 and 2011 drilling programs. Point load testing was performed by Victoria Gold staff under the supervision of BGC during the 2009 field program. Test locations were selected based on suitability of the core for testing and to provide representative point load values for each geotechnical unit. Testing was performed at approximately 5 m intervals (i.e. every third drill run) on average. BGC used the testing standards described in the 'Standard Test Method for Determination of the Point Load Strength Index and Application to Rock Strength Classifications' (ASTM D5731 - 08).

Point load results are plotted on Drawing 12 and on the drill logs in Appendix A. Average Is_{50} values are summarized in Table 4. There is general consistency between the point load index strengths and field grade strengths estimated during core logging, however, the Is_{50} strength estimates have a higher degree of precision than the field estimations and have therefore been used to estimate in-situ rock strength properties for design.

4.2.3. Brazilian Tensile Strength

The tensile strength of the intact rock was estimated by performing a Brazilian Tensile Strength (BTS) test on samples cut from the ends of each UCS sample. Where possible, two BTS tests were conducted for each associated UCS sample. The BTS is converted to Direct Tensile Strength (DTS) using a conversion factor of 0.6, based on a database of Direct Tensile testing and Brazilian Tensile testing compiled by BGC from other sources, and is used for estimating the Hoek-Brown material constant for each geotechnical unit.

4.2.4. Uniaxial Compressive Strength

The Uniaxial Compressive Strength (UCS) was estimated by laboratory testing of samples of intrusive and metasedimentary rock units (Appendix C). Twenty-seven UCS tests were conducted on rock core samples collected during from the 2009 and 2010 drilling programs. The results are summarized in Table 4.

From these tests, correlation factors were developed between the UCS and the DTS results from the laboratory and the Is_{50} field testing results, as shown in Table 4 and Drawing 13. The following intact strength correlations were developed:

- Metasedimentary Rocks: UCS = 17 x DTS, UCS = 24 x Is_{50}
- Intrusive Rocks UCS = 20 x DTS, UCS = 23 x Is_{50}

Design uniaxial compressive strengths for each geotechnical unit and sub-unit were then estimated from the point load Is_{50} values.

4.2.5. Hoek-Brown Material Constant

The Hoek-Brown material constant (m_i) reflects the induration, grain or crystal interlocking, and mineralogy of the rock sample. For each UCS test sample, m_i was estimated from the ratio of UCS to Tensile Strength, as proposed by Cai (2009) based on laboratory testing.

Average values of this ratio were used to estimate the m_i value for the SINT, INT, SSED, and SED geotechnical units. Due to a limited amount of laboratory testing for the CINT and FLTZ geotechnical units, and their higher clay content and fine grained characteristics, m_i was estimated from published values of similar rock type (Hoek, 2007), with consideration of the m_i values calculated for the less altered primary rock types.

4.2.6. Specific Gravity and Unit Weight

The specific gravity was estimated for each of the UCS samples tested in the program (Appendix C). The average unit weight of each geotechnical unit is summarized in Table 4.

4.3. Rock Mass Properties

Geomechanical design parameters have been estimated for each geotechnical unit, from core logging, point load testing and laboratory testing results. These parameters include: intact rock strength, discontinuity frequency/spacing (RQD and fracture intercept), blockiness index (indicates block size), and the average condition of each discontinuity surface (JC), based on Bieniawski (1976). The geomechanical properties are summarized in Table 5.

The median value of each geomechanical parameter for each geotechnical unit has been used for design. For intact rock strength estimation, Is_{50} is considered to have greater precision and accuracy than field estimates or laboratory UCS tests. Therefore, Is_{50} values have been used to estimate the design UCS of each geotechnical unit using the correlation factors described in 4.2.4.

The rock mass within the Eagle Gold Zone can be generally described as “fair” (Bienawski, 1976) with the exception of the fault zones which are described as “poor”. Throughout the open pit area both the metasedimentary and intrusive units have undergone surface weathering, which is seen in all geotechnical holes at depths ranging from 30 m to 100 m below ground surface. Based on Victoria Gold’s geologic logging of BGC’s geotechnical drill holes, there is a zone of clay altered intrusive rocks that were intersected in holes GTH2a, GTH3, GTH4, GTH-7 and GTH-8. This clay altered zone appears to be concentrated around the SED / INT contact and has distinctly different geotechnical properties from the unaltered intrusive units. More specifically, the RMR rating is on average 12 points lower and the design UCS value of 51 MPa is significantly lower than the value of 135 MPa for the unaltered intrusives (Table 5).

The unaltered and unweathered metasedimentary unit has a lower rock mass rating than the unaltered and unweathered intrusive unit. This is primarily due to its highly foliated fabric, which results in a higher fracture intercept, but is also due to its lower unconfined compressive strength.

Table 5 summarizes the upper, lower and median (design) values of the various geomechanical properties of the geotechnical units used to estimate the rock mass ratings, as seen in the cumulative frequency plots (Drawings 12, 14, and 15).

4.4. Rock Mass Strength

Strength envelopes using the formulation proposed by (Hoek and Brown, 1997) have been developed for each geotechnical unit (Table 6), based on:

- The design UCS of the intact rock (estimated from Is_{50}).
- The material constant (m_i) of the intact rock (estimated from DTS).
- The geological strength index (GSI) of the rock mass (estimated from core logging).
- A rock mass disturbance factor (“D”) which is a function of the excavation method and stress relief.

The GSI is estimated from RMR ’76 (Hoek et al., 2000):

For RMR’76 > 18:

GSI = RMR’76

The rock mass disturbance factor (“D”) is a subjective factor representing the effects of mining on the rock mass properties. Blast damage, stress relief, and mining induced relaxation will dilate or “loosen” the fabric of the rock mass and may generate new fractures. For FS design, in consultation with pit designers from Wardrop, BGC has assumed that good quality blasting with limited disturbance to the pit walls will be implemented during excavation of the pit slopes. Based on this assumption, a disturbance factor (”D”) of 0.85 is considered to be appropriate (Hoek et al., 2002). This disturbance factor has been assumed for the entire pit slope and adjacent/underlying rock mass. Brown (2008) suggests that the application of the disturbance factor should be limited to a zone adjacent and sub-parallel to the excavation face; however, at this stage of design the appropriate extent of disturbance cannot be estimated.

4.4.1. Metasediments and Surface Weathered Metasediments

The metasediments observed in the EGZ range in composition from quartzites to phyllites. The quartzites are generally strongly foliated and consist of pure quartz to quartz-feldspar, with laminations of muscovite and sericite. Grain sizes are typically 1 mm to 2 mm, with individual quartzite beds ranging from centimeters to several meters in thickness. The phyllites are generally strongly foliated and contain compact aggregates of biotite and sericite intercalated with irregular lenses of quartz. Surface weathered sediments are present from 30 m to 100 m below ground. The surface weathered metasedimentary rock has greater fracture frequency than the fresh metasedimetary rock, possibly due to surface weathering processes.

The intact fresh metasedimentary rocks (SED) (Figure 4-1) have a median (design) UCS of 83 MPa classifying it as “strong”, with a lower (25th) percentile UCS value of 45 MPa and an upper (75th) percentile UCS value of 143 MPa. The design m_i value is estimated as 17. The median fracture intercept is 0.14 m and rock quality designation is 64% (Table 5).

The intact surface weathered metasedimentary rock (SSED) (Figure 4-2) has a median (design) UCS of 76 MPa, classifying it as "strong" with a lower (25th) percentile UCS value of 34 MPa and an upper (75th) percentile UCS value of 106 MPa. The design m_i value is estimated as 17. The median fracture intercept is 0.09 m and rock quality designation is 36% (Table 5).

Discontinuities in the metasediments and surface weathered metasediments have slightly rough surfaces and highly weathered contacts with the wall rock based on joint condition data from core logging. Surface weathered metasediments joint surfaces frequently show signs of iron staining. The median RMR of the metasediments is 55 and the median RMR of the surface weathered metasediments is 41, classifying both of these units as "fair" (Bieniawski, 1976).

Figure 4-1. Metasediments from drillhole 10-BGC-GTH-06 (216.08 to 217.60 m).

Figure 4-2. Surface weathered metasediments from drillhole 10-BGC-GTH-10 (38.56 to 40.08 m).

4.4.2. Intrusives and Surface Weathered Intrusives

The granodiorites of the Dublin Gulch Stock are medium grey coloured, medium to coarse grained and equi-granular with up to 15 percent biotite. Surface weathered intrusives are present from 30 m to 100 m below ground. The surface weathered intrusive rocks have increased frequency of discontinuities and fractures, possibly as a result of surface weathering processes.

The intact non surface weathered intrusive rocks (INT) (Figure 4-3) have a median (design) UCS of 135 MPa, classifying it as 'very strong", with a lower (25th) percentile UCS value of 57 MPa and an upper (75th) percentile UCS value of 213 MPa. The design m_i value is estimated as 20. The median fracture intercept is 0.20 m and RQD is 73% (Table 5).

The intact surface weathered intrusive rocks (SINT) (Figure 4-4) have a median (design) UCS of 135 MPa, classifying it as 'very strong' with a lower (25th) percentile UCS value of 53 MPa and an upper (75th) percentile UCS value of 214 MPa. The median (design) UCS value for INT has been applied to SINT because there are relatively few (69) Is_{50} values for SINT due to a lack of suitable samples. The samples that were available for SINT were considered to be unrepresentatively competent of the geotechnical unit. The design m_i value is estimated as 20. The median fracture intercept is 0.10 m and RQD is 32% (Table 5). Note that the rock mass properties of the core recovered from the CINT unit have been included in the estimation of the non-surface weathered intrusive rock mass (INT) properties, as approximately 450 m of the 1451 m of INT recovered in the core was clay altered. This has resulted in a slight reduction in the average rock mass properties of the intrusive units. As the spatial distribution of the clay altered unit is not well defined, this is considered to be an appropriate method to account for the presence of the weaker sub-unit.

Discontinuities in the intrusives and surface weathered intrusives have slightly rough surfaces and highly weathered contacts with the wall rocks based on joint condition data obtained from core logging. Surface weathered intrusives joint surfaces frequently show signs of iron staining. The median RMR of the intrusives is 59 and the median RMR of the surface weathered intrusives is 49, classifying both of these units as “fair” (Bieniawski, 1976).

Figure 4-3. Intrusives from drillhole 10-BGC-GTH-08 (288.95 to 290.47 m).

Figure 4-4. Surface weathered intrusives from drillhole 09-BGC-GTH4 (24.41 to 25.39 m).

4.4.3. Clay Altered Intrusive

A weaker subunit of the intrusive was observed in drillholes GTH2a, GTH3, GTH4, GTH-07, and GTH-08. Based on Victoria Gold’s geologic interpretations, this unit shows clay alteration which results in lower intact strengths and low joint condition values.

The intact clay altered intrusive rocks have (CINT) (Figure 4-5) a median (design) UCS of 51 MPa classifying it as “strong” with a lower (25^{th}) percentile UCS value of 14 MPa and an upper (75^{th}) percentile UCS value of 108 MPa. The design m_i value is estimated as 15, scaled down from the value for the non-surface weathered intrusive rocks. The median fracture intercept is 0.11 m and RQD is 46% (Table 5). The median RMR of the clay altered intrusives is 47, classifying this unit as “fair” (Bieniawski, 1976).

Figure 4-5. Clay altered intrusive from drillhole 10-BGC-GTH-08 (81.69 to 83.21 m)

4.4.4. Overburden and Weathered Rock

For the purposes of pit slope design the heavily weathered and decomposed rock near the surface has been considered to be similar to an unconsolidated gravelly silt or gravelly sand. Relatively flat slope angles will be required along final slopes in this unit to maintain long-term stability, and to compensate for the potential impacts of thawing of these materials, which are anticipated to contain pockets of localized permafrost. Hoek-Brown strength criterion parameters are not considered to be appropriate for this type of material and therefore have not been estimated. For the purpose of the current design work, an average friction angle of 35° has been assumed for these materials.

4.5. Discontinuity Strengths

The estimated shear strengths of discontinuities used for interberm / interramp and bench scale design for the intrusive and metasedimentary units are presented in Tables 2 and 3. Residual friction values have been estimated for fault gouge and discontinuity infills from grain size and index tests (Stark and Eid, 1994) (Drawing 16). The residual shear strength of clean discontinuities has been estimated from small scale direct shear testing. The direct shear results were corrected for the effects of surface roughness using the method described in Hencher and Richards (1989) and Hencher (1995), and are summarized in Drawings 17 and 18.

Joints observed within the EGZ project area are typically slightly rough to rough (JRC 8-20) with <1 mm aperture typical in both the metasedimentary and intrusive rock units. A carbonate bearing clayey infill has been observed on some of the joints. X-Ray Diffraction (XRD) analysis performed during the PFS study on samples of this material indicates that the clay minerals consist primarily of kaolinite and illite, with lesser amounts of montmorillonite observed in one sample. Minor amounts of calcite and quartz were also indicated in the XRD results.

The corrected direct shear test results provide an estimate of the lower bound for discontinuity shear strength, irrespective of the surface roughness of the samples tested. For individual discontinuity sets, an appropriate increase in shear strength for large-scale (i.e. interramp) waviness could be applied based on the variability of the discontinuity dip angles, the direct shear results, and field and core observations of joint roughness. However, this has not been implemented in the SED unit to provide some conservatisms to the designs. In addition, the majority of the samples had trace amounts of calcite / clay infill and some of the samples near surface also had oxidized joint surfaces; suggesting that the infilling materials (as opposed to the wall rock) could dictate the shear strength of the discontinuities.

The residual friction angle from direct shear testing (Drawing 17) for the metasedimentary unit is 31°, slightly higher than the average friction angle of 30° estimated from index testing of the fault infilling (Drawing 16). For design, the friction angle for the metasedimentary unit has been set at 30° (Table 2) due to the pervasive nature of the foliation and the potential impact of instability along the foliation on the east highwall.

With respect to the intrusive geotechnical unit, a residual friction angle of 34° was estimated from direct shear testing which is higher than the average friction angle of 31° estimated from index testing of the fault infilling (Drawing 16). Observations of large-scale roughness on discontinuities in the intrusive rocks have been to adjust the base friction angle nominally by +3° for the fault sets in the intrusives. Therefore, a design friction angle of 34° (Table 3) has been assumed for the intrusive rocks.

5.0 SLOPE DESIGN CRITERIA

Open pit slopes can be divided into three scales: bench scale, interberm / interramp scale, and overall scale. Open pit geotechnical and regulatory constraints that have been considered in developing the slope design criteria are specified in Table 7. The stability of each scale is considered in developing the overall slope geometry, which is achieved by specifying the dimensions of bench face angles, catch bench widths, locations of ramps, and the frequency and width of geotechnical / dewatering berms (Drawing 19). Design criteria recommended are proposed to reduce the likelihood of pit slope failures which could result in harm to mine personnel, lost production time, and the loss of access to resources.

Potential bench scale instability could be controlled by both small and large scale discontinuities, as well as blasting / excavation practices. Interberm / interramp and overall slope stability are controlled by major geological discontinuities, persistent rock mass fabric (e.g. foliation), rock mass quality, and pore water pressures. Geometric criteria for the benches and interberm slope scales are given in Table 8.

5.1. Domains and Design Sectors

Pit slope designs have been completed for geotechnical "domains". All intrusive rocks (SINT, CINT, and INT) are included in the "I" Domain, and all metasedimentary rocks (SSED and SED) are included in the "M" Domain. The domains have been divided into design sectors based on anticipated pit wall orientations and major geological structural controls on slope stability, where appropriate, as shown on Drawing 20.

Slope design criteria have been provided by design sector for each geotechnical unit and are specific only to the walls within the specified wall orientations. Blending of design criteria for adjacent design sectors is required when the design criteria differ significantly. The bench and interberm design criteria provided for each sector are the maximum angles that can be excavated in that sector; therefore, blending of the slope angles must always take place in the steeper sector. The slope angle can be reduced by the mine planners to accommodate the geometry of the ore body or to incorporate pit ramps or geotechnical berms.

5.2. Bench Scale Design

The required bench scale design criteria include:

- Bench height (Bh)
- Bench face angle (Ba)
- Catch bench width (Bw).

The minimum design catch bench width must satisfy both regulatory and geotechnical requirements. Geotechnical requirements include catchment of discrete rock falls and retention of bench scale failures. The minimum catch bench width is 8.0 m based on the BC Mines Act (Section 6.23.2) which is the current standard for mines in Western Canada. Additional width may be necessary to account for crest break-back over the life of mine and beyond. With controlled blasting, which is expected to be employed at Eagle Gold, a break-back of less than 1.0 m has been assumed.

Victoria Gold has selected 7.5 m as the bench height for grade control purposes, and double bench mining techniques have been employed for the pit designs by Wardrop. Based on BGC's database of industry experience, a 65° bench face angle (Ba) can typically be achieved in intrusive hard rock deposits with similar rock quality to that observed in the Eagle Gold pit area where conventional drilling and blasting methods have been employed. If structural discontinuities are present that strike sub-parallel to the bench faces, these will usually end up being the controlling factor for the bench face angles, as the bench faces will tend to end at an angle close to the dip angle of the discontinuities. For the "Recommended Catch Bench Geometries" summarized in Table 8, this is applicable for most of the design sectors. However, due to the presence of moderately dipping faults sub-parallel to bench faces in Design Sectors M-132, M-160, and M-239, bench face angles have been reduced to 60° and 63° in these sectors, respectively, to reduce the potential for bench scale planar failures.

At the request of Wardrop, a set of modified bench geometries implementing a consistent 60° bench face angle was also developed (Table 8). The modified bench geometry shown achieves the same design interberm / interramp angle for all of the design sectors defined; however, in some cases (e.g. Design Sectors M-192, M-239, M-315, I-295, and I-338) the flatter bench face angle results in berm widths less than the specified 9.0 m (minimum 8.0 m plus 1.0 m of break-back). The result of this is that less berm will be available to contain rockfalls in these domains, and access may be limited for cleaning of the berms. Interramp stability is still maintained in these design sectors with the modified bench geometries; however, where possible, Victoria is encouraged to follow the recommended catch bench geometry (Table 8) requirements to maintain adequate rockfall protection in the pit. Refinement of the bench face angles in these design sectors is recommended at the next level of pit design.

5.3. Interberm/Interramp Scale

The interberm / interramp scale is an intermediate stage between the bench and overall pit scales. For the purpose of the FS level report, interberm / interramp scale refers to the portion of the slope separated by geotechnical / dewatering berms and / or haul truck ramps. A width of 16 m for the geotechnical berm has been selected based on anticipated operational needs to allow access for pit dewatering and slope monitoring. In design sectors where the design catch bench width is greater than 16 m, no additional geotechnical berms are required. Design criteria required for interberm scale are:

- Interberm angle (Iba)
- Interberm height (Ibh).

Maximum interberm angles may be controlled by large-scale geologic structures, such as the faulting parallel to foliation present in the metasediments. Where such structures are present, the allowable interberm angle will be dictated by the plunge and dip angles of kinematically possible wedge and planar failures for that particular pit wall orientation, estimated from the mean orientations of the design discontinuity sets in that domain. Shear strengths have been assigned to these structures based on the residual shear strengths of the discontinuities, as estimated from laboratory testing of fault gouge and direct shear testing. Kinematic analyses completed for all possible slope orientations in each domain are shown in Drawings 21 and 22.

Interberm design criteria are also estimated by a combination of geometric factors related to the bench configuration and geotechnical slope stability analysis. Depending on the rock quality and the height of the interberm slopes, the maximum achievable interberm angle may be controlled by the strength of the rockmass of each geotechnical unit present in the final walls. Generic limit-equilibrium method of slices stability analyses of potential non-linear failure surfaces have been completed for both the intrusive and the metasedimentary geotechnical units (Drawings 23 and 24, respectively). Pore pressure assumptions for the analyses included fully depressurized (Ru = 0 or dry), “partially depressurized” (Ru = 0.09 or approximately 25% saturated), and “partially saturated” (Ru = 0.18 or approximately 50% saturated) conditions. “Partially saturated” pore pressures have been used for design based on assumptions regarding the achievable amount of pit slope dewatering.

Maximum interberm heights may also be dictated by requirement for geotechnical berms to accommodate equipment access for pit slope dewatering and slope monitoring efforts during operations. A maximum interberm height of 150 m, equivalent to 10 double benches, has been used for EGZ as the minimum distance between geotechnical berms required to facilitate pit wall dewatering efforts.

5.3.1. Domain M

Domain M comprises the metasedimentary rock units, which are typically present in the upper portions of the pit walls (Drawing 20). The achievable angles of west dipping pit walls in the metasedimentary rocks will be controlled by potential planar failures on faulting parallel to the foliation, i.e. fault set FB1 (Drawing 21). Wedge failures could also be formed by a combination of foliation parallel faulting and a near vertical fault set dipping to the northwest (Set FF1). The pervasive foliation and associated parallel faulting creates an anisotropic strength distribution within the rock mass in Design Sectors M-061 and M-105. The anisotropy was evaluated in generic limit equilibrium analysis (Drawing 23) conducted for the metasedimentary rocks in these design sectors. However, the analyses indicated that interberm slope heights should not be limited by rock mass strength, even with consideration of the anisotropy.

For design purposes, the structural fabric of the surface weathered and un-weathered metasedimentary units has been assumed to be similar. As a result, the surface weathered unit has been assigned the same slope angles as the underlying fresh rocks in that design sector. Surface weathered metasediments (SSED) are likely to be present in the top 50 m to

100 m of this domain; however, based on the relatively shallow depths to which these weathered sediments occur, rock mass stability is not anticipated to control the achievable slope angles.

5.3.2. Domain I

Domain I, comprised of intrusive rocks, will be typically present in the lower portions of the proposed pit walls (Drawing 20). The pit wall angles for design sectors in Domain I are primarily controlled by the geologic structures (Drawing 22), with the exception of Design Sectors I-295 and I-338 which are controlled by the interberm geometry. The maximum interberm slope angles vary from 31° to 43° depending on wall orientation. The steeper interberm geometries are limited by bench geometry. If bench face angles steeper than 65° can be attained through controlled blasting practices, these angles could potentially be steepened.

5.4. Overall Slope Scale

Open pit slope design criteria (Table 8) provided by BGC were used by Wardrop to develop an economic pit shell that was used as a guide for the ultimate pit, which includes benches, ramps, and geotechnical / dewatering berms. The ultimate pit, consisting of files “pitdesign_r5_phase4_lines.dxf” and “pitdesign_r5_phase4_surface.dxf” were provided to BGC by Wardrop on November 15, 2011. BGC reviewed the final pit shell to confirm that the pit slope design criteria developed by BGC was followed. Our review of the final pit did not identify any geometric issues; all of the slopes of the ‘phase4’ pit satisfy the slope design geometry parameters provided by BGC.

Limit equilibrium method of slices stability analyses were conducted for six sections through the slopes of the proposed ultimate pit (Drawing D1, Appendix D), to confirm that the design factor of safety (Table 7) for overall slope stability was met. The 3D geological model developed by Victoria was used to define the material boundaries for the stability analysis. Estimates of pore pressure distributions for each slope stability analysis section assume that 250 m long horizontal drain holes have been installed throughout the pit and that they would effectively depressurize the rock mass behind the slope face to a distance of half of the length of the drainhole. Drawings D2 to D7 show the results of each limit equilibrium analysis and present the calculated factor of safety (FS) of the overall slope along each cross-section. The factor of safety values are summarized in Table D1.

The east slope of the ultimate pit is the highest wall currently proposed in the open pit; the proposed strike of this slope is parallel to the strike of a pervasive west dipping fault set and foliation. To simulate these structural fabrics in the slope stability analysis for these sections (Drawings D4 and D5) an anisotropic weakness was included in the metasediments which applies a friction angle of 30° to any potential failure surface segments with dip angles of 31° to 37°.

The results of the limit-equilibrium method-of-slices analysis confirm that the overall slope stability criteria are met for the assumed pore pressure conditions from the installation of 250 m horizontal drainholes (Drawings D2 to D7). It is expected that the depressurization requirements can be achieved with vertical wells and horizontal drains; however, this still needs to be confirmed by open pit hydrogeologic studies still in progress. Where the interberm angle is controlled by kinematically possible wedges and planar failures, these features must be completely depressurized to meet the design criteria.

5.5. Overburden Slope Designs

While high overburden slopes are not anticipated in the ultimate pit slope, overburden in localized regions at the top of the pit walls will be common. The overburden is 10 m thick on average with some holes intersecting up to 15 m of overburden. Where overburden is encountered, a maximum interberm slope angle of 1.5H:1V (34°) should be applied to the open pit design. There may be portions of the overburden that are ice-rich or clay rich / heavily altered. These areas will likely require flatter slope angles, possibly as flat as 2H:1V (27°). Further definition of these overburden rich areas will be required at the detailed design stage and the operational stage of the pit design. The overburden and bedrock contact may also require additional width in the berms and ramps to properly manage mass wasting and erosion. This will be particularly important if a perched water table is present at the contact of the overburden and the rock. Further details on the overburden found at EGP can be found in the 2012 Infrastructure report (BGC, 2011b).

6.0 SLOPE DESIGN IMPLEMENTATION

6.1. Overview

Further guidance to achieve the recommended FS level slope designs presented in Table 8 is outlined in the following sections.

6.2. Ramps, Step-Outs, and Wide Berms

Ramps, step outs, and wide berms will have an impact on the overall slope angle. Geotechnical berms are recommended for dewatering wells, piezometers to monitor pit slope depressurization progress, and for pit wall monitoring. The berms should have a minimum width of approximately 16 m and should be placed every 150 m vertically, particularly in design sectors that have catch benches significantly less than 16 m. The precise placement of geotechnical berms will ultimately be up to the mine engineers / long term planners based on specific operational needs, and may require consideration of other factors such as equipment size and ramp grade restrictions.

6.3. Blasting

Blasting methods can have a significant impact on the interramp / interramp and bench scale stability, depending on the resulting induced disturbance to the rock mass. To reduce disturbance to the rock mass in the ultimate pit wall, it has been assumed that controlled blasting techniques will be used. Pre-split blasting could substantially reduce the level of disturbance on the proposed pit walls, but perhaps more importantly could allow bench face angles to be steepened in some design sectors. In addition, reducing the powder factor on ‘ultimate’ pit wall blasts can have a significant impact on the depth of disturbance on the final wall.

6.4. Slope Depressurization

The open pit slope angles have been developed assuming varying levels of depressurization. Bench scale designs have assumed complete depressurization of potential bench scale failures. Interberm / interramp rock mass stability has been assessed assuming relatively conservative, partially saturated (Ru=0.18) conditions. Overall slopes of the proposed ultimate pit have been analyzed assuming that a sufficient amount of horizontal drainholes have been installed to depressurize the pit wall 125 m horizontally from the pit wall face.

Passive dewatering of the pit walls initiated during excavation may occur naturally, but it is recommended that the passive depressurization be augmented by the installation of horizontal drains, especially in the east wall. Further investigation is required to spatially define any potential large continuous faults in the open pit for depressurization specifications.

The required depths of depressurization will be different for each design sector, depending on the location of any controlling structures and the depth of the predicted critical failure surface. To achieve the required level of depressurization for the proposed pit in the EGZ, horizontal drains and potentially vertical dewatering wells will have to be implemented.

Dewatering requirements will be available pending the completion of a feasibility level hydrogeologic modeling for pit depressurization studies.

6.5. Pit Slope Monitoring

Deformation of the pit walls should be expected throughout the life of the mine. Monitoring of these deformations will be important for successful mining and risk management of the proposed Eagle Gold pit. In addition, monitoring of the pit slopes during excavation (Call and Savely, 1990) is required to:

- Maintain safe operational practices for personnel, equipment, and facilities.
- Provide warning of slope instability.
- Provide geotechnical information for slope designs to assist in making subsequent modifications, should they be required, to achieve the desired slope performance.

Verification and validation of the slope design criteria and assumptions is required to determine if design modifications are needed. A well-developed risk management system, which includes active monitoring, may allow additional optimization of the slope designs during operation of the mine.

For the proposed EGZ open pit, a multi-layered monitoring system should be developed. Slope deformation monitoring systems and pore pressure / pit dewatering monitoring systems will be needed. Costs should be included in economic studies to account for an appropriate combination of slope monitoring methods; BGC can assist the mine planners with those cost estimates, if required.

7.0 RISKS AND OPPORTUNITIES

7.1. Risks

7.1.1. Potential Mass Movement

The initial review of the structural data in the eastern pit wall identified a potential 10 m thick west dipping shallow fault zone. After additional drilling of the proposed east wall in the 2011 program, it has been postulated that this apparent feature is part of the faulting parallel to foliation fault set as it could not be identified in the intrusive unit and it could not be found in any additional drillholes. During mining, care should be taken not to undercut this faulting parallel to foliation.

7.1.2. Dewatering

Artesian conditions were observed below a clay rich “cap” in 09-BGC-GTH2a which was described as a faulted/weak or altered zone. Additional efforts may be required and thus associated costs may be incurred to depressurize the pit slopes if artesian pressures are widespread.

7.1.3. Structural Model Updates

To date, there has been a limited amount of regional structural interpretations in the project area. If the updated structural model includes major faults oriented such that they daylight out of the highwall, the final pit slope angles may need to be modified. In addition, folding of the metasedimentary rocks is apparent across the project area. The location of fold axes in the vicinity of the open pit will be particularly important for pit designs.

7.2. Opportunities

7.2.1. Design Sector Optimization

The pit slope design criteria (Table 8) presented apply to a fixed set of design sectors based on the most recent optimized pit shell provided to BGC by Wardrop and the current interpretation of the major structural fabric / features that controls the pit wall angles. There may exist opportunities to steepen the pit slopes by altering the orientations of the walls such that the unfavourable pit wall orientations are avoided or minimized.

8.0 RECOMMENDATIONS FOR FURTHER WORK

8.1. Geological Model

BGC recommends that work be under taken to deliver a 3D geological model of the open pit area as soon as possible. The model should include:

- The spatial extent of the clay altered intrusive zone as well as its relationship to the intrusive – metasediment contact.
- 3-D interpretations of major faults cross cutting the pit area.
- The limit of weathering should be interpreted as a 3-D surface for the area of the proposed pit.
- A structural geology model that identifies potential fold structures, considers the stress and tectonic regime, and provides a framework for the geologic structures identified in the proposed open pit area.

8.2. East Wall Fault Interpretations

The 2011 site investigations targeted the east to allow the pit designs to be brought up to the FS level. The 10 m thick fault dipping at approximately 25° to the west in the metasedimentary geotechnical unit observed in drillholes 09-BGC-GTH2a and 10-BGC-GTH-06 could not be clearly defined in the additional holes. Due to the control this fault set has on the overall angle of the east highwall, more investigation may be warranted at the detailed design stage to:

- Further define the spatial extent of this fault zone
- Determine if it is continuous through the intrusive unit
- Better define the properties of the fault infilling.

The results of the additional site investigations completed in 2011 suggest that this fault or set of faults is not continuous throughout the east wall; rather, they appear to be part of a pervasive fault set (FB1) which parallels foliation. Additional drilling may allow more aggressive designs to be undertaken on this wall.

9.0 CLOSURE

We trust the above satisfies your requirements at this time. Should you have any questions or comments, please do not hesitate to contact us.

Yours sincerely,

BGC ENGINEERING INC.
per:

ISSUED AS DIGITAL DOCUMENT.
SIGNED HARDCOPY ON FILE WITH
BGC ENGINEERING INC.

Warren Newcomen, M.S. P.Eng., P.E.
Senior Geotechnical Engineer

Daniel Stein, B.A.Sc., EIT
Geotechnical Engineer

Reviewed by:

Derek Kinakin, M.S. P.Geo.
Senior Engineering Geologist

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TABLES

TABLE 1. GEOTECHNICAL HOLES DRILLED BY BGC 2009-2011

Hole Name[1]	Easting (m)	Northing (m)	Elev.[2] (m)	Trend (°)	Plunge (°)	Length (m)	Survey Method[2]	Comments
09-BGC-GTH1	460263	7099647	1250	80	-70	375	DGPS	
09-BGC-GTH2	460100	7099500	1298	135	-75	41	Handheld	Hole Abandoned
09-BGC-GTH2a	460334	7099498	1298	132	-81	335	DGPS	
09-BGC-GTH3	460061	7099603	1224	348	-81	285	DGPS	
09-BGC-GTH4	460135	7099452	1255	205	-76	326	DGPS	
10-BGC-GTH-05	459790	7099604	1111	322	-64	276	DGPS	
10-BGC-GTH-06	460411	7099523	1315	80	-65	225	DGPS	
10-BGC-GTH-07	460122	7099546	1252	62	-58	325	DGPS	
10-BGC-GTH-08	460134	7099552	1252	149	-56	300	DGPS	
10-BGC-GTH-09	460047	7099351	1215	180	-62	216	Handheld	Surveyed using handheld GPS
11-BGC-GTH-10	460411	7099425	1322	135	-70	200	DGPS	
11-BGC-GTH-11	460555	7099544	1336	95	-79	195	DGPS	
11-BGC-GTH-12	460309	7099389	1312	170	-75	220	DGPS	

NOTES:

1. Refer to Drawing 1 for hole locations

TABLE 2. DESIGN STRUCTURAL SETS - DOMAIN M (METASEDIMENTS)

Discontinuity Set ID[1]	Dip (°)	Dip Direction (°)	Design Friction Angle φ[2,3] (°)	Description
FO1	*30*	*260*	*31*	*Foliation*
FB1	34	270	30	Faulting sub parallel to foliation
FF1	83	342	30	
FC1	63	059	30	Faults cross cutting foliation sub parallel to Haggart Creek fault
FI1	03	346	30	
FB2	60	322	30	

NOTES:
1. Refer to Drawings 9 and 10 for lower hemisphere equal area stereographic projections of discontinuity sets
2. Italicized set excluded from interberm / interramp design
3. Refer to Drawing 16 for residual friction angle estimates estimates on fault infilling and Drawing 17 for direct shear testing results in metasedimentary rocks

TABLE 3. DESIGN STRUCTURAL SETS - DOMAIN I (INTRUSIVES)

Discontinuity Set ID	Dip (°)	Dip Direction (°)	Design Friction Angle φ[2,3] (°)	Description
FD1	65	167	34	
FE1	89	222	34	
FA1	*67*	*266*	*34*	Weak set
FD2	52	111	34	Faults cross cutting foliation sub parallel to Haggart Creek fault
FB2	68	346	34	
FB1	33	344	34	
FC2	45	034	34	
FC1	54	070	34	Faults cross cutting foliation sub parallel to Haggart Creek fault
FA2	*37*	*237*	*34*	Weak set
FI1	04	052	34	

NOTES:
1. Refer to Drawing 11 for lower hemisphere equal area stereographic projections of discontinuity sets
2. Italicized set excluded from bench stack scale design
3. Refer to Drawing 16 for residual friction angle estimates on fault infilling and Drawing 18 for direct shear testing results in intrusive rocks.

