Appendix 2.2A-9
Feasibility Open Pit Slope Design

NEW GOLD INC.
BLACKWATER GOLD PROJECT






FEASIBILITY OPEN PIT SLOPE DESIGN

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VA101-457/6-2
Rev 0
November 4, 2013

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NEW GOLD INC.
BLACKWATER GOLD PROJECT

FEASIBILITY OPEN PIT SLOPE DESIGN
VA101-457/6-2

Rev	Description	Date	Approved
0	Issued in Final	November 4, 2013	K.

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EXECUTIVE SUMMARY

This report advances the open pit slope recommendations for the Blackwater Gold Project to Feasibility level design. The design is based on geomechanical data collected during both 2012 geomechanical site investigation programs, laboratory test results, the updated pit shell and the latest geological information.

The scope of work for this feasibility level open pit geotechnical study includes:

- Characterization of geological, rock mass structure, rock mass quality and hydrogeological data
- Definition of the pit wall geotechnical domains and pit design sectors
- Detailed analyses of kinematic and rock mass stability
- Determination of pit slope design criteria
- Developing pit water management concepts, and
- Recommendations for the feasibility mine plan.

The geotechnical model for the Blackwater Pit incorporates five separate components: geological, alteration, structural, rock mass, and hydrogeology models. Three geotechnical units were defined for the purposes of the slope stability analyses as follows:

- **Overburden** – A glacial till deposit generally ranges from 5 to 20 m in thickness throughout the deposit area, but increases up to 110 m depth along the eastern side of the deposit.
- **Broken Zone** – This unit has been delineated within the RQD block model when the values are generally less than 40%. This unit is found within all deposit rock types.
- **Competent Rock** – Defined as all regions where the RQD is greater than 40%. The rock mass quality is generally FAIR to GOOD.

The site specific geotechnical information has been utilized to characterize each geotechnical unit, identify specific design sectors (for both the proposed interim and final pits), and to develop the required slope design parameters (for benches, inter-ramp slopes, and overall slopes).

Representative slope stability analyses were undertaken on each pit design sector, and indicate that there are generally few geotechnical controls on pit slope design other than rock mass failure through the Broken Zone along with adequate slope depressurization within the pit walls. The achievable slope geometry is largely controlled by the location and extent of the Broken Zone during all phases of the proposed pit development.

The recommended pit slope configurations presented in this report are appropriate for the Feasibility Study. There is limited information in some areas (such as the final North and Southeast walls); therefore, conservative design approaches have been implemented to develop recommended pit slope geometries in these sectors.

The recommended slope design parameters are summarized below by geotechnical domain.

- **Overburden** - Inter-ramp angles of 27°, with a maximum inter-ramp slope height of 40 m and 20 m wide stepouts.
- **Broken Zones** - Bench face angles of 60° and inter-ramp slope angles of 40° should be generally achievable for drained slopes in the Broken Zones. The maximum inter-ramp height should be limited to 150 m and slope depressurization of at least 40 m will be required.

- **Competent Rock** - Bench face angles of 70° and inter-ramp slope angles of 48° will generally be achievable using good controlled blasting methods. Inter-ramp heights should be limited to 200 m. In general, pit slopes within this geotechnical domain will be stable without depressurization.

Exceptions to the above include:

- **Southeast Sector** - Overall slope angles for the Southeast sector include flatter overburden slopes. This sector also contains an extensive Broken Zone that will require 130 m of slope depressurization in order to achieve the design inter-ramp angles.
- **Southwest Sector** - Structural controls in this sector limit the inter-ramp angles to 43° in Competent Rock.
- **North Sector** – The Broken Zone in this area may be over 200 meters in height. This will require a shallower 35° inter-ramp angle, a 35 m stepout and 110 m of slope depressurization.

Recommended inter-ramp slope angles for the final Blackwater Pit are summarized below.

Pit Design Sector	Structural Domain	Identified Kinematic Failure Mode	Geotechnical Domain	Max. Unit Height (m)	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-ramp Angle (°)	# of Stepouts or Ramps	Overall Slope Angle (°)
N	NW	Wedge	Broken Zone	200	24	20	60	**35**	1	36
			Competent Rock	215	24	12	70	**48**	2	
NE	Main	Wedge	Competent Rock	370	24	12	70	**48**	2	41
E	-	-	Overburden	80	12	9	40	**27**	2	35
	Main	Wedge	Competent Rock	320	24	12	70	**48**	2	
SE	-	-	Overburden	100	12	9	40	**27**	2	30
	Main	Wedge	Broken Zone	390	24	14	60	**40**	3	
S	Main	Wedge	Competent Rock	480	24	12	70	**48**	2	42
SW	SW	Wedge Planar	Competent Rock	430	24	17	70	**43**	2	36
W	W	Wedge Toppling	Competent Rock	370	24	12	70	**48**	2	39

NOTE:

1. Overall slope angles for the East and Southeast sectors incorporate flatter Overburden slopes.
2. Maximum inter-ramp slope heights: approximately 40 m (or every 3 Benches) in Overburden, 150 m in Broken Zone rock and 200 m in Competent Rock with no structural controls. The competent rock slopes within the West and Northwest design sectors are limited to maximum inter-ramp heights of 150 m due to adverse rock mass structures.
3. It is recommended that 20 m wide stepouts be placed in the overburden slopes and 35 m wide stepouts/haul ramps be placed in the bedrock slopes, to provide additional rock fall containment.
4. Double benching configurations (24 m bench height and 18 m bench width) should be used for Broken Zone slopes. The performance of single and double benches within the Broken Zone must be evaluated during pit operations.

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1 – INTRODUCTION

1.1 PROJECT DESCRIPTION

The Blackwater Gold (Blackwater) Project is a large gold-silver deposit located approximately 112 km southwest of Vanderhoof in Central British Columbia, as shown on Figure 1.1. New Gold Inc. (New Gold) acquired the Blackwater Project through the acquisition of Richfield Ventures Corp. (Richfield) in June 2011.

The proposed mine will use conventional truck and shovel open pit mining methods to deliver 60,000 tonnes per day of ore to an onsite whole ore leach process plant. The proposed Blackwater Open Pit will reach a maximum depth of approximately 500 m during the proposed 15 year mine life. The pit is designed to have four mining phases. Phase 1 will extract the high grade material located in the shallow central pit area down to 1430 m elevation. Phase 2 will expand around the Phase 1 (except in the northeast direction) and mine down to 1300 m elevation. Phase 3 will expand around the Phase 2 configuration to recover both the deep high gold grade down to 1170 m elevation and the high grade silver zone in the north. The final pit will expand on the Phase 3 configuration and eventually achieve the proposed final pit limits with a pit floor elevation of 1130 m.

1.2 PIT SLOPE DESIGN PROJECT HISTORY

Knight Piésold Ltd. (KP) has been involved with assessments on the Blackwater pit since 2011. A summary of the completed work follows:

- **Early 2011 -** A preliminary geotechnical assessment was conducted for Richfield to support a Preliminary Economic Assessment (PEA). Preliminary pit slope recommendations are presented in the KP report (Ref. No. VA101-457/3-1, Rev 0).
- **Early 2012 -** Geomechanical site investigations were undertaken targeting the South and East Walls of the proposed pit, to update pit slope recommendations and to advance the study to a pre-feasibility level design. The updated pit slope design report for the South and East Walls was presented in the KP report (Ref. No. VA101-457/4-3, Rev 0).
- **Late 2012 -** Supplementary geomechanical site investigations were undertaken, and targeted areas that were not investigated earlier in the year.
- **Late 2013 -** Hydrogeological site characterization and dewatering assessment was presented in the KP report (Ref. No. VA101-457/6-9, Rev A).

1.3 SCOPE OF WORK

This report advances the slope recommendations for the Blackwater Gold Project to Feasibility level of design. It is based on geomechanical data collected during both 2012 geomechanical site investigation programs, laboratory test results, the updated pit shells (provided by Norwest, February 2013) and the latest geological information (provided by New Gold, February 2013).

The scope of work for this feasibility level open pit geotechnical study includes:

- Characterization of geological, rock mass structure, rock mass quality and hydrogeological data
- Definition of the pit wall geotechnical domains and pit design sectors
- Detailed analyses of kinematic and rock mass stability
- Determination of pit slope design criteria

- Developing pit water management and slope depressurization requirements, and
- Recommendations for the feasibility mine plan.

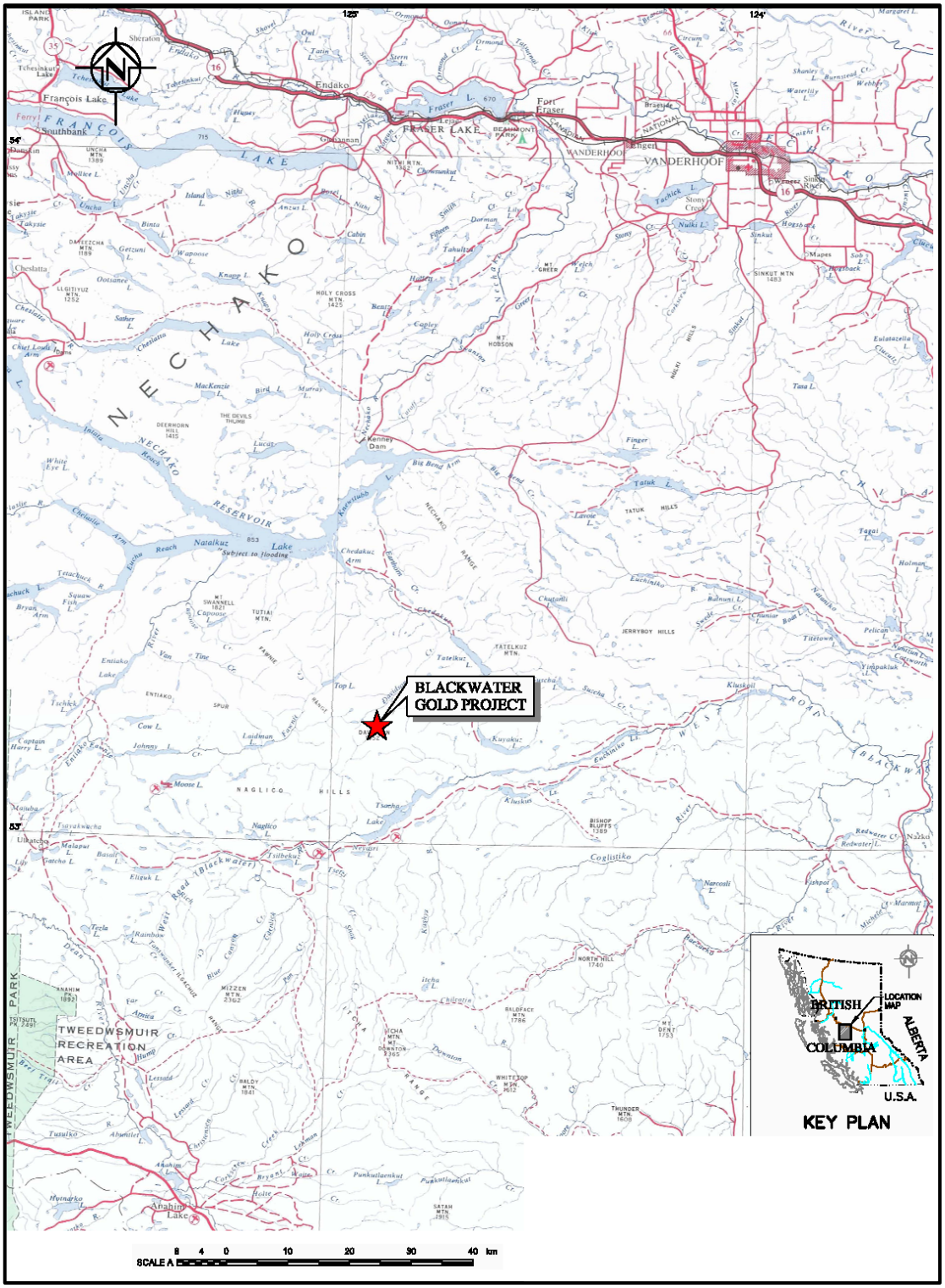


Figure 1.1 Project Location Map

2 – SITE CHARACTERISTICS

2.1 CLIMATE

The climate at the Blackwater property is sub-continental and characterized by warm summers and cold winters. The climate is influenced by cold arctic air and moisture-laden weather systems moving west along the Kitimat Ranges. Temperatures range from -40 °C in winter to a maximum of 32 °C in summer. The mean annual precipitation for the site is estimated to be 640 mm, with 50% falling as rain and 50% as snow.

2.2 PHYSIOGRAPHY

The Blackwater Project is situated on the Nechako Plateau, which is characterized by gently undulating northwest trending hills cut by small to medium sized drainages. The elevation of the Blackwater property ranges from just over 1,000 m in low-lying areas northeast of the proposed mine site to 1,800 m at the summit of Mt. Davidson on the southwest side of the property. The deposit is located on the northern flanks of Mt. Davidson. An extensive blanket of glacial debris covers the project area. Bedrock exposure is rare and is generally restricted to higher elevations.

2.3 PROPERTY GEOLOGY

The project is underlain by rocks of the Stikine Terrane within the Nechako Uplift. The Nechako Plateau is an area of moderate relief between the Skeena Arch and the Stikine and Cache Creek Terrane contact. Detailed geology can be found in the works of Diakow and Webster (1994), Diakow and Levson (1997), and Diakow *et. al.* (1997).

Quaternary glacial overburden (colluvial and fluvial deposits) masks much of the bedrock within the project area. Outcrop on the Blackwater property is limited to the peaks and ridges of Mt. Davidson. The bedrock geology for the site (Figure 2.1) is based on interpreted geology by New Gold and is overlain on the regional geology as mapped by Diakow and Levson (1997).

The Blackwater wedge consists of a sequence of felsic to intermediate composition volcanic rocks. Individual lithologies include felsic tuffs and lapilli tuffs, volcaniclastic and epiclastic heterolithic breccias, and massive to layered andesites. Outcrops of massive felsic lapilli tuff assigned to the Ootsa Lake Group are found on the peak and ridges of Mt. Davidson. At lower elevations near the Kluskus Road, bedded tuffs and sediments of the Jurassic Naglico Formation are observed. These strata form a local wedge of laterally discontinuous strata.

The Blackwater wedge is thought to dip toward the northwest and is of limited aerial extent. On the west, the Blackwater wedge is faulted against younger massive felsic volcanic rocks of the Ootsa Lake Group. The fault is thought to be a north-trending steeply-dipping structure. A similar relationship exists on the north side, where Blackwater host rocks are also juxtaposed next to Ootsa Lake Group strata across an east-northeast trending fault. The relative age of rocks across the two faults implies that the Blackwater block is a horst or high-standing remnant and that the Ootsa Lake Group was displaced to the west and north. East and south of the Blackwater block, the relationship to the country rocks is assumed to be stratigraphic. Likely the Blackwater strata are underlain by the Bowser Lake Group.

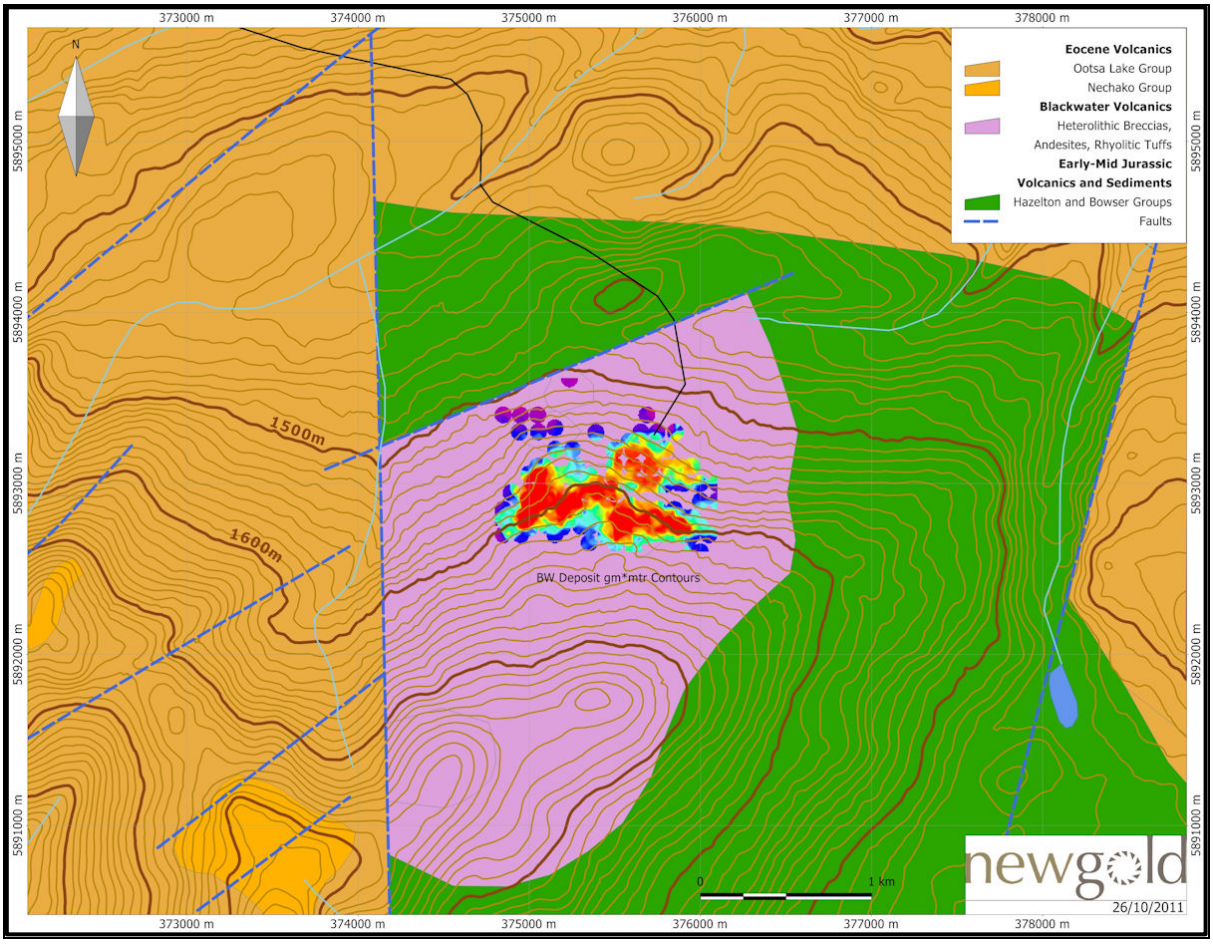


Figure 2.1 Property Geology

2.4 STRUCTURAL GEOLOGY

The Blackwater wedge is bounded by a north trending fault, which bounds younger massive felsic volcanic rocks of the Ootsa Lake Group to the west. A similar relationship is observed on the north side, where the Blackwater host rocks are juxtaposed next to Ootsa Lake Group strata across an east-northeast trending fault. Recent drilling results suggest that the northern boundary fault may be east-southeast trending.

The rocks in the Blackwater deposit are pervasively hydrofractured and silicified. The amount of silica introduced through hydrofracturing and silicification may amount to more than 25% of the total volume of the volcanic rocks. Although intensely hydrofractured, the Blackwater wedge lacks clearly recognizable large-scale faults or shear zones. Extensive zones of broken rock are seen in the deposit especially within the mineralized region. The zones grade laterally into unbroken rock and are generally not bounded distinct faults.

New Gold geologists recently delineated a series of sub-vertical fault systems. Five of these features trend northeast-southwest through the deposit, two trend southeast-northwest through the central/east portion of the deposit, and one trends north-south through the central part of the deposit.

3 – 2012 GEOMECHANICAL SITE INVESTIGATION PROGRAM

3.1 GENERAL

The 2012 site investigation programs were undertaken to collect geomechanical and hydrogeological information needed to update the pit slope assessment. The site investigations were conducted in two programs; the first phase focussed on the South and East Walls of the pit (February to April 2012) and the second phase targeted the remaining walls (October to December 2012). All drillholes were drilled under the supervision of KP field personnel.

The 2012 site investigation program included:

- Thirteen (13) geomechanical drillholes (GM12-01 to 13),
- Three (3) waste rock characterization drillholes (BWWR-12 to BWWR-14),
- In-situ packer hydraulic conductivity testing,
- Installation of twenty five (25) vibrating wire piezometers,
- Two (2) geotechnical overburden drillholes (GT12-45 and 46), and
- Laboratory testing of overburden and rock core.

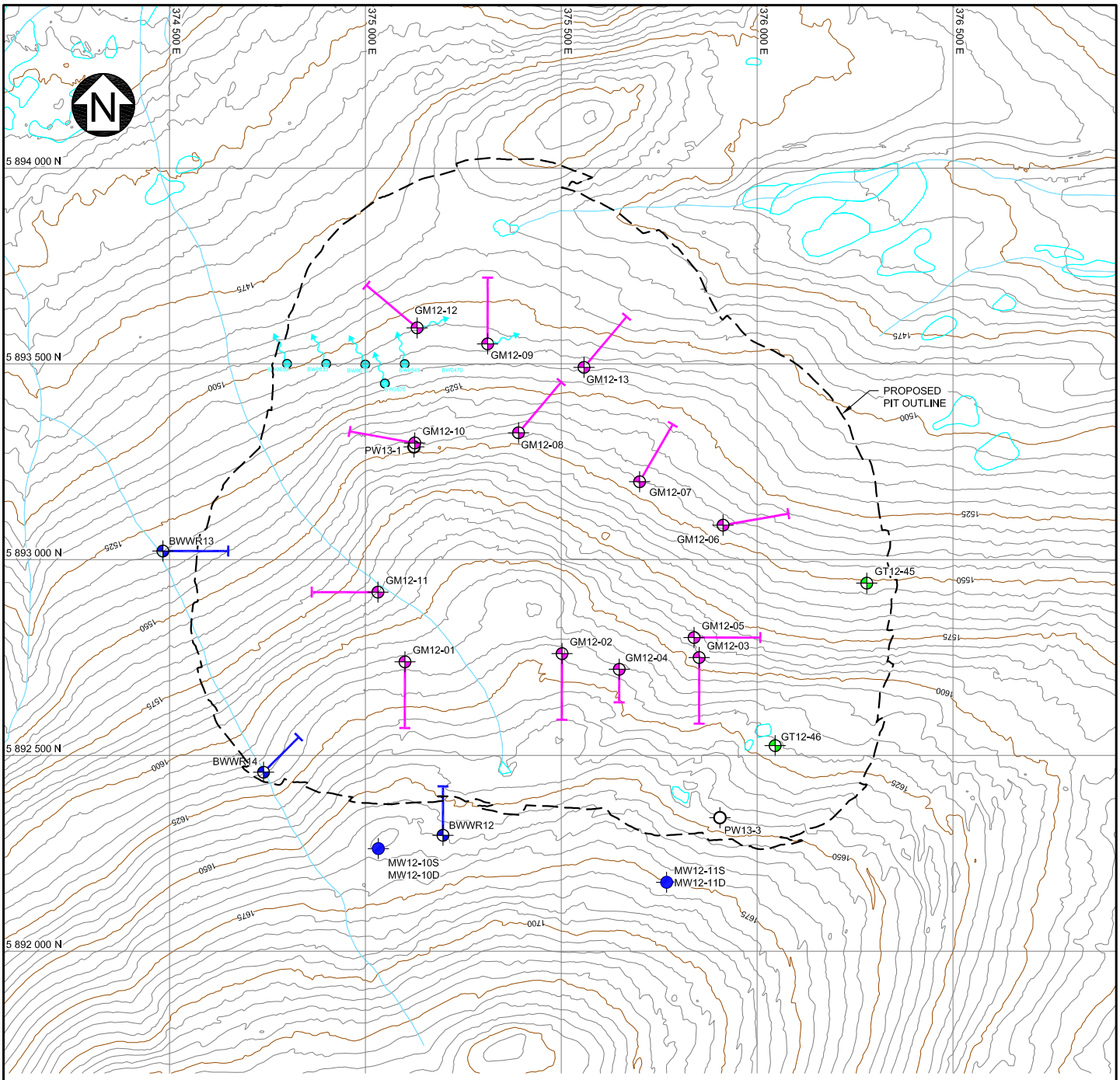
A summary of the geomechanical drillholes is presented in Table 3.1 and shown on Figure 3.1.

Table 3.1 Summary of Geomechanical and Geotechnical Drillholes in Open Pit

Drillhole #	Coordinates[1, 2]		Elevation	Azimuth	Dip	Drillhole Size	Total Depth
	Northing (m)	Easting (m)	(m)	(°)	(°)		(m)
GM12-01	5892739	375101	1613.1	180	-65	HQ3	400.0
GM12-02	5892760	375502	1620.9	180	-65	HQ3	400.0
GM12-03	5892750	375852	1596.5	180	-65	HQ3	400.0
GM12-04	5892720	375648	1617.2	180	-65	HQ3	200.0
GM12-05	5892801	375839	1592.2	90	-65	HQ3	400.0
GM12-06	5893088	375913	1545.3	80	-65	HQ3	400.5
GM12-07	5893199	375700	1546.6	30	-65	HQ3	400.5
GM12-08	5893324	375391	1545.1	40	-65	HQ3	400.5
GM12-09	5893551	375312	1509.5	0	-65	HQ3	400.0
GM12-10	5893298	375126	1546.4	280	-65	HQ3	400.0
GM12-11	5892917	375032	1586.8	270	-65	HQ3	400.5
GM12-12	5893592	375132	1506.2	310	-65	HQ3	400.5
GM12-13	5893491	375558	1515.5	40	-65	HQ3	400.5
BWWR12	5892296	375198	1660.8	0	-50	HQ3	300.0
BWWR13	5893022	374483	1530.9	90	-40	HQ3	393.0
BWWR14	5892457	374740	1615.5	45	-50	HQ3	300.0
GT12-45	5,892,526	376,041	1,621.7	-	-90	PQ	96.0
GT12-46	5,892,950	376,286	1,551.1	-	-90	PQ	65.5

NOTES:

1. Coordinates presented in UTM Zone 9 NAD 83.
2. Drillhole coordinates refer to as built locations and were surveyed by Allnorth Consultants.



LEGEND :

BWWR	WASTE CHARACTERIZATION DRILLHOLES (3)
GM	GEOMECHANICAL DRILLHOLES (13)
GT	GEOTECHNICAL SONIC DRILLHOLES (2)
MW	MONITORING WELLS (4)
	ARTESIAN EXPLORATION DRILLHOLES
PW	PUMP WELLS

NOTES:

1. CONTOUR INTERVAL IS 5 METRES.
2. OPEN PIT OUTLINE FROM NORWEST, FEBRUARY 2013.

SCALE A 150 75 0 250 500 750 m

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	21JUN'13	ISSUED WITH REPORT	JS	AN	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

GEOMECHANICAL DRILLHOLE LOCATIONS

Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF NO. 2

FIGURE 3.1

REV 0

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3.2 DRILLING AND LOGGING

3.2.1 Geomechanical Drilling

Thirteen (13) geomechanical drillholes (GM12-01 through GM12-13) and three waste characterization drillholes (BWWR12-12 to BWWR12-14) were completed in 2012 for a total of 5600 m of drilling. All geomechanical drillholes were inclined at -65° and passed through the proposed final pit walls. The three waste characterization drillholes were completed by New Gold, but were logged for geomechanical data by KP field personnel. The waste characterization drillholes were sub-parallel to the proposed pit walls and included at -40° to -50° towards the ore body.

The geomechanical drilling program was completed by Falcon Drilling Ltd. in the first site investigation program and by Hytech Drilling Ltd. during the second site investigation program. Bedrock drilling was entirely HQ3 diameter and used a five foot core barrel. Orientation of structural discontinuities was accomplished using the Reflex ACT II digital core orientation tool. Downhole surveys were carried out at approximately 50 m intervals in all the drillholes with a Reflex borehole survey instrument.

3.2.2 Geomechanical Logging

Detailed geomechanical logging was carried out in all geomechanical and waste characterization drillholes to characterize the rock mass. The following information was collected on a run by run basis:

- Core run interval
- Core recovery
- Rock Quality Designation (RQD)
- Lithological description
- Field estimates for Unconfined Compressive Strength (UCS) of the rock
- Number of discontinuities, and
- Discontinuity types and characteristics (i.e., roughness, aperture, alteration, infillings, etc.).

3.2.3 Rock Mass Classification

The Rock Mass Rating (RMR) classification system developed by Bieniawski (1989) was used to classify the rock conditions. The RMR logging system is based on field determination of values for the following five key rock mass parameters:

- Intact rock hardness and UCS – The rock hardness and intact rock strength were estimated in the field and verified by laboratory UCS and PLT test results.
- RQD – The RQD value was determined for each core run by summing the lengths of all core pieces (only considering natural fractures in sound core) greater than 10 cm long and presenting this as a percentage of the drill run length.
- Joint spacing – An estimate of fracture spacing was determined by counting the number of natural fractures encountered per length of drill run.
- Joint condition – The joint condition is based on an evaluation of fracture persistence, roughness, infilling, aperture and weathering, the rating system is shown in Table 3.2. The persistence has been conservatively assumed to have an RMR rating of 0, consistent with high

persistence. The roughness, infilling, aperture and weathering are evaluated by examining the discontinuity surface in the drill core.

- Groundwater condition – A constant groundwater rating of 15, which corresponds to dry conditions, was used to calculate the RMR. This allows the RMR values to be consistent with the Geological Strength Index (GSI) classification scheme (Hoek et al, 1995).

Table 3.2 RMR Rating on Fracture Conditions

Persistence	< 1 m	1 - 3m	3 - 10m	10 - 20 m	> 20m
RATING	6	4	2	1	0
Aperture	None	< 0.1 mm	0.1 - 1.0	1 - 5	5 - 10
RATING	6	5	4	1	0
Roughness	V Rough	Rough	SL Rough	Smooth	Slicks
RATING	6	5	3	1	0
Infilling	None	Hard Infilling		Soft Infilling	
		< 5 mm	> 5 mm	< 5mm	> 5 mm
RATING	6	4	3	2	0
Weathering	FRESH	SW	MW	HW	CW
RATING	6	5	3	1	0

The sum of the above ratings defines the rock mass quality as an RMR value. This value can range from <20 to 100 and allows the rock mass to be classified as follows:

- VERY GOOD rock – RMR: 81 to 100
- GOOD rock – RMR: 61 to 80
- FAIR rock – RMR: 41 to 60
- POOR rock – RMR: 21 to 40, and
- VERY POOR rock – RMR less than 20.

The depth of each discontinuity, discontinuity orientation data (alpha and beta angles), and the geotechnical characteristics (including RMR) of the discontinuities were logged for all 16 oriented drillholes. All geotechnical data was entered into a database on site and preliminary data reduction was completed at site to ensure that high quality data was obtained.

The drillhole logs for GM12-01 to GM12-013 and BWWR12 to BWWR14 are presented in Appendix A1 and include a brief description of the overburden and bedrock. Additional information regarding the specific rock core characteristics and fracture condition are included on the detailed geomechanical logging data sheets included in Appendix A2. Field estimates for downhole variations in core recovery, UCS, RQD and RMR are included in Appendix A3. Photographs of the drill core are presented in Appendix F.

3.2.4 Geotechnical Overburden Logging

Two geotechnical drillholes (GT12-45 and 46) were completed in the East area of the deposit, where the overburden is the thickest. These drillholes were used to characterize the overburden material with the objective of supporting slope stability and borrow source assessments.

Both overburden drillholes were completed by Major Drilling Environmental LLC. using a Diedrich Large Sonic drill rig and a ten-foot core barrel. Sonic drilling utilizes a rotary vibratory drilling technique to effectively recover overburden core. The drill bit and casing are advanced by vibration frequencies in the 50 Hz to 150 Hz range.

Detailed geotechnical logging of sonic drill core was conducted by KP field personnel. Recovered overburden core was logged, photographed, and selectively sampled for laboratory testing. Detailed geotechnical drillhole logs are presented in Appendix A4.

3.3 HYDROGEOLOGICAL TESTING

3.3.1 Hydraulic Conductivity Testing

In-situ packer hydraulic conductivity testing was undertaken wherever possible to estimate the permeability of the encountered rock masses. The IPI water-inflatable (hydraulic) packer system was used for all tests. Both Lugeon and response test methods were utilized in order to obtain a hydraulic conductivity estimate every 15 to 30 meters (approx.). Packer tests were not undertaken on drillhole GM12-08 (due to the artesian pressure) or on the waste characterization drillholes. All the tested drillholes were advanced using polymer-based drill mud (and sometimes bentonite) to stabilize the drillhole. The use of mud was necessary, but may impact the hydraulic conductivity results.

Once the drillhole achieved the desired depth, the following packer test procedure was followed:

- The hole was flushed until the return water was clean.
- The drill rods needed to open up the target test interval were removed from the drillhole.
- The packer equipment was lowered inside the drill rods on the wireline.
- The packer bladder was inflated just below the drill bit to isolate the test interval.
- For a Lugeon test, water was pumped into the isolated test interval to achieve a constant differential head. Three ascending and two descending water pressure stages were applied while the rate of flow of water into the rock mass was recorded. The change in pressure was measured over time using a digital Level TROLL transducer from Insitu Inc.
- For a falling head (response) test, the rods were filled with water to surface and the change in water level was measured over time using a digital Level TROLL transducer from Insitu Inc.
- The packer equipment was then deflated at returned to surface using the wireline.
- The removed rods were placed back in the hole and the drillhole was advanced to the next test depth.

The hydraulic conductivity testing sheets are provided in Appendix B and summarized in Table B.1.

3.3.2 Vibrating Wire Piezometer Installation

Vibrating Wire (VW) piezometers were installed in completed geomechanical drillholes to estimate static groundwater levels. Single node standard vibrating wires (model VW2100) were installed at shallow depths, for VW installed below 250 m depth a heavy duty vibrating wire (model VW2100-HD) was used, both models were supplied by RST Instruments Ltd. Installations were accomplished by attaching the vibrating wire piezometer transducer to 1-inch PVC pipe and lowering it to the target depth within the drillhole. The bottom node was either seating against a Van Ruth Plug, caved

material, or the bottom of the hole. The annular space in the vicinity of the vibrating wire piezometer sensors were backfilled with a bentonite grout mixture. Data loggers were installed at the piezometer locations to measure static groundwater table.

Installation depths for the piezometers were chosen in such a way as to capture hydrogeological information from observed high permeability zones, broken bedrock zones or other hydrogeological zones of interest. Unfortunately, broken ground frequently prevented the installation of a Van Ruth plug at the target depth. The piezometer completion details are presented in Table 3.3 and Appendix A1.

Table 3.3 Summary of Vibrating Wire Piezometer Installation

Drillhole #	Location	Collar Elevation (m)	Downhole Vertical Depth (m)	Piezometric Head Depth (m)	Piezometric Head Elevation (m)
GM12-01	South Wall	1613.1	10.9	-10	1623
GM12-02	South Wall	1620.9	88.8	29	1592
GM12-03	South & East Walls	1596.5	85.0	11	1586
GM12-04	South Wall	1617.2	81.6	83	1534
GM12-05	East Wall	1592.2	117.8	18	1574
			72.5	37	1555
GM12-06	East Wall	1545.3	251.0	11	1535
			152.3	10	1535
			99.7	11	1535
GM12-07	East Wall	1546.6	286.4	35	1511
			198.5	37	1509
			135.9	18	1529
GM12-08	East & North Walls	1545.1	176.5	VW is damaged	
GM12-09	North Wall	1509.5	316.6	45	1464
			189.2	-9	1519
			140.2	10	1499
GM12-10	West Wall	1546.4	335.3	VW is damaged	
			145.0	18	1529
			72.5	17	1530
GM12-11	West Wall	1586.8	293.6	61	1526
			194.9	58	1529
			139.6	53	1534
GM12-12	North Wall	No VWs installed - drillhole was artesian			
GM12-13	East and North Walls	1515.5	290.0	16	1499
			165.6	18	1497
			87.0	15	1500

NOTES:

1. GM12-08 VIBRATING WIRE PIEZOMETRE IS INOPERABLE DUE TO INSTALLATION ISSUE.
2. VW DATA DOWNLOADED ON 2 FED, 2013.

3.4 OVERBURDEN LABORATORY TESTWORK

The overburden samples taken from the two geotechnical drillholes (GT12-45 and 46) were tested at the Knight Piésold Laboratory in Denver, Colorado. Overburden laboratory test results are summarized in Appendix C1.

The overburden from these holes was found to be consistently dense, well graded, sandy, silty GRAVEL glacial till with some silt layers. This interpretation is supported by the Particle Size Analysis (PSA) performed on 16 samples (Appendix C1.2). Thirteen (13) of these samples were identified as glacial till and the remaining samples were predominantly silt. Modified proctor tests (ASTM D698-07) were completed on two glacial till samples and the test results are presented in Appendix C1.3. Four glacial till samples were selected for triaxial testing and the test results are presented in Appendix C1.4. Twenty-eight (28) density and moisture content tests were run at selected intervals and the results are presented in Appendix C1.5.

3.5 ROCK CORE LABORATORY TESTWORK

Rock core samples were selected to represent the range of lithologies encountered and were submitted to laboratories for rock strength testing. The test program consisted of: UCS, Direct Shear, Triaxial and XRD tests. A summary is provided below.

- **UCS** - A total of 74 tests were completed at the Geomechanics Laboratory at the University of British Columbia (UBC) using ASTM D2166 and D-3148-02. This was supplemented by eight PLT tests on shorter samples using ISRM-1985 (2007). A summary of the UCS and PLT test results is included Appendix C2.
- **Direct Shear** - Thirty-six (36) core samples were tested at UBC using ISRM-1985 (2007). A further 16 tests were competed on saw-cut surfaces at Golder Associates' (Golder) laboratory in Burnaby using ISRM-1985 (2007) and ATSM D-5607. A summary of the direct shear test results is included Appendix C3.
- **Triaxial** - Four (4) triaxial tests were completed by Golder. One additional gouge sample successfully underwent a multistage triaxial consolidation test (for consolidated undrained soils) using ASTM D-4767. A summary of the triaxial test results is included in Appendix C4.
- **XRD** - Three (3) tests were completed on clay fault gouge at The Mineral Lab Inc. in Denver. A summary of the XRD results is included in Appendix C5.

4 – GEOTECHNICAL CHARACTERIZATION

4.1 GENERAL

The geological and geomechanical parameters that control open pit slope performance can be described in terms of five models:

- Geological
- Alteration
- Structural
- Rock Mass, and
- Hydrogeology.

The inputs to these models are based on all currently available information, as described in the following sections.

4.2 GEOLOGICAL MODEL

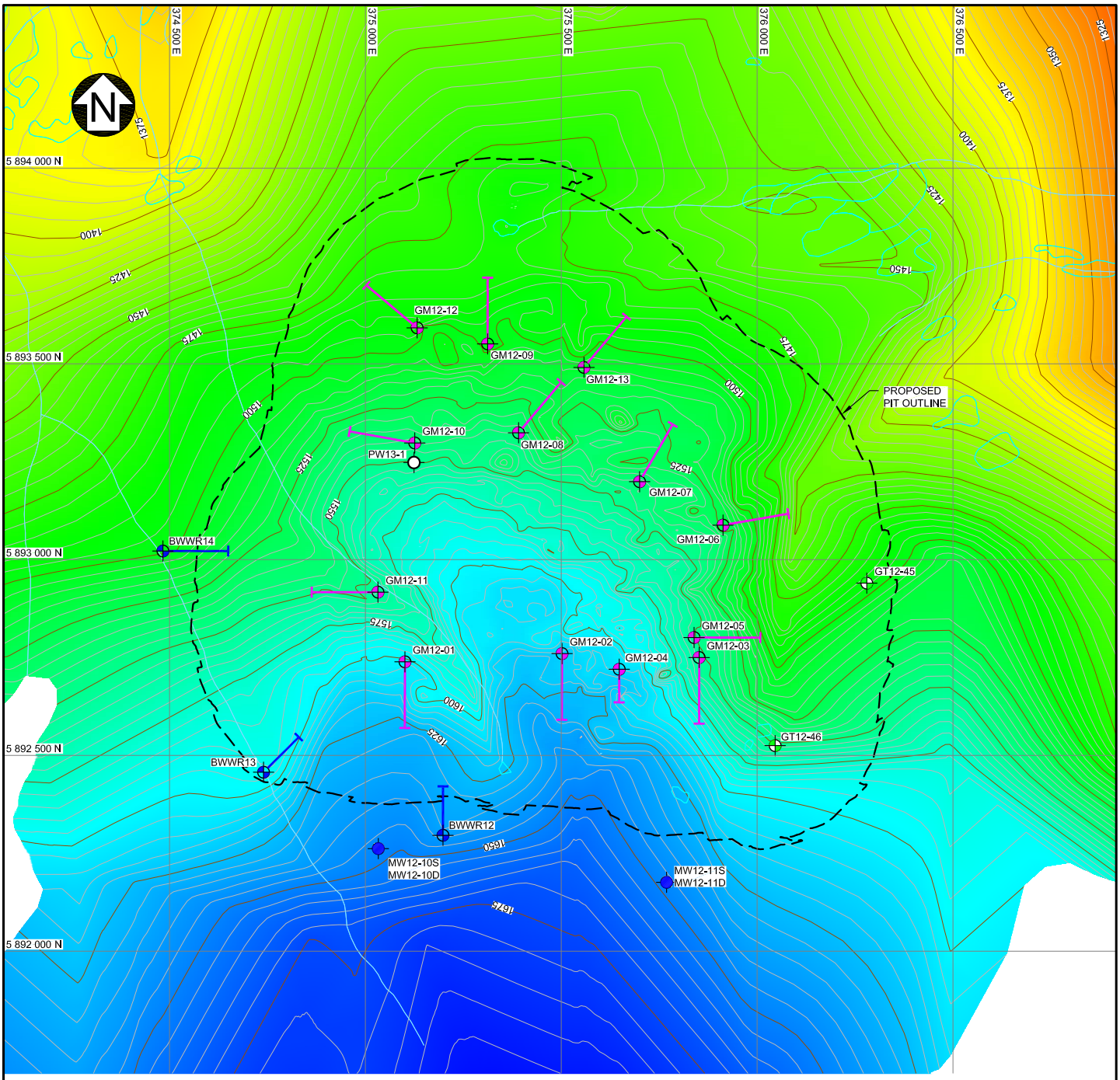
4.2.1 General

The Geological model considers the characteristics and spatial distribution of the various rock units relative to the walls of the proposed open pit. The model, developed by New Gold geologists in February 2013, is based on lithology logs of the exploration drill core and incorporates the inferred distribution of five main geological units:

- Overburden
- Cohesive Andesite (AND)
- Fragmentals (FLPT. VC, ABX, EC)
- Laminated Volcanics (FT), and
- Sediments (SED).

The basic geological information and spatial distribution relative to the proposed pit geometry is shown on Figures 4.1 to Figure 4.3. The majority of the final pit walls will be developed within the Andesite unit, while the lower West and Southwest Walls will be within Fragmentals unit. The basement sedimentary rocks are only encountered at the bottom of the pit and will likely have limited exposure within the final pit walls.

The characteristics of each of the main geological units are described in the following sub-sections.



LEGEND:

- OVERBURDEN THICKNESS +100 m
- OVERBURDEN THICKNESS 25 - 100 m
- OVERBURDEN THICKNESS 10 - 25 m
- OVERBURDEN THICKNESS 0 - 10 m
- BWWR — WASTE CHARACTERIZATION DRILLHOLES (3)
- 50m GM — GEOMECHANICAL DRILLHOLES (13)
- GT — GEOTECHNICAL SONIC DRILLHOLES (2)
- MW — MONITORING WELLS (4)
- 1650 — BEDROCK ELEVATIONS CONTOURS

NOTES:

1. BEDROCK CONTOUR INTERVAL IS 5 METRES.
2. OPEN PIT OUTLINE FROM NORWEST, FEBRUARY 2013.
3. OVERBURDEN CONTOURS PROVIDED BY NEW GOLD, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

PIT BEDROCK ELEVATION AND ESTIMATED OVERBURDEN THICKNESS

Knight Piésold CONSULTING

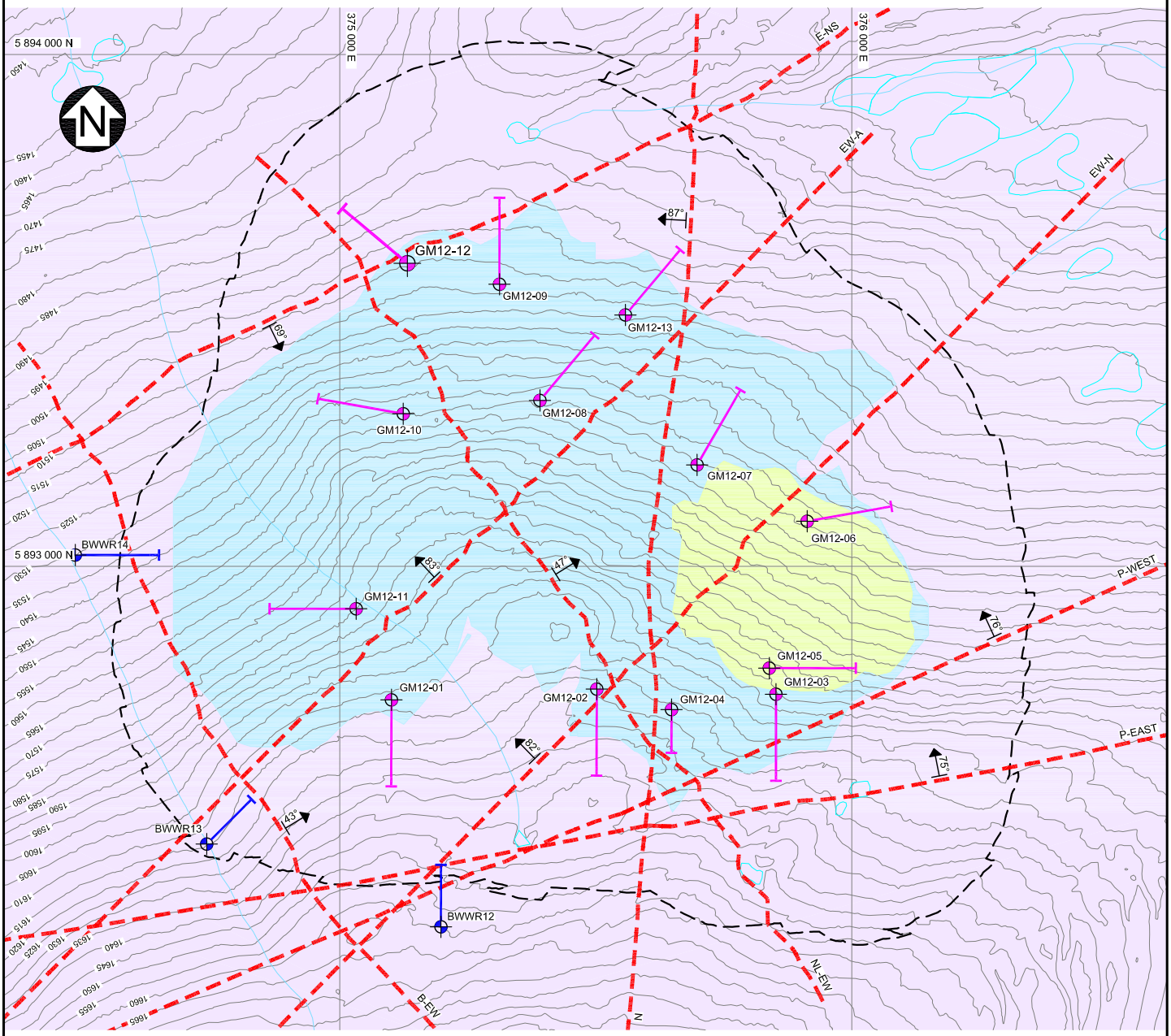
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FIGURE 4.1

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LEGEND:

- ANDESITE
- LAMINATE VOLCANICS
- FRAGMENTALS
- FAULTS
- BWWR — WASTE CHARACTERIZATION DRILLHOLES (3)
- GM — GEOMECHANICAL DRILLHOLES (13)

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. GEOLOGICAL MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
3. CONTOUR INTERVAL IS 5 METRES.
4. OVERBURDEN UNIT EXCLUDED.
5. OPEN PIT OUTLINE FROM NORWEST, FEBRUARY 2013.

SCALE A: 200 100 0 200 400 600 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

SUB-SURFICIAL GEOLOGY

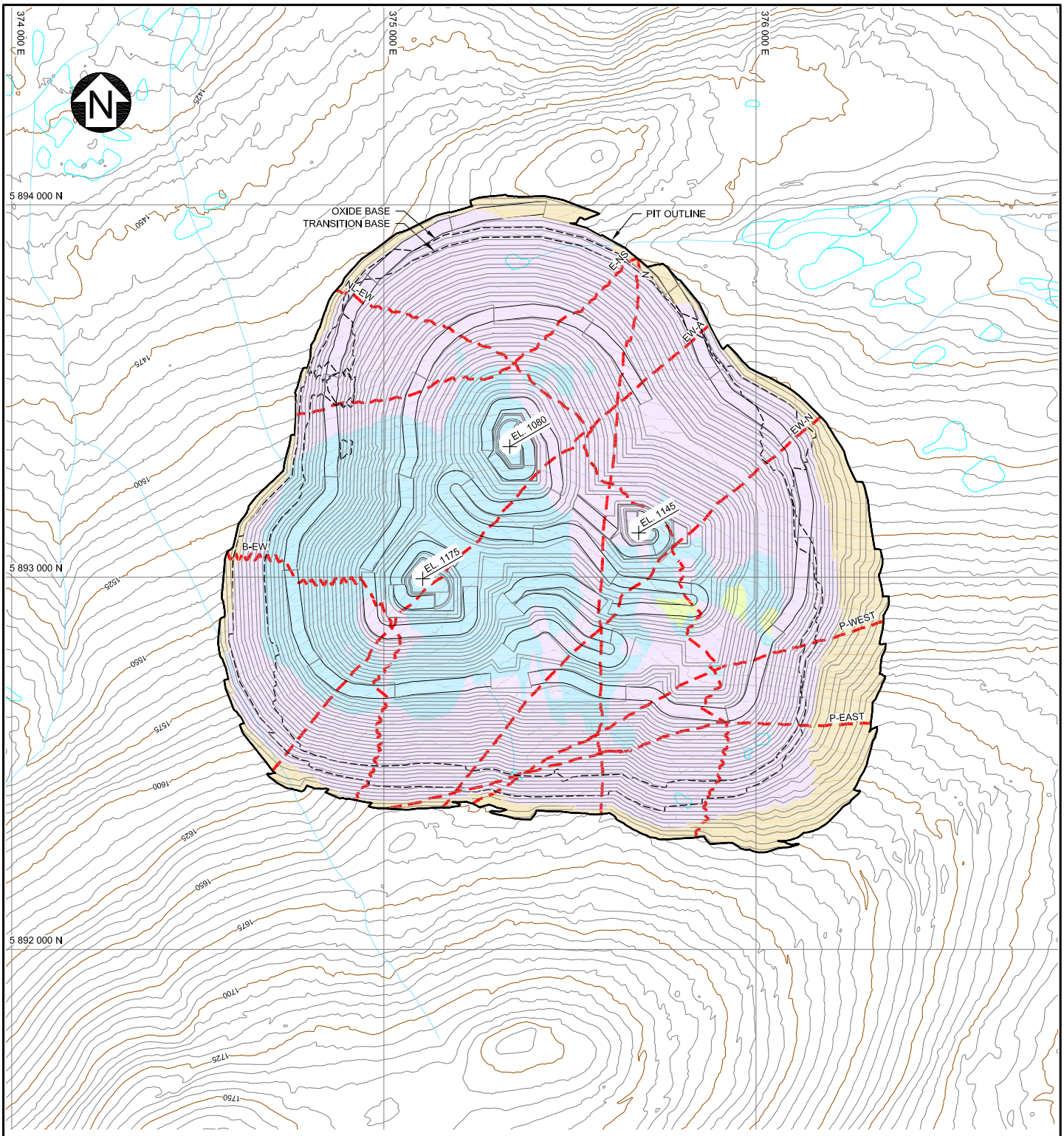
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FIGURE 4.2 | REV 0

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XREF FILE(S): Hydro IMAGE FILE(S):



LEGEND:

- OVERBURDEN
- ANDESITE
- LAMINATE VOLCANICS
- FRAGMENTALS
- FAULTS

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. CONTOUR INTERVAL IS 5 METRES.
3. GEOLOGICAL MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OPEN PIT OUTLINE FROM NORWEST, FEBRUARY 2013.

SCALE A 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

PROJECTED PIT WALL GEOLOGY
FINAL PIT

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	21JUN'13	ISSUED FOR REPORT	JS	AN	DAY	KJB

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF NO. 2

FIGURE 4.3 | REV 0

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4.2.2 Overburden

The terrain in the deposit area is generally hummocky with overburden varying from 5 to 20 m in thickness. The deepest overburden is expected on the east side of the pit, where it may be up to 110 m thick. Overburden thickness and bedrock elevation over the pit area are displayed on Figure 4.3.

The two geotechnical drillholes (GT12-45 and 46) were drilled by a Sonic-capable drill rig on the east side to investigate the overburden. The overburden was well graded silty-gravelly SAND glacial till combined with some sandy-SILT poorly defined layers. Four triaxial tests on the glacial till suggested a friction angle and cohesion of approximately 35° and 20 kPa, respectively (Figure C1.4). Twenty-eight (28) samples were tested for dry density and moisture content and the results are summarized in Figure C1.5. The overburden properties are summarized below.

Table 4.1 Summary of Glacial Till Geotechnical Properties

Laboratory Test	Geotechnical Properties	
Particle Size Analysis	Gravel (%)	25
	Sand (%)	38
	Silt (%)	27
	Clay (%)	9
Atterberg Limits	Liquid Limit	23
	Plastic Limit	13.5
	Plasticity Index	9.5
Specific Gravity	Specific Gravity	2.73
Compaction Testing	Maximum Dry Density (kg/m^3)	2116
	Optimum Moisture Content (%)	8.4
Triaxial Testing	Cohesion (c/kPa)	13
	Friction Angle (Ø/degrees)	37
Flexible Wall Permeameter[1]	Permeability (m/s)	9 x 10^{-8}
Bulk and Dry Density	Moisture Content (%)	10
	Dry Density (kg/m^3)	2099
	Bulk Density (kg/m^3)	2359

NOTES:
1. Remoulded samples only.

4.2.3 Andesite Unit

The Andesite unit (AND) is a dark grey to black microcrystalline to aphanitic volcanic rock. It is the dominant geologic unit at the proposed Blackwater Pit. The majority of the final pit walls will be exposed within the Andesite unit.

4.2.4 Fragmentals Unit

The Fragmentals unit encompasses Felsic Lapilli Tuffs (FPLT), andesite breccia (ABX) and volcaniclastic (VC) rocks. Felsic Lapilli Tuff is a poorly sorted white to pale green volcanic breccia with massive or laminated clasts of felsic composition. Andesite Breccia (ABX) is a clast to matrix supported mafic breccia with angular to sub-angular andesite clasts. Volcaniclastic (VC) rocks are poorly to moderately sorted polymicitic volcanic breccia with a light to dark coloured matrix. The

matrix of all these lithologies can be bleached and altered to silica, sericite and/or clay. The Fragmentals unit is located on the West and Southwest Walls of the final pit and will be exposed over most of the pit wall configurations..

4.2.5 Laminated Volcanics Unit

The Laminated Volcanics unit (LV) is a fine grained laminated to massive rock of felsic composition with localized dark laminations. These laminations vary from planar to wavy. The unit is commonly bleached and altered to silica-sericite-clay. The Laminated Volcanics unit is a small unit and is only exposed in the Phase 2 and 3 interim pit walls.

4.2.6 Sediments Unit

The Sediments unit encompasses the mudstone (MUD), sandstone (SED), and conglomerate (CON) rocks of the Bowser Lake Group formation. These sedimentary rocks are the basement geological unit and are only found at the bottom of the pit with limited exposure in the proposed pit walls.

4.3 ALTERATION MODEL

Alteration assemblages identified are sericite and potassic alteration, as illustrated on Figure 4.4 (after New Gold, 2012). Sericite alteration is identified in the centre of the deposit and it generally occurs within the Fragmentals unit, which will be mined out during Phase 2 and Phase 3 of the pit development. Potassic alteration surrounds the deposit and will be encountered in the rock units exposed in the final pit walls. An oxidized weathered zone generally occurs along the bedrock surface.

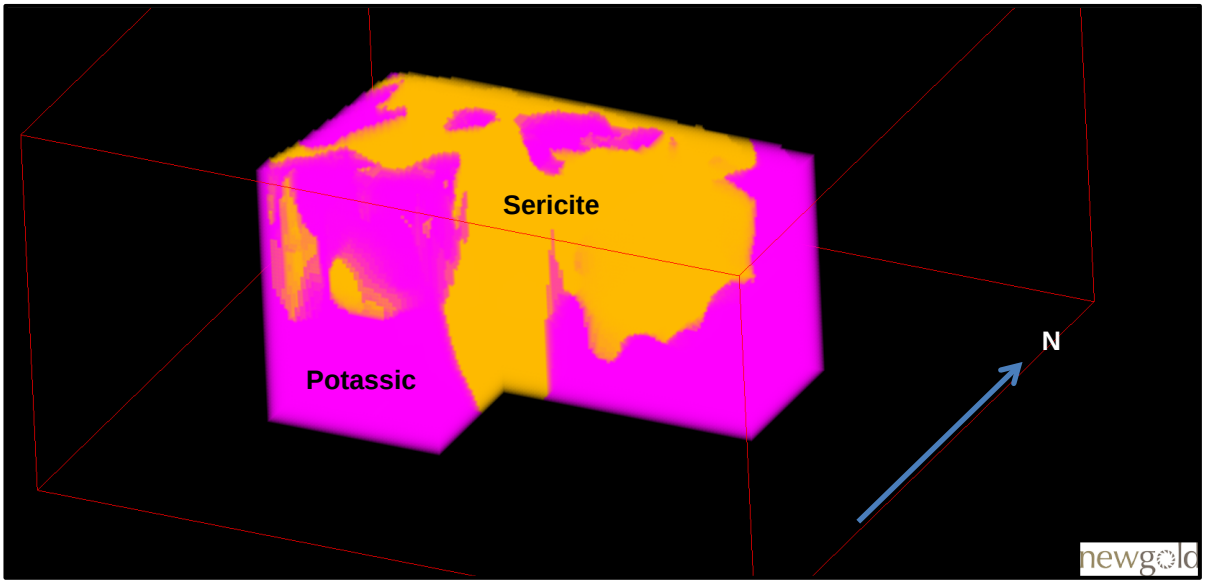


Figure 4.4 Alteration Model

4.4 STRUCTURAL MODEL

4.4.1 General

The structural model generally consists of major structures (such as shears and faults) and the smaller scale rock mass fabric (discontinuities and the associated joint-set families). In the case of the Blackwater deposit, the orientation and position of the major structures was supplied by New Gold (February 2013) and the smaller scale features were characterized by KP during the 2012 field programs. The orientation, position and characteristics of the structures that exist in the walls of the proposed pit will strongly influence rock mass performance.

4.4.2 Major Structures

Shear and fault zones were encountered in the geomechanical drillholes. These intervals are characterized by extremely fractured and/or weathered rock. RQD's were typically close to zero and the rock was often subjected to pervasive clay alteration. These major structures are expected to influence the achievable inter-ramp and overall slope angles.

New Gold geologists delineated eight sub-vertical faults (Figure 4.2, Figure 4.3 and Table 4.2). These faults were inferred based primarily on core logging observations and is supported by New Gold's lithological, alteration and mineralization models. These fault zones are likely responsible for the majority of the broken zones encountered during drilling.

Table 4.2 Summary of Identified Faults

New Gold Fault ID	Strike Direction	Azimuth (°)	Dip (°)	Dip Direction	Dip Direction (°)
N	N - S	185	87	W	275
E-NS	E - W	065	69	SW	155
EW-A	SW - NE	223	83	NE	313
EW-N	SW - NE	222	82	NE	312
P-WEST	E - W	245	76	N	335
P-EAST	E - W	260	75	N	350
NL-EW	SE - NW	330	47	E	060
B-EW	SE - NW	328	43	E	058

NOTES:

1. Fault data supplied by New Gold, February 2013.
2. Azimuth degrees using the right hand rule.

Triaxial and XRD tests were completed on fault gouge samples collected during the site investigation program. The triaxial tests suggest friction angles between 32 and 45 degrees and cohesions between 0 and 90 kPa (Table 4.3). The XRD tests were conducted on three samples of fault gouge. The results suggest a varied composition of approximately 50% mica/illite, 20% kaolinite and 15% smectite. Details on the fault gauge triaxial and XRD testing results are included in Appendix C4 and C5.

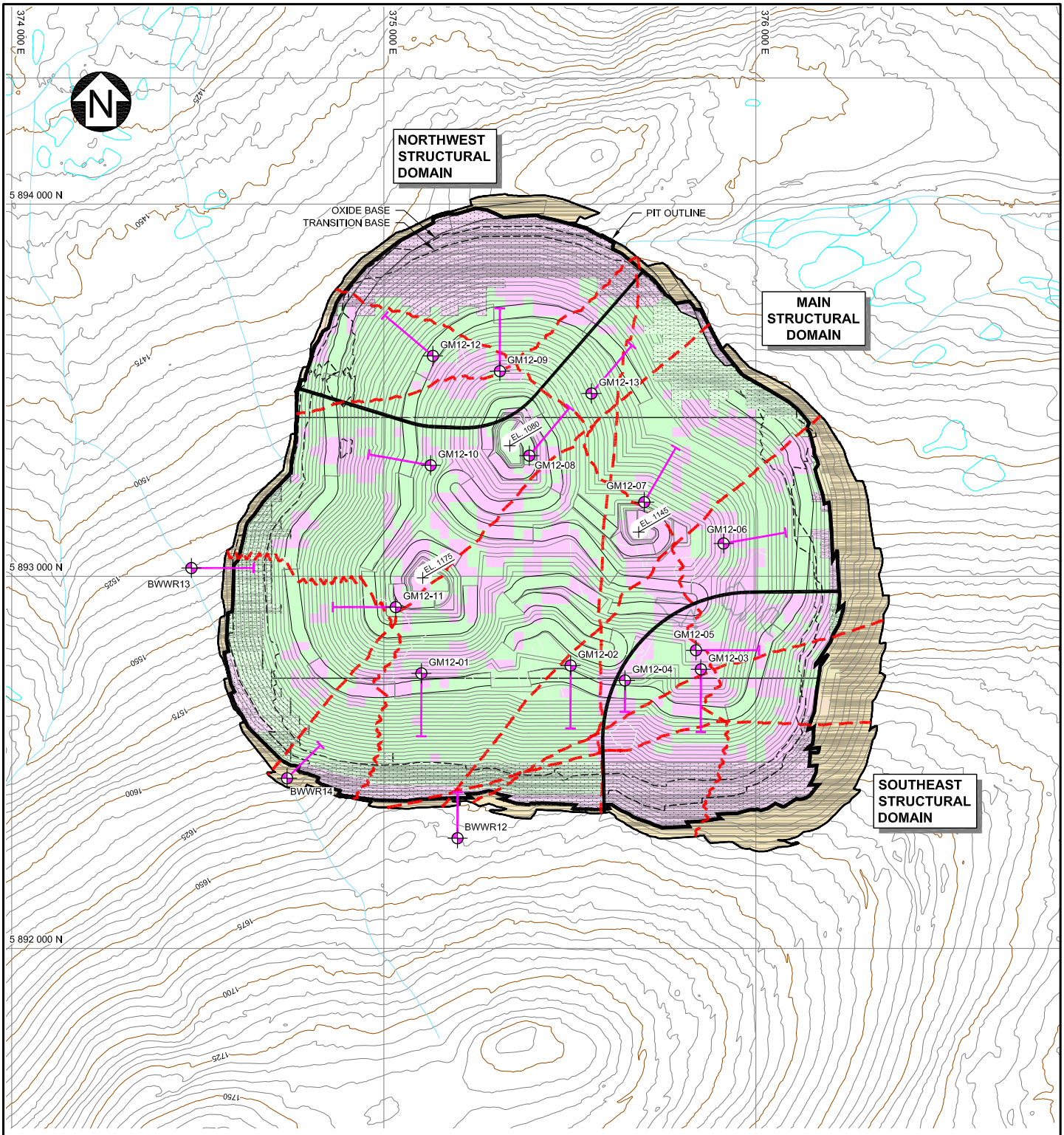
Table 4.3 Summary of Fault Gouge Strength Properties

Drillhole	Sample	Test	Depth (m)	Ø (degrees)	C (kPa)	Moisture Content (%)	S.G.
GM12-12	Gouge 3	Direct Shear	126.4 - 126.7	45	0	-	-
GM12-08	Fault 1	Direct Shear	318.2 - 318.4	39	90	6.2	2.88
GM12-09	Fault 1	Direct Shear	56.5 - 56.4	35	72	8.7	-
GM12-12	Gouge 1	Triaxial Compression	44.2 - 44.5	32	38	2.6	2.75

4.4.3 Rock Mass Fabric

Structural domains have been developed for groups of rock masses that are expected to have similar discontinuity orientations (i.e., joint-set families). A review of the spatial distribution of the collected discontinuity data suggested that three structural domains exist within the region of the proposed open pit. For the purposes of these analyses, the domains will be referred to as the Main, Northwest and Southeast domains. The position of these domains is shown on Figure 4.5. The stereonet for each domain is included as Figures 4.6 to 4.8.

It can be seen from these stereonets that the dominant discontinuities are dipping steeply toward the northwest and the northeast. This result is generally consistent with the orientations of identified fault systems.



LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR
- FAULTS
- GM12-01 GEOMECHANICAL DRILLHOLES

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. CONTOUR INTERVAL IS 5 METRES.
3. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OVERBURDEN CONTOUR PROVIDED BY NEW GOLD, FEBRUARY 2013.
5. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

STRUCTURAL MODEL DOMAINS FINAL PIT

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
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Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF NO. 2

FIGURE 4.5 | REV 0

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XREF FILE(S): Hydro; OPIT-Phase 4; Topo 1m_Part \IMAGE FILE(S): Poor RQD Poor ROD & Rock

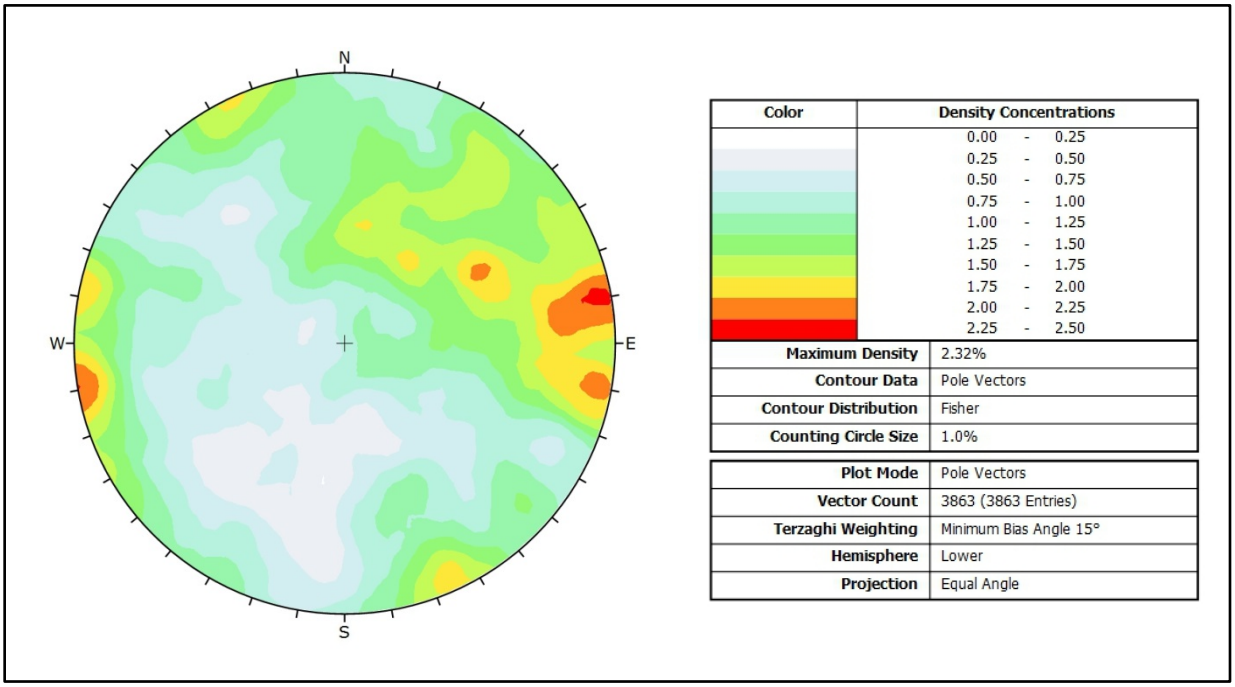


Figure 4.6 Orientation of Structures of Main Structural Domain

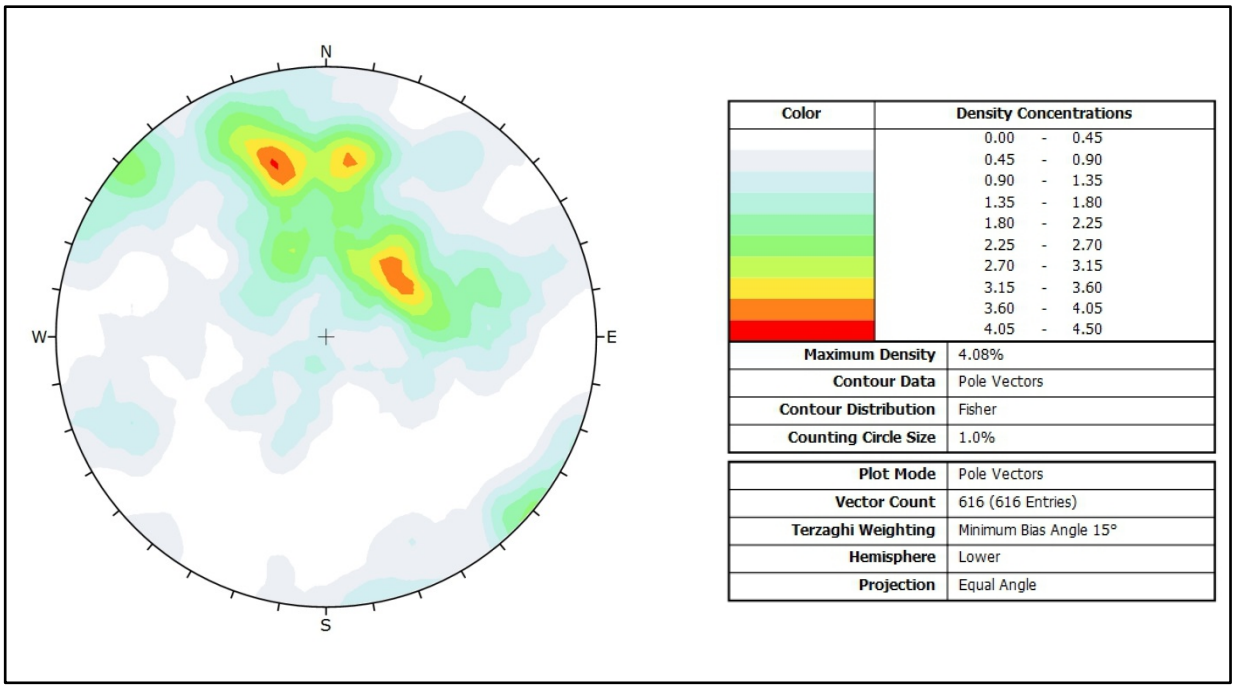


Figure 4.7 Orientation of Structures of Northwest Structural Domain

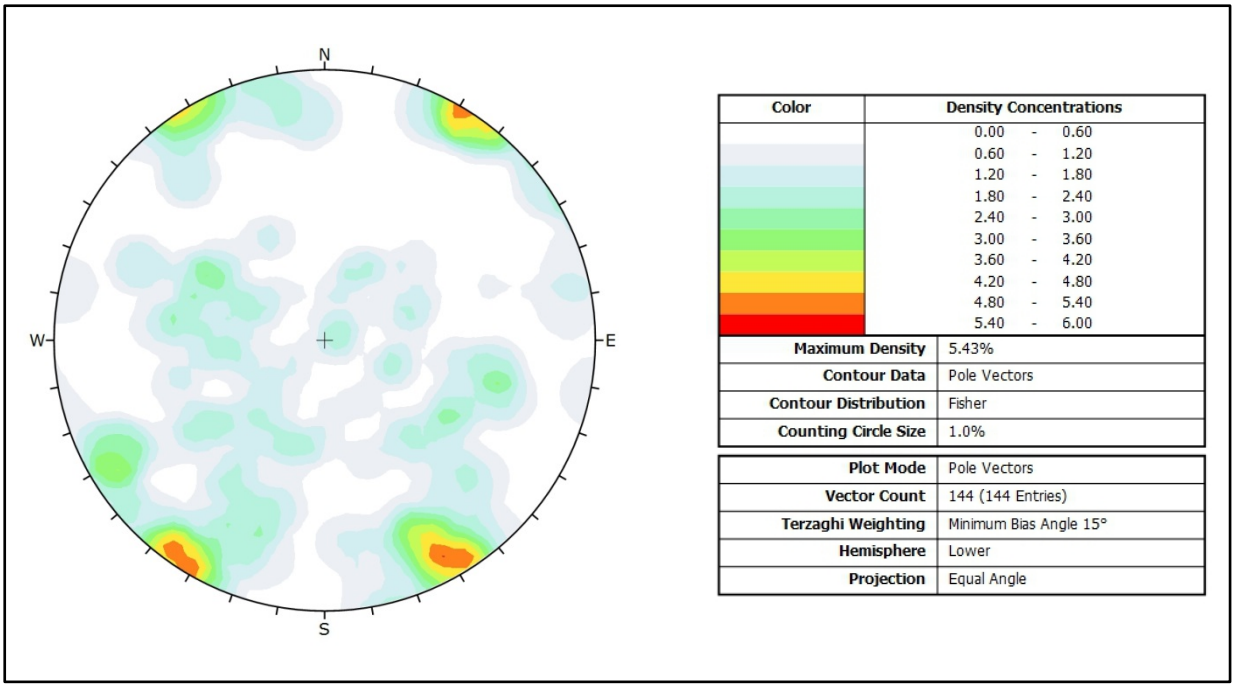


Figure 4.8 Orientation of Structures of Southeast Structural Domain

4.5 ROCK MASS MODEL

4.5.1 General

The rock mass model summarizes the engineering properties of the rock masses that will be encountered during pit development. The key engineering properties include intact rock strengths, rock mass quality, and discontinuity characteristics. The strength characteristics of the rock mass are fundamental to the performance of the open pit slopes.

4.5.2 Intact Rock Strength

Intact rock strength is determined from field estimates and by laboratory testing. Laboratory results show that the UCS values range from 160 ± 60 MPa. This indicates that the intact rock strength is VERY STRONG for the Andesite, Fragmentals, and Sediments geology units. No UCS samples were available for the Laminated Volcanics unit, which was only encountered for a few meters in two geomechanical drillholes. The Laminated Volcanics is a small unit with very limited exposure expected within the final pit walls. A summary of the intact rock strength parameters for each lithology unit is shown in Table 4.4. The definition of the Broken Zone unit is discussed in Section 4.5.3.

Table 4.4 Summary of Intact Rock Strength Properties from Laboratory Testing

GEOLOGY UNIT		Andesite	Fragmentals	Sediments	Broken Zones[1]
Rock Strength (MPa) From UCS	# of Samples	20	28	5	4
	Mean	158	161	156	18
	Median	143	171	181	13
	Std. Dev.	67	63	64	21
	Maximum	276	277	214	44
	Minimum	69	53	66	1
	Strength Description	VERY STRONG	VERY STRONG	VERY STRONG	WEAK
Young's Modulus (GPa)	Mean	65	59	80	22
	Median	65	63	81	18
	Std. Dev.	10	19	9	25
	Maximum	87	84	89	50
	Minimum	42	16	70	0
Poisson Ratio	Mean	0.20	0.20	0.19	0.25
	Median	0.20	0.19	0.18	0.24
	Std. Dev.	0.03	0.05	0.03	0.18
	Maximum	0.26	0.36	0.23	0.44
	Minimum	0.12	0.11	0.16	0.06

NOTES:

1. No samples large enough for UCS testing were available from the Broken Zone. Values reported are the weakest valid tests that did not fail along a discontinuity or other defect. See Section 4.5.4 for discussion of intact strength for the Broken Zone.

4.5.3 Rock Mass Quality

The rock mass quality was characterized using RQD and the RMR classification system. New Gold developed a 3D RQD block model (February 2013) utilizing the exploration drillhole database. KP utilized this model to delineate zones of reduced rock mass quality throughout the volume of interest. The RQD blocks were coded in three categories:

- GOOD Rock: RQD greater than 75%
- FAIR Rock: RQD between 40% and 75%, and
- POOR Rock: RQD less than 40%.

Areas of intensely fractured rock (RQD < 40%) were identified within all geological units and referred to as Broken Zones. These zones tend to be distinct and pervasive, with fairly well established geospatial locations within both the KP geomechanical drillholes and within New Gold's RQD model. The RQD model was reviewed, along with core photographs of select geology drillholes, in order to verify the RQD zones defined by the block model. The projected final pit wall RQD model is shown on Figure 4.9.

RQD and RMR values were found to be similar for all lithology types, once the Broken Zone was separated out. This allowed the 3D RQD model to be used to define the spatial extents of the

Broken Zone unit. All runs with an RQD less than 40 were assigned to the Broken Zone. Note that grouping the low RQD regions into a separate zone, effectively increases the average RMR for the remaining more competent units.

Table 4.5 summarizes the rock mass quality properties for each geological unit. The statistical analyses of rock mass quality data indicates that the Andesite, Fragmentals, Laminated Volcanics and Sediments units are all classified as GOOD rock (mean RMR values ranging between 63 and 69). These three units all have similar average RMR, RQD and apparent joint spacing values. The RQD and RMR histograms of the Andesite and Fragmentals are shown in Figure 4.10 and Figure 4.11, respectively. The Sediments and Laminated Volcanics units are minor and are not presented by histogram. More detailed RQD and RMR data are available in Appendix A2 and A3.

Table 4.5 Summary of Rock Mass Properties

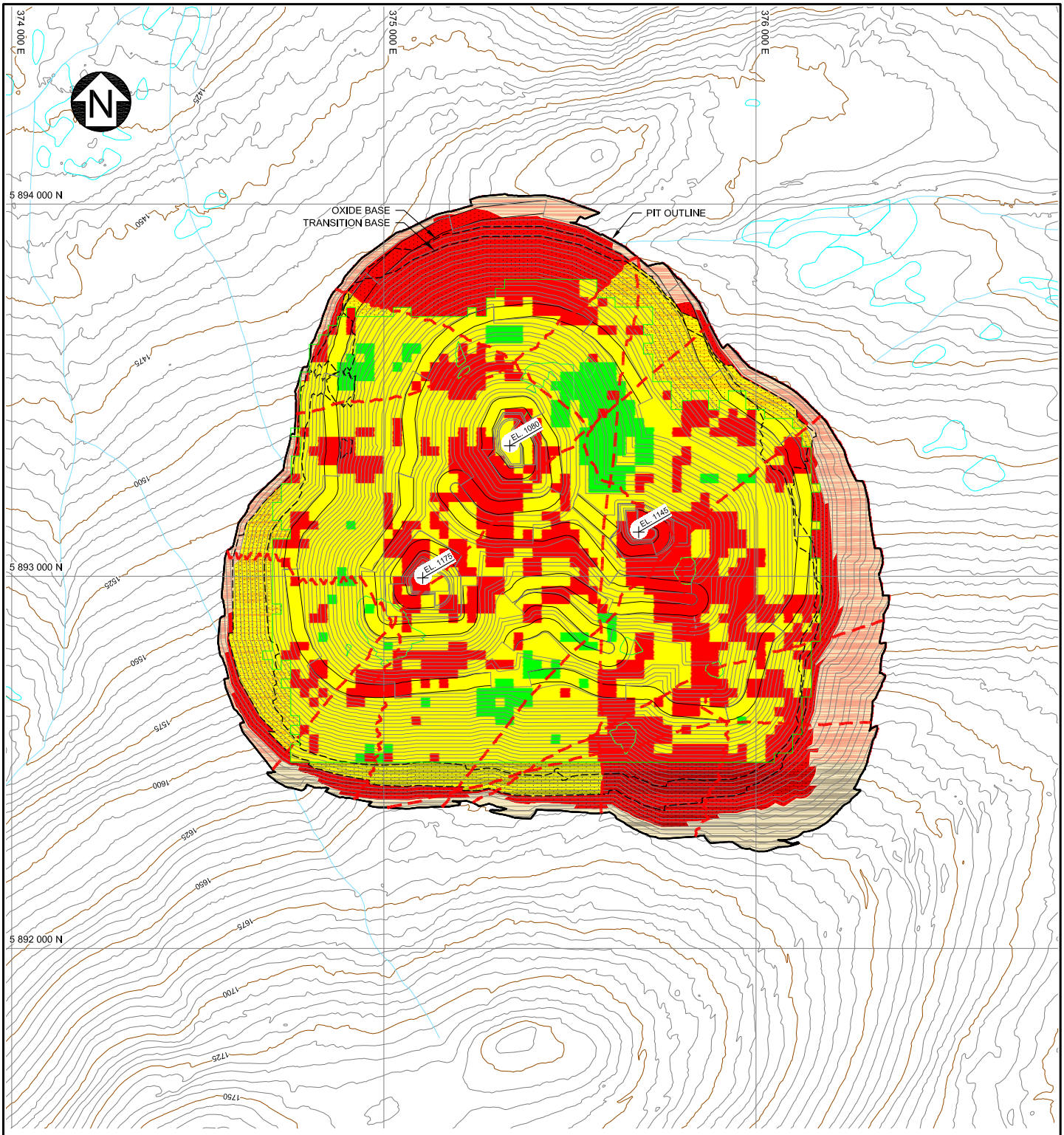
Geology Unit		Andesite	Fragmentals	Laminated Volcanics	Sediments	Broken Zone
Density	g/cm^3	2.79	2.70	2.70	2.68	2.73
RQD (%)	Number of Runs	1257	1300	129	175	1572
	RQD Average	87	78	85	81	9
	RQD Median	95	81	95	88	0
RMR^{89}	Numbers of Discontinuities	1257	1300	129	175	1572
	RMR^{89} Mean[1]	69	63	64	65	38
	RMR^{89} Median	65	60	59	61	43
	RMR^{89} Std. Dev.[1]	12	12	12	8	9
	Maximum	98	97	95	90	78
	Minimum	35	35	38	43	24
	RMR Classification	GOOD	GOOD	GOOD	GOOD	POOR
Apparent Fracture Spacing $(mm)^2$	Average	444	346	399	327	61
	Median	300	247	294	294	21
	Maximum	1870	1599	1600	1500	1500
	Minimum	5	5	17	5	0

NOTES:

1. Weighted RMR and Standard Deviation (Std. Dev.) based on the average joint condition and weighted using the run length.
2. Apparent joint spacing calculated using the number of fractures and the length of the run.

The Broken Zone is classified as POOR with a mean RMR of 38. The RQD and RMR histograms for the Broken Zone are also shown on Figure 4.10 and Figure 4.11. The RMR system was originally developed for underground hard rock mines. In many instances, the concept of a discontinuity as defined by the RMR system does not apply to this Broken Zone unit. An alternative rock mass characterisation methodology called the Geological Strength Index (Hoek 2002) was used to provide adjustments to the RMR logging procedure to obtain results that were roughly equivalent to the expected GSI range. These adjustments tend to reduce the variability in the rock mass quality estimates at the low end of the scale, making precise definition difficult. Figure 4.12 depicts three

types of rock masses defined within the Broken Zone with the Competent Rock as a reference, on the GSI chart. A significant transition zone exists between these three examples and the Broken Zone can transition rapidly from gravel sized particles to highly fractured but intact core and back within short (<5m) distances.



LEGEND:

- OVERBURDEN
- RQD - POOR (0 - 40 %)
- RQD - POOR (0 - 40 %) (INFERRED)
- RQD - FAIR (40 - 75 %)
- RQD - FAIR (40 - 75 %) (INFERRED)
- RQD - GOOD (75 - 100 %)
- DESIGN SECTOR
- FAULTS

NOTES:

1. COORDINATE GRID IS UTM NAD83) ZONE 10 U.
2. CONTOUR INTERVAL IS 5 METRES.
3. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

PROJECTED PIT WALL RQD MODEL
FINAL PIT

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	21JUN'13	ISSUED WITH REPORT	JS	AN	DAY	KJB

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF NO. 2

FIGURE 4.9 | REV 0

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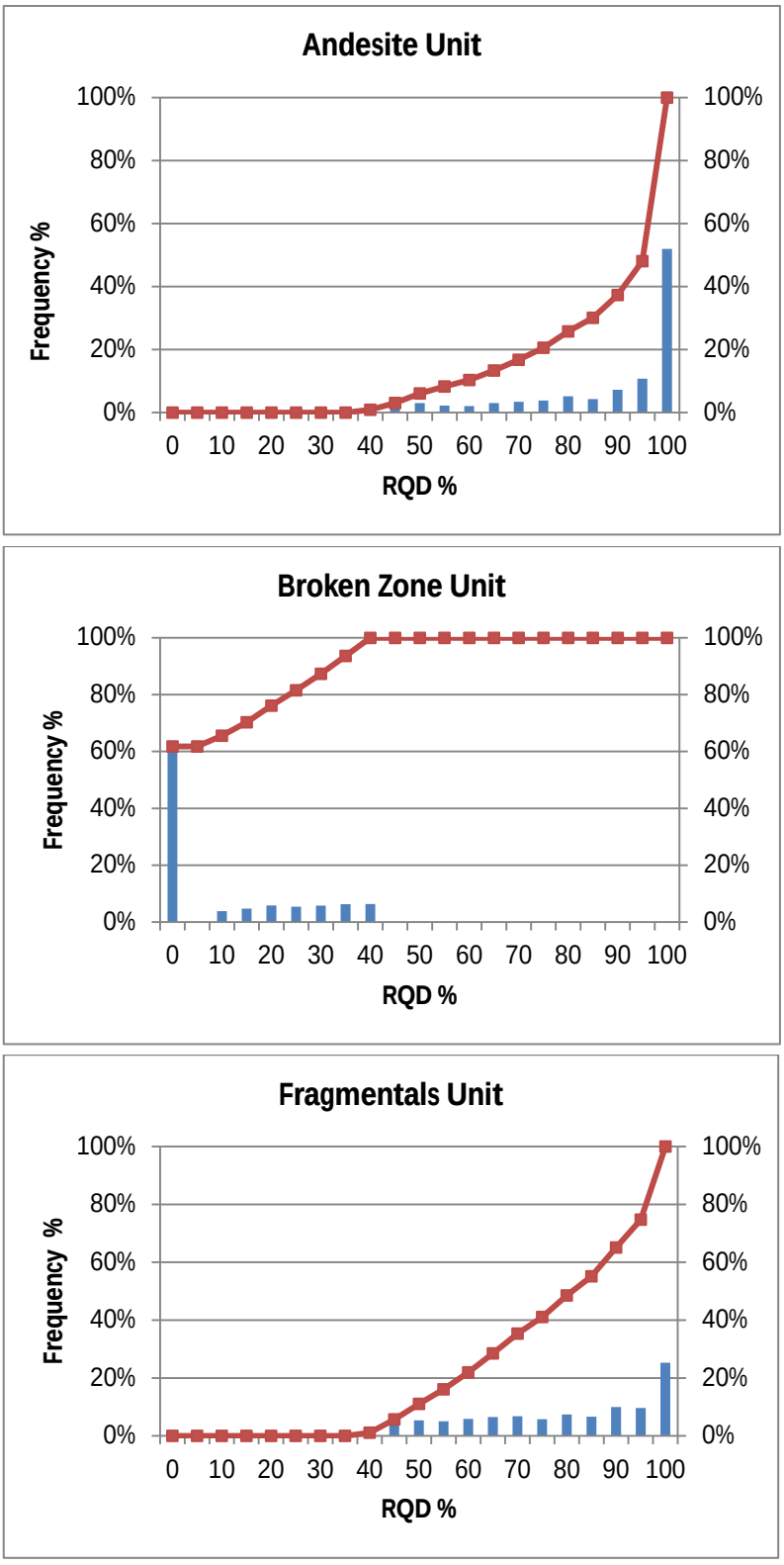


Figure 4.10 Histograms of Rock Quality Designation (RQD)

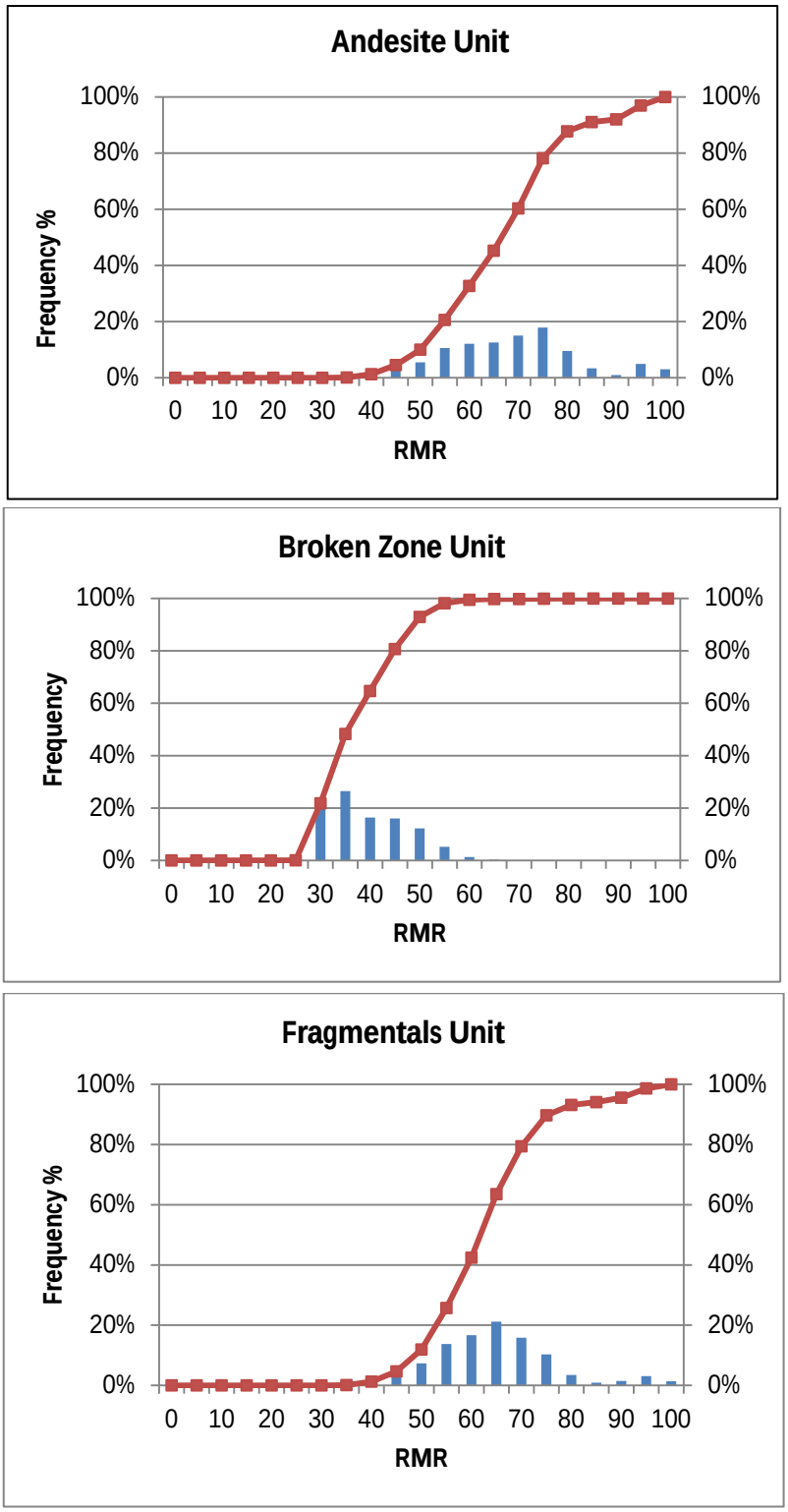


Figure 4.11 Histograms of Rock Mass Rating (RMR)

4.5.4 Broken Zone Characteristics

The Broken Zone is a highly variable rock mass, with significant zones at the low end of the rock mass quality scale. The unit is often heavily disturbed by the drilling process, making in situ characterization estimates difficult. Logging indicates that the Broken Zone is a heterogeneous mix of highly fractured intact rock with some instances of disintegrated rock or gravel.

An estimate of the intact strength for the Broken Zone rocks is needed for the slope stability analyses. Obtaining a meaningful field or lab estimate was difficult given the size of the core pieces available. In many cases, the strengths for RMR characterization were obtained from a nearby run with intact core pieces. In some cases, the rock was so disintegrated that field rock hardness was estimated to be in the S6 to R1 (0 to 5 MPa) range. The histogram for field estimated intact strength can be seen on Figure 4.12.

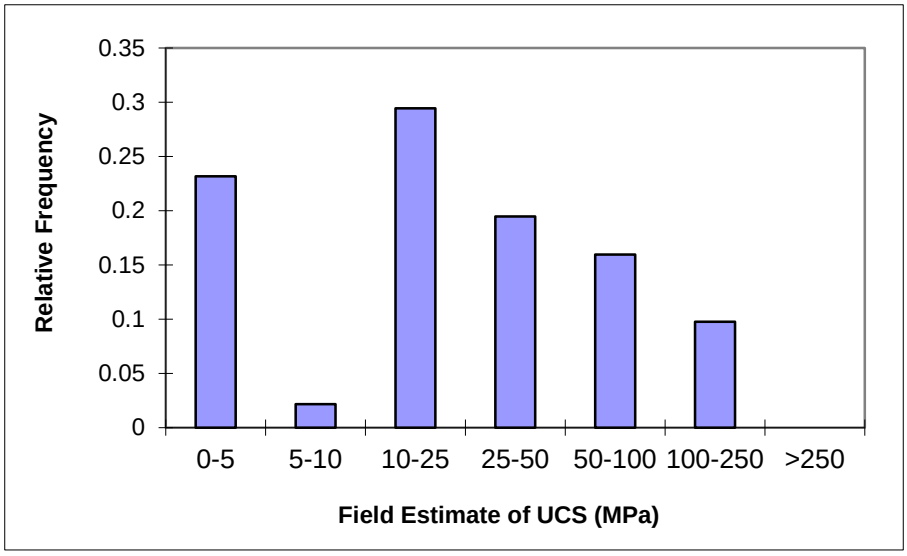
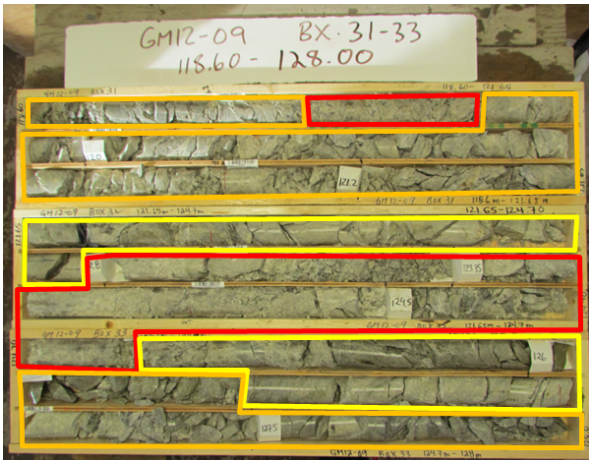


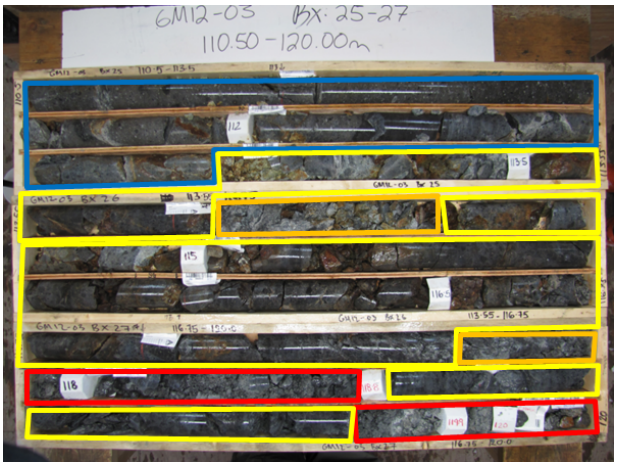
Figure 4.12 Relative Frequency Histogram of Field Estimated UCS for Broken Zone

KP recommends UCS values in the 20 to 30 MPa for the Broken Zone range based on:

- **Field Estimated UCS** – While 25% of the Broken Zone is indicated to have an intact strength of less than 5 MPa, 50% of the runs have estimated strengths greater than 25 MPa.
- **Point Load Index Testing** – Eight samples collected from the Broken Zone rocks suggested average intact rock strength of 100 MPa (Appendix Table C2.2). These samples are likely representative of the stronger units within the highly variable Broken Zone.
- **Laboratory UCS Testing of Other Units** – As mentioned in Table 4.4., the weakest samples that did not fail on a defect had an average UCS of 20 MPa.

Some Broken Zone rock logging examples related to RMR values are illustrated on Figure 4.13.





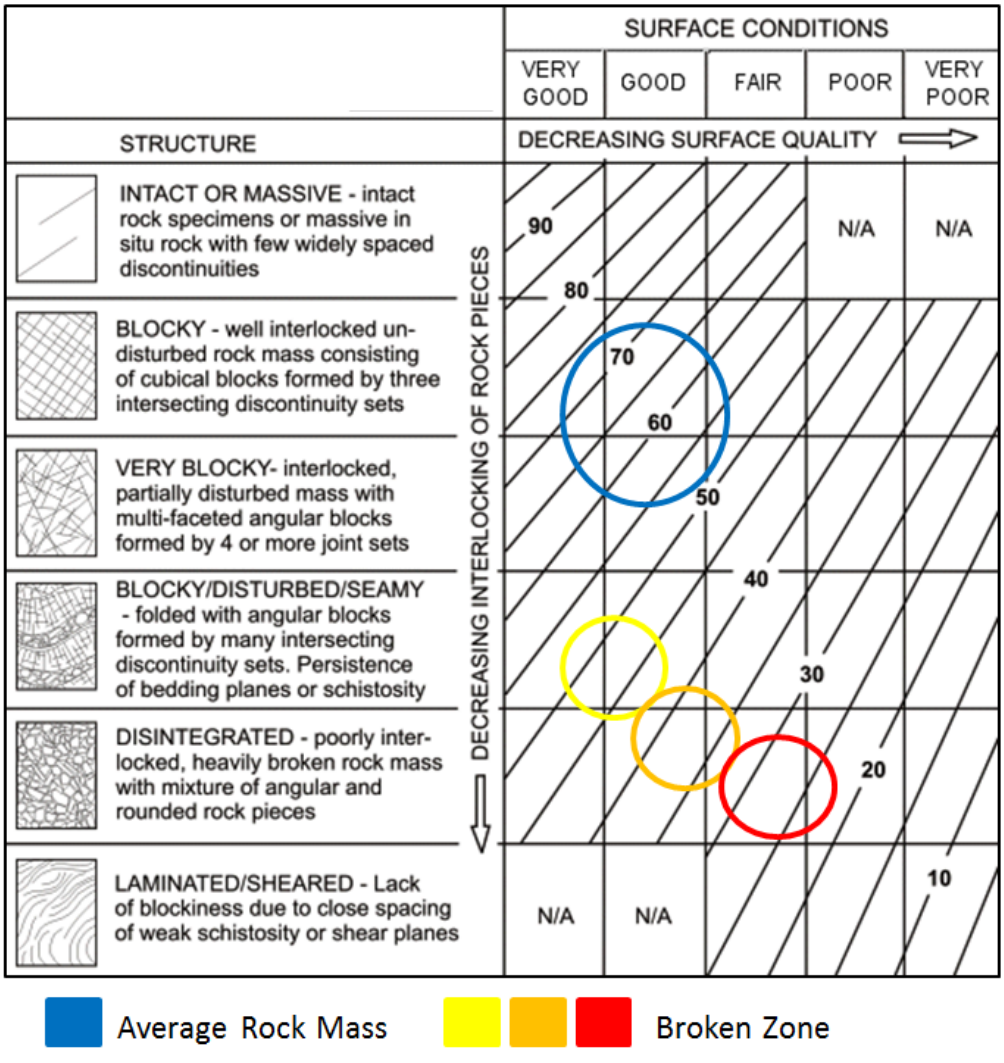


Figure 4.13 Broken Zone Examples

4.5.5 Discontinuity Characteristics

Detailed characterization of rock mass discontinuities was carried out as part of the RMR logging system, and the main rock mass characteristics can be summarized below:

- **Discontinuity Spacing** – Typical discontinuity spacing within the Competent Rock was on the order of 0.3 to 0.4 m. This parameter is less applicable to the Broken Zone, with an average discontinuity spacing of 0.06 m and a median spacing of 0.02 m.
- **Discontinuity Persistence** – This parameter cannot be determined from drillhole logging and is conservatively assumed to be >20 m.
- **Discontinuity Roughness and Shape** – The majority of discontinuity surfaces are characterized as smooth to slightly rough.
- **Discontinuity Infilling** – Typical types of infilling include calcite, sericite, quartz, clay and gouge. Other infilling materials are present including sulphide mineralization of chalcopyrite and pyrite. Iron oxide infilling and surface staining was observed close to ground surface. Rubble, crushed rock, clay and white clay infillings are common in more fractured zones of bedrock, but were identified throughout the drillholes. The thickness of most infillings is typically 1 to 5 millimetres.
- **Discontinuity Shear Strength** – Direct shear testing suggested an average friction angle (ø) of 35° and cohesion 84 kPa. Rock strength results from laboratory testing are summarized in Table 4.6 and Appendix C3.

Table 4.6 Summary of Discontinuity Strength Properties from Laboratory Testing

Geology Unit	Andesite	Fragmentals	Sediments
Number of Samples	30	12	6
Peak Friction Angle (Ø deg)	32	39	42
Peak Cohesion (C KPa)	179	170	113

NOTES:
1. Direct shear testing results reported were tested on natural fractures only.
2. No direct shear results are available for the Broken Zone.

4.6 HYDROGEOLOGY MODEL

Groundwater pressure will adversely influence the stability of a slope. Groundwater levels vary throughout the deposit, ranging from artesian conditions (observed within the north regions), to just below surface (in the Southern drillholes), or to approximately 10 to 40 m deep (on the east side of the deposit where the overburden is thickest). Artesian flows were encountered in the lower northern slopes during exploration drilling and in the geomechnical drillholes (GM12-09 and 12). Artesian drillholes are identified in Figure 3.1 and appear to intersect a lineament or fault. Pore water pressures measured with the vibrating wire piezometers indicate that the water level varies from 10 to 28 m depth, with an average depth of approximately 22 m over the deposit. The vibrating wire data is summarized in Table 3.3.

The hydraulic conductivity of the bedrock derived from the 2012 site investigation program ranged from 10^{-9} m/s to 10^{-7} m/s, with an arithmetic average value of 10^{-8} m/s for the 174 tests completed. The hydraulic conductivity values are relatively constant with depth. Hydraulic conductivity

measurements from the 2012 site investigation program are summarized in Table 4.7 and plotted on Figure 4.14.

Table 4.7 Summary of Rock Mass Hydraulic Conductivity

Geology Unit	Andesite	Fragmentals	Laminated Volcanics	Sediments	Broken Zones
Number of Tests	81	82	7	1	3
Mean (m/s)	1×10^{-7}	1×10^{-7}	3×10^{-7}	2×10^{-7}	1×10^{-7}
Median (m/s)	3×10^{-8}	2×10^{-8}	1×10^{-7}	-	8×10^{-8}
Standard Deviation (m/s)	5×10^{-7}	3×10^{-7}	4×10^{-7}	-	7×10^{-8}
Minimum (m/s)	4×10^{-10}	3×10^{-10}	3×10^{-9}	-	5×10^{-8}
Maximum (m/s)	4×10^{-6}	2×10^{-6}	9×10^{-7}	-	2×10^{-7}

A pump testing program completed in July/August 2013, involved constant rate testing for several days at two locations (PW13-1 and PW13-3). The pump testing provided in-situ results for the bulk hydraulic conductivity of the bedrock. The results of the hydrogeological investigation were used to develop a site hydrogeological model and to develop an open pit management plan (KP Ref. No. VA101-457/6-9, Rev A). Full details of the hydrogeological model and the pit dewatering system are contained within the referenced report.

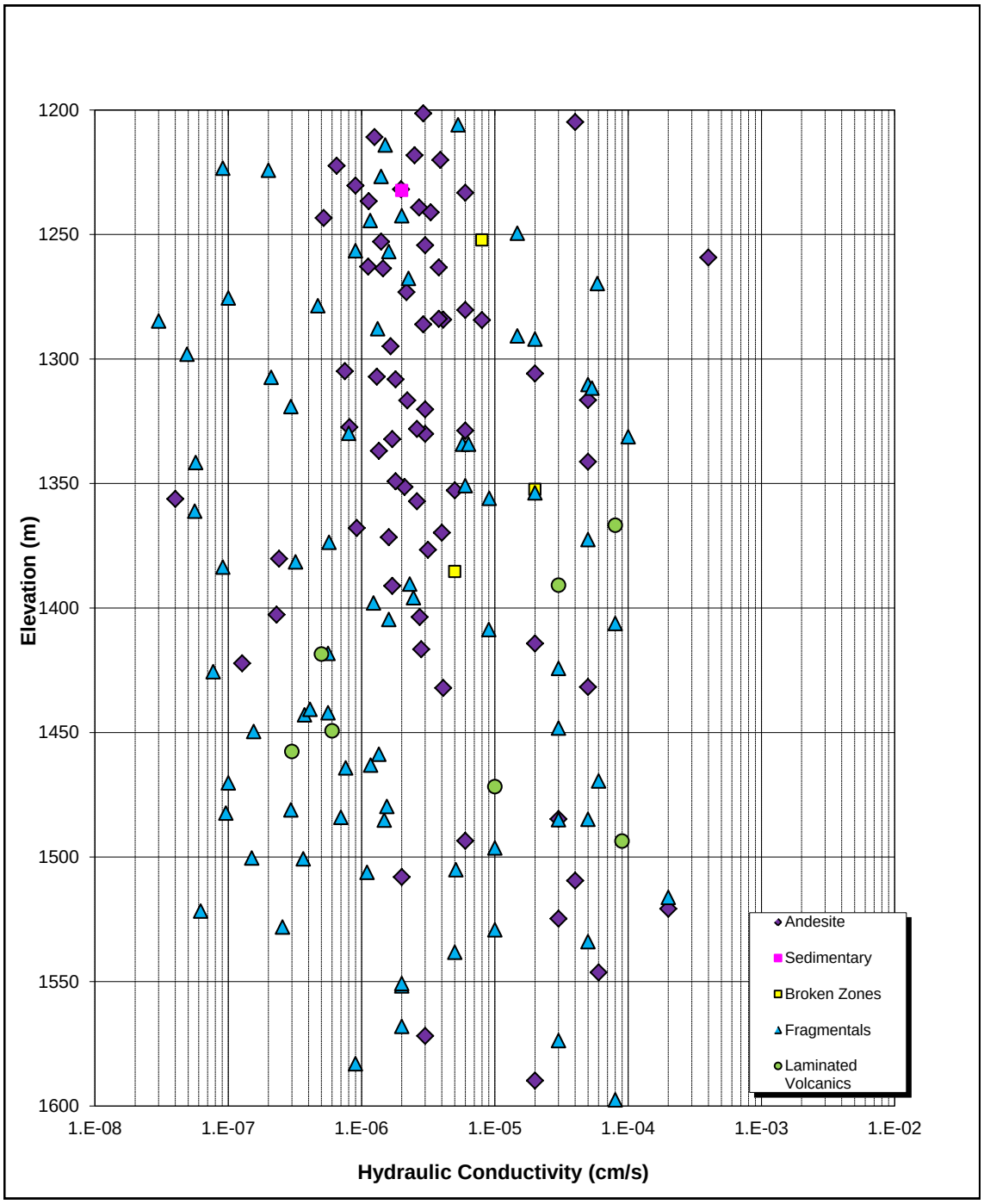


Figure 4.14 Hydraulic Conductivity versus Elevation

4.7 GEOTECHNICAL MODEL

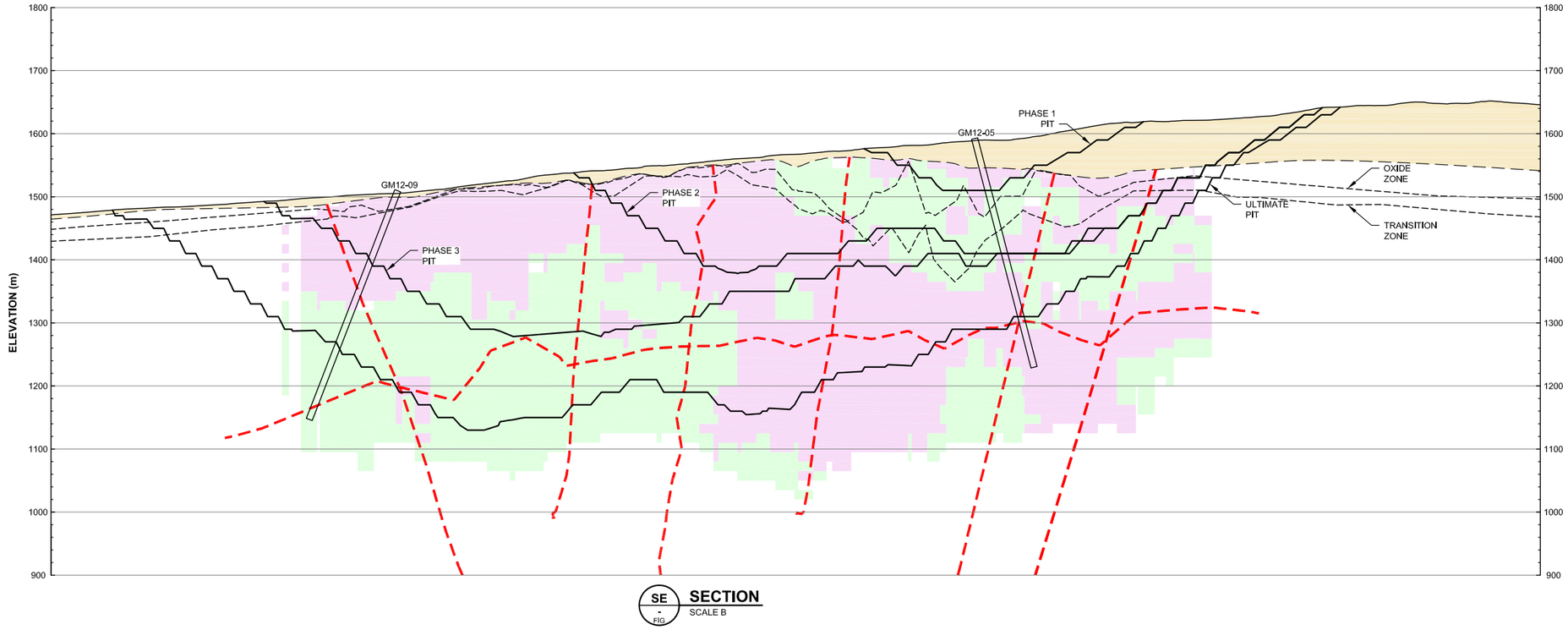
The geotechnical model is made up of five separate components: geological, alteration, structural, rock mass and hydrogeology models.

- The geology model includes five main geology units: Overburden, Andesite, Fragmentals, Sediments, Laminated Volcanics.
- The alteration models are divided into two units: Sericte and Potassic. The Sercite alteration generally occurs within the Fragmentals unit, while potassium alteration overlies the Andesite and Laminated Volcanic units.
- The structural model indicates that the Blackwater Pit can be divided into three domains with different structural fabrics: Main, Northwest and Southeast domains.
- The Rock Mass Model suggests that there is little variation in the rock mass properties among the competent rock units within the Blackwater deposit. As such, the rock mass has been divided into two units: Competent Rock and the Broken Zone.
- The available hydrogeological data suggests that there are two general hydrogeological domains; the Main region with groundwater close to surface and the North region of the deposit where artesian conditions were observed.

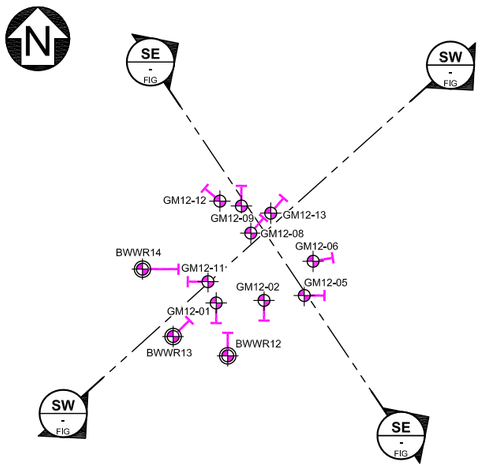
Consideration of the domains within the individual models, their spatial distribution and their influence of slope performance led to the decision to recognize three geotechnical domains for the purposes of the slope stability analysis. The geotechnical domains are defined as follows:

- **Overburden –** Glacial till deposit ranges from 5 to 20 m in thickness throughout the deposit. The overburden thickness increases up to 110 m depth along the eastern side of the deposit.
- **Broken Zone –** This unit is defined as a POOR quality rock mass and is delineated in the RQD block model for zones with RQD less than 40. This unit contains all geology types.
- **Competent Rock** – Defined as all geology types for zones with RQD greater than 40. The rock mass quality is generally FAIR to GOOD.

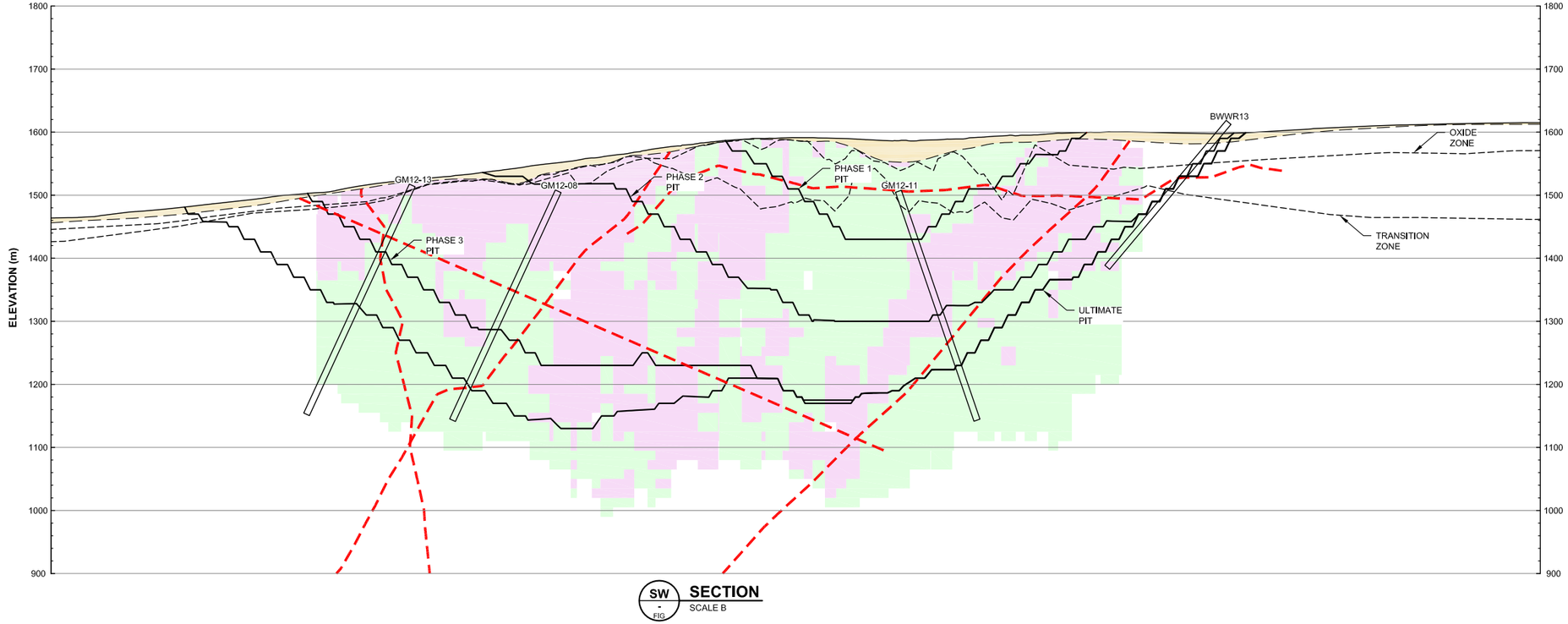
It should be noted that the available data does not fully encapsulate the final pit walls due to the limits of the RQD block model. The data gaps are shown on four cross sections as illustrated on Figures 4.16 and 4.17. The geotechnical domains were inferred in the areas directly below the crest where block model data gaps occurred. If the Broken Zone existed at the edge of the RQD model, it was generally assumed to continue beyond the limits of the data. This assumption could have a significant impact on the southeast and north sections of the final pits (see Figures 4.16 and 4.17).



SE - FIG **SECTION**
SCALE B



PLAN
SCALE A



SW - FIG **SECTION**
SCALE B

LEGEND:

- OVERBURDEN
- BROKEN ZONE
- COMPETENT ROCK
- DATA GAP
- INFERRED FAULTS
- GM — GEOMECHANICAL DRILLHOLES

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. PLAN/SECTION BASED ON INFORMATION PROVIDED BY RQD BLOCK MODEL, FAULTS, NEW GOLD, DATED FEBURARY 2013.
3. OPEN PIT DESIGN PROVIDED BY NORWEST, FEBURARY 2013.