TABLE 4. INTACT ROCK PROPERTIES

UNIT	Average Lab UCS[1] (MPa)	Median Is_{50} (MPa)	k^2	Design UCS[2,3] (MPa)	γ (KN/m3)	BTS (MPa)	DTS (MPa)	m_i
FLTZ		0.4	23	9	27.0			15
SINT		5.9	23	135	26.4			20
CINT		2.2	23	51	26.4			15
INT	141	5.9	23	135	26.4	12.1	7.1	20
SSED		3.1	24	76	27.3			17
SED	85	3.5	24	83	27.3	10.6	6.3	17

NOTES:

1. Insufficient laboratory testing was available to warrant breaking out the sub-units of the intrusive and metasedimentary units. As a result, the results shown include all tests in the primary rock units.
2. Is_{50} values are based on field index testing. Design UCS values for each unit are derived from k values according to UCS results in Drawing 13.
3. Is_{50} and UCS values of unaltered intrusive (INT) were applied to the surface weathered intrusives (SINT). Point load testing in SINT unit was based on relatively few tests (69) which were likely biased toward remaining corestones, estimating a higher than reasonable UCS value.

TABLE 5. ROCK MASS PROPERTIES

Geotechnical Unit[1]	Length Observed (m)	Case	RQD (%)	FI (m)	Blockiness Index	Intact Strength				Joint Condition ('76)	RMR'76[3]	
						Is_{50}[2] (MPa)	UCS[2] (MPa)	Description	Rating		Rating	Description
Fault Zones FLTZ	120	Lower Quartile	0	0.02	9	0.3	7	Weak	2	0	21	Poor
		Median	**14**	**0.05**	**12**	**0.4**	**9**	**Weak**	**2**	**0**	**23**	**Poor**
		Upper Quartile	36	0.12	17	0.7	16	Weak	2	6	35	Poor
Surface Weathered Intrustives SINT	277	Lower Quartile	12	0.05	11	2.3	53	Strong	6	9	36	Poor
		Median	**32**	**0.10**	**16**	**5.9**	**135**	**Very Strong**	**12**	**12**	**49**	**Fair**
		Upper Quartile	59	0.17	23	9.3	214	Very Strong	15	14	61	Good
Clay Altered Intrusives subset CINT	450	Lower Quartile	24	0.08	14	0.6	14	Weak	2	6	32	Poor
		Median	**46**	**0.11**	**19**	**2.2**	**51**	**Strong**	**6**	**12**	**47**	**Fair**
		Upper Quartile	72	0.21	25	4.7	108	Very Strong	10	14	59	Fair
Intrusives INT	1451	Lower Quartile	40	0.12	17	2.5	57	Strong	6	6	39	Poor
		Median	**73**	**0.20**	**25**	**5.9**	**135**	**Very Strong**	**12**	**12**	**59**	**Fair**
		Upper Quartile	90	0.35	33	9.3	213	Very Strong	15	16	74	Good
Surface Weathered Sediments SSED	422	Lower Quartile	16	0.05	12	1.4	34	Medium Strong	4	6	32	Poor
		Median	**36**	**0.09**	**16**	**3.1**	**76**	**Strong**	**8**	**7**	**41**	**Fair**
		Upper Quartile	60	0.14	21	4.4	106	Very Strong	10	12	53	Fair
Sediments SED	940	Lower Quartile	42	0.09	17	1.9	45	Medium Strong	5	12	44	Fair
		Median	**64**	**0.14**	**22**	**3.5**	**83**	**Strong**	**8**	**15**	**55**	**Fair**
		Upper Quartile	82	0.22	28	6.0	143	Very Strong	12	18	68	Good

NOTES:
1. INT unit includes unaltered and clay altered intrusives. CINT is a subset of INT that was not used specifically for design.
2. Is_{50} and UCS values of INT were applied to the SINT, as relatively few (69) point load tests were conducted for SINT and these were biased towards more competent pieces of core in the SINT unit.
3. Groundwater rating of 10 has been assumed in all cases to estimate the RMR'76 value.

TABLE 6. HOEK-BROWN FAILURE CRITERION FOR EACH GEOTECHNICAL UNIT

UNIT	UCS[1] (MPa)	GSI[2]	m_i	m_b[3]	s[3]
FLTZ	9	23	15	0.126	0.0000065
SINT	135	49	20	0.896	0.0004
CINT	51	47	15	0.558	0.0003
INT	135	59	20	1.567	0.0017
SSED	76	41	17	0.435	0.0001
SED	83	55	17	1.039	0.0009

NOTES:

1. Design UCS values for each unit based on Is_{50} field index values.
2. Median GSI (RMR'76) values are used for each geotechnical unit.
3. The Hoek-Brown failure criterion have been estimated using a disturbance factor ('D') of 0.85 for all units.

TABLE 7. DESIGN CONSTRAINTS

Requirement	Value	Source
Design factor of safety (FOS) - Discontinuity controlled stability	1.2	BGC
Design factor of safety (FOS) - Rock mass controlled stability	1.3	BGC
Single bench height	7.5 m	Victoria Gold Corp.
Minimum catch bench width	8 m	BC Mines Act 6.23.2
Minimum interberm / interramp height	150 m	BGC
Minimum geotechnical berm width	16 m	BGC
Ramp width	24 m	Victoria Gold Corp.

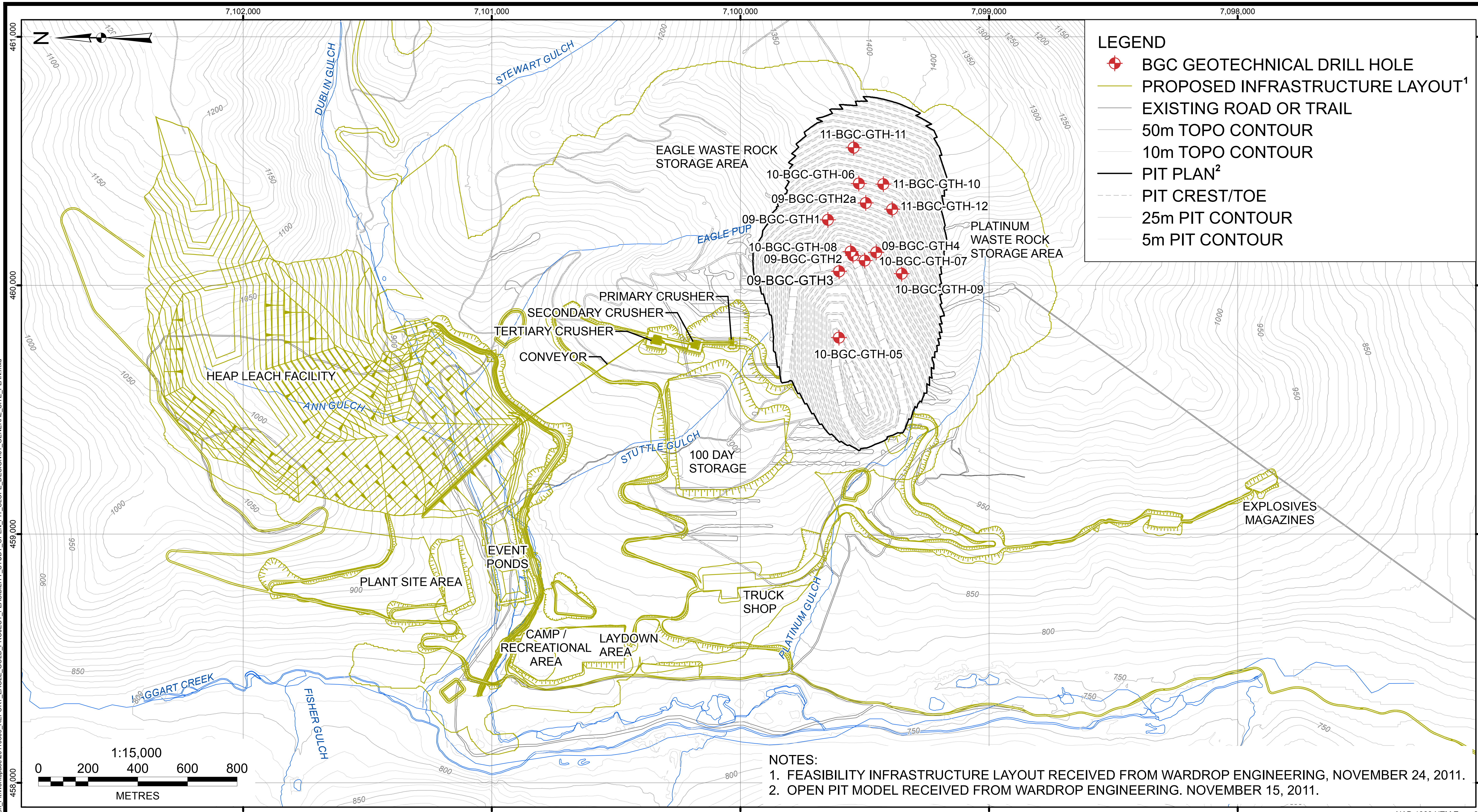
TABLE 8. EAGLE GOLD FEASIBILITY STUDY OPEN PIT SLOPE DESIGN PARAMETERS

Domain[1]	Design Sector[2]	Slope Azimuth[3]		Recommended Catch Bench Geometry[3]			Modified Catch Bench Geometry[3,4]			Interberm Geometry[5]		Slope Design Control	Comments
				Height	Angle	Width	Height	Angle	Width	Maximum Height	Angle		
		Start (°)	End (°)	Bh (m)	Ba (°)	Bw (m)	Bh (m)	Ba (°)	Bw (m)	Ibh (m)	Iba (°)		
M	M-016	0	32	15	65	10.1	15	60	8.4	150	41	Interberm (FB1-FF1)	
	M-061	32	89	15	65	17.9	15	60	16.2	150	31	Interberm (FB1-FF1)	
	M-105	89	120	15	65	16.9	15	60	15.3	150	32	Interberm (FB1)	
	M-132	120	144	15	60	9.0	15	60	9.0	150	40	Interberm (Bench geometry)	Bench face angle limited by dip of fault set FB2.
	M-160	144	175	15	60	9.0	15	60	9.0	150	40	Interberm (Bench geometry)	Bench face angle limited by dip of fault set FB2.
	M-192	175	209	15	65	9.0	15	60	7.3	150	43	Interberm (Bench geometry)	
	M-239	209	269	15	63	9.0	15	60	8.0	150	42	Interberm (Bench geometry)	Bench face angle limited by dip of fault set FC1.
	M-315	269	0	15	65	9.0	15	60	7.3	150	43	Interberm (Bench geometry)	No structural control.
I	I-016	5	26	15	65	11.4	15	60	9.7	150	39	Interberm (FD1-FA2)	
	I-056	26	86	15	65	14.3	15	60	12.7	150	35	Interberm (FD1-FA2)	
	I-110	86	134	15	65	15.2	15	60	13.5	150	34	Interberm (FA1-FB1)	
	I-170	134	205	15	65	17.9	15	60	16.2	150	31	Interberm (FB1-FC2)	
	I-243	205	280	15	65	11.4	15	60	9.7	150	39	Interberm (FD2-FC2)	
	I-295	280	310	15	65	9.0	15	60	7.3	150	43	Interberm (Bench geometry)	
	I-338	310	5	15	65	9.0	15	60	7.3	150	43	Interberm (Bench geometry)	

Notes:

1. Domain M refers to all metasedimentary rocks, Domain I refers to all intrusive rocks.
2. Bench face angle in sector's M-132 and M-160 reduced to avoid undercutting FB2.
3. Refer to Drawing 19 for slope geometry definitions.
4. In modified case, all bench face angles have been reduced to 60º and bench widths adjusted to maintain the required interberm angle. This simplification was done to accommodate the pit design software. Actual pit geometry shall resemble actual catch bench geometry.
5. Geotechnical berms (minimum 16 m) must be added to the slopes every 150 m in sectors in which bench width is <16m.

DRAWINGS



NOTES:
1. FEASIBILITY INFRASTRUCTURE LAYOUT RECEIVED FROM WARDROP ENGINEERING, NOVEMBER 24, 2011.
2. OPEN PIT MODEL RECEIVED FROM WARDROP ENGINEERING. NOVEMBER 15, 2011.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:15,000
DATE:	JAN 2012
DRAWN:	LL, WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria GOLD CORP

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

TITLE: GENERAL SITE PLAN

PROJECT No.:	DWG No.:	REV.:
0792-005	1	

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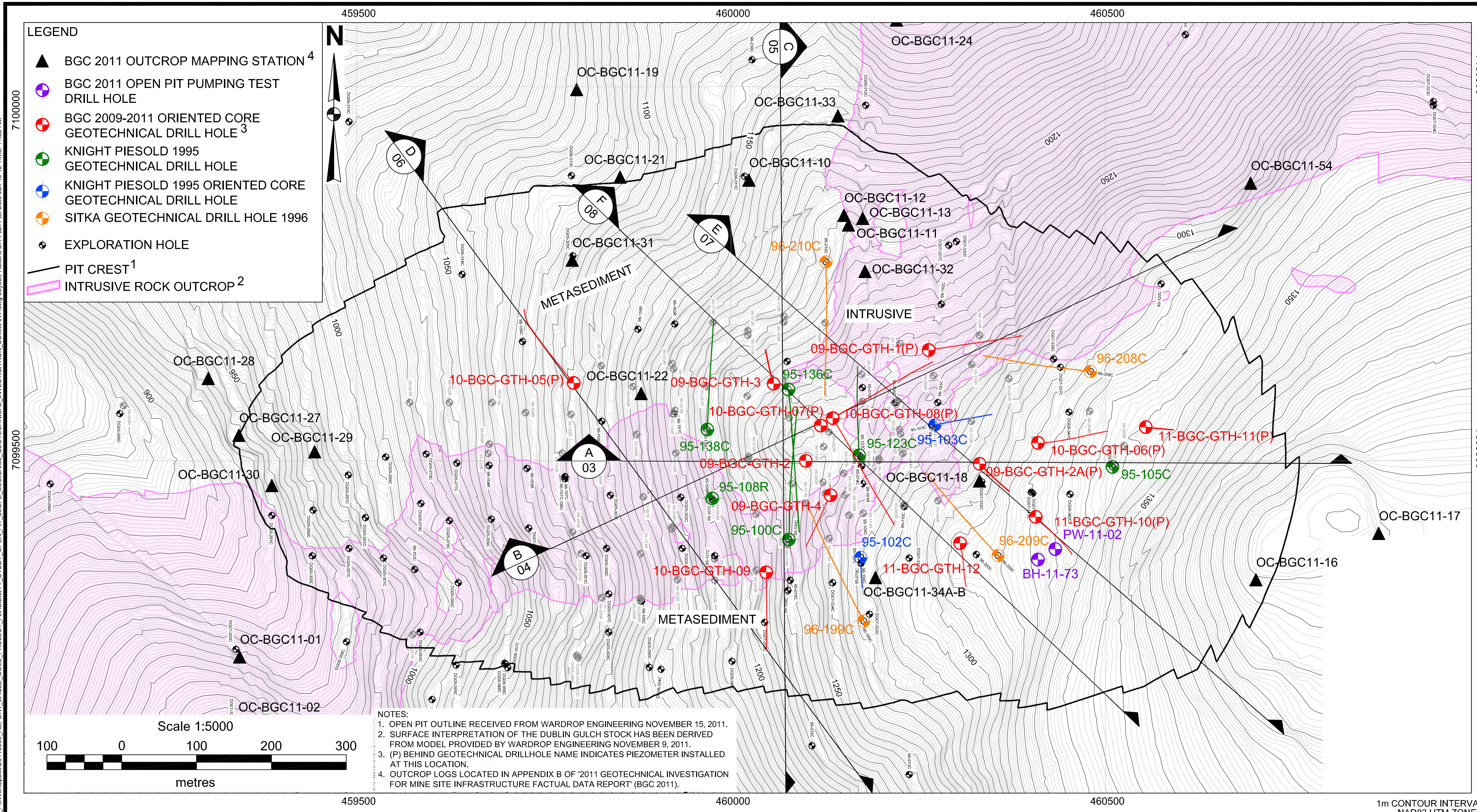
DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012



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REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:5,000
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

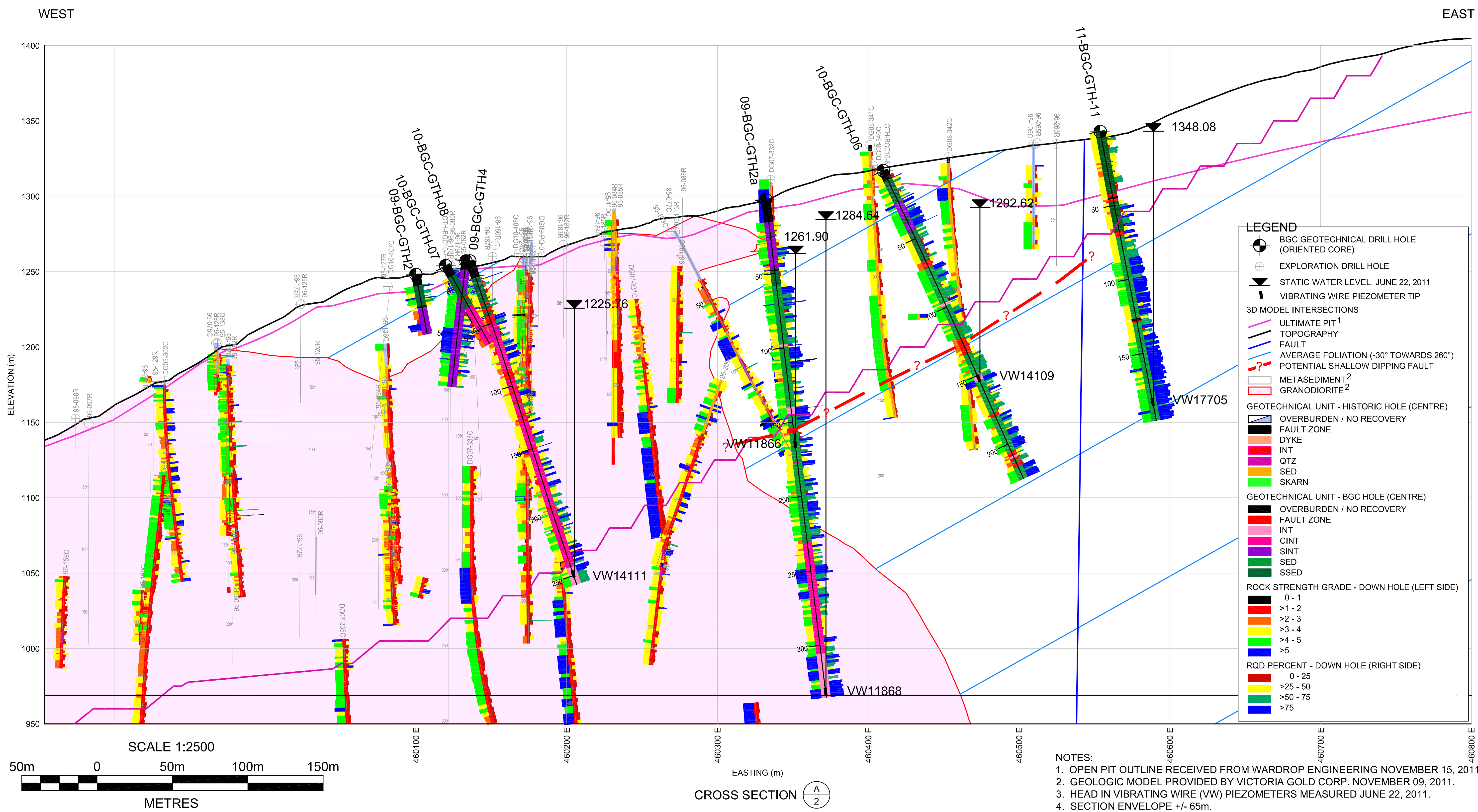
CLIENT: Victoria Gold Corp

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

TITLE: GEOTECHNICAL INVESTIGATION SUMMARY

PROJECT No.:	DWG No.:	REV.:
0792-005	2	

DRAWING TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012.



NOTES:
1. OPEN PIT OUTLINE RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. GEOLOGIC MODEL PROVIDED BY VICTORIA GOLD CORP. NOVEMBER 09, 2011.
3. HEAD IN VIBRATING WIRE (VW) PIEZOMETERS MEASURED JUNE 22, 2011.
4. SECTION ENVELOPE +/- 65m.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:2500
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria GOLD CORP

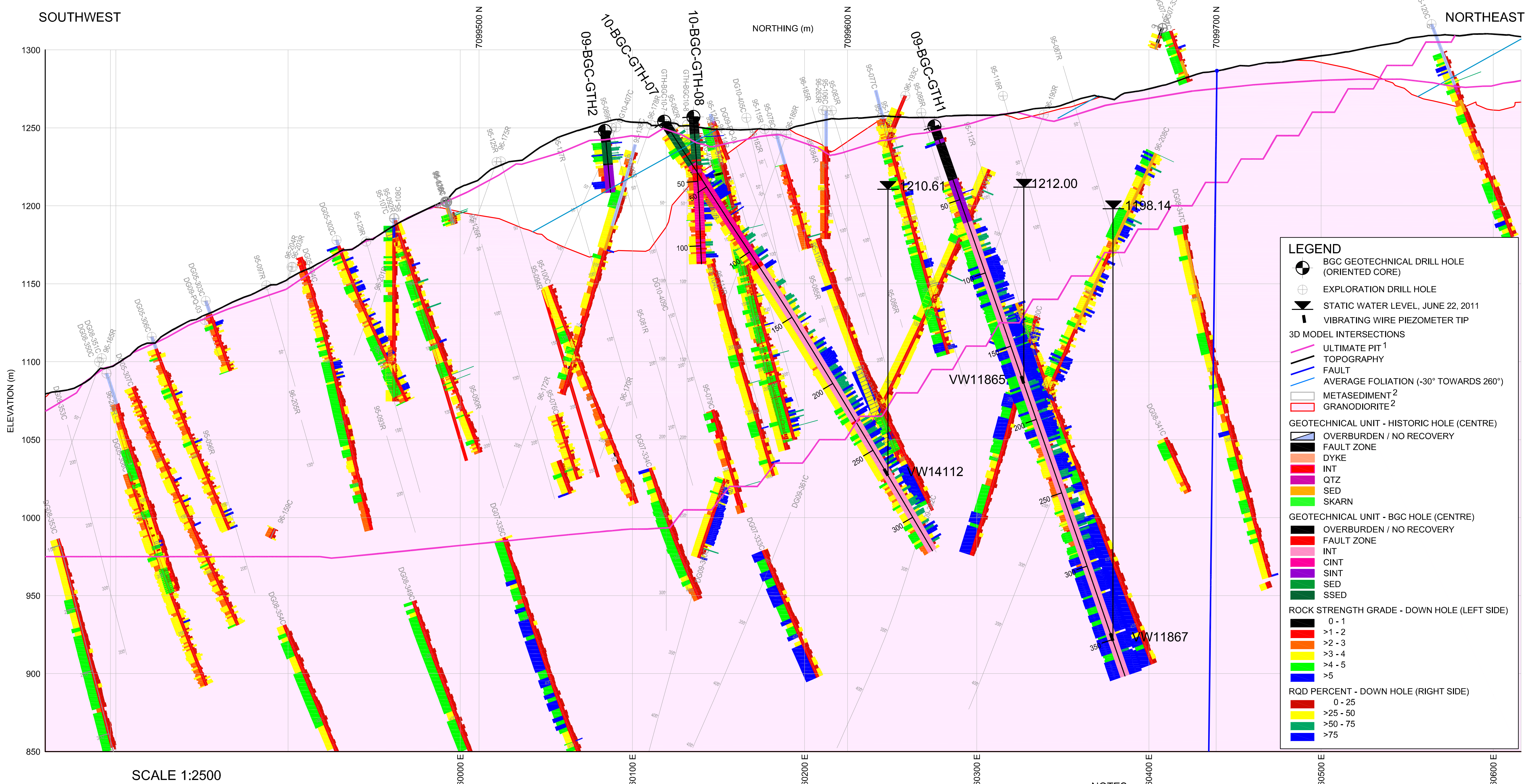
PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

TITLE: SECTION A

PROJECT No.:	DWG No.:	REV.:
0792-005	3	

X:\Projects\0792 Victoria Gold\005_EG_FS_Open_Pit\Workspace\20110509_REPORT_EAGLE_GOLD_PROJECT_FEASIBILITY_STUDY_OPEN_PIT_SLOPE_DESIGN\03_SECTION_A.dwg Layout: SECTION A Plot Date Jan 19 12 Time: 11:54 AM

DWG TO BE READ WITH BGC MEMO TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012



SCALE 1:2500

50m 0 50m 100m 150m

METRES

CROSS SECTION B/2

NOTES:
1. OPEN PIT OUTLINE RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. GEOLOGIC MODEL PROVIDED BY VICTORIA GOLD CORP. NOVEMBER 09, 2011.
3. HEAD IN VIBRATING WIRE (VW) PIEZOMETERS MEASURED JUNE 22, 2011.
4. SECTION ENVELOPE +/- 65m.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:2500
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria Gold Corp

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

TITLE: SECTION B

PROJECT No.:	DWG No.:	REV.:
0792-005	4	

DWG TO BE READ WITH BGC MEMO TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012

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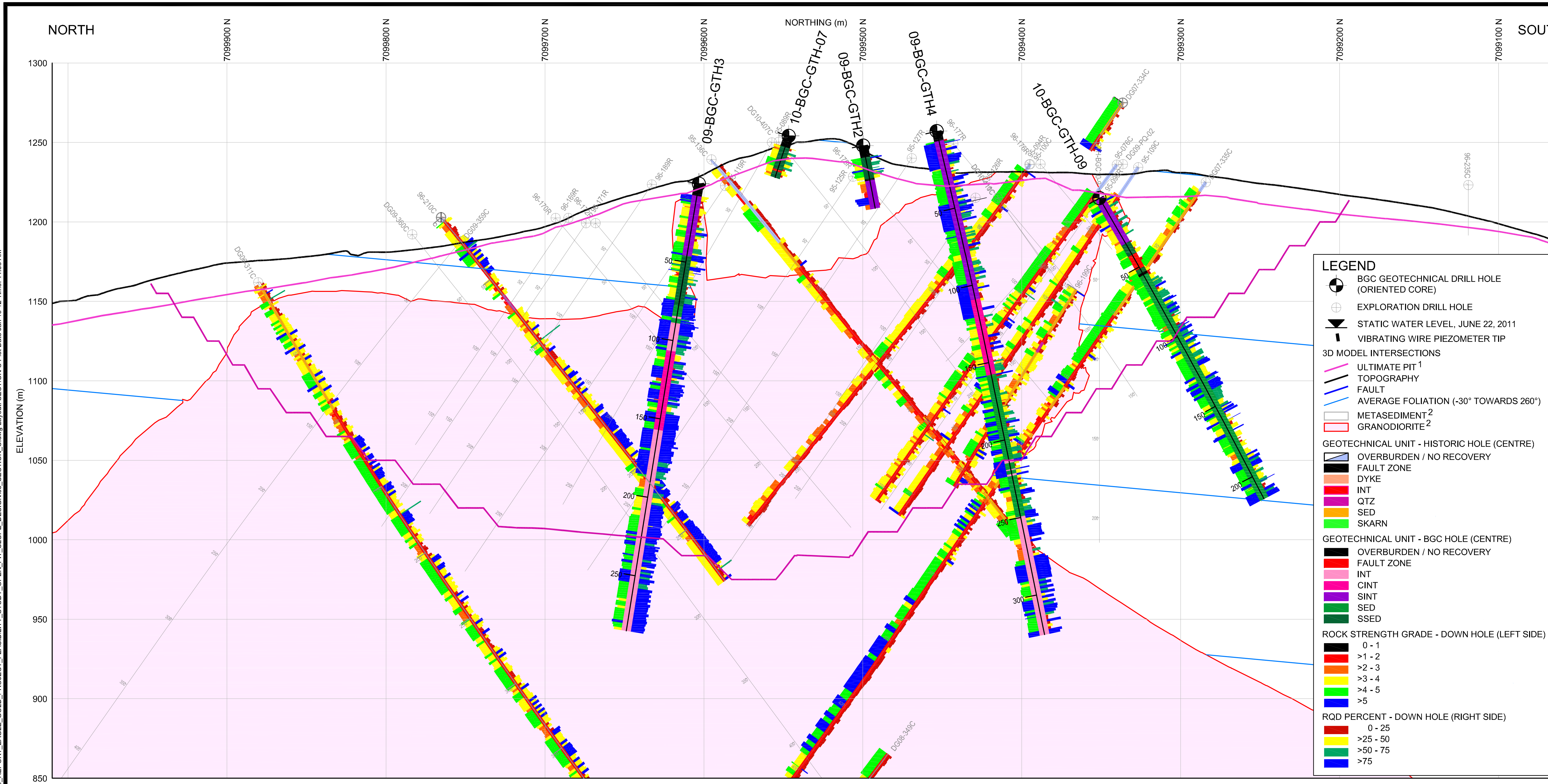


SCALE 1:2500

50m 0 50m 100m 150m

METRES

CROSS SECTION C/2

NOTES:
1. OPEN PIT OUTLINE RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. GEOLOGIC MODEL PROVIDED BY VICTORIA GOLD CORP. NOVEMBER 09, 2011.
3. SECTION ENVELOPE +/- 65m.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:2500
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria Gold Corp

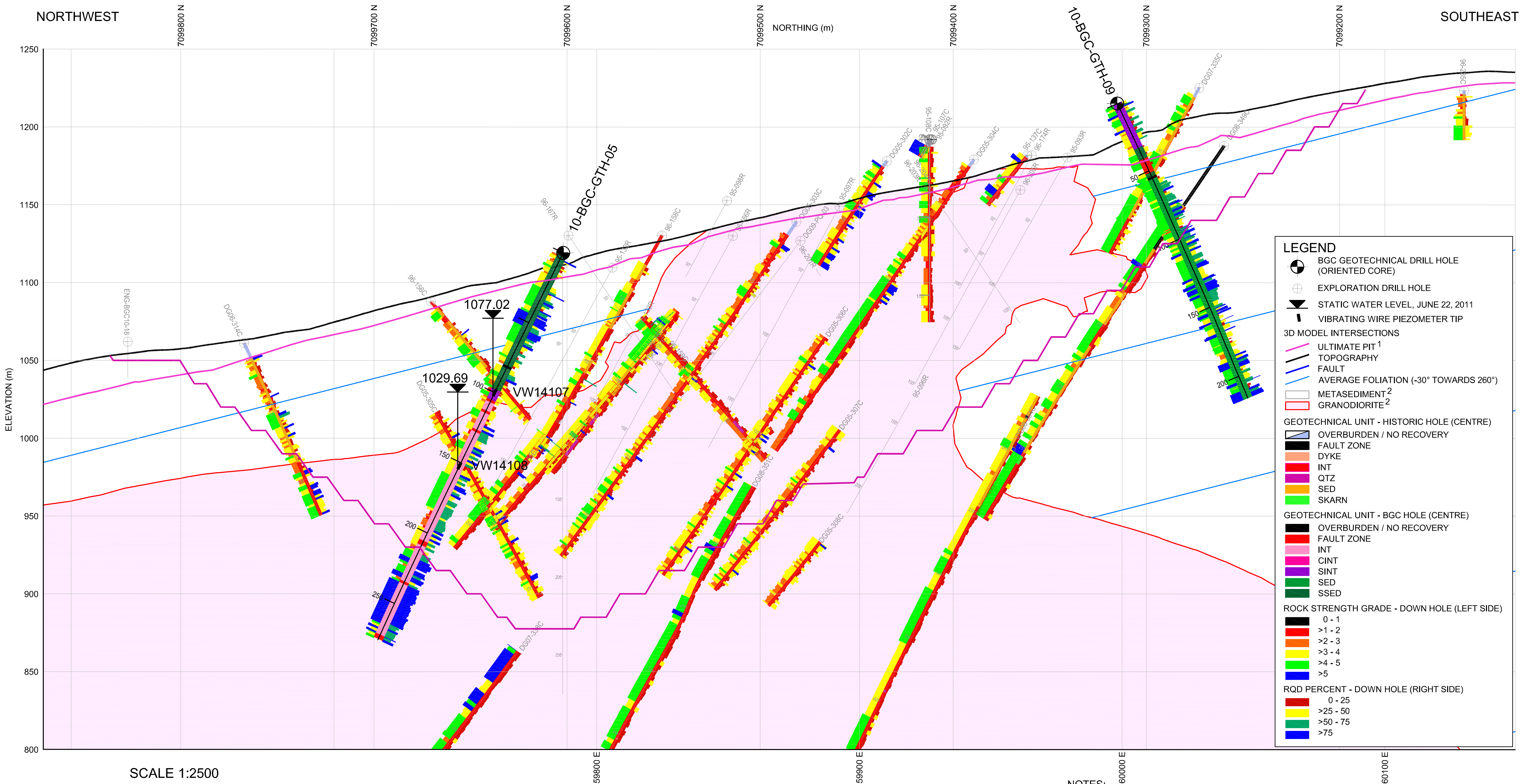
PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

TITLE: SECTION C

PROJECT No.:	DWG No.:	REV.:
0792-005	5	

X:\Projects\0792 Victoria Gold\005_EG_FS_Open_Pit\Workspace\20110509_REPORT_EAGLE_GOLD_PROJECT_FEASIBILITY_STUDY_OPEN_PIT_SLOPE_DESIGN\05_SECTION_C.dwg Layout: SECTION C Plot Date Jan 19 12 Time: 11:58 AM

DWG TO BE READ WITH BGC MEMO TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012



SCALE 1:2500

50m 0 50m 100m 150m

METRES

CROSS SECTION D/2

NOTES:
1. OPEN PIT OUTLINE RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. GEOLOGIC MODEL PROVIDED BY VICTORIA GOLD CORP. NOVEMBER 09, 2011.
3. HEAD IN VIBRATING WIRE (VW) PIEZOMETERS MEASURED JUNE 22, 2011.
4. SECTION ENVELOPE +/- 65m.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:2500
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

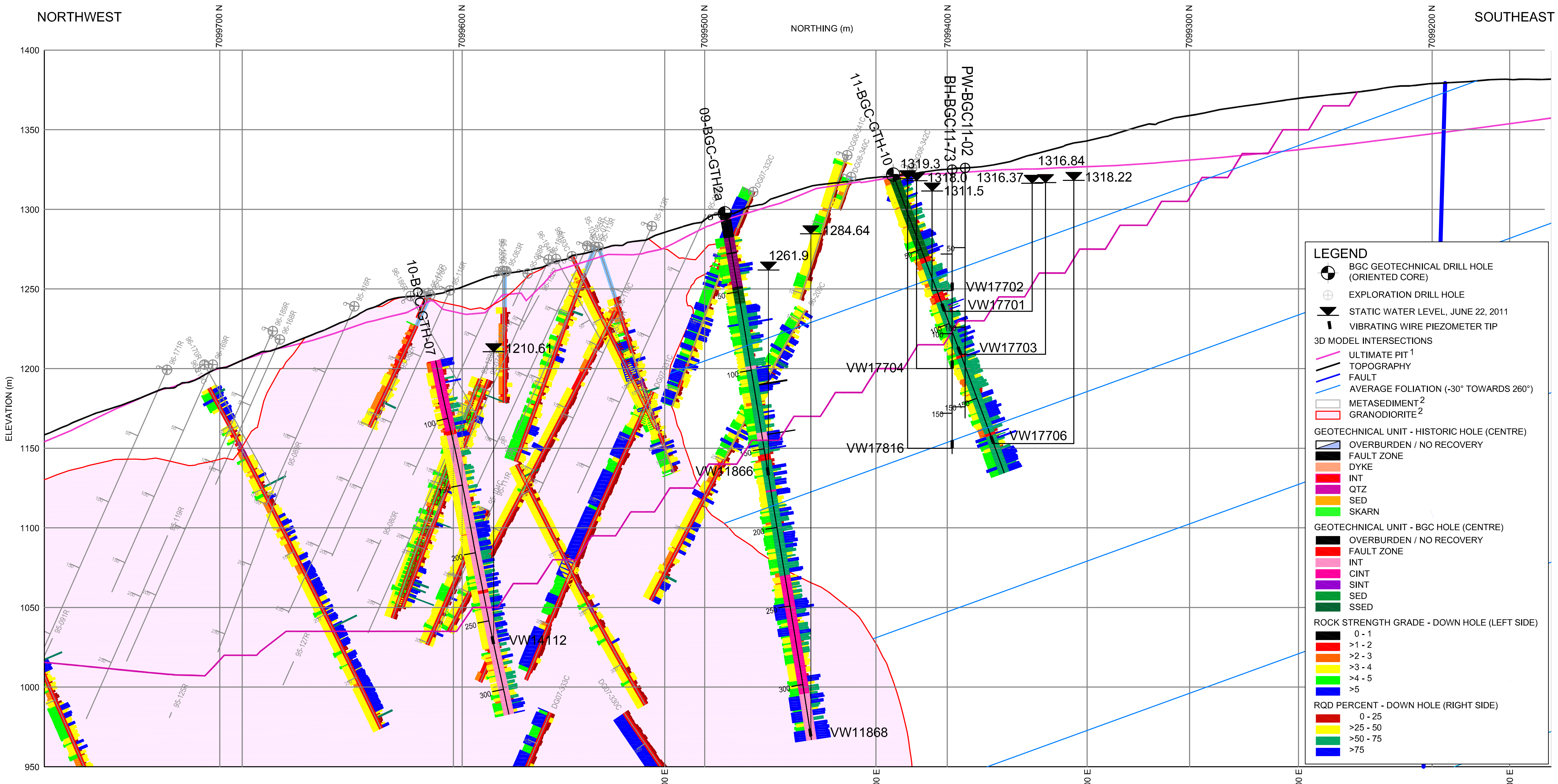
CLIENT: Victoria Gold Corp

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

TITLE: SECTION D

PROJECT No.:	DWG No.:	REV.:
0792-005	6	

DWG TO BE READ WITH BGC MEMO TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012



SCALE 1:2500

50m 0 50m 100m 150m

METRES

EASTING (m)

CROSS SECTION D/2

NOTES:
1. OPEN PIT OUTLINE RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. GEOLOGIC MODEL PROVIDED BY VICTORIA GOLD CORP. NOVEMBER 09, 2011.
3. HEAD IN VIBRATING WIRE (VW) PIEZOMETERS MEASURED JUNE 22, 2011.
4. SECTION ENVELOPE +/- 65m.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:2500
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria GOLD CORP

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

TITLE: SECTION E

PROJECT No.:	DWG No.:	REV.:
0792-005	7	

DWG TO BE READ WITH BGC MEMO TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012

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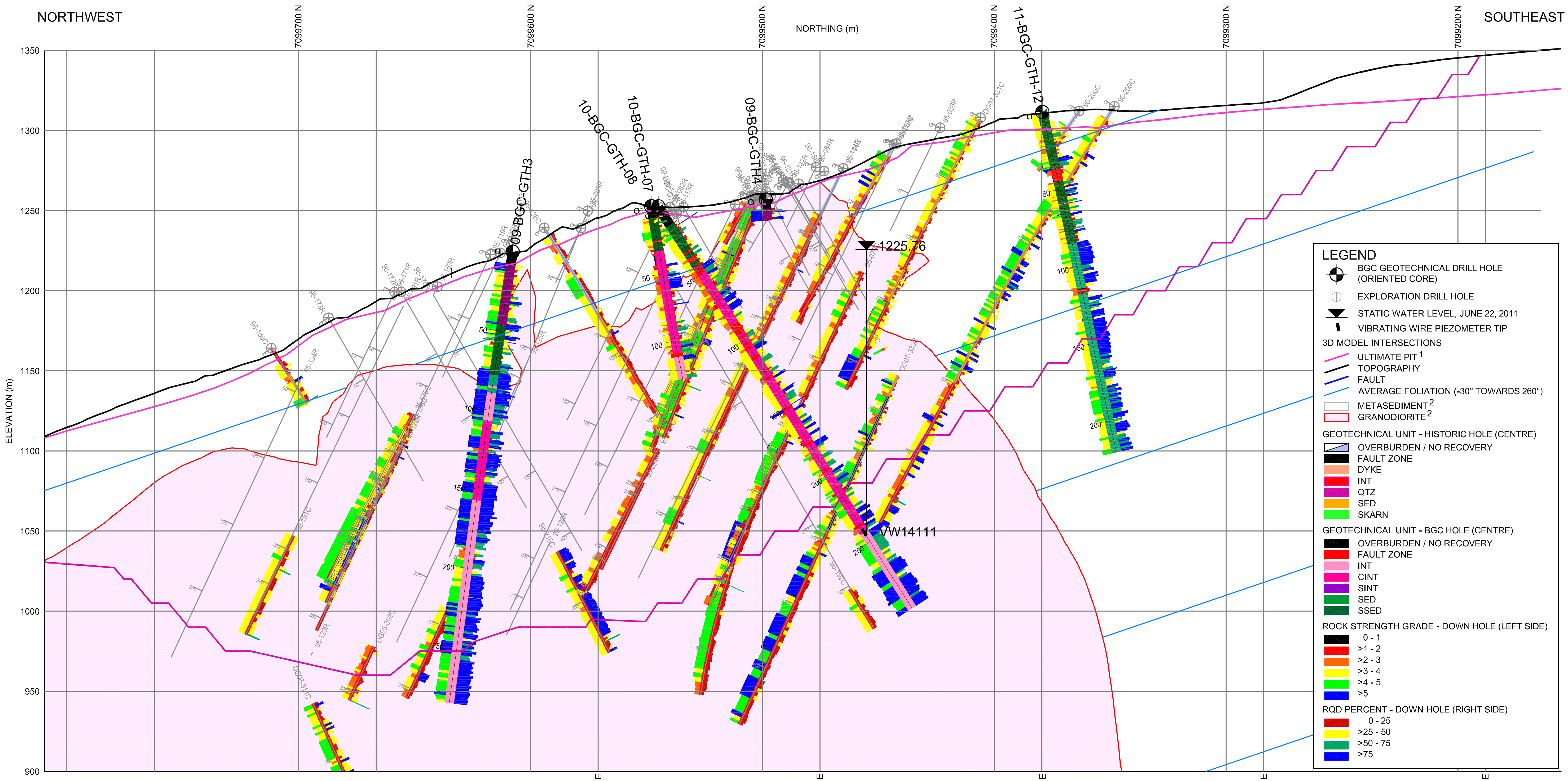

SCALE 1:2500

50m 0 50m 100m 150m

METRES

CROSS SECTION F/2

NOTES:
1. OPEN PIT OUTLINE RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. GEOLOGIC MODEL PROVIDED BY VICTORIA GOLD CORP. NOVEMBER 09, 2011.
3. HEAD IN VIBRATING WIRE (VW) PIEZOMETERS MEASURED JUNE 22, 2011.
4. SECTION ENVELOPE +/- 65m.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:2500
DATE:	JAN 2012
DRAWN:	WKL
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria Gold Corp

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN

TITLE: SECTION F

PROJECT No.:	DWG No.:	REV.:
0792-005	8	

DWG TO BE READ WITH BGC MEMO TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012

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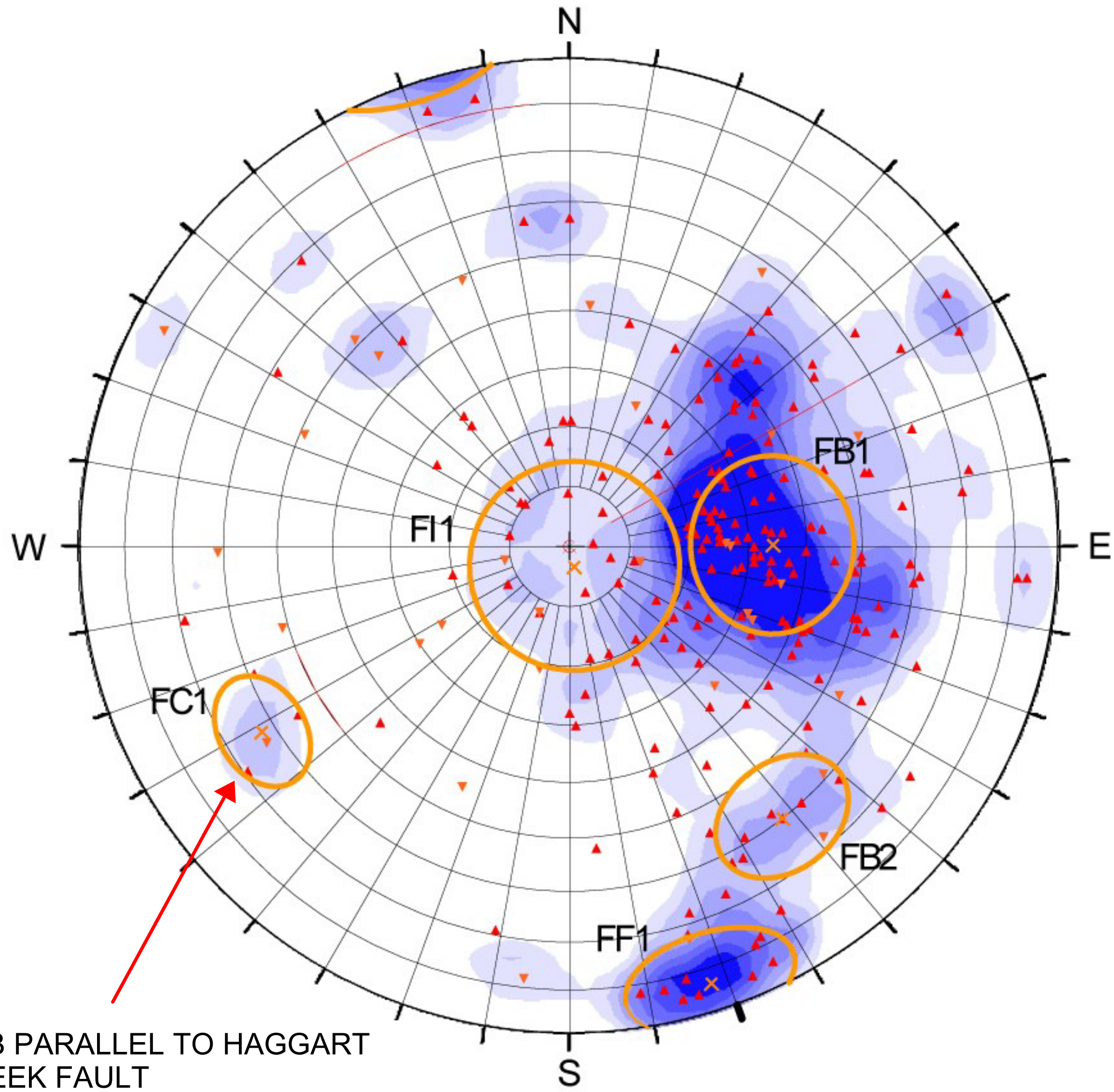


SUB PARALLEL TO HAGGART CREEK FAULT

228 POLES

SYMBOL LEGEND

- ▲ FAULT
- ▲ FAULT ALONG FOLIATION
- ▲ FAULT ALONG VEIN
- ▼ SHEAR
- ▼ SHEAR ALONG FOLIATION
- ▼ SHEAR ALONG VEIN

NOTES:
1. DATA SHOWN WAS COLLECTED FROM BGC'S 2009, 2010, AND 2011 GEOTECHNICAL DRILLING PROGRAMS.
2. EQUAL AREA STEREONET PLOTS HAVE BEEN USED WITH TERZAGHI WEIGHTED CONTOURS. CONTOUR INTERVALS SHOWN ARE 0.5% POLE CONCENTRATIONS WITH A 1% POLE CONCENTRATION CUTOFF.

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

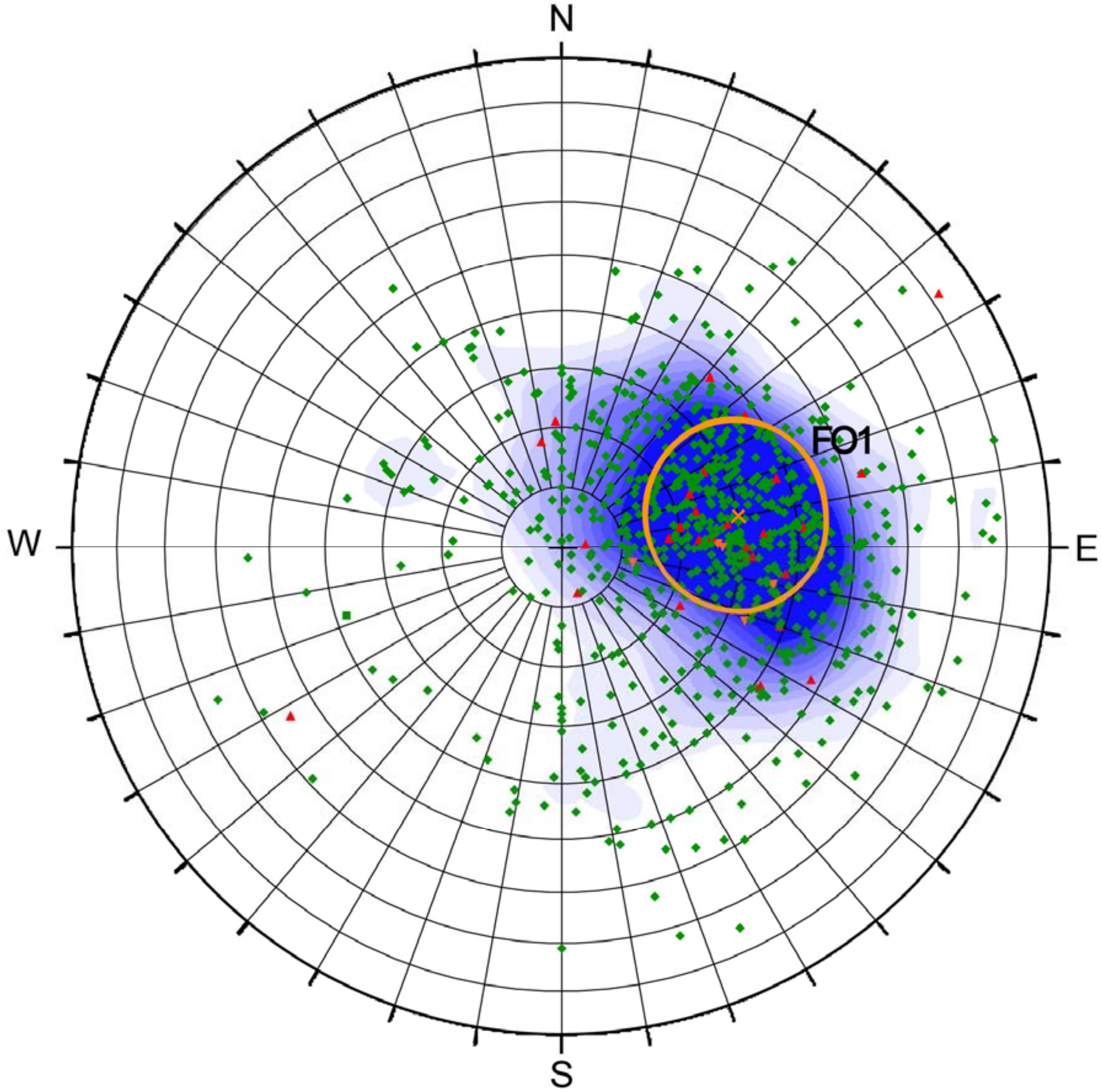
TITLE:
METASEDIMENTARY INTERBERM SCALE
DESIGN SETS - FAULTS AND SHEARS

CLIENT: Victoria Gold Corp

PROJECT No.:	DWG No.:	REV.:
0792-005	9	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\05 Structural Model\DESIGN STEREONET\INTSED FAULT SHEAR.grf

DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLDPROJECT FEASBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



829 POLES

SYMBOL LEGEND

- ▲ FAULT ALONG FOLIATION
- ◆ JOINT ALONG FOLIATION
- ■ FOLIATION
- ▼ SHEAR ALONG FOLIATION

NOTES:
1. DATA SHOWN WAS COLLECTED FROM BGC'S 2009, 2010, AND 2011 GEOTECHNICAL DRILLING PROGRAM.
2. EQUAL AREA STEREONET PLOTS HAVE BEEN USED WITH TERZAGHI WEIGHTED CONTOURS. CONTOUR INTERVALS SHOWN ARE 0.5% POLE CONCENTRATIONS WITH A 1% POLE CONCENTRATION CUTOFF.

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

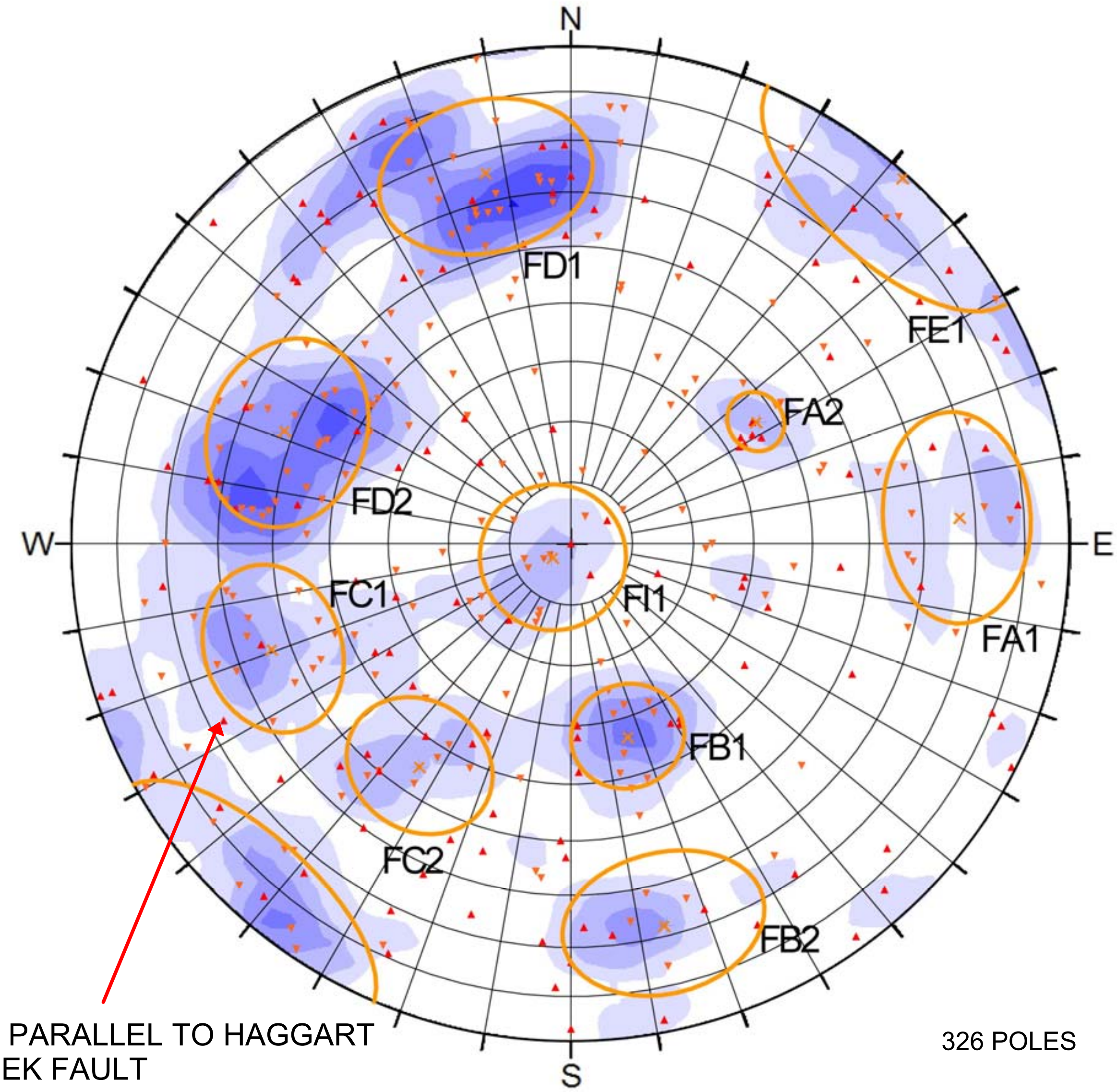
TITLE: METASEDIMENTARY INTERBERM SCALE
DESIGN SET - FOLIATION

CLIENT: Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	10	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\05 Structural Model\DESIGN STEREONET\INT\SED FAULT SHEAR.grf

DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



SUB PARALLEL TO HAGGART CREEK FAULT

326 POLES

SYMBOL LEGEND

- ▲ FAULT
- ▲ FAULT ALONG FOLIATION
- ▲ FAULT ALONG VEIN
- ▼ SHEAR
- ▼ SHEAR ALONG FOLIATION
- ▼ SHEAR ALONG VEIN

NOTES:
1. DATA SHOWN WAS COLLECTED FROM BGC'S 2009 AND 2010 GEOTECHNICAL DRILLING PROGRAMS.
2. EQUAL AREA STEREONET PLOTS HAVE BEEN USED WITH TERZAGHI WEIGHTED CONTOURS. CONTOUR INTERVALS SHOWN ARE 0.5% POLE CONCENTRATIONS WITH A 1% POLE CONCENTRATION CUTOFF.
3. FAULT SETS FA1 AND FA2 WERE NOT USED IN THE SLOPE DESIGNS.

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

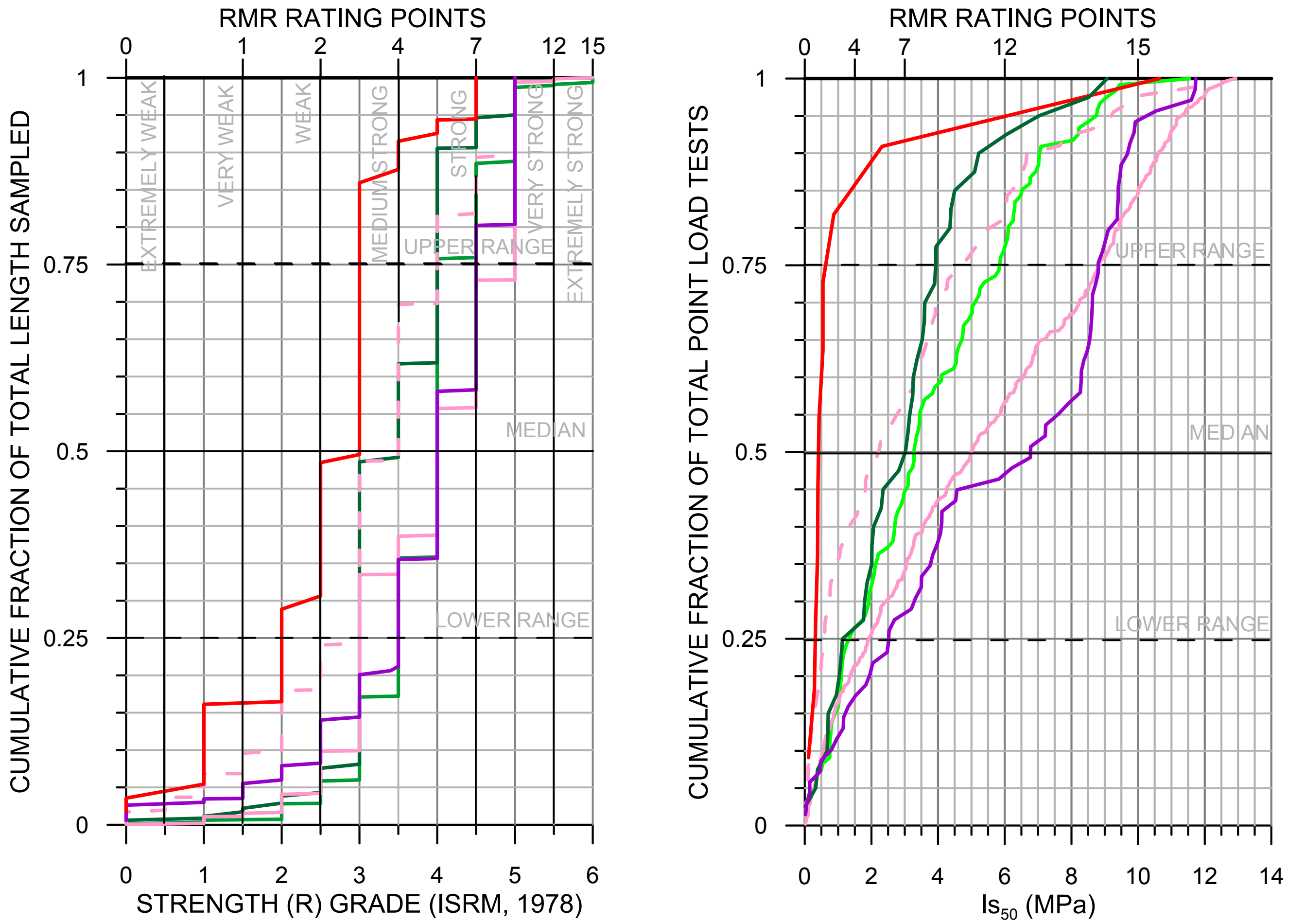
TITLE: INTRUSIVE INTERBERM SCALE DESIGN SETS
FAULTS AND SHEARS

CLIENT: Victoria Gold Corp

PROJECT No.:	DWG No.:	REV.:
0792-005	11	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\05 Structural Model\DESIGN STEREONET\INT\INT FAULT SHEAR.grf

DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



NOTES:

1. QUALITATIVE DESCRIPTIONS HAVE BEEN SHOWN FOR STRENGTH GRADE (ISRM, 1978).
2. SEE TABLE 4 FOR INTACT ROCK PROPERTIES FOR EACH OF THE UNITS.
3. NUMBER OF VALID POINT LOAD TESTS FOR EACH UNIT PROVIDED IN LEGEND.

GEOTECHNICAL UNITS

- FLTZ
- SINT (69)
- INT and CINT (507)
- \- CINT (89)
- SSED (40)
- SED (95)

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

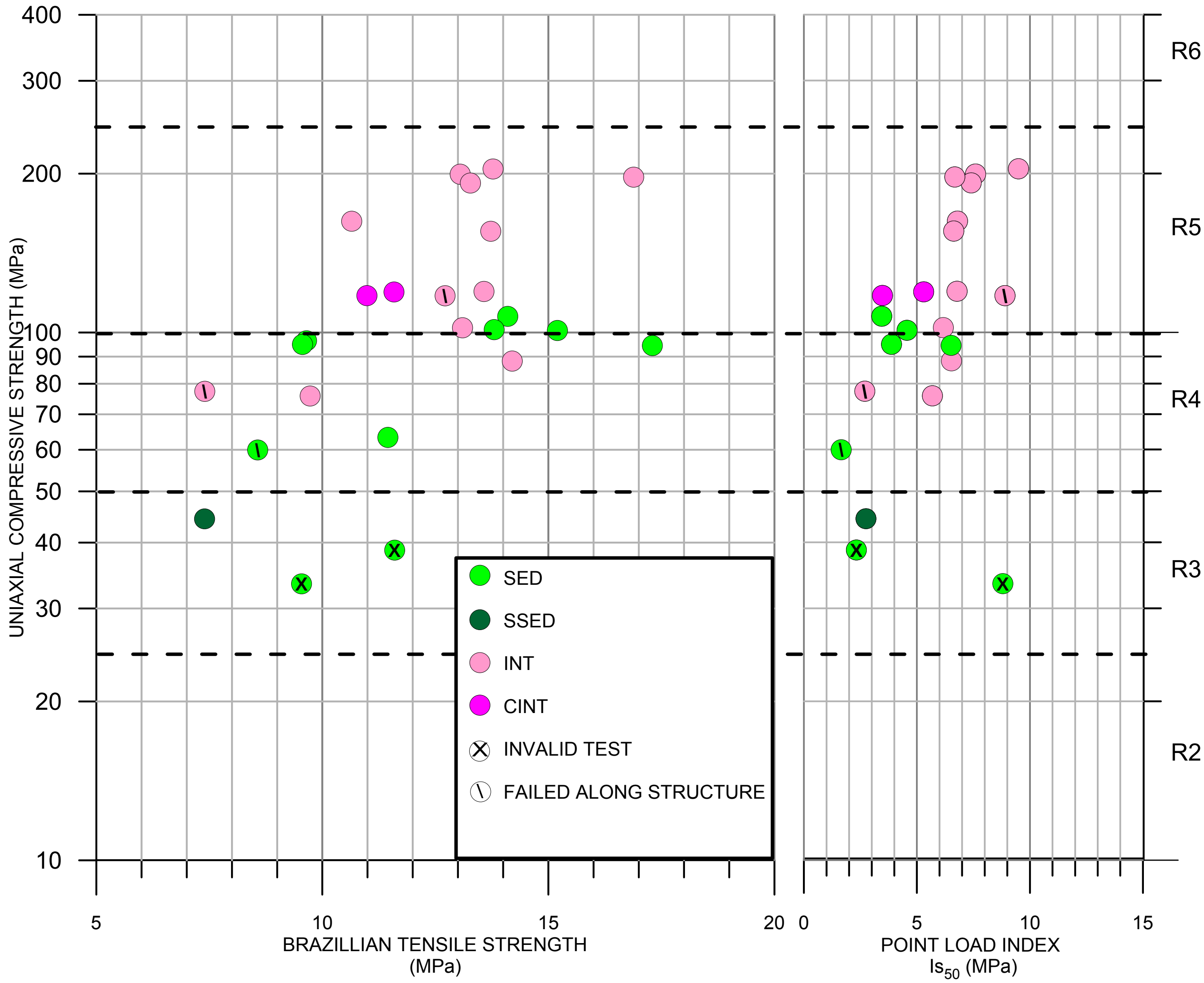
TITLE: INTACT ROCK STRENGTH ESTIMATES FROM STRENGTH GRADE AND Is_{50}

CLIENT: Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	12	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\02 Rock Mass Classification\Cumulative Frequency Plots\Cumulative Frequency Plot_UCS AND Is50.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



(SED / SSED)	
AVG. UCS	84.7 MPa
AVG. BTS	10.6 MPa
EST. DTS	6.3 MPa
m_i	16.9
k	24

(INT / CINT)	
AVG. UCS	141.0 MPa
AVG. BTS	12.1 MPa
EST. DTS	7.1 MPa
m_i	19.9
k	23

NOTES:
1. LABORATORY TEST REPORTS PROVIDED IN APPENDIX C.
2. WHERE POSSIBLE, TWO BRAZILIAN TENSILE STRENGTH TESTS HAVE BEEN COMPLETED FROM OFF-CUTS OF EACH UNIAXIAL COMPRESSIVE STRENGTH SAMPLE. THE AVERAGE OF THESE VALES IS PLOTTED.
3. THE RESULTS OF TWO TO FOUR POINT LOAD TESTS ADJACENT TO EACH UCS SAMPLE HAVE BEEN AVERAGED TO DEVELOP 'k,' THE RELATIONSHIP BETWEEN POINT LOAD INDEX (Is_{50}) AND UNIAXIAL COMPRESSIVE STRENGTH.
4. ALL TESTING RESULTS HAVE BEEN PLOTTED WITH LABELS INDICATING FAILED TESTS "X" AND THOSE THAT FAILED ALONG FOLIATION OR ANOTHER PLANE OF WEAKNESS WITHIN THE ROCK MASS "\". RESULTS HAVE BEEN CALCULATED BASED ON VALID UCS TESTS ONLY.
5. DTS IS ESTIMATED FROM THE AVERAGE BTS VALUE OF EACH SAMPLE. THE RATIO OF UCS TO ESTIMATED DTS IS USED TO ESTIMATE THE m_i VALUE FOR EACH ROCK UNIT.