SCALE B: 80 40 0 100 200 300 400 m
SCALE A: 500 250 0 500 1000 1500 2000 2500 m

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
1	28OCT'13	ISSUED WITH REPORT	JS	DP	DAY	KJB
0	21JUN'13	ISSUED WITH REPORT	JS	AN	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

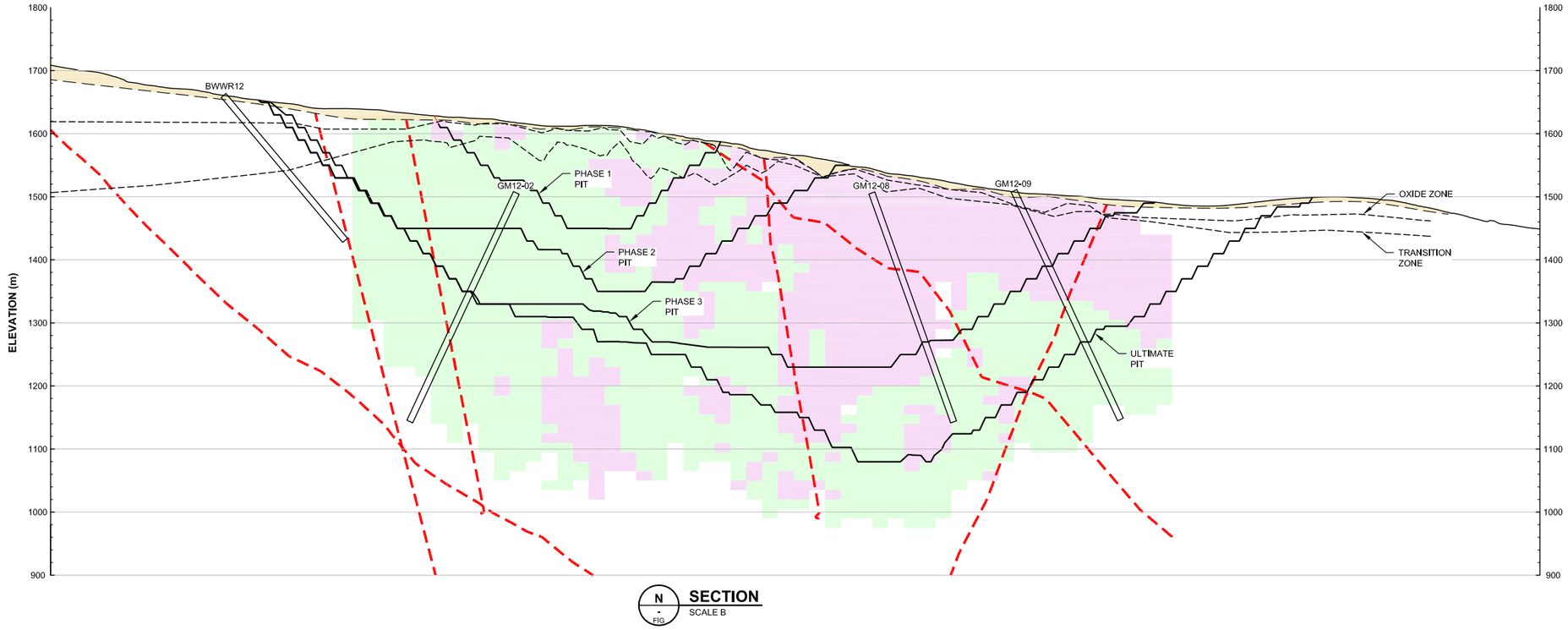
PIT SECTIONS
SOUTHEAST AND SOUTHWEST

Knight Piésold CONSULTING

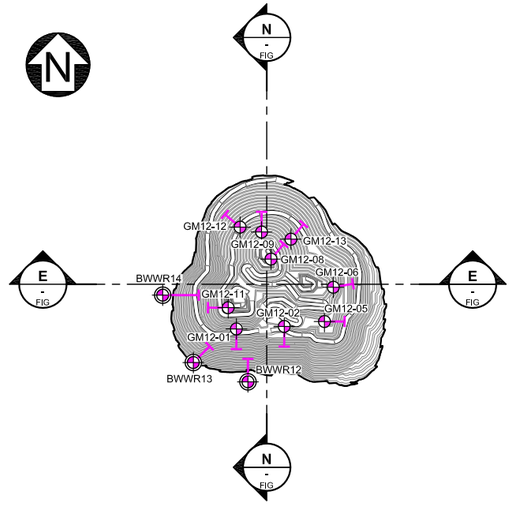
P/A NO. VA101-457/6 | REF NO. 2

FIGURE 4.15 | REV 1

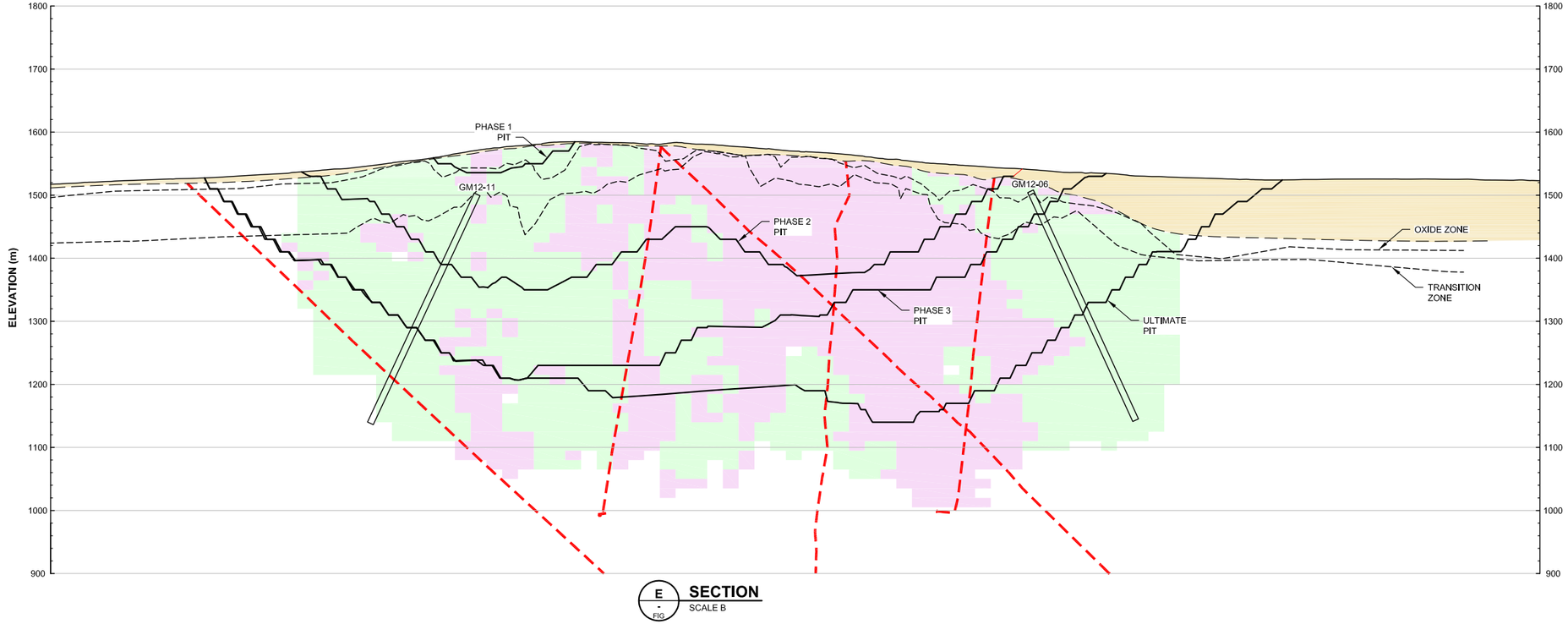
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N - FIG **SECTION**
SCALE B



PLAN
SCALE A



E - FIG **SECTION**
SCALE B

LEGEND:

- BROKEN ZONE
- COMPEDENT ROCK
- OVERBURDEN
- DATA GAP
- INFERRED FAULTS
- GM — GEOMECHANICAL DRILLHOLES

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. PLAN/SECTION BASED ON INFORMATION PROVIDED BY RQD BLOCK MODEL, FAULTS, NEW GOLD, DATED FEBURARY 2013.
3. OPEN PIT DESIGN PROVIDED BY NORWEST, FEBURARY 2013.

SCALE B: 80 40 0 100 200 300 400 m
SCALE A: 500 250 0 500 1000 1500 2000 2500 m

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	21JUN'13	ISSUED WITH REPORT	JS	AN	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

PIT SECTIONS NORTH AND EAST

Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF NO. 2

FIGURE 4.16

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5 – OPEN PIT DEWATERING

5.1 GENERAL

The open pit dewatering system comprises of a combination of the following three sub-systems:

1. Surface water management
2. In-pit groundwater depressurization, and
3. Perimeter depressurization.

Surface water dewatering systems have been designed to manage the surface water inflows from rain storm events and the associated snowmelt. A combination of in-pit and perimeter pumping wells will be implemented to achieve acceptable slope depressurization and pit dewatering. The pit dewatering design is based on lowering the groundwater table within the higher permeability zone to approximately 15 meters below the pit base elevation. In–pit groundwater wells will remove water from storage in the higher permeability zone. Additional drawdown will result in the surrounding rock mass as groundwater flows towards the highly permeable zone. Perimeter dewatering wells will be established along the south high wall to lower and extend the cone of depression beyond the pit walls to provide the depressurization required from the open pit wall stability analyses.

The open pit surface water and groundwater dewatering assessment and pit water management system design is described in detail in the Open Pit Water Management Report (KP Ref. No. VA101-457/6-9, Rev A). A summary of the findings is provided below.

5.2 SURFACE WATER MANAGEMENT

The open pit development sequencing throughout the mine life was divided into five general stages to evaluate the requirements for surface water management. The 1 in 100 year 24 hour return period storm was used to size the pit surface water management system and to assess the duration of dewatering that would be required in the pit bottom following a storm.

The total volume of surface water runoff from the design storm event was calculated by applying the total precipitation depth (rainfall and snowmelt) and runoff coefficient over the open pit catchment area. The calculated water runoff volume for sizing the dewatering system is summarized in Table 5.1.

The surface water management system was designed for a maximum pumping flow rate of 700 m^3/hr. The maximum pumping flow rate was selected as the optimal flow rate of a 16” diameter DR11 HDPE pipe. The optimal flow rate was determined for a flow velocity between 2.0 m/s and 2.5 m/s.

Table 5.1 Open Pit Storm Inflow Volumes

STAGE		Catchment Area (m^2)	Runoff Volume (m^3)	Pumping Rate (m^3/h)	Time to Dewater (Days)
Stage 1 (Year 1)	**Pit Bottom (El. 1550m)**	751,300	73,627	700	4
	Secondary (El. 1585m)	395,937	38,802	700	2
Stage 2 (Year 6)	**East Catchment (El. 1370m)**	1,389,324	136,154	700	8
	West Catchment (El. 1405m)	823,555	216,862	700	13
Stage 3 (Year 7)	**Pit Bottom (El. 1345m)**	2,264,753	221,946	700	13
Stage 4 (Year 9)	**Pit Bottom (El. 1300m)**	2,370,863	232,345	700	14
Stage 5 (Year 13)	**North (El. 1120m)**	591,153	57,933	700	3
	East (El. 1165m)	1,124,161	110,168	700	7
	West (El. 1180m)	654,687	232,260	700	14

The surface water management pipelines will be installed adjacent to the open pit haul roads. A pump unit will be placed adjacent to sump areas in the base of the pit after a storm, and the water will be pumped to the crest of the pit wall using a series of booster pumps positioned along the pipeline. The pump system will consist of a series of Godwin HL250M Dri-Prime skid-mounted diesel drive pumps. The number of pumps will increase as the pit depth increases. The total dynamic head for the initial intake and between subsequent booster pump units must not exceed 100 meters in order to maintain the pumping flow rate of 700 m^3/h. The pumps will be converted to the HL250M pumps from the Godwin HL160M pumps that will be used for the freshet water capture system in TSF Site D during pre-production and early operations.

The water from the surface water management system will flow by gravity in the pipeline approximately 200 m to the dewatering system junction after exiting the pit. Water from the surface water management system will be combined with groundwater from the depressurization systems at the dewatering junction header.

5.3 GROUNDWATER DEPRESSURIZATION

In–pit groundwater wells will remove water from storage in the more permeable zone. Additional drawdown will result in the surrounding rock mass as groundwater flows towards the higher permeable zone. Perimeter dewatering wells will be established along the south high wall to lower and extend the zone of depression beyond the pit walls to the specified distance indicated in the slope stability assessment. The sequence of development for dewatering wells is provided below. Details of the well locations and depths are summarized in Table 5-2.

Pre-Production (Years -2 and -1)

- Re-develop existing pumping wells PW13-1 and PW13-3 for inclusion in dewatering system.
- Install five perimeter pumping wells in Year -2 (PW15-1 to PW15-5) along the south wall.
- Install eleven observation wells to measure groundwater water levels around the open pit perimeter (OW1 to OW10 and OW19) in Year -2.
- Commission dewatering wells PW15-1 to PW15-5 and PW13-3 in the last quarter of Year -2.
- Install four perimeter pumping wells in Year -1 (PW16-1 to PW16-4) along the south wall.
- Commission in-pit well PW13-1 in Year -1.

Years 1 – 3

- Evaluate performance of pumping wells and determine if backup wells will be required in areas where elevated pore pressures resulting from well failure has the potential to compromise pit slope stability and result in major interruptions to mining operations.
- Install remaining observation wells (OW11 to OW18) around the northern sections of the ultimate open pit.

Year 6

- Install secondary in-pit well PW22-17 and decommission PW13-1.

Table 5.2 Open Pit Dewatering Well Details

Well ID	Easting	Northing	Well Collar Elevation	Well Bottom Elevation
			masl	masl
PW13-1	375,124	5,893,288	1546	1246
PW22-17	375,705	5,893,361	1350	1000
PW13-3	375,905	5,892,341	1646	1346
PW15-1	376,350	5,892,521	1600	1250
PW16-1	376,137	5,892,394	1605	1255
PW15-2	375,660	5,892,348	1635	1285
PW16-2	375,531	5,892,333	1660	1310
PW15-3	375,186	5,892,347	1655	1305
PW16-3	374,955	5,892,381	1635	1285
PW15-4	374,727	5,892,428	1620	1270
PW16-4	374,618	5,892,611	1590	1240
PW15-5	374,582	5,892,727	1570	1220

NOTES:

1. Planned installation dates and locations of pumping wells PW16-1, PW16-2, PW16-3, and PW16-4 will be reassessed based on observations during well installation in Year -2.
2. All wells assumed to be 350 m deep for planning purposes. Wells will be as achievable to a maximum depth of 450 m.

The dewatering wells will be installed using an air rotary drill rig to a nominal depth of 350 m and maximum depth of 450 m depending on drilling conditions encountered. Steel well screens will be installed upon completion with a minimum diameter of 8” for the perimeter wells and 10” for the in-pit

wells. If ground conditions limit the well size or achievable depth of installation, adjustments to the dewatering system will be required to achieve the design objectives.

The perimeter wells will incorporate 6" submersible turbine pumps individually rated for a flow rate of either 14 or 20 m^3/hour (60 or 90 USgpm), depending on the installed well location. The perimeter wells will be interconnected by a pipeline around the perimeter of the open pit. The pipeline will be 4" to 6" diameter DR17 HDPE pipe. The perimeter wells will initially be spaced at 400 m intervals around the south wall of the pit during Year -2 with the installation of wells PW15-1 to PW15-5. The spacing will be reduced to approximately 200 m in the following year by installation of wells PW16-1 to PW16-4. The final locations of PW16-1 to PW16-4 will be based on observations during the installation of the dewatering wells in the year prior and response of the wells during initial pumping. Staged installation of pumping wells will provide additional data on aquifer characteristics and will enable a more efficient dewatering system design.

The in-pit wells will have 10" diameter well screens and 8" diameter submersible turbine pumps. The in-pit well pumps will be rated for a flow rate of 80 m^3/hour (350 USgpm), and will be connected to the overall pit water management system by a 6" diameter DR17 HDPE pipeline. The flow from both depressurization systems will be combined with flow from the surface water system at a junction header near the rim of the open pit before discharging by gravity in a 20" diameter DR17 HDPE pipeline to Sediment Control Pond 1 and subsequently to TSF Site D.

The maximum dewatering rate for the depressurization system was estimated to be 62 L/s (990 USgpm) during Year 6. The final dewatering rate at ultimate pit expansion was estimated to be 48 L/s (750 USgpm). The groundwater depressurization system will include flow measurement devices, water level meters, and adjacent observation wells (OW1 to OW18) with vibrating wire piezometers installed to verify the effectiveness of the system.

The open pit depressurization system has been designed for the "best estimate" of required pumping. The well installations will be required to intersect productive fracture systems and be functional. The drilling and development of successful and useful dewatering wells can be highly variable in bedrock and wells with insufficient yield will need to be replaced. The pit dewatering strategy has included for additional wells.

Pump and well failures can lead to a rise in piezometric levels, which may affect slope stability. Pump replacement can be easily completed and the time required is not critical to the success of the system, but the time required for drilling, installing and commissioning a new well could extend over several months. The installation time can be affected by site accessibility, rig availability, installation time, and the time it takes to re-establish steady-state pumping conditions. Therefore, the early performance of these wells should be evaluated to determine if the installation of backup wells is prudent along any critical areas of the pit where well failure would adversely affect the pit wall stability. The stability analyses provided in previous sections of this report indicate that elevated pore pressure conditions will adversely influence pit slope stability in areas where the Broken Zone is present, and therefore KP has assumed that backup dewatering wells will be required in select areas of the pit during Years 1 to 3.

The final extent of the pit dewatering systems are shown on Figure 5.1 and includes the perimeter dewatering wells and pipelines (green), in-pit dewatering well and pipeline (red), and in-pit surface water management system (blue).

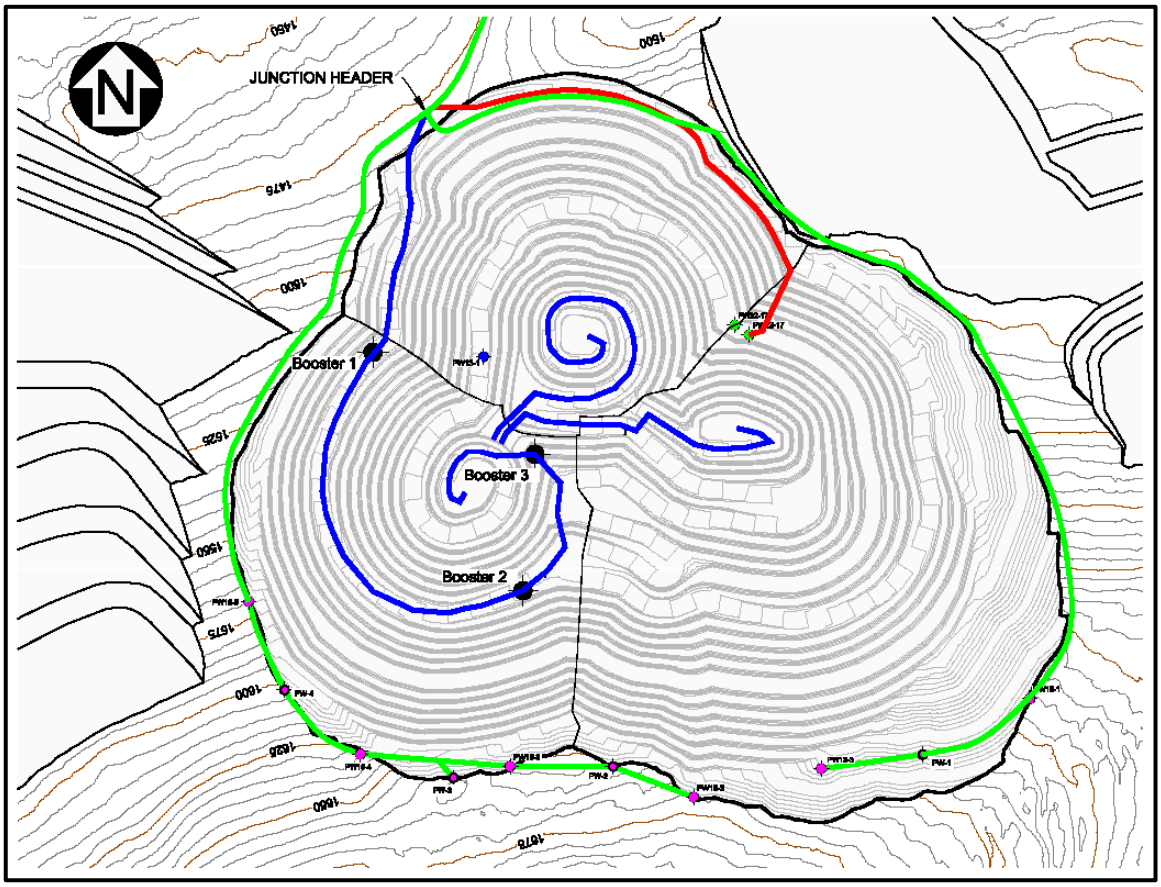


Figure 5.1 Final Pit Dewatering System

6 – SLOPE STABILITY ANALYSES

6.1 GENERAL

The overall objective for pit slope design is to determine the steepest practical slope angles in order to maximize the extraction of ore resources while minimizing the strip ratio. Balanced against this, is the increased likelihood of overly steep slopes leading to the development of slope instability issues that could impact worker safety and mine profitability. The approach adopted here is to base the pit design on achieving an acceptable level of risk and incorporating this into the stability analyses as a Factor of Safety (FOS) and/or Probability of Failure (POF).

Design methods used to determine appropriate pit slope angles included kinematic stability assessments and the evaluation of the overall rock mass stability. Pit slope geometries for each region of the pit have been determined based on achieving the acceptance criteria for each of these design methods.

6.2 PIT SLOPE CONFIGURATIONS

Figure 6.1 illustrates the inter-relationships between bench geometry, inter-ramp slope angle and overall slope angle. The primary components of the pit slope design are as follows:

- **Bench Geometry –** The height of benches is typically determined by the size of the shovel selected for the mining operation. The bench face angle (BFA) is usually selected in such a way as to reduce to an acceptable level the amount of material that will fall from the face or crest of benches. The bench width is sized to capture small wedges and blocks from the bench faces and to help prevent rock falls from impacting men and equipment. The bench geometry that results from the height, bench face angle and bench width will ultimately dictate the inter-ramp slope angle. Double or triple benches can be used in certain circumstances to steepen inter-ramp slopes where rock conditions permit operations close to the bench faces.
- **Inter-Ramp Slope –** The maximum inter-ramp angle (IRA) is typically dictated by the bench geometry. However, it is also necessary to evaluate the potential for multiple bench scale instabilities due to large-scale structural features, such as: faults, shear zones, bedding planes and foliation. In some cases, these persistent features may completely control the achievable inter-ramp angles and the slope may have to be flattened to account for their presence. The inter-ramp slope angles may also be controlled by the strength of weak rock mass.
- **Overall Slope –** The overall slope angle (OSA) that is typically flatter than the maximum inter-ramp angle due to the inclusion of haulage ramps and step-outs. Other factors, such as rock mass strength, groundwater pressures, blasting disturbance, stress conditions, and mine equipment requirements can also reduce the overall slope angles.

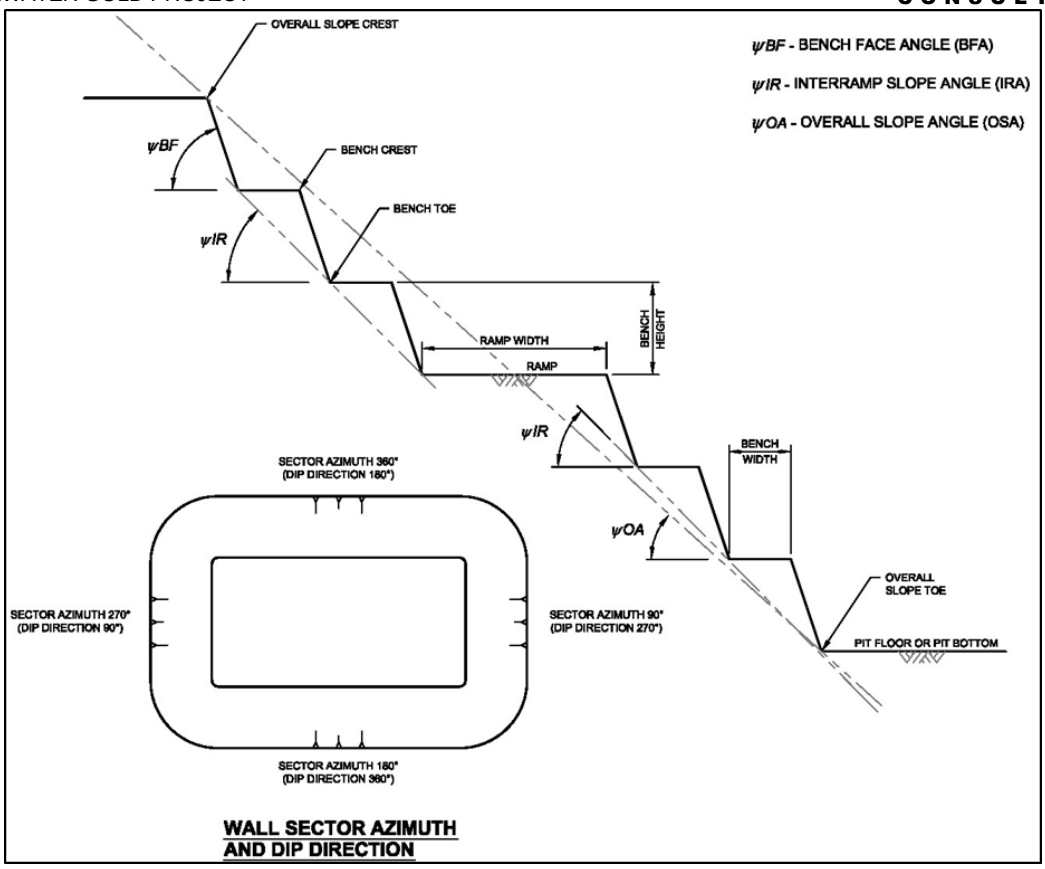


Figure 6.1 Typical Open Pit Slope Configurations

6.3 METHODOLOGY AND ACCEPTANCE CRITERIA

Stability analyses were undertaken to determine appropriate slope angles for each region of the open pit. Slope stability analyses undertaken on the walls of the proposed Blackwater Pit included the following.

- **Kinematic Stability Analyses –** Stereographic analyses were conducted using the available structural data to identify the kinematically possible failure modes within the final pit walls. Further probabilistic analyses were completed for the areas where adverse kinematic features were encountered. Appropriate bench face angles and/or inter-ramp slope angles were assigned to reduce the potential for discontinuities to form unstable wedges or planes. It is not cost-effective to eliminate all potentially unstable blocks and a certain percentage of bench face instability is acceptable. Most of the smaller unstable features will be removed by scaling procedures.
- **Rock Mass Stability Analyses –** Limit equilibrium analyses of the soil and rock slopes were performed to estimate the FOS against large-scale, multiple-bench slope failures through the soil and the jointed rock masses. The targeted FOS for this type of failure varies with the consequences of failure.

Kinematic stability is separated into two distinct analyses, for both the bench and inter-ramp scale: identification of the kinematic failure mode followed by calculating FOS and/or POF. The kinematic

hazards were identified using conservative friction angles; however, detailed analyses for specific features will use refined strength models based on the laboratory results.

Strength parameters of the overburden unit were determined by laboratory testing to be: ϕ' = 37° with 13 kPa cohesion; however, a more conservative friction angle of 32° and 0 kPa cohesion was assumed given the weather conditions onsite and site observations from similar material in northern BC projects.

Rock mass stability analyses were undertaken using the Hoek-Brown Failure Criterion (Hoek et al, 2002). This criterion utilizes the characteristics of the rock mass, determined from geotechnical drillhole logging, to downgrade the measured intact rock properties determined from laboratory testing. This results in a strength criterion of the rock mass. The characteristics of the rock mass are described by the intact rock constant (mi), the UCS of intact rock, and the RMR or geological strength index (GSI) of the rock mass. The intact rock constant (mi) has been selected from published values (Hoek 2002) and experience. Hoek (2012) recommends that the rock mass strength be downgraded to account for rock mass disturbance associated with heavy production blasting and stress relief. A disturbance factor (D) of 1.0 is assumed for conventional production blasting. The use of controlled production blasting or buffer blasting practices is expected to achieve a lower disturbance factor of 0.85 for pit slopes at moderate heights based on KP experience.

Table 6.1 summarizes the strength properties used for the various models based off of the geotechnical model. Some of these material properties are varied as part of subsequent sensitivity analyses.

Table 6.1 Geotechnical Model Strength Parameters by Analysis Type

Analyses Type	Model	Unit	Parameters
Kinematically Possible Failure Modes	Mohr-Coulomb	Joint	Φ = 35°
		Fault	Φ = 20°
Kinematic Stability (Limit Equilibrium)	Mohr-Coulomb	Joint	Φ = 35° Cohesion = 50 kPa
		Fault	Φ = 32° Cohesion = 40 kPa
		Rock Mass	γ = 27 kN/m^3
Rock Mass Stability (Limit Equilibrium)	Mohr-Coulomb	Overburden	Φ = 32° Cohesion = 0 kPa γ = 22 kN/m^3
	Hoek-Brown	Competent Rock	UCS = 150 MPa GSI = 58 mi = 25 D = 0.85 γ = 27.5 kN/m^3
		Broken Zone	UCS = 30 GSI = 33 mi = 13 D = 0.85 γ = 27 kN/m^3

The recommended pit slope configurations were developed based on experience in similar rock masses and the geomechanical conditions encountered at the Blackwater property. Typical pit slope design criteria are summarized below (after Read and Stacey, 2009) and suggested FOS targets for the Blackwater Pit are in **bold** in Table 6.2.

Table 6.2 Pit Slope FOS Acceptance Criteria

Slope Scale	Consequences of Failure	Acceptance Criteria		
		FOS (min) (Static)	FOS (min) (Dynamic)	POF (max) P[FOS≤1]
Bench	Low to High	1.1	N/A	25% - 50%
Inter-ramp	Low	1.15 - 1.2	1.0	25%
	Medium	**1.2**	**1.0**	**20%**
	High	1.2 – 1.3	1.1	10%
Overall	Low	1.2 – 1.3	1.0	15% - 20%
	Medium	**1.3**	**1.05**	**5% - 10%**
	High	1.3 – 1.5	1.1	≤5%

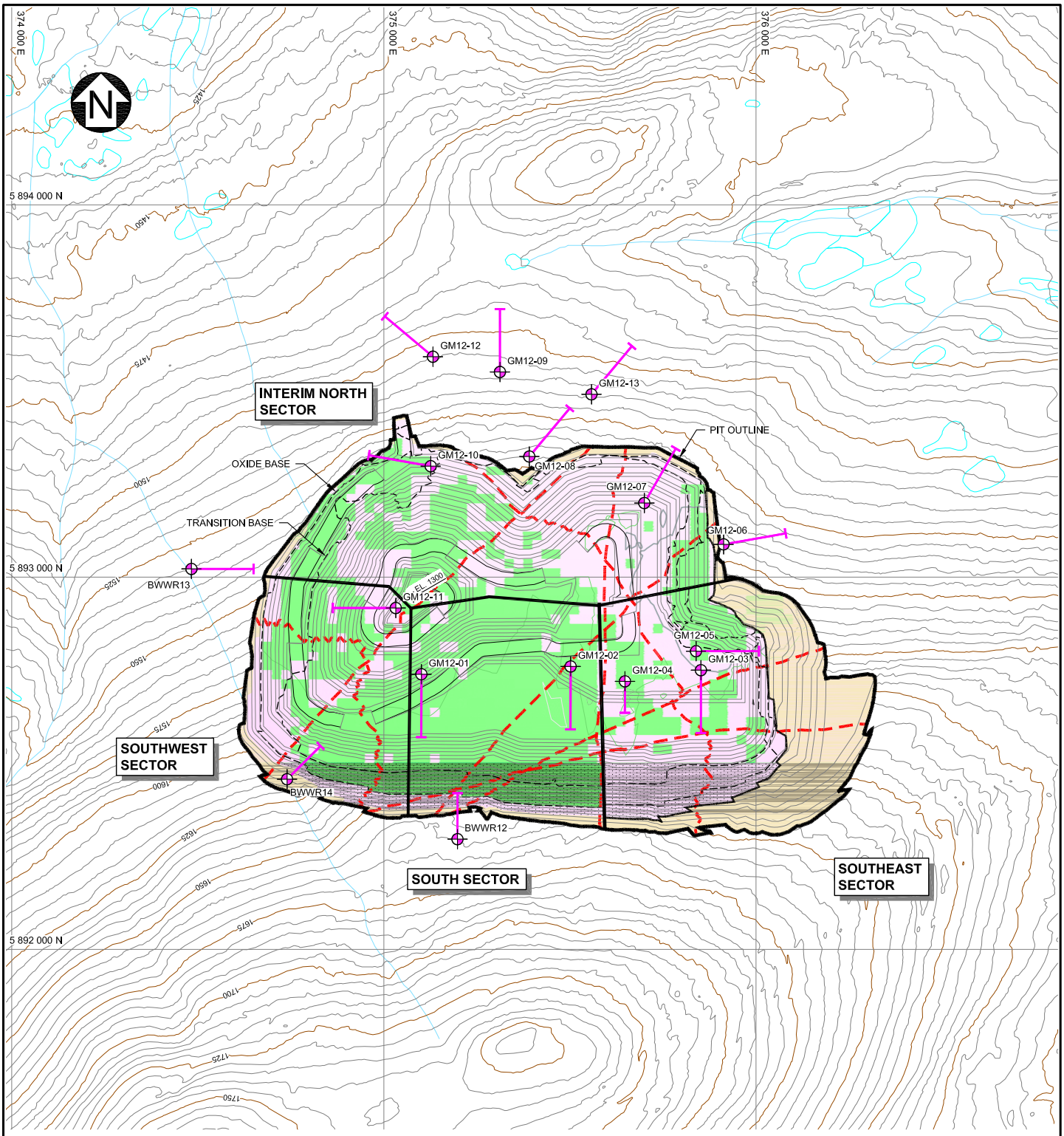
NOTES:
1. Read and Stacey, 2009.

6.4 PIT DESIGN SECTORS

To assess potential failure mechanisms involving discontinuities (i.e., planar, wedge, or toppling failures), it is convenient to divide the pit into design sectors, where:

- Orientation and characteristics of the discontinuities are consistent, and
- Orientation of the slope is relatively consistent.

A total of seven design sectors were delineated for the final Blackwater Pit. They are the Northeast, East, Southeast, South, Southwest, West and Northwest sectors. An interim North sector was also defined for the Phase 2 pit. The Phase 2, Phase 3, and Final pit design sectors as shown on Figure 6.2 to 6.4, respectively. In some cases, orientation data from a drillhole may be assigned to multiple sectors. This generally occurred when the boundary between two adjacent sectors had similar structures, but different wall orientations. The majority of the interim pit sectors are similar to those defined for the Final pit.



LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR
- FAULTS
- GM12-01 GEOMECHANICAL DRILLHOLES (16)

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. CONTOUR INTERVAL IS 5 METRES.
3. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OVERBURDEN CONTOUR PROVIDED BY NEW GOLD, FEBRUARY 2013.
5. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

GEOTECHNICAL UNITS AND DESIGN SECTORS PHASE 2 PIT

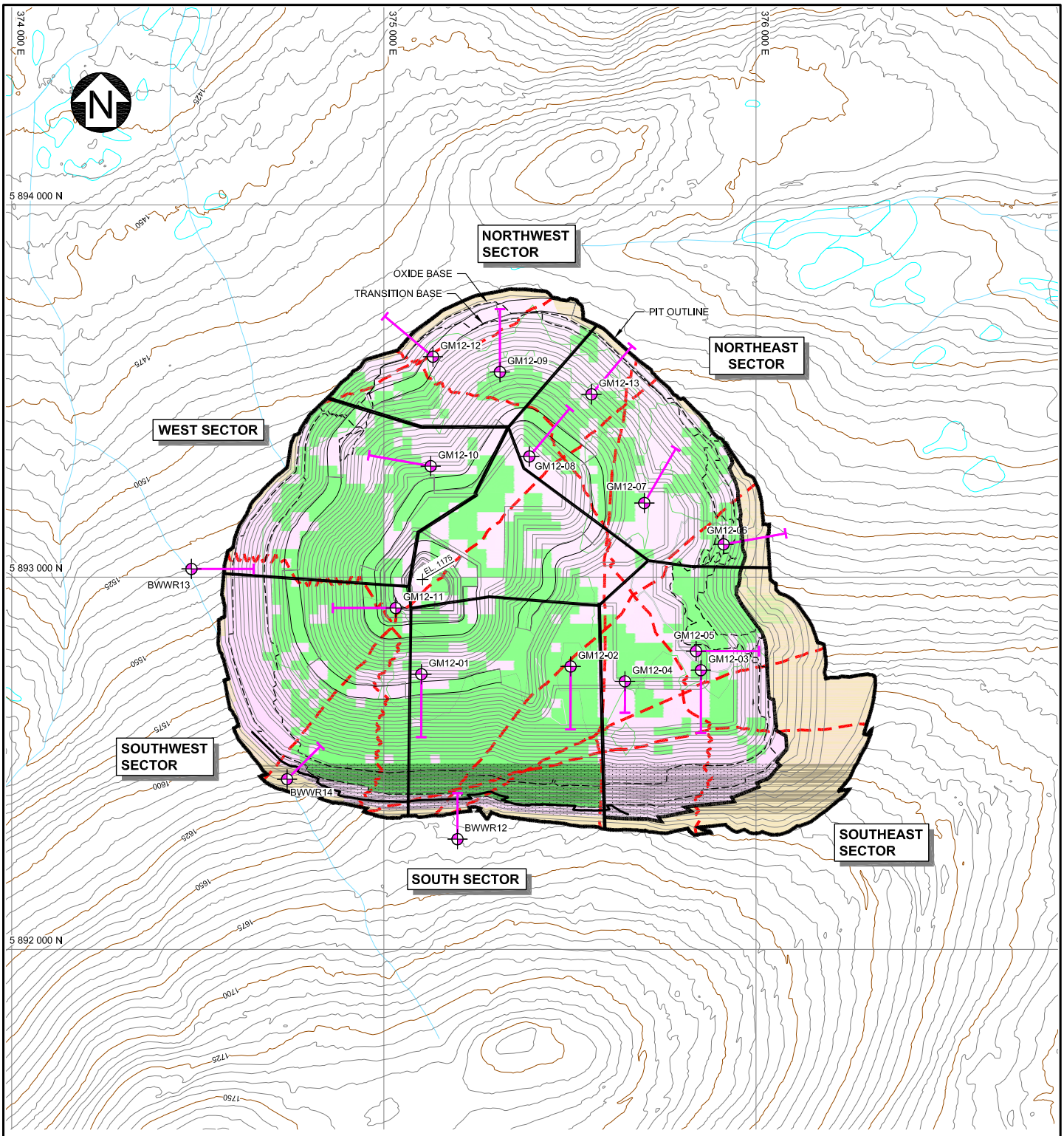
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Knight Piésold CONSULTING

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FIGURE 6.2 | REV 0

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LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR
- FAULTS
- GM12-01 GEOMECHANICAL DRILLHOLES (16)

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. CONTOUR INTERVAL IS 5 METRES.
3. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OVERBURDEN CONTOUR PROVIDED BY NEW GOLD, FEBRUARY 2013.
5. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

GEOTECHNICAL UNITS AND DESIGN SECTORS PHASE 3 PIT

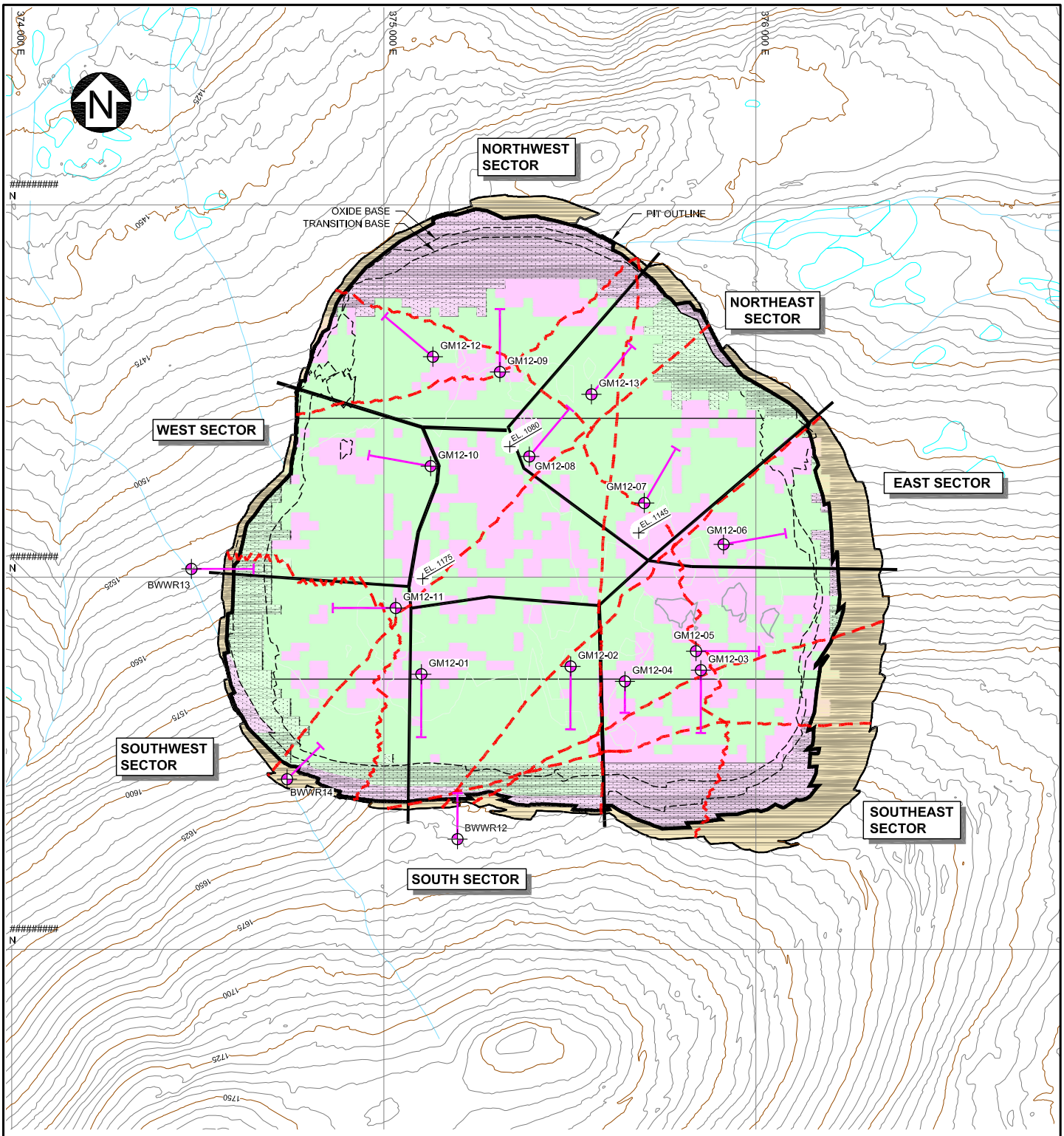
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FIGURE 6.3 | REV 0

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LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR
- FAULTS
- GM12-01 — GEOMECHANICAL DRILLHOLES (16)

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. CONTOUR INTERVAL IS 5 METRES.
3. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OVERBURDEN CONTOUR PROVIDED BY NEW GOLD, FEBRUARY 2013.
5. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

GEOTECHNICAL UNITS AND DESIGN SECTORS FINAL PIT

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
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0	21JUN'13	ISSUED WITH REPORT	MF	AN/PP	DAY	KJB

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF NO. 2

FIGURE 6.4 | REV 1

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6.5 KINEMATIC STABILITY ANALYSES

6.5.1 Modes of Failure

Kinematic stability analyses are completed using stereographic methods to identify possible failure modes within each design sector. Kinematically possible failure modes in rock slopes typically include planar, wedge and toppling failures. Figure 6.5 illustrates these failure modes (after Wyllie and Mah, 2004). These failure modes are most likely to occur if the bounding features are continuous over the bench scale and relatively weak. A brief introduction to each failure mode is provided below:

- **Planar Failure –** This failure mode is kinematically possible where a discontinuity plane is inclined less than the slope face (i.e., it daylights) and at an angle steeper than the friction angle of the discontinuity.
- **Wedge Failure –** This failure mode is kinematically possible where the plunge of the intersection of two planes (sliding vector) is inclined less than the slope face (i.e., it daylights). The sliding vector must also dip at an angle greater than the friction angles of the planes that forms the wedge.
- **Toppling Failure –** This failure mode is kinematically possible due to interlayer slip along steep discontinuity surfaces that dip into the slope.

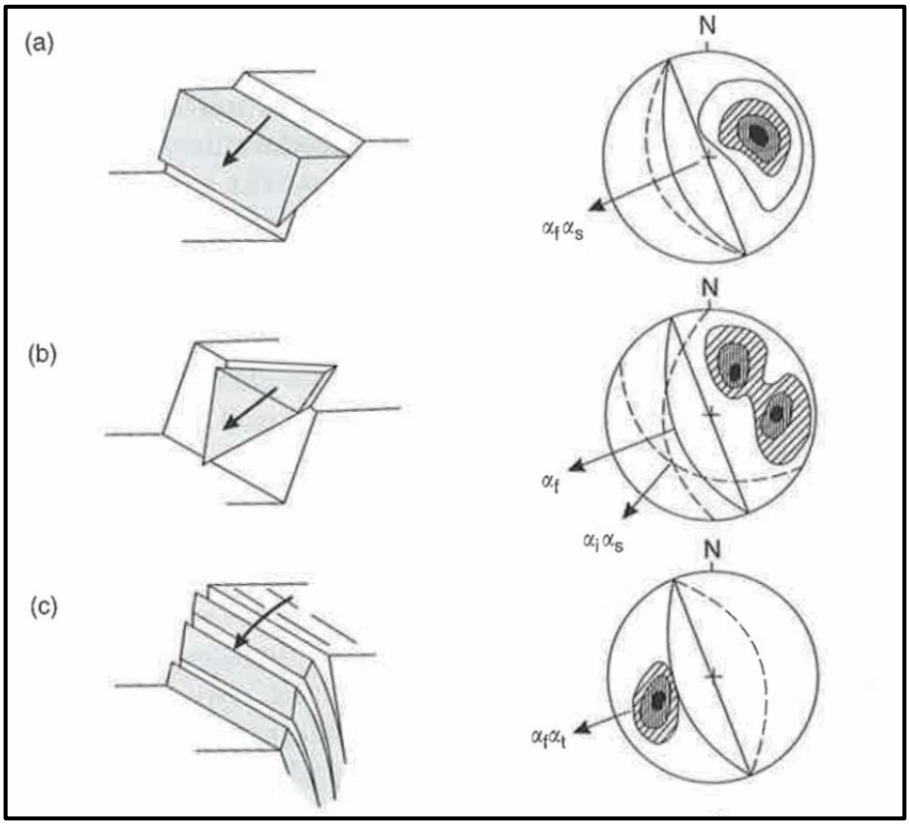


Figure 6.5 Typical Kinematic Failure Modes in Rock Slopes

6.5.2 Methods and Assumptions

The DIPS (Version 6.0, Rocscience Inc.) probabilistic stereographic program was utilized to identify the kinematically possible failure modes for the walls of the proposed Blackwater Pit. The oriented drillhole data and information available on large scale structures were used for these analyses.

Bench scale instabilities typically control the expected achievable bench face angle (BFA), and kinematic admissibility is based on joint intersections only. Faults are generally not expected to be a controlling factor for the bench face angle.

The probability of failure for wedges at the bench scale was determined by combination analyses where every structural pole under the identified peak structural sets were combined with each other, giving rise to a probability of failure defined by the total number of combinations divided by the number of failed wedges (FOS <1.0). The bench scale analyses assume that there is no cohesion on the joints due to the effects of blasting.

A critical factor for larger scale kinematic instabilities is the persistence of the discontinuities. This information is not available from drillhole data and it is conservative to assume inter-ramp scale persistence. In addition, very few faults were identified in the drillhole database, since these structures tend to be difficult to orient using the available tools. As such, inter-ramp scale kinematics assumes that planar and toppling failure admissibility on faults identified by New Gold geologists.

Wedge failure admissibility on the combination of fault-fault or fault-joint intersections only. Joint-joint intersections are not expected to affect the inter-ramp scale due to limited continuity on both structures. SWEDGE (Version 5.0, Rocscience Inc.), a probabilistic 3D surface wedge analysis program, was utilized to determine the FOS and/or POF values for the identified inter-ramp wedge failure modes. RocPlane (Version 2.0, Rocscience Inc.) was used to determine FOS for inter-ramp scale planar features. The strength parameters for these analyses were based on the laboratory testing results.

Factors of safety were not calculated for each individual bench scale wedge. Instead, SWEDGE was used to calculate the probability of failure for wedge failures for each design sector and wall orientation. Only the data that is within the selected window were considered. Orientations outside the window were considered to be random fractures. The probability of failure, for wedge or planar sliding, is made up of two components: the probability that the failure condition exists, and the probability that sliding will occur on the failure plane(s). Planar failure, while not explicitly modelled within SWEDGE, is generally captured as a wedge sliding on a single plane (the planar failure plane) with a second steep release plane.

In a combination analyses, all joints are combined with every other joint giving rise to the number of trail wedges. The FOS for the kinematically admissible combinations is then calculated, and the total sum of failed (FOS < 1.0) wedges is found. The probability of failure is simply the number of failed wedges divided by the total number of trial wedges. Read and Stacey (2009) recommend a POF of 25 – 50% for bench face design. This analysis does not include the intersection with random joints and toppling potential, effects of ravelling, and freeze-thaw cycles on the bench face. Nor does it make any distinction between the Broken Zone and Competent Rock, which are expected to behave differently at the bench scale. All of these issues would be expected to reduce the achieved bench face angle.

6.5.3 Identified Kinematic Failure Modes

Stereographic analyses were completed using the geomechanical drillhole data for the Northwest, Northeast, Southeast, South, Southwest, West, and the North – Interim structural sectors for both the bench scale and inter-ramp scale. The results of the analyses can be found in Table D.1, with stereonets for each design sector/wall orientation in Appendix D.

At the inter-ramp scale, very few planar failure potential instabilities are identified. Northeast dipping walls in the Southwest structural sector are affected by the B-EW fault. These structures will daylight in this sector on inter-ramp slopes steeper than 43°. Toppling of select walls in the West and Interim-North design sectors is also predicted. The majority of walls have wedge failure potential on either fault-fault or fault-joint combinations.

The bench scale analyses focused on the joint fabric in each design sector, with an assumed bench face angle of 70° used to identify kinematic failure potential. Table 6.3 lists the identified kinematic failure modes for each design sector for bench scale failure modes:

Table 6.3 Kinematically Possible Bench Scale Failure Modes

Design Sector	Wall Orientations (Dip Direction) Affected		
	Planar Potential	**Wedge Potential**	**Toppling Potential**
Northeast	220, 250, 270	220, 250, 270	250 (m), 270 (m)
Southeast	280, 300	000, 280, 300, 330	280 (m), 300 (m), 330
South			000, 020 (m), 340
Southwest		000	000 (m), 060, 090
West			090, 150 (m)
Northwest	140, 180, 320	180, 230	140 (m)
Interim-North	180, 220, 270	140, 180, 220	270

NOTE:

1. Minor kinematic potential (m) is a failure mode when a failure exposed on the set, but not the peak contour of the set.

6.5.4 Detailed Inter-Ramp Kinematic Analyses

SWEDGE was used to further analyse the recognized fault-fault and fault-joint wedges. This program was used to determine the FOS for various slope height and angle combinations for the wedges identified in Table D.1.

The inter-ramp angles in the current pit design (Norwest; February, 2013) were used as a starting point. If stable conditions were achieved, higher slope heights and angles were evaluated. Table 6.4 summarizes the results of these analyses. Step-outs and haul roads are expected to kinematically disconnect failures so that they don't influence the overall slope.

Final and interim pits in the Southwest sector should be limited to 43° to avoid daylighting the B-EW fault. Opportunities to steepen to 48° exist in the West and Northwest design sectors; however, there are limits on the maximum inter-ramp heights if angles steeper than 45° are used. In all other wall orientations and design sectors, kinematically stable conditions exist for inter-ramp heights of 200 m with inter-ramp angles of 48°.

Table 6.4 Inter-ramp Kinematic Controls on Pit Slope Design

Sector	Wall Dip Direction (°)	Failure Mode (Structure)	Inter Ramp Angle (°)	Maximum Inter-ramp Height[1] (FOS = 1.20) [m]
Southwest	060	Planar (Fault B-EW)	43	200
West	090	Wedge (F2 / F8)	45	200
			48	150
		Wedge (F8 / JA1)	45	200
			48	200
Northwest	230	Wedge (F2 / JB1)	45	200
			46	200
			48	150

NOTE:
1. Inter-ramp height limited to a maximum of 200 m.

6.5.5 Detailed Bench Face Kinematic Analyses

Table 6.5 lists the achievable bench face angle at 25% and 50% POF for each structural sector and wall orientation combination. It shows that relatively steep bench face angles (>65°) are likely achievable in competent rock.

Table 6.5 Achievable Bench Face Angle from Probability of Failure

Design Sectors	Wall Orientation (Dip Direction [°])	BFA (°) (25% POF)	BFA (°) (50% POF)
Northeast	220	65	80
	250	65	75
	270	70	75
Southeast	000	80	No control
	280	80	No control
	300	75	No control
	330	80	No control
South	000	No control	No control
	020	No control	No control
	340	No control	No control
Southwest	000	No control	No control
	060	No control	No control
	090	No control	No control
West	090	No control	No control
	150	No control	No control
Northwest	140	No control	No control
	180	70	No control
	230	80	No control
North-Interim	140	No control	No control
	180	No control	No control
	220	No control	No control
	270	No control	No control

6.6 SOIL AND ROCK MASS STABILITY ANALYSES

6.6.1 General

Limit equilibrium stability analyses were carried out to determine the Factors of Safety (FOS) for large scale multi-bench circular failures within the soil and rock mass slopes. Minimum FOS values of 1.2 and 1.3 were specified for the inter-ramp and overall slopes, respectively. The 12 sections are illustrated on Figure 6.6. Note that not every section was analyzed for every pit phase. SLOPE/W (GEO-SLOPE International Ltd.) and SLIDE (Rocscience Inc.) was used to estimate the FOS for various combinations of slope angles and pore water pressures. The pit slope depressurization requirements presented below are met by the dewatering system presented in Open Pit Water Management Report (KP Ref. No. VA101-457/6-9, Rev A).

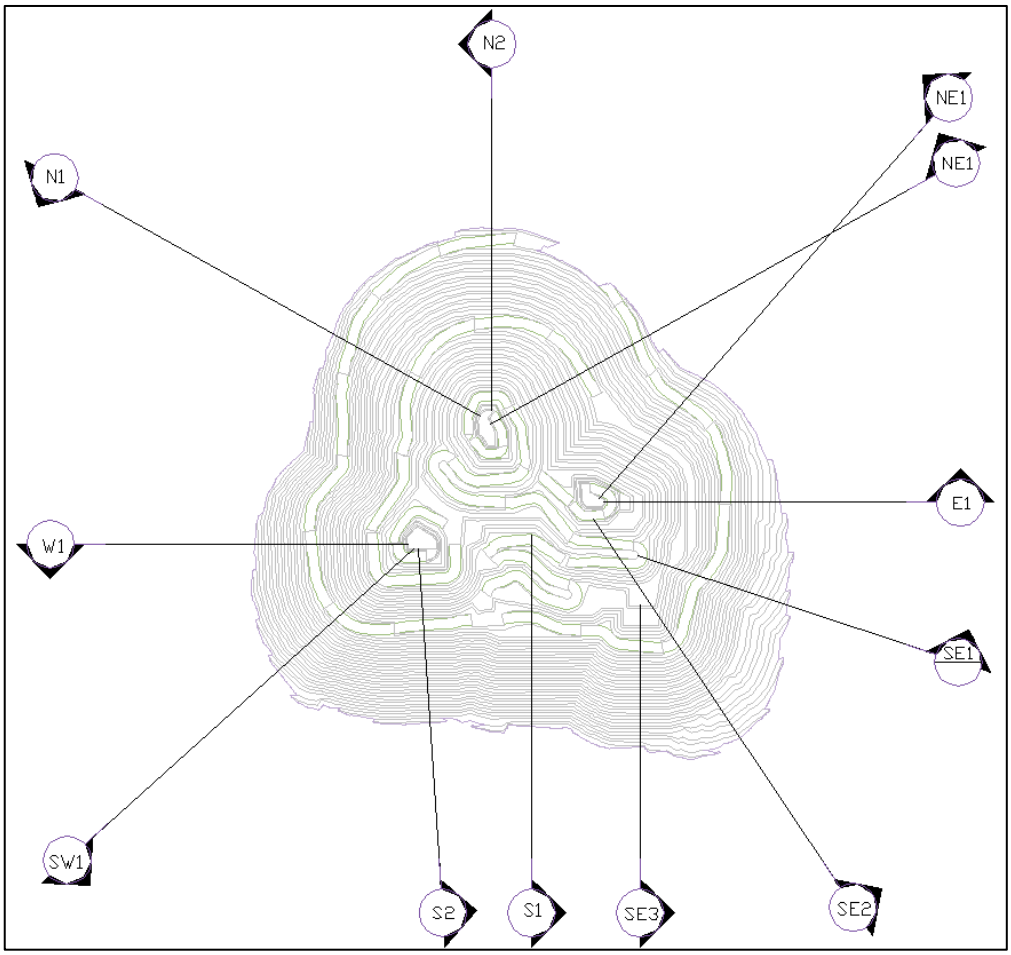


Figure 6.6 Limit Equilibrium Analyses Sections

6.6.2 Overburden Slope Stability Results

Limit equilibrium stability analyses were performed for the worst case situation of 110 m high overburden slopes. Representative results from this analysis are summarized in Table 6.6. Slope

stability analyses preformed on the overburden unit indicate that a slope angle of 27° (with drained conditions) exceeds the target FOS of 1.2.

Table 6.6 Summary of Overburden Slope Stability Analyses

Slope Height (m)	Slope Angle (°)	Pore Water Pressure Condition	Factor of Safety
110	34	Partially Saturated	0.76
110	34	Fully Drained	0.97
110	27	Partially Saturated	1.06
110	**27**	**Fully Drained**	**1.31**
110	18	Partially Saturated	1.56
110	18	Fully Drained	1.88

NOTE:

1. Partially saturated slopes (the pore water pressure is equal to 15% of overburden stress (i.e., coefficient of pore water pressure, Ru = 0.15

6.6.3 Broken Zone: Inter-Ramp Sensitivity Analyses

One of the major controls on pit slope design for the Blackwater Pit will be the strength of the Broken Zone rock. This unit is prevalent in both the interim and Final pit walls and can form portions of pit walls exceeding 200 m in vertical height. Three strength cases were developed after looking at the intact field strength estimates, laboratory testing, comparisons to rock fill strength envelopes developed by Leps (1970), and previous experience by KP. The strengths used in the sensitivity analyses can be found in Table 6.7.

Table 6.7 Broken Zone Strength Parameters Used in Sensitivity Analyses

Case	UCS (MPa)	GSI	Comment
1	20	33	Conservative
2	30	33	Confident
3	30	38	Potentially aggressive

The models were run with the disturbance factor of D = 0.85, a material constant (mi) of 13, for slope heights from 40 to 200 m, and slope angles from 35 to 48°. Dry slope conditions were assumed. Table 6.8 indicates the slope heights achievable for FOS = 1.2 conditions. The results are sensitive to small changes in both GSI and UCS. Case 2 is assumed to be the base case.

Table 6.8 Slope Height – Angle Sensitivity for Drained Broken Zone Unit

Inter-ramp Angle (°)	Max Slope Height (m) Case 1	Max Slope Height (m) Case 2	Max Slope Height (m) Case 3
35	140	>200	>200
37.5	120	180	>200
40	100	160	>200
42.5	80	120	200
45	60	100	160
48	40	80	120

These results are applicable to interim slopes being developed through the Broken Zone. For 40 degree inter-ramp slopes, the maximum slope height should not exceed 160 m before a ramp step-out is included. Similarly, a 35° inter-ramp should be used when slope heights approach 200 m. The majority of the Broken Zone will be mined out for the final walls; however, significant Broken Zones will be present within the upper Southeast and North Walls.

6.6.4 Broken Zone: Bench Stability Sensitivity Analyses

New Gold has indicated that a 24 m high double bench will be used for bedrock slopes throughout the pit. Given the low rock mass quality of the Broken Zone a series of models were created to investigate the possibility of circular failure at the bench scale. Table 6.9 summarizes the results of a sensitivity analysis that was designed to investigate the influence of UCS on bench face angle for 24 m high drained benches. A disturbance factor of 1.0 has been used to account for the near surface blast damage. The target FOS for the bench face is 1.1.

Table 6.9 UCS Sensitivity for Circular Bench Face Failure

Bench Face Angle	Min. UCS Required for FOS = 1.1
55	<17 MPa
60	24 MPa
65	33 MPa
70	45 MPa
75	60 MPa

These analyses investigate circular rock mass failure and suggest that a bench face angle of at least 60° is achievable given the current estimates for the intact rock strength.

6.6.5 Interim Pit Wall Stability

Limit equilibrium analyses were performed for the inter-ramp and overall slopes for the Phase 2 and Phase 3 pits, respectively. In general, the strength of the Competent rock is not expected to limit the achievable angles. In the case of the Broken Zones, interim pit walls will require flatter slope angles and/or increased slope depressurization in order to meet target FOS. The pore pressure distribution is expected to be complex in interim pit walls and vary widely during pit development.

Pit wall development will begin in the southern end of the pit. The pit will generally be mined with progressive laybacks to the north and east. The top 340 m of the final South Wall will be developed by the end of the Phase 2. Subsequent phases deepen this wall without additional laybacks. The final West Wall is largely developed by the end of Phase 3. As such, Final pit geometry controls many of the interim pit wall designs. Tables 6.10 and 6.11 list the relevant pit wall slope designs and calculated FOS for the Phase 2 and Phase 3 interim pits.

Table 6.10 Pit Limit Equilibrium Results – Phase 2 Pit

Sector / Section	Inter-ramp Angle / Height	Overall Slope Angle / Height	Horizontal Slope Depressurization Required (Inter-ramp / Overall)	FOS Inter-ramp / Overall	Comment
EAST / E1	39° / 130 m	36° / 170 m	0 m / 20 m	1.25 / 1.32	Inter-ramp predominantly in two Broken Zones separated by an 80 m thick section of Competent Rock.
SOUTH / S2	46°/125 m	39° / 340 m	0 m / 0 m	1.88 / 1.86	Rock mass is predominantly good quality with very limited Broken Zones. Upper two benches in Broken Zone will need minimal dewatering for stable multi-bench failure.
North / S2-N	39°/ 120 m	36° / 240 m	20 m / 0 m	1.26 / 1.59	Critical inter-ramp does not reach full height and is contained between 120 m of Broken Zone between the 1370 and 1490 level.
SOUTH-EAST / SE3	40° / 125	33° / 240	20 m / 130 m	1.22 / 1.22	Developed entirely in Broken Zone. Flattened by 3° from Norwest proposed pit. Deep seated overall failure (D=0.85 may be too conservative). See detailed SE3 modelling Section 6.6.7.

Table 6.11 Pit Limit Equilibrium Results – Phase 3 Pit

Sector / Section	Inter-ramp Angle / Height	Overall Slope Angle / Height	Horizontal Slope Depressurization Required (Inter-ramp / Overall)	FOS Inter-ramp / Overall	Comment
EAST / E1	39° / 160 m	28° / 220 m	0 m / 0 m	1.62 / 1.66	Inter-ramp predominantly in Competent Rock, with only the bottom three benches in the Broken Zone.
NORTH / N1	39° / 140 m	32° / 260 m	25 m / 0 m	1.23 / 1.54	Lower 180 m of pit developed entirely within Broken Zone. Critical inter-ramp height of 140 m is entirely in Broken Zone.
NORTH / N2	39° / 140 m	32° / 260 m	40 m / 0 m	1.21 / 1.92	Upper 140 m developed entirely in Broken Zone.

As expected, the interim pit walls are anticipated to remain stable when situated in Competent Rock, even without significant slope depressurization. Models indicate that Inter-ramp slopes developed within the Competent Rock under fully saturated conditions have a FOS > 1.2 for inter-ramp heights of 200 m at 48°.

In the case of the Broken Zones (particularly in the North, East, and Southeast Walls), select sections have been modelled and are presented in Appendix E. Some pit design sectors are not explicitly modelled as they are similar to the models developed entirely in Broken Zone or entirely in the Competent Rock. The North sector in Phase 3 and Southeast sector in Phase 2, in the original pit design supplied by Norwest, contained inter-ramp angles that did not achieve target FOS values and were flattened for the analyses. Some slope depressurization (on the order of 20 to 40 m behind the pit wall), is required for most design sectors within the Broken Zone. The Southeast Wall requires 130 m of slope depressurization behind the pit wall due to the extensive Broken Zone located in the area.

6.6.6 Final Pit Wall Stability

Limit equilibrium models were created for the five cross-sections through the proposed Final pit wall. The sections are listed in Table 6.12 and shown on Figure 6.6. The stability of the pit is controlled by the extent of the Broken Zones. Without slope depressurization and providing that there are minimal broken zones, the Competent rock meets target FOS at 48° for 200 m inter-ramp heights. The overall slope angles are typical 3 to 5 degrees flatter than the inter-ramp slopes once the haul ramps and any required step-outs are included.

Table 6.12 Final Pit Limit Equilibrium Results

Sector / Section	Inter-ramp Angle / Height	Overall Slope Angle / Height	Horizontal Depressurization Required (Inter-ramp / Overall)	FOS Inter-ramp / Overall	Comment
North / N2	35° / 200 m	33° / 420 m	110 m / 0 m	1.25 / 1.60	Upper 200 m in Broken Zone. 35 m step-out on the 1410 level. Completely depressurized condition non-conservative. Uncertainty about extent of Broken Zone
East / E1	48° / 80 m	37° / 360 m	10 m / 0 m	1.23 / 1.41	Limited Broken Zone.
Southeast[1] / SE2	27° and 43° / 170 m	33° / 350 m	40 m / Dry[1]	1.21 / 1.24[1]	Thick overburden, thick upper Broken Zone, extensive Broken Zone located at toe. Special considerations necessary. See detailed SE2 modelling Section 6.6.7.
Southwest / SW1	43° / 110 m	38° / 415 m	40 m / 0 m	1.26 / 1.78	Upper 110 m entirely in Broken Zone. Upper slope must be depressurized.
West / W1	43° / 160 m	36° / 370 m	0 m / 0 m	2.41 / 2.04	Negligible Broken Zone present. Inter-ramps can be steepened.

NOTE:

1. Southeast section does not meet overall slope stability criteria, even with aggressive depressurization assumptions. Investigation of the failure mode reveals special considerations necessary. See detailed Southeast modelling in Section 6.6.7.

The final upper North Wall potentially contains a 200 m high Broken Zone. In addition to a flatter inter-ramp angle of 35°, a 35 m step-out at the 1410 level is recommended assuming the slope can be depressurized to expected levels using the proposed pit depressurization system. This assumes that the Broken Zone rock extends further north, outside the limits of the available data. Ongoing geotechnical characterization and pit dewatering refinements during the early years of mine operations will provide opportunities to revisit the assumptions in this model and may allow for an optimized final pit slope design.

6.6.7 Southeast Wall Stability

Special consideration was given to the Final pit geometry for the Southeast sector. Factors that will influence the stability of pit slopes in this sector include:

- Evidence of a Broken Zone extending to depths much deeper than other areas of the pit
- Extension of this Broken Zone outside the limits of the available data
- Potential for deeply seated failure compared to the other models (depth from surface approximately 200 m), where the disturbance factor applied may be too conservative, and
- Greater slope depressurization requirements.

Figure 6.7 is the limit-equilibrium model developed for this sector. It can be seen that the model predicts deep seated failure extending 150 m beyond the current limits of the data.

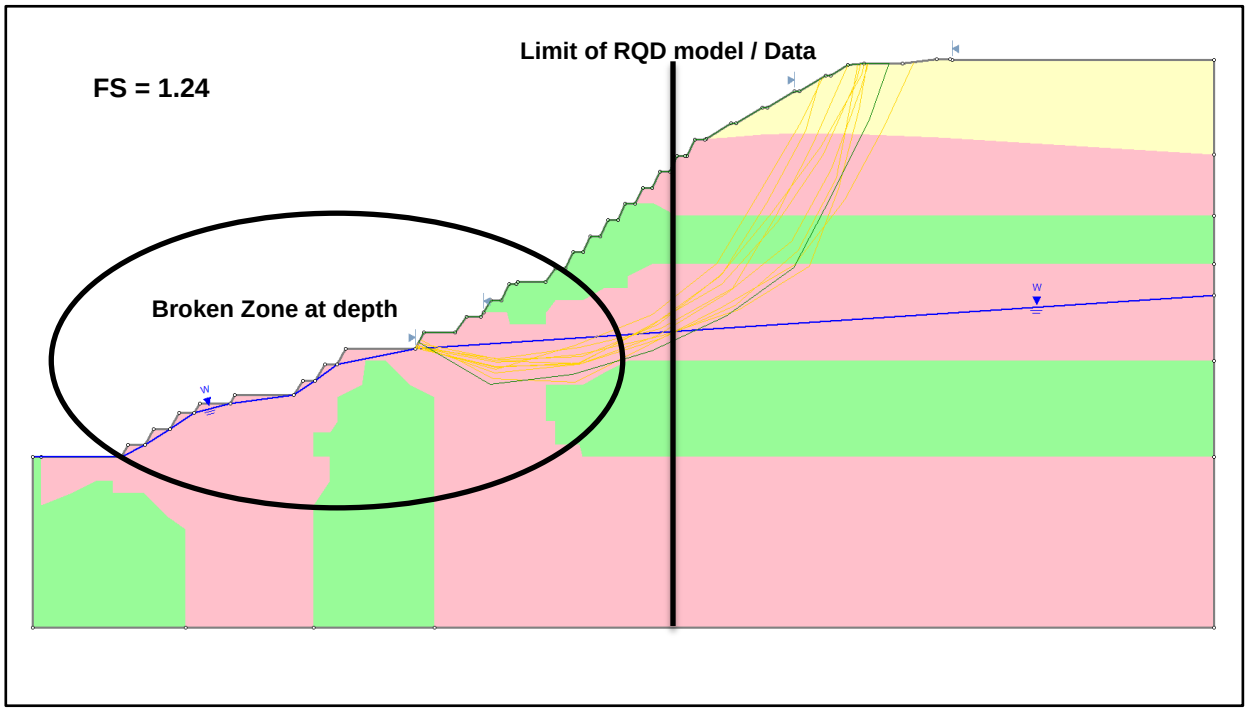


Figure 6.7 Southeast Wall Stability Model

Due to the marginally stable conditions and aggressive slope depressurization required (FOS below the target of 1.3 for overall slope stability), an additional model was created to check alternative assumptions regarding the disturbance factor. A finite-element model of the slope was created using the PHASE2 programs (Version 8.0, Rocscience Inc) to delineate the overstressed zones of the rock mass due to material removal and blasting damage. These stress distribution contours were then used to refine disturbance impact in those areas for subsequent Limit Equilibrium models. The modelling results indicate an FOS of 1.3 is achievable (for an inter-ramp angle of 43° and an overall slope angle is 33°) assuming that 100 m of horizontal slope depressurization is achieved. Figure 6.8 illustrates the setup and results of this alternative model.

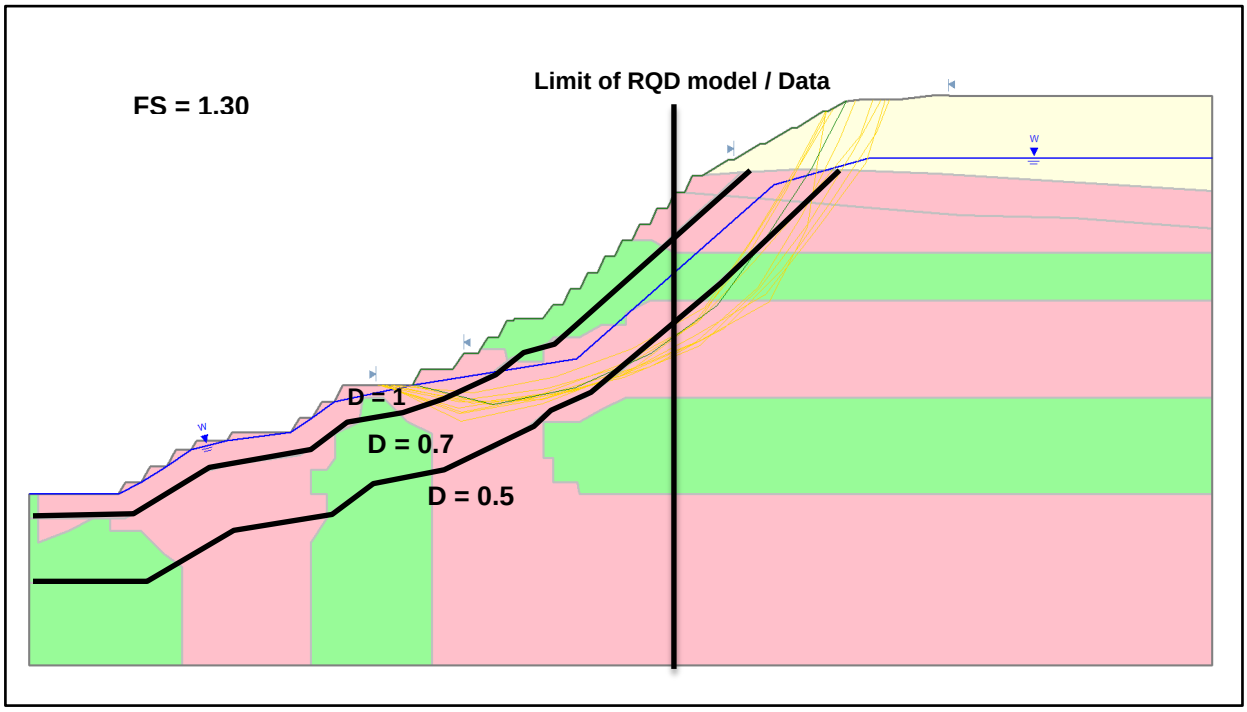


Figure 6.8 Southeast Model and Zoned Disturbance Factor

7 – PIT SLOPE RECOMMENDATIONS AND IMPLEMENTATION

7.1 GENERAL

The Blackwater Pit slope designs have been developed based upon:

- The geological model provided by New Gold
- A RQD block model provided by New Gold
- The geomechanical and hydrogeological data collected during the 2012 site investigation program for the open pit
- Laboratory testing results from the 2012 pit site investigation program
- Kinematic and rock mass stability analyses, and
- Mining equipment specified by New Gold.

This site specific geotechnical information has been utilized to identify geotechnical domains, specific design sectors (for both the proposed interim and final pits), and to develop the required slope design parameters (for benches, inter-ramp slopes, and overall slopes). The results of the slope stability analyses undertaken on each pit design sector suggest that there are generally few geotechnical controls on pit slope design, other than rock mass failure through the Broken Zone and the associated slope depressurization requirements. As such, the achievable slope geometry is largely controlled by the location and extent of the Broken Zone during all phases of the proposed pit development.

This section summarizes the recommended pit slope geometry (Section 7.2), the operational factors that influence slope performance (Section 7.3), and a comparison of the recommended angles with what has been achieved at other large open pits (Section 7.4)

7.2 PIT SLOPE RECOMMENDATIONS

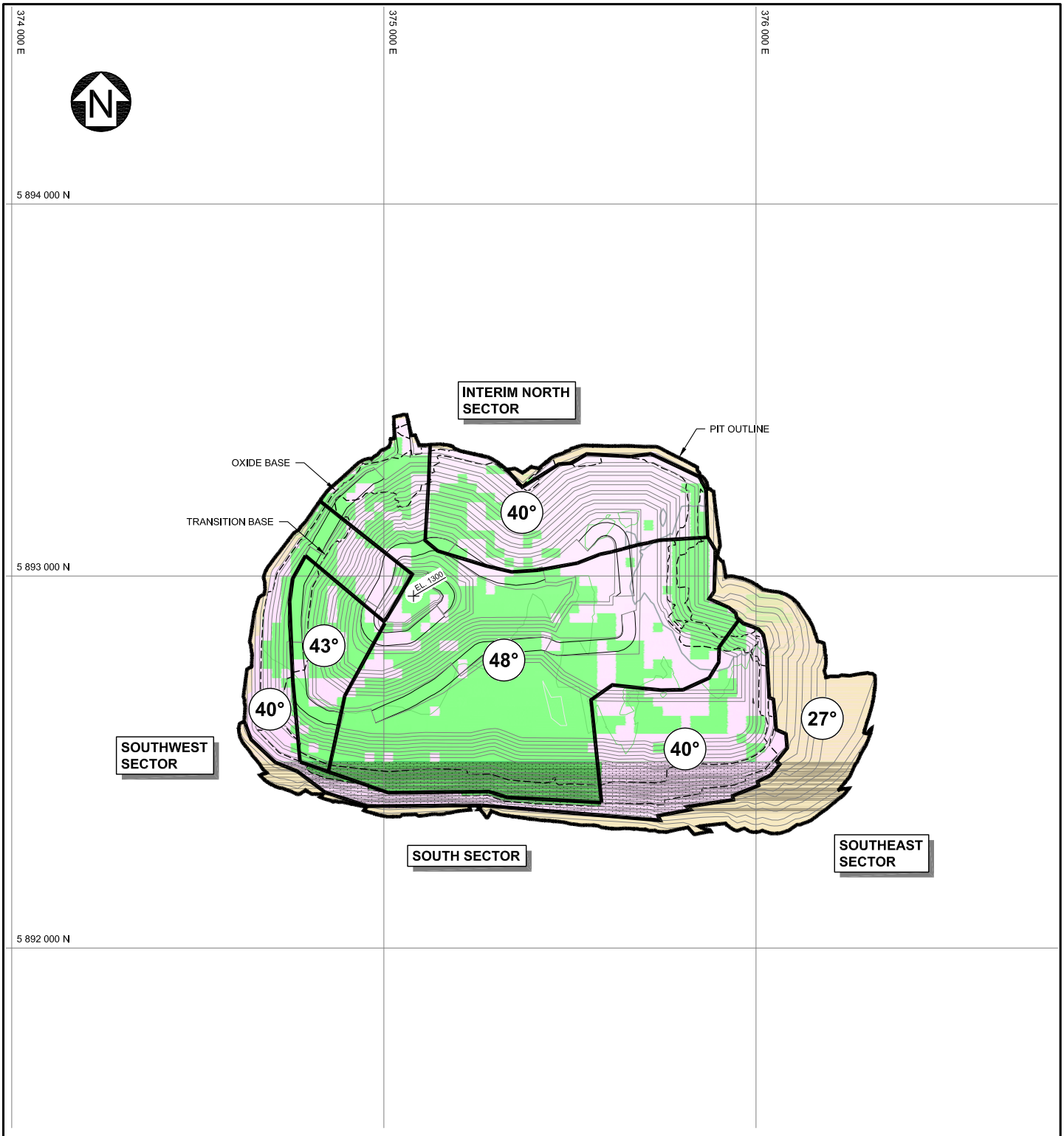
Recommended inter-ramp slope angles for the interim and final pits are illustrated on Figure 7.1 to 7.3 and summarized in Table 7.1. The results of these analyses are sensitive to the position of the haul roads. If the haul roads locations are changed significantly (particularly within the Broken Zone), the stability of the pit walls in those areas should be verified.

Table 7.1 Recommended Pit Slope Configurations for Final Pit

Pit Design Sector	Structural Domain	Identified Kinematic Failure Mode	Geotechnical Domain	Max. Unit Height (m)	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-ramp Angle (°)	# of Stepouts or Ramps	Overall Slope Angle (°)
N	NW	Wedge	Broken Zone	200	24	20	60	**35**	1	36
			Competent Rock	215	24	12	70	**48**	2	
NE	Main	Wedge	Competent Rock	370	24	12	70	**48**	2	41
E	-	-	Overburden	80	12	9	40	**27**	2	35
	Main	Wedge	Competent Rock	320	24	12	70	**48**	2	
SE	-	-	Overburden	100	12	9	40	**27**	2	30
	Main	Wedge	Broken Zone	390	24	14	60	**40**	3	
S	Main	Wedge	Competent Rock	480	24	12	70	**48**	2	42
SW	SW	Wedge Planar	Competent Rock	430	24	17	70	**43**	2	36
W	W	Wedge Toppling	Competent Rock	370	24	12	70	**48**	2	39

NOTE:

1. Overall slope angles for the East and Southeast sectors allow for the flatter overburden slopes.
2. Maximum inter-ramp slope heights: approximately 40 m (or every 3 Benches) in overburden, 150 m in Broken Zone rock and 200m in competent rock with no structural controls. The competent rock slopes within the West and Northwest design sectors are limited to maximum inter-ramp heights of 150 m due to rock mass structures.
3. It is recommended that 20 m wide stepouts be placed in the overburden slopes and 35 m wide stepouts/haul ramps be placed in the bedrock slopes, to provide additional capacity for rock fall containment.
4. Double benching configurations (24 m bench height and 18 m bench width) should be used for Broken Zone slopes. The performance of single and double benches within the Broken Zone must be evaluated during pit operations.



LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
3. OVERBURDEN CONTOURS PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

RECOMMENDED INTER-RAMP SLOPE ANGLES PHASE 2 PIT

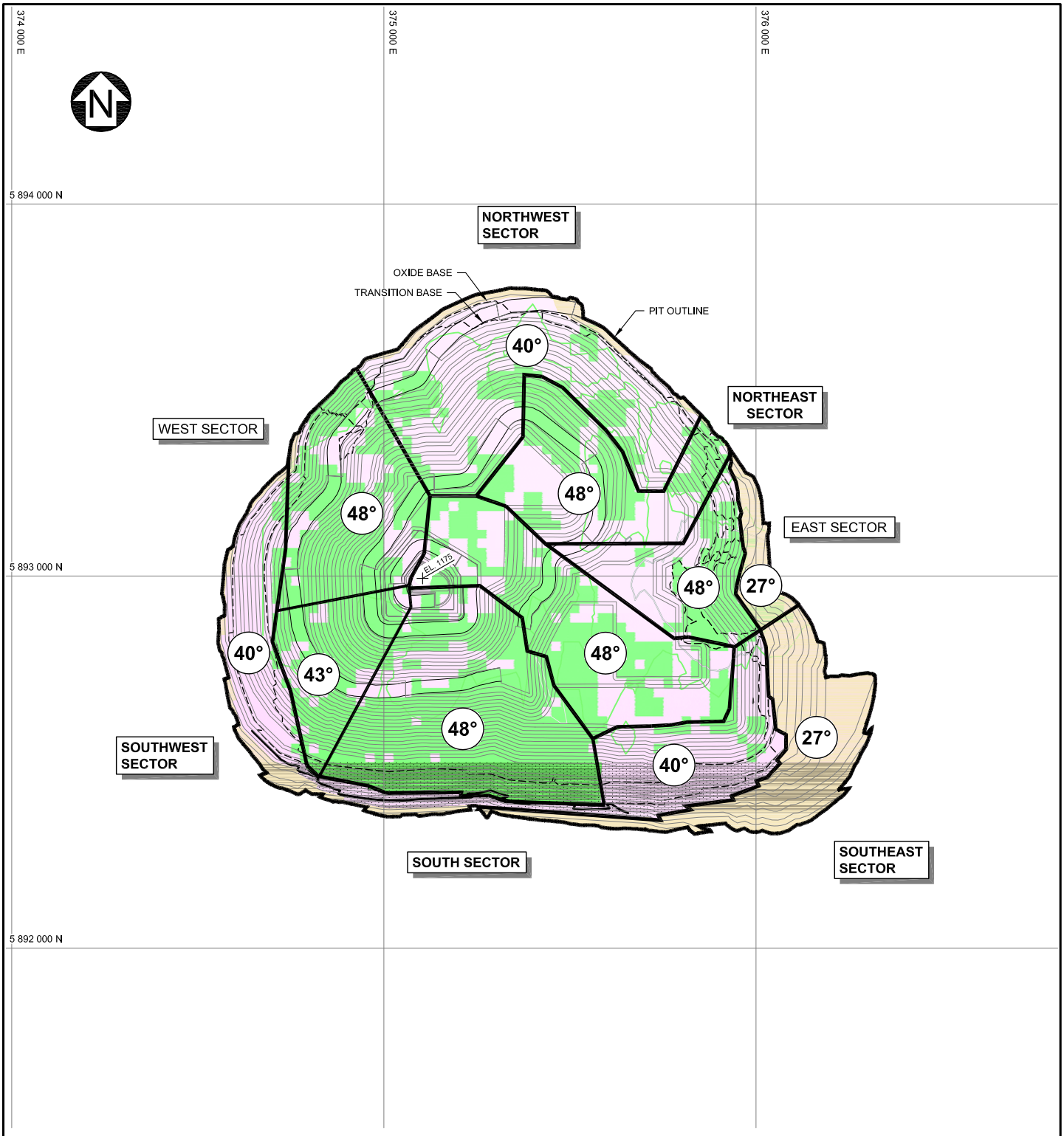
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Knight Piésold CONSULTING

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FIGURE 7.1 | REV 0

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LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR

NOTES:

1. COORDINATE GRID IS UTM NAD83) ZONE 10 U.
2. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
3. OVERBURDEN CONTOURS PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

RECOMMENDED INTER RAMP SLOPE ANGLES PHASE 3 PIT

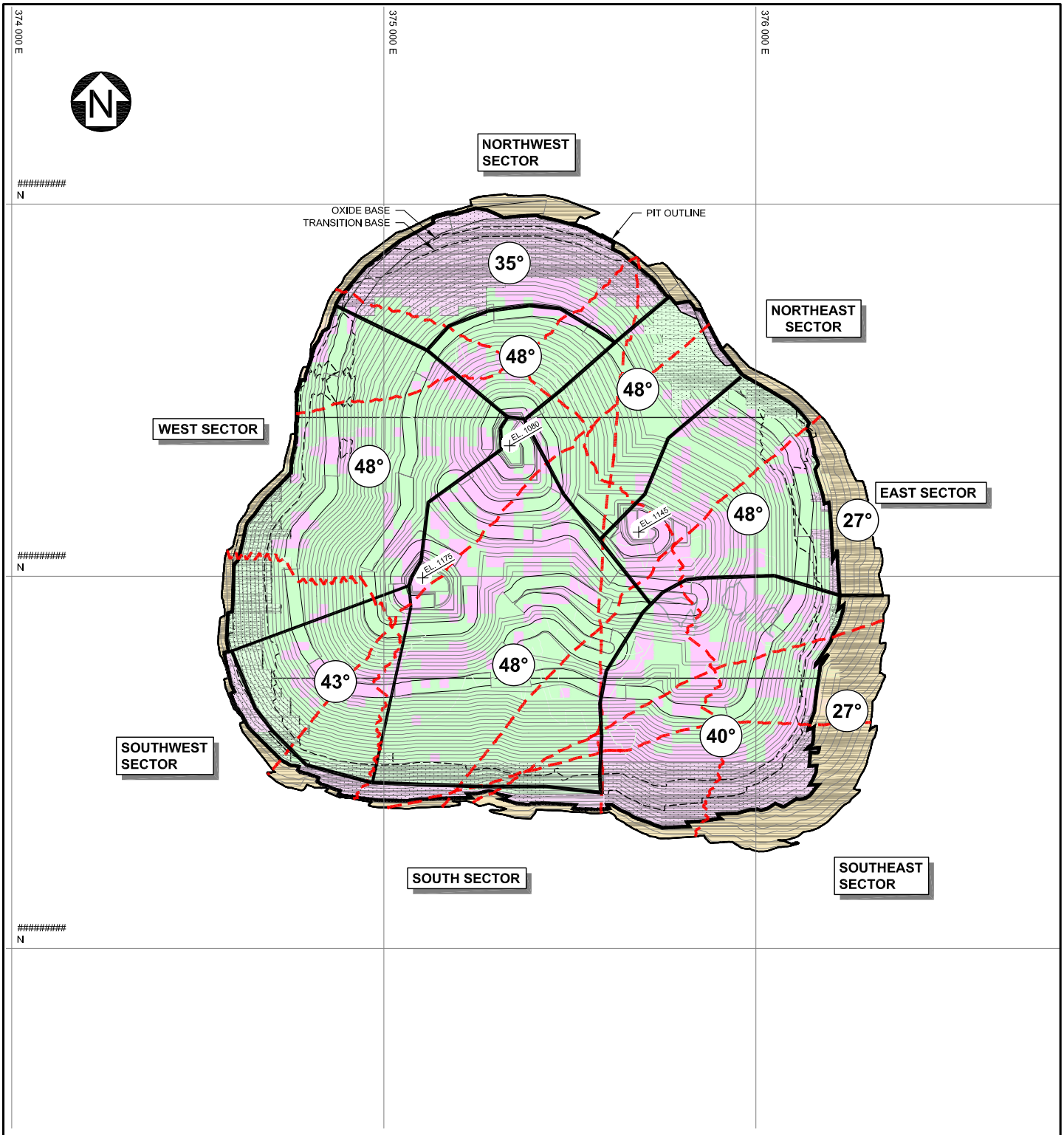
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Knight Piésold CONSULTING

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FIGURE 7.2 | REV 1

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LEGEND:

- OVERBURDEN
- COMPETENT ROCK
- COMPETENT ROCK (INFERRED)
- BROKEN ZONE (RQD - POOR)
- BROKEN ZONE (INFERRED)
- DESIGN SECTOR

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10 U.
2. RQD MODEL PROVIDED BY NEW GOLD, FEBRUARY 2013.
3. OVERBURDEN CONTOURS PROVIDED BY NEW GOLD, FEBRUARY 2013.
4. OPEN PIT DESIGN FROM NORWEST, FEBRUARY 2013.

SCALE A: 150 75 0 250 500 750 m

NEW GOLD INC.

BLACKWATER GOLD PROJECT

RECOMMENDED INTER-RAMP SLOPE ANGLES FINAL PIT

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
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Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF NO. 2

FIGURE 7.3 | REV 1

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7.2.1 Discussion of Bench Configurations

The bench design was developed based on the geology, geomechanical and geometric characteristics of each design sector. The bench face angles are as steep as reasonably can be expected, given the characteristics of the rock masses and mine operational requirements. As such, the potential for planar or wedge failures still exists, but the majority of these are expected to be small bench-scale ravelling type failures that will be removed during initial excavation or controlled by a regular bench maintenance program.

Recommended bench geometries are based on the mining equipment selection, kinematic assessment results and the associated probabilities of failure. These results have been adjusted to account for the expected poor long-term stability of benches created in the Broken Zone. A bench face angle of 70° is expected to be achievable in the Competent Rock. A flatter angle of 60° is recommended for benches developed within the Broken Zone. A bench face angle of 40° is expected to be achievable in the Overburden. A 24 m double bench is recommended for the bedrock slopes, while a 12 m single bench is more appropriate for the overburden slopes.

7.2.2 Discussion of Inter-ramp and Overall Slopes

The inter-ramp slope angle is typically controlled by the bench geometry and/or large scale structural features. This angle, combined with any required stepouts, typically determines the maximum overall slope angle. In the case of the Blackwater pit, the major faults are generally steeply dipping and do not daylight on the inter-ramp slopes. As such, several of the sectors have no specific geotechnical concerns, and the maximum inter-ramp angle for the specified bench geometry in the Competent Rock is thought to be achievable. In these cases, inter-ramp angles of 48° for a height of 200 m have been recommended.

In other sectors, some wedges are formed by fault-fault or fault-joint intersections and these features are expected to limit the achievable inter-ramp slopes. For example, the inter-ramp angle for the Southwest sector is limited to a maximum 43° for northeast dipping walls, due to the B-EW fault. Select orientations in the West and Northwest sector also have some kinematic controls for inter-ramp angles over 45°. In these sectors, the inter-ramp heights are limited to 150 m at 48° in the Competent Rock. An inter-ramp angle of 27° is expected to be achievable in the Overburden.

Additional analyses were undertaken in the Broken Zone due to the uncertainty regarding some key inputs to the rock mass model. A 40° inter-ramp angle is expected to be achievable based on stability analyses and experience derived from other projects. This holds for the inter-ramp heights less than 150 m and for depressurized conditions encountered in the interim walls and some of the final walls. In the case of the final North Wall, there is a significant data gap and there is the potential for a Broken Zone over 200 m thick. In this case, a 35° inter-ramp angle with a 35 m stepout (at the 1410 m elevation) and 110 m of slope depressurization is recommended.

Blending between the inter-ramp slope segments will be required, especially when transitioning between Competent Rock and the Broken Zone. In these areas, the Broken Zone should never be steepened beyond a 40° inter-ramp angle. The overall slope will be 3° to 5° flatter than the inter-ramp slopes after the haulage ramps and/or stepouts are incorporated.

Inter-ramp rock mass failure is considered to be the controlling mechanism on pit slope design in the Broken Zone. If the position of the haul roads is modified significantly from those presented in this

report, the pit slope recommendations may no longer be valid in these areas and stability checks are recommended to ensure that the overall slope stability has not become a design constraint.

7.3 OPERATIONAL CONSIDERATIONS

7.3.1 Blasting Practices

Slope instabilities at open pit mines are often triggered by the progressive deterioration of the wall face. Such deterioration starts with the detachment of small rock blocks (key blocks) defined by rock mass discontinuities. Under these circumstances, the preservation of rock mass integrity during mining will be critical for the development of the steepest possible pit slopes. Low damage controlled blasting methods will facilitate steeper final pit slopes where mechanical excavation is not possible or practical.

A “controlled production blasting” or “buffer blasting” practice is recommended for Final pit wall development at the Blackwater Pit. Trial blasts are recommended wherever there is a substantial change in rock mass conditions. Detailed blasting patterns should be discussed in the next stage of study.

It is important that blast holes be staggered so the bottom of the hole does not intercept the crest of the bench below. Otherwise, highly fragmented bench crests will develop leading to considerable ravelling. Bench crest and face scaling should be conducted after blasting when equipment access is still available to these areas. Regular raveling and rock fall cleanup should be performed throughout the mining operations.

7.3.2 Pit Dewatering and Slope Depressurization

Groundwater dewatering within the pit walls is expected to occur as the pit excavation progresses. Slope depressurization will be required for all geology units in order to achieve the designed slope angle. The slope depressurization measures include in-pit and perimeter vertical pumping wells, as well as diversion ditches along the pit crest of the slopes. Pit dewatering and slope depressurization designs are discussed in the Open Pit Water Management Report (KP Ref. No. VA101-457/6-9, Rev A).

The open pit depressurization system has been designed for the “best estimate” of required pumping. The well installations will be required to intersect productive fracture systems and be functional. The drilling and development of successful and useful dewatering wells can be highly variable in bedrock and wells with insufficient yield will need to be replaced. It is recommended that the ongoing observations and results from the slope depressurization system be actively monitored.

If critical dewatering wells become inoperable during mining activity due to incorrect blasting practices, unforeseen slope deformations, or other reasons then an investigation determining the cause of failure should be completed. KP recommends that replacement dewatering wells should be installed if ensuing investigations indicate that it is critical for ongoing high wall stability. Pore pressure conditions will adversely influence pit slope stability in areas where the Broken Zone is present, and therefore KP has assumed that backup dewatering wells will be required in select areas.

7.3.3 Geotechnical Monitoring

Pro-active geotechnical monitoring is recommended for all stages of pit development. The monitoring program should be implemented as a staged approach and include detailed geotechnical and tension crack mapping, as well as a suitable combination of surface displacement monitoring (surface prisms and wire extensometers) and piezometers. All seeps and springs should be inspected, mapped and photographed. Large-scale structures should be characterized and monitored as they have the potential to develop into tension cracks.

7.3.4 Wider Bench below Overburden Slope

It is recommended that 20 m wide stepout be placed in the overburden slopes and 35 m wide stepouts/haul ramps be placed in the bedrock slope just below the overburden contact to provided additional capacity for containment of ravelling materials due to weathering.

7.3.5 Bench Mapping

Bench mapping is especially important during initial pit development to give quality structural information. Drillhole orientation data have shadow zones, noise, and cannot be characterized as to persistence, planarity and aperture as compared to detailed bench mapping. Additionally, orientations are more difficult to capture in poor quality rock masses, which has implications for data uncertainty in the Broken Zone. Bench mapping should take the form of cell mapping to capture discontinuity parameters in statistically valid ways. Kinematic stability analyses should be revised as these new data are developed, which will permit the quantification of shear modes likely to be found in the pit walls. Rock mass characterization should be applied to all exposed benches in conjunction with discontinuity mapping.

7.3.6 Initial Broken Zone Excavations

Studies of the Broken Zone during Phase 1 pit development will give a better understanding of the rock mass quality of this zone. There is currently a lack of data in some areas due to difficulties in obtaining reliable parameters from the broken core retrieved in the drillholes. Opportunities to develop trial pit walls at steeper bench faces and for steeper inter-ramp angles should be evaluated as this may allow for steeper pit walls in later pit development phases, particularly in the North and Southeast walls. This would require increased monitoring efforts and may result in an increased risk to interruption of mining operations due to potential multi-bench instabilities.

7.4 PRECEDENT PRACTICE

Pit slope stability depends on a variety of site-specific factors (geological structure, rock strength, alteration, groundwater conditions, discontinuity characteristics and orientation, pit geometry, blasting practices, stress conditions, climatic conditions, and time), which make it difficult to provide direct comparisons with other operations. However, it is still quite useful to review the successes and problems encountered at other open pit operations in order to recognize opportunities and potential constraints for the proposed open pit development.

A summary plot of pit depth vs. slope angles achieved in various operations around the world is illustrated on Figure 7.4 The overall wall angles of the Blackwater Pit have the potential to be steeper depending on the Broken Zone stability in the early stages of Phases 2 and 3.

The proposed slope angles for the Blackwater Pit are generally comparable to the slope angles achieved in other deep pits. This comparison highlights the importance of developing and maintaining good controlled blasting practices, effective groundwater slope depressurization measures and geotechnical data collection. It is also noted in these case studies that adverse structural conditions have had a major impact on pit slope stability.

In addition, it is important to note that almost all of these large open pit operations have encountered slope stability problems in some area of the mine. The experiences at most of the large open pits suggest that there is a significant possibility that some area of the pit slope will require flattening during operations in response to slope movement. Therefore, the mine plans should remain flexible so that extra laybacks, step-outs, or buttresses can be incorporated in critical areas of the pit.

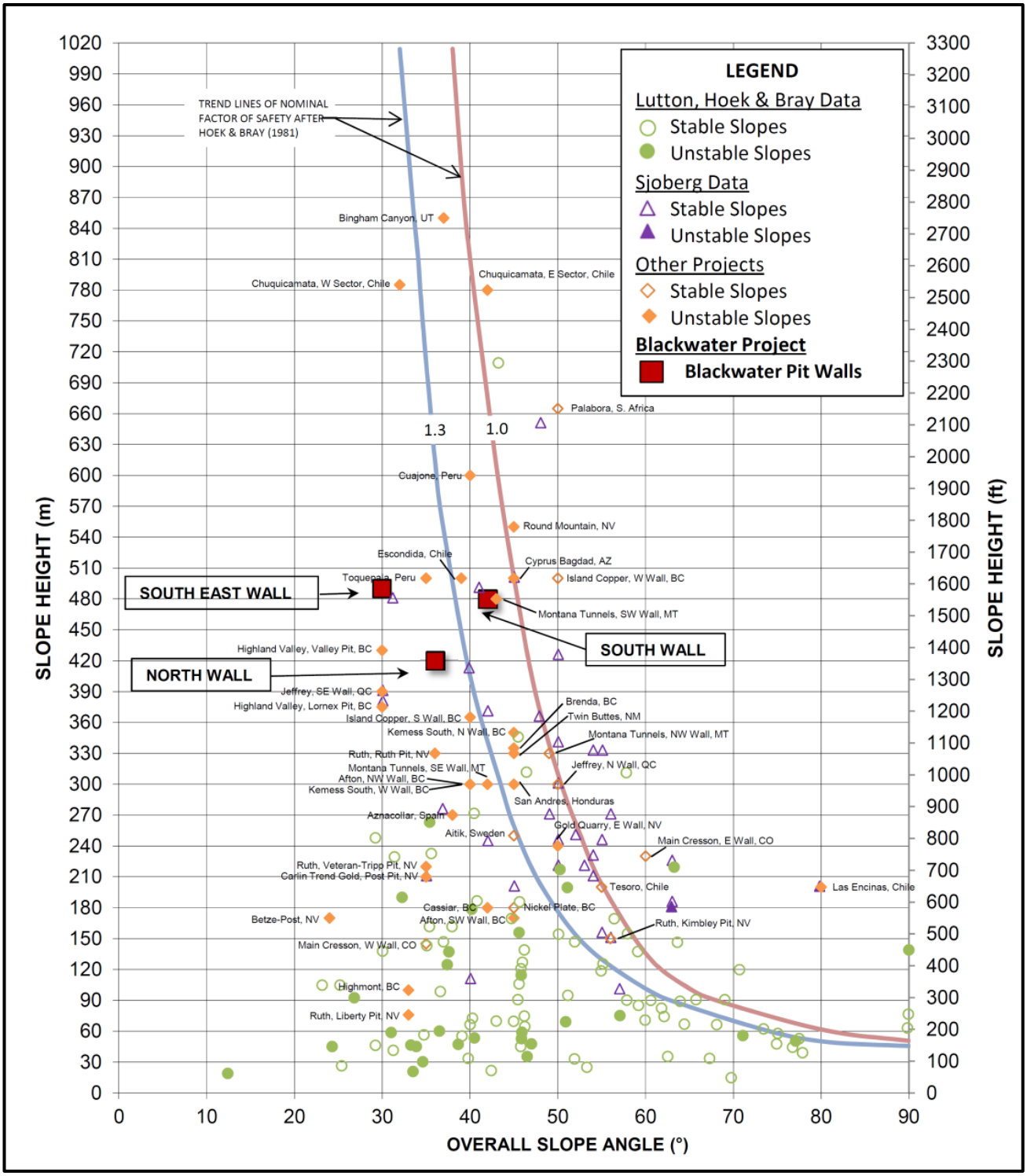


Figure 7.4 Slope Height versus Slope Angle Precedent for Hard Rock Slopes

NOTE:

1. Original data points after Lutton 1970, Hoek and Bray 1981, and Sjoberg 1996.
2. Additional data from Knight Piesold projects and others also included

7.5 LIMITATIONS

It should be noted that there are uncertainties relating to wall geology, locations of large scale structural features, intact rock strength, defect strength, rock mass structures, and pore water pressure conditions. The proposed slope configurations also require low damage controlled blasting at the walls and effective groundwater slope depressurization, which are typical challenges for most pit operations. In addition, it is important to note that almost all of these large open pit operations have encountered slope stability problems in some area of the mine. The experiences at most of the large open pits suggest that there is a significant possibility that some areas of the pit slopes will require flattening during operations in response to slope movement. Therefore, the mine plans should remain flexible so that extra laybacks, step-outs, or buttresses can be incorporated in any critical areas of the pit where on-going monitoring indicates excessive pit slope deformations.

8 – CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

The recommended pit slope configurations were determined based on the following:

- The currently available geological model provided by New Gold (February 2013)
- A RQD block model provided by New Gold (February 2013)
- The compiled geomechanical data collected by KP during the 2012 site investigation program
- Laboratory strength testing results coordinated by KP
- Kinematic and rock mass stability analyses completed by KP
- Open pit depressurization system completed by KP (October, 2013)
- The proposed pit geometry provided by Norwest (February, 2013), and
- The mining equipment specified by New Gold (February, 2013).

All slope stability assessments were based on achieving an acceptable level of risk. Pit slope recommendations have been provided for each design sector based on achieving the acceptable criteria for each of the design methods employed.

The recommended pit slope configurations presented in this report are reasonable and can be used for the Feasibility Study. The generally recommended parameters for all the pit phases include:

- **Overburden -** Inter-ramp angles of 27° in the overburden with a maximum inter-ramp slope height of 30 m and incorporating 20 m wide stepouts
- **Broken Zones -** Bench face angles of 60° and inter-ramp slope angles of 40° should be generally achievable in the Broken Zones. The maximum inter-ramp height should be limited to 150 m and slope depressurization of about 40 m will be required.
- **Competent Rock -** Bench face angles of 70° and inter-ramp slope angles of 48° should be generally achievable in Competent Rock. Maximum inter-ramp heights should be limited to 200 m. In general, the Competent Rock is expected to be stable without depressurization.

Exceptions to the above include:

- **Southeast Sector -** Overall slope angles for the Southeast sector includes flatter overburden slopes. This sector also has an extensive Broken Zone and will require 100 m of slope depressurization in this area in order to achieve the design inter-ramp angles.
- **Southwest Sector -** Structural controls in this sector limit the inner ramp angles to 43° in Competent Rock.
- **North Sector –** The Broken Zone in this area may be over 200 meters in height. This will require a shallower 35° inter-ramp angle, a 35 m stepout and 110 m of slope depressurization.

8.2 RECOMMENDATIONS

Additional geotechnical work will be required for detailed design. The recommended geotechnical work and studies include:

- Further site investigations in the Southeast and North sectors to refine the RQD block model and improve the geotechnical model in these areas.
- Additional point load testing within the low RQD zones (Broken Zones).
- Detailed laboratory testing to confirm intact rock constant (mi) assumptions.
- Further refinement of the pit hydrogeological model and pit dewatering plan.

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10 – CERTIFICATION

This report was prepared, reviewed and approved by the undersigned.

Prepared: _____

M. A. FOURNIER # 38402 BRITISH COLUMBIA PROFESSIONAL ENGINEER

05/11/13

Mathew Fournier, P.Eng.
Project Engineer

Reviewed: _____

Daniel Y. Yang, P.Eng.
Senior Geotechnical Engineer

Approved: _____

POF

Ken J. Brouwer, P.Eng.
President

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APPENDIX A

DRILLHOLE LOGS

Appendix A1	Summary Drillhole Logs
Appendix A2	Geomechanical Logging Data Sheets
Appendix A3	UCS, RMR and RQD versus drillhole depth plots

APPENDIX A1

GEOMECHANICAL DRILLHOLE LOGS

(Pages A1-1 to A1-127)

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**1 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
1608	1–10		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 10.3 m)							One vibrating wire installed in drillhole	
1603	11		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (10.3 to 92.5 m)	98	44	50	75			Vibrating installed at 12 m depth, piezometeric head at 10 mbgs	
	12			98	21	44	75				
	13			97	0	44	110				
	14		Broken zone, moderately fractured (10.3 to 13.1 m)								
1598	15			97	30	46	75				
	16			98	47	48	75				
	17			99	65	55	75				
	18			100	83	60	75				
	19			100	53	53	75				
1593	20			95	35	48	75				
	21			100	63	52	75				
	22			100	64	53	75				
	23			95	57	52	70				
	24			100	61	53	75				
1588	25			100	67	56	70				
	26			95	29	49	70				
	27		Fault, main body of fault (26.7 to 27 m)	100	45	51	70				
	28			97	53	54	70				
	29			100	96	64	70				
	30			100	65	59	70				
1583	31			100	60	57	70				
	32			100	59	57	70				
	33			100	72	60	70				
	34			100	70	59	70				
	35			100	81	61	70				
1578	36			99	71	59	70				
	37			100	54	56	70				
	38			96	63	59	70				
	39										
	40										
1573	41										
	42										
	43										
	44										
	45										
1568	46										
	47										
	48										
	49										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

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NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-01

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.1** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**2 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (10.3 to 92.5 m)	100	16	50	70				
	52			97	41	52	70				
	53			100	67	57	70				
1558	55			100	89	61	70				
	56			97	97	66	70				
	57			100	95	66	70				
	58			97	92	66	70				
1553	60			96	74	60	70				
	61			98	0	34	70				
	62		Fault, small fault, 40 TCA, minor slicks (62.4 to 62.7 m)	100	100	71	70				
	63			99	63	55	70				
1548	65			100	100	66	70				
	66			100	69	58	70				
	67			100	64	57	70				
	68			100	63	54	70				
1543	70			100	35	46	70				
	71			94	35	45	70				
	72			100	72	54	70		UCS01-01	UCS Test: 54MPa, Young Modulus 111GPa, Poisson's Ratio N/A	
	73			67	0	35	70				
	74			87	13	37	70				
1538	75			67	0	35	70				
	76			53	0	34	70				
	77			100	24	41	70				
	78			100	0	42	70				
	79		Broken zone (78.8 to 91 m)	100	49	50	70				
1533	80			93	20	50	70				
	81			55	0	35	70				
	82			47	0	35	70				
	83			100	0	47	70				
	84			100	50	54	70				
1528	85			90	32	51	70				
	86			98	77	59	70				
	87			100	0	34	70				
	88										
	89										
1523	90										
	91										
	92		Fault, clay gouge (91 to 92.5 m)								
	93		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (92.5 to 125.5 m)								
	94										
1518	95										
	96										
	97										
	98										
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

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DRILLHOLE LOG FOR GM12-01

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**3 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (92.5 to 125.5 m)	99	55	55	70				
	102			100	71	60	70				
	103			96	50	54	70				
	104			95	95	69	70				
1508	105			100	99	67	70				
	106			93	73	60	70				
	107			100	100	65	70				
	108			58	46	54	70		UCS01-02	UCS Test: 153MPa, Young Modulus 87GPa, Poisson's Ratio 0.21	
	109			100	46	48	70				
1503	110			96	34	23	75				
	111			100	59	53	75				
	112			100	31	49	75				
	113			100	83	62	75				
	114			99	17	49	75				
1498	115			80	22	46	25				
	116			33	0	36	25				
	117		Broken zone (116.9 to 125.5 m)	92	63	57	75		UCS01-03	UCS Test: 56MPa, Young Modulus 56GPa, Poisson's Ratio 0.20	
	118			100	88	64	75				
	119			96	79	60	70				
1493	120			100	81	61	70				
	121			96	96	65	60				
	122			99	73	60	50				
	123			99	91	60	60				
	124			99	84	60	60				
1488	125			100	83	67	75				
	126		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (125.5 to 172.69 m)	94	94	75	125				
	127			100	78	63	75				
	128			95	76	66	75				
	129			100	100	70	75				
1483	130			95	95	72	75				
	131			99	62	60	75				
	132			99	96	74	125				
	133			93	93	74	125				
	134										
1478	135										
	136										
	137										
	138										
	139										
1473	140										
	141										
	142										
	143										
	144										
1468	145										
	146										
	147										
	148										
	149										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**4 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (125.5 to 172.69 m)	96	96	80	160				
	152			100	100	78	125				
	153			91	91	67	125				
	154			100	100	73	125				
1458	155			100	100	73	125				
	156			100	100	92	125				
	157			100	100	73	125				
	158			99	99	70	125				
	159			98	98	92	125				
1453	160			100	100	86	125				
	161			100	100	74	125				
	162			100	100	94	125				
	163			97	97	69	125				
	164			100	100	94	125				
1448	165			95	95	78	125		UCS01-04	UCS Test: 184MPa, Young Modulus 70GPa, Poisson's Ratio 0.17	
	166			100	100	75	125				
	167			100	100	94	125				
	168			100	100	68	125				
	169			100	100	69	125				
1443	170			100	100	94	125				
	171			97	97	74	125				
	172			100	100	86	125				
	173		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (172.69 to 261.79 m)	91	91	72	160				
	174			94	94	76	110				
1438	175			100	93	70	75				
	176			99	99	71	125				
	177			97	97	88	125				
	178			97	97	91	125				
	179			100	100	71	125				
1433	180			100	100	94	125				
	181			98	98	67	125				
	182			100	100	90	125				
	183			99	99	75	125				
	184			99	99	73	125				
1428	185										
	186										
	187										
	188										
	189										
1423	190										
	191										
	192										
	193										
	194										
1418	195										
	196										
	197										
	198										
	199										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

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DRILLHOLE LOG FOR GM12-01

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Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**5 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (172.69 to 261.79 m)	95	95	71	125				
	202			100	100	70	125				
	203			97	97	70	125				
1408	205			100	48	62	125				
	207			94	94	73	125				
	208		Broken zone, uphole of short fault (208 to 238.8 m)	100	100	64	75				
1403	210			97	97	63	75				
	212			100	100	63	75				
	213			91	91	69	125		UCS01-05	UCS Test: 31MPa, Young Modulus 69GPa, Poisson's Ratio 0.17	
1398	215			95	95	68	125				
	216			100	100	68	110				
	218			100	58	57	75				
	219			96	41	54	75				
1393	220			100	81	66	125				
	222			100	37	55	75				
	223			100	94	72	125				
1388	225			94	88	69	140				
	226			100	100	77	125				
	228			100	88	65	95				
	229			100	80	61	95				
1383	230			95	43	46	70				
	232			98	73	53	70				
	233			96	38	46	55				
1378	235			90	24	43	55				
	236			100	74	57	55				
	238			100	20	39	25				
	239		Fault, with patchy clay gouge and rubble (238.8 to 249 m)	100	54	41	15				
1373	240			100	35	40	25				
	242			100	0	31	25				
	243			88	29	41	75				
1368	245			100	57	56	75				
	246			100	28	54	75				
	248			83	10	50	75				
	249										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-01

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.1** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**6 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (172.69 to 261.79 m)	100	0	32	25					
	252			93	0	35	50					
	253			100	7	34	50					
	254		Broken zone, between two faults (250 to 258 m)	100	10	51	75					
1358	255			100	30	50	75					
	256											
	257											
	258			53	0	33	50					
	259		Fault zone, with clay gouge and breccia (258 to 299 m)	100	0	33	50					
1353	260			100	0	39	75					
	261											
	262		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (261.79 to 274 m)	87	0	34	50					
	263			100	33	43	60					
	264			95	29	42	55					
1348	265			100	54	46	50					
	266			100	29	43	60					
	267			61	0	30	5					
	268			82	0	35	25					
	269			50	0	32	15					
1343	270											
	271											
	272											
	273											
	274		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (274 to 314 m)	93	0	33	15					
	275			80	0	38	25					
1338	276			100	0	38	50					
	277			90	37	43	75					
	278			100	43	45	5					
	279			10	0	43	75					
	280			90	53	53	75					
1333	281			100	30	52	75					
	282			88	15	32	5					
	283			85	18	32	5					
	284			100	32	33	5					
	285			100	82	53	45					
1328	286			97	65	53	50					
	287			100	21	38	25					
	288			76	38	42	50					
	289			89	45	38	40					
1323	290			88	19	36	40					
	291											
	292											
	293											
	294											
1318	295											
	296											
	297											
	298											
	299											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-01

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.1** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**7 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (274 to 314 m)	57	13	36	20				
	302			85	0	33	50				
	303			95	57	53	75				
	304			93	0	31	25				
1308	305			97	50	55	75				
	306			100	40	53	75				
	307			97	60	60	75				
	308			89	60	64	125				
	309			100	60	59	125				
1303	310			100	47	55	75				
	311			100	85	59	125				
	312			100	0	34	50				
	313			99	46	40	50				
	314			82	7	35	50				
1298	315		Broken zone, moderately rubbly throughout (314 to 316 m)	97	28	44	50				
	316			100	70	61	75		UCS01-06	UCS Test: 38MPa, Young Modulus 57GPa, Poisson's Ratio 0.20	
	317		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (314 to 400 m)	100	13	43	75				
	318			98	37	51	75				
	319			98	47	50	75				
1293	320		Fault zone, rubbly with two isolated 30cm intervals of sandy gouge and brecciation (316 to 320.2 m)	100	100	90	75				
	321			98	44	47	60				
	322		Broken zone, heavily fractured, locally quite intense rubble zones (320.2 to 341.5 m)	99	38	50	75				
	323			99	99	63	75				
	324			100	100	86	75				
1288	325			100	23	42	35				
	326			100	52	49	45				
	327			95	95	62	55				
	328			98	91	60	35		UCS01-07	UCS Test: 36MPa, Young Modulus 46GPa, Poisson's Ratio 0.29	
	329			91	0	30	15				
1283	330			95	0	30	15				
	331			70	0	33	50				
	332			94	94	58	50				
	333			100	39	50	50				
	334			92	52	53	50				
1278	335										
	336										
	337										
	338										
	339										
1273	340										
	341										
	342		Fault zone, heavily fractured, locally brecciated 30cm of fault gouge at 342.6-343m (341.5 to 350 m)								
	343										
	344										
1268	345										
	346										
	347										
	348										
	349										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-01

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.1** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-01**	PAGE	**8 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**17 Feb 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**2 Mar 12**
Coordinates:	**5,892,739 N , 375,101 E (Nad 83 zone 9)**	Elevation:	**1613.1 m**	Date Well Installed:	**2 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (314 to 400 m)	100	30	48	50				
	352			100	57	58	75				
	353			100	83	69	110				
	354			100	53	58	110				
1258	355		Broken zone, heavily fractured, locally rubbly (350 to 370 m)	100	67	59	110				
	356			100	57	51	75				
	357			97	69	63	75				
	358			100	68	63	75				
	359			95	77	64	75				
1253	360			99	65	60	75				
	361			100	95	66	80				
	362			88	0	31	25				
	363			100	40	42	50				
	364			94	69	56	50				
1248	365			100	65	51	45				
	366			100	100	68	75				
	367			99	99	65	75				
	368			100	100	72	125				
	369			98	98	73	125				
1243	370			100	100	94	150				
	371			97	97	94	150				
	372			100	99	72	125				
	373			95	45	61	125				
	374			99	58	66	125		UCS01-08	UCS Test: 73MPa, Young Modulus 77GPa, Poisson's Ratio 0.17	
1238	375			100	83	71	125				
	376			100	100	94	125				
	377			96	96	92	125				
	378			99	99	73	125				
	379			100	100	94	125				
1233	380			100	100	94	125				
	381			100	100	95	125				
	382			97	85	55	125				
	383			94	94	92	125				
	384										
1228	385										
	386										
	387										
	388										
	389										
1223	390										
	391										
	392										
	393										
	394										
1218	395										
	396										
	397										
	398										
	399										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-01