SCALE:	AS SHOWN	DESIGNED:	DK
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

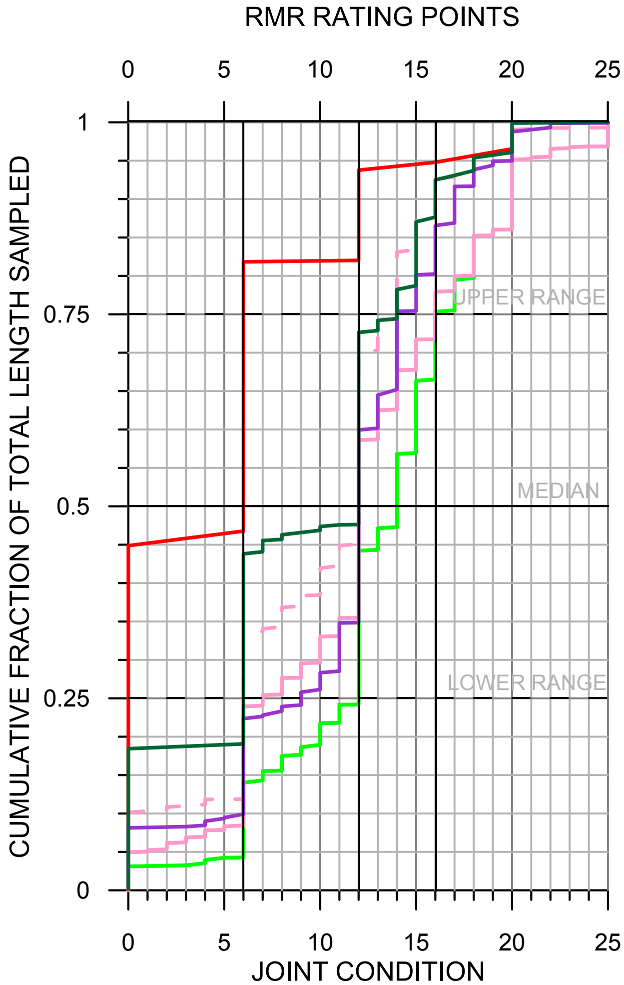
TITLE:
LABORATORY AND FIELD INDEX INTACT ROCK STRENGTH

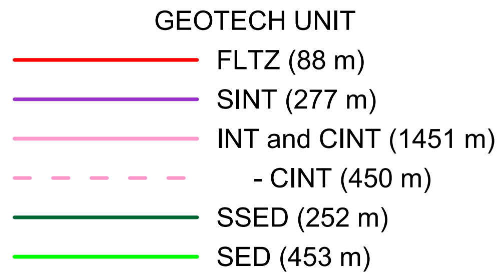
CLIENT: Victoria Gold Corp

PROJECT No.:	DWG No.:	REV.:
0792-005	13	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\04 Lab Testing Data\01 Intact Strength\0792-005 Intact Strength.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JAN 2012.





NOTES:
1. SEE TABLE 5 FOR DESIGN ROCK MASS PROPERTIES FOR EACH OF THE UNITS.
2. OVERBURDEN ABOVE THE BEDROCK WAS NOT USED IN THE PLOTS

JC '76 RATING	CONDITION OF DISCONTINUITY	ADDITIONAL NOTES [BGC,2010]
25	VERY ROUGH SURFACE; NOT CONTINUOUS; NO SEPARATION; UNWEATHERED (HARD) WALLS	INCLUDES INTERVALS WITH NO DISCONTINUITIES, 16≤ JRC
20	SLIGHTLY ROUGH SURFACES, SEPARATION <1 mm; SLIGHTLY WEATHERED (HARD, ≥R3) WALLS	> R3 WALL ROCK; INTERLOCKING DISCONTINUITIES WITH 8 < JRC < 14
12	SLIGHTLY ROUGH SURFACES; SEPARATION <1 mm; HIGHLY WEATHERED (SOFT, <R3) WALLS	< R3 WALL ROCK AND SLIGHTLY ROUGH OR > R3 WALL ROCK; PLANAR/SMOOTH SURFACES WITH NO INFILL
6	SLICKENSIDED SURFACES OR GOUGE <5 mm THICK OR SEPARATION 1 TO 5 mm; CONTINUOUS	VEINS ≤ R1 OR MOHS # ≤ 3 INCLUDED AS INFILLING
0	SOFT GOUGE >5 mm OR SEPARATION >5 mm; CONTINUOUS	VEINS ≤ R1 OR MOHS # ≤ 3 INCLUDED AS INFILLING

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

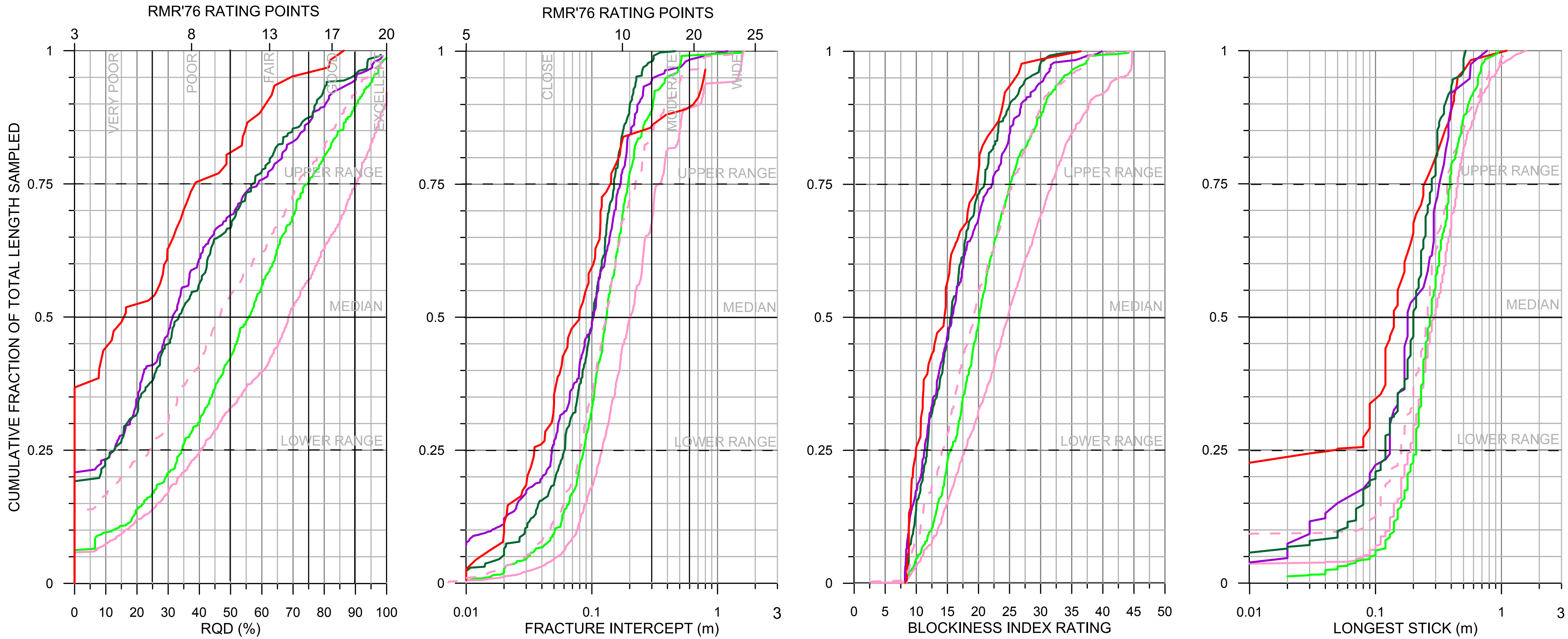
TITLE:
CUMULATIVE FRACTION
JOINT CONDITION

CLIENT:
Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	14	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05Analysis\02 Rock Mass Classification\Cumulative Frequency Plots\Cumulative Frequency Plot_JC.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012.



NOTES:
1. QUALITATIVE DESCRIPTIONS HAVE BEEN SHOWN FOR RQD (DEERE AND DEERE, 1989), AND FRACTURE INTERCEPT (ISRM, 1981).
2. BLOCKINESS INDEX IS THE SUM OF RMR '76 RATING POINTS FOR RQD AND FRACTURE INTERCEPT.
3. SEE TABLE 5 FOR DESIGN ROCK MASS PROPERTIES FOR EACH OF THE UNITS.
4. LONGEST STICK DATA WAS NOT COLLECTED IN 2009.
5. TOTAL LENGTH SAMPLED FOR EACH UNIT IS SHOWN IN LEGEND.

GEOTECHNICAL UNITS
- FLTZ (88 m)
- SINT (277 m)
- INT and CINT (1451 m)
- - CINT (450 m)
- SSED (252 m)
- SED (453 m)

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	AS SHOWN
DATE:	JAN 2012
DRAWN:	DNS
DESIGNED:	MAB
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria GOLD CORP

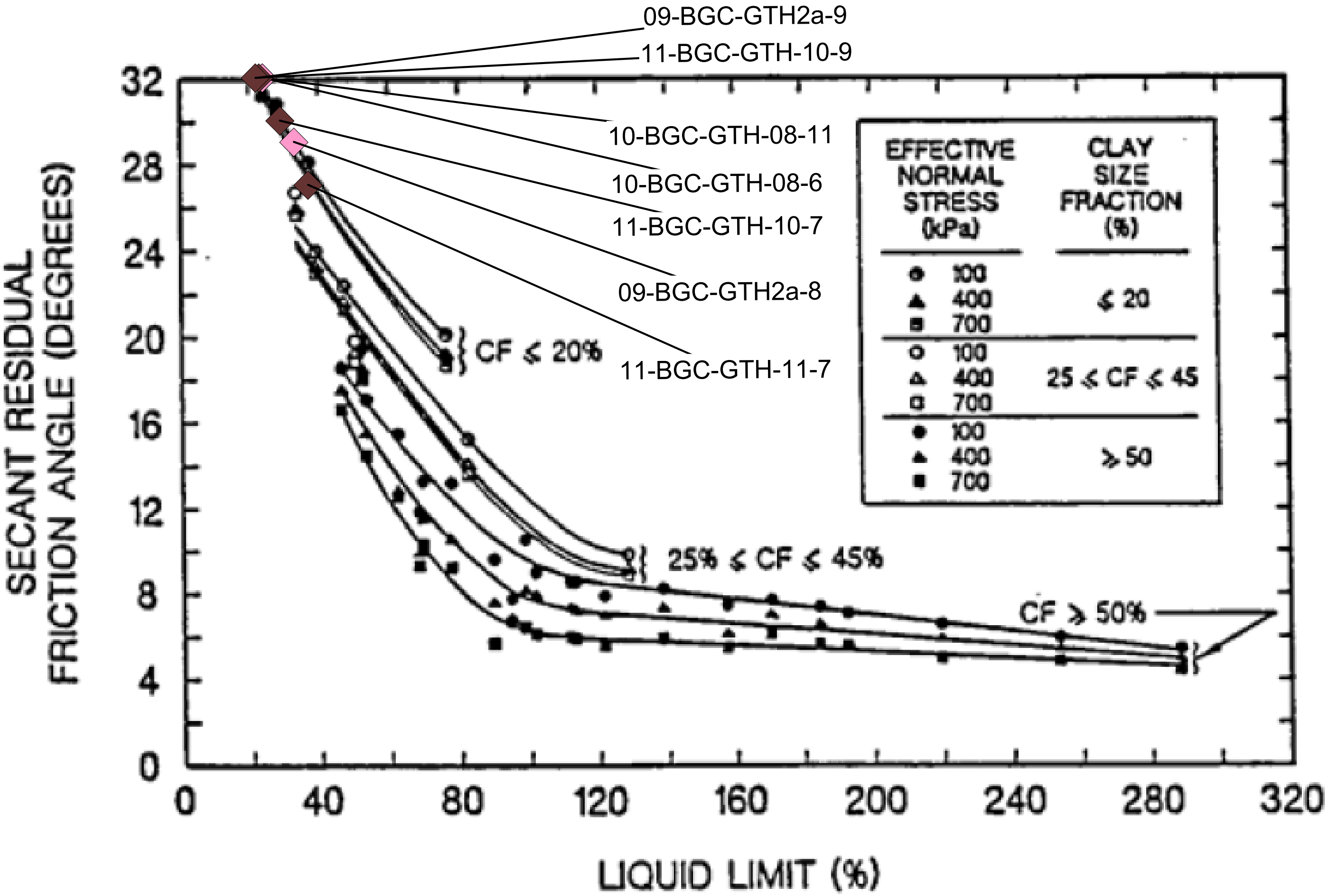
PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT DESIGN

TITLE: DISTRIBUTION OF RQD, FRACTURE INTERCEPT, BLOCKINESS INDEX AND LONGEST STICK BY GEOTECHNICAL UNIT

PROJECT No.:	DWG No.:	REV.:
0792-005	15	

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012.

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\02 Rock Mass Classification\Cumulative Frequency Plots\Sulphurets\Cumulative Frequency Plot_RQD FI LS BLOCK.grf



ZONE	SAMPLE NO.	SOIL CLASSIFICATION	LIQUID LIMIT	CLAY FRACTION (%)	ϕ_r	ϕ_r DETERMINED BY[4,5]	AVERAGE φr
INT	10-BGC-GTH-08-6	SILTY SAND (SM), SOME CLAY	24	10	32	FINE FRACTION	31
	10-BGC-GTH-08-11	SILTY SAND (SM) WITH GRAVEL, SOME CLAY	24	11	32	FINE FRACTION	
	09-BGC-GTH2a-8	SILT AND CLAY (CL-ML), SOME SAND	33	17	29	FINE FRACTION	
SED	10-BGC-GTH-09-9	SILTY SAND (SM) WITH GRAVEL	27	0	31	GRANULAR	30
	09-BGC-GTH2a-9	SILTY SAND (SM) WITH GRAVEL, TRACE CLAY	23	4	32	FINE FRACTION	
	11-BGC-GTH-10-7	SILTY SAND (SM), SOME SILT AND CLAY, TRACE GRAVEL	29	<20	30	FINE FRACTION	
	11-BGC-GTH-10-9	SANDY GRAVEL (GM), SOME SILT AND CLAY	22	<10	32	FINE FRACTION	
	11-BGC-GTH-11-7	WELL GRADED SAND (SW), SOME GRAVEL, SOME SILT	37	0	27	FINE FRACTION	

NOTES:
1. ALL AVAILABLE DATA FROM THE EGP PROJECT SITE HAS BEEN PLOTTED.
2. SEE APPENDIX C FOR LABORATORY TESTING RESULTS.
3. SEE TABLE 2 AND 3 FOR DESIGN STRENGTH SUMMARY.
4. FINE FRACTION ESTIMATED ϕ_r FROM PLOT ABOVE (STARK AND EID, 1994).
5. GRANULAR FRACTION ESTIMATED ϕ_{cs} AS PER BUDHU, 2007 AND EMPIRICAL SOIL CLASSIFICATION CORRELATIONS.

SCALE:	AS SHOWN	DESIGNED:	MAB/DK
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

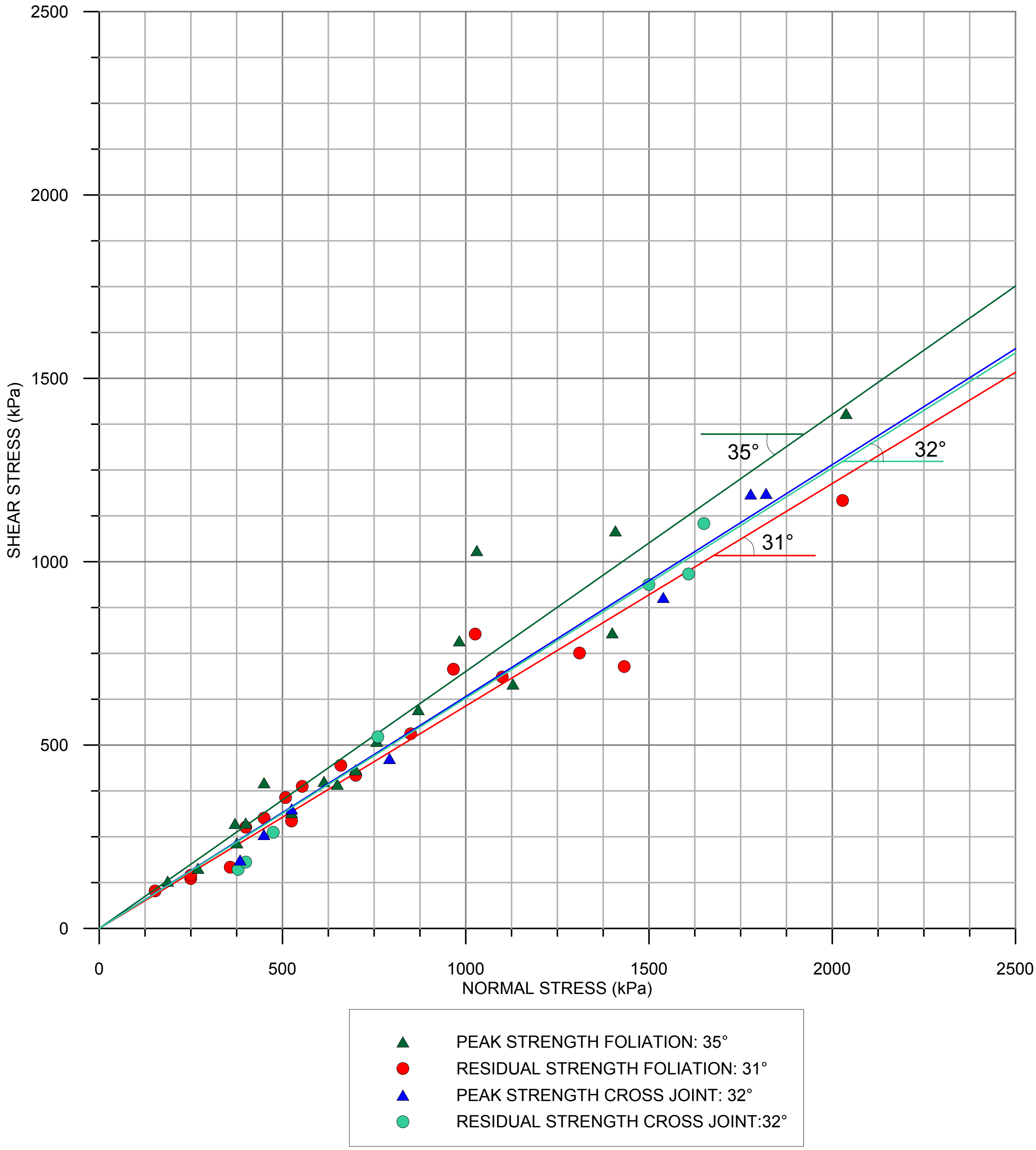
TITLE: RESIDUAL FRICTION ANGLE OF FAULT INFILL
AFTER STARK AND EID, 1994

CLIENT: Victoria GOLD CORP

PROJECT No.: 0792-005 | DWG No.: 16 | REV.:

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit PFS\05 Analysis\04 Lab Testing\02 Discon Strength\Gouge\EGP STARK AND EID, 1994.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



NOTES:
1. RESULTS WERE CORRECTED ACCORDING TO METHODS DESCRIBED BY HENCHER, 1995.

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

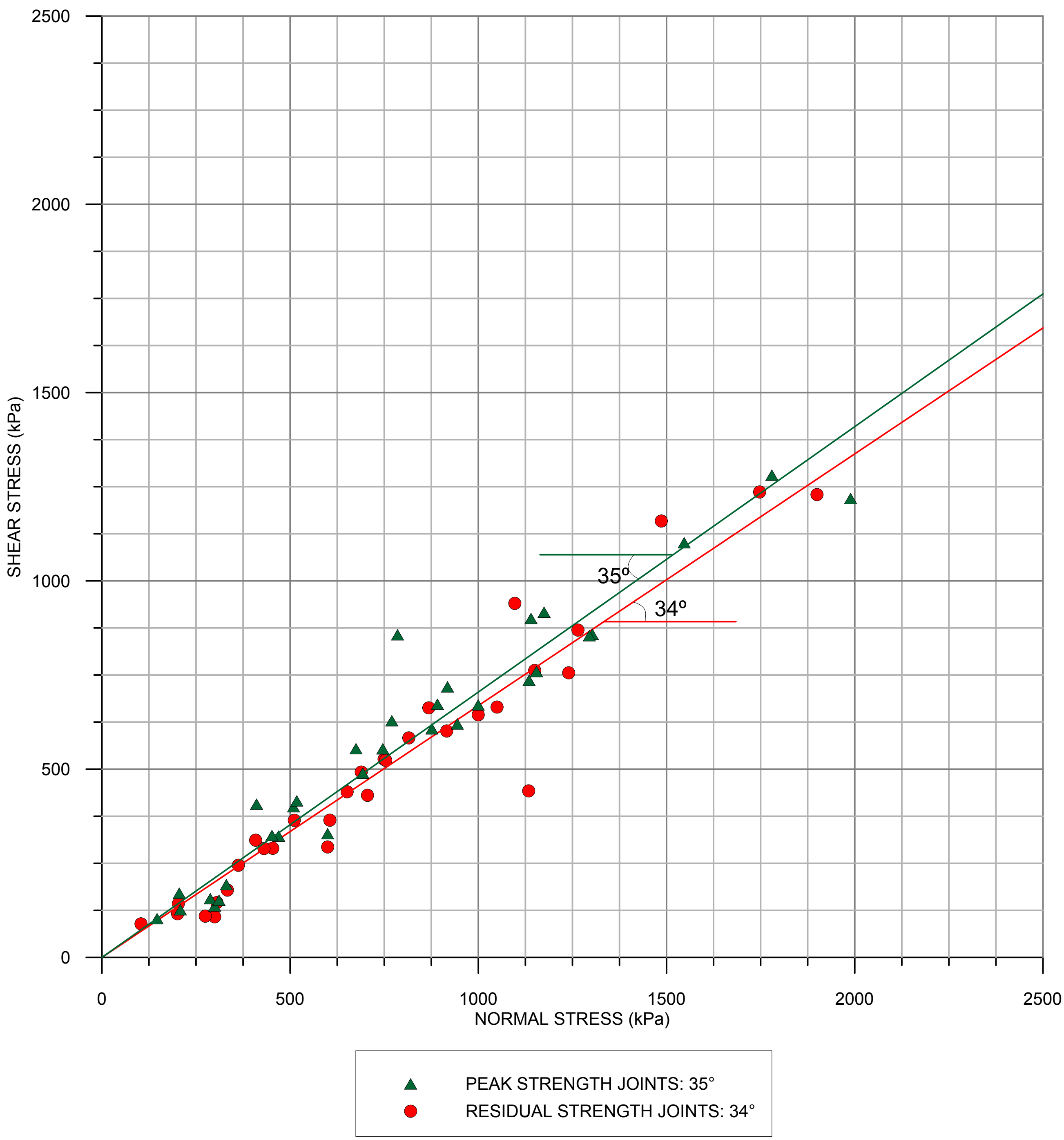
TITLE:
SMALL SCALE DIRECT SHEAR TESTING RESULTS
METASEDIMENTARY ROCKS

CLIENT: Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	17	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\04 Lab Testing\02 Discon Strength\Direct Shear\SEDIMENTS DS Results_corrected.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JAN 2012.



NOTES:
1. RESULTS WERE CORRECTED ACCORDING TO METHODS DESCRIBED BY HENCHER, 1995.

SCALE:	AS SHOWN	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

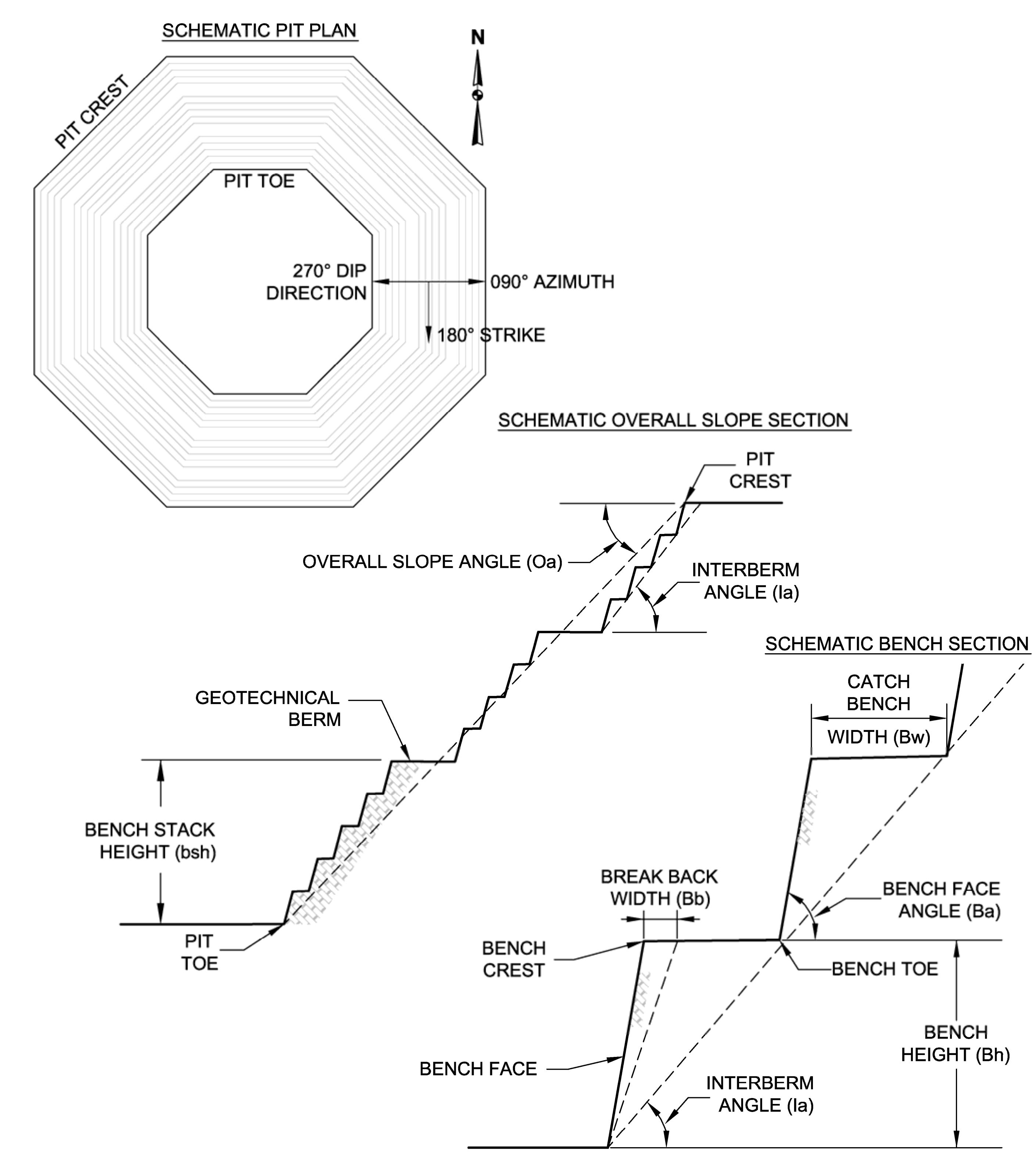
TITLE:
SMALL SCALE DIRECT SHEAR TESTING RESULTS
INTRUSIVE ROCKS

CLIENT: Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	18	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\04 Lab Testing\02 Discon Strength\Direct Shear\SEDIMENTS DS Results_corrected.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JAN 2012.



SCALE:	NTS	DESIGNED:	MAB
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

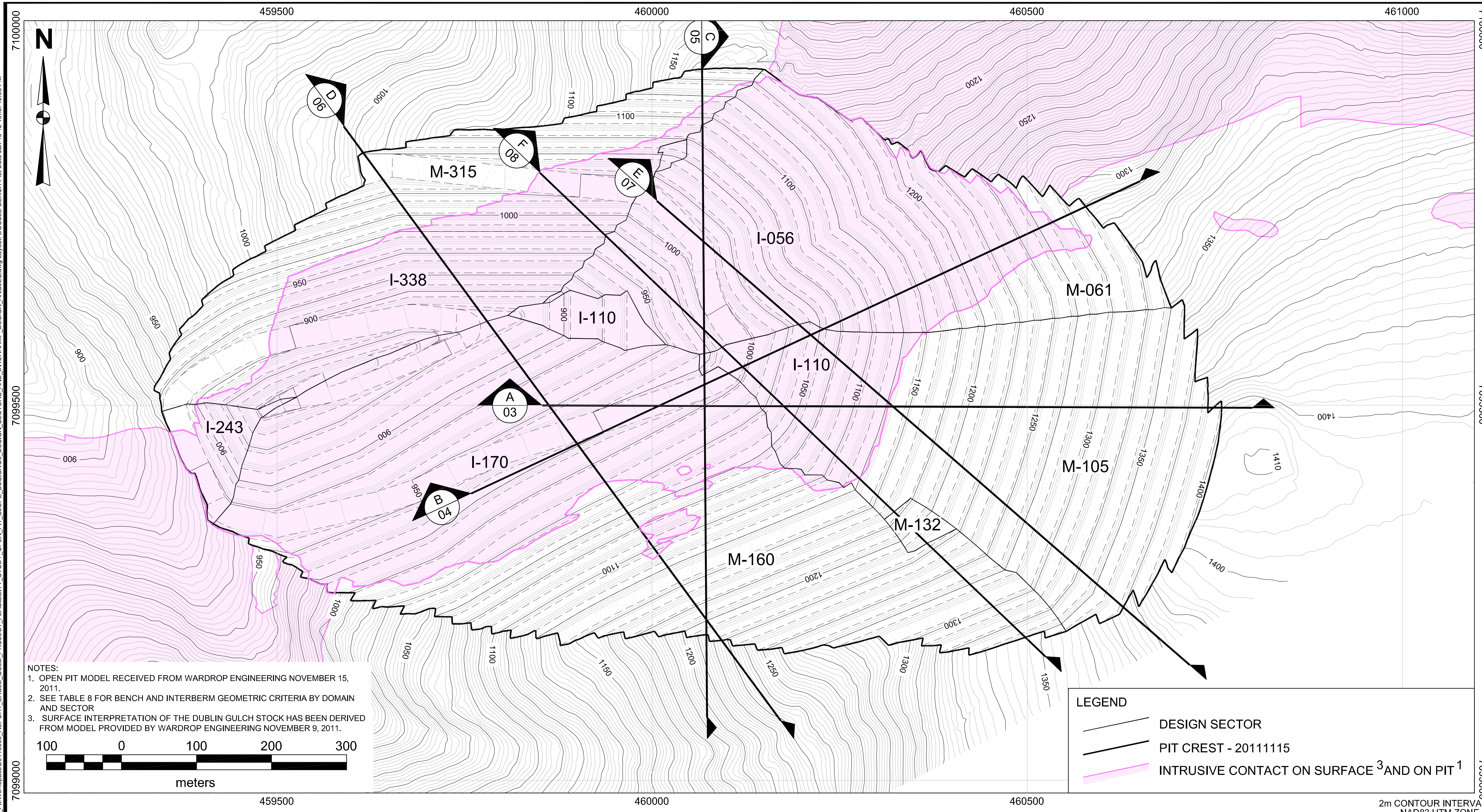
TITLE:
PIT SLOPE GEOMETRY PARAMETERS AND DEFINITIONS

CLIENT: Victoria Gold Corp

PROJECT No.:	DWG No.:	REV.:
0792-005	19	

N:\Data\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\Pit slope geometry.grf

DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



NOTES:
1. OPEN PIT MODEL RECEIVED FROM WARDROP ENGINEERING NOVEMBER 15, 2011.
2. SEE TABLE 8 FOR BENCH AND INTERBERM GEOMETRIC CRITERIA BY DOMAIN AND SECTOR
3. SURFACE INTERPRETATION OF THE DUBLIN GULCH STOCK HAS BEEN DERIVED FROM MODEL PROVIDED BY WARDROP ENGINEERING NOVEMBER 9, 2011.

REV.	DATE	REVISION NOTES	DRAWN	CHECK	APPR.