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.1** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**1 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	1–4		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 5 m)							One vibrating wire installed in drillhole
1616	5		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (5 to 80 m)	83	53	47	50			
	6			100	39	45	60			
	7			91	75	53	70			
	8			87	45	50	70			
1611	9–10			100	33	48	70			
	11			100	65	56	70			
	12–13			100	38	46	70			
	14			62	25	40	50			
1606	15			57	8	36	25			
	16			83	18	39	45			
	17–18			34	6	37	45			
	19			67	17	39	45			
1601	20			95	33	43	45			
	21–22			97	30	41	25			
	23			100	24	46	50			
	24			100	71	54	50			
1596	25			100	69	58	75			
	26–27			99	74	63	110			
	28			100	77	63	75			
	29			84	57	48	25			
1591	30			43	21	33	25			
	31–32			90	20	32	15			
	33		Fault, extensive oxidation and rounded fragments in a clay matrix (32.6 to 36.5 m)	96	59	59	75			
	34			100	43	45	50			
1586	35			100	41	44	50			
	36–37			100	39	46	50		UCS02-04	UCS Test: 53MPa, Young Modulus 16GPa, Poisson's Ratio 0.36
	38			100	60	55	50			
	39			92	48	54	75			
1581	40			100	100	74	75			
	41–42			93	10	34	50			
	43			92	45	39	50			
	44									
1576	45									
	46									
	47									
	48									
	49									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**2 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (5 to 80 m)	100	65	47	50				
	52			99	19	39	50				
	53			100	16	39	50				
1566	54			97	32	43	50				
	55			77	17	35	50				
	56			80	19	36	50				
	57		Fault, clay healed gouge, unknown orientation. (57.5 to 58.5 m)	100	57	50	50				
	58			100	28	44	50				
1561	59			100	81	53	50				
	60			88	0	31	30				
	61			99	60	50	45				
	62			100	0	30	15				
	63			81	0	30	15				
	64		Fault zone, consistent clay healed gouge with short intervals of jointed core (63.3 to 100 m)	92	0	30	15				
1556	65			100	37	35	15				
	66			96	0	31	25				
	67			50	0	31	25				
	68			50	0	31	25				
	69			50	0	29	5				
1551	70			100	26	38	35				
	71			99	25	39	30				
	72			92	0	35	30				
	73			99	0	36	45				
	74			97	43	47	85				
1546	75			100	0	40	60				
	76			75	0	34	60				
	77			73	0	33	50				
	78			59	0	33	50				
	79			50	0	31	25				
1541	80			64	0	31	25				
	81		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (80 to 137.5 m)	77	16	32	20				
	82			43	0	30	20				
	83			72	0	34	25				
	84										
1536	85										
	86										
	87										
	88										
	89										
1531	90										
	91										
	92										
	93										
	94										
1526	95										
	96										
	97										
	98									Vibrating wire installed at 98 m depth, piezometeric head at 29 mbgs	
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**3 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101–104		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (80 to 137.5 m)	60	0	34	25				
				100	32	42	50				
				87	49	58	110		UCS02-01	UCS Test: 137MPa, Young Modulus 41GPa, Poisson's Ratio 0.20	
1516	105–107		Fault zone, consistent clay healed gouge with short intervals of jointed core (100 to 113 m)	83	15	42	75				
				92	14	41	75				
	108–109			100	13	35	50				
1511	110–113			70	0	34	50				
				100	17	33	25				
				88	0	30	20				
	114–115			98	58	55	75				
1506	116–119			100	83	64	115				
				97	77	64	115				
				98	77	63	115				
1501	120–124			100	100	91	100				
				100	83	61	100				
				96	96	71	115				
1496	125–129			93	34	44	50				
				97	97	64	65				
				100	100	89	60				
1491	130–134			100	99	63	60				
				99	97	65	85				
				100	100	64	85				
1486	135–137			95	34	42	25				
				95	34	42	25				
				100	100	87	45				
	138–140		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (137.5 to 153 m)	100	100	88	65				
1481				97	97	87	65				
	141–142			97	88	86	75		UCS02-02	UCS Test: 181MPa, Young Modulus 63GPa, Poisson's Ratio 0.18	
				100	71	62	110				
	143–144			97	61	55	75				
1476	145–149			100	42	52	75				
				100	79	81	75				
				100	40	53	75				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**4 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151			85	44	54	75					
	152			100	93	88	75					
	153		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (153 to 227.19 m)	95	67	62	125					
	154			100	68	60	125					
1466	155			100	61	62	75					
	156			98	98	76	160					
	157			100	91	69	160					
	158			100	55	53	75					
	159			100	86	67	110					
1461	160			100	73	61	110					
	161			96	50	53	95					
	162			100	0	39	45					
	163			98	98	94	150					
	164			100	100	72	150					
1456	165			100	79	68	140					
	166			96	64	54	80					
	167			100	100	71	125					
	168			98	98	93	125					
	169			98	98	93	125					
1451	170			100	100	73	125					
	171			100	100	94	125					
	172			96	93	65	85					
	173		Clay seam (172.6 to 172.7 m)	100	83	64	110					
	174			80	0	35	75					
1446	175			100	57	41	45					
	176			100	11	37	75					
	177			100	61	57	75					
	178			100	59	56	75					
	179			100	0	41	50					
1441	180			100	75	61	75					
	181			91	31	49	75					
	182			100	51	54	75					
	183			95	47	52	60					
	184		Fault, competent clay healed gouge zone (183.5 to 183.6 m)	98	0	41	100					
1436	185											
	186											
	187											
	188											
	189											
1431	190											
	191											
	192											
	193											
	194											
1426	195											
	196											
	197											
	198											
	199											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**5 of 8**		
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**		
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**		
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**		
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**		
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**		

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (153 to 227.19 m)	100	100	93	110					
	202			100	97	64	110					
	203			100	87	62	90					
1416	204			99	70	55	60					
	205			96	96	92	110					
	206			98	98	93	125					
	207			100	79	62	85					
	208			57	0	44	100					
	209			100	16	45	100					
1411	210			96	8	45	100					
	211			99	29	78	100					
	212			92	69	53	50					
	213			100	45	59	75					
	214			100	83	63	75					
	215			95	15	45	75					
1406	216			100	100	91	95					
	217			100	55	51	55					
	218			99	99	92	110					
	219			100	95	65	125					
	220			100	0	36	45					
1401	221			100	21	39	45					
	222			100	32	33	5					
	223			94	0	29	5					
	224			100	0	29	5					
	225			100	100	88	45					
1396	226			100	100	90	65					
	227			100	78	59	65					
	228		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (227.19 to 229 m)	100	100	91	85					
	229			90	90	90	110					
	230		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (229 to 354 m) Fault zone,with clay healed gouge (232.5 to 236 m)	100	100	93	110					
1391	231			95	89	68	125					
	232			100	92	70	110					
	233			100	87	69	110			UCS02-03	UCS Test: 169MPa, Young Modulus 73GPa, Poisson's Ratio 0.19	
	234											
	235											
1386	236											
	237											
	238											
	239											
	240											
1381	241											
	242											
	243											
	244											
	245											
1376	246											
	247											
	248											
	249											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**6 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (229 to 354 m)	100	83	66	110				
	252			89	81	67	110				
	253			100	68	63	110				
	254		Broken zone, fault breccia with slickenside (253.8 to 254.1 m)	96	65	62	110				
1366	255			100	85	59	110				
	256			100	95	66	110				
	257			100	100	93	110				
	258			94	94	92	125				
	259			100	100	73	125				
1361	260			95	95	70	125				
	261			100	100	94	125				
	262			99	33	50	65				
	263			100	78	61	110				
	264			99	99	93	125				
1356	265			100	89	62	110				
	266			100	100	88	110				
	267			96	49	52	75				
	268			99	27	35	25				
	269			100	33	41	80				
1351	270			100	75	64	75				
	271			100	51	80	75				
	272			100	67	63	75				
	273			100	100	89	75				
	274			99	78	63	75				
1346	275			100	36	44	50				
	276			100	13	49	75				
	277			100	45	52	75				
	278			94	80	69	110				
	279			100	45	57	75				
1341	280			85	0	37	35				
	281			100	0	43	50				
	282			95	0	47	75				
	283			98	0	45	75				
	284										
1336	285										
	286										
	287		Fault, clay gouge with subrounded clasts (286.1 to 286.6 m)								
	288										
	289										
1331	290		Fault, with clay gouge and subrounded clasts. (289.1 to 289.3 m)								
	291										
	292										
	293										
	294										
1326	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**7 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (229 to 354 m)	100	0	48	75					
	302			97	0	48	75					
	303			100	67	58	60					
	304			98	13	45	45					
1316	305		Fault zone, areas of clay (dark grey-green) healed gouge with subrounded clasts (303.5 to 349 m)	100	96	68	110					
	306			100	25	44	65					
	307			96	67	53	75					
	308			100	80	57	75					
	309			94	19	38	55					
1311	310			94	0	35	40					
	311			94	36	44	40					
	312			100	0	49	20					
	313			100	49	43	50					
	314			100	42	49	75					
1306	315			100	62	57	120					
	316			100	0	33	40					
	317			100	72	57	75					
	318			54	45	50	50					
	319			45	0	36	25					
1301	320			100	55	60	75					
	321			97	25	35	30					
	322			100	0	38	30					
	323			100	19	34	30					
	324			100	65	56	50					
1296	325			100	48	57	75					
	326			100	59	57	75					
	327			93	42	35	5					
	328			100	0	29	5					
	329			99	0	38	70					
1291	330			92	39	43	70					
	331			100	55	53	110					
	332			100	9	49	110					
	333			96	9	40	25					
	334			99	43	51	75					
1286	335											
	336											
	337											
	338											
	339											
1281	340											
	341											
	342											
	343											
	344											
1276	345											
	346											
	347											
	348											
	349											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-02**	PAGE	**8 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**3 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**400 m**	Date Completed:	**14 Mar 12**
Coordinates:	**5,892,760 N , 375,502 E (Nad 83 zone 9)**	Elevation:	**1620.9 m**	Date Well Installed:	**14 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (229 to 354 m)	100	34	50	75				
	352			100	45	53	75		UCS02-05	UCS Test: 58MPa, Young Modulus 72GPa, Poisson's Ratio 0.25	
	353										
	354		Fault, dark grey to green clay healed gouge zone (350 to 362.5 m)	98	9	40	25				
1266	355			75	0	31	25				
	356		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (354 to 360 m)								
	357			82	0	32	25				
	358										
	359			80	0	32	25				
1261	360			91	0	31	25				
	361		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (360 to 400 m)	100	0	31	25				
	362										
	363		Broken zone, with clay on fractures (362.5 to 369.5 m)	75	8	41	75				
	364										
1256	365			100	45	48	75				
	366			95	37	40	75				
	367										
	368			100	37	40	75				
	369			94	0	31	25				
1251	370		Fault, gouge with subrounded clast with a medium to light grey-green clay (369.5 to 371 m)	100	62	56	75				
	371										
	372		Broken zone,with minimal areas of competent core. Lots of calcite veining on fractures. (371 to 390.5 m)	98	39	53	75				
	373										
	374			100	64	53	75				
1246	375			90	12	41	25				
	376										
	377			90	0	38	25				
	378			100	9	32	25				
	379										
1241	380			100	9	42	25				
	381			57	0	40	20				
	382										
	383			100	35	46	50				
	384			90	22	41	35				
1236	385			100	13	42	50				
	386										
	387			87	0	32	35				
	388										
	389			85	0	32	35				
1231	390			100	23	48	50				
	391										
	392			100	47	51	50				
	393										
	394			100	27	50	75				
1226	395			100	38	52	75				
	396										
	397			97	53	54	75		UCS02-08	UCS Test: 66MPa, Young Modulus 70GPa, Poisson's Ratio 0.16	
	398			98	56	55	75				
	399			91	59	55	75				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-02

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.2** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**1 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
1592	1–5		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 46 m)								One vibrating wire installed in drillhole	
1587	6–10											
1582	11–15											
1577	16–20											
1572	21–25											
1567	26–30											
1562	31–35											
1557	36–40											
1552	41–45											
	46–49		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (46 to 118 m)	100	15	36	25	◆ ⊗				

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**2 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (46 to 118 m)	90	36	39	25			
	52			90	12	35	25			
	53			96	59	42	25			
1542	54			100	29	43	75			
	55			96	46	46	75			
	56			100	70	56	75			
	57			100	72	54	75			
	58			93	87	61	125		UCS03-01	UCS Test: 108MPa, Young Modulus 17GPa, Poisson's Ratio 0.17
1537	59			100	71	56	125			
	60			100	99	66	125			
	61			100	72	60	125			
	62			100	57	57	125			
	63			99	49	50	75			
	64			100	73	58	75			
1532	65			99	76	61	125			
	66			100	79	63	125			
	67			97	39	51	125			
	68			100	46	47	125			
	69			97	63	49	75			
1527	70			100	23	52	125			
	71			97	75	56	75			
	72			100	100	61	75			
	73			100	80	42	5			
	74			100	19	34	25			
1522	75			87	11	32	25			
	76			100	71	56	40			
	77			100	71	44	35			
	78			73	7	32	25			
	79			97	21	36	35			
1517	80			100	63	52	50			
	81			100	61	55	50			
	82			100	69	58	50			
	83			100	53	50	50			
	84									
1512	85		Clay seam, white-orange clay seam (84.6 to 84.9 m)							
	86									
	87		Broken zone, with intervals of competent core and clay seams (84.9 to 93 m)							
	88									
	89									
1507	90									
	91									
	92									
	93									
	94									
1502	95									
	96									
	97									
	98									
	99									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS: Vibrating wire installed at 94 m depth, piezometeric head at 11 mbgs

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**3 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS
	101–104		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (46 to 118 m)	100	17	41	35
				95	53	53	50
				100	62	57	50
1492	105–109			95	43	54	50
				100	21	43	40
				99	65	43	40
1487	110–114		Fault, clay healed gouge - alpha = 45, beta = 050. (109.9 to 110.2 m)	100	34	37	25
				100	100	49	25
				100	42	44	25
1482	115–117			100	0	32	25
				100	30	36	25
	118–149		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (118 to 323 m)	97	27	34	25
				50	0	31	25
1477				99	0	30	25
				52	37	44	25
				67	27	42	25
1472				75	13	40	25
				100	0	41	25
				100	22	44	50
1467				100	0	45	75
				100	37	46	75
				82	14	59	75
1462				97	0	35	75
				99	15	37	75
				98	15	35	50
1457				97	9	35	50
				100	15	42	50
				95	0	43	75
1452				100	0	33	50
				100	0	31	25
				41	0	29	10
				100	0	31	25
				99	89	53	50

RQD (%) ◆ 20 40 60 80
RMR VALUE ⊗ 20 40 60 80

SAMPLE TYPE | SAMPLE NO. | DRILLHOLE NOTES | WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 2
APPENDIX Appendix A1.3 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**4 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (118 to 323 m)	100	28	32	5					
	152			92	12	30	5					
	153			76	0	29	5					
	154			96	0	29	5					
1442	155			100	0	29	5					
	156			98	13	30	5					
	157			100	18	40	25					
	158			100	0	31	25					
	159			70	0	31	25					
1437	160			83	0	34	25					
	161			86	0	39	25					
	162			45	0	28	0					
	163			48	12	37	25					
	164			100	0	34	25					
1432	165			0	0	35	25					
	166			90	0	31	25					
	167			98	0	31	25					
	168			98	0	33	5					
	169			86	0	29	5					
1427	170			42	0	29	5					
	171			92	0	29	5					
	172			94	0	29	5					
	173			77	0	29	5					
	174			50	0	29	5					
	175		Fault, consistent clay gouge over this interval, rounded to subrounded clasts in a clay to rock matrix. Extensive alteration/bleaching in this zone. Major fault structure. (174 to 194 m)	96	0	29	5					
1422	176			98	0	29	5					
	177			98	0	29	5					
	178			93	0	29	5					
	179			87	0	34	5					
1417	180			100	0	43	25					
	181			100	30	39	25					
	182			100	0	31	25					
	183			43	8	36	25					
	184			100	0	31	25					
1412	185											
	186											
	187											
	188											
	189											
1407	190											
	191											
	192											
	193											
	194											
1402	195											
	196											
	197											
	198											
	199											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**5 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (118 to 323 m)	95	7	42	50				
	202			94	7	46	50				
	203										
	204			90	0	37	25				
1392	205		Broken zone (205 to 210 m)	100	31	46	50				
	206										
	207			53	0	31	25				
	208										
	209			94	0	32	25				
1387	210			99	24	45	40				
	211										
	212			83	31	51	75				
	213			99	0	31	25				
	214										
1382	215			95	28	49	75				
	216			100	40	53	75				
	217										
	218			95	0	45	75				
	219			100	47	54	75				
1377	220										
	221			95	50	51	75				
	222		Fault, clay/rock healed gouge with rounded to sub-rounded clasts. Broken fragments and lots of chlorite, clay on fractures. (221 to 247.7 m)	47	27	41	110				
	223			33	0	29	5				
	224										
1372	225			97	73	43	25				
	226										
	227			91	0	29	5				
	228			97	0	29	5				
	229										
1367	230			100	0	29	5				
	231			67	0	29	5				
	232										
	233			94	36	34	5				
	234			92	0	29	5				
1362	235			98	60	46	50				
	236										
	237			100	0	31	25				
	238			69	0	31	25				
	239										
1357	240			94	11	33	35				
	241										
	242			100	34	49	75				
	243			100	0	44	75				
	244										
1352	245			100	0	33	50				
	246			70	0	32	35				
	247										
	248			93	0	31	25				
	249			89	78	59	50				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**6 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (118 to 323 m)	99	73	57	50				
	252			100	91	68	110				
	253			100	87	65	110				
	254										
1342	255			87	79	66	110		UCS03-05	UCS Test: 26MPa, Young Modulus 67GPa, Poisson's Ratio 0.14	
	256			100	100	67	110				
	257										
	258			98	72	53	75				
	259										
1337	260			100	93	60	80				
	261			100	100	58	80				
	262										
	263			100	83	46	50				
	264			99	0	43	25				
1332	265										
	266			98	0	31	25				
	267			97	0	31	25				
	268										
	269			97	97	47	25				
1327	270			95	56	39	25				
	271										
	272			100	79	43	25				
	273										
	274			100	100	91	80				
1322	275										
	276			100	100	91	80				
	277										
	278			97	87	59	65				
	279		Broken zone, with clay on fractures. (278.3 to 280.4 m)	100	36	40	75				
1317	280			71	0	33	50				
	281			100	40	48	75				
	282										
	283			92	20	45	75				
	284										
1312	285		Gouge, clay gouge with slicks and clay (283.8 to 284.1 m)	100	55	53	75				
	286										
	287			97	95	66	75				
	288										
	289			100	67	59	110				
1307	290										
	291			100	88	82	110				
	292										
	293			100	91	62	75				
	294										
1302	295			100	47	53	75				
	296										
	297			100	93	64	75				
	298										
	299			87	77	61	75				
				100	80	59	75				
				100	52	54	75				
				100	89	67	75				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**7 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (118 to 323 m)	100	100	67	85				
	302			100	100	67	85				
	303		Fault zone, areas of competent core with broken zones and clay gouge (at least every 3 meters). (119 to 174 m)	95	95	83	80				
	304			100	97	68	75				
1292	305		Fault zone, areas of competent core with broken zones and clay gouge (at least every 3 meters). (119 to 174 m)	94	94	82	85				
	306			100	72	60	75				
	307			97	97	83	75				
	308			100	67	57	75				
	309			93	67	49	50				
1287	310			96	51	41	35				
	311		Fault zone, with frequent, small (less than 30 cm) gouge zones (310.2 to 314.5 m)	100	85	56	50				
	312			95	69	53	30				
	313			83	21	36	30				
	314			92	0	34	25				
	315			88	0	35	25				
1282	316			82	22	48	50				
	317			98	0	62	50				
	318			97	87	55	50				
	319			97	95	63	80				
	320		Broken zone, highly fractured with broken fragments. (317.2 to 322.1 m)	99	17	34	50				
1277	321			100	0	31	25				
	322			100	0	32	50				
	323			94	0	31	35				
	324		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (323 to 356.2 m)	98	0	31	35				
	325			90	0	32	55				
1272	326			92	36	42	55				
	327			95	0	35	25				
	328			100	44	45	55				
	329			81	0	28	5				
	330		Broken zone, very rubbly throughout, rubble of centimeter size angular fragments, no palpable gouge. (328.2 to 334.8 m)	99	0	28	5				
1267	331			91	0	28	5				
	332			96	23	38	25				
	333			98	22	42	75				
	334			97	33	39	50				
	335		Broken zone, moderately rubbly, competent core is quite heavily fractured. (334.8 to 338 m)								
1262	336										
	337										
	338		Fault zone, heavily fractured, borderline fault breccia. short interval of gouge. (338 to 341.7 m)								
	339										
	340										
1257	341										
	342		Fault, heavily fractured with ~ 50% of interval fault breccia, moderate amounts of gouge. (341.7 to 344.3 m)								
	343										
	344										
1252	345										
	346										
	347										
	348										
	349										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-03**	PAGE	**8 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**14 Mar 12**
Location:	**Open Pit South and East Walls**	Total Depth:	**400 m**	Date Completed:	**24 Mar 12**
Coordinates:	**5,892,750 N , 375,852 E (Nad 83 zone 9)**	Elevation:	**1596.5 m**	Date Well Installed:	**24 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (323 to 356.2 m)	76	25	44	75				
	352			96	76	56	75				
	353			90	67	55	60				
	354		Fault zone, majority of interval is competent jointed core, moderate fracture density, short intervals of breccia with small amount of gouge. (344.3 to 350.8 m)	73	0	45	75				
1242	355			100	61	42	60				
	356		Broken zone, locally rubbly, otherwise gougy. (350.8 to 356.3 m)	100	88	62	30				
	357			100	67	60	60				
	358			97	20	34	30				
	359		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (356.2 to 400 m)	92	0	31	25				
1237	360			93	86	59	40				
	361			100	92	56	50				
	362		Fault, upper 1m is very rubbly, lower 1m is more competent but still heavily brecciated (356.3 to 358 m)	88	88	55	75				
	363			99	65	55	100				
	364		Fault zone, majority of interval is fine rubble, occasional gouge. (361.6 to 363.6 m)	100	100	71	110				
1232	365			100	85	65	160				
	366		Broken zone, majority of interval is moderately jointed, occasional clay seams. Bedding is consistent at alpha 30deg, Beta 80deg, recorded at 381.3, 388, and 395.7m. (363.6 to 400 m)	100	31	43	60				
	367			100	67	51	75				
	368			61	44	43	60				
	369			100	99	60	75				
1227	370			97	97	68	75				
	371			99	76	51	75				
	372			87	85	57	75				
	373			98	98	65	80				
	374			99	90	61	80				
1222	375			100	100	61	125				
	376			81	81	62	125				
	377			100	100	62	125				
	378			90	81	65	125				
	379			100	97	65	80				
1217	380			100	22	42	50				
	381			100	62	49	40				
	382			100	82	57	75				
	383			100	73	55	90				
	384										
1212	385										
	386										
	387										
	388										
	389										
1207	390										
	391										
	392										
	393										
	394										
1202	395										
	396										
	397										
	398										
	399										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-03

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.3** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-04**	PAGE	**1 of 4**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**25 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**200 m**	Date Completed:	**31 Mar 12**
Coordinates:	**5,892,720 N , 375,648 E (Nad 83 zone 9)**	Elevation:	**1617.2 m**	Date Well Installed:	**31 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
1612	1–9		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 9 m)							One vibrating wire installed in drillhole	
1607	10–14		Broken zone, moderately rubbly. (9 to 12 m) fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (9 to 111 m)	73	67	0	50				
	11–14			100	14	41	50				
	12–14			100	94	57	50				
	13–14			92	62	42	50				
1602	15–19		Fault zone, largely competent core, but with quite frequent short (5-10cm) intervals of high fracture density and weak gouge development. One such gouge zone measured - Alpha = 40, Beta =120 (14 to 34 m)	100	69	50	50				
	16–19			95	73	50	50				
	17–19			100	67	49	50				
	18–19			99	57	52	75				
1597	20–24			95	0	37	50				
	21–24			97	86	60	75				
	22–24			100	36	44	50				
	23–24			97	97	60	75				
1592	25–29			100	96	62	75				
	26–29			100	100	65	75				
	27–29			100	85	61	75				
	28–29			99	99	62	75				
1587	30–34			100	60	45	70				
	31–34			84	78	51	75				
	32–34			99	99	62	75				
	33–34			100	83	59	60				
1582	35–39			100	77	58	60				
	36–39			100	77	58	75				
	37–39			61	34	50	60				
	38–39			99	0	32	45				
1577	40–44		Fault, fault breccia with gouge matrix (44 to 49 m)	100	0	30	20				
	41–44			77	0	30	20				
	42–44			17	0	29	5				
	43–44			61	0	30	20				
1572	45–49										
	46–49										
	47–49										
	48–49										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-04

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.4** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-04**	PAGE	**2 of 4**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**25 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**200 m**	Date Completed:	**31 Mar 12**
Coordinates:	**5,892,720 N , 375,648 E (Nad 83 zone 9)**	Elevation:	**1617.2 m**	Date Well Installed:	**31 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (9 to 111 m)	100	0	29	5				
	52			85	7	31	15				
	53		Fault zone, majority of intervals is moderately jointed, but frequent rubbly intervals with narrow bands of gouge on fracture planes (50 to 83.2 m)	96	0	30	15				
1562	55			91	0	29	5				
	56			86	14	40	20				
	57			95	76	52	50				
	58			82	0	44	50				
	59			97	97	56	50				
1557	60			100	88	55	50				
	61			94	54	42	50				
	62			36	26	36	50				
	63			100	0	31	25				
	64			100	23	37	20				
1552	65			94	17	40	60				
	66			89	0	34	40				
	67			97	44	53	65				
	68			100	84	56	90				
	69			98	34	47	75				
1547	70			86	25	46	75				
	71			100	83	56	75				
	72			97	86	59	80				
	73			100	100	61	90				
	74			97	0	31	25				
1542	75		Fault, fault rock, fault breccia and gouge. (83.2 to 85.2 m)	94	88	61	70				
	76			100	100	63	90				
	77		Broken zone, locally rubbly, otherwise jointed. (85.2 to 88 m)	86	31	35	30				
	78			90	25	40	50				
	79			99	99	61	50				
1537	80		Fault, majority of interval is faulted rock (88 to 90.2 m)	100	61	51	75				
	81			90	32	37	50				
	82			99	49	46	50				
	83			100	100	89	65				
	84			100	100	90	75				
1532	85		Fault zone, moderately rubbly, competent core has high fracture density, locally weak gouge development. Alpha25 beta 110 (90.2 to 95 m)								
	86										
	87										
	88										
	89										
1527	90									Vibrating wire installed at 90 m depth, piezometeric head at 83 mbgs	
	91										
	92										
	93										
	94										
1522	95		Fault, fault breccia in gouge matrix. (95 to 96.2 m)								
	96										
	97										
	98										
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-04

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.4** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-04**	PAGE	**3 of 4**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**25 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**200 m**	Date Completed:	**31 Mar 12**
Coordinates:	**5,892,720 N , 375,648 E (Nad 83 zone 9)**	Elevation:	**1617.2 m**	Date Well Installed:	**31 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS
	101		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (9 to 111 m)	99	78	55	70
	102			98	98	92	110
	103			100	100	74	110
	104			100	100	93	110
1512	105			100	100	70	110
	106			95	75	55	85
	107			98	34	38	60
	108			98	63	55	60
	109		Fault, fault breccia a chloritic gouge, lithology change. Alpha 30 beta 260 taken from fracture plane butting up against breccia. (108.3 to 114.1 m)	96	15	32	20
1507	110			100	0	36	5
	111			100	100	64	110
	112		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (111 to 174 m)	91	87	72	90
	113			100	84	61	75
	114			98	44	42	60
1502	115			100	80	54	80
	116			87	53	48	75
	117			98	45	47	70
	118			99	99	65	90
	119			94	50	43	75
1497	120		Fault zone, ~30% of interval is fault breccia, occurring in intermittent 25-50cm wide intervals. Competent in between breccia. (119.3 to 129 m)	99	62	49	75
	121			100	100	58	85
	122			99	97	60	85
	123			99	99	72	110
	124			98	98	94	140
1492	125			100	100	70	110
	126			95	95	70	110
	127			99	99	86	85
	128			90	0	31	25
	129			75	75	76	75
	130			91	78	59	60
1487	131			100	67	47	55
	132			79	0	30	20
	133			100	0	30	20
	134						
	135						
1482	136						
	137						
	138						
	139						
	140		Fault zone, rubbly, quite heavily fractured, a couple of short gougy intervals. (139.8 to 149 m)				
1477	141						
	142						
	143						
	144						
	145						
1472	146						
	147						
	148						
	149						

RQD (%) ◆ 20 40 60 80
RMR VALUE ⊗ 20 40 60 80

SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-04

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.4** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-04**	PAGE	**4 of 4**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**25 Mar 12**
Location:	**Open Pit South Wall**	Total Depth:	**200 m**	Date Completed:	**31 Mar 12**
Coordinates:	**5,892,720 N , 375,648 E (Nad 83 zone 9)**	Elevation:	**1617.2 m**	Date Well Installed:	**31 Mar 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**180°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (111 to 174 m)	100	0	30	15					
	152			78	0	30	20					
	153			97	22	41	55					
	154			100	0	39	60					
1462	155			99	36	42	45					
	156			94	63	50	50					
	157			93	67	59	75					
	158			96	80	48	75					
	159			100	96	52	75					
1457	160			100	100	65	60					
	161			96	93	59	60					
	162			100	100	64	60					
	163			100	100	65	80					
	164			99	99	67	90					
1452	165			99	99	65	90					
	166			99	99	80	90					
	167			86	0	36	35					
	168			100	46	43	35					
	169			99	11	30	5					
1447	170			99	0	32	35					
	171			100	0	30	15					
	172			80	0	29	5					
	173			86	0	29	5					
	174			100	20	32	20					
	175		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (174 to 200 m)	100	58	55	85					
1442	176			92	52	42	50					
	177		Fault zone, ~60% of interval is highly fractured breccia with patchy gouge. (176 to 184 m)	100	55	47	70					
	178			98	73	53	60					
	179			100	100	70	110					
1437	180			97	93	66	110					
	181			99	90	63	110					
	182			94	94	64	110					
	183			100	100	92	110					
	184			100	100	92	110					
1432	185											
	186											
	187											
	188											
	189											
1427	190											
	191											
	192											
	193											
	194											
1422	195											
	196											
	197											
	198											
	199											

End of Drillhole: 200 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-04

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 2

APPENDIX Appendix A1.4 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**1 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
1592	0											
	1		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 50 m)								Two vibrating wires installed in drillhole	
	2											
	3											
	4											
1587	5											
	6											
	7											
	8											
	9											
1582	10											
	11											
	12											
	13											
	14											
1577	15											
	16											
	17											
	18											
	19											
1572	20											
	21											
	22											
	23											
	24											
1567	25											
	26											
	27											
	28											
	29											
1562	30											
	31											
	32											
	33											
	34											
1557	35											
	36											
	37											
	38											
	39											
1552	40											
	41											
	42											
	43											
	44											
1547	45											
	46											
	47											
	48											
	49											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**2 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51–54		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (50 to 226.5 m)									
1537	55		Fault, from surface? Could be surface weathering. Oxidized clay gouge (50 to 61.5 m)									
	56–59											
1532	60											
	61			43	0	31	25					
	62			100	94	60	95					
	63–64											
1527	65			35	35	48	95					
	66			94	57	52	70					
	67–68											
	69			61	49	51	70					
1522	70			85	50	51	50					
	71			47	24	44	25					
	72			22	16	44	45					
	73–74			35	28	47	75					
1517	75			14	0	33	50					
	76–77			14	0	33	50					
	78–79			14	0	33	50					
1512	80			100	83	50	50				Vibrating wire installed at 80 m depth, piezometeric head at 37 mbgs	
	81			99	99	61	50					
	82–83			95	95	57	50					
	84			100	100	54	60					
1507	85			100	100	61	75					
	86–87			100	100	60	60					
	88–89			100	47	43	50					
1502	90			98	79	51	51					
	91–92			94	59	41	40					
	93		Fault, oxidized clay gouge with subangular fragments 1-3 cm in diameter. Moderate to well healed (92 to 92.8 m)	100	100	58	40					
1497	94–95			96	80	51	50					
	96–97			96	82	46	50					
	98			98	43	38	35					
	99			99	89	51	45					

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**3 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (50 to 226.5 m)	100	50	48	75				
	102			94	94	64	90				
	103			100	100	65	90				
	104										
1487	105			100	100	63	95				
	106										
	107			100	87	58	95				
	108			98	98	61	70				
	109										
1482	110			100	100	63	110				
	111			98	98	66	95				
	112										
	113			100	80	54	25				
	114			96	96	60	35				
1477	115			91	91	65	125				
	116			95	95	63	95				
	117										
	118			100	100	66	100				
	119										
1472	120			100	100	66	80				
	121										
	122			94	94	64	90				
	123			100	100	65	90				
	124										
1467	125			97	48	53	90				
	126			100	100	65	100				
	127			97	97	65	100				
	128										
	129			100	100	65	100				
1462	130			95	95	64	100			Vibrating wire installed at 130 m depth, piezometeric head at 18 mbgs	
	131										
	132			100	100	71	125				
	133			100	100	63	100				
	134										
1457	135			99	68	53	100				
	136			100	89	68	100				
	137										
	138			100	100	69	90				
	139										
1452	140			96	96	60	90				
	141			100	100	70	110				
	142										
	143			98	98	63	75				
	144			100	100	69	110				
1447	145										
	146			100	100	91	100				
	147										
	148			100	100	89	90				
	149			100	100	59	90				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**4 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (50 to 226.5 m)	99	99	70	110				
	152			96	96	69	100				
	153			100	100	73	100				
	154										
1437	155			100	100	67	80				
	156			100	100	68	100				
	157			100	100	70	100				
	158										
	159			91	91	67	100				
1432	160			100	100	69	90				
	161										
	162			97	97	73	110				
	163										
	164			100	100	76	125				
1427	165			97	97	75	125				
	166										
	167			100	100	72	125				
	168										
	169			100	100	95	150				
1422	170			100	100	73	125				
	171										
	172			94	94	70	95				
	173			100	100	93	125		UCS05-02	UCS Test: 24MPa, Young Modulus 39GPa, Poisson's Ratio 0.22	
	174										
	175			97	97	75	125				
1417	176			100	100	94	125				
	177										
	178			100	100	68	125				
	179										
	180			100	100	76	125				
1412	181			100	100	74	125				
	182										
	183			100	100	76	125				
	184										
	185			95	95	75	125				
1407	186			100	100	76	125				
	187										
	188			100	100	76	125				
	189			100	100	74	125				
	190			100	100	94	125				
1402	191		Fault zone, broken zones with local clay gouge (190 to 199 m)	92	46	41	75				
	192			100	0	33	50				
	193										
	194			53	0	33	50				
1397	195			100	26	36	50				
	196										
	197			100	0	33	50				
	198										
	199			99	0	33	50				
				53	0	33	50				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**5 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (50 to 226.5 m)	84	0	33	50				
	202			97	45	40	50				
	203			100	70	62	80				
	204		Fault, with clay gouge and moderate sulphide mineralization. 2 measurements taken - @ 224.3: alpha = 48, beta = 080; @ 223.4: alpha = 60, beta = 80. (203.5 to 224.3 m)	100	100	70	80				
1387	205			100	91	69	65				
	206			97	97	68	65				
	207			100	100	93	110				
	208			100	100	93	110				
	209			100	100	93	110				
1382	210			100	100	93	110				
	211			100	100	72	110				
	212			97	97	87	110				
	213			66	30	49	125				
	214			100	87	59	100				
1377	215			85	85	57	110				
	216			100	22	35	40				
	217			94	94	59	90				
	218			99	87	57	85				
	219			100	87	56	85				
1372	220			99	79	49	85				
	221			100	100	92	95				
	222			100	100	64	95				
	223			100	100	64	90				
	224			100	100	71	90		UCS05-03	UCS Test: 102MPa, Young Modulus 26GPa, Poisson's Ratio 0.16	
1367	225			100	100	71	90				
	226			96	86	57	85				
	227		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (226.5 to 400 m)	100	0	43	85				
	228			96	68	46	85				
	229			85	78	57	100				
1362	230			100	52	45	85				
	231			100	14	39	85				
	232			100	14	39	85				
	233			73	0	31	25				
	234										
1357	235										
	236										
	237										
	238										
	239										
1352	240										
	241										
	242										
	243										
	244										
1347	245										
	246										
	247										
	248										
	249										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**6 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (226.5 to 400 m)	79	45	37	25				
	252			74	0	34	60				
	253			94	13	30	5				
	254			91	17	33	25				
1337	255			100	39	36	25				
	256			91	19	41	50				
	257			100	58	49	65				
	258			100	0	39	45				
	259			74	0	39	55				
1332	260			99	71	55	75				
	261			100	100	72	110				
	262			100	100	74	125				
	263			94	94	77	130				
	264			100	86	68	120				
	265			73	64	62	120				
1327	266			98	98	94	110				
	267			100	100	69	110				
	268			99	99	57	70				
	269			100	100	60	70				
	270			100	94	52	70				
1322	271			96	71	51	70				
	272			100	44	41	70				
	273			100	21	49	70				
	274			98	97	54	75				
	275			100	100	71	80				
1317	276			93	93	70	90				
	277			100	100	71	90				
	278			97	97	92	110		UCS05-04	UCS Test: 98MPa, Young Modulus 54GPa, Poisson's Ratio 0.21	
	279			100	100	93	110				
	280			100	100	92	110				
1312	281			88	88	57	100				
	282			100	100	74	110				
	283			96	96	75	110				
	284										
	285										
1307	286										
	287										
	288										
	289										
	290										
1302	291										
	292										
	293										
	294										
	295										
1297	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**7 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (226.5 to 400 m)	100	100	65	90				
	302			97	89	63	90				
	303			100	100	64	90				
	304			100	100	70	90				
1287	305			100	100	64	75				
	306			99	80	59	75				
	307			99	99	92	110				
	308			100	100	94	125				
	309			97	97	93	125				
1282	310			100	100	94	125				
	311			100	100	94	125				
	312			100	100	93	110				
	313			100	100	70	125				
	314			100	100	62	45				
1277	315			82	0	43	45				
	316			100	49	51	45				
	317			97	41	40	55				
	318			95	38	40	55				
	319			100	0	29	5				
1272	320			74	40	72	90				
	321			100	80	54	75				
	322			100	32	41	90				
	323			99	99	72	125				
	324			97	97	92	125				
1267	325			99	75	54	100				
	326		Fault, in contact with joint zone. (325.8 to 328.2 m)	99	99	67	110				
	327			100	100	72	100		UCS05-05	UCS Test: 28MPa, Young Modulus 63GPa, Poisson's Ratio 0.19	
	328			95	95	64	85				
	329			100	75	48	85				
1262	330			96	96	85	110				
	331			96	96	90	85				
	332			77	29	34	25				
	333			61	44	57	55				
	334			97	97	68	65				
1257	335										
	336										
	337										
	338										
	339										
1252	340										
	341										
	342										
	343										
	344										
1247	345										
	346										
	347										
	348										
	349										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

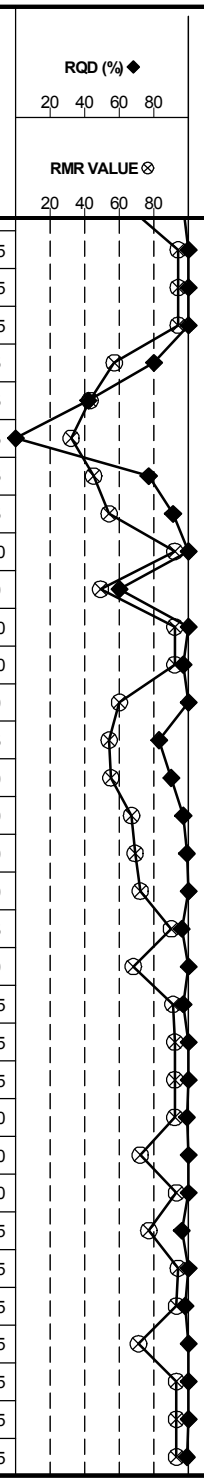
APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-05**	PAGE	**8 of 8**
Contractor:	**Falcon Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Jan 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**13 Apr 12**
Coordinates:	**5,892,801 N , 375,839 E (Nad 83 zone 9)**	Elevation:	**1592.2 m**	Date Well Installed:	**13 Apr 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Falcon 3000 - Rig 10**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (226.5 to 400 m)	100	100	94	125				
	352			100	100	94	125				
	353			100	100	94	125				
	354			100	100	94	125				
1237	355			99	80	57	75				
	356										
	357			80	42	43	45				
	358		Broken zone, with clay (357 to 358.5 m)								
	359		Fault, with healed clay gouge and competent core (358.5 to 360.5 m)	83	0	32	45				
1232	360			97	77	45	45				
	361										
	362			96	91	54	75				
	363			100	100	92	110				
	364										
1227	365			98	60	49	50				
	366			100	100	92	110				
	367			97	97	92	110				
	368										
	369			100	100	60	50				
1222	370			95	83	54	75				
	371										
	372			100	90	55	50				
	373										
	374			97	97	67	90				
1217	375			99	99	69	90				
	376										
	377			100	100	72	90				
	378										
	379			96	96	90	95				
1212	380			100	100	68	90				
	381										
	382			97	97	91	105				
	383										
	384			100	100	92	105				
1207	385			100	100	92	105				
	386										
	387			99	99	92	110				
	388										
	389			100	100	72	110				
1202	390			100	100	93	110				
	391										
	392			96	96	77	125				
	393										
	394			100	100	94	125				
1197	395			98	98	93	125				
	396										
	397			100	100	71	105				
	398			100	100	93	115				
	399			100	100	93	115				
				99	99	93	125				



End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-05

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.5** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	1–22		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 23 m)								Three vibrating wires installed in drillhole	
1540	5											
1535	10											
1530	15											
1525	20											
	23		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (23 to 72.25 m)	100	0	30	0					
1520	25			100	40	37	0					
	26			100	80	46	0					
	27		Fault zone, oxidized gouge (23 to 32.2 m)	100	92	47	0					
	28–29			100	9	32	0					
1515	30			100	46	38	0					
	31–32			100	40	38	0					
	33–34			100	73	48	0					
1510	35			100	34	40	25					
	36–37			97	85	60	100					
	38–39			100	99	65	100					
1505	40		Fault zone, gouge oxidized (39.3 to 41 m)	100	100	68	125					
	41–42			100	0	41	100					
	43–44			91	65	58	75					
1500	45			100	90	64	75					
	46–47			100	95	65	75					
	48–49			100	77	61	75					
				89	85	60	75					

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (23 to 72.25 m)	100	83	62	75				
	52			98	88	61	75				
	53			100	91	62	75				
	54		Fault zone, gouge oxidized (52.6 to 57.8 m)	100	95	64	75				
1490	55			100	87	61	75				
	56			100	93	66	125				
	57			100	100	69	100				
	58			98	85	62	125				
	59			100	77	61	100				
1485	60			100	100	74	160				
	61			95	95	70	110				
	62			97	97	70	125				
	63			100	77	57	110				
	64			100	87	62	110				
1480	65		Fault broken zone, oxidized breccia gougy (64.5 to 65.4 m)	90	77	57	110				
	66			86	71	57	100				
	67			100	49	52	100				
	68			100	71	58	75				
	69			100	80	60	100				
1475	70			95	83	64	100		UCS #1	Direct Shear Test: 28 friction angle, 0 KPa cohesion	
	71			100	82	64	150				
	72		Fault zone, blocky and gougy (71.2 to 72.2 m)	100	63	57	100				
	73		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (72.25 to 109.5 m)	100	62	58	100				
	74			100	100	69	100				
1470	75			100	55	55	100				
	76			89	73	56	100				
	77			100	89	71	150				
	78		Fault zone, gougy oxidized (77.4 to 77.7 m)	100	89	63	150				
	79			100	89	72	150				
1465	80			100	88	68	150				
	81			99	70	62	150				
	82			83	35	48	75				
	83			100	69	59	150				
	84			100	55	59	150				
1460	85										
	86										
	87										
	88										
	89										
1455	90										
	91										
	92										
	93										
	94										
1450	95										
	96										
	97		Fault zone, gouge (96.7 to 97.2 m)								
	98										
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	101		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (72.25 to 109.5 m)	97	30	43	100			
	102			100	40	53	100			
	103			100	75	55	75			
	104		Fault zone, gouge (100.5 to 101.3 m)	93	33	46	75			
1440	105			100	69	58	110			
	106			100	0	47	110			
	107									
	108									
	109									
	110		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (109.5 to 272.39 m)	100	0	27	1			Vibrating wire installed at 110m depth, piezometeric head at 11mbgs
	111			100	70	50	1			
	112			100	0	30	3			
	113		Fault zone, blocky and gougy (109.5 to 112.8 m)	93	77	66	125			
	114			100	64	58	125			
1435	115			98	67	58	110			
	116			100	100	71	125			
	117			100	100	75	200			
	118			100	100	84	160			
	119			97	97	71	110			
	120			100	95	67	110			
1430	121			97	97	70	110			
	122			100	67	54	75			
	123			100	50	49	50			
	124			100	84	49	50			
	125			100	34	50	25			
	126			100	31	49	75			
	127			95	53	53	50			
	128		Broken zone, blocky (127.5 to 129.4 m)	97	66	54	75			
1425	129			100	79	61	75			
	130		Fault zone, gougy chlorite (129.4 to 131.4 m)	100	0	46	75			
	131			100	53	51	25			
	132		Broken zone, blocky (131.4 to 135.5 m)	100	73	51	50			
	133			99	49	52	75			
	134			100	71	55	75			
	135			100	41	50	100			
1420	136			100	76	57	100			
	137									
	138									
	139									
	140									
	141									
	142									
	143									
	144									
1415	145									
	146									
	147									
	148									
	149								UCS#2	UCS Test: 205MPa, Young Modulus 54GPa, Poisson's Ratio 0.20

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (109.5 to 272.39 m)	100	99	63	100				
	152			100	0	48	125				
	153			93	93	66	100				
	154			100	91	63	100				
1390	155			99	91	68	125				
	156			100	66	60	100				
	157			99	51	53	100				
	158			100	61	53	25				
	159			97	87	63	100				
1385	160			100	94	64	125				
	161			93	79	71	150				
	162			100	100	66	150				
	163			95	67	62	150				
	164			100	0	46	50				
1380	165			100	66	61	110				
	166			100	100	78	200				
	167			97	51	61	140				
	168			100	94	74	200				
	169			100	94	74	200				
1375	170		Fault zone, gougy (169.5 to 172.3 m)	100	98	75	200				
	171			97	67	59	110				
	172			100	97	74	200				
	173			100	66	64	125				
	174			97	97	74	200				
1370	175			100	87	66	125				
	176			100	0	34	5				
	177			100	100	74	200				
	178			100	65	63	200				
	179			95	95	74	200				
1365	180			100	100	77	200				
	181			100	100	77	200				
	182			100	100	78	200				
	183			100	92	74	150				
	184										
1360	185										
	186										
	187										
	188										
	189										
1355	190										
	191										
	192										
	193										
	194										
1350	195										
	196										
	197										
	198										
	199										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

Vibrating wire installed at 168m depth, piezometeric head at 10mbgs

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (109.5 to 272.39 m)	100	96	75	150		UCS#3	UCS Test: 181MPa, Young Modulus 67GPa, Poisson's Ratio 0.20	
	202			99	99	78	200				
	203			99	99	78	200				
	204			97	97	77	225				
1340	205			100	100	65	225				
	206			93	84	69	225				
	207			100	74	68	225				
	208			100	100	73	225				
	209			100	100	69	100				
1335	210			96	66	56	100				
	211			99	26	34	25				
	212			100	68	51	50				
	213		Fault zone, gougy blocky (212.1 to 220.6 m)	100	60	54	50				
	214			100	0	27	0				
1330	215			100	0	27	0				
	216			100	62	58	100				
	217			97	85	68	100				
	218			96	81	67	125				
	219			100	100	78	225				
1325	220			100	82	71	250				
	221			100	89	74	250				
	222			98	93	71	250				
	223			100	96	73	250				
	224			0	0	52	250				
1320	225			100	100	83	250				
	226			93	93	80	250		UCS06-01	UCS Test: 201MPa, Young Modulus 60GPa, Poisson's Ratio 0.22	
	227			100	100	82	250				
	228			97	91	79	250				
	229			100	100	82	250				
1315	230			100	98	81	250				
	231			100	99	80	250				
	232			100	100	78	250				
	233			100	100	91	250				
	234			93	93	78	250				
1310	235										
	236										
	237										
	238										
	239										
1305	240										
	241										
	242										
	243										
	244										
1300	245										
	246										
	247										
	248										
	249										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	251	fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (109.5 to 272.39 m)	100	71	61	75			
	252		100	45	46	50		DS 06-01	Direct Shear Test: 33 friction angle, 323 KPa cohesion
	253	Fault zone, gougy (252.3 to 255.8 m)	100	93	57	3			
1290	255		100	100	64	75			
	256		99	99	72	140			
	257		94	88	65	110			
	258		100	100	69	50			
	259		89	89	61	75			
1285	260	Fault broken zone, veined, some gouge (259.2 to 262.2 m)	100	78	59	75			
	261		97	86	71	175			
	262		100	97	72	150			
	263		95	95	71	200			
	264		100	95	71	200			
1280	265		100	100	97	225			
	266		100	98	71	175			
	267		100	100	73	200			
	268		100	48	62	175			
	269		100	45	61	175			Vibrating wire installed at 277m depth, piezometeric head at 11mbgs
1275	270		100	0	50	175			
	271		93	89	70	200			
	272		100	98	72	200			
	273	fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (272.39 to 275.6 m)	100	100	76	225		UCS#5	UCS Test: 111MPa, Young Modulus 64GPa, Poisson's Ratio 0.15
	274		100	100	79	225			
1270	275		97	83	69	225			
	276	Fault zone, gouge (274.9 to 277.8 m)	100	100	78	225			
	277		100	100	82	225			
	278	fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (275.6 to 400 m)	100	100	97	225			
	279		100	100	81	225			
1265	280		100	100	81	225			
	281		100	100	76	225			
	282		100	100	76	225			
	283		97	97	96	225			
	284		93	93	79	225			
1260	285								
	286								
	287								
	288								
	289								
1255	290								
	291								
	292								
	293								
	294								
1250	295								
	296								
	297								
	298								
	299								

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (275.6 to 400 m)	100	100	70	140				
	302			99	99	77	200				
	303			100	100	72	160				
	304										
1240	305		Fault zone, gougy (304.8 to 305.5 m)	67	67	76	125				
	306			95	95	79	200				
	307			100	100	82	225				
	308			100	100	81	250				
	309			100	100	77	250				
1235	310			97	97	97	250				
	311			100	100	98	250				
	312			98	98	81	250				
	313			100	100	74	250				
	314			98	93	71	180				
1230	315			100	100	81	250		DS 06-02	Direct Shear Test: 24 friction angle, 440 KPa cohesion	
	316			100	100	81	250				
	317			100	100	98	250				
	318			97	92	95	200		UCS#6	UCS Test: 276MPa, Young Modulus 59GPa, Poisson's Ratio 0.24	
	319			100	100	74	200				
1225	320			95	95	95	200				
	321			100	100	75	200				
	322			95	95	72	200				
	323			100	100	79	200				
	324			94	91	72	200				
1220	325			100	94	79	200				
	326			96	85	75	200				
	327			100	95	78	200				
	328			99	88	73	200				
	329			100	99	70	200				
1215	330			99	83	64	150				
	331			100	95	72	175				
	332			90	90	74	175				
	333			100	100	80	200				
	334			100	100	78	200				
1210	335										
	336										
	337										
	338										
	339										
1205	340										
	341										
	342										
	343		Fault broken zone, small fault (343 to 343.1 m)								
	344										
1200	345										
	346										
	347										
	348										
	349										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-06**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**19 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,088 N , 375,913 E (Nad 83 zone 9)**	Elevation:	**1545.3 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**80°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (275.6 to 400 m)	100	100	78	200				
	352			99	99	74	200				
	353			99	95	75	200				
	354			99	99	77	200				
1190	355			100	100	79	200				
	356			99	99	81	200				
	357			100	95	60	110				
	358			100	86	60	75				
	359			99	99	81	200				
1185	360		Fault broken zone, small fault with talc (359.8 to 359.8 m)	100	100	81	200				
	361			98	98	77	200				
	362			100	100	78	200				
	363			100	96	72	175				
	364			100	95	76	175				
1180	365			99	91	69	175				
	366			100	92	67	150				
	367			100	79	65	150				
	368			95	86	70	150				
	369			100	99	96	175				
1175	370			95	87	75	225				
	371			96	78	68	200				
	372			95	95	75	200				
	373			100	98	74	200				
	374			93	89	73	200				
1170	375			100	97	72	200				
	376			95	72	67	225				
	377			100	100	77	200				
	378			95	95	76	200				
	379			97	97	80	200				
1165	380			100	100	81	200				
	381			100	100	80	200				
	382			97	97	77	200				
	383			100	100	76	200				
	384			100	100	73	200				
1160	385										
	386										
	387										
	388										
	389										
1155	390										
	391										
	392										
	393										
	394										
1150	395										
	396										
	397										
	398										
	399										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-06

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.6** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	1–3		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 3.65 m)							Three vibrating wires installed in drillhole
	4		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (3.65 to 38 m)	100	29	18	50			
1542	5			100	50	48	50			
	6–7			72	0	42	50			
	8		Fault zone, abundant joints, some broken zones, and rare clay gouge intervals <10cm wide. (3.7 to 27.4 m)	37	0	33	50			
	9			49	25	36	50			
1537	10			43	0	40	50			
	11–12			65	0	42	50			
	13–14			85	37	46	50			
1532	15			90	16	44	50			
	16–17			92	42	44	50			
	18–19			91	0	38	50			
1527	20			99	16	37	50			
	21–22			95	9	37	50			
	23–24			95	0	35	50			
1522	25			76	18	38	50			
	26–27			85	0	32	25			
	28			100	0	31	25		PLT 07-01	PLT Test: 43 MPa
	29			100	45	52	50			
1517	30		Fault zone, abundant fault gouge, competent and loose, some jointed rock intervals, and broken zones. (30 to 43.7 m)	67	38	47	50		PLT 07-02	PLT Test: 115 MPa
	31–32			93	0	31	25			
	33–34			69	7	32	25			
1512	35			100	35	47	50			
	36–37			82	25	42	10			
	38			97	20	43	25			
	39		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (38 to 64.8 m)	100	51	47	16			
1507	40			97	13	44	25			
	41–42			81	0	30	20			
	43			77	22	43	25		PLT 07-03	PLT Test: 151 MPa
	44			100	57	54	75		PLT 07-04	PLT Test: 173 MPa
1502	45			99	54	54	100		UCS 07-01	UCS Test: 158MPa, Young Modulus 33GPa, Poisson's Ratio 0.16
	46–47			100	47	49	75			
	48–49									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (38 to 64.8 m)	86	35	43	75			
	52			98	56	54	100			
	53			100	72	57	100			
	54			95	41	52	75			
1492	55			100	97	66	125			
	56			97	91	62	50			
	57			100	93	58	50			
	58			95	50	49	50			
	59			100	42	47	50			
1487	60			100	40	47	50			
	61			100	0	41	50			
	62		Fault zone, jointed rock, minor gouge, some broken zones. (62 to 64.8 m)	100	0	37	50			
	63			100	100	71	125			
	64			100	0	47	125			
1482	65		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (64.8 to 71.3 m)	86	0	43	100			
	66			100	27	41	25			
	67			100	75	61	150			
	68			99	27	51	150			
	69			100	0	48	150			
1477	70		Fault zone, weak, competent rock, healed fault breccia gouge. (70 to 73.1 m)	100	27	34	25			
	71			100	86	61	100			
	72		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (71.3 to 123 m)	100	0	39	25			
	73			98	40	47	25			
	74			15	9	41	25			
1472	75			100	83	58	50			
	76			100	32	49	50			
	77			100	93	65	100			
	78			99	51	55	100		UCS 07-02	UCS Test: 103MPa, Young Modulus 47GPa, Poisson's Ratio 0.23
	79		Fault broken zone, competent fault breccia, abundant gouge (78.5 to 79.3 m)	100	85	65	100			
1467	80			100	71	54	100			
	81			94	7	40	50			
	82			64	0	30	20			
	83			43	0	30	20			
	84			43	0	30	20			
	85									
1462	86									
	87									
	88									
	89									
	90									
1457	91									
	92									
	93									
	94									
	95		Fault zone, broken zones, healed fault breccia, competent gouge. (95 to 99 m)							
1452	96									
	97									
	98									
	99									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	101–104		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (71.3 to 123 m)	95	0	33	50			
				100	34	45	50			
1442	105–106		Fault zone, jointed rock, competent fault breccia, broken zones. (103 to 112.5 m)	100	87	63	100			
				100	30	47	75			
	107–109			84	0	28	1			
				40	0	28	1			
1437	110			100	0	28	0			
	111–114			91	15	43	25			
				65	0	36	25			
1432	115			100	0	33	25			
	116–119			100	50	44	25			
				90	0	29	5			
				100	0	41	25			
1427	120–122		Fault broken zone, competent. (119.8 to 124.5 m)	77	0	29	5			
				28	0	29	5			
	123		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (123 to 383.7 m)	100	0	29	5			
1422	124–125			0	0	38	25			
	126			100	37	47	50			
	127–128			100	81	61	150			
	129			100	71	57	100			
1417	130			98	0	37	5			
	131–133			50	0	33	50			
	134			100	100	61	100			
1412	135			100	0	29	5			
	136–138			100	41	55	150			
	139			97	83	63	150			
1407	140			100	45	43	0			
	141–144		Fault zone, highly jointed rock and some fault breccia. (141 to 143 m)	100	74	55	75			
				100	15	41	25			
1402	145			100	100	63	100			
	146–147			89	10	35	50			
	148			22	0	31	25		UCS 07-03	Direct Shear Test: 31 friction angle, 0 KPa cohesion Vibrating wire installed at 150m depth, piezometeric
	149			100	83	59	75			

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (123 to 383.7 m)	95	50	50	50			head at 18mbgs	
	152			99	22	41	25				
	153			92	20	45	50				
	154			100	13	40	25				
1392	155			79	0	32	25				
	156			100	82	57	100				
	157			94	77	58	100				
	158			100	63	54	100		DS 07-01	Direct Shear Test: 25 friction angle, 310 KPa cohesion	
	159			100	32	48	75				
1387	160			97	10	32	25				
	161			94	0	40	50				
	162			100	18	41	50				
	163			97	14	43	50				
	164		Broken zone, (164 to 165.2 m)	100	70	52	75				
1382	165			100	53	46	0				
	166			100	23	38	0				
	167			100	0	28	0				
	168			91	35	46	50				
	169			100	0	39	50				
1377	170			100	0	29	5				
	171			37	0	29	5				
	172			100	44	48	50				
	173			93	40	47	50				
	174			100	65	52	50				
1372	175			89	40	47	50				
	176			100	46	46	50		CS 07-01	Direct Shear Test: 23 friction angle, 45 KPa cohesion	
	177			93	33	43	50				
	178			100	35	46	50				
	179		Fault broken zone, competent fault breccia. (178.5 to 180.1 m)	100	81	58	75				
1367	180			100	89	60	75				
	181			100	51	51	75				
	182			99	81	56	75				
	183			100	16	47	75				
	184		Fault zone, weak, healed fault breccia with minor gouge stockwork over 30 cm intervals. (183 to 196 m)								
1362	185										
	186										
	187										
	188										
	189										
1357	190										
	191										
	192										
	193										
	194										
1352	195										
	196										
	197										
	198										
	199										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

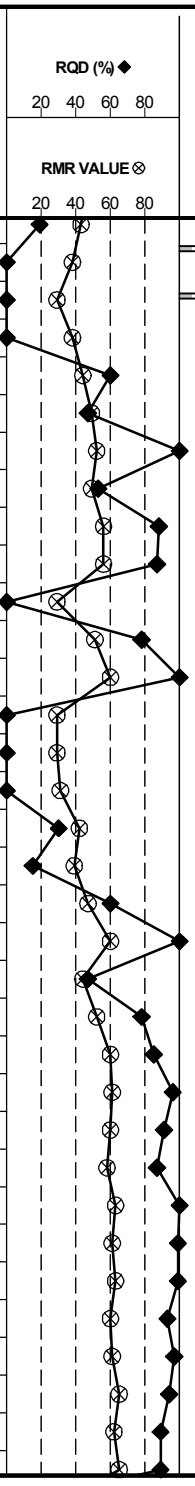
APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (123 to 383.7 m)	97	19	43	50				
	202			100	0	38	25		DS 07-02	Direct Shear Test: 33 friction angle, 0 KPa cohesion	
	203		Fault broken zone, clay seam/fault breccia. (200 to 205.5 m)	89	0	29	5		FM 07-01	UCS Test: 1MPa, Young Modulus 0GPa, Poisson's Ratio 0.35	
	204			62	0	38	25				
1342	205			99	60	44	0				
	206			100	47	49	50				
	207			100	100	52	25				
	208			100	53	49	50				
	209			100	88	56	25				
1337	210			100	87	56	25				
	211			100	0	29	5				
	212			100	78	51	5				
	213			100	100	60	5			Vibrating wire installed at 219m depth, piezometeric head at 37mbgs	
	214		Fault broken zone, weak. (213.7 to 214 m)	100	0	29	5				
1332	215			100	0	29	5				
	216			97	0	31	5				
	217			100	30	42	5				
	218			87	15	39	50				
	219		Fault zone, highly jointed rock, broken zones, crushed zones, fault breccia. (218 to 223 m)	100	60	47	50				
1327	220			100	100	60	50				
	221			90	47	44	50				
	222			100	78	52	50				
	223			95	85	60	75				
	224			100	96	61	75				
1322	225			100	91	60	75				
	226			95	87	58	75				
	227			100	100	63	75				
	228			100	99	61	100				
	229			99	99	63	100				
1317	230		Fault broken zone, weak healed fault breccia. (229.5 to 230 m)	100	93	60	100				
	231			100	97	61	100				
	232			94	94	65	100				
	233			100	89	62	100				
	234			89	89	65	100				
1312	235										
	236										
	237										
	238										
	239										
1307	240										
	241										
	242										
	243										
	244										
1302	245										
	246										
	247										
	248										
	249										



GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (123 to 383.7 m) Fault zone, gouge, broken rock, and poor recovery. (250.5 to 251.8 m)	52	0	30	25			
	252			100	97	60	25			
	253			99	99	63	50			
	254			100	98	62	50			
1292	255			100	80	62	100			
	256			100	100	68	100			
	257			100	100	68	100			
	258			99	99	70	150			
	259			100	100	70	150			
1287	260			100	100	66	100		UCS 07-04	UCS Test: 69MPa, Young Modulus 57GPa, Poisson's Ratio 0.18
	261			100	100	67	100			
	262			97	97	69	50			
	263			100	94	60	25			
	264			100	0	28	3			
1282	265			100	0	28	3			
	266			100	62	45	25			
	267			100	100	66	100			
	268			100	92	66	100			
	269			97	97	61	100			
1277	270			100	73	59	100			
	271		Fault broken zone, moderately deformed, competent, ser altered at top, between alt below. (270 to 275 m)	100	82	60	100			
	272			100	63	56	100			
	273			99	87	60	100			
	274			98	87	61	100			
1272	275			100	92	65	100			
	276			99	37	49	50			
	277			90	13	41	50			
	278			100	0	34	25			
	279			100	65	54	75		CS 07-02	Direct Shear Test: 30 friction angle, 0 KPa cohesion
1267	280			99	77	61	100			
	281			100	100	56	100			
	282			90	0	33	25			
	283			87	0	28	1			
	284									
1262	285									
	286									
	287									
	288		Fault broken zone, weak healed fault breccia, minor broken rocks. (287.5 to 298 m)							
	289									
1257	290									
	291									
	292									
	293									
	294									
1252	295									
	296									
	297									
	298									
	299									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (123 to 383.7 m) Fault broken zone, predominantly competent fault breccia, some rock intervals, <30 cm wide. Moderate to strongly deformed. (300 to 323.5 m)	69	0	29	5					
	302			67	0	29	5					
	303			81	0	28	1					
	304			99	0	30	25					
1242	305			66	0	28	1					
	306			50	0	28	1					
	307			40	0	28	1					
	308			27	0	28	1					
	309			87	0	28	3					
1237	310			99	0	28	1					
	311			100	0	28	1					
	312			100	0	28	3					
	313			63	0	28	3					
	314			100	0	28	4					
1232	315			95	86	52	3					
	316			100	0	38	3					
	317			100	89	62	100					
	318			100	67	56	100					
	319			100	73	60	100					
1227	320			99	76	59	100					
	321			100	100	69	125					
	322			96	96	70	150					
	323			100	96	69	175					
	324			99	91	69	175					
1222	325			97	97	95	175					
	326			100	95	69	175					
	327			99	99	75	175			UCS 07-05	UCS Test: 276MPa, Young Modulus 69GPa, Poisson's Ratio 0.22	
	328			98	98	72	175					
	329			100	100	75	175					
1217	330			95	87	66	150					
	331			100	83	67	150					
	332			99	99	70	150					
	333			100	100	77	150					
	334											
1212	335											
	336											
	337											
	338											
	339											
1207	340											
	341											
	342											
	343											
	344											
1202	345											
	346											
	347											
	348											
	349											

Vibrating wire installed at 316m depth, piezometeric head at 35mbgs

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-07**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**18 Nov 12**
Location:	**Open Pit East Wall**	Total Depth:	**400 m**	Date Completed:	**26 Nov 12**
Coordinates:	**5,893,199 N , 375,700 E (Nad 83 zone 9)**	Elevation:	**1546.6 m**	Date Well Installed:	**26 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**30°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (123 to 383.7 m)	99	99	77	150				
	352			100	100	77	150				
	353			100	100	77	150				
	354			100	100	71	150				
1192	355			100	100	70	150				
	356			100	100	74	200				
	357			100	100	74	200				
	358			100	100	79	200				
	359			98	98	76	200				
1187	360			97	97	72	200				
	361			100	100	78	200				
	362			94	94	95	200				
	363			100	100	75	175				
	364			100	94	71	175				
1182	365			100	94	73	175				
	366			100	81	67	175				
	367			98	98	76	175				
	368			100	100	74	175				
	369			99	92	73	175				
1177	370			100	100	73	175				
	371			99	99	74	175				
	372			100	100	74	175				
	373			99	97	70	175				
	374			100	93	72	200				
1172	375			99	74	62	125				
	376			100	59	57	100				
	377			100	60	59	150		XRD 10-01	XRD Test: 11% Quartz, Mica/illite 74%, Smectite 12%, Kaolinite <5%	
	378			100	55	45	0				
	379			100	0	29	5				
1167	380			80	0	28	4				
	381			83	0	28	3				
	382			73	0	28	3				
	383			100	0	29	5				
	384		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (383.7 to 390.89 m)	100	79	55	0				
1162	385										
	386										
	387										
	388										
	389										
1157	390										
	391		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (390.89 to 400 m) Fault zone, weak to moderate fault zone. Healed fault breccia, strongly jointed rock, broken zones, minor scattered gouge. (391 to 398.3 m)							
	392										
	393										
	394										
1152	395										
	396										
	397										
	398										
	399										

RQD (%) ◆ 20 40 60 80
RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-07

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.7** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	1–4		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 4.69 m)							One vibrating wire installed in drillhole	
1540	5–8		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4.69 to 39 m) Fault zone (5.5 to 15.7 m)	100	0	32	0				
				84	0	32	0				
				80	23	35	0				
1535	9–11			80	24	35	0				
				92	0	30	0				
	12–14			100	49	41	0				
				100	20	30	0				
1530	15–16			60	37	33	0				
	17–19			100	51	43	25				
				100	90	55	25				
1525	20–21			100	45	42	25				
	22–24			91	61	49	25				
				100	60	51	50				
				100	77	62	100				
1520	25–26			100	63	49	25				
	27–29		Fault zone, series of small gouge faults in broken zones (26 to 39 m)	80	40	45	25				
				100	71	54	25				
1515	30–32			97	0	30	25				
	33–34			100	23	43	25				
				80	24	44	25				
1510	35–36			93	19	43	25				
	37–38			67	8	33	10				
	39			71	10	31	10				
1505	40–41		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (39 to 57 m)	97	17	35	25				
	42–43			100	82	52	50				
			Fault zone, series of small gouge faults in broken zones (42.9 to 45.8 m)	100	39	36	25				
	44			92	36	35	25				
1500	45–46			100	37	45	25				
	47–48			95	54	49	25				
	49			100	32	46	25				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.8** | REV. **0**

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS
	51	fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (39 to 57 m)	95	21	37	25
	52		100	26	47	25
	53		97	9	41	25
	54		96	31	43	10
1490	55	Fault zone, gouge, chlorite (54.8 to 55.3 m)	95	21	44	25
	56		93	16	40	25
	57	fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (57 to 99 m)	100	0	41	25
	58		100	71	50	10
	59		87	0	29	10
1485	60		100	100	68	100
	61		100	90	62	100
	62		80	27	39	25
	63		100	20	41	25
	64		67	7	37	50
1480	65	Fault zone, broken zone and gouge (65.3 to 70.6 m)	100	78	54	25
	66		100	64	51	50
	67		100	25	38	25
	68		100	0	30	10
	69		100	0	32	10
1475	70		100	100	60	25
	71		100	47	47	25
	72		100	0	33	25
	73		100	77	52	25
	74		93	15	32	10
	75	Broken zone, gouge and jointed (74 to 77 m)	100	100	85	25
1470	76		97	87	61	50
	77		98	33	44	25
	78		100	85	53	25
	79		100	56	50	50
	80		100	17	41	10
1465	81		87	64	49	10
	82		100	0	32	10
	83		73	0	32	10
	84		100	83	57	50
	85					
1460	86					
	87					
	88					
	89	Broken zone (88.7 to 110.1 m)				
	90					
1455	91					
	92					
	93					
	94					
	95					
1450	96					
	97					
	98					
	99					

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

SAMPLE TYPE | SAMPLE NO. | DRILLHOLE NOTES | WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.8** | REV. **0**

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS
	101		Broken zone (88.7 to 110.1 m) fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (99 to 123 m)	100	59	52	50
	102			100	88	57	25
	103			100	0	37	10
	104			89	49	48	25
1440	105			100	0	36	25
	106			100	0	40	25
	107			95	20	38	25
	108			100	52	49	25
	109			98	65	54	25
1435	110			100	8	45	25
	111			90	30	48	25
	112			100	63	54	50
	113			100	85	62	100
	114			100	77	57	25
1430	115			100	69	52	10
	116			99	60	53	50
	117			89	57	52	100
	118			100	0	41	50
	119			97	61	54	75
	120		Fault zone, weakly healed (120 to 123.7 m)	100	94	58	25
1425	121			100	90	63	75
	122			100	57	55	50
	123			97	15	42	25
	124		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (123 to 185.8 m)	100	98	67	50
	125			100	73	52	25
1420	126			100	31	39	25
	127			93	93	55	25
	128			100	67	50	25
	129			99	92	56	25
	130			100	70	55	50
1415	131			100	83	57	50
	132			98	96	63	50
	133			100	75	54	25
	134						
	135						
1410	136						
	137						
	138						
	139						
	140						
1405	141						
	142						
	143						
	144						
	145						
1400	146						
	147						
	148						
	149						

RQD (%) ◆ 20 40 60 80
RMR VALUE ⊗ 20 40 60 80

SAMPLE TYPE | SAMPLE NO. | DRILLHOLE NOTES | WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 2
APPENDIX Appendix A1.8 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151–199		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (123 to 185.8 m)	95	37	46	25				
				100	61	53	75				
				99	75	57	75				
1390	155			100	27	47	75				
				100	23	50	75				
			Broken zone, possible Fault (156.8 to 159 m)	99	18	50	25				
				100	100	68	100		UCS 08-02	UCS Test: 209MPa, Young Modulus 54GPa, Poisson's Ratio 0.19	
1385	160			97	90	64	125				
				100	95	67	125				
				100	81	60	125				
1380	165			100	93	67	150				
				100	21	44	50				
				97	35	49	50				
1375	170			100	73	60	125				
				100	100	96	200				
				100	85	64	200				
				95	59	56	100				
1370	175			100	37	50	75				
				97	82	60	100				
				100	91	65	125				
1365	180			100	97	67	125				
				100	88	64	100				
				97	37	52	100				
1360	185			100	51	52	75				
	186		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (185.8 to 226.69 m)	100	87	69	175				
				100	69	60	125				
1355	190			100	57	55	100				
				100	85	61	100				
			Broken zone (192 to 200 m)	100	24	47	25				
				91	0	30	25			vibrating wire installed at 195 m depth, VW is damaged	
1350	195			88	16	32	25				
				100	49	52	50				
	199			100	33	44	25				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.8** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (185.8 to 226.69 m)	100	19	37	25				
	202			100	35	42	25				
	203			100	97	60	50				
	204		Broken zone (200 to 230.6 m)	100	100	65	50				
1340	205			100	63	53	75				
	206			96	96	61	75				
	207			100	82	57	50				
	208			99	88	59	50				
	209			99	96	59	50				
1335	210			100	95	62	75				
	211			100	90	66	125				
	212			100	71	59	125				
	213			100	70	56	100				
	214			100	52	55	125				
1330	215			100	31	49	75				
	216			95	73	54	50				
	217			96	81	59	100				
	218			99	80	60	100				
	219			100	50	49	50				
1325	220			99	78	56	50				
	221			100	85	56	50				
	222			99	89	61	50				
	223			100	73	56	50				
	224			99	73	54	50				
1320	225			100	39	46	50				
	226			100	62	52	75				
	227		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (226.69 to 329.6 m)	100	83	56	50				
	228			100	89	60	100				
	229			100	100	66	100				
1315	230			100	93	66	75				
	231			100	98	66	75				
	232			100	87	64	100				
	233			100	49	58	150				
	234			100	92	61	50				
	235		Fault broken zone, weakly healed Fault (234.1 to 237.7 m)								
1310	236										
	237										
	238										
	239										
1305	240										
	241										
	242										
	243										
	244										
1300	245										
	246										
	247										
	248										
	249										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.8** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (226.69 to 329.6 m)	100	51	58	150				
	252			100	77	64	150				
	253			100	93	64	75				
	254		Fault zone, minor gouge, weakly healed (250 to 251.1 m)	100	84	65	150				
1290	255			100	90	65	150				
	256			100	78	67	150				
	257			100	68	59	100				
	258			100	81	62	100				
	259			100	85	64	100				
1285	260			100	70	60	125				
	261			93	74	61	100				
	262			100	61	58	100				
	263			100	73	60	125				
	264			100	87	70	150				
1280	265			100	65	56	100				
	266			100	100	72	125				
	267			100	97	70	125				
	268		Broken zone (267.3 to 267.6 m)	97	90	69	125				
	269			100	77	62	125				
1275	270			95	82	64	125				
	271			100	61	59	100				
	272			100	33	47	50				
	273			100	32	49	50				
	274			99	59	54	50		UCS 08-03	Direct Shear Test: 32 friction angle, 10 KPa cohesion	
1270	275			91	36	50	50				
	276			100	76	54	50				
	277			100	91	60	50				
	278			100	75	60	100				
	279			100	100	68	100				
1265	280			97	80	67	150				
	281			99	85	62	50				
	282			100	83	60	50				
	283			99	65	60	100				
	284										
1260	285										
	286										
	287										
	288										
	289										
1255	290										
	291										
	292										
	293										
	294										
1250	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

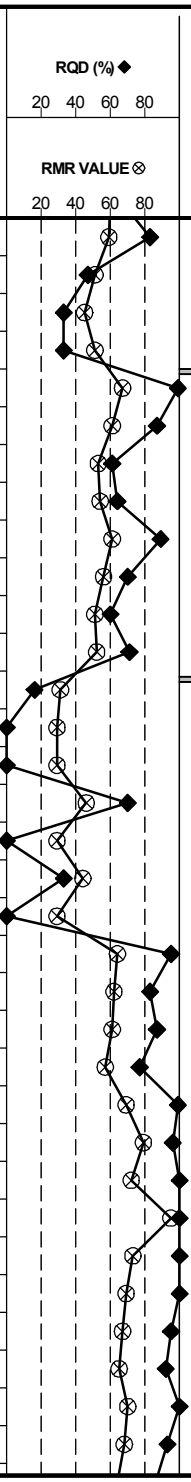
APPENDIX **Appendix A1.8** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301–349		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (226.69 to 329.6 m)	100	83	59	50				
				93	47	51	50				
				87	33	45	25				
1240	305		Fault broken zone, fault w/ minor Fault gouge (304 to 304.2 m)	100	33	51	50				
				100	99	67	50		UCS 08-05	UCS Test: 109MPa, Young Modulus 53GPa, Poisson's Ratio 0.29	
				100	87	61	25				
1235	310			100	61	53	25				
				100	64	54	50				
				100	89	61	75				
				100	70	56	75				
1230	315			98	60	51	75				
				100	71	52	25				
	318–329		Fault zone, weakly healed Fault breccia with intermittent intact blocks (317.5 to 327.2 m)	100	16	31	10		#1 Fault	Direct Shear Test: 39 friction angle, 90 KPa cohesion	
1225	320			100	0	29	10				
				100	0	29	10				
				100	70	46	50				
1220	325			100	0	29	10				
				100	33	44	25				
				100	0	29	10				
				97	95	64	75				
1215	330		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (329.6 to 400 m)	99	83	62	100				
				100	87	61	100				
				97	77	57	100				
1210	335			99	99	69	150				
				100	96	79	175				
				100	100	72	175				
1205	340			100	100	95	150				
				100	100	73	175				
				100	100	69	150				
				100	95	67	150				
1200	345			100	92	65	150				
				100	100	70	150				
				93	93	68	150				



GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.8** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-08**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**31 Oct 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,893,324 N , 375,391 E (Nad 83 zone 9)**	Elevation:	**1545.1 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (329.6 to 400 m)	100	86	64	150				
	352			100	94	61	25				
	353			96	80	58	75				
	354			100	91	61	100				
1190	355			100	93	65	125				
	356			96	96	65	125		UCS 08-06	UCS Test: 64MPa, Young Modulus 60GPa, Poisson's Ratio 0.22	
	357			100	85	60	125				
	358			100	100	65	125				
	359			100	92	60	100				
1185	360			100	91	60	125				
	361			97	91	61	100				
	362			100	84	59	100				
	363			100	45	48	100				
	364			99	46	52	100				
1180	365			98	31	47	75				
	366			98	35	51	100				
	367			96	88	68	150				
	368			100	79	61	150				
	369			100	78	61	100				
1175	370			100	85	61	125				
	371			100	97	68	125				
	372			100	100	71	150				
	373			100	100	72	150				
	374			100	93	67	150				
1170	375			100	91	63	100				
	376			100	100	68	150				
	377			100	95	63	100				
	378			100	100	63	100				
	379			100	100	69	100				
1165	380			99	99	69	100				
	381			100	97	65	100				
	382			100	91	61	75				
	383			100	88	60	75				
	384			95	84	62	100		UCS #7	UCS Test: 98MPa, Y.M. 62GPa, P.R. 0.24	
1160	385										
	386										
	387										
	388										
	389										
1155	390										
	391										
	392										
	393										
	394										
1150	395										
	396										
	397										
	398										
	399										

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-08

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.8** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
1505	1–13		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 13.55 m)							Three vibrating wires installed in drillhole
				27	10	28	0			
1500	14		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (13.55 to 65.5 m)	27	10	28	0			
	15–16			83	0	27	0			
1495	17		Gouge, gougy and pulverized (13.6 to 18 m)	61	17	29	1			
	18–19			83	13	29	1			
	20		Broken zone, blocky and gougy (18.9 to 49.5 m)	100	48	43	75		PLT #1	PLT Test: 161 MPa
1490	21–24			100	0	27	0			
				73	0	27	0			
	25			87	0	27	0			
1485	26			87	0	27	0			
	27–28			33	0	27	0			
	29			67	0	27	0			
1480	30			53	0	27	0			
	31–33			20	0	27	0			
	34			100	17	29	0			
1475	35			100	7	28	0			
	36–37			80	20	43	100			
	38–39			13	0	27	0			
1470	40			7	0	35	100			
	41–43			40	0	27	1			
	44			20	0	27	0			
1465	45			61	0	27	0			
	46–47			23	0	27	1			
	48			47	0	27	0			
	49			67	0	27	3			

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** REF. NO. **2**

APPENDIX **Appendix A1.9** REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	51–54	fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (13.55 to 65.5 m)	100	7	28	3			
			100	0	27	1			
			53	0	27	1			
		Broken zone, blocky and gougy (50 to 55.1 m)	100	0	27	1			
1455	55		80	27	30	1		Fault #1	Direct Shear Test: 35 friction angle, 72 KPa cohesion
	56–58		100	47	47	100			
	59		100	78	58	100			
1450	60	Fault zone, gougy and blocky (59.3 to 67.3 m)	73	0	39	100			
	61–63		100	50	49	100			
	64		100	0	27	3			
1445	65		100	0	27	1			
	66–68	fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (65.5 to 102 m)	100	77	63	140			
			100	71	62	150			
1440	69–70		100	75	61	150			
	71	Fault zone, small gouge zones with blocky to jointed core between (70.8 to 90.2 m)	100	52	44	75			
	72–74		97	55	50	75			
			100	58	56	100			
1435	75		95	44	38	1			
	76–78		100	0	41	75			
	79		100	43	44	25			
1430	80		100	69	43	1			
	81–83		97	0	27	1			
	84		100	0	27	1			
1425	85		100	84	59	75			
	86–88		100	59	52	75			
	89		100	0	37	50			
1420	90	Fault zone, breccia, gouge, jointed with blocky broken zones (89.6 to 128 m)	100	50	44	110			
	91		100	43	36	25			
	92–94		100	0	27	1			
			100	100	70	25			
1415	95		100	87	63	125		UCS 09-01	UCS Test: 132MPa, Young Modulus46 GPa, Poisson's Ratio 0.18
	96–98		100	0	28	3			
	99		100	0	28	1			
			100	89	64	140			

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	101		Fault zone, breccia, gouge, jointed with blocky broken zones (89.6 to 128 m)	100	59	54	125			
	102		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (102 to 128.89 m)	93	87	54	25			
	103			100	100	70	25			
1405	105			100	0	28	1			
	106			100	77	52	50			
	107			93	71	60	125			
	108			47	0	34	5			
	109			100	0	27	3			
1400	110			100	41	47	50			
	111			100	0	27	1			
	112			99	45	56	110			
	113			100	0	35	25			
	114			100	0	30	25			
1395	115			100	8	28	3			
	116			100	33	41	25			
	117			100	24	30	1			
	118			87	0	27	1			
	119			100	0	35	50			
1390	120			100	46	47	75			
	121			100	0	44	25			
	122			100	0	44	25			
	123			97	0	39	25			
	124			100	0	36	10			
1385	125			91	0	37	1			
	126			100	48	44	10			
	127			93	39	41	25			
	128			100	90	63	75			
	129		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (128.89 to 130.39 m)	95	89	67	100		DS #1	Direct Shear Test: 29 friction angle, 297 KPa cohesion
1380	130			100	90	57	100			
	131			94	61	53	75			
	132			93	20	42	50			
	133		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (130.39 to 133.5 m)	100	0	38	25			
	134			99	0	38	25			
1375	135		Fault broken zone, gougy, chlorite and clay (133.1 to 146.4 m)							
	136									
	137									
	138		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (133.5 to 138.5 m)							
	139									
1370	140									
	141		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (138.5 to 400 m)							
	142									
	143									
	144									
1365	145									
	146									
	147									
	148									
	149									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151–199		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (138.5 to 400 m) Fault broken zone, chlorite (151 to 192.8 m)	89	0	38	25			Vibrating wire installed at 155m depth, piezometeric head at 10mbgs	
				100	0	34	5				
				100	0	45	75				
1355				100	60	50	50				
				100	40	53	75				
				100	58	51	50				
				100	82	62	110				
1350				100	0	30	25				
				97	79	62	110				
				100	33	54	125				
1345				100	37	46	25				
				100	59	48	50				
				100	72	60	75				
1340				97	64	58	110				
				97	76	64	125				
				100	100	84	140				
1335				100	100	65	110				
				100	35	44	25				
				100	91	56	75				
				100	77	53	75				
1330				100	73	55	100				
				100	87	62	100				
				99	33	49	75				
1325				94	39	43	50				
				100	0	27	1				
				73	0	27	1				
1320				100	0	27	1				
				100	0	35	15				
				100	100	62	75				
				100	43	50	100				
1315				93	33	48	75				
				99	36	48	75				
				100	23	45	75				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

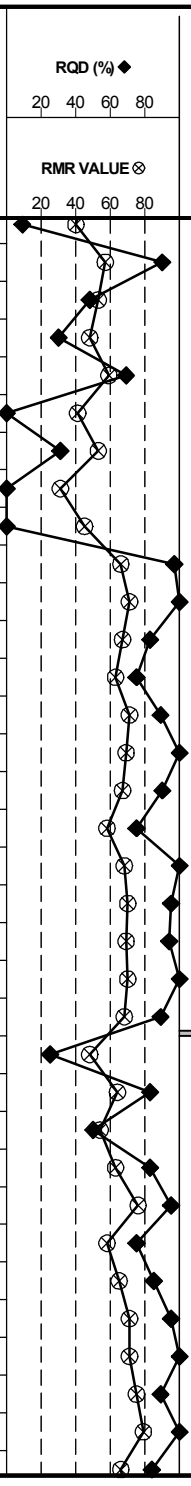
APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (138.5 to 400 m)	100	9	40	50			
	202			100	90	57	75			
	203			100	48	53	110			
	204			97	30	48	125			
1305	205			100	69	59	110			
	206			97	0	41	25			
	207		Fault broken zone, gougy clay (207.1 to 216.9 m)	100	31	53	110			Vibrating wire installed at 209m depth, piezometeric head at -9mbgs (artesian)
	208			100	0	31	1			
	209			100	0	45	50			
1300	210			99	97	66	110			
	211			100	100	71	140			
	212			100	83	67	140			
	213			100	75	63	140			
	214			93	89	71	140			
1295	215			100	100	69	125			
	216			100	90	67	150			
	217			100	75	58	100			
	218			100	100	68	150			
	219			100	95	70	175			
1290	220			99	94	69	175			
	221			100	100	70	175			
	222			94	89	68	175			
	223			100	25	48	100		UCS#2	UCS Test: 25MPa, Young Modulus 36GPa, Poisson's Ratio 0.06
	224			99	83	64	125			
1285	225			100	50	54	125			
	226			92	83	63	125			
	227			100	95	76	175			
	228			96	75	58	175			
	229			100	85	65	175			
1280	230			95	95	71	175			
	231			100	100	71	200			
	232			92	89	75	200			
	233			100	100	79	200			
	234			95	84	66	200			
1275	235									
	236									
	237									
	238									
	239									
1270	240									
	241									
	242									
	243									
	244									
1265	245									
	246									
	247									
	248									
	249									



WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (138.5 to 400 m)	100	100	71	200				
	252			99	99	78	200				
	253			100	99	68	200				
1255	254			93	93	72	200		DS #2	Direct Shear Test: 38 friction angle, 3 KPa cohesion	
	255			100	100	73	200				
	256			100	88	69	200				
	257			100	100	73	200				
	258			97	97	77	200				
	259			100	100	67	140				
1250	260			95	95	75	200				
	261			100	100	70	200				
	262			100	100	76	200				
	263			100	100	75	200				
	264			97	92	74	200				
1245	265			99	95	70	200				
	266			93	87	69	200				
	267			100	71	61	140				
	268			99	99	73	200				
	269			100	93	72	175				
1240	270			100	95	77	175				
	271			100	84	65	175				
	272			98	83	65	175				
	273			100	81	62	150				
	274			100	100	75	200				
1235	275			100	100	77	225				
	276			99	92	73	225				
	277			97	92	74	225				
	278			100	100	75	225				
	279			100	95	72	250				
1230	280			99	99	74	250				
	281			100	100	80	250				
	282		Fault broken zone, gougy (281.8 to 282.5 m)	96	96	79	250				
	283			99	99	79	250				
	284										
1225	285										
	286										
	287										
	288										
	289										
1220	290										
	291										
	292										
	293										
	294										
1215	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (138.5 to 400 m)	95	95	71	250				
	302			100	100	76	250				
	303			97	97	72	250				
	304			100	95	72	250				
1205	305			99	99	77	250				
	306			100	98	71	160				
	307			95	95	75	250				
	308			100	100	75	200				
	309			99	99	72	200				
1200	310			100	87	65	140				
	311			97	80	65	120				
	312			100	94	66	140		UCS#4	UCS Test: 44MPa, Young Modulus 50GPa, Poisson's Ratio 0.13	
	313			100	73	61	110				
	314			100	77	66	150				
1195	315			98	98	66	150				
	316			99	99	79	175				
	317			99	91	68	175				
	318			100	72	62	175				
	319		Fault zone, gougy, veined, fault nearby (319 to 322 m)	97	86	72	200				
1190	320			100	77	62	175				
	321			98	89	69	200				
	322			100	100	72	175				
	323			94	90	68	175				
	324			100	100	70	175				
1185	325			97	92	68	175				
	326			100	88	73	175				
	327			95	95	70	175				
	328			100	100	68	175				
	329			99	99	72	175				
1180	330			100	78	65	160				
	331			91	85	67	160				
	332			100	87	68	160				
	333			100	100	75	200			Vibrating wire installed at 349m depth, piezometeric head at 45mbgs	
	334										
1175	335										
	336										
	337										
	338										
	339										
1170	340		Clay seam, clay (339.4 to 339.5 m)								
	341										
	342										
	343										
	344										
1165	345										
	346										
	347										
	348										
	349		Fault broken zone, clay (348.9 to 349 m)								

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-09**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**29 Nov 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**8 Dec 12**
Coordinates:	**5,893,551 N , 375,312 E (Nad 83 zone 9)**	Elevation:	**1509.5 m**	Date Well Installed:	**8 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 6**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (138.5 to 400 m) Gouge, gougy (350.9 to 351 m)	100	100	65	110					
	352			95	83	67	160					
	353			100	93	69	200					
	354			93	89	72	200					
1155	355			100	98	73	200					
	356			100	94	72	200					
	357			100	92	68	160					
	358			99	99	74	200					
	359			100	100	81	200					
1150	360			99	99	76	200					
	361			100	98	74	200					
	362			93	93	72	200					
	363			100	100	69	200					
	364			99	92	69	175					
1145	365			100	85	65	175					
	366			97	97	74	175					
	367			100	64	60	150					
	368			95	95	73	175			UCS#5	UCS Test: 74MPa, Young Modulus 70GPa, Poisson's Ratio 0.17	
	369			100	100	74	175					
1140	370			97	97	72	175					
	371			100	100	76	175					
	372			99	67	66	150					
	373			100	86	70	175					
	374			93	92	72	175					
1135	375			100	94	70	175					
	376			97	97	74	175					
	377			100	96	76	175					
	378			94	94	77	200					
	379			100	97	72	200					
1130	380			97	85	73	200					
	381			100	100	71	200					
	382			97	97	69	160					
	383			100	94	74	200					
	384			92	92	75	200					
1125	385											
	386											
	387											
	388											
	389											
1120	390											
	391											
	392											
	393											
	394											
1115	395											
	396											
	397		Fault broken zone, chlorite gougy (396.2 to 397.8 m)									
	398											
	399											

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-09

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.9** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	0–4		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 4 m)							Three vibrating wires installed in drillhole	
				92	15	14	25				
1541	4–5		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	31	34	25				
				100	41	46	100				
				100	39	46	100				
1536	9–10			100	93	62	100				
	10–11		Fault zone, (11.2 to 12.3 m)	100	0	29	5				
				100	0	29	5				
	13–14			100	71	55	100				
1531	14–15			100	66	53	100				
				100	71	58	100				
				100	29	47	100				
1526	19–20			100	75	50	25				
				96	61	48	25				
				100	72	50	25				
	24–25			97	90	51	25				
1521	25–26			100	30	40	25				
				100	0	32	5				
				100	57	48	50				
1516	29–30			100	53	47	50				
				100	80	56	50				
				100	37	43	50				
1511	34–35			100	49	44	25				
				100	55	41	10				
				100	87	55	25				
	38–39		Fault zone, several intermittent Faults. typically 3-40cm thick. (38.1 to 44 m)	100	80	55	50				
1506	39–40			100	0	29	10				
				90	0	29	5				
				97	13	36	5				
1501	44–45			95	67	47	25				
				100	86	57	50				
	48–49			100	86	54	50				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	57	39	25				
	52			100	51	46	50				
	53			100	43	38	25				
	54		Fault zone, several intermittent Faults. typically 3-80cm thick (52 to 70.2 m)								
1491	55			99	18	32	15				
	56			100	80	57	75				
	57			97	73	54	75				
	58										
	59			100	0	29	25				
1486	60			100	87	57	75		UCS10-01	UCS Test: 186MPa, Young Modulus 46GPa, Poisson's Ratio 0.18	
	61								DS 12-01	Direct Shear Test: 42 friction angle, 557 KPa cohesion	
	62			100	47	37	25				
	63										
	64			100	93	58	50				
1481	65			96	76	45	25				
	66										
	67			100	58	44	25				
	68			100	88	61	75				
	69										
1476	70			100	0	38	25				
	71			100	86	64	100				
	72										
	73			100	53	50	50				
	74			100	88	60	100				
1471	75			96	79	56	100				
	76										
	77			98	98	62	100				
	78										
	79			99	94	61	100				
1466	80			99	99	62	100			Vibrating wire installed at 80m depth, piezometeric head at 17mbgs	
	81										
	82			98	73	55	100				
	83										
	84			100	93	57	50				
1461	85			99	75	51	50				
	86										
	87			100	63	56	125				
	88										
	89			98	76	51	25				
1456	90			100	90	58	75				
	91										
	92			100	56	50	75				
	93										
	94			100	91	58	50				
1451	95		Fault zone, several intermittent Faults with broken zones between (94.5 to 99.5 m)	100	95	57	50				
	96										
	97			71	0	29	15				
	98			73	0	29	15				
	99			80	0	33	15				
				71	0	33	15				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	33	39	15				
	102										
	103			30	0	29	15				
	104		Fault zone, several intermittent Faults with broken zones between (100 to 104.8 m)	100	0	29	5				
1441	105			100	88	66	125				
	106										
	107			100	87	65	125		UCS10-02	UCS Test:215 MPa, Young Modulus 58GPa, Poisson's Ratio 0.17	
	108										
	109			100	53	54	100				
1436	110			100	42	51	75				
	111										
	112			97	95	65	75				
	113			100	100	69	125				
	114										
1431	115			100	100	94	125				
	116			100	93	66	125				
	117										
	118			95	95	76	125				
	119			100	91	67	125				
1426	120			100	100	95	150				
	121										
	122			100	100	76	150				
	123										
	124			100	100	95	150				
1421	125			97	97	69	175				
	126										
	127			100	85	65	175				
	128			100	100	71	175				
	129										
1416	130			100	100	73	175				
	131										
	132			97	97	76	175				
	133			100	71	62	175				
	134										
1411	135			100	70	62	150				
	136			100	32	55	125				
	137										
	138			100	100	92	100				
	139			100	100	71	100				
1406	140			100	0	33	50				
	141										
	142			100	100	61	100				
	143			100	0	36	100				
	144										
1401	145			100	71	60	100				
	146										
	147			99	95	63	100				
	148			100	100	70	125				
	149			100	95	71	150				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

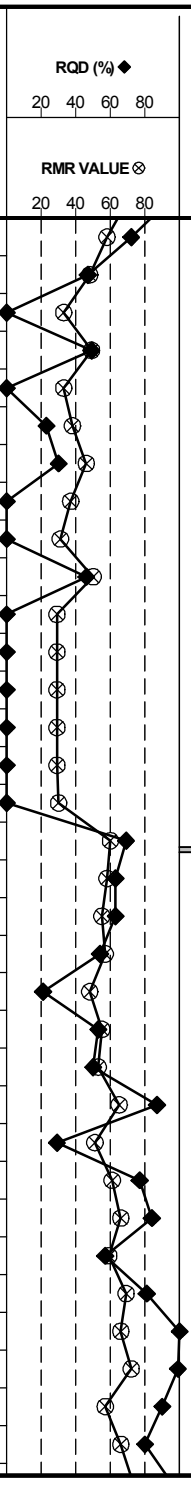
APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	151		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	72	58	100			
	152			100	47	48	50			
	153			67	0	33	50			
	154		Broken zone (151 to 158.4 m)	100	49	49	50			
1391	155			67	0	33	50			
	156			99	23	38	50			
	157			99	30	46	50			Vibrating wire installed at 160m depth, piezometeric head at 18mbgs
	158			93	0	37	25			
	159			95	0	31	5			
1386	160			100	46	50	50			
	161			80	0	29	5			
	162		Fault zone (161.3 to 173.9 m)	80	0	29	5			
	163			80	0	29	5			
	164			60	0	29	5			
1381	165			27	0	29	5			
	166			71	0	30	25			
	167			100	69	60	125		UCS10-03	UCS Test: 173MPa, Young Modulus 64GPa, Poisson's Ratio 0.20
	168			100	63	58	125			
	169			97	63	55	100			
1376	170			100	54	57	125			
	171			100	21	48	100			
	172			100	53	55	100			
	173			100	50	53	100			
	174			100	87	65	125			
	175			100	29	51	125			
1371	176			100	77	61	125			
	177			100	84	66	175			
	178			96	57	59	175			
	179			100	81	69	175			
	180			100	100	66	100			
1366	181			99	99	72	200			
	182			100	90	57	100			
	183			97	80	66	200			
	184									
	185									
1361	186									
	187									
	188									
	189									
	190									
1356	191									
	192									
	193									
	194									
	195									
1351	196									
	197		Fault zone, Fault gouge (196.8 to 196.8 m)							
	198									
	199									



WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	201		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	95	73	175			
	202			99	97	71	175			
	203			100	93	66	175			
	204			98	98	76	175			
1341	205			100	100	91	200			
	206			94	70	61	175			
	207			100	85	66	175			
	208			100	94	71	200			
	209			100	83	61	100			
1336	210			100	42	46	50			
	211			99	59	54	75			
	212			93	32	48	75			
	213		Broken zone (213 to 214.7 m)	100	46	52	75			
	214			98	0	46	75			
1331	215			99	53	58	100			
	216			100	43	53	100		UCS10-04	UCS Test: 172MPa, Young Modulus 69GPa, Poisson's Ratio 0.22
	217			100	51	57	125			
	218			100	51	53	100			
	219			100	100	70	150		DS 10-02	Direct Shear Test: 38 friction angle, 30 KPa cohesion
1326	220			95	95	70	175			
	221			100	52	58	175			
	222			100	40	59	150			
	223			100	100	71	150			
	224			100	0	35	50			
1321	225			99	11	44	75			
	226			100	65	58	125			
	227			99	93	70	150			
	228			100	0	36	50			
	229			96	95	66	125			
1316	230		Broken zone (230.1 to 241.1 m)	99	88	65	100			
	231			95	95	67	100			
	232			100	87	61	100			
	233			100	100	69	100			
	234			100	100	77	175			
1311	235									
	236									
	237									
	238									
	239									
1306	240									
	241									
	242									
	243									
	244									
1301	245									
	246									
	247									
	248									
	249									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	100	96	175				
	252			97	95	76	225				
	253			100	69	61	200				
	254			99	99	71	225				
1291	255			100	100	73	175				
	256			95	67	59	150				
	257			100	100	70	225				
	258			94	94	70	200				
	259			100	100	74	200				
1286	260			100	100	79	225				
	261			100	100	97	200		UCS10-05	UCS Test: 180MPa, Young Modulus 69GPa, Poisson's Ratio 0.18	
	262			99	79	66	200				
	263			99	77	68	200				
	264			99	73	62	200				
1281	265			100	52	58	150				
	266			97	93	72	200				
	267			100	100	76	225		DS 12-03	Direct Shear Test: 38 friction angle, 97 KPa cohesion	
	268			99	99	75	225				
	269			100	86	70	225		UCS12-06	UCS Test:227 MPa, Young Modulus 66GPa, Poisson's Ratio 0.14	
1276	270			100	75	63	200				
	271			100	88	67	200				
	272			99	99	97	225				
	273			100	100	79	225				
	274			100	56	59	200				
	275		Fault broken zone (285 to 286.6 m)	100	64	59	175				
	276			100	77	66	150				
	277			100	87	68	200				
	278			87	0	32	25				
	279			100	75	60	150				
1271	280			100	100	97	200				
	281			100	100	69	150				
	282			100	100	66	150		XRD 07-01	XRD Test: <5% Quartz, Mica/illite 62%, Smectite 23%, Kaolinite 11%	
	283			100	100	79	200				
	284										
1266	285										
	286										
	287										
	288										
	289										
	290										
	291		Fault zone, rubbly locally sandy gouge (290.3 to 293.1 m)								
	292										
	293										
	294										
1261	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	100	79	200				
	302			100	93	72	200				
	303			100	100	97	200				
	304			100	100	79	200				
1241	305			100	100	71	200				
	306			99	88	66	200				
	307			91	81	68	200				
	308			100	100	76	200				
	309			100	85	68	200				
1236	310			100	45	61	200				
	311			93	93	76	200				
	312			100	81	68	200				
	313			95	66	65	225				
	314			100	80	65	225				
1231	315			100	65	59	175				
	316		Fault broken zone, (321.1 to 321.5 m)	97	97	76	225				
	317			100	87	70	200				
	318			100	75	67	200				
	319			91	91	94	200				
1226	320			100	100	78	225				
	321			100	81	65	225				
	322			100	81	67	200				
	323			100	100	72	200				
	324			100	100	97	200				
1221	325			80	0	30	25				
	326			100	0	30	25				
	327			100	40	51	100				
	328			100	65	60	100				
	329			99	20	48	100				
1216	330			100	97	69	150				
	331			97	80	65	200				
	332			100	55	59	150				
	333			78	78	61	100				
	334										
1211	335										
	336										
	337		Fault zone, rubbly throughout - frequent sandy gouge (337 to 342.7 m)								
	338										
	339										
1206	340										
	341										
	342										
	343										
	344										
1201	345										
	346										
	347										
	348										
	349										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-10**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**10 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**18 Nov 12**
Coordinates:	**5,893,298 N , 375,126 E (Nad 83 zone 9)**	Elevation:	**1546.4 m**	Date Well Installed:	**18 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**280°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (4 to 400 m)	100	76	60	100				
	352			97	13	48	100				
	353			89	0	40	75				
	354			95	0	39	75				
1191	355			95	50	55	100				
	356			97	47	49	75				
	357			93	46	40	50				
	358			81	15	35	50				
	359			56	0	35	50				
1186	360			24	0	35	50				
	361		Fault zone, fault zone defined by highly fractured rock, some broken zones, and rare gouge. (360.7 to 379.5 m)	96	41	51	100				
	362			100	0	48	75				
	363			100	0	38	75				
	364			93	0	35	50				
1181	365			100	0	33	50			vibrating wire installed at 195 m depth, VW is damaged	
	366			80	8	34	50				
	367			100	0	33	50				
	368			100	35	38	25				
	369			100	0	30	25				
1176	370			47	0	30	25				
	371			100	0	30	25				
	372			47	0	30	25				
	373			25	0	30	25				
	374			80	0	39	75				
1171	375			82	0	29	15				
	376			100	35	42	25				
	377			81	0	29	15				
	378			44	0	29	15				
	379			89	0	30	20				
1166	380			96	39	37	25				
	381			92	44	44	75				
	382			77	0	30	20				
	383			99	0	33	50				
	384			64	0	29	15				
1161	385										
	386										
	387										
	388										
	389		Fault broken zone, fault gouge, moderately well consolidated. (388.7 to 391 m)								
1156	390										
	391		Fault zone, fault zone consisting of highly jointed rock, some broken zones, and scattered clay gouge. (391 to 400 m)								
	392										
	393										
	394										
1151	395										
	396										
	397										
	398										
	399										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-10

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.10** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	1–32		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 32.5 m)								Three vibrating wires installed in drillhole	
	33–49		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (32.5 to 268.1 m)									
1582												
1577												
1572												
1567												
1562												
1557												
1552												
1547				100	82	61	150					
				100	63	58	150					
				100	63	56	100					
				100	52	60	250					
				100	63	55	50					
1542				100	82	59	50					
				100	85	60	50					
				100	86	59	50					

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 2

APPENDIX Appendix A1.11 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (32.5 to 268.1 m)	93	39	53	50				
	52			96	96	64	50				
	53			100	100	72	150				
	54			89	72	66	150				
1532	55			100	97	69	150				
	56			100	77	66	150				
	57			100	95	74	150				
	58			100	91	69	150				
	59			100	57	57	100				
1527	60			100	75	59	100				
	61			100	69	59	100				
	62			99	69	57	100				
	63			100	69	59	100				
	64			100	90	60	100				
1522	65			100	100	69	100				
	66			100	85	63	100				
	67			100	99	62	50				
	68			94	94	61	50				
	69			100	81	57	50				
1517	70			100	87	59	50				
	71			100	81	57	50				
	72			100	51	54	100				
	73			100	36	51	100				
	74			73	0	36	100				
1512	75			53	0	36	100				
	76			90	0	36	100				
	77			100	95	65	150				
	78			99	67	61	200				
	79			99	74	55	50				
1507	80			100	65	58	100				
	81			99	61	52	25				
	82			99	99	60	25				
	83		Fault zone, highly jointed rock, broken zones, rare scattered gouge. (82.7 to 88.5 m)	100	58	50	25				
	84			100	49	50	50				
1502	85										
	86										
	87										
	88										
	89										
1497	90										
	91										
	92										
	93										
	94										
1492	95										
	96										
	97										
	98										
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (32.5 to 268.1 m)	100	94	65	100					
	102			100	37	52	100					
	103			100	87	62	100					
	104			100	69	58	100					
1482	105			100	42	53	100					
	106			100	93	63	100					
	107			100	58	54	100					
	108			100	47	55	100					
	109			100	55	59	150					
1477	110			100	65	61	150					
	111			100	62	60	150					
	112			100	100	72	150					
	113			100	100	67	150					
	114			100	100	67	150					
1472	115			100	77	58	100					
	116			100	13	48	100					
	117			100	57	55	150					
	118			100	48	52	150					
	119			100	39	55	150					
1467	120			100	100	73	150					
	121			100	100	95	150					
	122			100	49	55	150					
	123			100	0	43	150					
	124			98	92	75	150					
1462	125			100	86	74	250					
	126			100	93	71	250					
	127			95	89	70	250					
	128			100	77	65	150					
	129			100	100	69	100					
1457	130			35	9	31	0					
	131			100	100	75	0					
	132			91	85	71	150					
	133			99	52	62	150					
	134											
1452	135											
	136											
	137											
	138											
	139											
1447	140											
	141											
	142											
	143											
	144											
1442	145											
	146											
	147											
	148											
	149											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

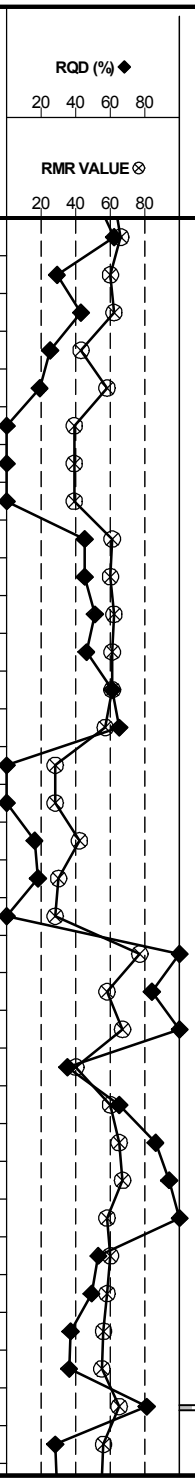
APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (32.5 to 268.1 m)	100	62	66	150			Vibrating wire installed at 154m depth, piezometeric head at 53mbgs	
	152			100	29	60	150				
	153			100	43	62	150				
	154										
1432	155			63	25	43	150				
	156										
	157			100	19	58	150				
	158			100	0	39	150				
	159										
1427	160			87	0	39	150				
	161			100	0	39	150				
	162										
	163			99	45	61	150				
	164										
1422	165			99	45	60	150				
	166			97	51	62	150				
	167										
	168			100	46	61	150				
	169			100	61	61	150				
1417	170			100	65	57	100				
	171										
	172			61	0	28	1				
	173		Fault zone, highly broken interval, some scattered and unconsolidated gouge. (172.9 to 173.5 m)	71	0	28	1				
	174										
1412	175			100	16	42	1				
	176			89	18	30	1				
	177										
	178			81	0	28	1				
	179			100	100	77	250				
1407	180			90	84	58	100				
	181										
	182			100	100	67	100				
	183										
	184			93	35	40	0				
1402	185			100	65	60	100				
	186										
	187			100	86	65	100				
	188										
	189			100	94	67	150				
1397	190			100	100	58	150				
	191										
	192			70	53	60	150				
	193										
	194			100	49	58	200				
1392	195			100	37	56	200				
	196										
	197			94	36	55	200				
	198			100	81	65	200		UCS#3	UCS Test: 218MPa, Young Modulus 62GPa, Poisson's Ratio 0.16	
	199			93	28	56	200				



GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**
APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	201		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (32.5 to 268.1 m)	100	29	55	200			
	202			100	18	50	150			
	203			100	0	41	150			
	204			100	19	53	150			
1382	205			56	0	41	150			
	206			67	0	41	150			
	207			100	10	42	150			
	208		Fault zone, highly jointed rock, fault breccia, healed fault breccia, and some loose gouge. Minor broken zones. (207.4 to 220 m)	100	0	32	25			
	209			100	0	31	5			
1377	210			100	0	32	25			
	211			69	0	29	5			
	212			29	0	29	5			
	213			59	0	29	5			
	214			100	0	41	150		UCS#4	UCS Test: 277MPa, Young Modulus 84GPa, Poisson's Ratio 0.21
	215			100	100	71	150			
1372	216			100	91	72	150			
	217			78	78	76	250			
	218			100	80	64	150			
	219			100	100	72	200			
	220			100	91	67	200			
1367	221			100	90	69	200			
	222			100	55	62	200			
	223			100	100	76	200			
	224			100	93	69	200			
	225			100	100	69	200			
1362	226			100	55	61	200			
	227			100	83	66	200			
	228			100	63	61	200			
	229			100	85	65	200			
	230			100	70	64	200			
1357	231			100	97	70	200			
	232			100	100	72	200			
	233			100	43	58	200			
	234			97	97	73	250			
	235									
1352	236									
	237									
	238									
	239									
	240									
1347	241									
	242									
	243									
	244									
	245									
1342	246									
	247									
	248									
	249									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS: Vibrating wire installed at 215m depth, piezometeric head at 58mbgs

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (32.5 to 268.1 m)	100	97	67	100				
	252			96	96	68	100				
	253			100	100	76	200				
1332	254			100	100	97	200				
	255			100	100	97	200				
	256			100	96	79	250				
	257			100	100	76	250				
	258			97	97	75	200				
	259			100	100	74	200				
1327	260			98	97	73	250				
	261			100	100	98	250				
	262			97	97	75	200				
	263			100	73	64	250				
	264			100	100	73	250				
1322	265			100	100	75	250				
	266			100	80	66	250				
	267			100	95	73	250				
	268			100	100	79	250				
	269	+	fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (268.1 to 270.6 m)	100	83	67	250				
1317	270	+		100	0	50	0				
	271			100	90	70	250				
	272	+	fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (270.6 to 272 m)	100	100	75	250				
	273	+		100	100	83	250				
	274	+		100	100	98	250				
1312	275	+		100	100	98	250				
	276	+	fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (272 to 276.6 m)	100	88	68	250				
	277			100	62	63	250				
	278		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (276.6 to 339 m)	99	99	70	150				
	279			100	81	66	200				
1307	280										
	281										
	282										
	283										
	284										
1302	285										
	286										
	287										
	288										
	289										
1297	290										
	291										
	292										
	293										
	294										
1292	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (276.6 to 339 m)	90	22	46	50				
	302			100	83	63	100				
	303			100	80	67	250				
	304			100	95	70	250				
1282	305			99	86	68	250				
	306			100	89	70	250				
	307			100	100	74	250				
	308			100	80	64	250				
	309			91	51	59	250				
1277	310			77	12	55	250				
	311			100	78	65	250				
	312			100	66	57	100				
	313			100	73	61	150				
	314			100	80	62	150				
1272	315			100	68	64	150				
	316			100	100	75	10				
	317			100	21	54	200				
	318		Broken zone, highly jointed to broken rock, abundant chlorite coat. (317 to 318 m)	100	21	54	200				
	319			100	75	65	200				
1267	320			100	77	64	200				
	321			100	100	75	200				
	322			100	75	69	200				
	323			100	90	64	200				
	324		Fault zone, minor unconsolidated gouge, broken rock, abundant chlorite and ser. (322.7 to 324.5 m)	100	67	62	200				
1262	325			100	63	63	200				
	326			100	24	57	200				
	327			100	75	65	250				
	328			100	61	61	200				
	329			100	96	70	200				
1257	330			100	100	68	250				
	331			100	0	48	200				
	332			100	100	80	200				
	333			100	61	62	200				
	334										
1252	335										
	336										
	337										
	338										
	339	+	fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (339 to 354.1 m)								
1247	340	+									
	341	+									
	342	+									
	343	+									
	344	+									
1242	345	+	Fault zone, broken zone with minor gouge. (344 to 345 m)								
	346	+									
	347	+									
	348	+									
	349	+									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

Vibrating wire installed at 324m depth, piezometeric head at 61mbgs

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-11**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**15 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**400 m**	Date Completed:	**25 Nov 12**
Coordinates:	**5,892,917 N , 375,032 E (Nad 83 zone 9)**	Elevation:	**1586.8 m**	Date Well Installed:	**25 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**270°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (339 to 354.1 m) Broken zone (351.7 to 352.3 m)	100	85	68	200				
	352			100	58	58	150				
	353			100	0	42	150				
	354		Fault broken zone, clay seam/fault gouge. (353.7 to 354 m)	100	92	73	200				
1232	355			100	100	81	200				
	356		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (354.1 to 356.79 m)	100	100	70	200				
	357			100	98	96	200				
	358			100	100	98	250				
	359			100	99	97	250				
1227	360		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (356.79 to 363.5 m)	100	100	76	250				
	361			100	100	73	250				
	362			100	100	73	250				
	363			100	100	98	250				
	364		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (363.5 to 384.89 m)	100	100	82	250				
1222	365			100	100	82	250				
	366			100	100	78	250				
	367			100	100	81	250				
	368			100	100	77	250				
	369			100	100	77	250				
1217	370			100	90	74	250				
	371			100	100	79	250				
	372			100	100	98	250				
	373			100	100	98	250				
	374			100	100	98	250				
1212	375			100	100	98	250				
	376			100	100	77	250				
	377			100	100	79	250				
	378			94	94	73	250				
	379			100	100	98	250				
1207	380			100	100	98	250				
	381			100	100	98	250				
	382			100	100	98	250				
	383			100	100	98	250				
	384			100	100	98	250				
1202	385		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (384.89 to 392.89 m)	100	100	98	250				
	386			100	100	77	250				
	387			100	100	79	250				
	388			94	94	73	250				
	389			100	100	98	250				
1197	390			100	100	98	250				
	391			100	100	98	250				
	392			100	100	98	250				
	393		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (392.89 to 400 m)	100	100	98	250				
	394			100	100	98	250				
1192	395			98	98	72	250				
	396			100	100	82	250				
	397			100	100	72	250				
	398										
	399										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-11