SCALE:	1:5,000
DATE:	JAN 2012
DRAWN:	WKL/RG
DESIGNED:	DS
CHECKED:	HWN
APPROVED:	HWN

PROFESSIONAL SEAL:

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

CLIENT: Victoria GOLD CORP

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

TITLE: DESIGN SECTORS

PROJECT No.:	DWG No.:	REV.:
0792-005	20	

DRAWING TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY - OPEN PIT SLOPE DESIGN" DATED JANUARY 2012

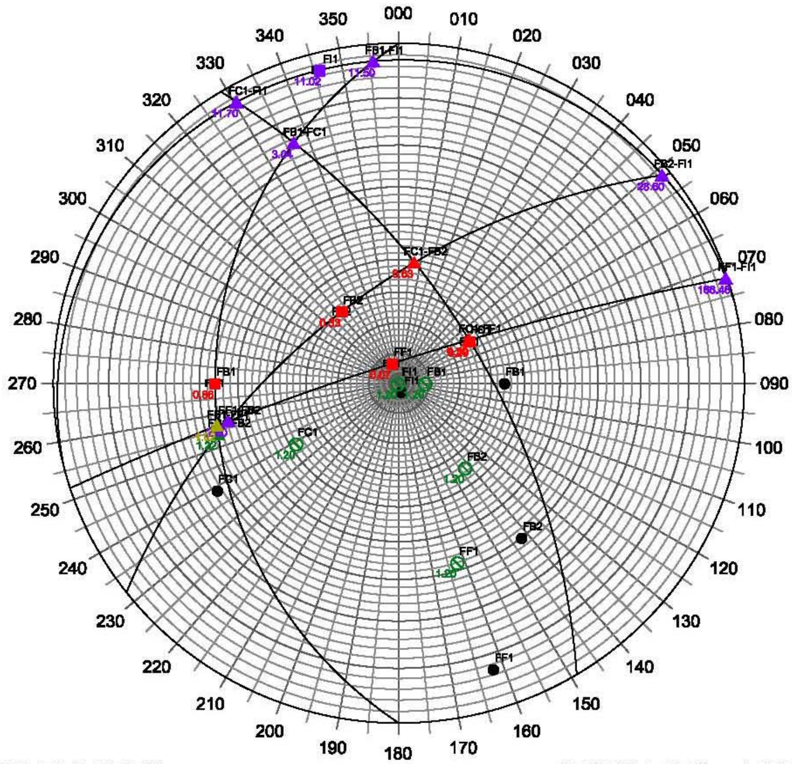
KINEMATIC ANALYSIS SUMMARY

LEGEND

- ■ PLANAR
- ▲ WEDGE
- ⊘ TOPPLE

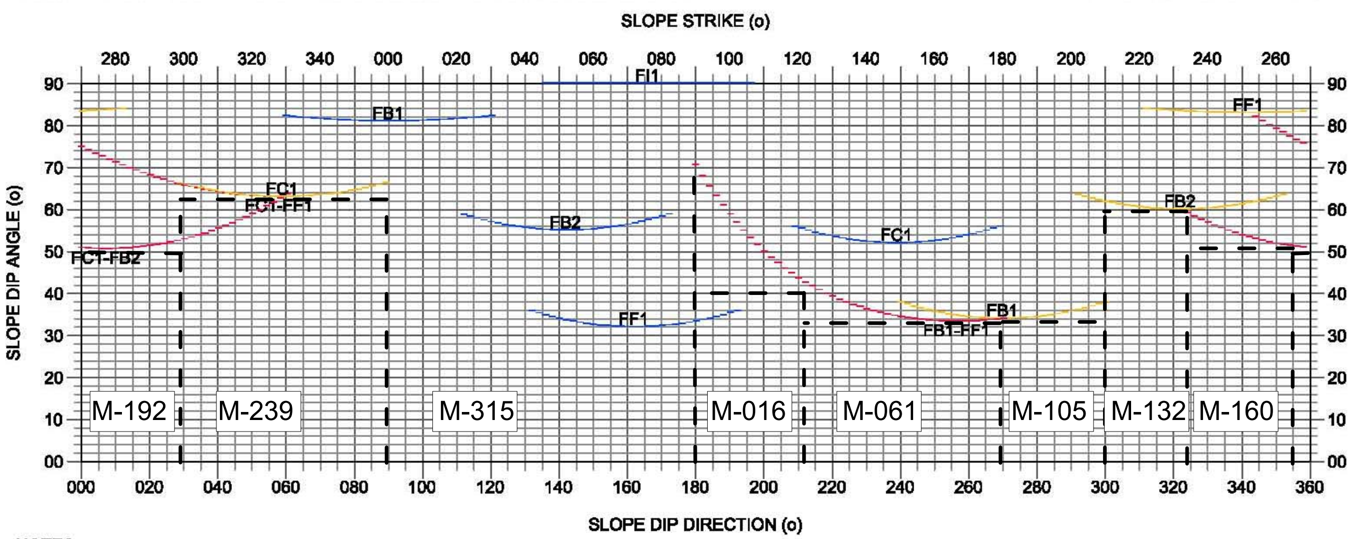
FACTOR OF SAFETY (FOS):

FOS <= 1.0
1.2 >= FOS > 1.0
1.5 >= FOS > 1.2
2.0 >= FOS > 1.5
FOS > 2.0



SLOPE ANGLE TO NOT UNDERCUT DESIGN FAILURES

DESIGN FOS = 1.20



NOTES:
1. EQUAL ANGLE LOWER HEMISPHERE STEREOGRAPHIC PROJECTIONS PRESENTED.
2. SEE DESIGN REPORT FOR LOWER HEMISPHERE STEREOGRAPHIC PROJECTIONS WITH RAW DISCONTINUITY DATA.
3. ALL POTENTIAL FAILURES ANALYSED FOR FULLY DEPRESSURIZED CONDITIONS.
4. SEE DESIGN REPORT FOR SHEAR STRENGTH PARAMETER SUMMARY.
5. WEDGE AND PLANE SHEAR STABILTY SOLUTIONS AFTER HOEK AND BRAY, 1981.
6. NO TENSION CRACKS CONSIDERED.
7. HORIZONTAL BENCH ABOVE ANALYSIS SLOPE ASSUMED.

SCALE:	AS SHOWN	DESIGNED:	DK
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

TITLE: KINEMATIC ANALYSIS
M

CLIENT: Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	21	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\05 Structural Model\DESIGN STEREONET\INTISED FAULT SHEAR.grf

DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLDPROJECT FEASBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012

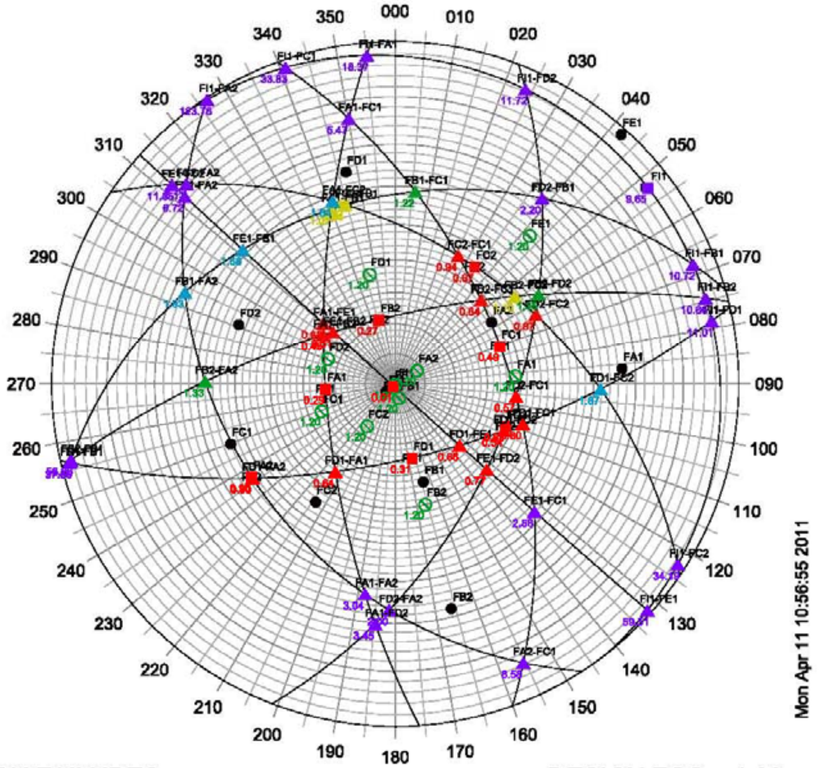
KINEMATIC ANALYSIS SUMMARY

LEGEND

- ■ PLANAR
- ▲ WEDGE
- ⊘ TOPPLE

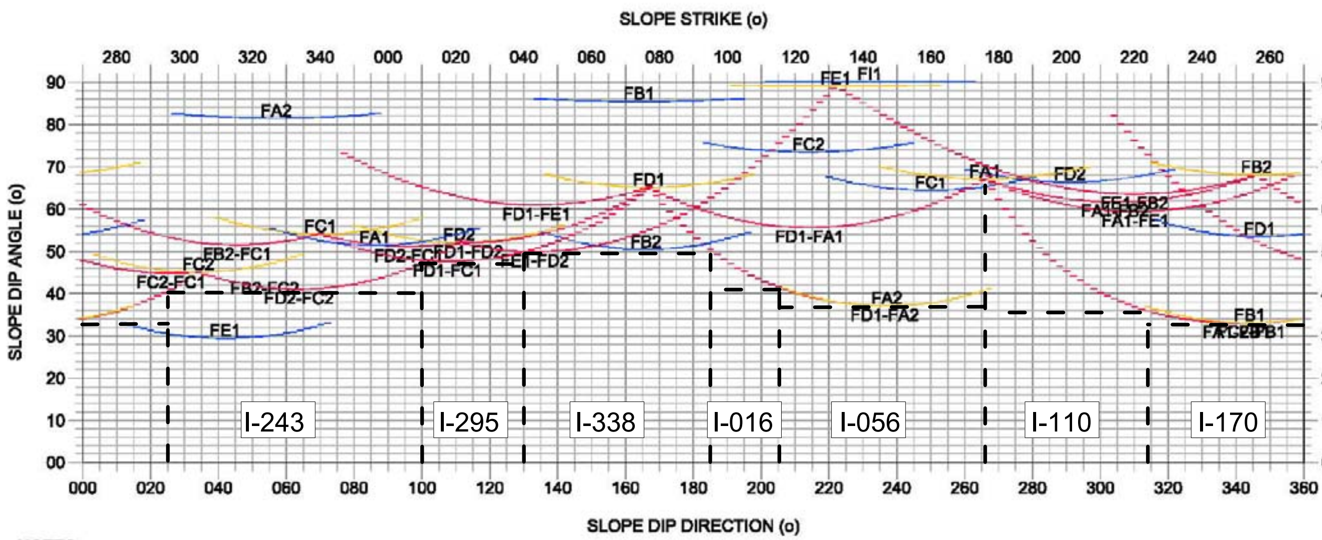
FACTOR OF SAFETY (FOS):

- FOS <= 1.0
- 1.2 >= FOS > 1.0
- 1.5 >= FOS > 1.2
- 2.0 >= FOS > 1.5
- FOS > 2.0



SLOPE ANGLE TO NOT UNDERCUT DESIGN FAILURES

DESIGN FOS = 1.20



NOTES:
1. EQUAL ANGLE LOWER HEMISPHERE STEREOGRAPHIC PROJECTIONS PRESENTED.
2. SEE DESIGN REPORT FOR LOWER HEMISPHERE STEREOGRAPHIC PROJECTIONS WITH RAW DISCONTINUITY DATA.
3. ALL POTENTIAL FAILURES ANALYSED FOR FULLY DEPRESSURIZED CONDITIONS.
4. SEE DESIGN REPORT FOR SHEAR STRENGTH PARAMETER SUMMARY.
5. WEDGE AND PLANE SHEAR STABILTY SOLUTIONS AFTER HOEK AND BRAY, 1981.
6. NO TENSION CRACKS CONSIDERED.
7. HORIZONTAL BENCH ABOVE ANALYSIS SLOPE ASSUMED.

SCALE:	AS SHOWN	DESIGNED:	DK
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT: EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

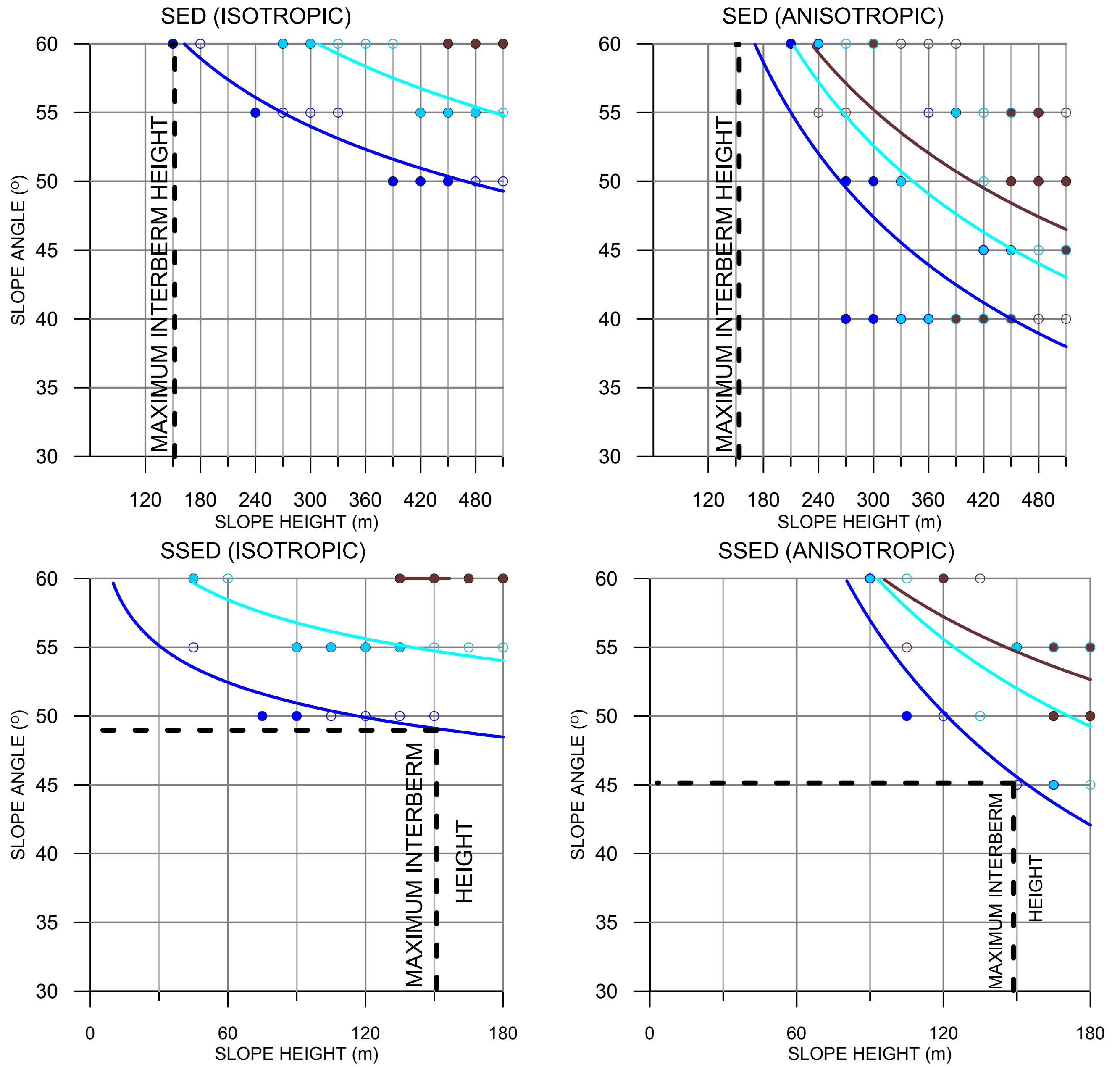
TITLE: KINEMATIC ANALYSIS
I

CLIENT: Victoria Gold Corp

PROJECT No.:	DWG No.:	REV.:
0792-005	22	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\05 Structural Model\DESIGN STEREONET\INTSED FAULT SHEAR.grf

DWG TO BE READ WITH BGC REPORT TITLED "EAGLE GOLDPROJECT FEASBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012



NOTES:
1. RESULTS OF NON-CIRCULAR SLOPE ANALYSES USING THE SPENCER METHOD WHERE THE FACTOR OF SAFETY FALLS INTO THE RANGE 1.3±0.1 ARE PLOTTED, DESIGN CURVES USE A POWER FIT.
2. LIMIT EQUILIBRIUM ANALYSES HAVE BEEN CONDUCTED FOR PORE WATER COEFFICIENT (Ru) EQUIVALENT TO A WATER COLUMN THAT IS 50%, 25%, AND 0% THE HEIGHT OF THE ROCK. THE DESIGN CURVE CORRESPONDING TO Ru = 0.18 (50%) HAS BEEN USED FOR BENCH STACK HEIGHT DESIGN AND FOR OVERALL ANGLE.
3. CURVES SHOWN REPRESENT POTENTIAL ROCK MASS STABILITY CONTROLLED SLOPE ANGLES, NOT FINAL DESIGN ANGLES.

LEGEND

CASE[2,3]	Ru	FS	
		1.2-1.3	1.3-1.4
Dry	0	○	●
1	0.09	○	●
2	0.18	○	●

SCALE:	AS SHOWN	DESIGNED:	DNS
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

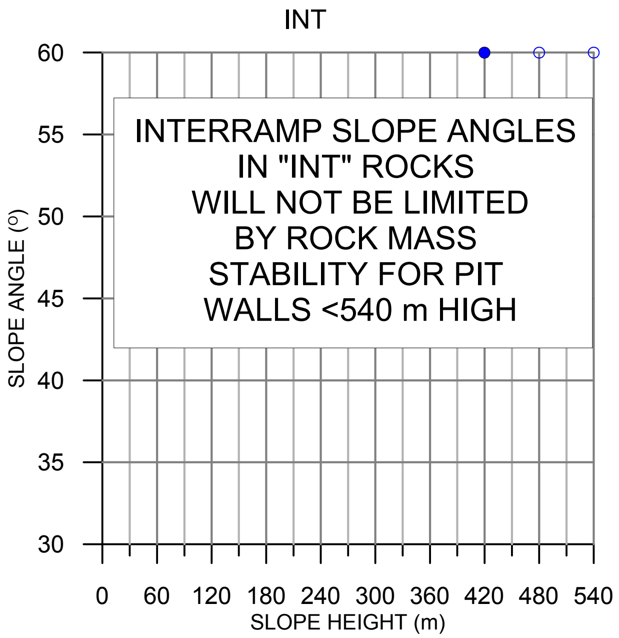
TITLE:
GENERIC SLOPE STABILITY ANALYSIS RESULTS
METASEDIMENTARY GEOTECHNICAL UNITS

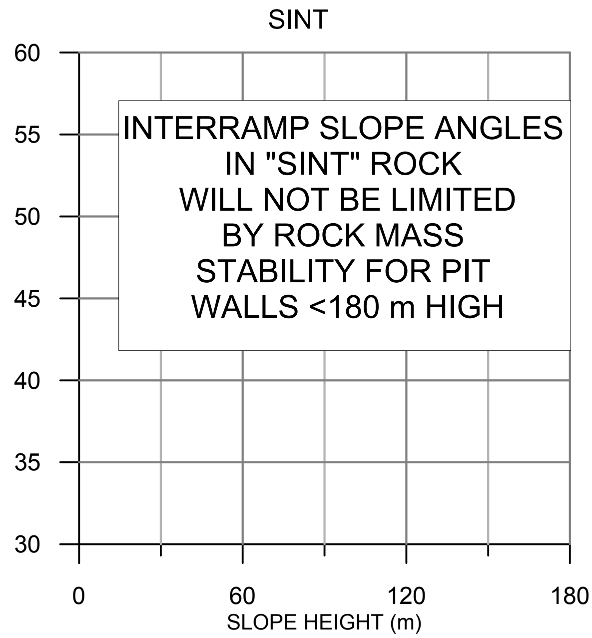
CLIENT: Victoria GOLD CORP

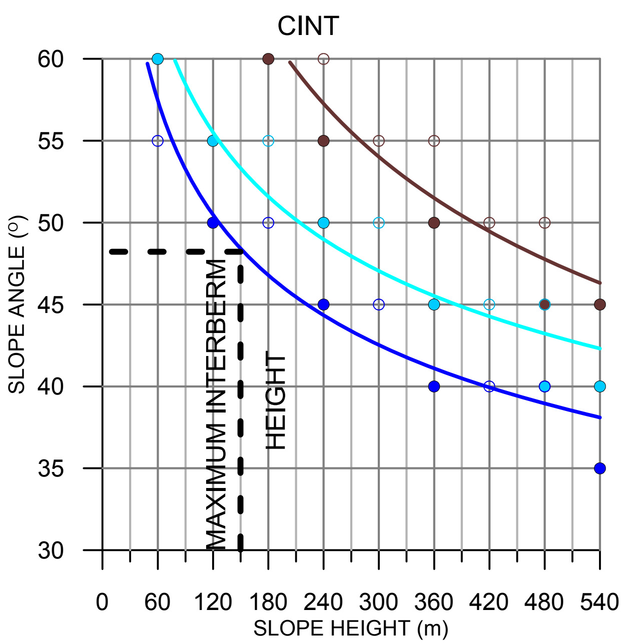
PROJECT No.:	DWG No.:	REV.:
0792-005	23	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\06 Generic Slope Analyses\SED-SSED Stability.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD PROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012







LEGEND

CASE[2]	Ru	FS	
		1.2-1.3	1.3-1.4
Dry	0	○	●
1	0.09	○	●
2	0.18	○	●

NOTES:

1. RESULTS OF NON-CIRCULAR SLOPE ANALYSES USING THE SPENCER METHOD WHERE THE FACTOR OF SAFETY FALLS INTO THE RANGE 1.3±0.1 ARE PLOTTED, DESIGN CURVES USE A POWER FIT.
2. LIMIT EQUILIBRIUM ANALYSES HAVE BEEN CONDUCTED FOR PORE WATER COEFFICIENT (Ru) EQUIVALENT TO A WATER COLUMN THAT IS 50%, 25%, AND 0% THE HEIGHT OF THE ROCK. THE DESIGN CURVE CORRESPONDING TO Ru = 0.18 (50%) HAS BEEN USED FOR BENCH STACK HEIGHT DESIGN AND OVERALL ANGLE.
3. CURVES SHOWN REPRESENT POTENTIAL ROCK MASS STABILITY CONTROLLED SLOPE ANGLES, NOT FINAL DESIGN ANGLES.

SCALE:	AS SHOWN	DESIGNED:	DNS
DATE:	JAN 2012	CHECKED:	HWN
DRAWN:	DNS	APPROVED:	HWN

BGC BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

PROJECT:
EAGLE GOLD PROJECT FEASIBILITY STUDY
OPEN PIT SLOPE DESIGN

TITLE:
GENERIC SLOPE STABILITY ANALYSIS RESULTS
INTRUSIVE GEOTECHNICAL UNITS

CLIENT: Victoria GOLD CORP

PROJECT No.:	DWG No.:	REV.:
0792-005	24	

N:\BGC\Projects\0792 Victoria Gold\005 EG FS Open Pit\05 Analysis\06 Generic Slope Analyses\SED-SSED Stability.grf

DWG. TO BE READ WITH BGC REPORT TITLED "EAGLE GOLD ROJECT FEASIBILITY STUDY OPEN PIT SLOPE DESIGN" DATED JAN 2012

APPENDIX A
BOREHOLE LOGS

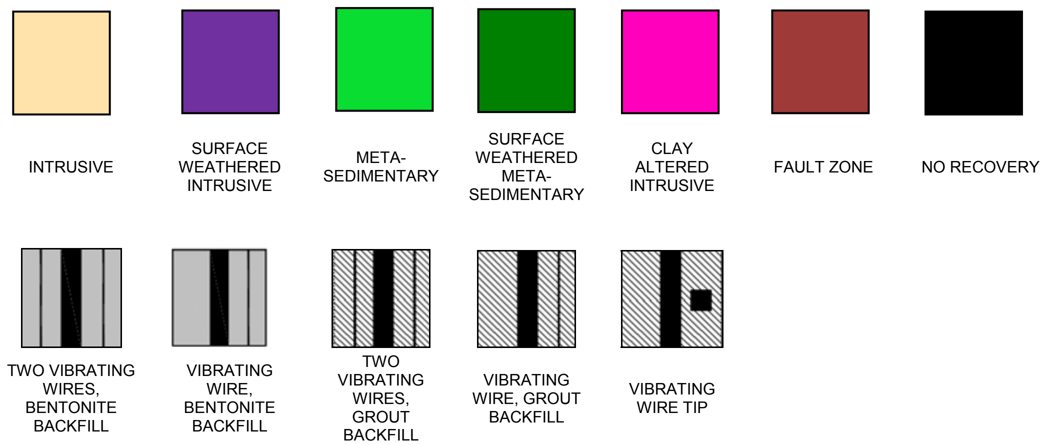
LEGEND FOR DIAMOND DRILL HOLE LOGS

The various parameters depicted on the drill holes logs are described below according to the column headings found on the logs.

Depth

Depth below ground surface is measured in metres.

Symbols - Rock Type and Instrument Details



RQD %

The Rock Quality Designation (RQD) is defined as the percentage of core recovered of intact pieces of 100 mm or more in length for the total length of core interval (Deere and Deere, 1988). Only natural core breaks (i.e. joints) are considered in this calculation. Mechanical breaks due to drilling or handling are ignored. The percentage of RQD is defined in the following formula:

$$RQD = \frac{\sum \text{Length of core pieces} > 100 \text{ mm}}{\text{Total length of core interval}} \times 100\%$$

Longest Stick

Longest stick is the longest piece of core measured in each interval. This measurement helps overcome the limited sensitivity of RQD to block size. Core pieces which are very weak (strength grade $\leq$ R1) or are weathered/altered to a soil-like material are not considered for the longest stick measurement. Mechanical breaks due to drilling or handling are ignored.

Fracture Intercept (m)

Fracture intercept is the average distance between discontinuities and is calculated from fracture frequency. Fracture frequency is the number of discontinuities mapped per meter, averaged over the length of each interval.

Point Load Index

Point load test data (Is50) provides a relative indication of rock strength, and can be used to predict uniaxial compressive strength using site specific correlation factors. The results presented on the logs are all from diametral tests.

Strength Grade

The Strength Grade is based on simple mechanical tests, which are performed in the field using a rock hammer, pocket knife, and fingernail. The grades vary from extremely strong (Grade R6) to extremely weak (Grade R0), as shown in Table D-1.

Table A-1: Rock Strength Grades (ISRM, 1978)

Grade	Description	Field Identification	UCS (MPa)	Point Load Index (MPa)
R6	Extremely Strong	Specimen can only be chipped with flat end geological hammer.	> 250	> 10
R5	Very Strong	Specimen requires many blows with flat end geological hammer to fracture.	100-250	4-10
R4	Strong	Specimen requires more than one blow of flat end geological hammer to fracture.	50-100	2-4
R3	Medium Strong	Cannot be scraped or peeled with pocket knife; can be fractured with single firm blow of flat end geological hammer.	25-50	1-2
R2	Weak	Can be peeled by a pocket knife with difficulty; shallow indentation made by firm blow with point geologic hammer.	5-25	-
R1	Very Weak	Crumbles under firm blows with point of geological hammer.	1-5	-
R0	Extremely Weak	Indented by thumbnail.	< 1	-

Joint Condition

The joint condition (Jc) is a numeric index which summarizes the typical surface properties and infilling of discontinuities within an interval. The joint condition can be a preliminary indication of the shear strength of a discontinuity.

The Jc will be logged based the descriptions proposed by Bieniawski (1976), as provided in Table D-1.

Table A-2: Joint Condition

RATING	Condition of Discontinuity (RMR 1976)	BGC Notes
25	Very rough surface; not continuous; no separation; unweathered wall rock	Includes intervals with no discontinuities; JRC > 16
20	Slightly rough surfaces; separation <1 mm; slightly weathered walls	> R3 wall rock; interlocking discontinuities with 8 < JRC < 14
12	Slightly rough surfaces; separation <1 mm; highly weathered walls	< R3 wall rock and slightly rough OR > R3 planar/smooth surfaces with no infill
6	Slickensided surfaces or gouge < 5 mm thick or separation 1 to 5 mm; continuous	Veins ≤ R1 or Mohs # ≤ ~3 included as "infilling"
0	Soft gouge >5mm or separation > 5 mm; continuous joints	Veins ≤ R1 or Mohs # ≤ ~3 included as "infilling"

RMR '76

The Rock Mass Rating (RMR) system, published in 1976 by Bieniawski, classifies rock on a scale of 0-100 based on the sum of the ratings given to six parameters. The six parameters are:

- Uniaxial compressive strength
- Rock Quality Designation (RQD)
- Spacing of discontinuities
- Condition of discontinuities
- Groundwater conditions
- Orientation of discontinuities

Hydraulic Conductivity

Hydraulic conductivity values have been shown for the intervals on which packer tests were performed; it is the rate at which water can move through the rock mass in m/s.

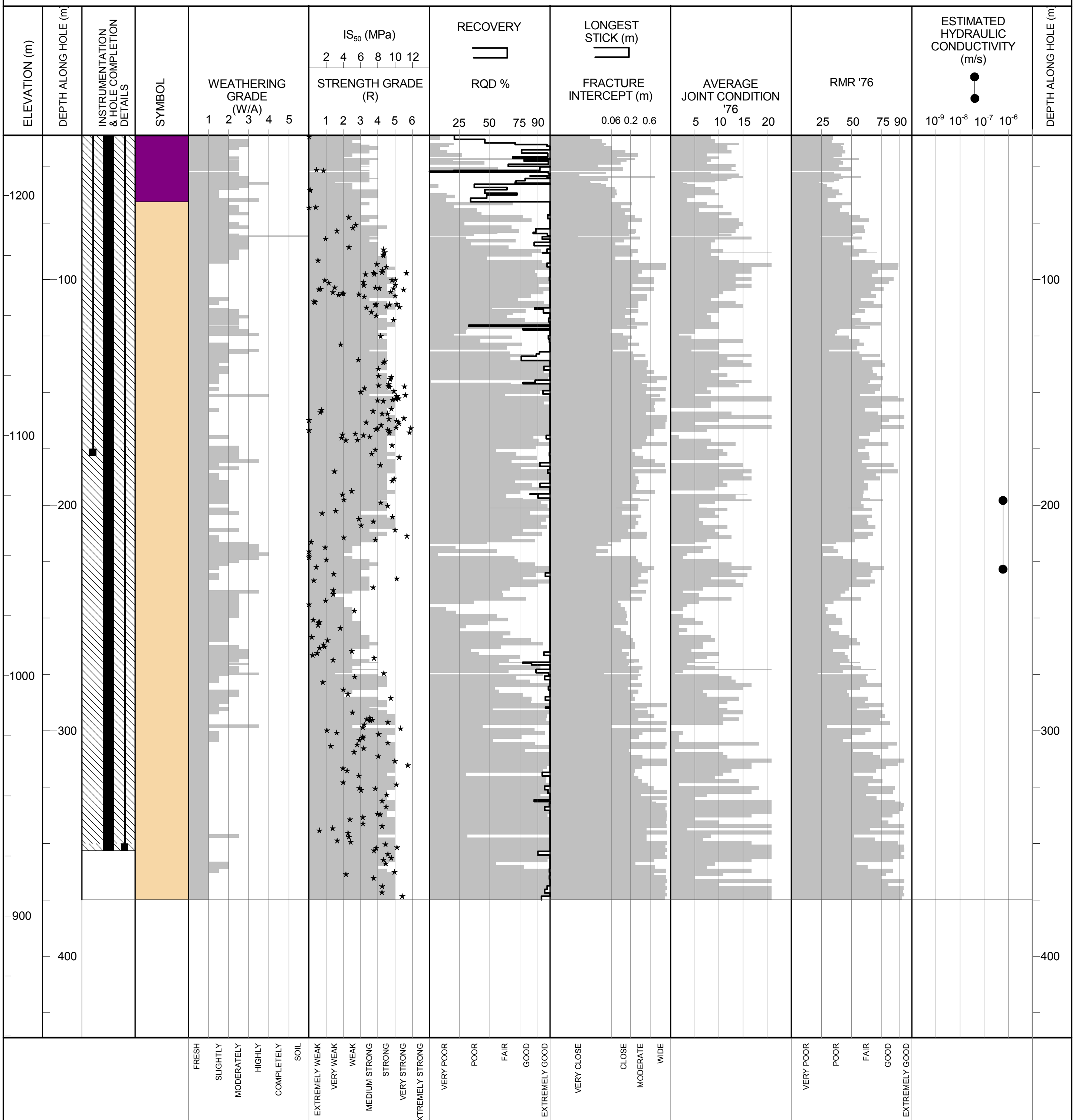
SUMMARY LOG # 09-BGC-GTH1

PROJECT NAME: Eagle Gold Project - Open Pit
PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,264.00E, 7,099,648.00N
GROUND ELEVATION (m) : 1259.0
SURVEY METHOD : DGPS
DATUM : UTM NAD 83
PLUNGE (°) : -70
TREND (°) : 080

DRILL DESIGNATION : Atlas Copco CS1000
DRILLING CONTRACTOR : Lyncorp
DRILL METHOD : Diamond
CORE SIZE : HQ3
FLUID : Bentonite
CASED TO (m): 36.35

START DATE : 18 Jul 09
FINISH DATE : 29 Jul 09
FINAL DEPTH (m) : 374.9
DEPTH TO TOP OF ROCK : 36.0
LOGGED BY : BL/KLB
REVIEWED BY : HWN



EOH NOTES:
1. VW11865 at 175 m along hole.
2. VW11867 at 350 m along hole.

CLIENT: Victoria Gold Corporation
SCALE: 1:2,500
PRINT DATE: : 12/12/2011

PROJECT NAME: Eagle Gold Project - Open Pit

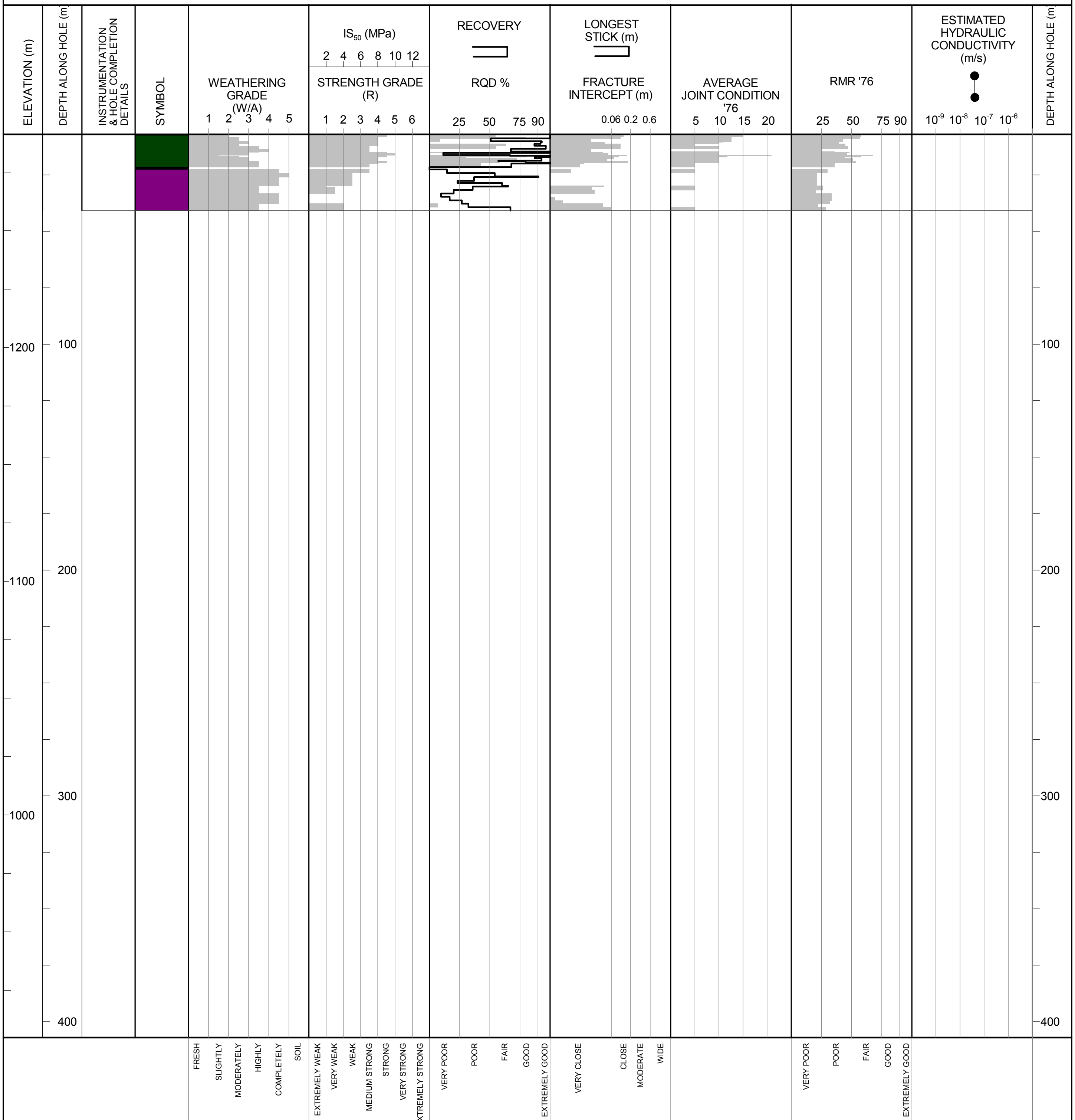
PROJECT NO. : 0792-005

SUMMARY LOG # 09-BGC-GTH2

CO-ORDINATES (m) : 460,100.E, 7,099,500.N
GROUND ELEVATION (m) : 1298.0
SURVEY METHOD : Handheld GPS
DATUM : UTM NAD 83
PLUNGE (°) : -75
TREND (°) : 135

DRILL DESIGNATION : Atlas Copco CS1000
DRILLING CONTRACTOR : Lyncorp
DRILL METHOD : Diamond
CORE SIZE : HQ3
FLUID : Bentonite
CASED TO (m): 7.5

START DATE : 29 Jul 09
FINISH DATE : 30 Jul 09
FINAL DEPTH (m) : 40.8
DEPTH TO TOP OF ROCK : 7.0
LOGGED BY : BL/EEL
REVIEWED BY : HWN



BGC

CLIENT: Victoria Gold Corporation

SCALE: 1:2,500

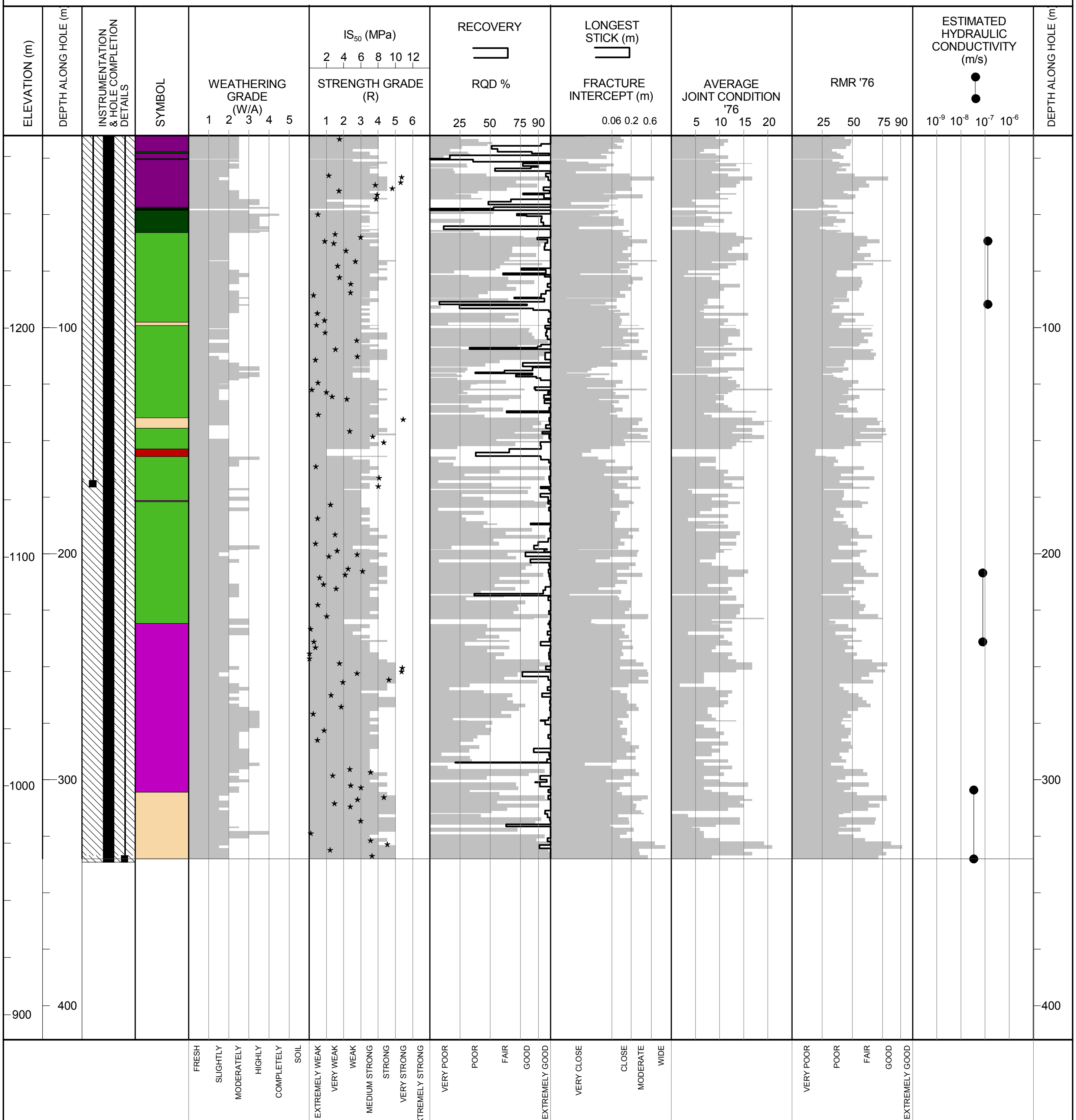
PRINT DATE: : 12/12/2011

SUMMARY LOG # 09-BGC-GTH2a

PROJECT NAME: Eagle Gold Project - Open Pit

PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,332.00E, 7,099,496.00N	DRILL DESIGNATION : Atlas Copco CS1000	START DATE : 31 Jul 09
GROUND ELEVATION (m) : 1299.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 09 Aug 09
SURVEY METHOD : DGPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 335.0
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 15.0
PLUNGE (°) : -81	FLUID : Bentonite	LOGGED BY : BL/EEL
TREND (°) : 132	CASED TO (m): 15.25	REVIEWED BY : HWN



EOH NOTES:
1. VW11866 at 167.5 m along hole.
2. VW11868 at 333.5 m along hole.

CLIENT: Victoria Gold Corporation

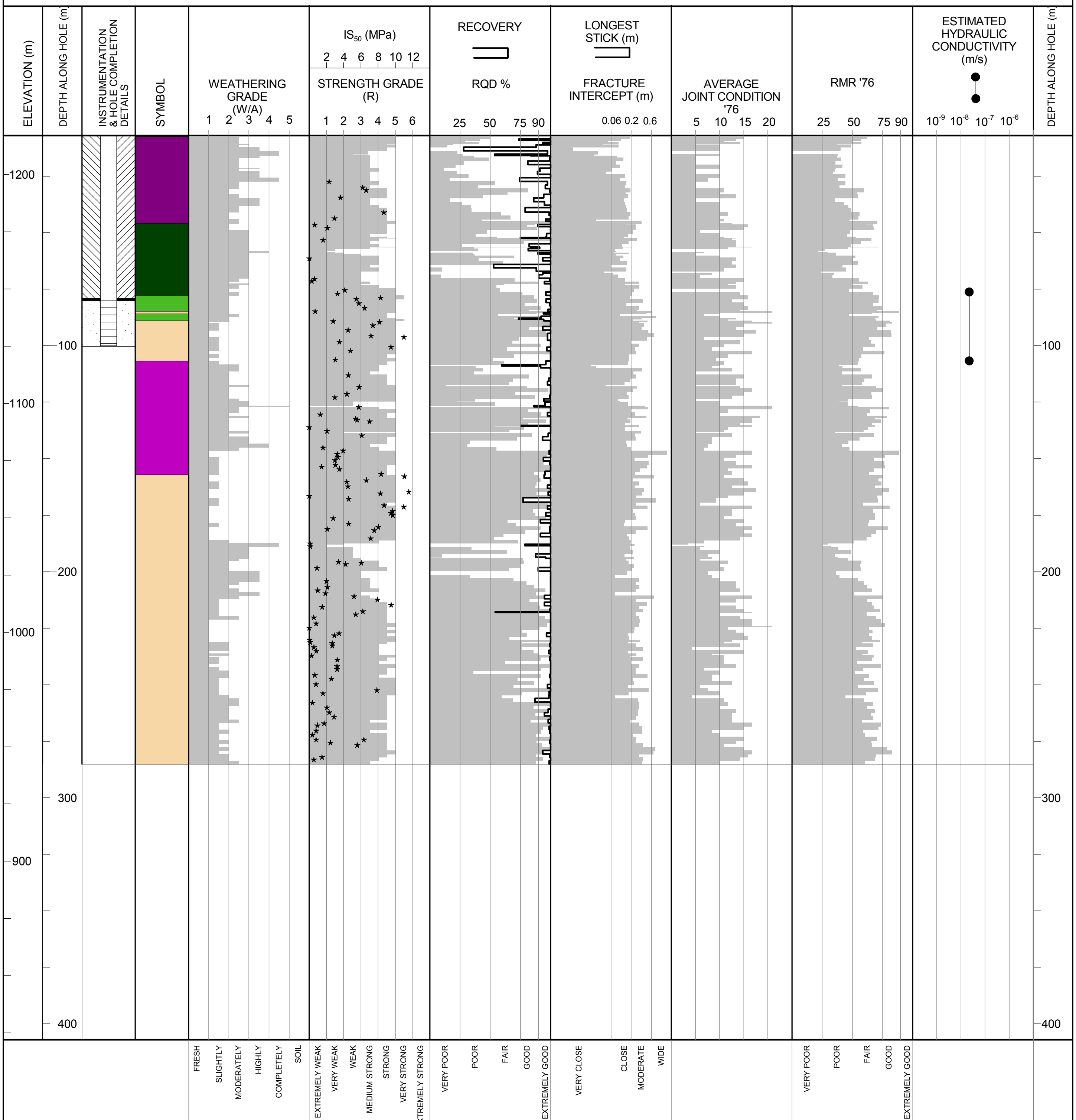
SCALE: 1:2,500

PRINT DATE: : 12/12/2011

SUMMARY LOG # 09-BGC-GTH3

PROJECT NAME: Eagle Gold Project - Open Pit
PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,057.00E, 7,099,603.00N	DRILL DESIGNATION : Atlas Copco CS1000	START DATE : 09 Aug 09
GROUND ELEVATION (m) : 1224.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 14 Aug 09
SURVEY METHOD : DGPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 285.2
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 7.0
PLUNGE (°) : -81	FLUID : Bentonite	LOGGED BY : BL/EEL
TREND (°) : 348	CASED TO (m): 7.62	REVIEWED BY : HWN



EOH NOTES:
1. Standpipe Piezometer installed.

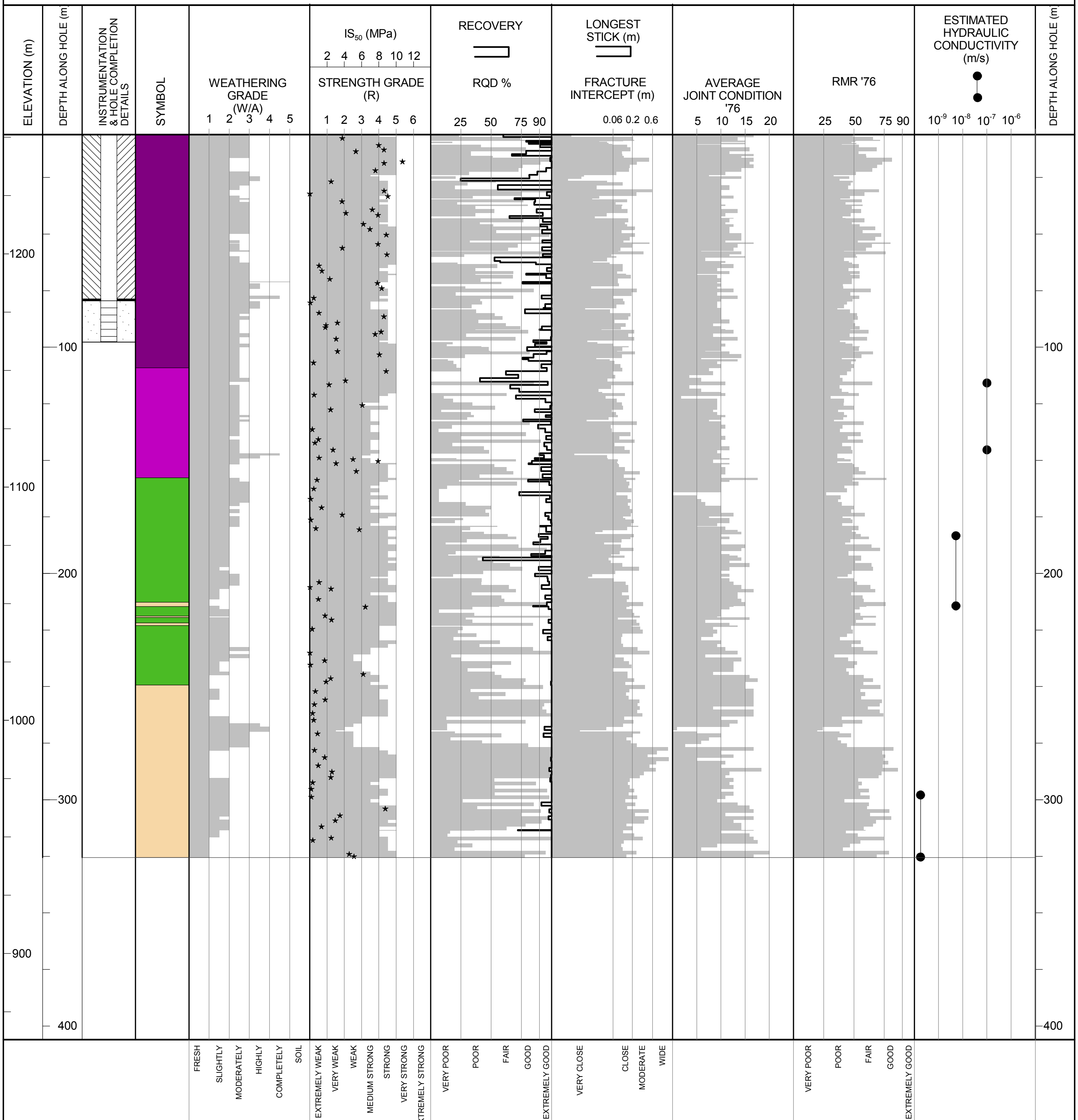
CLIENT: Victoria Gold Corporation
SCALE: 1:2,500
PRINT DATE: : 12/12/2011

PROJECT NAME: Eagle Gold Project - Open Pit

SUMMARY LOG # 09-BGC-GTH4

PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,133.00E, 7,099,454.00N	DRILL DESIGNATION : Atlas Copco CS1000	START DATE : 15 Aug 09
GROUND ELEVATION (m) : 1257.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 21 Aug 09
SURVEY METHOD : DGPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 325.6
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 6.0
PLUNGE (°) : -76	FLUID : Bentonite	LOGGED BY : BL/EEL/KLB
TREND (°) : 205	CASED TO (m): 6.1	REVIEWED BY : HWN



EOH NOTES:
1. Standpipe Piezometer installed.

CLIENT: Victoria Gold Corporation

SCALE: 1:2,500

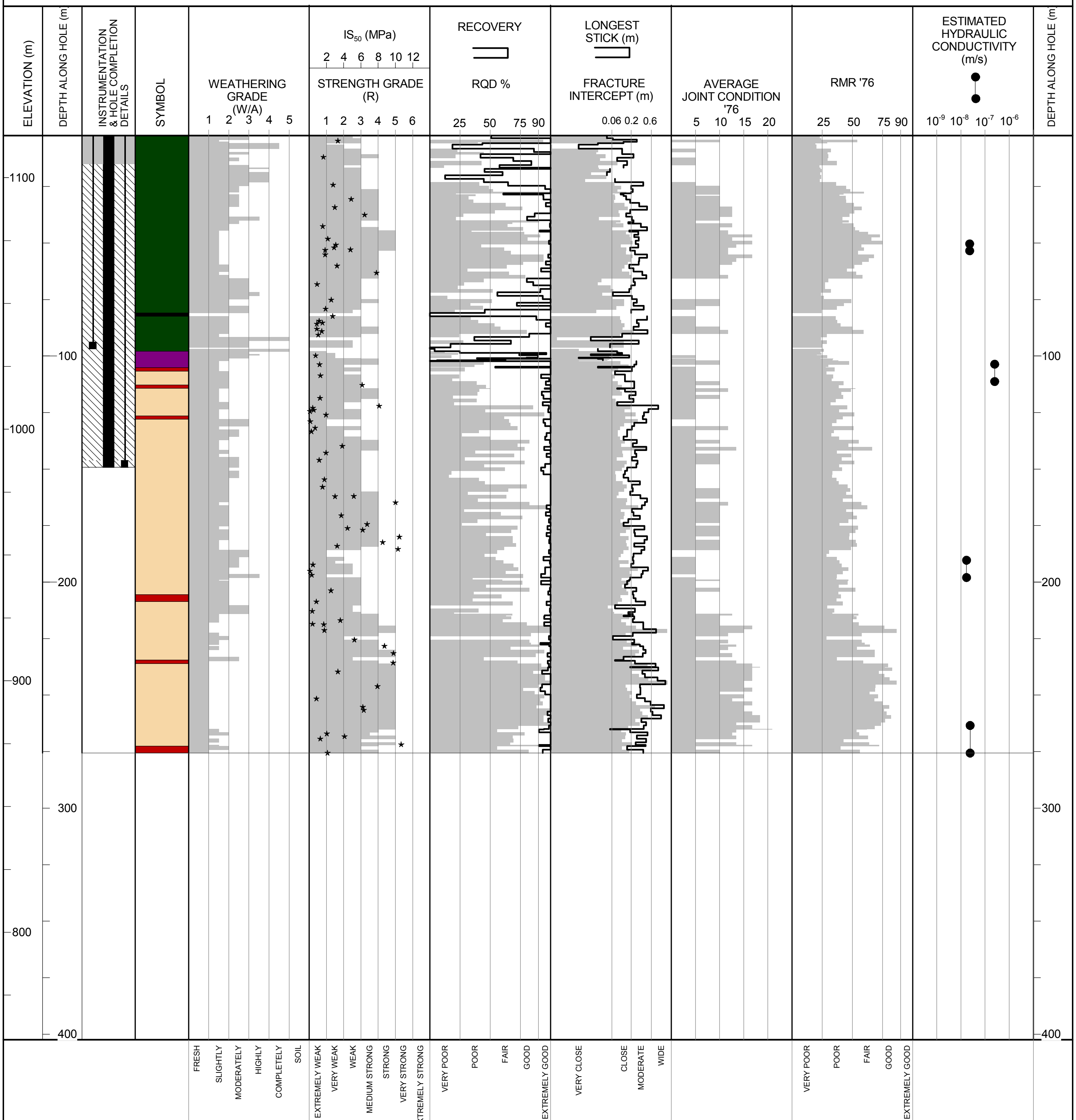
PRINT DATE: : 12/12/2011

PROJECT NAME: Eagle Gold Project - Open Pit

PROJECT NO. : 0792-005

SUMMARY LOG # 10-BGC-GTH-05

CO-ORDINATES (m) : 459,790.00E, 7,099,604.00N	DRILL DESIGNATION : CS 1000	START DATE : 22 Aug 10
GROUND ELEVATION (m) : 1119.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 01 Sep 10
SURVEY METHOD : DGPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 275.6
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 2.4
PLUNGE (°) : -64	FLUID : Water / Polymer	LOGGED BY : DNS/LGT
TREND (°) : 322	CASED TO (m): 3	REVIEWED BY : HWN



EOH NOTES:
1. VW14107 at 93.82 m along hole.
2. VW14108 at 146.17 m along hole.

CLIENT: Victoria Gold Corporation

SCALE: 1:2,500

PRINT DATE: : 12/12/2011

SUMMARY LOG # 10-BGC-GTH-06

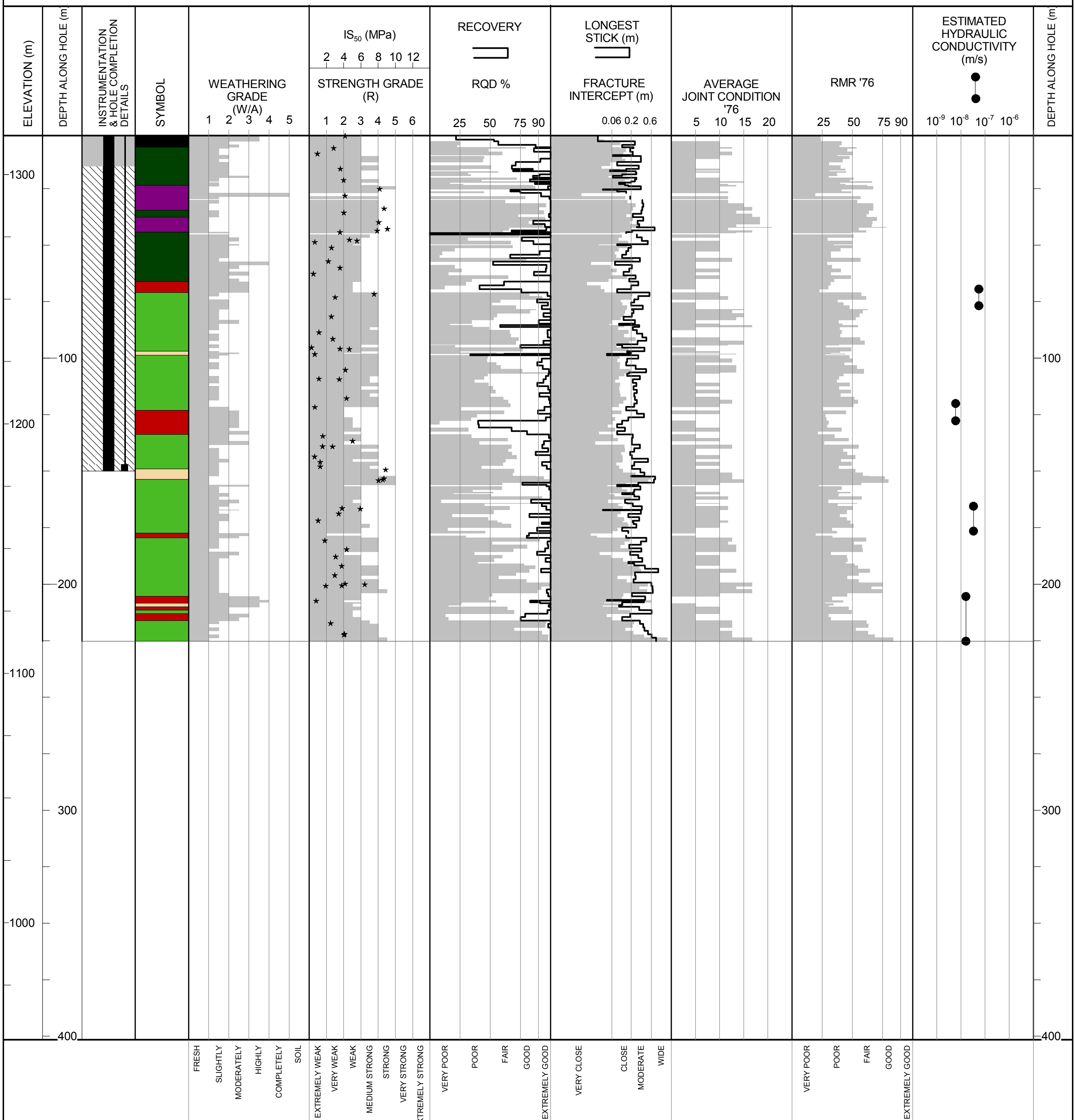
PROJECT NAME: Eagle Gold Project - Open Pit

PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,410.00E, 7,099,524.00N
GROUND ELEVATION (m) : 1317.0
SURVEY METHOD : DGPS
DATUM : UTM NAD 83
PLUNGE (°) : -65
TREND (°) : 080

DRILL DESIGNATION : CS 1000
DRILLING CONTRACTOR : Lyncorp
DRILL METHOD : Diamond
CORE SIZE : HQ3
FLUID : Water / Polymer
CASED TO (m): 3.04

START DATE : 01 Sep 10
FINISH DATE : 15 Sep 10
FINAL DEPTH (m) : 225.2
DEPTH TO TOP OF ROCK : 1.5
LOGGED BY : DNS/LGT/CA
REVIEWED BY : HWN



EOH NOTES:
1.VW14109 at 147 m along hole.

CLIENT: Victoria Gold Corporation

SCALE: 1:2,500

PRINT DATE: : 12/12/2011

SUMMARY LOG # 10-BGC-GTH-07

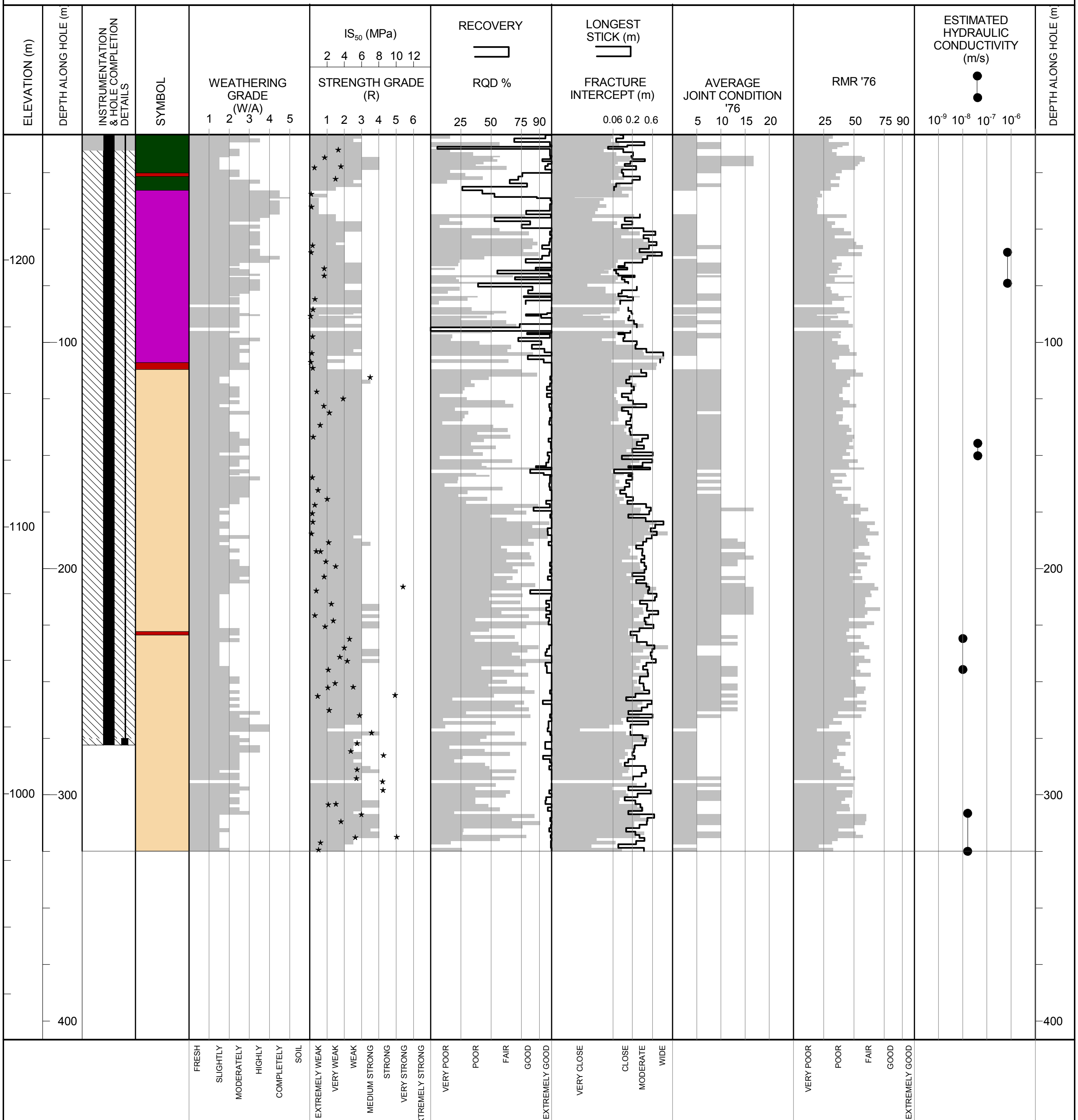
PROJECT NAME: Eagle Gold Project - Open Pit

PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,120.00E, 7,099,547.00N
GROUND ELEVATION (m) : 1254.0
SURVEY METHOD : DGPS
DATUM : UTM NAD 83
PLUNGE (°) : -58
TREND (°) : 062

DRILL DESIGNATION : CS 1000
DRILLING CONTRACTOR : Lyncorp
DRILL METHOD : Diamond
CORE SIZE : HQ3
FLUID : Water / Polymer
CASED TO (m): 10

START DATE : 16 Sep 10
FINISH DATE : 27 Sep 10
FINAL DEPTH (m) : 324.9
DEPTH TO TOP OF ROCK : 8.2
LOGGED BY : BS/SW
REVIEWED BY : HWN



EOH NOTES:
1. VW14112 at 275 m along hole.

CLIENT: Victoria Gold Corporation

SCALE: 1:2,500

PRINT DATE: : 1/10/2012

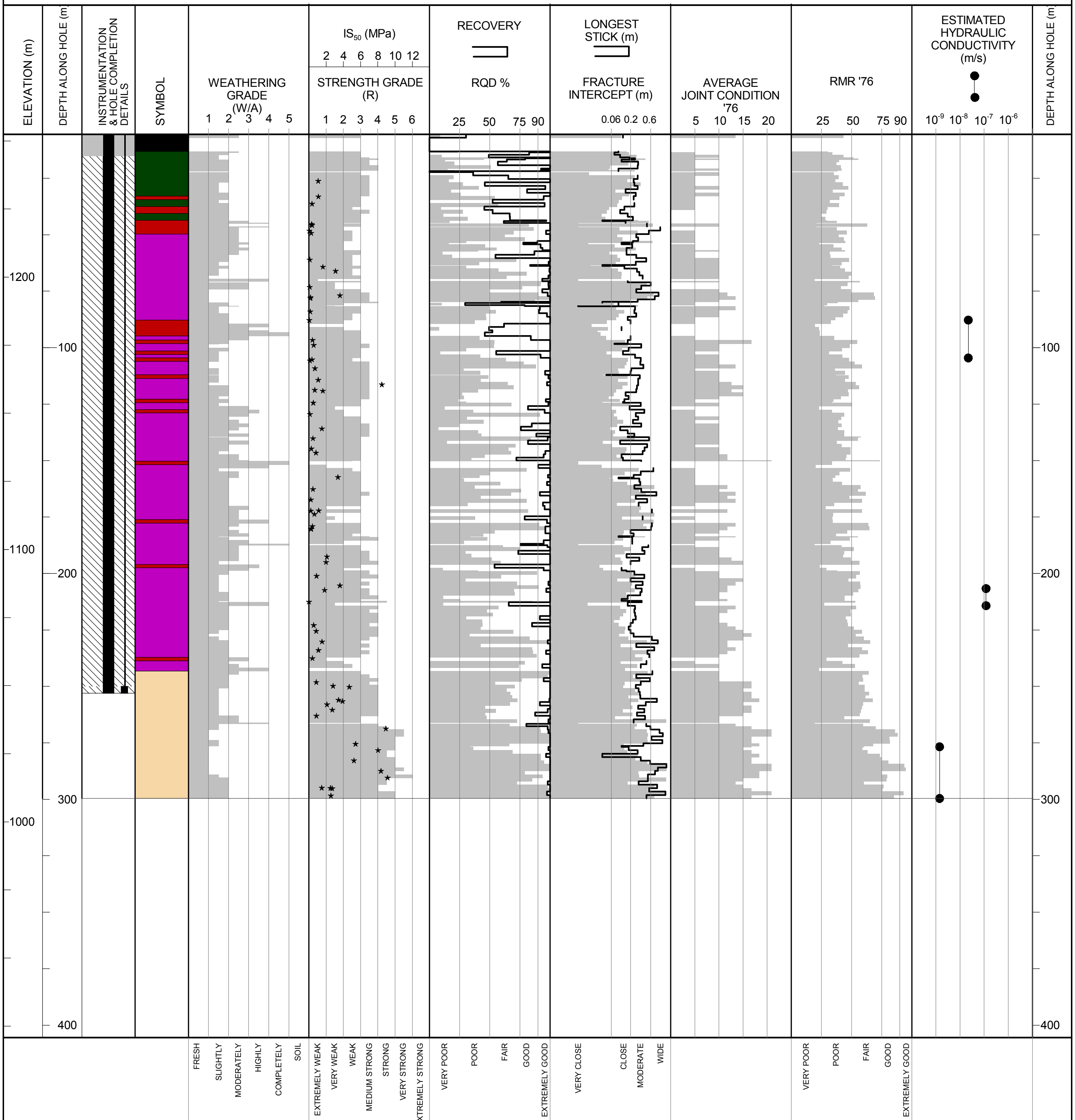
SUMMARY LOG # 10-BGC-GTH-08

PROJECT NAME: Eagle Gold Project - Open Pit
PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,136.00E, 7,099,557.00N
GROUND ELEVATION (m) : 1257.0
SURVEY METHOD : DGPS
DATUM : UTM NAD 83
PLUNGE (°) : -56
TREND (°) : 149

DRILL DESIGNATION : CS 1000
DRILLING CONTRACTOR : Lyncorp
DRILL METHOD : Diamond
CORE SIZE : HQ3
FLUID : Water / Polymer
CASED TO (m):

START DATE : 16 Sep 10
FINISH DATE : 26 Sep 10
FINAL DEPTH (m) : 299.6
DEPTH TO TOP OF ROCK : 5.5
LOGGED BY : CAEA/TS
REVIEWED BY : HWN



EOH NOTES:
1. VW14111 at 250 m along hole.