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.11** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	1–19		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 19.5 m)								no vibrating wire installed in drillhole due to artesian conditions	
1486	20		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (19.5 to 67 m)	100	0	15	1					
	21			100	0	29	1			UCS#1	UCS Test: 1MPa, Young Modulus 0GPa, Poisson's Ratio 0.44	
	22			81	0	29	1					
	23			73	0	29	1					
1481	24–25			72	0	29	1					
	26		Fault broken zone, strong fault breccia, predominantly competent light grey grey-green gouge hosting 20-50% fault clasts. (19.5 to 49.9 m)	33	0	30	5					
	27–28			19	0	29	1					
1476	29–30			83	0	29	0					
	31			100	0	29	0					
	32			73	0	29	0					
	33			63	0	29	0					
1471	34–35			89	0	28	0					
	36			91	0	28	0					
	37			19	0	28	1					
	38			50	0	28	1					
1466	39–40			43	0	28	1					
	41			100	0	28	1			Gouge #1	UCS Test: 610 KPa	
	42			29	0	28	1					
	43			23	0	28	1					
1461	44–45			13	0	28	1					
	46–49											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (19.5 to 67 m)	19	0	28	1					
	52			9	0	28	1					
	53			27	0	28	1					
	54			35	0	28	1					
1451	55		Fault broken zone, strong fault breccia, predominantly competent light grey grey-green gouge hosting 20-50% fault clasts. (50 to 99.9 m)	38	0	28	1					
	56			17	0	28	1					
	57			35	0	28	1					
	58			27	0	28	1					
	59			89	0	28	1					
1446	60			100	0	28	1					
	61			100	0	28	1					
	62			100	0	28	1					
	63			49	0	28	1					
	64			43	0	28	1					
1441	65			31	0	28	1					
	66			17	0	28	1					
	67		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m)	100	30	48	50					
	68			15	0	28	1					
	69			71	0	28	1					
1436	70			70	0	28	1					
	71			41	0	28	1					
	72			23	0	28	1					
	73			75	0	28	1					
	74			31	0	28	1					
1431	75			7	0	28	0					
	76			13	0	28	0					
	77			47	0	29	0					
	78			100	0	29	1					
	79			69	0	29	1					
1426	80			63	0	29	1					
	81			69	0	29	1					
	82			41	0	29	1					
	83			92	0	28	1					
	84			100	0	28	0					
1421	85											
	86											
	87											
	88											
	89											
1416	90											
	91											
	92											
	93											
	94											
1411	95											
	96											
	97											
	98											
	99											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	101		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m) Fault broken zone, strong fault breccia, competent, mafic. Competent rock intervals rare, <10 cm wide. (100 to 129 m)	75	0	28	0			
	102			100	0	28	0			
	103			54	0	28	0			
	104			13	0	28	0			
1401	105			14	0	28	1			
	106			22	0	28	1			
	107			17	0	28	0			
	108			100	72	47	1			
	109			67	0	28	1			
1396	110			25	0	28	0			
	111			100	0	36	1			
	112			100	100	57	1			
	113			100	97	55	25		UCS#2	UCS Test: 25MPa, Young Modulus 13GPa, Poisson's Ratio 0.12
	114			100	0	28	1			
1391	115			95	89	53	5			
	116			100	13	30	1			
	117			12	0	28	1			
	118			81	0	28	1		Gouge 3	Direct Shear Test: 45 friction angle, 0 KPa cohesion
	119			100	95	57	5			
1386	120			100	100	56	5			
	121			98	40	53	100			
	122			100	63	57	100			
	123			100	99	71	200			
	124			94	94	70	200			
1381	125			100	87	71	200		UCS#2	UCS Test: 220MPa, Young Modulus 78GPa, Poisson's Ratio 0.18
	126			100	68	62	150			
	127			100	59	59	100			
	128			100	53	58	100			
	129			100	59	61	100			
1376	130			100	57	58	100			
	131			75	49	56	100			
	132			100	56	58	100			
	133			100	73	60	100			
	134									
1371	135									
	136									
	137									
	138		Broken zone, broken zone due to calcite vein stockwork (138 to 149.9 m)							
	139									
1366	140									
	141									
	142									
	143									
	144									
1361	145									
	146									
	147									
	148									
	149									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m) Broken zone, broken zone due to calcite vein stockwork (150 to 175.8 m)	100	71	63	100				
	152			100	65	61	100				
	153			100	88	67	100				
	154			95	88	64	100				
1351	155			100	79	64	100				
	156			100	44	56	100				
	157			100	45	58	100				
	158			99	77	61	100				
	159			100	89	63	100				
1346	160			100	98	66	100				
	161			100	100	66	100				
	162			100	100	72	150				
	163			100	96	67	100				
	164			100	100	71	150				
1341	165			100	100	74	250				
	166			100	100	73	250				
	167			100	69	62	200				
	168			100	67	62	100				
	169			98	85	64	150				
1336	170			100	100	72	150				
	171			100	91	71	200				
	172			100	81	71	200				
	173			100	100	71	200				
	174			100	64	60	150				
1331	175			100	91	69	150				
	176			100	100	80	200				
	177			93	55	65	150				
	178			100	100	80	250		UCS#3	UCS Test: 267MPa, Young Modulus 67GPa, Poisson's Ratio 0.24	
	179			100	100	76	250				
1326	180			100	100	79	250				
	181			100	100	74	250				
	182			98	98	71	250				
	183			100	100	73	250				
	184										
1321	185										
	186										
	187										
	188										
	189										
1316	190										
	191										
	192										
	193										
	194										
1311	195										
	196										
	197										
	198										
	199										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m)	100	100	77	250					
	202			100	100	81	250					
	203			100	100	75	250					
	204			100	98	76	250					
1301	205			100	100	78	250					
	206			100	100	74	250					
	207			100	100	76	250					
	208			100	100	76	200					
	209			98	98	76	200					
1296	210			100	100	73	200					
	211			100	100	76	200					
	212			100	95	74	200					
	213			100	100	74	200					
	214			96	96	75	200					
1291	215			93	93	72	200					
	216			100	100	72	200					
	217			100	94	73	200					
	218			100	82	69	200					
	219			100	100	97	200					
1286	220			100	100	73	200					
	221			100	95	66	150					
	222			100	100	73	150					
	223			100	100	70	150					
	224			100	100	75	200					
1281	225			100	100	75	200					
	226			100	91	69	200					
	227			100	77	61	150					
	228			100	61	63	150					
	229			100	50	55	150					
1276	230			100	95	68	150					
	231			100	100	72	150					
	232			100	100	70	150					
	233			100	100	74	200					
	234			100	100	72	200					
1271	235											
	236											
	237											
	238											
	239											
1266	240											
	241											
	242											
	243											
	244											
1261	245											
	246											
	247											
	248											
	249											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m)	100	99	71	250				
	252			96	96	91	100				
	253			100	100	98	250				
1251	254			100	100	93	200				
	255			97	97	75	200				
	256			100	100	75	250				
	257			100	100	97	200				
	258			97	97	74	250		UCS#4	UCS Test: 85MPa, Young Modulus 68GPa, Poisson's Ratio 0.18	
	259			100	100	71	100				
1246	260			97	97	73	100				
	261			100	100	97	200				
	262			99	99	76	200				
	263			97	97	72	250				
	264			99	99	75	200				
1241	265			100	100	75	200				
	266			97	97	74	200				
	267			100	100	75	200				
	268			99	99	74	250				
	269			100	100	79	250				
1236	270			97	97	76	250				
	271			100	100	77	250				
	272			100	100	77	250				
	273			100	100	75	200				
	274			100	100	79	200				
1231	275			100	100	73	200				
	276			100	95	74	200		DS #1	Direct Shear Test: 31 friction angle, 133 KPa cohesion	
	277			100	100	76	200				
	278			100	100	76	200				
	279			100	100	76	200				
1226	280			100	100	76	200				
	281			100	92	73	200				
	282			100	100	76	200				
	283			100	100	72	200				
	284			100	100	75	200				
1221	285										
	286										
	287										
	288										
	289										
1216	290										
	291										
	292										
	293										
	294										
1211	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

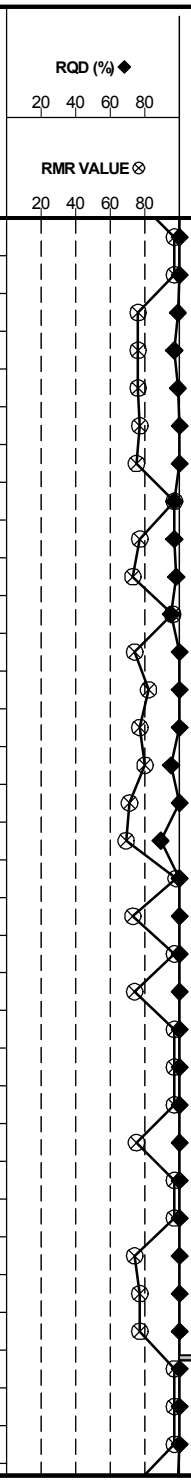
APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m)	100	100	97	200				
	302			100	100	97	200				
	303			99	99	76	200				
	304			97	97	76	250				
1201	305			99	99	76	200				
	306			100	100	77	250				
	307			100	100	75	250				
	308			97	97	97	250				
	309			97	97	77	150				
1196	310			100	98	73	200				
	311			95	95	96	250				
	312			100	100	74	250				
	313			100	100	82	250				
	314			100	100	77	250				
1191	315			95	95	80	200				
	316			100	100	71	150				
	317			95	89	69	250				
	318			100	100	98	250				
	319			100	100	73	200				
1186	320			100	100	97	200				
	321			100	100	74	200				
	322			100	100	97	200				
	323			100	100	97	200				
	324			100	100	97	200				
1181	325			100	100	75	200				
	326			100	100	97	200				
	327			100	100	97	200				
	328			100	100	77	200				
	329			100	100	77	200				
1176	330			100	100	97	200		UCS#5	UCS Test: 111MPa, Young Modulus 70GPa, Poisson's Ratio 0.22	
	331			100	100	97	200				
	332			100	100	75	200				
	333			100	100	97	200				
	334			100	100	97	200				
1171	335			100	100	74	200				
	336			100	100	97	200				
	337			100	100	77	200				
	338			100	100	77	200				
	339			100	100	97	200				
1166	340			100	100	97	200				
	341			100	100	97	200				
	342			100	100	97	200				
	343			100	100	97	200				
	344			100	100	97	200				
1161	345			100	100	97	200				
	346			100	100	97	200				
	347			100	100	97	200				
	348			100	100	97	200				
	349			100	100	97	200				



GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-12**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**4 Dec 12**
Location:	**Open Pit North Wall**	Total Depth:	**400 m**	Date Completed:	**6 Dec 12**
Coordinates:	**5,893,592 N , 375,132 E (Nad 83 zone 9)**	Elevation:	**1506.2 m**	Date Well Installed:	**6 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**310°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (67 to 400 m)	99	99	76	200					
	352			100	100	81	200					
	353			100	100	77	250					
	354			94	94	95	200					
1151	355			100	100	77	200					
	356			99	99	74	150					
	357			100	100	97	200					
	358			97	97	75	200					
	359			99	99	75	250					
1146	360			100	100	73	200					
	361			100	100	82	250					
	362			96	96	71	150					
	363			100	100	98	250					
	364			99	99	84	250					
1141	365			100	100	76	250					
	366			100	100	98	250					
	367			100	100	73	200					
	368			100	100	70	200					
	369			100	100	72	200					
1136	370			100	89	67	200					
	371			100	100	76	200					
	372			100	100	68	200					
	373			100	100	77	200					
	374			100	100	70	200					
1131	375			100	100	81	200					
	376			100	100	73	200					
	377			100	100	79	200					
	378			100	100	97	200					
	379			100	100	77	200					
1126	380			100	100	97	200					
	381			100	100	81	200					
	382			100	100	73	200					
	383			100	100	76	200					
	384			99	99	82	250					
1121	385											
	386											
	387											
	388											
	389											
1116	390											
	391											
	392											
	393											
	394											
1111	395											
	396											
	397											
	398											
	399											

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.12** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
1511	1–7		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 7.59 m)							Three vibrating wires installed in drillhole
	8		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (7.59 to 90.19 m)	100	43	20	25			
1506	9–10			100	57	45	50			
	11–12			100	16	43	100			
	13			100	62	52	125			
	14		Fault broken zone, minor fault zone, slightly brecciated rock with minor gouge. (13.3 to 18 m)	100	0	30	20			
1501	15–16			100	0	34	25			
	17			100	0	31	25			
	18–19			27	27	71	100			
1496	20			99	90	67	125			
	21–22			100	74	61	125		UCS13-01	UCS Test: 132MPa, Young Modulus 42GPa, Poisson's Ratio 0.19
	23			100	61	57	100			
	24			100	75	61	100			
1491	25			90	0	34	50			
	26		Fault zone, competent fault breccia and healed fault breccia, highly jointed rock, broken zone. (26 to 27.7 m)	100	80	58	75			
	27–28			97	85	58	100			
1486	29–30			100	80	60	100			
	31			100	46	51	100			
	32–33			100	50	52	75			
	34			100	67	52	75			
1481	35		Fault zone, highly jointed rock, loose fault breccia, healed fault breccia. (34.1 to 44 m)	100	23	36	50			
	36–37			65	0	37	50			
	38–39			63	0	37	50			
1476	40			100	34	44	50			
	41–42			100	100	62	100			
	43			100	25	45	75			
	44			100	49	53	150			
1471	45			100	77	63	125			
	46–47			100	37	49	75			
	48–49									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (7.59 to 90.19 m)	100	25	39	50				
	52			18	18	38	50				
	53			100	0	30	25				
	54		Fault zone, competent fault breccia, jointed rock, broken zones, loose gouge. (51 to 67 m)	100	0	30	25				
1461	55			33	0	37	50				
	56			100	0	30	25				
	57			71	0	30	25				
	58			47	0	29	10				
	59			47	0	35	50				
1456	60			72	0	32	20				
	61			73	0	29	15				
	62			100	0	29	10				
	63			100	0	32	25				
	64			100	100	55	50				
1451	65			80	0	29	15				
	66			100	77	55	100				
	67			100	0	29	5				
	68			100	36	47	50				
	69			85	0	30	25				
	70			100	0	33	25				
1446	71			60	0	33	25				
	72			60	0	32	25				
	73			76	0	30	25				
	74			92	0	30	25				
	75			99	53	50	50				
1441	76		Fault broken zone, competent fault breccia, highly jointed rock, broken zones. (75.6 to 97.5 m)	100	81	59	50				
	77			100	22	44	25				
	78			97	73	58	50				
	79			92	24	41	50				
	80			100	0	32	25				
1436	81			100	0	29	10				
	82			100	0	29	10				
	83			100	0	33	50				
	84			100	70	52	50				
	85										
1431	86										
	87										
	88										
	89										
	90										
1426	91		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (90.19 to 144.1 m)								
	92										
	93										
	94										
	95									Vibrating wire installed at 96m depth, piezometeric head at 15mbgs	
1421	96										
	97										
	98										
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	101		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (90.19 to 144.1 m)	96	9	44	50			
	102			100	50	50	50			
	103			100	0	30	25			
1411	104			100	61	53	50			
	105			95	73	59	50			
	106			100	67	54	50			
	107			100	79	58	50			
	108			100	73	55	50			
	109			100	100	54	25			
1406	110			100	81	50	25			
	111			97	45	42	25			
	112			100	0	29	5			
	113		Fault broken zone, healed fault breccia and strongly deformed fault gouge/fault breccia rich in sulphide. (113 to 115.5 m)	95	80	49	25			
	114			100	0	34	25			
	115			100	40	42	25			
1401	116			97	9	37	25			
	117			100	49	46	25			
	118			100	27	39	25			
	119			100	25	41	25			
	120			100	29	42	25			
1396	121			100	0	45	150			
	122			100	76	48	50			
	123			100	42	47	25			
	124			100	12	41	25			
	125			100	30	42	25			
1391	126			83	0	30	25			
	127			80	0	30	25			
	128			100	23	50	50			
	129			99	32	47	50			
	130			100	100	78	50			
1386	131			100	99	58	50			
	132			100	0	28	0			
	133			95	49	50	50			
	134									
	135									
1381	136									
	137									
	138									
	139									
	140									
1376	141									
	142		Fault broken zone, fault breccia with some gouge, not overly intense (141.7 to 148.4 m)							
	143									
	144									
	145		fine grained, porphyritic, dark grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [ANDESITE BRECCIA] (144.1 to 145.64 m)						DST 1	Direct Shear Test: 43 friction angle, 0 KPa cohesion
1371	146									
	147									
	148									
	149									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (145.64 to 354.39 m)	100	0	30	25				
	152			100	0	38	25				
	153			95	77	58	50				
	154			100	0	30	25				
1361	155			99	80	53	25				
	156			100	94	63	75				
	157			100	64	51	50				
	158			95	75	61	75				
	159			100	99	66	75				
1356	160			97	90	62	75				
	161			100	100	71	75				
	162			95	9	45	50				
	163			100	100	66	75				
	164			96	62	48	25				
1351	165			96	43	35	10				
	166			100	0	30	20				
	167			100	0	37	25				
	168			100	55	49	50				
	169			100	0	37	25				
1346	170			100	0	34	20				
	171			97	27	44	50				
	172			100	0	34	20			Vibrating wire installed at 166m depth, piezometeric head at 18mbgs	
	173			100	0	34	20				
	174			100	0	34	20				
1341	175			100	81	63	175				
	176			100	73	61	175				
	177			97	53	56	175		UCS-1	UCS Test: 47MPa, Young Modulus 50GPa, Poisson's Ratio 0.11	
	178			100	47	54	100				
	179			97	89	67	100				
1336	180			100	100	64	100				
	181			97	93	65	100				
	182			100	96	69	100				
	183			100	100	73	150				
	184										
1331	185										
	186										
	187										
	188										
	189										
1326	190										
	191										
	192										
	193										
	194										
1321	195										
	196										
	197										
	198										
	199										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ 20 40 60 80 / RMR VALUE ⊗ 20 40 60 80	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (145.64 to 354.39 m)	100	100	70	100					
	202			98	87	66	75					
	203			100	97	68	100					
	204			100	100	67	100					
1311	205			100	100	67	100					
	206			99	88	60	75					
	207			100	53	53	75					
	208			100	100	66	100					
	209			100	94	67	100					
1306	210			100	100	68	100			DST 2 UCS-2	Direct Shear Test: 18 friction angle, 400 KPa cohesion UCS Test: 20MPa, Young Modulus 46GPa, Poisson's Ratio 0.15	
	211			100	100	74	150					
	212			100	100	72	150					
	213			100	100	74	150					
	214			100	100	67	150					
1301	215			99	99	74	175					
	216			100	100	72	175					
	217			100	94	70	175					
	218			100	100	69	150					
	219			100	97	72	150					
1296	220			98	98	70	150					
	221			100	100	67	150					
	222			95	95	68	175					
	223			100	71	59	175					
	224			100	97	63	100					
1291	225			100	72	64	175					
	226			100	63	61	175					
	227			100	80	64	175					
	228			97	93	71	175					
	229			100	100	77	175			UCS-3 DST 3	UCS Test: 46MPa, Young Modulus 41GPa, Poisson's Ratio 0.40 Direct Shear Test: 40 friction angle, 13 KPa cohesion	
1286	230			98	98	77	150					
	231			100	100	72	150					
	232			100	100	95	150					
	233			99	97	70	150					
	234			100	99	70	150					
1281	235											
	236											
	237											
	238											
	239											
1276	240											
	241											
	242											
	243											
	244											
1271	245											
	246											
	247											
	248											
	249											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (145.64 to 354.39 m)	100	100	70	150				
	252			99	99	74	150				
	253			100	100	73	150				
	254			100	100	77	150				
1261	255			100	96	72	150				
	256			95	95	77	150				
	257			100	100	78	150				
	258			99	99	73	150				
	259			100	100	73	150		UCS-4	Direct Shear Test: 34 friction angle, 0 KPa cohesion	
1256	260			100	100	74	150				
	261			100	100	74	150				
	262			97	97	75	150				
	263			100	100	78	150				
	264			100	100	74	150				
1251	265			100	100	75	150				
	266			100	100	95	150		UCS-5	UCS Test: 115MPa, Young Modulus 61GPa, Poisson's Ratio 0.12	
	267			100	100	76	150				
	268			100	100	71	150				
	269			100	100	70	150				
1246	270			95	95	71	150				
	271			100	100	77	150				
	272			97	97	73	150				
	273			98	98	72	150				
	274			100	100	75	150				
1241	275			98	98	69	150				
	276			100	98	70	150				
	277			97	97	69	150				
	278			100	100	73	150				
	279			100	100	69	175				
1236	280			77	0	33	50				
	281			77	0	33	50				
	282			95	95	72	150				
	283			100	92	63	75				
	284										
1231	285										
	286										
	287										
	288										
	289										
1226	290										
	291										
	292										
	293										
	294										
1221	295										
	296										
	297										
	298										
	299										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

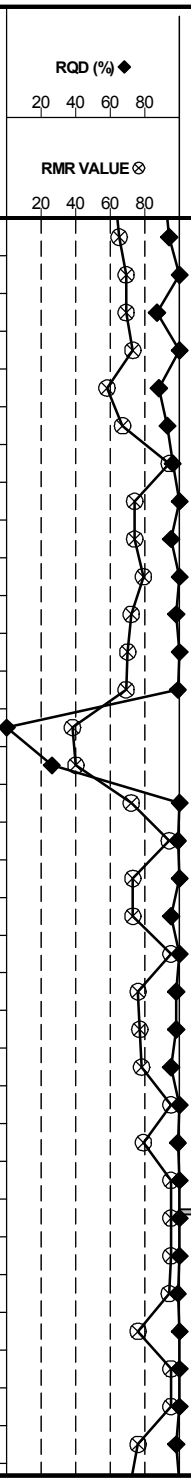
APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (145.64 to 354.39 m)	97	94	65	150				
	302			100	100	69	150				
	303			100	87	69	175				
	304			100	100	73	150				
1211	305			100	88	58	150				
	306			98	93	67	150				
	307			96	96	94	150				
	308			100	100	74	150				
	309			98	95	74	150				
1206	310			100	100	79	150				
	311			98	98	72	150				
	312			100	100	70	150				
	313			100	99	69	150				
	314			98	0	38	25			Vibrating wire installed at 320m depth, piezometeric head at 16mbgs	
1201	315			100	26	40	25				
	316			100	100	72	125				
	317			99	99	94	150				
	318			100	100	73	150				
	319			95	95	73	150				
	320		Fault zone, rich in clay and calcite, mostly healed, some core rubble away (319.3 to 322.1 m)	100	100	95	150				
	321			98	98	76	150				
	322			98	98	77	150				
	323			100	95	78	150				
	324			100	100	95	150				
1191	325			99	99	79	150				
	326			100	100	95	150				
	327			100	100	95	150		UCS-6	UCS Test: 117MPa, Young Modulus 61GPa, Poisson's Ratio 0.12	
	328			100	100	95	150				
	329			100	100	95	150				
1186	330			99	99	94	150				
	331			100	100	76	150				
	332			100	100	95	150				
	333			100	100	95	150				
	334			100	100	95	150				
1181	335			98	98	76	150				
	336			98	98	77	150				
	337			100	95	78	150				
	338			100	100	95	150				
	339			99	99	79	150				
1176	340			100	100	95	150				
	341			100	100	95	150				
	342			99	99	94	150				
	343			100	100	76	150				
	344			100	100	95	150				
1171	345			100	100	95	150				
	346			98	98	76	150				
	347										
	348										
	349										



GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GM12-13**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**27 Nov 12**
Location:	**Open Pit East and North Walls**	Total Depth:	**400 m**	Date Completed:	**5 Dec 12**
Coordinates:	**5,893,491 N , 375,558 E (Nad 83 zone 9)**	Elevation:	**1515.5 m**	Date Well Installed:	**5 Dec 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**40°,-65°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 15**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (145.64 to 354.39 m)	100	100	72	150				
	352			98	96	73	150				
	353			100	100	70	150		UCS 7	UCS Test: 189MPa, Young Modulus 75GPa, Poisson's Ratio 0.26	
	354			100	100	77	150				
1161	355		fine grained, porphyritic, dark grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [ANDESITE BRECCIA] (354.39 to 386.29 m)	100	100	95	150				
	356			98	98	71	150				
	357			100	100	72	150				
	358			100	0	34	25				
	359			100	73	55	100				
1156	360			100	100	74	150				
	361			100	100	77	150				
	362			97	97	77	150				
	363			100	99	76	150				
	364			100	100	95	150				
1151	365			100	100	70	150				
	366			96	96	71	150				
	367			100	100	74	150				
	368			100	100	74	150				
	369			99	99	95	150				
1146	370			97	93	70	150				
	371			100	100	68	150				
	372			98	89	68	175				
	373			100	100	77	120				
	374			99	99	72	150				
1141	375			100	100	93	150				
	376			100	0	30	25				
	377			98	67	50	75				
	378			100	0	35	75				
	379			100	11	32	25				
1136	380			95	26	38	75				
	381			100	13	32	25				
	382			100	76	55	75				
	383			100	97	65	75				
	384			97	85	64	125				
1131	385										
	386										
	387		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (386.29 to 400 m) Fault zone, healed gouge, and a thick ~10cm calcite chunk of core, separates above dark andesite from lower texture-destructive alteration (386.4 to 387 m)								
	388										
	389										
1126	390										
	391										
	392										
	393										
	394										
1121	395										
	396										
	397										
	398										
	399										

End of Drillhole: 400 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GM12-13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.13** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR12**	PAGE	**1 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**1 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**300 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,892,296 N , 375,198 E (Nad 83 zone 9)**	Elevation:	**1660.8 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	1–49		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 35 m)								No vibrating wire installed in drillhole	
1626	35		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (35 to 287 m)	100	0	47	15					
	36			100	0	38	15					
	37			100	0	38	15					
	38			100	0	36	1					
	39		Broken zone, broken zone, locally jointed (35 to 40 m)	95	7	40	15					
1621	40			67	0	33	50					
	41			97	59	60	250					
	42			100	31	56	250					
	43			85	15	44	50					
	44			91	39	48	25					
1616	45											
	46											
	47		Fault zone, small fault, broken core (46.8 to 47.3 m)									
	48											
	49											

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.14** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR12**	PAGE	**2 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**1 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**300 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,892,296 N , 375,198 E (Nad 83 zone 9)**	Elevation:	**1660.8 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (35 to 287 m)	100	27	47	50				
	52			92	28	51	100				
	53			100	0	41	100				
	54		Broken zone, locally broken with joints (50.2 to 51.4 m)	91	35	57	250				
1606	55		Broken zone (53.7 to 54.5 m)	99	52	50	50				
	56			93	32	50	100				
	57			100	21	45	25				
	58										
	59										
1601	60			58	0	30	25				
	61		Broken zone, broken zone approaching fault (60.2 to 61.5 m)	79	0	30	25				
	62		Fault zone, small fault, strong clay on fractures, increase in jointing causing crushed zone. (61.5 to 63.2 m)	100	0	30	25				
	63										
	64										
1596	65			97	40	47	50				
	66			93	15	42	25				
	67										
	68		Broken zone (67.6 to 72.8 m)	100	20	44	25				
	69			100	39	55	200				
1591	70			83	0	37	50				
	71			95	7	43	50				
	72			97	40	49	50				
	73			100	43	51	50				
	74			100	21	47	50				
	75			98	21	48	50				
1586	76			100	37	49	50				
	77			100	25	44	25				
	78			100	29	47	25				
	79			100	55	53	50				
	80			100	7	46	50				
1581	81			100	19	46	25				
	82		Fault zone, small fault (82 to 82.5 m)	100	20	48	50				
	83			93	0	33	50				
	84			96	0	39	0				
	85			100	37	49	50				
1576	86			100	67	57	100				
	87			100	65	54	50				
	88			100	74	60	100				
	89			100	0	36	100				
	90										
1571	91										
	92										
	93										
	94										
1566	95										
	96										
	97										
	98										
	99										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.14** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR12**	PAGE	**3 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**1 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**300 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,892,296 N , 375,198 E (Nad 83 zone 9)**	Elevation:	**1660.8 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (35 to 287 m)	100	44	55	100				
	102			100	85	53	0		UCS #1	UCS Test: 152MPa, Young Modulus 79GPa, Poisson's Ratio 0.21	
	103			100	35	52	100				
	104			100	11	46	50				
1556	105		Clay seam, small fault, clay seam, 60 degrees (104.5 to 104.6 m)	100	44	55	100				
	106			100	80	64	200				
	107			100	60	55	100				
	108			91	68	54	50				
	109			100	61	51	50				
1551	110			100	69	51	50				
	111			100	20	47	100				
	112			100	63	63	250				
	113			97	33	51	100				
	114			87	0	38	100				
	115			100	44	47	25				
1546	116			100	83	68	250				
	117			100	100	67	50				
	118			98	93	65	50				
	119			69	69	60	50				
	120			100	100	65	50				
1541	121			100	100	76	250				
	122			99	88	69	150				
	123			78	72	61	100				
	124			100	100	65	100				
	125			100	29	51	100				
1536	126			97	30	51	100				
	127			97	71	60	100				
	128			98	92	65	100				
	129			100	81	63	100				
	130			100	57	60	100				
1531	131			100	62	59	100				
	132			100	74	63	100				
	133			93	63	60	150				
	134										
	135										
1526	136										
	137										
	138										
	139										
	140										
1521	141										
	142										
	143										
	144										
	145										
1516	146										
	147										
	148										
	149										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.14** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR12**	PAGE	**4 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**1 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**300 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,892,296 N , 375,198 E (Nad 83 zone 9)**	Elevation:	**1660.8 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (35 to 287 m)	93	91	64	100		UCS #3	UCS Test: 193MPa, Young Modulus 82GPa, Poisson's Ratio 0.22	
	152			100	77	59	100				
	153			93	81	62	100				
	154										
1506	155			98	91	65	100				
	156										
	157			100	70	61	150				
	158			85	85	68	150				
	159										
1501	160			93	83	70	250				
	161			100	99	68	100				
	162										
	163			97	87	63	100				
	164			100	75	56	50				
1496	165			99	86	62	100				
	166										
	167			100	63	53	50				
	168		Broken zone, weak-mod broken zone (167.5 to 169.5 m)	89	13	44	50				
	169										
1491	170			100	68	58	100				
	171										
	172			100	97	68	100				
	173		Broken zone, broken zone with some rubble and altered/gouge rock (172.5 to 177 m)	100	68	50	25				
	174										
1486	175			99	71	50	25				
	176			100	0	31	25				
	177										
	178			100	89	59	50				
	179			98	81	54	25				
1481	180										
	181			96	90	60	50				
	182										
	183			100	100	71	100				
	184			100	89	60	50				
1476	185										
	186			100	100	66	50				
	187			100	100	78	250				
	188										
	189			100	100	67	50				
1471	190			96	96	65	50				
	191										
	192			100	97	68	150				
	193										
	194			94	89	69	150				
				100	100	65	0				
1466	195										
	196			97	85	66	150				
	197										
	198		Broken zone (197.2 to 197.4 m)	100	89	70	150				
	199			100	89	70	150				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.14** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR12**	PAGE	**5 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**1 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**300 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,892,296 N , 375,198 E (Nad 83 zone 9)**	Elevation:	**1660.8 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (35 to 287 m)	100	40	55	100				
	202			100	46	55	150				
	203			100	83	72	150		UCS #3	UCS Test: 256MPa, Young Modulus 82GPa, Poisson's Ratio 0.19	
	204			100	91	75	200				
1456	205			100	100	74	200				
	206			97	93	76	150				
	207			100	75	66	150				
	208			97	91	72	200				
	209		Broken zone (209 to 209.2 m)	100	69	63	100				
1451	210			100	100	72	100				
	211			100	94	72	150				
	212			100	91	70	150				
	213			100	79	68	150				
	214			100	100	73	150				
1446	215			100	100	74	150				
	216			97	92	72	150				
	217			100	84	67	150				
	218			97	96	73	150				
	219			100	100	73	150				
1441	220			100	100	74	150				
	221			97	88	69	150				
	222			100	100	73	150				
	223			99	91	69	100				
	224			100	92	66	100				
1436	225			100	100	70	100				
	226			97	97	70	100				
	227			100	100	68	100				
	228			97	95	69	100				
	229			100	89	66	100				
1431	230			99	93	67	100				
	231			100	100	68	100				
	232			94	91	67	100				
	233			100	99	71	100				
	234			97	97	69	100		UCS #4	UCS Test: 102MPa, Young Modulus 63GPa, Poisson's Ratio 0.11	
1426	235										
	236										
	237										
	238										
	239										
1421	240										
	241										
	242										
	243										
	244										
1416	245										
	246										
	247										
	248										
	249										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.14** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR12**	PAGE	**6 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**1 Nov 12**
Location:	**Open Pit West Wall**	Total Depth:	**300 m**	Date Completed:	**8 Nov 12**
Coordinates:	**5,892,296 N , 375,198 E (Nad 83 zone 9)**	Elevation:	**1660.8 m**	Date Well Installed:	**8 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**0°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	251		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (35 to 287 m)	99	83	65	75			
	252			100	100	69	100			
	253			99	83	64	75			
1406	254			95	48	55	75			
	255			100	43	52	75			
	256			100	58	53	50			
	257			100	49	53	50			
	258			93	14	50	50			
	259			100	40	53	100			
1401	260			100	71	65	150			
	261			100	73	64	100			
	262			100	57	60	100		DS-1	Direct Shear Test: 40 friction angle, 0 KPa cohesion
	263			100	79	65	100			
	264			100	76	66	100			
1396	265			100	56	59	100			
	266			93	35	55	100			
	267			100	64	52	50			
	268			100	73	60	100			
	269			100	89	65	100			
1391	270			100	87	66	100			
	271			100	63	60	100			
	272			100	63	57	100			
	273			100	89	64	100			
	274			100	100	71	100			
1386	275			100	100	76	150			
	276			100	100	76	200			
	277			100	100	69	150			
	278			93	93	72	150			
	279			100	100	73	150			
1381	280			97	97	74	150			
	281			100	100	77	250		UCS #5	UCS Test: 86MPa, Young Modulus 24GPa, Poisson's Ratio 0.20
	282			100	100	77	250			
	283		Broken zone (282.6 to 282.8 m)	100	93	75	250			
	284									
1376	285									
	286									
	287		medium grained, porphyritic, black and white, strong, slightly to moderately weathered, intrusive dyke [DIORITE] (287 to 300 m)							
	288									
	289									
1371	290									
	291									
	292									
	293									
	294									
1366	295									
	296									
	297									
	298									
	299									

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

WELL DETAILS

End of Drillhole: 300 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR12

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.14** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**1 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	1–49		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 43 m)								No vibrating wire installed in drillhole	
1526	5											
1521	10											
1516	15											
1511	20											
1506	25											
1501	30											
1496	35											
1491	40											
1486	45		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (43 to 71.4 m)	100	0	48	100	◆ ⊗				
				100	33	52	100	◆ ⊗				
				100	87	59	100	◆ ⊗				
				100	43	51	100	◆ ⊗				
				100	60	55	100	◆ ⊗				

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 2

APPENDIX Appendix A1.15 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**2 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (43 to 71.4 m)	100	56	55	100				
	52			100	54	53	100				
	53			100	80	61	100				
	54			100	42	57	200				
1476	55			100	36	53	200				
	56		Broken zone (56.1 to 59 m)	60	0	41	200				
	57			48	0	35	75				
	58			100	0	30	25				
	59		Fault zone (59 to 61.2 m)	100	7	42	200				
1471	60			56	0	35	75				
	61			37	0	35	75				
	62		Broken zone (62 to 63.2 m)	100	49	60	200				
	63		Fault zone (63.2 to 66 m)	100	35	58	200				
	64			100	38	58	200				
1466	65			100	17	53	200				
	66			93	0	40	125				
	67			100	26	53	200				
	68			100	43	57	200				
	69			100	48	58	200		UCS 1	UCS Test: 274MPa, Young Modulus 68GPa, Poisson's Ratio 0.14	
1461	70			100	34	56	200				
	71			100	0	41	200				
	72		fine grained, aphanitic, white to grey, strong, slightly to moderately weathered, massive, breccia with angular clasts [FELSIC LAPILLI TUFF] (71.4 to 82 m)	100	47	57	200				
	73			100	0	41	200				
	74			100	11	49	200				
1456	75		Broken zone (72.3 to 73.5 m)	60	0	48	200				
	76			100	0	49	200				
	77			87	9	50	200				
	78			100	42	54	150				
	79			100	0	48	150				
1451	80			100	25	50	150				
	81			97	15	49	150				
	82			100	27	50	150				
	83		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (82 to 109.5 m)	100	21	49	150				
	84			100	7	27	150				
1446	85		Broken zone (82.1 to 91.5 m)								
	86										
	87										
	88										
	89										
1441	90										
	91										
	92										
	93										
	94										
1436	95										
	96										
	97										
	98										
	99		Broken zone (98.9 to 99.9 m)								

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.15** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DAT\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**3 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		fine grained, pyroclastic lapilli tuff, light grey to grey blue, strong, slightly to moderately weathered, laminated planar to wavy [FELSIC TUFF] (82 to 109.5 m)	100	43	54	150				
	102			93	13	47	100				
	103			100	0	45	100				
1426	104			100	21	49	100				
	105			100	12	47	150				
	106			100	0	44	150				
	107		Fault zone (106.5 to 118.5 m)	55	0	38	50				
	108			100	0	47	150				
	109			100	7	48	150				
1421	110		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (109.5 to 142.44 m)	100	47	53	100				
	111			100	9	48	150				
	112			100	0	39	150				
	113			100	16	52	150				
	114			100	49	57	150				
1416	115			100	67	62	150				
	116			100	43	60	150				
	117			100	93	65	150				
	118			100	94	66	150				
	119			100	81	68	150				
1411	120			97	73	61	150				
	121			100	74	62	150				
	122			94	33	55	200				
	123			100	38	57	200				
	124			100	58	63	200				
1406	125			100	88	69	200				
	126			100	44	61	200				
	127			94	0	43	200				
	128			100	47	60	200				
	129			100	52	52	100				
1401	130			87	48	55	75				
	131			98	53	52	75				
	132			93	14	41	75				
	133			97	15	49	100				
	134										
1396	135										
	136										
	137										
	138										
	139										
1391	140										
	141										
	142										
	143		fine grained, grey, strong, slightly to moderately weathered [CONGLOMERATE] (142.44 to 197.1 m)								
	144										
1386	145										
	146										
	147										
	148										
	149										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.15** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**4 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, grey, strong, slightly to moderately weathered [CONGLOMERATE] (142.44 to 197.1 m)	84	0	38	100				
	152			100	81	65	100				
	153			100	49	59	100				
	154										
1376	155			1	39	54	100				
	156										
	157			100	100	69	100		UCS 2	UCS Test: 181MPa, Young Modulus 72GPa, Poisson's Ratio 0.23	
	158			100	100	73	150				
	159										
1371	160			100	80	68	150				
	161			100	100	79	200				
	162										
	163			100	95	70	150				
	164			100	95	74	200				
1366	165										
	166			100	100	80	200				
	167			100	93	75	200				
	168										
	169			100	100	75	200				
1361	170			100	100	76	200		DS #1	Direct Shear Test: 37 friction angle, 270 KPa cohesion	
	171										
	172			100	100	73	150				
	173			100	100	76	150				
	174										
1356	175			100	77	63	150				
	176			100	100	72	150				
	177										
	178			100	91	76	150				
	179			100	96	76	150				
1351	180										
	181			100	100	79	200				
	182										
	183			100	91	74	200				
	184			100	100	74	150				
1346	185										
	186			100	100	74	150				
	187			98	98	77	150				
	188										
	189			100	97	72	150				
1341	190										
	191			100	95	70	150				
	192			75	75	67	150				
	193										
	194			100	100	69	150				
1336	195										
	196			100	100	77	150				
	197										
	198		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (197.1 to 220.89 m)	100	100	89	150				
	199										
				100	71	66	150				
				100	77	66	150				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**5 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (197.1 to 220.89 m)	100	58	63	150				
	202			100	95	73	150				
	203			100	94	69	150				
	204										
1326	205			100	53	56	150				
	206			100	95	73	150				
	207			100	95	76	150		UCS 3	Direct Shear Test: 17 friction angle, 61 KPa cohesion	
	208										
	209			100	96	71	150				
1321	210			100	87	69	150				
	211										
	212			100	100	75	150				
	213										
	214			100	73	64	150				
1316	215			100	100	72	150				
	216										
	217			100	100	71	150				
	218										
	219			100	94	71	150				
1311	220			100	88	68	150				
	221		fine grained, grey, strong, slightly to moderately weathered [CONGLOMERATE] (220.89 to 231 m)	100	100	74	150		UCS#4	UCS Test: 206MPa, Young Modulus 81GPa, Poisson's Ratio 0.23	
	222			100	100	74	150				
	223										
	224			100	100	76	150				
1306	225										
	226			94	94	73	150				
	227		Fault zone, significant gouge (226.6 to 228.6 m)	77	9	52	100				
	228			100	100	50	50		S1	XRD Test: <5% Quartz, Mica/illite 21%, Smectite 33%, Kaolinite 38%	
	229										
1301	230			100	48	55	100				
	231		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (231 to 263.5 m)	100	57	59	100				
	232										
	233			100	11	44	50				
	234										
1296	235			100	39	62	50				
	236										
	237			100	100	73	50				
	238			100	68	56	50				
	239			100	65	57	50				
1291	240										
	241			100	31	48	50				
	242										
	243			100	40	54	100				
	244			100	40	54	100				
1286	245			100	57	57	100				
	246										
	247			100	22	51	100		PLT #1	PLT Test: 110 MPa	
	248		Fault zone (247 to 247.4 m)								
	249			73	36	53	100				
				97	46	57	100				

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

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NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**6 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	251		fine grained, dark grey, strong, slightly to moderately weathered, massive [SEDIMENTS] (231 to 263.5 m)	93	19	44	75			
	252			100	13	43	75			
	253									
	254			65	0	39	75			
1276	255			91	54	54	75			
	256									
	257			100	48	53	75		PLT #3	PLT Test: 93 MPa
	258									
	259			100	34	49	75		PLT #2	PLT Test: 179 MPa
1271	260			70	0	39	75			
	261		Fault zone (260 to 261 m)							
	262			100	0	39	75			
	263		Broken zone (261.9 to 265.5 m)	100	0	42	75			
	264		fine grained, grey, strong, slightly to moderately weathered [CONGLOMERATE] (263.5 to 393 m)							
1266	265			100	90	56	75			
	266			100	100	62	75			
	267									
	268			100	61	54	75			
	269			100	35	54	100			
1261	270			100	42	52	100			
	271									
	272			100	69	59	100			
	273									
	274			100	55	57	100			
1256	275			100	63	59	100			
	276									
	277			100	11	49	100			
	278									
	279			100	21	48	100			
1251	280			100	25	50	100			
	281									
	282			100	40	52	100			
	283									
	284			100	57	56	100			
1246	285		Broken zone (284.8 to 285.3 m)	75	49	57	100			
	286			100	28	50	100			
	287									
	288			100	36	53	100			
	289									
1241	290			100	51	57	100			
	291									
	292			100	59	58	100			
	293									
	294			100	39	52	100			
1236	295			100	41	53	100			
	296									
	297			100	9	48	100			
	298									
	299			100	92	64	100			
				100	77	67	150			
				100	49	58	150			

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

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NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**7 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	301		fine grained, grey, strong, slightly to moderately weathered [CONGLOMERATE] (263.5 to 393 m)	100	100	71	150				
	302			100	81	66	150				
	303			100	83	67	150				
	304			100	93	71	150				
1226	305			100	100	75	200				
	306			100	83	70	200				
	307			100	94	71	150				
	308			100	81	66	150				
	309			100	61	59	150				
1221	310			98	79	63	150				
	311			100	37	55	150				
	312			100	80	60	150				
	313			100	52	57	150				
	314			100	28	50	150				
1216	315			25	25	51	150				
	316			100	0	39	150				
	317			100	24	48	100				
	318			100	63	63	150				
	319			100	19	51	150				
1211	320		Broken zone, weakly broken associated with minor faults (320 to 324.8 m)	100	38	49	100				
	321			100	57	56	100				
	322			100	97	67	100				
	323			95	95	65	100		UCS#5	UCS Test: 114MPa, Young Modulus 88GPa, Poisson's Ratio 0.18	
	324			100	92	64	100				
1206	325			100	68	61	100				
	326			100	71	63	150				
	327		Broken zone, same as above (327 to 328.6 m)	100	77	66	150				
	328			100	96	71	150		UCS#6	UCS Test: 214MPa, Young Modulus 89GPa, Poisson's Ratio 0.18	
	329			8	8	73	150		DS #2	Direct Shear Test: 45 friction angle, 0 KPa cohesion	
1201	330			100	100	75	150				
	331			100	84	70	150				
	332			100	83	57	50				
	333			100	91	64	100				
	334										
1196	335										
	336										
	337										
	338										
	339										
1191	340										
	341										
	342										
	343										
	344										
1186	345										
	346										
	347										
	348										
	349										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

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Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR13**	PAGE	**8 of 8**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**8 Nov 12**
Location:	**Open Pit South Wall**	Total Depth:	**393 m**	Date Completed:	**15 Nov 12**
Coordinates:	**5,893,022 N , 374,483 E (Nad 83 zone 9)**	Elevation:	**1530.9 m**	Date Well Installed:	**15 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**90°,-40°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	351		fine grained, grey, strong, slightly to moderately weathered [CONGLOMERATE] (263.5 to 393 m)	100	100	74	100				
	352			100	100	73	100				
	353			100	87	66	100				
	354			96	91	66	150				
1176	355			100	100	75	200				
	356			100	97	66	50				
	357			100	100	79	100				
	358			100	100	72	250				
	359		Fault broken zone (358.6 to 359 m)	97	97	68	50				
1171	360			100	97	69	100				
	361			96	96	90	250				
	362			100	100	78	100				
	363			100	100	70	100				
	364			100	0	28	1				
1166	365			100	89	59	50				
	366			100	100	62	50				
	367			100	0	28	1				
	368		Fault zone (367.7 to 369.8 m)	99	75	64	200				
	369			100	100	71	150				
	370			100	0	30	25				
1161	371			100	0	30	25				
	372		Broken zone (371.5 to 371.5 m)	100	0	30	25				
	373			100	0	30	25				
	374		Broken zone (373.5 to 373.6 m)	100	71	56	50				
1156	375			100	84	59	50				
	376			100	19	35	50				
	377			100	26	34	25				
	378		Fault zone, Fault breccia and gouge (377 to 393 m)	100	0	29	5				
	379			100	0	30	25				
1151	380										
	381										
	382										
	383										
	384										
1146	385										
	386										
	387										
	388										
	389										
1141	390										
	391										
	392										
	393										
	394		End of Drillhole: 393 m								
1136	395										
	396										
	397										
	398										
	399										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR13

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.15** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR14**	PAGE	**1 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**23 Oct 12**
Location:	**Open Pit South Wall**	Total Depth:	**300 m**	Date Completed:	**2 Nov 12**
Coordinates:	**5,892,457 N , 374,740 E (Nad 83 zone 9)**	Elevation:	**1615.5 m**	Date Well Installed:	**2 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**45°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	RQD (%) ◆ / RMR VALUE ⊗ (20 40 60 80)	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
1611	1–5		sandy-SILT with some gravel, rounded, well graded, low plasticity, grey, hard, massive, moist [GLACIAL TILL] (0 to 42.79 m)								No vibrating wire installed in drillhole	
1606	6–10											
1601	11–15											
1596	16–20											
1591	21–25											
1586	26–30											
1581	31–35											
1576	36–40											
1571	41–45											
	46–49		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (42.79 to 62 m)	70	28	50	100					
				65	27	50	100					
				100	15	44	50					
				100	87	61	50					
				100	33	47	50					

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR14

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.16** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR14**	PAGE	**2 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**23 Oct 12**
Location:	**Open Pit South Wall**	Total Depth:	**300 m**	Date Completed:	**2 Nov 12**
Coordinates:	**5,892,457 N , 374,740 E (Nad 83 zone 9)**	Elevation:	**1615.5 m**	Date Well Installed:	**2 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**45°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES
	51		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (42.79 to 62 m)	96	20	48	50			
	52			99	52	54	50			
	53			99	63	63	125			
	54			99	74	61	125			
1561	55			100	19	41	125			
	56			95	0	39	125			
	57			100	0	38	125			
	58			100	24	53	125			
	59			100	21	48	125			
1556	60			100	83	66	125			
	61			99	13	52	125			
	62		medium grained, porphyritic, black and white, strong, slightly to moderately weathered, intrusive dyke [DIORITE] (62 to 64.9 m)	80	26	51	125			
	63			100	87	68	125			
	64			100	77	62	125			
1551	65		Fault zone, clay gouge and crushed rock, entirely with latite dyke. (62 to 62.3 m)	100	22	51	125			
	66			83	15	38	50			
	67		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (64.9 to 91 m)	100	22	44	125			
	68			100	21	52	125			
	69			100	11	51	125			
1546	70			100	17	41	125			
	71			100	22	51	125			
	72			98	50	58	125			
	73			100	35	55	125			
	74			100	58	61	125			
1541	75			99	32	55	125			
	76			100	55	61	125			
	77			100	68	64	125			
	78			100	41	54	125			
	79			100	43	55	125			
	80			100	77	64	125			
1536	81		Broken zone (80.8 to 81 m)	100	55	59	125			
	82			100	80	64	125			
	83			100	80	64	125			
	84			100	79	66	125			
	85									
1531	86									
	87									
	88									
	89									
	90									
1526	91		Fault zone, partially healed fault, upped contact of Latite Dyke. (90.9 to 91 m)							
	92									
	93		medium grained, porphyritic, black and white, strong, slightly to moderately weathered, intrusive dyke [DIORITE] (91 to 92.19 m)							
	94									
1521	95									
	96		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (92.19 to 297.1 m)							
	97									
	98									
	99		Fault zone, foliated clay gouge, lower contact of						UCS #1	UCS Test: 98MPa, Young Modulus 67GPa, Poisson's Ratio 0.14

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR14

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.
101-457/6	2
APPENDIX **Appendix A1.16**	REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR14**	PAGE	**3 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**23 Oct 12**
Location:	**Open Pit South Wall**	Total Depth:	**300 m**	Date Completed:	**2 Nov 12**
Coordinates:	**5,892,457 N , 374,740 E (Nad 83 zone 9)**	Elevation:	**1615.5 m**	Date Well Installed:	**2 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**45°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	101		latite dyke. (92.2 to 92.3 m) fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (92.19 to 297.1 m)	100	98	71	125				
	102			98	73	62	125				
	103			100	100	68	125				
	104			100	85	68	125				
1511	105			100	70	61	125				
	106			100	64	64	125				
	107			97	97	66	125				
	108			97	50	57	125				
	109			100	68	61	125				
1506	110			97	77	61	125				
	111			95	79	65	125				
	112			100	74	63	125				
	113			100	65	61	125				
	114			100	91	72	125				
1501	115			95	79	66	125				
	116			100	95	71	125				
	117			100	100	70	125				
	118			93	93	69	125				
	119			100	50	58	125				
1496	120			97	81	67	125				
	121			100	93	69	125				
	122			97	74	63	125				
	123			100	70	61	125				
	124			96	83	69	125				
1491	125			100	32	57	125				
	126			96	86	65	125				
	127			100	93	66	125				
	128			100	95	71	125				
	129			100	13	44	100				
1486	130			93	89	68	100				
	131			100	61	63	125				
	132			100	55	58	125				
	133			100	100	73	125				
	134										
1481	135										
	136										
	137										
	138										
	139										
1476	140										
	141										
	142										
	143										
	144										
1471	145										
	146										
	147										
	148										
	149										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR14

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.16** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR14**	PAGE	**4 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**23 Oct 12**
Location:	**Open Pit South Wall**	Total Depth:	**300 m**	Date Completed:	**2 Nov 12**
Coordinates:	**5,892,457 N , 374,740 E (Nad 83 zone 9)**	Elevation:	**1615.5 m**	Date Well Installed:	**2 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**45°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	151		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (92.19 to 297.1 m)	96	96	72	125		UCS #2	UCS Test: 208MPa, Young Modulus 73GPa, Poisson's Ratio 0.25	
	152			97	85	67	125				
	153			100	65	62	125				
	154			96	86	66	125				
1461	155			100	87	67	125				
	156			100	54	60	125				
	157			100	77	63	125				
	158			100	42	54	125				
	159			93	17	53	125				
1456	160			100	19	53	125				
	161			98	65	61	125				
	162			100	82	68	125				
	163		Fault zone, gouge with rounded pieces of small gravel to coarse sand sized clasts with broken rock (162.4 to 164.6 m)	99	40	54	125				
	164			100	81	62	125				
1451	165			100	68	64	125				
	166			100	57	59	125				
	167			100	75	65	125				
	168			100	37	62	125				
	169			97	97	73	125				
1446	170			100	97	74	125				
	171			100	100	74	125				
	172			100	100	94	125				
	173			97	81	68	125				
	174			100	87	68	125				
1441	175			100	74	62	125				
	176			100	86	66	125				
	177			100	64	60	125				
	178			100	95	67	125				
	179			100	93	71	125				
1436	180			97	97	67	125				
	181			100	84	64	125		UCS #3	Direct Shear Test: 23 friction angle, 128 KPa cohesion	
	182			99	57	59	125				
	183			100	98	72	125				
	184										
1431	185										
	186										
	187										
	188										
	189										
1426	190										
	191										
	192										
	193										
	194										
1421	195										
	196										
	197										
	198										
	199										

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR14

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.16** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR14**	PAGE	**5 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**23 Oct 12**
Location:	**Open Pit South Wall**	Total Depth:	**300 m**	Date Completed:	**2 Nov 12**
Coordinates:	**5,892,457 N , 374,740 E (Nad 83 zone 9)**	Elevation:	**1615.5 m**	Date Well Installed:	**2 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**45°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	201		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (92.19 to 297.1 m)	100	100	71	125				
	202			100	100	85	125				
	203			100	81	66	125				
	204			100	100	70	125				
1411	205			100	95	72	125				
	206			92	92	72	125				
	207			100	100	73	125				
	208			100	98	69	125				
	209			100	91	68	125				
1406	210			94	94	71	125				
	211			100	67	61	125				
	212			86	70	64	125				
	213			100	85	68	125				
	214			100	93	74	125				
1401	215			100	92	68	125				
	216			100	100	70	125				
	217			100	100	67	125				
	218			94	94	69	125				
	219			100	100	69	125				
1396	220			95	95	70	125				
	221			100	100	74	125				
	222			98	98	71	125				
	223			95	95	92	125				
	224			97	91	68	125				
1391	225			100	100	69	125				
	226			100	89	67	125				
	227			100	55	60	125				
	228			100	50	37	10				
	229			92	51	52	50				
1386	230			100	43	44	50				
	231			100	0	41	50				
	232			99	62	59	125				
	233			100	0	43	125				
	234			99	92	70	125				
1381	235										
	236										
	237										
	238										
	239										
1376	240		Gouge, with some minor gouge (240 to 241.5 m)								
	241										
	242										
	243										
	244										
1371	245										
	246										
	247										
	248										
	249									UCS Test: 35MPa, Young	

RQD (%) ◆ 20 40 60 80

RMR VALUE ⊗ 20 40 60 80

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR14

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

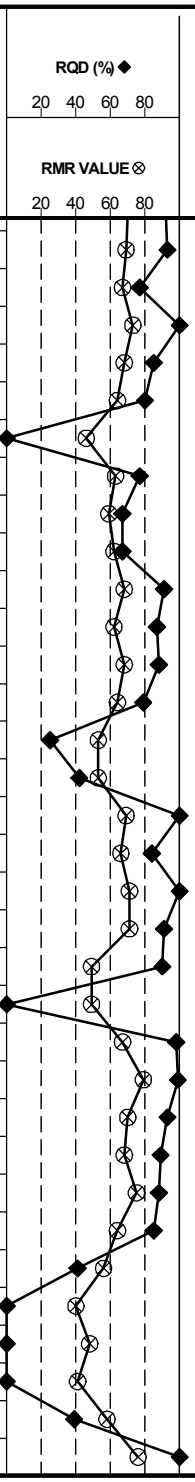
APPENDIX **Appendix A1.16** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**BWWR14**	PAGE	**6 of 6**
Contractor:	**Hy-Tech Drilling**	Sample Type:	**HQ coring**	Date Started:	**23 Oct 12**
Location:	**Open Pit South Wall**	Total Depth:	**300 m**	Date Completed:	**2 Nov 12**
Coordinates:	**5,892,457 N , 374,740 E (Nad 83 zone 9)**	Elevation:	**1615.5 m**	Date Well Installed:	**2 Nov 12**
Drilling Method:	**Diamond Drilling**	Azimuth, Dip:	**45°,-50°**	Supervised by:	**KP**
Drilling Rig:	**Hy-tech 500 - Rig 1**	Hole size:	**HQ3**	Reviewed by:	**JS**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	CORE RECOVERY (%)	RQD (%)	RMR VALUE	ROCK HARDNESS	SAMPLE TYPE	SAMPLE NO.	DRILLHOLE NOTES	WELL DETAILS
	251		fine grained, aphanitic, light grey green, strong, slightly to moderately weathered, massive breccia with angular clasts [VOLCANICLASTIC] (92.19 to 297.1 m)	100	93	69	125		UCS #4	Modulus 14GPa, Poisson's Ratio 0.43	
	252			93	77	67	125				
	253			100	100	73	125				
1361	254			98	85	68	125				
	255			100	80	64	125				
	256			100	0	46	125				
	257			100	77	63	125				
	258			100	67	59	125				
	259			100	67	62	125				
1356	260			96	91	68	125				
	261			100	87	62	125				
	262			100	88	68	125				
	263			100	79	64	125				
	264			100	25	53	125				
1351	265			100	42	53	125				
	266			100	100	69	125				
	267			94	84	66	125				
	268			100	100	71	125				
	269			100	91	71	250				
	270		Broken zone, broken rock with a small section of clay rich rock from 271-271.5 m (270 to 272 m)	100	90	49	0				
	271			100	0	49	125				
	272			100	98	67	125				
	273			99	99	79	250				
	274			100	93	70	125				
1341	275			100	89	68	100				
	276			93	88	75	200				
	277			100	85	64	100				
	278			100	41	56	125				
	279			100	0	40	125				
1336	280			100	0	48	125				
	281			100	0	41	125				
	282			100	39	58	125				
	283			100	100	76	150				
	284										
1331	285										
	286										
	287										
	288										
	289										
1326	290										
	291		Broken zone, broken and fractured rock (291 to 297 m)								
	292										
	293										
	294										
1321	295										
	296										
	297										
	298		fine grained, micro crystalline to aphanitic, dark grey to black, strong, slightly to moderately weathered, massive [ANDESITE] (297.1 to 300 m)								
	299										



End of Drillhole: 300 m

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR BWWR14

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **2**

APPENDIX **Appendix A1.16** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\06\A\DATA\TASK 202 - OPEN PIT GEOMECH SI ANALYSIS AND REPORTING\GINT\BLACKWATER OPEN PIT DRILLING.GPJ
Library: M:\101\00457\06\A\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINTLIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - GEOMECH OP, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	BLACKWATER GOLD PROJECT	Drill Hole No.	GT12-45	PAGE	1 of 4
Contractor:	Major Drilling Environmental LLC.	Sample Type:	Overburden Core	Date Started:	13 Oct 12
Location:	Open Pit - East Side	Total Depth:	96 m	Date Completed:	17 Oct 12
Coordinates:	5,892,526 N , 376,041 E (UTM NAD 83)	Elevation:	1,621.7 m	Date Well Installed:	
Drilling Method:	Sonic (rotary-vibratory) Drilling	Azimuth, Dip:	0°,-90°	Supervised by:	AL
Drilling Rig:	Diedrich 80K Sonic Truck Rig	Hole size:	152.4mm (6")	Reviewed by:	BOC

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	1–4		**SILTY SAND AND GRAVEL** (0 to 8.22) Silty SAND and GRAVEL, some cobbles and boulders, subangular to subrounded, fine to coarse, well graded, medium plasticity, brown, loose to compact, massive, moist.	55 45		19	Moisture content 11.3%		
1617	5–8			96		01	Moisture content 10.7%, Gravel 31.8%, Sand 42.1%, Silt 21%, Clay 5.1%		
1612	9–13		**GLACIAL TILL** (8.22 to 25.91) Sandy SILT, some gravel and boulders, subangular to subrounded, fine to coarse, well graded, low to medium plasticity, brown and rusty brown, stiff to very stiff, stratified, moist.	92 98		20 18 02	Moisture content 13.1% Moisture content 9.7%, dry density 2222kg/m3 Moisture content 10%, dry density 2118kg/m3		
1607	14–18			98 81		21 26 03	Moisture content 8.7%, dry density 2211kg/m3 Gravel 34.7%, Sand 34%, Silt 20%, Clay 11.8% Moisture content 8.9%, dry density 2313kg/m3 Moisture content 8.4%, dry density 2240kg/m3		
1602	19–24			91 98		25 22 04	Moisture content 10.6%, dry density 2110kg/m3 Moisture content 10.9%, dry density 2012kg/m3 Moisture content 12.1%		

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-45

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 1

APPENDIX Appendix A1.16 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\DATA\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI 2012 - REVC.GPJ
Library: M:\101\00457\06\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GT12-45**	PAGE	**2 of 4**
Contractor:	**Major Drilling Environmental LLC.**	Sample Type:	**Overburden Core**	Date Started:	**13 Oct 12**
Location:	**Open Pit - East Side**	Total Depth:	**96 m**	Date Completed:	**17 Oct 12**
Coordinates:	**5,892,526 N , 376,041 E (UTM NAD 83)**	Elevation:	**1,621.7 m**	Date Well Installed:	
Drilling Method:	**Sonic (rotary-vibratory) Drilling**	Azimuth, Dip:	**0°,-90°**	Supervised by:	**AL**
Drilling Rig:	**Diedrich 80K Sonic Truck Rig**	Hole size:	**152.4mm (6")**	Reviewed by:	**BOC**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	26		**SANDY SILT** (25.91 to 36.88) Sandy SILT, fine sand, subrounded, poorly graded, medium plasticity, brown, firm, massive, moist.			Proctor sample	Specific Gravity 2.7, LL 23, PI9, max dry density 2158 kg/m3, optimum moisture 7%		
	27			97					
	28		**GLACIAL TILL** (26.84 to 28.96) Silty SAND, some gravel, fine to coarse sand and gravel, subangular, well graded, medium to high plasticity, brown, dense, stiff, massive, moist.			23	Moisture content 15.6%		
	29								
1592	30			99		05	Moisture content 22.3%, Gravel 0.8%, Sand 8.7%, Silt 79%, Clay 11.2%		
	31								
	32								
	33			102					
	34					24	Moisture content 18.1%		
1587	35								
	36			98		06	Moisture content 17.1%, dry density 1905kg/m3 Gravel 13.1%, Sand 14.6%, Silt 63%, Clay 9.5%		
	37		**GLACIAL TILL** (36.88 to 86.87) Sandy SILT with some gravel, fine to coarse sand and gravel, subangular to subrounded, well graded, medium to high plasticity silt, brown, stiff to very stiff, massive, moist.						
	38								
	39			96					
1582	40					07	Moisture content 11%, dry density 2046kg/m3		
	41								
	42			96					
	43								
	44					08	Moisture content 6.1%, Gravel 25.5%, Sand 34.8%, Silt 29%, Clay 11.1%		
1577	45			99					
	46					25	Moisture content 8.9%		
	47								
	48			89					
	49					09	Moisture content 7.5%		