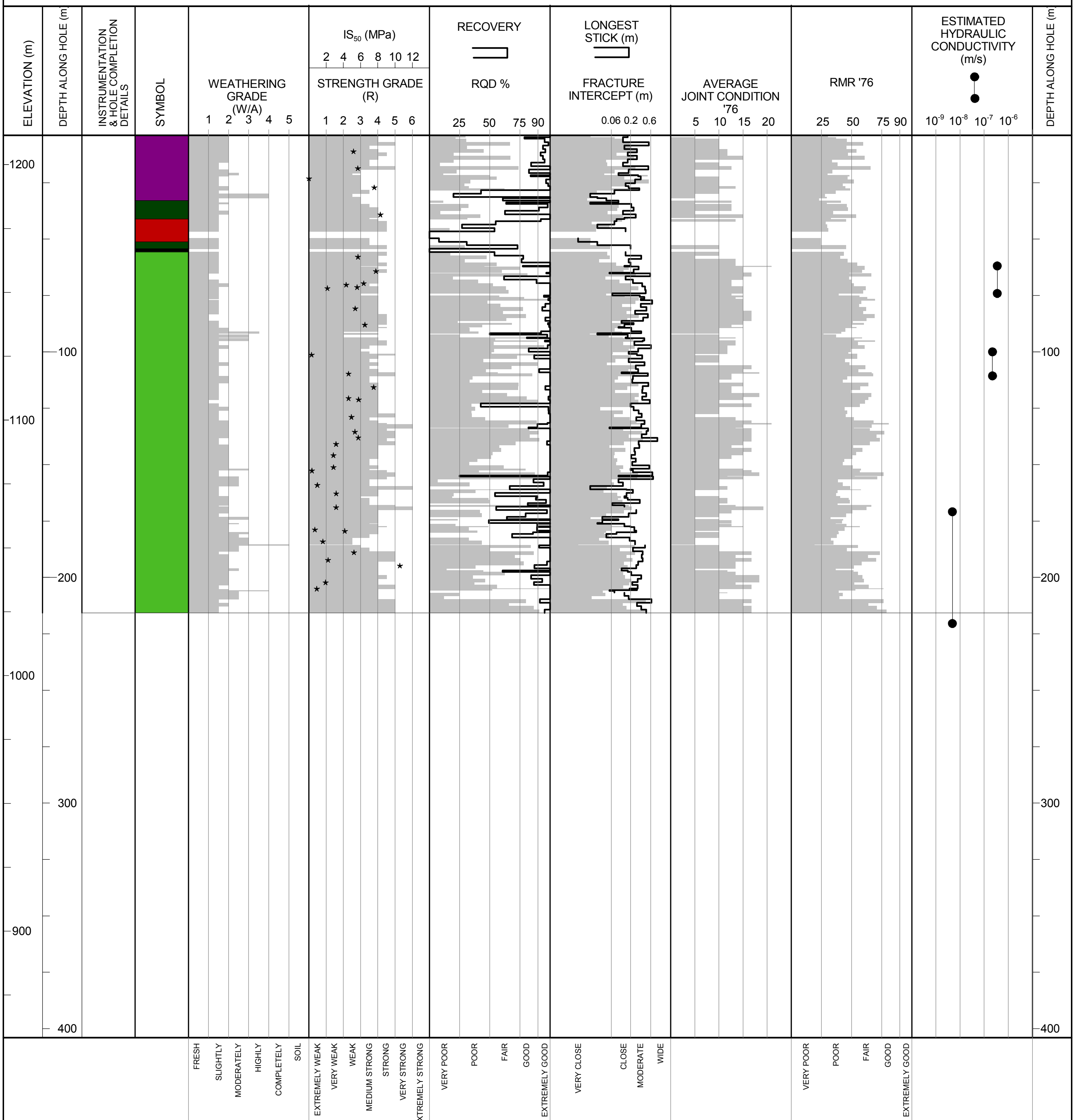
CLIENT: Victoria Gold Corporation
SCALE: 1:2,500
PRINT DATE: : 12/12/2011

PROJECT NAME: Eagle Gold Project - Open Pit

PROJECT NO. : 0792-005

SUMMARY LOG # 10-BGC-GTH-09

CO-ORDINATES (m) : 460,047.E, 7,099,351.N	DRILL DESIGNATION : CS 1000	START DATE : 28 Sep 10
GROUND ELEVATION (m) : 1215.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 04 Oct 10
SURVEY METHOD : Handheld GPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 215.8
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 4.0
PLUNGE (°) : -62	FLUID : Water / Polymer	LOGGED BY : TS/CAEA
TREND (°) : 180	CASED TO (m): 12.19	REVIEWED BY : HWN



CLIENT: Victoria Gold Corporation

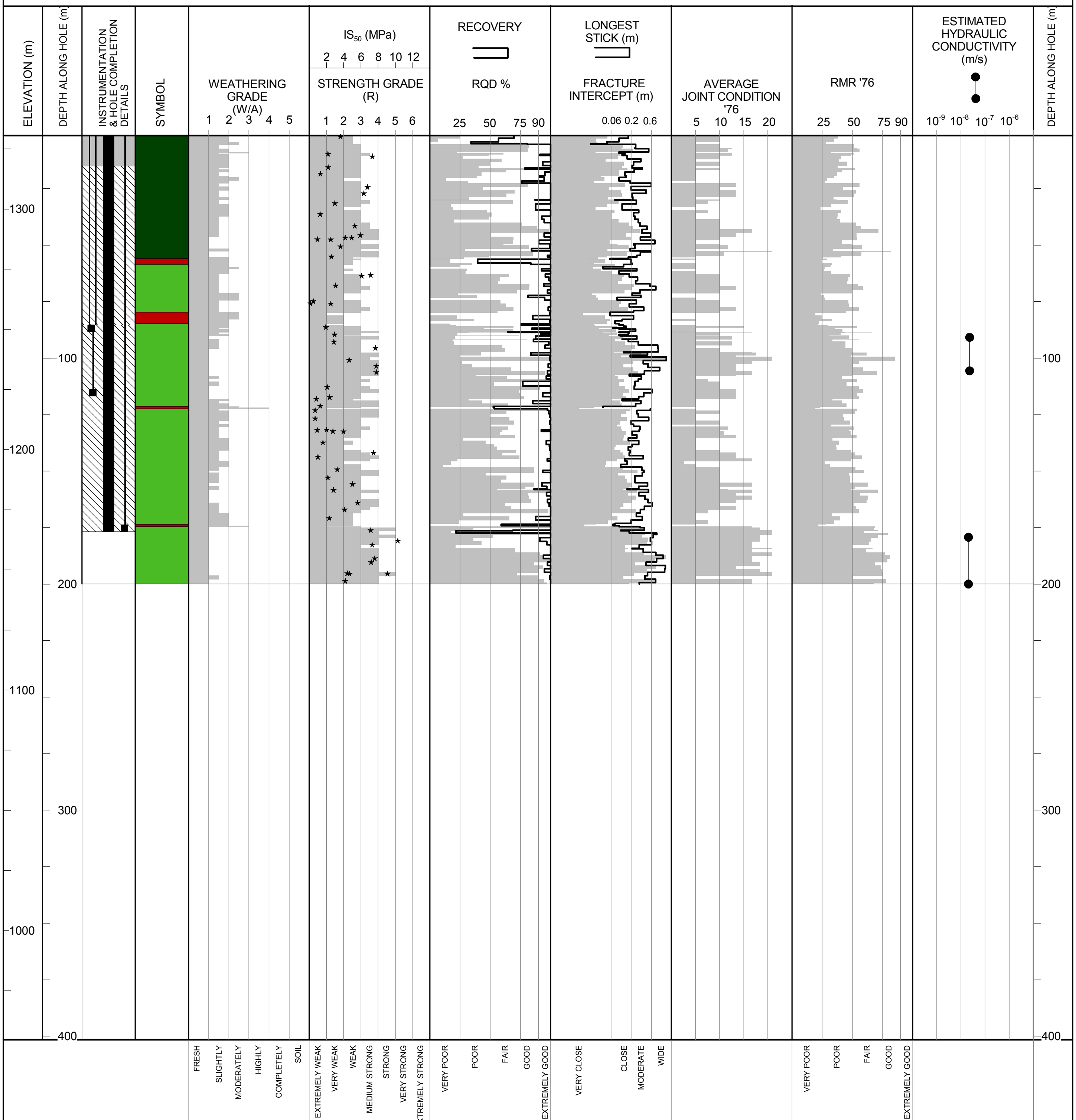
SCALE: 1:2,500

PRINT DATE: : 12/12/2011

SUMMARY LOG # 11-BGC-GTH-10

PROJECT NAME: Eagle Gold Project - Open Pit
PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,407.00E, 7,099,425.00N	DRILL DESIGNATION : CS 1000	START DATE : 07 Jun 11
GROUND ELEVATION (m) : 1332.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 15 Jun 11
SURVEY METHOD : DGPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 200.0
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 1.5
PLUNGE (°) : -70	FLUID : Water / Polymer	LOGGED BY : DS/SP/JD
TREND (°) : 135	CASED TO (m): 5.5	REVIEWED BY : HWN



EOH NOTES:
1. VW17701 at 91.5 along hole
2. VW17703 at 120.0 along hole
3. VW17706 at 180.0 along hole
4. Datalogger: DL01861

CLIENT: Victoria Gold Corporation

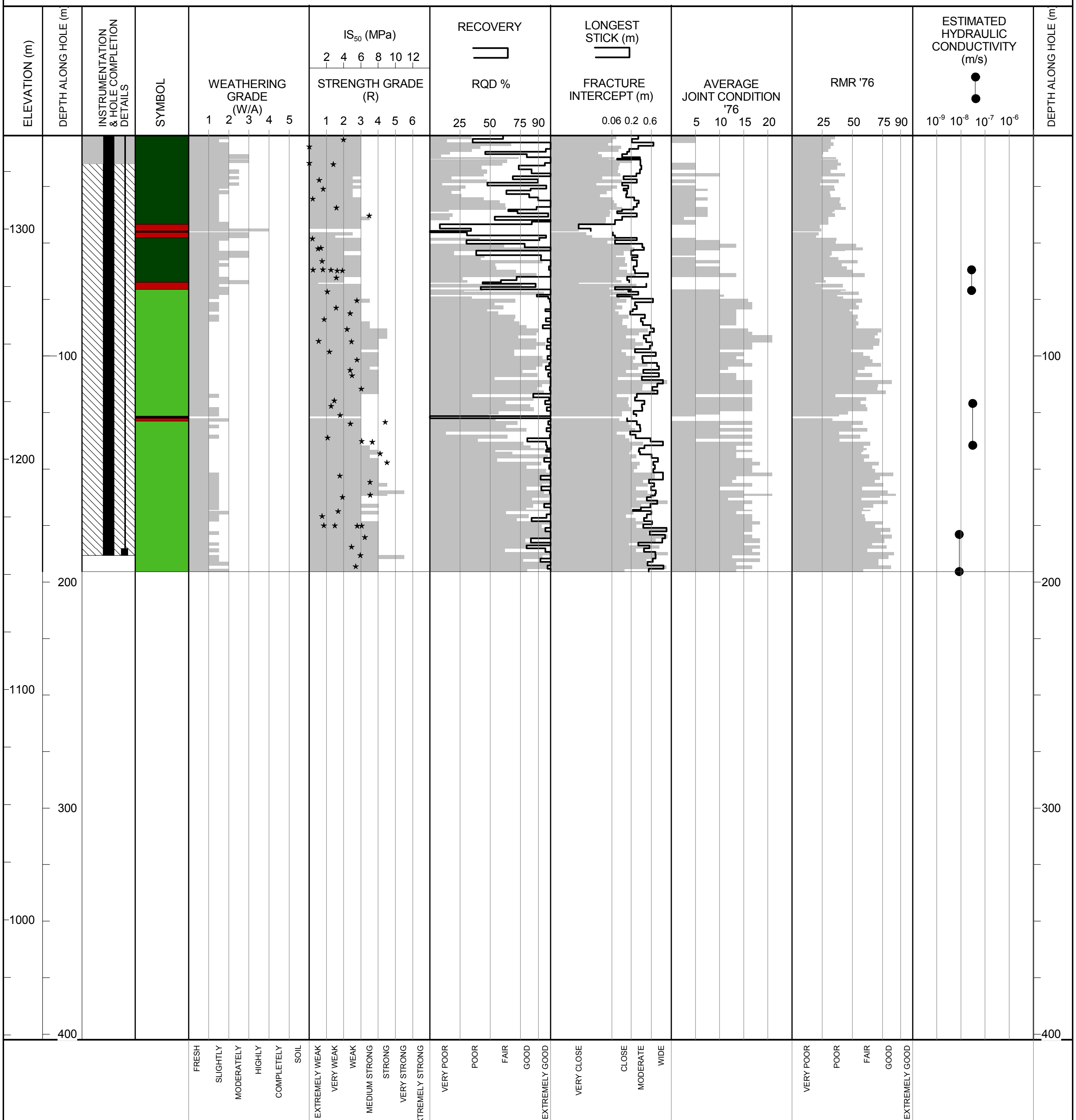
SCALE: 1:2,500

PRINT DATE: : 12/12/2011

SUMMARY LOG # 11-BGC-GTH-11

PROJECT NAME: Eagle Gold Project - Open Pit
PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,554.00E, 7,099,545.00N	DRILL DESIGNATION : CS 1000	START DATE : 16 Jun 11
GROUND ELEVATION (m) : 1343.0	DRILLING CONTRACTOR : Lyncorp	FINISH DATE : 20 Jun 11
SURVEY METHOD : DGPS	DRILL METHOD : Diamond	FINAL DEPTH (m) : 195.4
DATUM : UTM NAD 83	CORE SIZE : HQ3	DEPTH TO TOP OF ROCK : 2.4
PLUNGE (°) : -79	FLUID : Water/Polymer	LOGGED BY : DS/SP/JD
TREND (°) : 095	CASED TO (m): 3	REVIEWED BY : HWN



EOH NOTES:
1. VW17705 at 185.21 m along hole.

CLIENT: Victoria Gold Corporation
SCALE: 1:2,500
PRINT DATE: : 12/12/2011

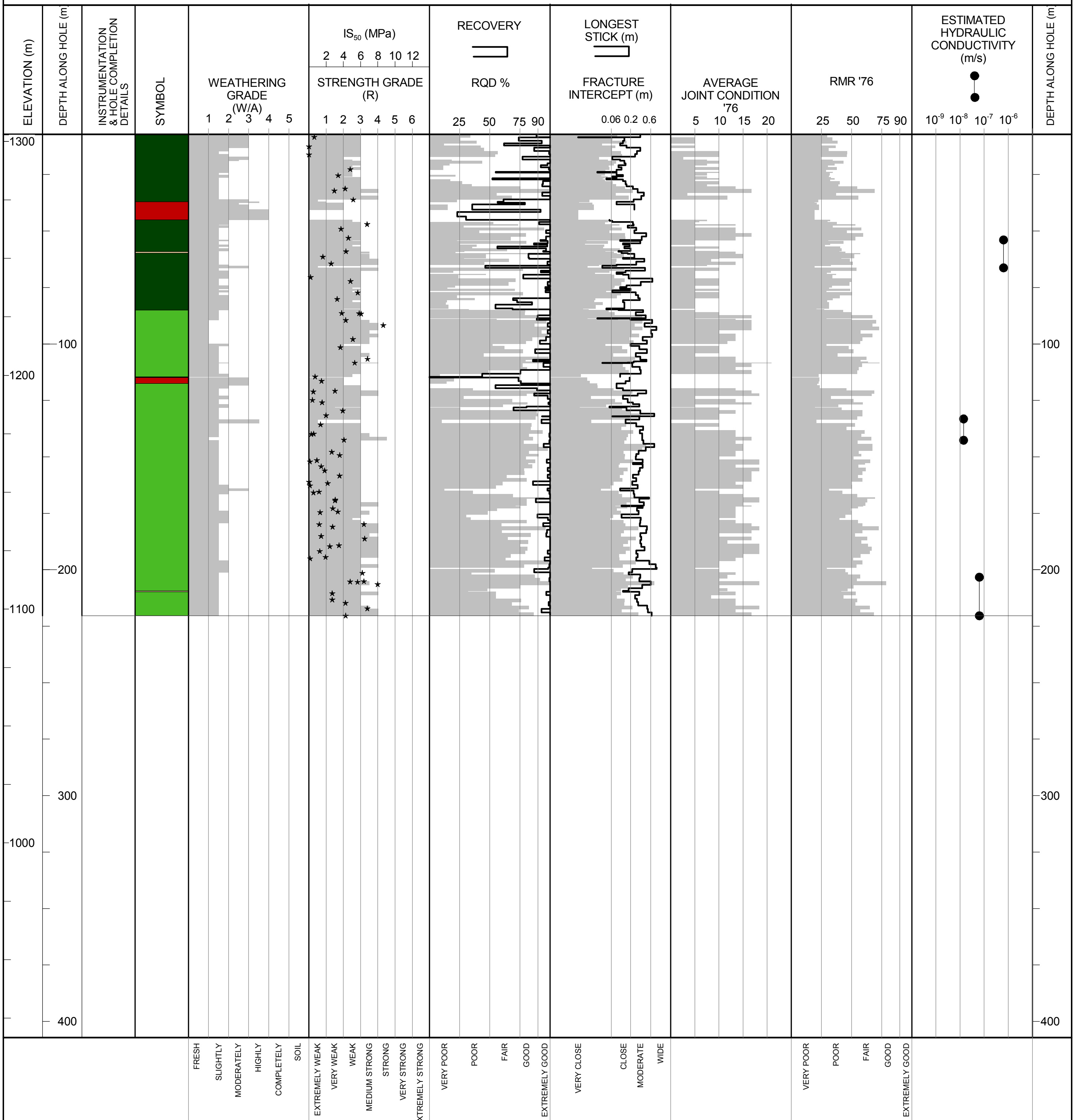
SUMMARY LOG # 11-BGC-GTH-12

PROJECT NAME: Eagle Gold Project - Open Pit
PROJECT NO. : 0792-005

CO-ORDINATES (m) : 460,306.00E, 7,099,390.00N
GROUND ELEVATION (m) : 1310.0
SURVEY METHOD : DGPS
DATUM : UTM NAD 83
PLUNGE (°) : -75
TREND (°) : 170

DRILL DESIGNATION : CS-1000
DRILLING CONTRACTOR : Lyncorp
DRILL METHOD : Diamond
CORE SIZE : HQ3
FLUID : Water/Polymer
CASED TO (m): 4

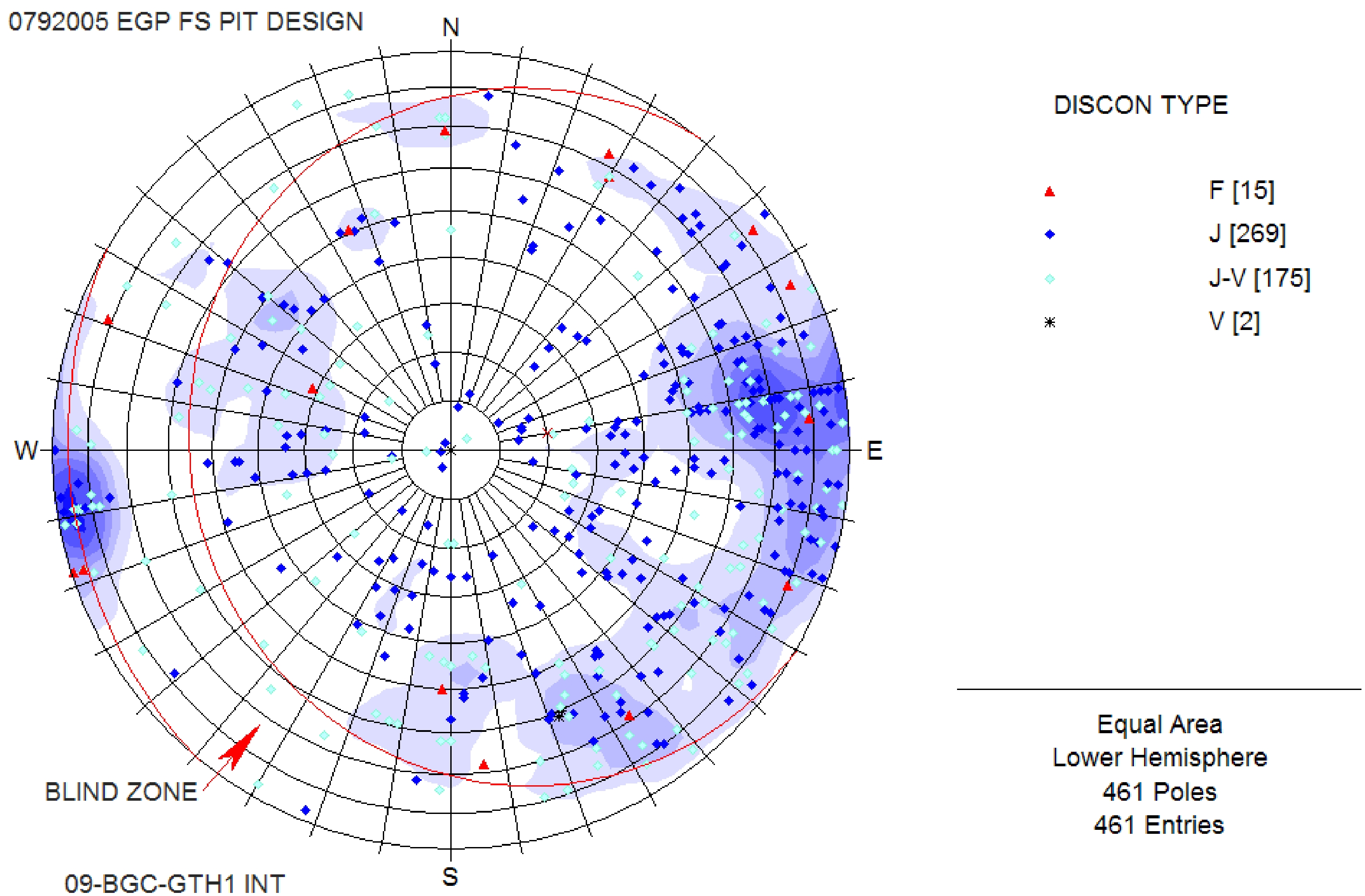
START DATE : 20 Jun 11
FINISH DATE : 26 Jun 11
FINAL DEPTH (m) : 220.4
DEPTH TO TOP OF ROCK : 7.1
LOGGED BY : SP/JD
REVIEWED BY : HWN

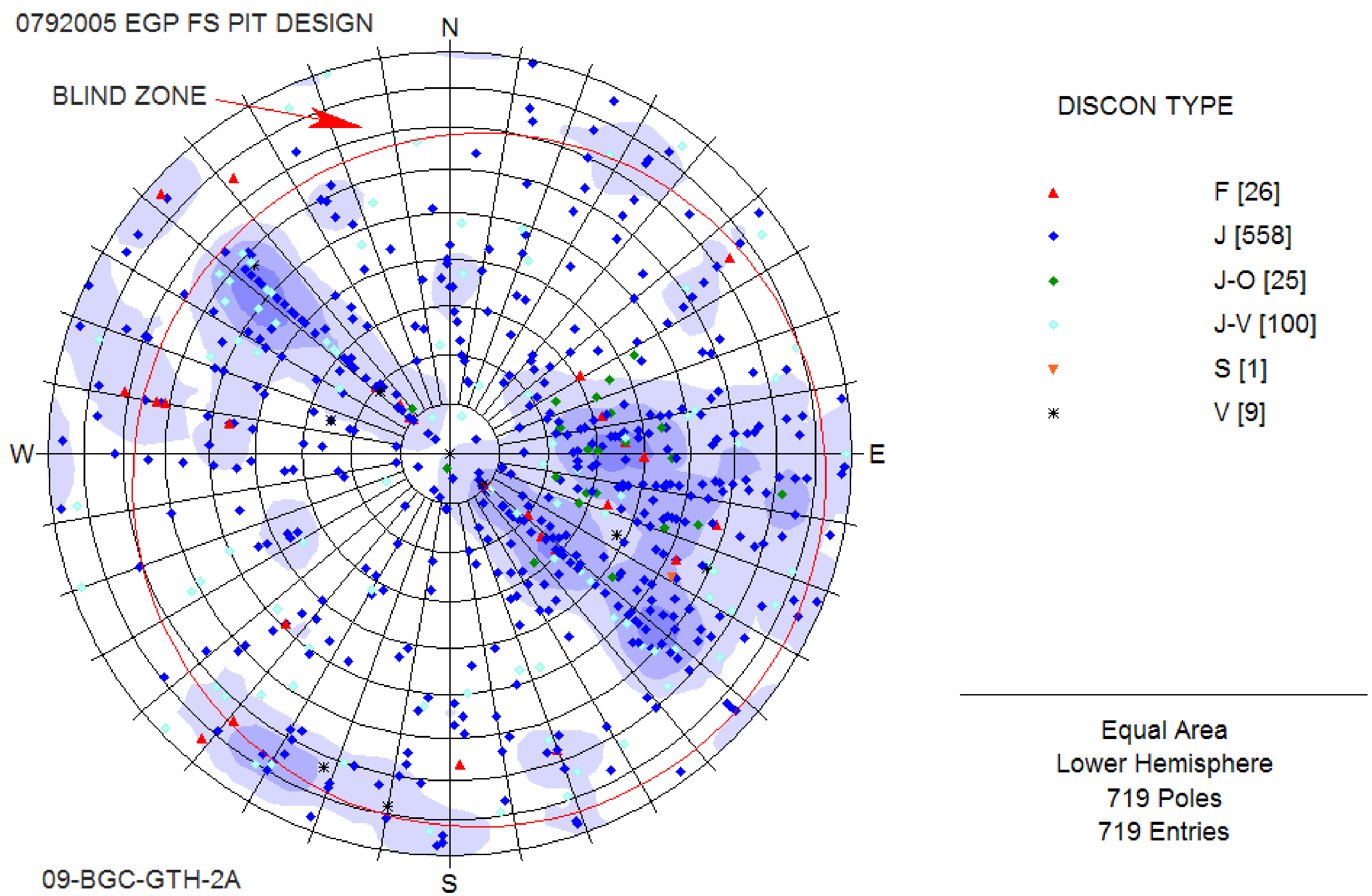


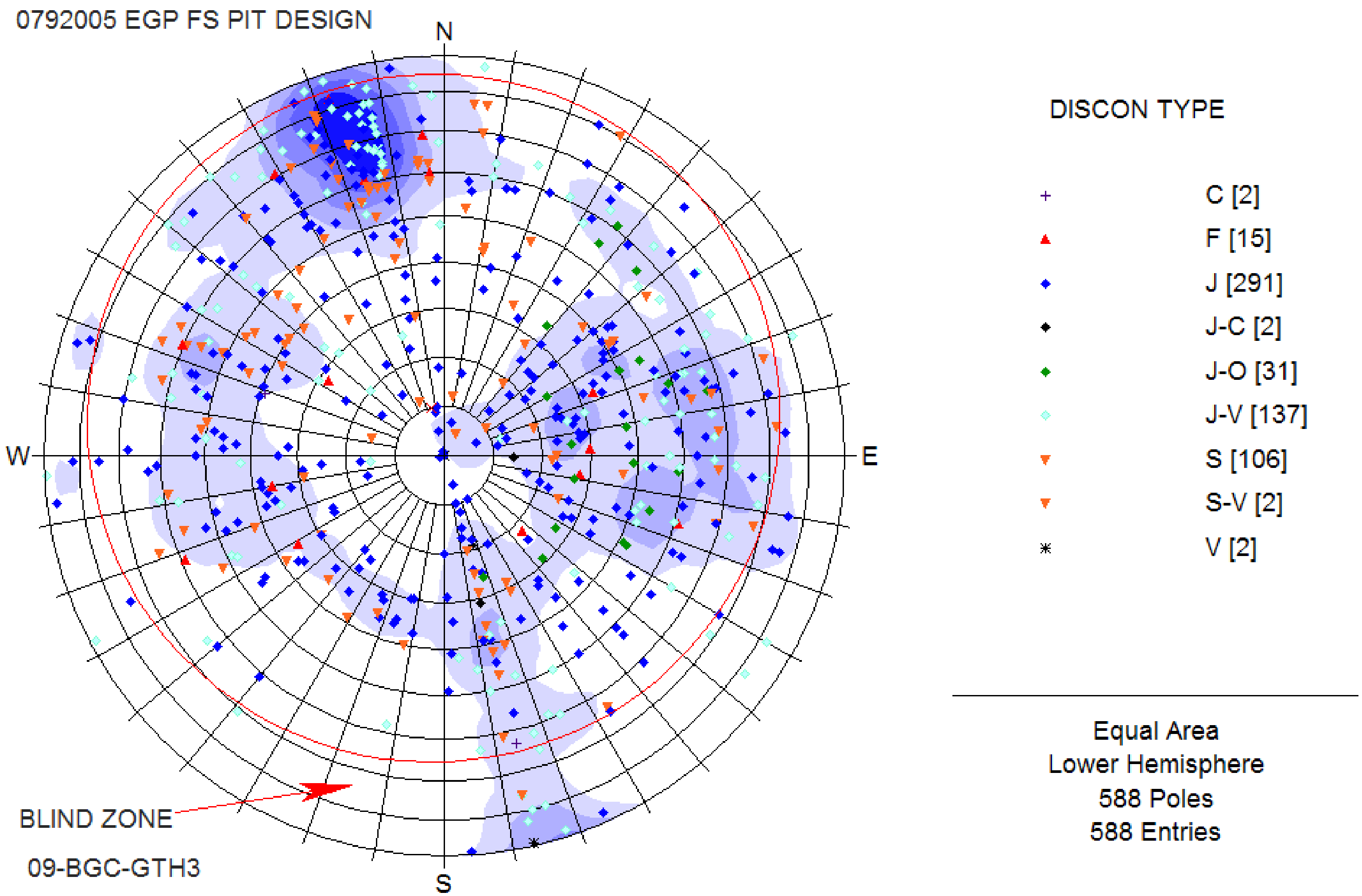
BGC

CLIENT: Victoria Gold Corporation
SCALE: 1:2,500
PRINT DATE: : 12/12/2011

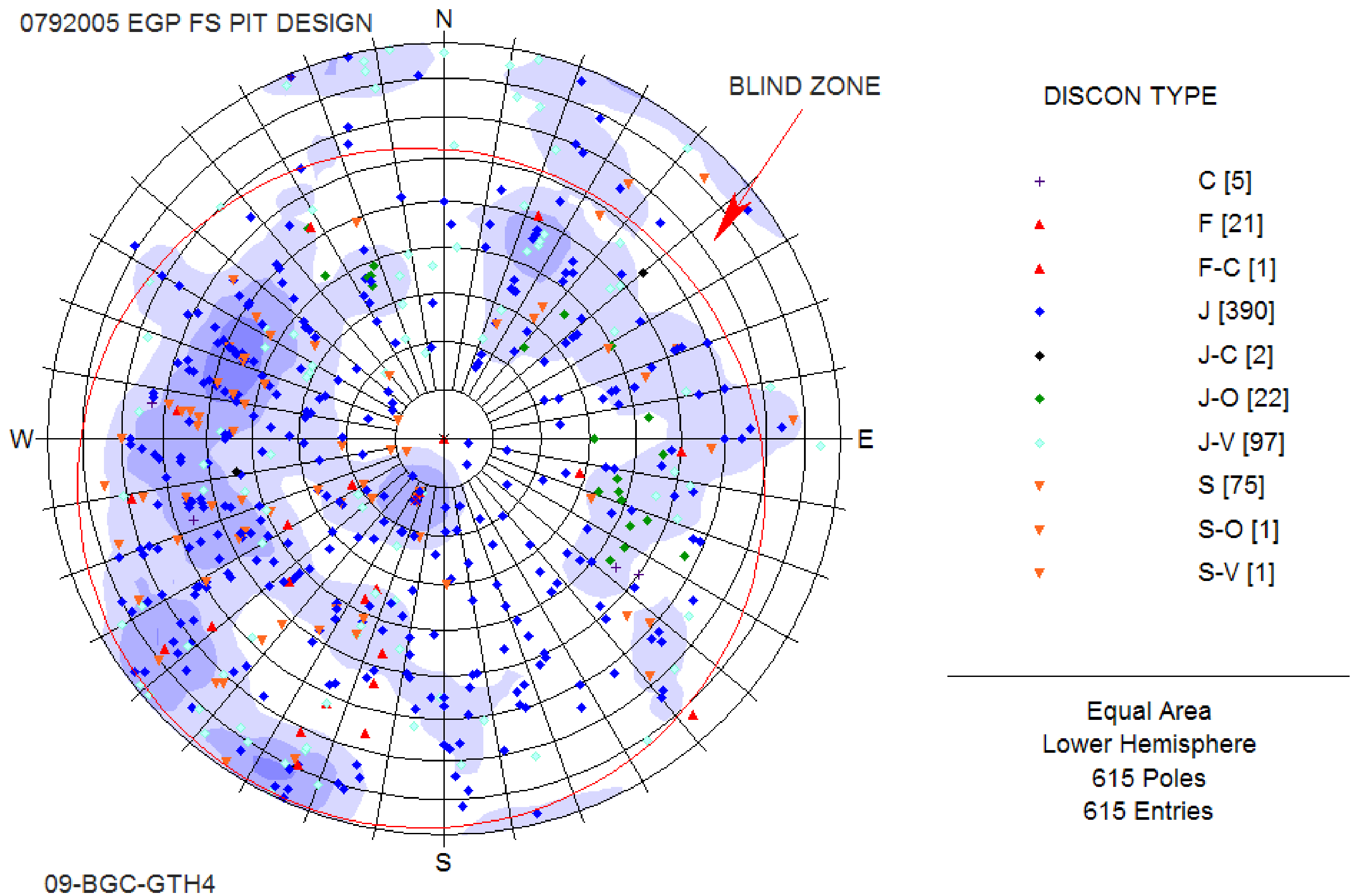
APPENDIX B
STEREONETS BY HOLE


0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
09-BGC-GTH1 INT
DISCON TYPE
F [15]
J [269]
J-V [175]
V [2]
Equal Area
Lower Hemisphere
461 Poles
461 Entries

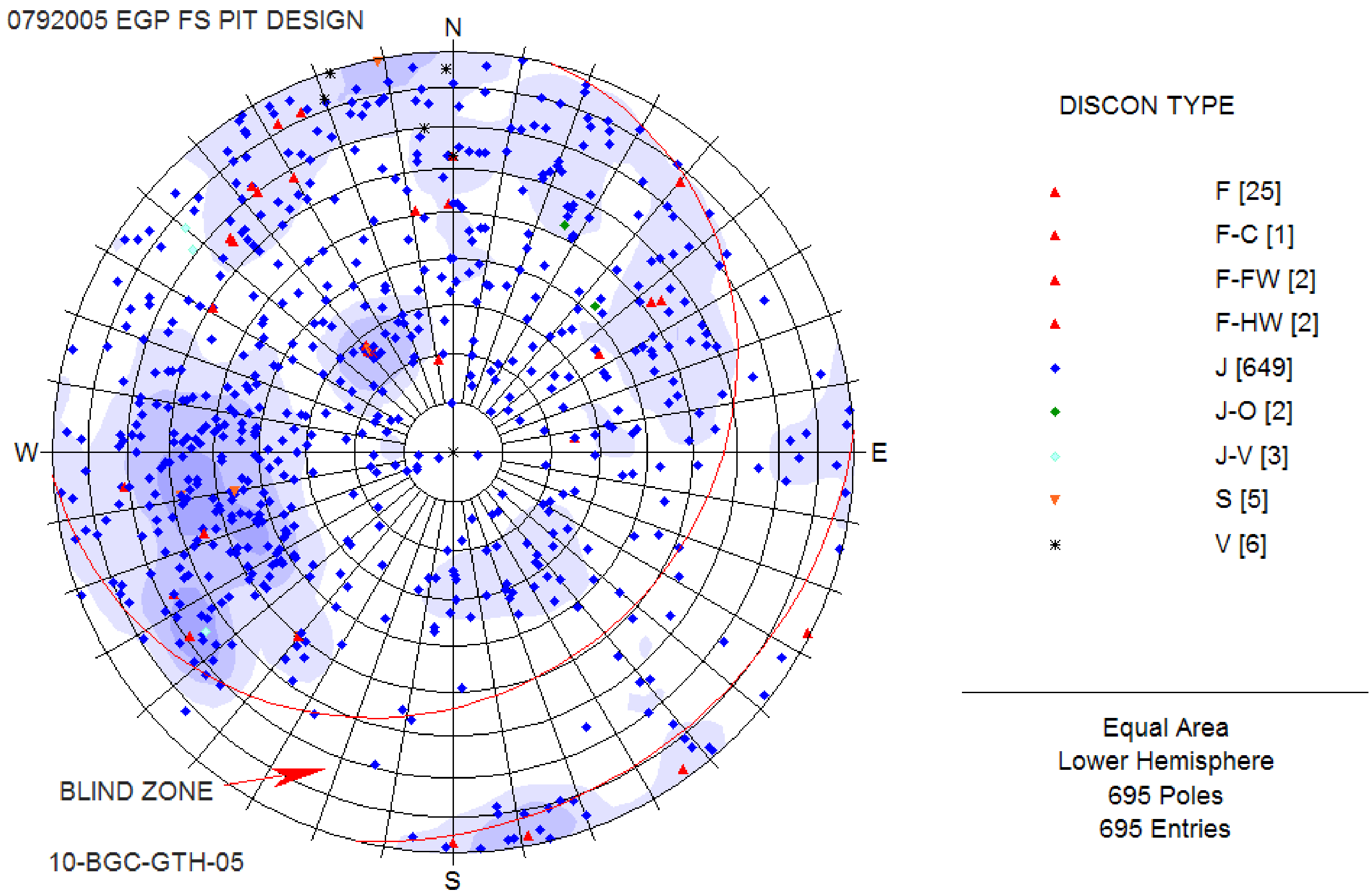

0792005 EGP FS PIT DESIGN
BLIND ZONE
N
W
E
S
09-BGC-GTH-2A
DISCON TYPE
F [26]
J [558]
J-O [25]
J-V [100]
S [1]
V [9]
Equal Area
Lower Hemisphere
719 Poles
719 Entries



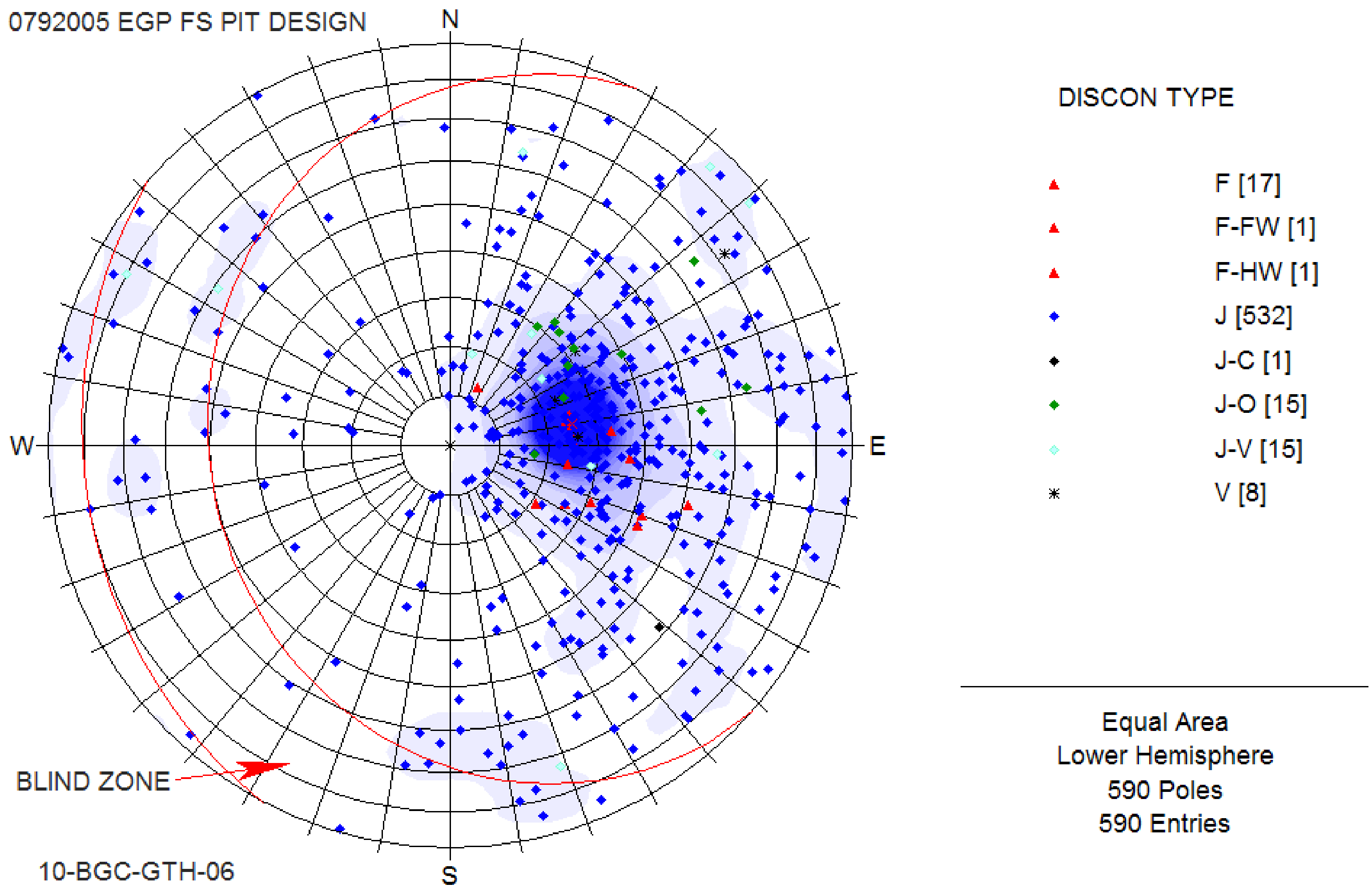
0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
09-BGC-GTH3
DISCON TYPE
C [2]
F [15]
J [291]
J-C [2]
J-O [31]
J-V [137]
S [106]
S-V [2]
V [2]
Equal Area
Lower Hemisphere
588 Poles
588 Entries

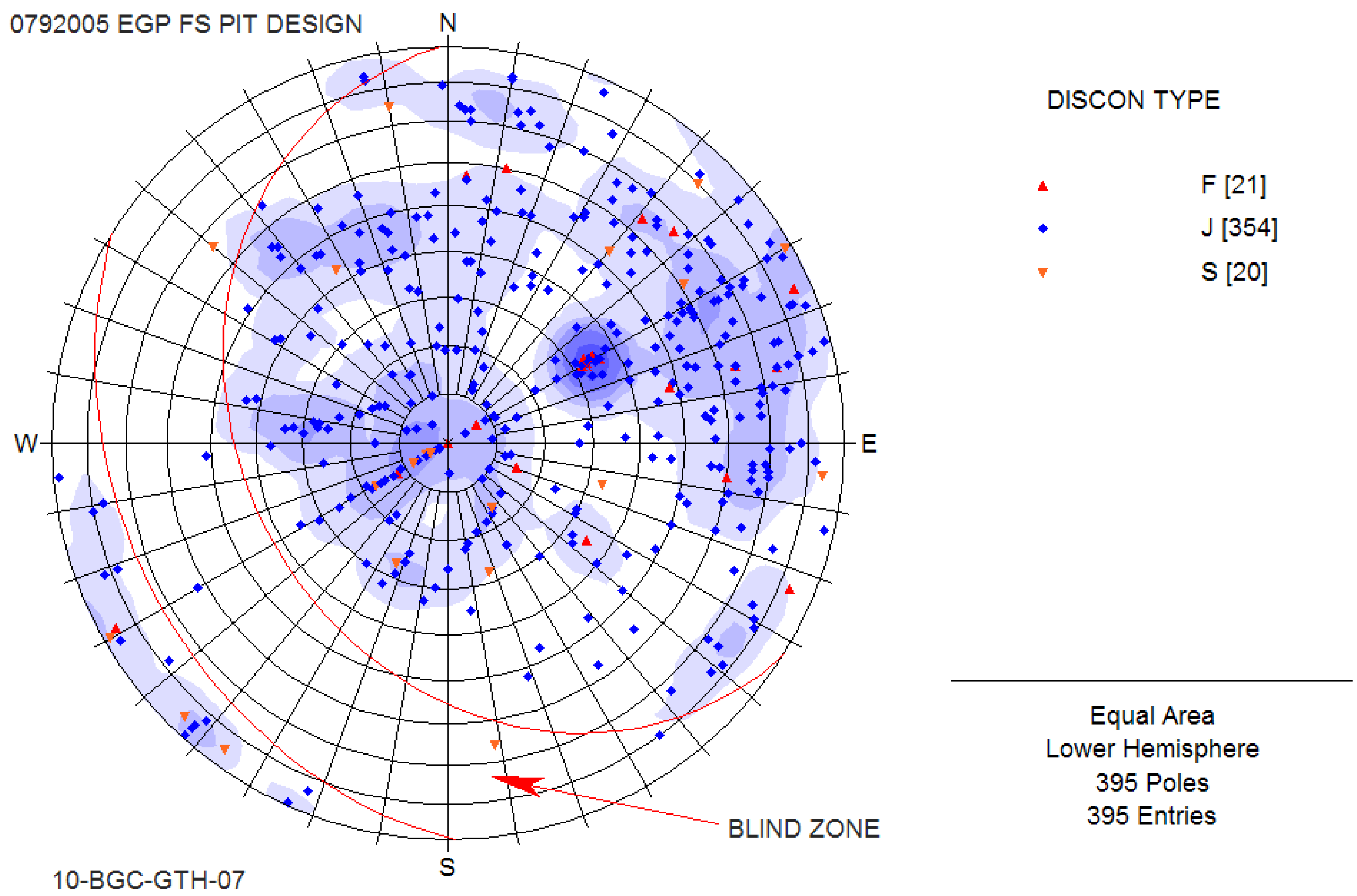


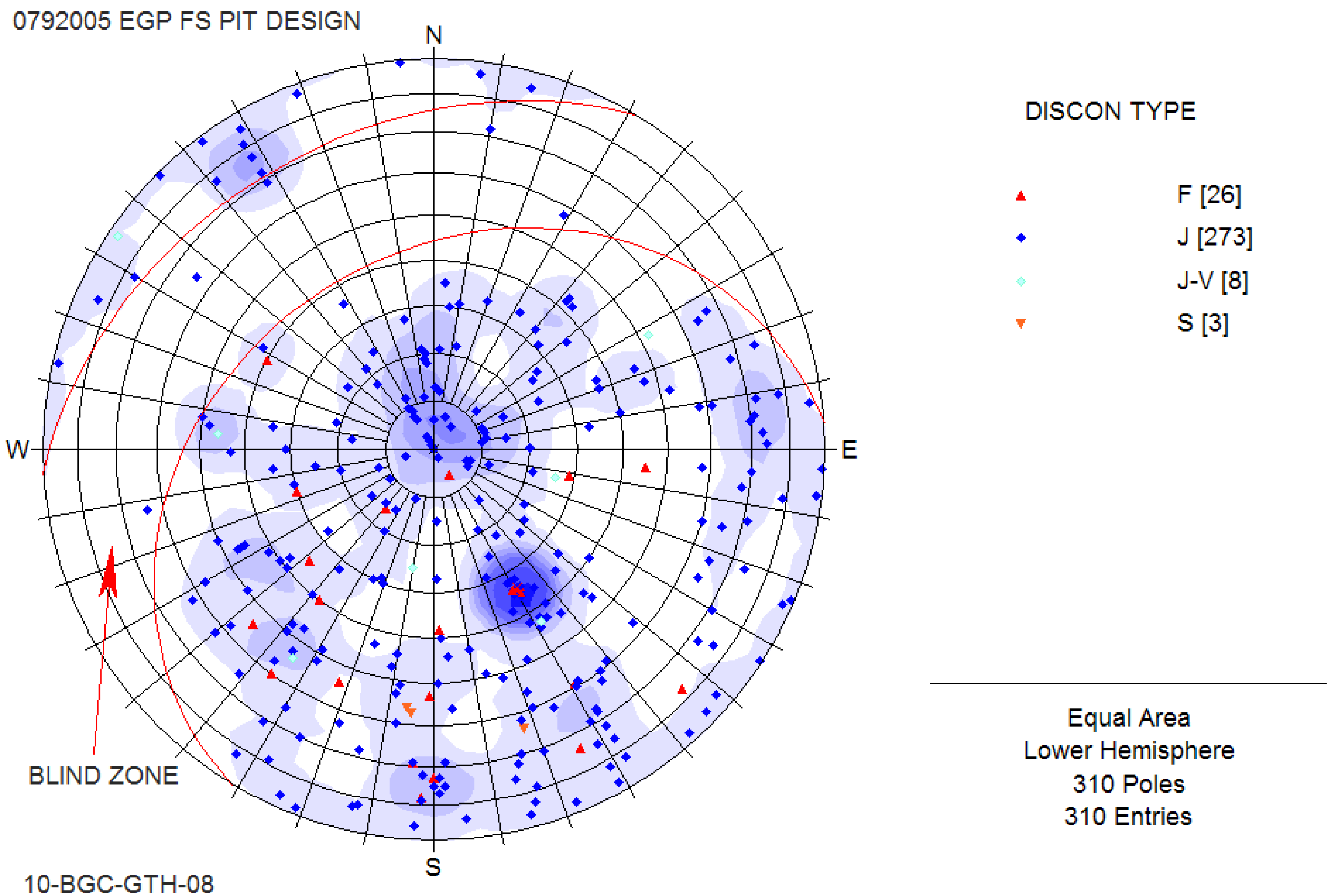
0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
09-BGC-GTH4
DISCON TYPE
C [5]
F [21]
F-C [1]
J [390]
J-C [2]
J-O [22]
J-V [97]
S [75]
S-O [1]
S-V [1]
Equal Area
Lower Hemisphere
615 Poles
615 Entries

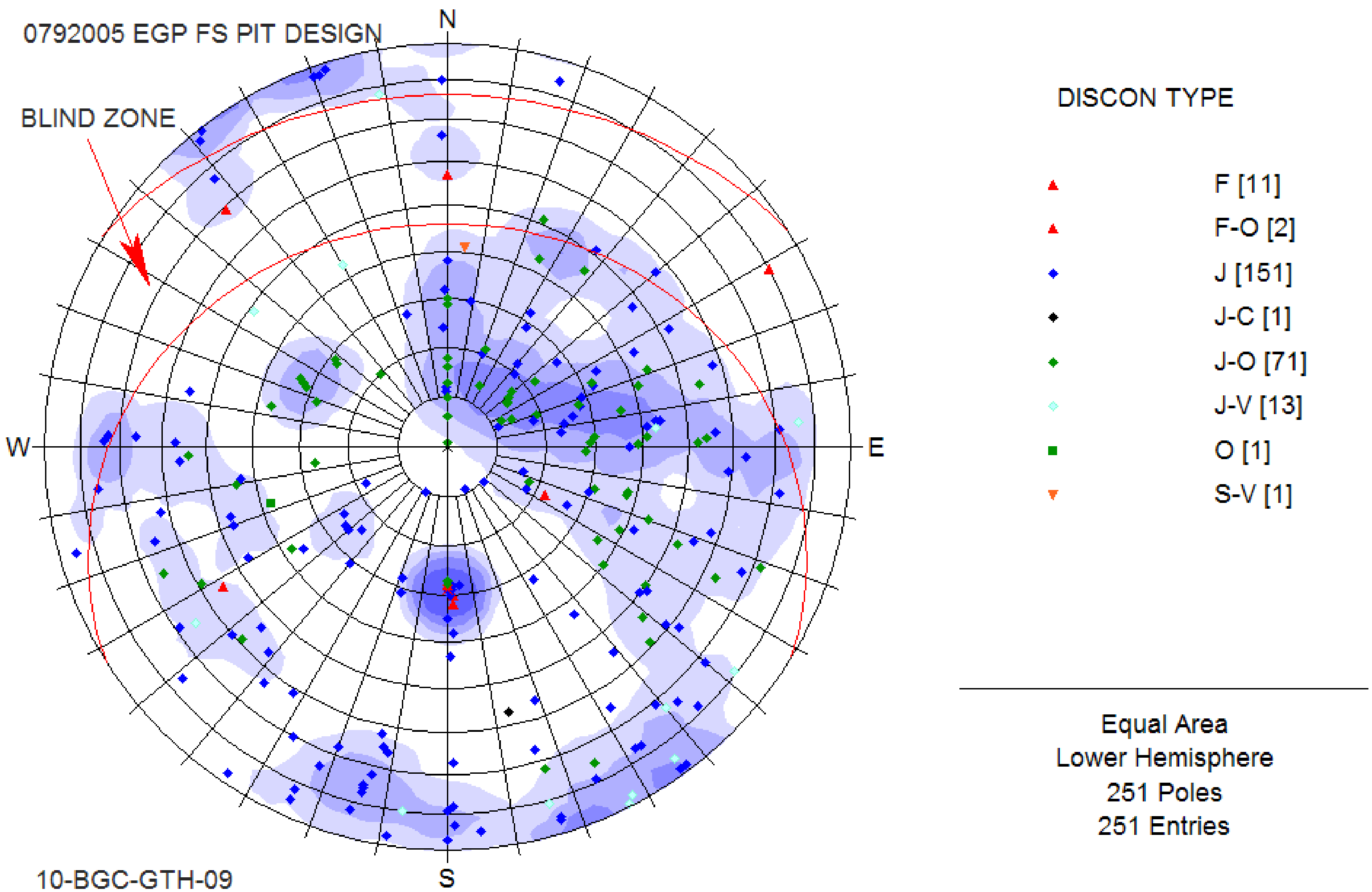


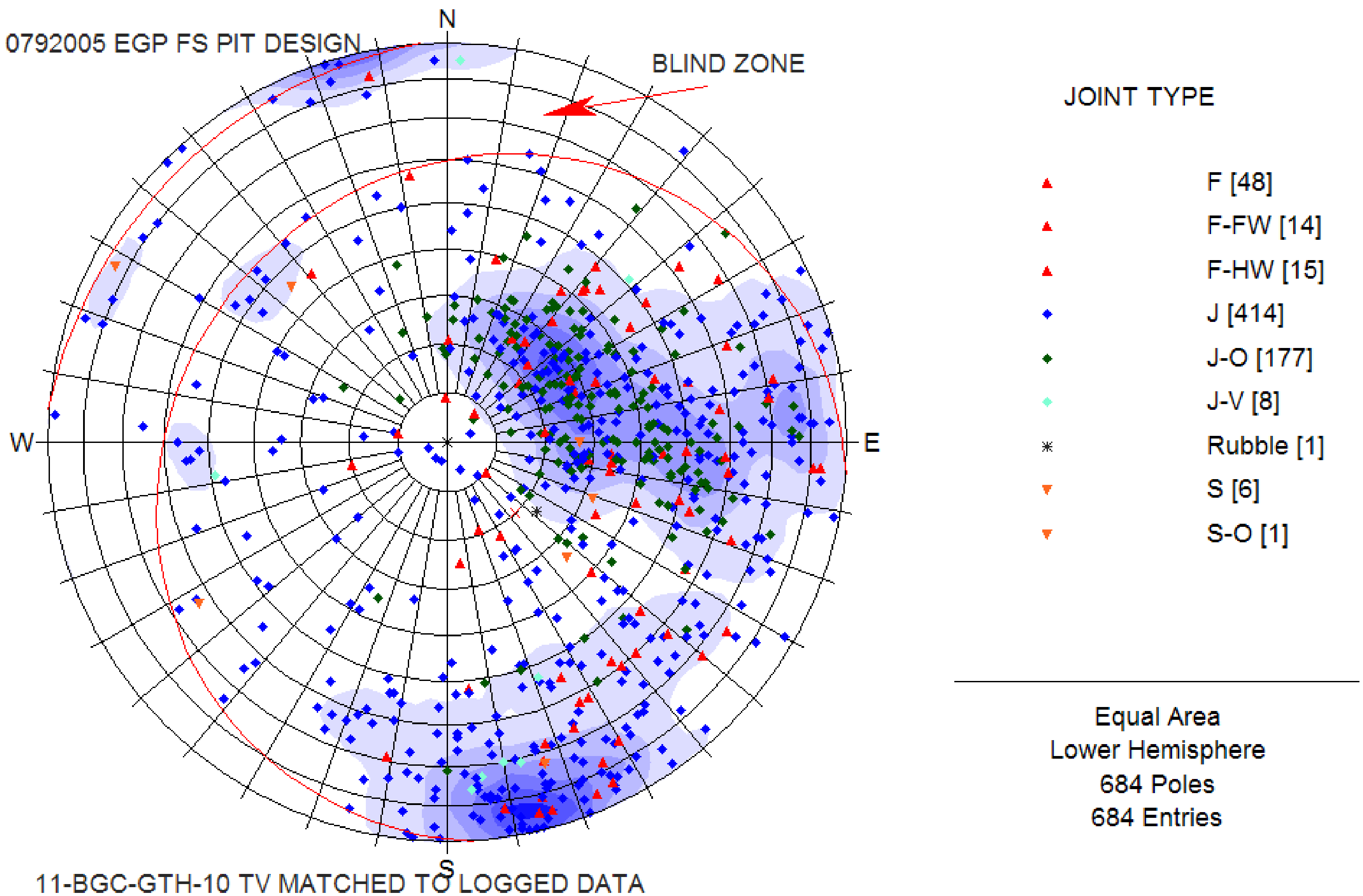
0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
10-BGC-GTH-05
DISCON TYPE
F [25]
F-C [1]
F-FW [2]
F-HW [2]
J [649]
J-O [2]
J-V [3]
S [5]
V [6]
Equal Area
Lower Hemisphere
695 Poles
695 Entries

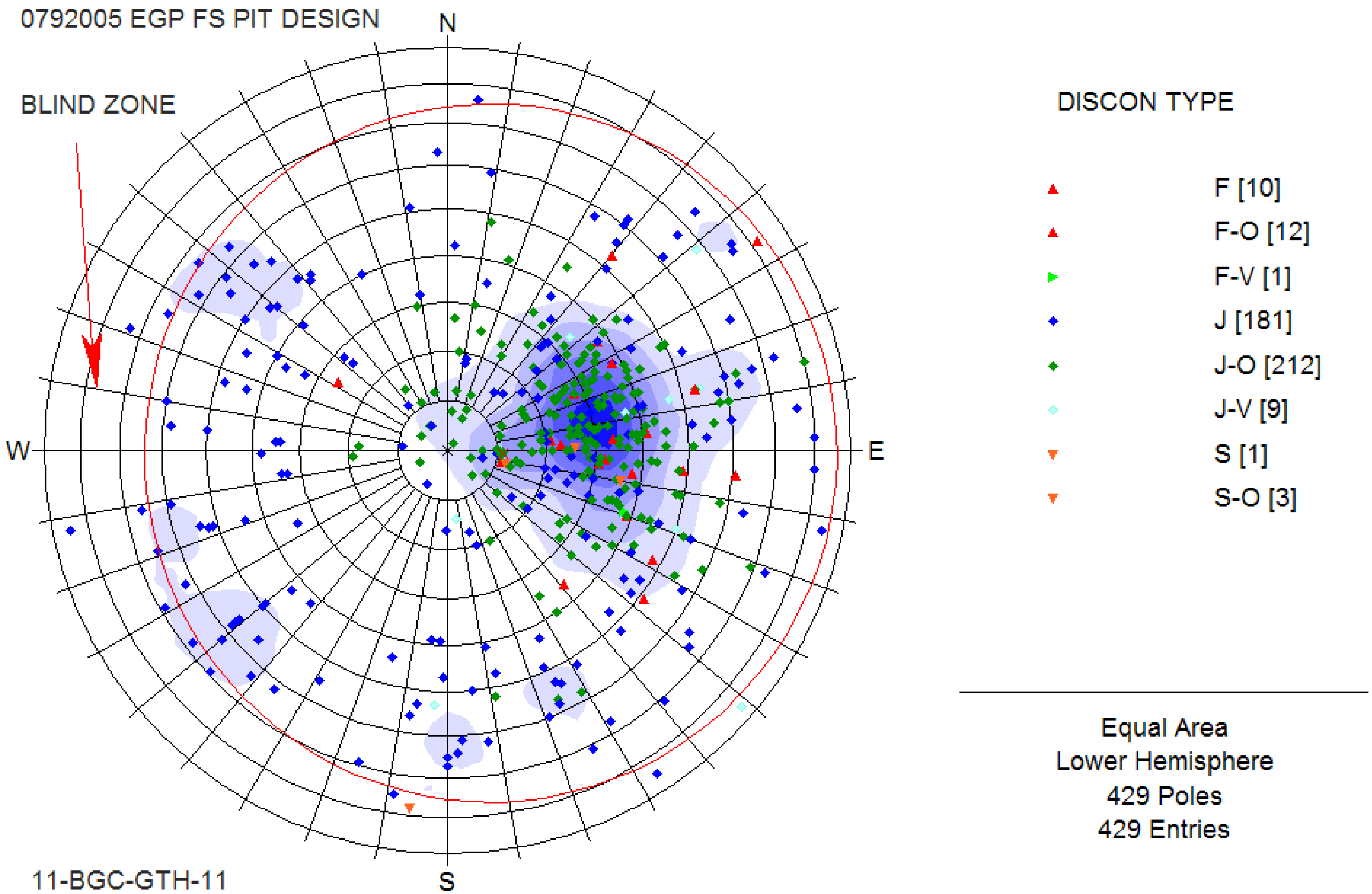

0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
10-BGC-GTH-06
DISCON TYPE
F [17]
F-FW [1]
F-HW [1]
J [532]
J-C [1]
J-O [15]
J-V [15]
V [8]
Equal Area
Lower Hemisphere
590 Poles
590 Entries

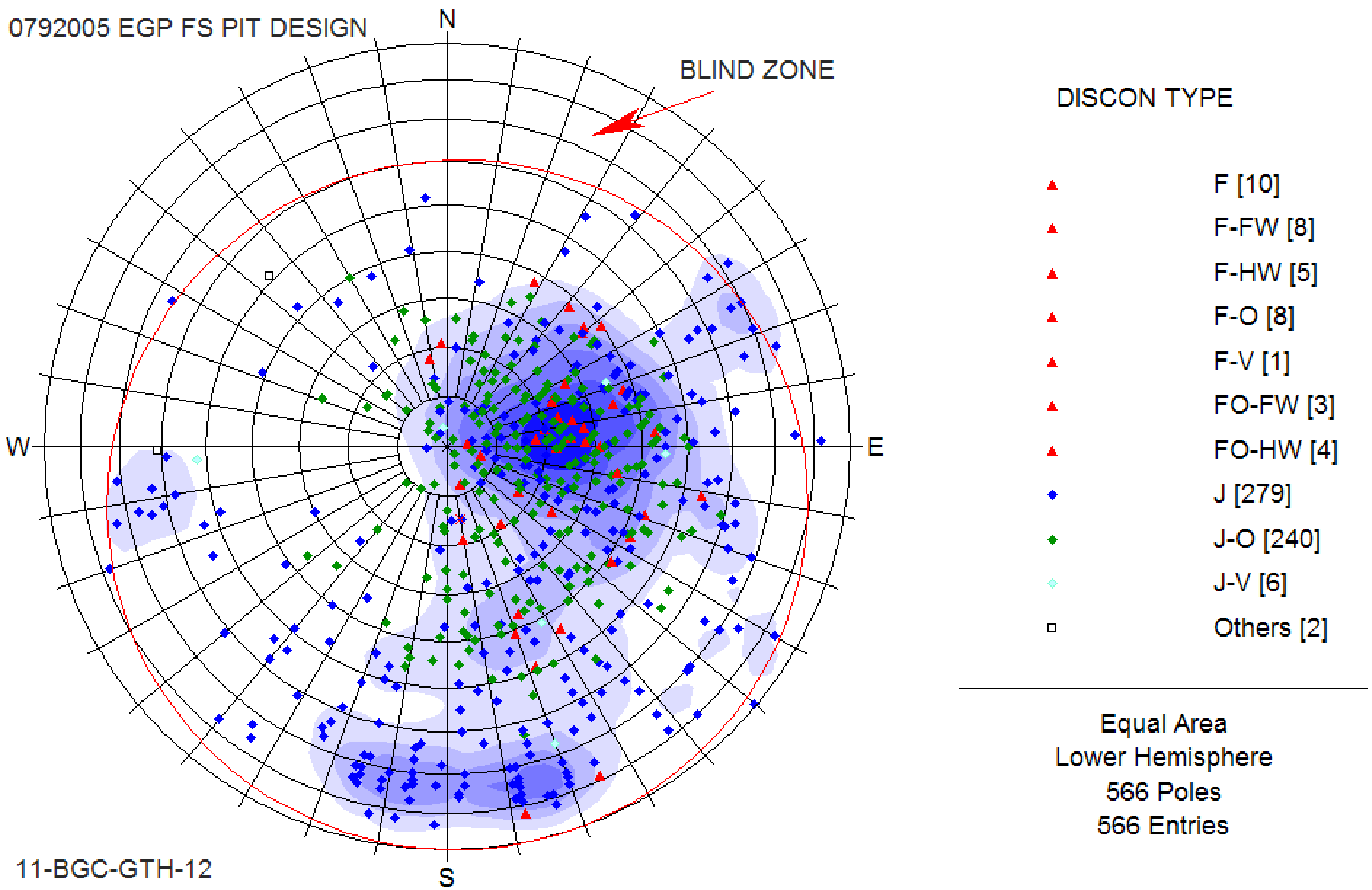

0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
10-BGC-GTH-07
DISCON TYPE
F [21]
J [354]
S [20]
Equal Area
Lower Hemisphere
395 Poles
395 Entries


0792005 EGP FS PIT DESIGN
N
W
E
S
BLIND ZONE
10-BGC-GTH-08
DISCON TYPE
F [26]
J [273]
J-V [8]
S [3]
Equal Area
Lower Hemisphere
310 Poles
310 Entries


0792005 EGP FS PIT DESIGN
BLIND ZONE
N
E
S
W
10-BGC-GTH-09
DISCON TYPE
F [11]
F-O [2]
J [151]
J-C [1]
J-O [71]
J-V [13]
O [1]
S-V [1]
Equal Area
Lower Hemisphere
251 Poles
251 Entries


0792005 EGP FS PIT DESIGN
N
BLIND ZONE
W
E
S
11-BGC-GTH-10 TV MATCHED TO LOGGED DATA
JOINT TYPE
F [48]
F-FW [14]
F-HW [15]
J [414]
J-O [177]
J-V [8]
Rubble [1]
S [6]
S-O [1]
Equal Area
Lower Hemisphere
684 Poles
684 Entries


0792005 EGP FS PIT DESIGN
N
BLIND ZONE
W
E
S
11-BGC-GTH-11
DISCON TYPE
F [10]
F-O [12]
F-V [1]
J [181]
J-O [212]
J-V [9]
S [1]
S-O [3]
Equal Area
Lower Hemisphere
429 Poles
429 Entries


0792005 EGP FS PIT DESIGN
N
BLIND ZONE
W
E
S
11-BGC-GTH-12
DISCON TYPE
F [10]
F-FW [8]
F-HW [5]
F-O [8]
F-V [1]
FO-FW [3]
FO-HW [4]
J [279]
J-O [240]
J-V [6]
Others [2]
Equal Area
Lower Hemisphere
566 Poles
566 Entries