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-45

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 1

APPENDIX Appendix A1.16 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\DATA\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI 2012 - REVC.GPJ
Library: M:\101\00457\06\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GT12-45**	PAGE	**3 of 4**		
Contractor:	**Major Drilling Environmental LLC.**	Sample Type:	**Overburden Core**	Date Started:	**13 Oct 12**		
Location:	**Open Pit - East Side**	Total Depth:	**96 m**	Date Completed:	**17 Oct 12**		
Coordinates:	**5,892,526 N , 376,041 E (UTM NAD 83)**	Elevation:	**1,621.7 m**	Date Well Installed:			
Drilling Method:	**Sonic (rotary-vibratory) Drilling**	Azimuth, Dip:	**0°,-90°**	Supervised by:	**AL**		
Drilling Rig:	**Diedrich 80K Sonic Truck Rig**	Hole size:	**152.4mm (6")**	Reviewed by:	**BOC**		

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	51		**GLACIAL TILL** (36.88 to 86.87) Sandy SILT with some gravel, fine to coarse sand and gravel, subangular to subrounded, well graded, medium to high plasticity silt, brown, stiff to very stiff, massive, moist.	92		26	Moisture content 11.6%, dry density 2006kg/m3 Gravel 24.6%, Sand 25.6%, Silt 39%, Clay 10.7%		
	52								
	53								
	54								
1567	55			100		10	Moisture content 8.4%, dry density 2150kg/m3		
	56								
	57								
	58			80		27	Moisture content 12.9%		
	59								
1562	60								
	61			101					
	62					11	Moisture content 8.2%, dry density 2134kg/m3 Gravel 33.4%, Sand 27.9%, Silt 29%, Clay 9.9%		
	63					26	Moisture content 15.2%, dry density 1947kg/m3		
	64			82		28	Moisture content 10.9%		
1557	65								
	66								
	67			99		12	Moisture content 17.6%, Gravel 3.4%, Sand 13.6%, Silt 77%, Clay 6.3%		
	68								
	69								
1552	70			90					
	71					29	Moisture content 15.2%, dry density 1789kg/m3		
	72								
	73			87					
	74					13	Moisture content 13.8%, dry density 2115kg/m3 Gravel 21.9%, Sand 27.6%, Silt 48%, Clay 2.5%		

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-45

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 1

APPENDIX Appendix A1.16 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\DATA\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI 2012 - REVC.GPJ
Library: M:\101\00457\06\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	BLACKWATER GOLD PROJECT	Drill Hole No.	**GT12-45**	PAGE	4 of 4
Contractor:	Major Drilling Environmental LLC.	Sample Type:	Overburden Core	Date Started:	13 Oct 12
Location:	Open Pit - East Side	Total Depth:	96 m	Date Completed:	17 Oct 12
Coordinates:	5,892,526 N , 376,041 E (UTM NAD 83)	Elevation:	1,621.7 m	Date Well Installed:	
Drilling Method:	Sonic (rotary-vibratory) Drilling	Azimuth, Dip:	0°,-90°	Supervised by:	AL
Drilling Rig:	Diedrich 80K Sonic Truck Rig	Hole size:	152.4mm (6")	Reviewed by:	BOC

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	76		**GLACIAL TILL** (36.88 to 86.87) Sandy SILT with some gravel, fine to coarse sand and gravel, subangular to subrounded, well graded, medium to high plasticity silt, brown, stiff to very stiff, massive, moist.	87		14	Moisture content 10.6%		
	77								
	78								
	79			99					
1542	80								
	81					31	Moisture content 15.9%, Gravel 22.7%, Sand 40.6%, Silt 26%, Clay 10.8%		
	82			64					
	83								
	84								
1537	85			98					
	86					15	Moisture content 11.2%, dry density 2171kg/m3		
	87		**COMPLETELY WEATHERED BEDROCK** (86.87 to 96) Completely Weathered Bedrock, recovered as: SAND and SILT, some gravel, angular to subangular, fine to coarse, well graded, low plasticity, rusty brown, very dense, hard, massive, moist to dry.			16	Moisture content12.8%, dry density 1988kg/m3		
	88			99					
	89								
1532	90								
	91			98					
	92					17	Moisture content 14.2%		
	93								
	94			89					
1527	95					18	Moisture content 15.2%		
	96		End of Drillhole: 96 m						
	97								
	98								
	99								

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-45

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 1

APPENDIX Appendix A1.16 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\A\DAT\A\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI_2012 - REVC.GPJ
Library: M:\101\00457\06\A\DAT\A\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GT12-46**	PAGE	**1 of 3**
Contractor:	**Major Drilling Environmental LLC.**	Sample Type:	**Overburden Core**	Date Started:	**18 Oct 12**
Location:	**Open Pit - East Side**	Total Depth:	**65.5 m**	Date Completed:	**20 Oct 12**
Coordinates:	**5,892,950 N , 376,286 E (UTM NAD 83)**	Elevation:	**1,551.1 m**	Date Well Installed:	
Drilling Method:	**Sonic (rotary-vibratory) Drilling**	Azimuth, Dip:	**0°,-90°**	Supervised by:	**AL**
Drilling Rig:	**Diedrich 80K Sonic Truck Rig**	Hole size:	**152.4mm (6")**	Reviewed by:	**BOC**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	1		**SILTY SAND AND GRAVEL** (0 to 1.52) Silty SAND and GRAVEL, some cobbles and boulders, subangular to subrounded, fine to coarse, well graded, medium plasticity, brown, loose to compact, massive, moist.	64		01	Moisture content 12.9%		
	2								
	3		**GLACIAL TILL** (1.52 to 15.07) Sandy SILT, some gravel and cobbles, subangular, fine to coarse sand and fine gravel, well graded, low to medium plasticity, brown, compact, massive, moist.	35					
	4					02	Moisture content 8.6%		
1546	5								
	6			100					
	7					03	Moisture content 8.8%, Gravel 33.1%, Sand 44%, Silt 17%, Clay 5.9%		
	8								
	9			100		04	Moisture content7.1%		
1541	10								
	11					24	Moisture content 6.2%, dry density 2278kg/m3		
	12			94					
	13					05	Moisture content 7.8%, dry density 2417kg/m3 Gravel 24.7%, Sand 47.7%, Silt 17%, Clay 10.6%		
	14								
1536	15		**SAND AND GRAVEL** (15.07 to 16.89) SAND and GRAVEL, some silt, subangular to subrounded, fine to coarse sand and gravel, well graded, low plasticity, brown, compact, stratified with sand lamination, moist.	87		06	Moisture content 9.9%		
	16								
	17		**GLACIAL TILL** (16.89 to 38.1) Sandy SILT, some gravel and cobbles, subangular to subrounded, fine to coarse sand and gravel, well graded, low to medium plasticity, dark brown and various color gravel, very stiff, massive, moist.	100					
	18								
	19					07	Moisture content 4.2%, dry density 1849kg/m3		
1531	20								
	21			100					
	22					08	Moisture content 7.2%		
	23								
	24			98					

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-46

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **1**

APPENDIX **Appendix A1.17** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\DAT\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI 2012 - REVC.GPJ
Library: M:\101\00457\06\DAT\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GT12-46**	PAGE	**2 of 3**
Contractor:	**Major Drilling Environmental LLC.**	Sample Type:	**Overburden Core**	Date Started:	**18 Oct 12**
Location:	**Open Pit - East Side**	Total Depth:	**65.5 m**	Date Completed:	**20 Oct 12**
Coordinates:	**5,892,950 N , 376,286 E (UTM NAD 83)**	Elevation:	**1,551.1 m**	Date Well Installed:	
Drilling Method:	**Sonic (rotary-vibratory) Drilling**	Azimuth, Dip:	**0°,-90°**	Supervised by:	**AL**
Drilling Rig:	**Diedrich 80K Sonic Truck Rig**	Hole size:	**152.4mm (6")**	Reviewed by:	**BOC**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	26		**GLACIAL TILL** (16.89 to 38.1) Sandy SILT, some gravel and cobbles, subangular to subrounded, fine to coarse sand and gravel, well graded, low to medium plasticity, dark brown and various color gravel, very stiff, massive, moist.			09	Moisture content 8.5%		
	27			94					
	28					10	Moisture content 7.5%, dry density 2092kg/m3 Gravel 41.2%, Sand 29.9%, Silt 19%, Clay 10.3%		
	29								
1521	30			92					
	31					11	Moisture content 9.5%, dry density 2148kg/m3		
	32								
	33			87					
	34					12	Moisture content 8.7%		
1516	35					Proctor sample	Specific Gravity 2.7, LL 23, PI0, max dry density 2078 kg/m3, optimum moisture 9.8%		
	36			90					
	37					13	Moisture content 7.6%		
	38		**GLACIAL TILL** (38.1 to 55.34) Sandy SILT, some gravel, subangular to subrounded, fine to coarse sand and gravel, well graded, low to medium plasticity, dark brown and various color gravel, stiff, massive, moist.						
	39			99					
1511	40					14	Moisture content 13.8%		
	41								
	42			98					
	43					15	Moisture content 10.1%		
	44								
1506	45			99					
	46					16	Moisture content 6.7%, Gravel 32.9%, Sand 35%, Silt 20%, Clay 12%		
	47								
	48			100					
	49					17	Moisture content 9.5%, dry density 2158kg/m3		

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-46

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. 101-457/6 | REF. NO. 1

APPENDIX Appendix A1.17 | REV. 0

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\DATA\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI 2012 - REVC.GPJ
Library: M:\101\00457\06\DATA\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

Project:	**BLACKWATER GOLD PROJECT**	Drill Hole No.	**GT12-46**	PAGE	**3 of 3**
Contractor:	**Major Drilling Environmental LLC.**	Sample Type:	**Overburden Core**	Date Started:	**18 Oct 12**
Location:	**Open Pit - East Side**	Total Depth:	**65.5 m**	Date Completed:	**20 Oct 12**
Coordinates:	**5,892,950 N , 376,286 E (UTM NAD 83)**	Elevation:	**1,551.1 m**	Date Well Installed:	
Drilling Method:	**Sonic (rotary-vibratory) Drilling**	Azimuth, Dip:	**0°,-90°**	Supervised by:	**AL**
Drilling Rig:	**Diedrich 80K Sonic Truck Rig**	Hole size:	**152.4mm (6")**	Reviewed by:	**BOC**

ELEVATION (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TOTAL CORE / SAMPLE RECOVERY (%)	SAMPLE TYPE	SAMPLE NO.	LAB TESTING RESULTS	DRILLHOLE NOTES	WELL DETAILS
	51		**GLACIAL TILL** (38.1 to 55.34) Sandy SILT, some gravel, subangular to subrounded, fine to coarse sand and gravel, well graded, low to medium plasticity, dark brown and various color gravel, stiff, massive, moist.	101					
	52					18	Moisture content13 %, dry density 1871kg/m3		
	53								
	54					25	Moisture content 11.2%, dry density 1806kg/m3		
1496	55			97		19	Moisture content 9.7%		
	56		**COMPLETELY WEATHERED BEDROCK** (55.34 to 62.48) Completely Weathered Bedrock, recovered as: Gravelly SILT, some sand, angular to subangular, fine to coarse, well graded, non plastic, greyish brown, hard, massive, dry.						
	57								
	58			100		20	Moisture content 8.7%, dry density 2163kg/m3		
	59								
1491	60								
	61			99		21	Moisture content 2.6%		
	62								
	63		**HIGHLY WEATHERED BEDROCK** (62.48 to 65.5) Highly Weathered Bedrock, completely pulverised by drilling process, recovered as: Sandy SILT, some gravel, angular to subangular, fine to coarse, light reddish brown to greyish brown.						
	64			87					
1486	65					22	Moisture content 1.2%		
	66		End of Drillhole: 65.5 m						
	67								
	68								
	69								
1481	70								
	71								
	72								
	73								
	74								

GENERAL REMARKS:

REV. 0 - Issued for Report

NEW GOLD INC.
BLACKWATER GOLD PROJECT
DRILLHOLE LOG FOR GT12-46

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO. **101-457/6** | REF. NO. **1**

APPENDIX **Appendix A1.17** | REV. **0**

Logging conducted according to the Canadian Foundation Engineering Manual, 4th Edition, 2006.

File:M:\101\00457\04\A\DAT\A\TASK 0400 - SITE INVESTIGATIONS\GINT\BLACKWATER TSF SI 2012 - REVC.GPJ
Library: M:\101\00457\06\A\DAT\A\TASK 203 - 2013 TSF GEOTECHNICAL SI (ROTARY P4A)\GINT\LIBRARY\BLACKWATER LIBRARY V2.GLB, DRILLHOLE LOG - SONIC, DATA TEMPLATE MAY22.GDT, 22 May 13

APPENDIX A2

GEOMECHANICAL LOGGING DATA SHEETS

(Pages A2-1 to A2-227)

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. BWWR-12

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[BWWR12 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	34.9	0.0		0					OB				**OVERBURDEN**	OB																EA
34.9	36.0	1.12	100	0.00	0	25	43	15	VC	dark grey	fine grained	massive	moderately weathered bedrock, highly mechanical broken	CV	0.00			0	4	3	2	3	12	15	J	1	ox		25	none	EA
36.0	37.5	1.50	100	0.00	0	39	38	15	VC	dark grey	fine grained	massive	moderately weathered bedrock, highly mechanical broken	CV	0.00			0	4	3	2	3	12	15	J	1	ox		39	none	EA
37.5	39.0	1.50	100	0.00	0	36	41	15	VC	dark grey	fine grained	massive	moderately weathered bedrock, highly mechanical broken	CV	0.00			0	4	3	2	3	12	15	J	1	ox		36	none	EA
39.0	40.5	1.50	100	0.00	0	max	5	1	VC	dark grey	fine grained	massive	moderately weathered, fine grained, weak, red brown staining is present on many fractures, grey sandy clay from 0.9-1.00 and 1.5-1.3m	CV	0.00			0	4	3	2	3	12	15	J	1			50	none	EA
40.5	42.0	1.42	95	0.11	7	31	44	15	VC	dark grey	fine grained	massive	moderately weathered, fine grained, weak, red brown staining in joints, unable to orientate white clay seam from 0.43-0.46m rubble zone 0-0.08,	CV	0.00			0	0	1	0	3	4	15	rub	80	ox		1	none	EA
									VC					CV	0.15			0	4	3	4	3	14	15	J	1	ox		1	none	EA
									VC					CV	0.25			0	4	1	3	3	11	15	J	1	cly	ox	3	none	EA
									VC					CV	0.28			0	4	1	3	3	11	15	J	1	cly	ox	1	none	EA
									VC					CV	0.35			0	0	1	0	3	4	15	J	10	cly	ox	1	none	EA
									VC					CV	0.41			0	4	2	4	3	13	15	J	1	ox		1	none	EA
									VC					CV	0.43			0	4	2	4	3	13	15	J	1	ox		1	none	EA
									VC					CV	0.50			0	4	3	5	3	15	15	J	1	ox		1	none	EA
									VC					CV	0.63			0	4	2	3	3	12	15	J	1	cly		1	none	EA
									VC					CV	0.72			0	4	4	4	3	15	15	J	1	ox		1	none	EA
									VC					CV	0.80			0	4	4	4	3	15	15	J	1	ox		1	none	EA
									VC					CV	0.85			0	4	2	4	3	13	15	J	1	ox		1	none	EA
									VC					CV	0.93			0	4	1	3	3	11	15	J	1	cly	ox	1	none	EA
									VC					CV	1.04			0	4	1	3	3	11	15	J	1	cly	ox	1	none	EA
									VC					CV	1.07			0	4	2	4	3	13	15	J	1	ox		1	none	EA
									VC					CV	1.11			0	4	2	4	3	13	15	J	1	ox		1	none	EA
									VC					CV	1.14			0	4	2	4	3	13	15	J	1	ox		1	none	EA
									VC					CV	1.21			0	4	3	4	3	14	15	J	1	ox		12	none	EA
42.0	42.7	0.44	67	0.00	0	max	5	50	VC	dark grey	fine grained	massive	rubble, red-brown staining	CV	0.00			0	0	1	0	3	4	15	rub	440	ox		1	none	EA
42.7	43.5	0.84	100	0.39	46	13	60	50	VC	dark grey	fine grained	massive	weathered, fine grained, red-brown staining in joints , broken zone between 0.94.-1.07m	CV	0.53			0	4	1	6	5	16	15	J	1	ox		10	none	EA
									VC					CV	0.60			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.65			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.96			0	1	1	2	5	9	15	J	5	cly	cc	1	none	EA
43.5	45.0	1.45	97	0.88	59	19	73	250	VC	dark grey	fine grained	massive	weathered, red brown staining in joints	CV	0.28			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.35			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.45			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.53			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.58			0	4	1	2	5	12	15	J	1	cly	ox	7	none	EA
									VC					CV	0.72			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.91			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.95			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.14			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.18			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.24			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.27			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.36			0	0	1	0	3	4	15	rub	90	cly	ox	1	none	EA
45.0	46.2	1.20	100	0.37	31	21	55	250	VC	dark grey	fine grained	massive	weathered, red brown staining in joints	CV	0.09			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.23			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.31			0	4	1	2	5	12	15	J	1	cly	ox	7	none	EA
									VC					CV	0.44			0	4	1	4	5	14	15	J	1	ox		7	none	EA
									VC					CV	0.48			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.73			0	4	1	2	5	12	15	VN	5	cly	cc	1	none	EA
									VC					CV	0.85			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.01			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.08			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
46.2	47.7	1.27	85	0.23	15	28	44	50	VC	dark grey	fine grained	massive	weathered mostly broken and rubble, red brown staining on joints, clay in rubble zone	CV	0.00			0	4	3	2	5	14	15	J	1	cc	ox	17	none	EA
									VC					CV	0.50			0	0	1	0	3	4	15	rub	90	ox		1	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.59			0	4	1	2	5	12	15	J	1	cly	ox	10	none	EA
47.7	49.3	1.46	91	0.62	39	26	54	25	VC	dark grey	fine grained	massive	dark grey fine grained, weathered	CV	0.04			0	4	1	6	5	16	15	J	1	ox		16	none	EA
									VC					CV	0.28			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.53			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.63			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.67			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.72			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.79			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.83			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.87			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.92			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.35			0	4	1	4	5	14	15	J	1	ox		1	none	EA
49.3	50.8	1.50	100	0.40	27	38	38	50	VC	dark grey	fine grained	massive	weathered clay and calcite infill in joints. Rock fell apart once picked up, many joints 30-40 with many breaks between, red brown staining in joints, calcite in infill is Pink, silicified	CV	0.11			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.24			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.26			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.33			0	4	3	4	5	16	15	J	1	ox		10	none	EA
									VC					CV	0.40			0	4	1	4	5	14	15	J	1	ox		5	none	EA
									VC					CV	0.46			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.54			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.56			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.59			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.64			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.69			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.78			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.90			0	2	1	5	5	13	15	VN	1	cc	ox	5	none	EA
									VC					CV	0.95			0	4	1	3	5	13	15	J	1	cly	ox	1	none	EA
									VC					CV	1.00			0	4	1	3	5	13	15	J	1	cly	ox	1	none	EA
									VC					CV	1.10			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.17			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.20			0	2	1	5	5	13	15	VN	1	cc	ox	1	none	EA
									VC					CV	1.22			0	2	1	5	5	13	15	VN	1	cc	ox	1	none	EA
									VC					CV	1.37			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.46			0	2	1	5	5	13	15	VN	1	cc	ox	1	none	EA
50.8	52.5	1.57	92	0.47	28	20	75	100	VC	dark grey	fine grained	massive	weathered, clay and calcite infill in joints very broken rock, silicified, mechanically broken throughout	CV	0.21			0	2	1	2	5	10	15	VN	5	CLY	CC	1	none	EA
									VC					CV	0.48			0	4	3	4	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.59			0	4	3	4	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.81			0	2	1	2	5	10	15	J	5	cly	ox	1	none	EA
									VC					CV	0.86			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.91			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.04			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.11			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.17			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.28			0	4	1	4	5	14	15	J	1	ox		1	none	EA
52.5	54.0	1.50	100	0.00	0	max	5	100	VC	medium grey	fine grained		red-brown staining on joints, whole run practically rubble, silicified	CV	0.00			0	0	1	Hard > 5mm	5	9	15	J	1	ox		1	none	EA
54.0	55.5	1.37	91	0.52	35	24	55	250	VC	medium grey	fine grained		weathered, silicified, red-brown staining in joints	CV	0.31			0	4	3	2	5	14	15	J	1	cly	ox	15	none	EA
									VC					CV	0.40			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.49			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.54			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.76			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.81	70	10	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	0.85	25	280	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	0.92	37	280	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	1.03	27	120	0	4	1	2	5	12	15	VN	1	cc	ox	1	F	EA
									VC					CV	1.22			0	4	1	4	5	14	15	J	1	ox		1	none	EA
55.5	57.0	1.48	99	0.78	52	27	53	50	VC	medium grey	fine grained		silicified, weathered, angular clasts, red-brown staining in joints	CV	0.35			0	4	1	4	5	14	15	J	1	ox		8	none	EA
									VC					CV	0.54			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.59			0	4	1	2	5	12	15	J	1	cc	ox	8	none	EA
									VC					CV	0.71			0	4	1	2	5	12	15	J	1	cc	ox	1	none	EA
									VC					CV	0.87			0	4	1	2	5	12	15	J	1	cc	ox	1	none	EA
									VC					CV	1.32			0	4	1	4	6	15	15	J	1			6	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.41			0	4	1	2	5	12	15	J	1	cc	cly	1	none	EA
									VC					CV	1.46			0	4	1	2	6	13	15	J	1	cc	cly	1	none	EA
57.0	58.5	1.40	93	0.48	32	25	54	100	VC	dark grey	fine grained		silicified, very weathered, very broken,	CV	0.18			0	4	1	2	5	12	15	J	1	cly		6	none	EA
									VC					CV	0.34			0	4	1	2	5	12	15	J	1	cly		1	none	EA
									VC					CV	0.45			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.61			0	4	1	2	5	12	15	J	1	cly		8	none	EA
									VC					CV	0.80			0	4	1	2	5	12	15	J	1	cly		1	none	EA
									VC					CV	0.81			0	4	1	2	5	12	15	J	1	cly		1	none	EA
									VC					CV	1.16			0	2	1	2	5	10	15	VN	5	cc	cly	1	none	EA
									VC					CV	2.27			0	4	3	2	5	14	15	J	1	ox	cly	6	none	EA
58.5	60.0	1.50	100	0.32	21	27	54	25	VC	dark grey	fine grained		weathered silicified, very broken	CV	0.08			0	4	1	5	5	15	15	J	1	cc	ox	1	none	EA
									VC					CV	0.11			0	4	1	5	5	15	15	J	1	cc	ox	1	none	EA
									VC					CV	0.34			0	4	3	4	5	16	15	J	1	ox		9	none	EA
									VC					CV	0.40			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.62			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.68			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.89			0	4	1	4	5	14	15	J	1	ox		6	none	EA
									VC					CV	0.94			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.01			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.02			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.05			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.14			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.25			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.32			0	4	1	6	6	17	15	J	1			1	none	EA
60.0	61.5	0.87	58	0.00	0	max	5	25	VC	dark grey	fine grained		weathered , red brown staining on joints, mostly rubble and broken zone	CV	0.00			0	0	1	0	3	4	15	rub	100	ox		1	none	EA
61.5	63.0	1.18	79	0.00	0	max	5	25	VC	dark grey	fine grained		weathered , red brown staining on joints, mostly rubble and broken zone, tan clay in rubble	CV	0.00			0	0	1	0	3	4	15	rub	100	ox		1	none	EA
63.0	63.1	0.13	100	0.00	0	max	5	25	VC	dark grey	fine grained			CV	0.00			0	0	1	0	3	4	15	rub	130	ox		1	none	EA
63.1	63.7	0.54	100	0.49	91	6	77	25	VC	dark grey	fine grained			CV	0.00			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.14			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.29			0	0	1	0	5	6	15	rub	7	cly	Rub	1	none	EA
									VC					CV	0.39			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.46			0	4	1	2	5	12	15	J	1	ox	cly	1	none	EA
									VC					CV	0.51			0	4	1	4	5	14	15	J	1	ox	cc	1	none	EA
63.7	64.5	0.83	100	0.00	0	max	5	25	VC	white	fine grained			CV	0.00			0	0	1	0	3	4	15	rub	100	ox		1	none	EA
64.5	66.0	1.46	97	0.60	40	17	81	50	VC	medium grey	fine grained		weathered, red-brown staining in joints	CV	0.07			0	4	2	2	5	13	15	J	1	cly	ox	1	none	EA
									VC					CV	0.23			0	0	1	2	3	6	15	rub	60	cly		1	none	EA
									VC					CV	0.29			0	4	1	5	5	15	15	J	1	cc	ox	1	none	EA
									VC					CV	0.49			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.53			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.69			0	4	1	2	5	12	15	J	1	cly	chl	1	none	EA
									VC					CV	0.83			0	4	1	2	5	12	15	J	1	cly	chl	1	none	EA
									VC					CV	0.87			0	4	1	2	5	12	15	J	1	cly	chl	1	none	EA
									VC					CV	0.96			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.04			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.08			0	4	1	6	5	16	15	J	1	cly	ox	1	none	EA
									VC					CV	1.13			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.14			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.20			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.30			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.40			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.46			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
66.0	67.5	1.40	93	0.22	15	20	67	25	VC	dark grey	fine grained		weathered, red-brown staining in joints, clay in joints, green staining in some joints	CV	0.11			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.17			0	4	2	2	5	13	15	J	1	cly	ox	1	none	EA
									VC					CV	0.22			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.24			0	4	2	2	5	13	15	J	1	cly	ox	1	none	EA
									VC					CV	0.31			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.41			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.44			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.51			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.55			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	0.60			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.71			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	0.77			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.80			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.85			0	4	1	2	5	12	15	J	1	CLY	chl	1	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.93			0	4	1	2	5	12	15	J	1	CLY	chl	1	none	EA
									VC					CV	1.06			0	4	1	2	5	12	15	J	1	cly	chl	1	none	EA
									VC					CV	1.12			0	4	1	2	5	12	15	J	1	cly	chl	1	none	EA
									VC					CV	1.15			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.23			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.35			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
67.5	69.0	1.50	100	0.30	20	19	75	25	VC	dark grey	fine grained		weathered, silicified, red brown staining, green staining in joints	CV	0.07			0	0	1	0	3	4	15	rub	90	cly	ox	1	none	EA
									VC					CV	0.17			0	4	3	2	5	14	15	J	1	cly	ox	1	none	EA
									VC					CV	0.26			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.32			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.40			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.46			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.50			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.59			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.70			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.76			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.78			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.84			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.87			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.89			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.01			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.10			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.21			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.28			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.31			0	4	1	6	5	16	15	J	1	ox		1	none	EA
69.0	70.5	1.50	100	0.58	39	15	94	200	VC	dark grey	fine grained		weathered, silicified	CV	0.07			0	4	1	2	6	13	15	J	1	chl	ox	1	none	EA
									VC					CV	0.11			0	0	1	0	3	4	15	rub	90	ox		1	none	EA
									VC					CV	0.21			0	4	1	2	6	13	15	J	1	ox	chl	1	none	EA
									VC					CV	0.43			0	4	1	2	6	13	15	J	1	ox	chl	1	none	EA
									VC					CV	0.54			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.57			0	4	1	2	5	12	15	J	1	ox	chl	1	none	EA
									VC					CV	0.73			0	0	1	0	3	4	15	rub	90	ox		1	none	EA
									VC					CV	0.82			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.92			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.14			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.16			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.20			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.26			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	1.28			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.36			0	0	1	0	3	4	15	rub	80	cly	ox	1	none	EA
70.5	72.0	1.24	83	0.00	0	max	5	50	VC	light grey	fine grained		rubble, red-brown staining , clay	CV	0.00			0	0	3	2	3	8	15	rub	100	CLY	ox	1	none	EA
72.0	73.5	1.43	95	0.11	7	34	41	50	VC	light grey	fine grained		rubble, red-brown staining , clay	CV	0.00			0	4	3	2	6	15	15	J	1	CLY	chl	12	none	MGW
									VC					CV	0.10			0	4	1	2	5	12	15	J	1	ox	chl	12	none	MGW
									VC					CV	0.20			0	4	1	2	5	12	15	J	1	CLY	ox	10	none	MGW
73.5	75.0	1.46	97	0.60	40	18	77	50	VC	light grey	fine grained		red-brown staining in joints, lightly weathered unable to orientate	CV	0.05			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.12			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.23			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	MGW
									VC					CV	0.25			0	4	2	6	6	18	15	J	1			1	none	MGW
									VC					CV	0.42			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.45			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.49			0	4	1	2	5	12	15	J	1	CLY	ox	8	none	MGW
									VC					CV	0.77			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.00			0	4	1	6	6	17	15	J	1			1	none	MGW
									VC					CV	1.30			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.32			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
75.0	76.5	1.50	100	0.65	43	12	115	50	VC	dark grey	fine grained		red brown staining in joints, lightly weathered, unable to orientate	CV	0.13			0	4	4	6	6	20	15	J	1			1	none	MGW
									VC					CV	0.22			0	4	2	6	6	18	15	J	1			1	none	MGW
									VC					CV	0.36			0	4	2	6	6	18	15	J	1			1	none	MGW
									VC					CV	0.41			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.46			0	4	4	5	6	19	15	J	1			1	none	MGW
									VC					CV	0.61			0	4	1	2	6	13	15	J	1	cly		1	none	MGW
									VC					CV	0.66			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.75			0	4	3	6	6	19	15	J	1			1	none	MGW
									VC					CV	0.93			0	4	3	6	6	19	15	J	1			1	none	MGW
									VC					CV	0.97			0	2	1	3	5	11	15	J	5	cly	ox	1	none	MGW
									VC					CV	1.02			0	4	1	3	4	12	15	J	1	cly	ox	1	none	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.42			0	0	1	0	2	3	15	J	10	cly	ox	1	none	MGW
76.5	78.0	1.50	100	0.32	21	15	94	50	VC	dark grey	fine grained		red-brown staining in joints, thin clay layers in joints	CV	0.06			0	4	1	3	3	11	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.11			0	4	2	2	5	13	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.16			0	2	3	Soft > 5mm	3	8	15	J	5	cly	ox	1	none	MGW
									VC					CV	0.24			0	4	1	2	5	12	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.28			0	4	1	2	5	12	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.35			0	4	3	2	5	14	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.45			0	4	3	5	6	18	15	J	1			1	none	MGW
									VC					CV	0.51			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.70			0	4	4	6	6	20	15	J	1			1	none	MGW
									VC					CV	0.78			0	2	3	4	4	13	15	J	5	ox		1	none	MGW
									VC					CV	0.93			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.00			0	4	3	6	6	19	15	J	1			1	none	MGW
									VC					CV	1.32			0	4	3	6	6	19	15	J	1			1	none	MGW
									VC					CV	1.42			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.49			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
78.0	79.5	1.47	98	0.32	21	15	92	50	VC	dark grey	fine grained		red-brown staining in joints	CV	0.08			0	4	1	6	6	17	15	J	1			1	none	MGW
									VC					CV	0.16			0	4	1	6	6	17	15	J	1			1	none	MGW
									VC					CV	0.21			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.45			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.49			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.55			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.67			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.72			0	4	4	4	5	17	15	J	1	ox		1	none	MGW
									VC					CV	0.86			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.92			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.00			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.15			0	4	4	4	6	18	15	J	1	ox		1	none	MGW
									VC					CV	1.24			0	4	1	5	6	16	15	J	1			1	none	MGW
									VC					CV	1.27			0	4	2	5	6	17	15	J	1			1	none	MGW
									VC					CV	1.30			0	4	1	5	6	16	15	J	1			1	none	MGW
79.5	81.0	1.50	100	0.56	37	13	107	50	VC	dark grey	fine grained		red-brown staining in joints	CV	0.19			0	4	1	3	5	13	15	J	1	CLY	ox	1	none	MGW
									VC					CV	0.33			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.50			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.57			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.66			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.84			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.12			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.13			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.19			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.23			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.40			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.45			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.58			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
81.0	82.0	1.00	100	0.25	25	11	83	25	VC	dark grey	fine grained		green staining in joints from and clay infilling in joints	CV	0.08			0	4	1	2	5	12	15	J	1	chl	ox	1	none	MGW
									VC					CV	0.20			0	4	1	2	5	12	15	J	1	chl	ox	1	none	MGW
									VC					CV	0.26			0	4	1	2	5	12	15	J	1	chl	ox	1	none	MGW
									VC					CV	0.38			0	4	1	2	5	12	15	J	1	chl		1	none	MGW
									VC					CV	0.45			0	4	2	2	5	13	15	J	1	chl		1	none	MGW
									VC					CV	0.65			0	4	3	2	5	14	15	J	1	chl		1	none	MGW
									VC					CV	0.73			0	4	1	6	5	16	15	J	1			1	none	MGW
									VC					CV	0.78			0	4	3	6	5	18	15	J	1			1	none	MGW
									VC					CV	0.87			0	4	2	6	5	17	15	J	1			1	none	MGW
									VC					CV	0.99			0	4	1	2	5	12	15	J	1	cly		1	none	MGW
82.0	82.5	0.50	100	0.00	0	max	5	25	VC	light grey	fine grained		red brown and green staining in joints, moderately weathered rock,	CV	1.00			0	0	1	2	5	8	15	J	1	cly	chl	23	none	MGW
82.5	84.0	1.50	100	0.43	29	12	115	25	VC	light grey	fine grained		red brown and green staining in joints, moderately weathered rock,	CV	0.20			0	4	1	5	6	16	15	J	1			1	none	MGW
									VC					CV	0.30			0	4	1	2	5	12	15	J	1			1	none	MGW
									VC					CV	0.51			0	4	3	4	5	16	15	J	1			1	none	MGW
									VC					CV	0.61			0	4	2	4	5	15	15	J	1			1	none	MGW
									VC					CV	0.66			0	4	3	4	5	16	15	J	1			1	none	MGW
									VC					CV	0.77			0	4	2	4	5	15	15	J	1			1	none	MGW
									VC					CV	0.80			0	4	1	4	5	14	15	J	1			1	none	MGW
									VC					CV	0.84			0	4	2	4	5	15	15	J	1			1	none	MGW
									VC					CV	0.96			0	4	2	4	5	15	15	J	1			1	none	MGW
									VC					CV	1.10			0	4	2	4	5	15	15	J	1			1	none	MGW
									VC					CV	1.14			0	4	2	4	5	15	15	J	1			1	none	MGW
									VC					CV	1.36			0	4	2	4	5	15	15	J	1			1	none	MGW
84.0	85.5	1.50	100	0.82	55	9	150	50	VC	dark grey	fine grained		red-brown staining in joints	CV	0.15			0	4	2	2	5	13	15	J	1	CLY	ox	1	none	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.32			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.35			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.44			0	4	1	2	5	12	15	J	1	chl	ox	1	none	MGW
									VC					CV	0.67			0	4	2	2	5	13	15	J	1	chl	ox	1	none	MGW
									VC					CV	0.72			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.05			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.31			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.37			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
85.5	87.0	1.50	100	0.11	7	13	107	50	VC	dark grey	fine grained		red-brown staining in joints	CV	0.12			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.24			0	4	1	5	6	16	15	J	1			1	none	MGW
									VC					CV	0.37			0	4	3	5	6	18	15	J	1			1	none	MGW
									VC					CV	0.51			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.55			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.59			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.73			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.82			0	4	3	2	5	14	15	J	1	cly		1	none	MGW
									VC					CV	0.90			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.98			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.05			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.13			0	4	4	4	5	17	15	J	1	ox		1	none	MGW
									VC					CV	1.27			0	2	2	2	5	11	15	J	5	cly	ox	1	none	MGW
87.0	88.5	1.50	100	0.29	19	12	115	25	VC	dark grey	fine grained		red-brown staining in joints, very mechanically broken run, silicified	CV	0.22	40	45	0	4	3	5	6	18	15	J	1			1	F	MGW
									VC					CV	0.31	64	135	0	4	2	5	6	17	15	J	1			1	F	MGW
									VC					CV	0.50	56	155	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	0.60	15	270	0	4	2	5	6	17	15	J	1			1	F	MGW
									VC					CV	0.68	35	30	0	4	2	4	5	15	15	J	1	ox		1	F	MGW
									VC					CV	0.69	75	260	0	4	1	5	5	15	15	J	1	ox		1	F	MGW
									VC					CV	0.90	74	200	0	4	1	5	5	15	15	J	1	ox		1	F	MGW
									VC					CV	1.02	23	30	0	4	1	5	5	15	15	J	1	ox		1	F	MGW
									VC					CV	1.06	60	215	0	4	3	5	5	17	15	J	1	ox		1	F	MGW
									VC					CV	1.25	72	30	0	4	1	5	5	15	15	J	1	ox		1	F	MGW
									VC					CV	1.37	23	30	0	4	1	4	3	12	15	J	1	ox		1	F	MGW
									VC					CV	1.40	80	215	0	4	1	4	4	13	15	J	1	ox		1	F	MGW
88.5	90.0	1.50	100	0.30	20	16	88	50	VC	light grey	fine grained		red-brown staining in joints, some clay infilling unable to orientate has a tan clayey infilling	CV	0.15			0	4	1	5	5	15	15	J	1	ox		4	none	MGW
									VC					CV	0.87			0	4	2	5	5	16	15	J	1	ox		8	none	MGW
									VC					CV	0.94			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.28			0	4	1	2	4	11	15	J	1	cly	ox	1	none	MGW
									VC					CV	1.40			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.42			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
90.0	90.3	0.26	93	0.00	0	max	5	50	VC	light grey	fine grained		rubble	CV	0.00			0	0	1	0	3	4	15	rub	100	CLY	ox	1	G	MGW
90.3	91.5	1.22	100	1.04	85	5	203	50	VC	light grey	fine grained		red-brown staining in joints rubble/clay zone from	CV	0.24	72	210	0	4	2	4	5	15	15	J	1	ox		1	G	MGW
									VC					CV	0.50	65	70	0	4	2	4	5	15	15	J	1	ox		1	G	MGW
									VC					CV	0.63	68	80	0	4	2	4	5	15	15	J	1	ox		1	G	MGW
									VC					CV	0.74	68	90	0	4	2	4	5	15	15	J	1	ox		1	G	MGW
									VC					CV	0.77	64	95	0	4	2	4	5	15	15	J	1	ox		1	G	MGW
91.5	93.0	1.44	96		0	9	144		VC	lights grey	fine grained		green and red-brown infill in joints, silicified	CV	0.07	64	70	0	4	1	5	5	15	15	J	1	ox		1	G	MGW
									VC					CV	0.35	40	75	0	4	1	3	5	13	15	J	1	ox		1	G	MGW
									VC					CV	0.39	75	240	0	1	1	2	5	9	15	J	1	CLY		1	G	MGW
									VC					CV	0.62	53	60	0	4	2	5	5	16	15	J	1	ox		1	G	MGW
									VC					CV	0.86	44	175	0	4	3	5	5	17	15	J	1	ox		1	G	MGW
									VC					CV	1.00	36	340	0	1	1	2	5	9	15	J	1	CLY		1	G	MGW
									VC					CV	1.08	60	80	0	4	1	5	5	15	15	J	1	ox		1	G	MGW
									VC					CV	1.24	40	60	0	0	1	2	5	8	15	J	5	cly		1	G	MGW
									VC					CV	1.30			0	4	3	5	5	17	15	J	1	ox		1	G	MGW
93.0	94.5	1.50	100	0.55	37	12	115	50	VC	light grey	fine grained		red-brown staining in joints from 0.0-0.46 and green staining in joints from 0.46-1.60m, silicified	CV	0.12	34	130	0	4	4	5	5	18	15	J	1	ox		1	P	MGW
									VC					CV	0.23	40	75	0	4	2	5	5	16	15	J	1	ox		1	P	MGW
									VC					CV	0.33	55	30	0	4	4	5	5	18	15	J	1	ox		1	P	MGW
									VC					CV	0.48	30	335	0	0	2	3	5	10	15	J	5	ox		1	P	MGW
									VC					CV	0.71	50	60	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.80	45	45	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.81	48	50	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	1.03	50	50	0	4	1	2	5	12	15	J	1	cly	chl	1	P	MGW
									VC					CV	1.06	33	85	0	4	1	2	5	12	15	J	1	chl		1	P	MGW
									VC					CV	1.10			0	4	1	2	5	12	15	J	1	chl		1	P	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.22	40	325	0	4	1	2	4	11	15	J	1	cly	chl	1	P	MGW
									VC					CV	1.40	42	60	0	4	1	2	4	11	15	J	1	cly	chl	1	P	MGW
94.5	96.0	1.50	100	1.00	67	7	188	100	VC	light grey	fine grained		red-brown and green staining in joints, vein containing metallic mineral crosscuts core at 1.35m , silicified	CV	0.28	41	40	0	4	1	2	5	12	15	J	1	chl	ox	1	P	MGW
									VC					CV	0.32	16	120	0	4	1	2	5	12	15	J	1	chl	ox	1	P	MGW
									VC					CV	0.49	40	330	0	4	1	2	5	12	15	J	1	cly	ox	1	P	MGW
									VC					CV	0.80	34	80	0	4	1	4	5	14	15	J	1	ox		1	P	MGW
									VC					CV	0.86	37	100	0	4	1	2	5	12	15	J	1	cly	ox	1	P	MGW
									VC					CV	0.97	54	0	0	4	1	2	5	12	15	J	1	cly	ox	1	P	MGW
									VC					CV	1.43	33	50	0	4	1	2	5	12	15	J	1	cly	ox	1	P	MGW
96.0	97.5	1.50	100	0.98	65	10	136	50	VC	light grey	fine grained		green staining in joints, clay/rubble zone from .89-.93m, silicified	CV	0.11	48	335	0	4	1	5	5	15	15	J	1	ox		1	P	MGW
									VC					CV	0.12	51	165	0	4	3	5	6	18	15	J	1			1	P	MGW
									VC					CV	0.24	38	20	0	4	1	2	5	12	15	J	1	chl	ox	1	P	MGW
									VC					CV	0.38	44	70	0	4	1	2	5	12	15	J	1	chl	ox	1	P	MGW
									VC					CV	0.49	54	85	0	4	1	5	5	15	15	J	1	ox		1	P	MGW
									VC					CV	0.61	46	210	0	4	1	5	5	15	15	J	1	ox		1	P	MGW
									VC					CV	0.82	63	70	0	4	1	6	5	16	15	J	1	ox		1	P	MGW
									VC					CV	0.89	52	30	0	0	1	0	3	4	15	rub	10	cly		1	P	MGW
									VC					CV	0.99	55	60	0	4	2	5	5	16	15	J	1	ox		1	P	MGW
									VC					CV	1.45	35	35	0	4	2	5	5	16	15	J	1	ox		1	P	MGW
97.5	99.0	1.50	100	1.11	74	5	250	100	VC	light grey	fine grained		red-brown and tan staining in joints and on core, unable to orientate silicified	CV	0.07			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.27			0	4	1	2	5	12	15	J	1	cly	ox	1	none	MGW
									VC					CV	1.15			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
									VC					CV	1.24			0	4	2	2	4	12	15	J	1	cly	ox	1	none	MGW
									VC					CV	1.42			0	4	2	2	4	12	15	J	1	cly	ox	1	none	MGW
99.0	99.3	0.25	100	0.00	0	max	5	100	VC	light grey	fine grained		rubble	CV	0.36			0	0	1	0	3	4	15	rub	100	CLY	ox	1	none	MGW
99.3	100.5	1.25	100	0.70	56	10	114	100	VC	light grey	fine grained		silicified, red-brown and green staining in joints	CV	0.36	37	50	0	4	1	3	5	13	15	J	1	CLY	ox	1	F	MGW
									VC					CV	0.48	35	80	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	MGW
									VC					CV	0.60	65	350	0	4	1	4	5	14	15	J	1		ox	1	F	MGW
									VC					CV	0.67	62	65	0	4	1	4	5	14	15	J	1			1	F	MGW
									VC					CV	0.77	68	25	0	4	2	4	5	15	15	J	1			1	F	MGW
									VC					CV	0.87	68	30	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	MGW
									VC					CV	1.08	70	250	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	MGW
									VC					CV	1.25	43	340	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	MGW
									VC					CV	1.44	65	10	0	4	4	4	5	17	15	J	1	ox		1	F	MGW
									VC					CV	1.46	70	10	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	MGW
100.5	102.0	1.50	100	0.66	44	12	115	100	VC	light grey	fine grained		silicified, green staining on joints	CV	0.12			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.31			0	4	1	2	5	12	15	J	1	CLY		1	none	MGW
									VC					CV	0.40			0	4	1	2	5	12	15	J	1	CLY		1	none	MGW
									VC					CV	0.53			0	4	3	2	5	14	15	J	1	chl		1	none	MGW
									VC					CV	0.65			0	4	2	6	6	18	15	J	1			1	none	MGW
									VC					CV	0.80			0	4	3	2	5	14	15	J	1	cly		1	none	MGW
									VC					CV	0.85			0	4	1	6	6	17	15	J	1			1	none	MGW
									VC					CV	1.20			0	4	2	2	5	13	15	J	1	chl		1	none	MGW
									VC					CV	1.22			0	4	1	2	5	12	15	J	1	chl		1	none	MGW
									VC					CV	1.28			0	4	2	5	6	17	15	J	1			1	none	MGW
									VC					CV	1.38			0	4	3	5	6	18	15	J	1			1	none	MGW
									VC					CV	1.48			0	4	3	5	6	18	15	J	1			1	none	MGW
102.0	103.5	1.50	100	1.28	85	6	214		VC	dark grey	fine grained		silicified, red-brown and green staining in joints	CV	0.13	30	240	0	4	1	2	5	12	15	J	1	chl		1	F	MGW
									VC					CV	0.45	70	100	0	4	1	4	5	14	15	J	1	ox		1	F	MGW
									VC					CV	1.01	32	50	0	0	1	0	4	5	15	J	5	cly	ox	1	F	MGW
									VC					CV	1.12	40	140	0	4	3	4	5	16	15	J	1	ox		1	F	MGW
									VC					CV	1.36			0	4	2	4	5	15	15	J	1	ox		1	F	MGW
									VC					CV	1.43	65	110	0	4	1	2	5	12	15	J	1	cly	ox	1	F	MGW
103.5	105.0	1.50	100	0.53	35	7	188	100	VC	medium grey	fine grained		silicified, green and red-brown staining in joints	CV	0.32			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.50			0	4	1	2	5	12	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.68			0	4	3	5	5	17	15	J	1	ox		1	none	MGW
									VC					CV	0.74			0	0	1	0	3	4	15	rub	100	ox		1	none	MGW
									VC					CV	1.08			0	4	1	2	5	12	15	J	1	cly	ox	1	none	MGW
									VC					CV	1.26			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	1.38			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
105.0	106.5	1.50	100	0.17	11	15	94	50	VC	medium grey	fine grained		silicified red- brown and green staining in joints	CV	0.07			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.26			0	4	2	5	4	15	15	J	1	ox		1	none	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.33			0	4	3	5	5	17	15	J	1	ox		1	none	MGW
									VC					CV	0.55			0	4	4	5	5	18	15	J	1	ox		1	none	MGW
									VC					CV	0.63			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.70			0	0	3	0	4	7	15	rub	70	ox		1	none	MGW
									VC					CV	1.41			0	4	3	5	5	17	15	J	1	ox		1	none	MGW
									VC					CV	1.49			0	4	2	5	5	16	15	J	1	ox		1	none	MGW
106.5	108.0	1.50	100	0.66	44	12	115	100	VC	medium grey	fine grained		silicified	CV	0.13	64	190	0	4	1	2	5	12	15	J	1	chl	ox	1	F	MGW
									VC					CV	0.48	22	120	0	4	1	4	5	14	15	J	1	ox		1	F	MGW
									VC					CV	0.51	75	130	0	4	1	4	5	14	15	J	1	ox		1	F	MGW
									VC					CV	0.86	76	110	0	4	1	6	6	17	15	J	1			1	F	MGW
									VC					CV	0.99	28	110	0	4	1	6	6	17	15	J	1			1	F	MGW
									VC					CV	1.01	65	280	0	4	2	5	5	16	15	J	1	ox		1	F	MGW
									VC					CV	1.12	35	110	0	4	3	5	5	17	15	J	1	ox		1	F	MGW
									VC					CV	1.16	30	120	0	4	2	5	5	16	15	J	1	ox		1	F	MGW
									VC					CV	1.28	48	310	0	4	2	5	5	16	15	J	1	ox		1	F	MGW
									VC					CV	1.35	48	100	0	4	2	5	5	16	15	J	1	ox		1	F	MGW
108.0	109.5	1.50	100	1.20	80	14	100	200	VC	light grey	fine grained		silicified, red-brown staining in joints, blue staining on clay joints	CV	0.04			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.20			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.37			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.43			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.50			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.68			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.74			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.90			0	1	1	2	5	9	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.05			0	1	1	2	5	9	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.07			0	1	1	2	5	9	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.13			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	1.16			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	1.29			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	1.41			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
109.5	111.0	1.50	100	0.90	60	14	100	100	VC	light grey	fine grained		red brown staining in joints	CV	0.22	46	120	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	0.26	26	330	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	0.34	75	200	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	0.39	75	200	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	0.45	70	290	0	4	1	6	5	16	15	J	1			1	F	EA
									VC					CV	0.57	66	90	0	4	1	6	5	16	15	J	1			1	F	EA
									VC					CV	0.79	37	330	0	4	1	6	5	16	15	J	1			1	F	EA
									VC					CV	0.90	54	65	0	1	1	2	5	9	15	J	1	cly	ox	1	F	EA
									VC					CV	1.04	44	70	0	1	1	2	5	9	15	J	1	cly	ox	1	F	EA
									VC					CV	1.20	70	290	0	1	1	2	5	9	15	J	1	cly	ox	1	F	EA
									VC					CV	1.30	80	10	0	1	1	2	5	9	15	J	1	cly		1	F	EA
									VC					CV	1.38	30	330	0	1	1	2	5	9	15	J	1	cly		1	F	EA
									VC					CV	1.42	12	270	0	1	1	2	5	9	15	J	1	cly	ox	1	F	EA
									VC					CV	1.59	20	20	0	1	1	2	5	9	15	J	1	cly	ox	1	F	EA
111.0	112.5	1.37	91	1.02	68	13	98	50	VC	light grey	fine grained		silicified, red brown staining in joints	CV	0.00			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.10			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.18			0	0	1	0	3	4	15	Rub	100	gg	ox	1	none	EA
									VC					CV	0.22			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	0.25			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	0.30	40	20	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.33	40	20	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.47	50	360	0	4	1	6	6	17	15	J	1			1	F	EA
									VC					CV	0.67	33	30	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	0.80	75	110	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	0.92	25	290	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	1.15	45	170	0	4	1	6	5	16	15	J	1	ox		1	F	EA
									VC					CV	1.37	45	30	0	4	1	2	5	12	15	J	1	ox		1	F	EA
112.5	114.0	1.50	100	0.92	61	14	100	50	VC	light grey	fine grained		silicified, red brown staining, green clay	CV	0.00			0	1	1	2	5	9	15	J	1	CLY	ox	1	none	EA
									VC					CV	0.17			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.32			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.58			0	4	1	6	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.72			0	0	1	2	5	8	15	rub	50	CLY	ox	1	none	EA
									VC					CV	0.87			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	0.92			0	0	1	2	5	8	15	rub	90	CLY	ox	1	none	EA
									VC					CV	1.01			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.06			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.09			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.26			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.28			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.31			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.40			0	4	1	2	5	12	15	J	1	CLY		1	none	EA
									VC					CV	1.43			0	0	1	0	3	4	15	rub	70	CLY	ox	1	none	EA
114.0	115.5	1.50	100	1.03	69	12	115	50	VC	light grey	fine grained		silicified, red-brown staining in joints	CV	0.14	75	260	0	1	1	2	6	10	15	J	1	CLY		1	F	EA
									VC					CV	0.26	38	50	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.33	42	60	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.61	50	170	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	0.68	40	45	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.74	72	150	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.89	20	260	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.93	17	30	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.98	50	360	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
									VC					CV	1.18			0	4	1	2	5	12	15	J	1	CLY	ox	1	F	EA
									VC					CV	1.40	20	255	0	4	1	4	5	14	15	J	1		ox	1	F	EA
									VC					CV	1.51	28	40	0	1	1	2	5	9	15	J	1	CLY	ox	1	F	EA
115.5	117.0	1.50	100	0.70	20	17	83	100	VC	light grey	fine grained		silicified, red-brown staining in joints	CV	0.00			0	0	1	2	5	8	15	J	1	cly	ox	1	none	EA
									VC					CV	0.18			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.21			0	0	1	0	3	4	15	Rub	50	cly	ox	1	none	EA
									VC					CV	0.24			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	0.26			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.28			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	0.30			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.33			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	0.44			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.64			0	4	1	6	5	16	15	J	1		ox	1	none	EA
									VC					CV	0.69			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	0.77			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.81			0	4	1	6	5	16	15	J	1		ox	1	none	EA
									VC					CV	1.09			0	1	1	2	5	9	15	J	1	cly	ox	1	none	EA
									VC					CV	1.13			0	1	1	2	5	9	15	J	1	cc	ox	1	none	EA
									VC					CV	1.23			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.35			0	1	3	2	5	11	15	J	1	cly	ox	5	none	EA
117.0	118.5	1.50	100	0.95	63	14	100	250	VC	medium grey	fine grained		silicified, red-brown staining in joints, rubble zone: 1.40.1.53m	CV	0.51	47	12	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	0.66	30	340	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	0.86	50	290	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.93	40	360	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	EA
									VC					CV	0.98	40	360	0	4	1	2	5	12	15	J	1	CLY	ox	1	F	EA
									VC					CV	1.02			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.07			0	0	1	0	3	4	15	Rub	80	Cly	ox	1	none	EA
									VC					CV	1.26			0	1	1	4	5	11	15	J	1	ox		1	none	EA
									VC					CV	1.35			0	1	1	4	5	11	15	J	1	ox		1	none	EA
									VC					CV	1.40			0	4	3	6	5	18	15	J	1	ox		6	none	EA
118.5	120.0	1.45	97	0.49	33	13	104	100	VC	medium grey	fine grained		red-brown staining in joints	CV	0.04			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.09			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.22			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.31			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.40			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.77			0	4	1	4	5	14	15	J	1	cc	ox	1	none	EA
									VC					CV	0.92			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.02			0	1	1	2	5	9	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.12			0	1	2	2	5	10	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.19			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.31			0	4	1	2	5	12	15	J	1	CLY	ox	1	none	EA
									VC					CV	1.34			0	1	1	6	6	14	15	J	1			1	none	EA
									VC					CV	1.43			0	1	1	2	5	9	15	J	1	CLY	ox	1	none	EA
120.0	120.4	0.35	87	0.00	0	max	5	100	VC	medium grey	fine grained		rubble	CV	0.00			0	0	1	0	5	6	15	rub	100	ox		20	none	EA
120.4	121.5	1.10	100	1.03	94	5	183	100	VC	medium grey	fine grained		silicified, red-brown staining in joint	CV	0.40			0	4	3	4	5	16	15	J	1	ox		1	none	EA
									VC					CV	0.44			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.60			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.10			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	1.25			0	4	1	4	5	14	15	J	1	ox		1	none	EA
121.5	123.0	1.50	100	0.66	44	14	100	25	VC	medium grey	fine grained		red-brown staining in joints, clay from 1.36-1.39m	CV	0.08			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.26			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.37			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.40			0	4	2	2	5	13	15	J	1	CC	ox	1	none	EA
									VC					CV	0.49	62	330	0	4	2	2	5	13	15	J	1	CC	ox	1	F	EA
									VC					CV	0.60	75	225	0	4	1	2	5	12	15	J	1	CC	ox	1	F	EA
									VC					CV	0.86	22	70	0	4	1	4	5	14	15	J	1	ox		1	F	EA
									VC					CV	0.95	40	340	0	4	1	2	5	12	15	J	1	cly	ox	1	F	EA
									VC					CV	1.06	43	70	0	4	1	6	6	17	15	J	1			1	F	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.26	40	290	0	4	1	2	5	12	15	J	1	cly	ox	1	F	EA
									VC					CV	1.36			0	0	1	0	3	4	15	rub	30	cly		1	F	EA
									VC					CV	1.41	25	250	0	4	1	2	5	12	15	J	1	cly	ox	1	F	EA
									VC					CV	1.45	20	20	0	4	1	6	6	17	15	J	1			1	F	EA
									VC					CV	1.49	35	300	0	4	1	2	5	12	15	J	1		ox	1	F	EA
123.0	124.5	1.50	100	1.24	83	10	136	250	VC	medium grey	fine grained		silicified	CV	0.10			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.18			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.27			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.31			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.37	30	340	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.53	30	170	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.77	45	340	0	4	1	4	6	15	15	J	1	ox		1	P	EA
									VC					CV	0.94	47	355	0	4	1	2	5	12	15	J	1	cc		1	P	EA
									VC					CV	1.07	26	335	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	1.11	50	300	0	0	1	5	6	12	15	J	5			1	P	EA
									VC					CV	1.43	42	330	0	4	1	6	6	17	15	J	1			1	P	EA
124.5	126.0	1.50	100	1.50	100	4	300	50	VC	dark grey	fine grained		silicified	CV	0.28	35	140	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.55	30	60	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.74	26	250	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	1.47	30	310	0	4	1	6	6	17	15	J	1			1	P	EA
126.0	127.5	1.47	98	1.40	93	3	368	50	VC	dark grey	fine grained		silicified, rubble zone	CV	0.30	55	115	0	1	1	5	6	13	15	vn	5	qtz		1	P	EA
									VC					CV	0.34	52	270	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.72	35	340	0	4	3	6	6	19	15	J	1			1	P	EA
									VC					CV	1.38	10	230	0	4	1	6	6	17	15	J	1			1	P	EA
127.5	129.0	1.04	69	1.04	69	2	347	50	VC	dark grey	fine grained		silicified	CV	0.29	50	50	0	4	1	5	6	16	15	vn	1	cc		1	P	EA
									VC					CV	0.77	70	240	0	4	1	6	6	17	15	J	1			1	P	EA
129.0	130.1	1.10	100	1.10	100	5	183	50	VC	dark grey	fine grained		silicified	CV	0.12			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.23			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.50			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.08			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.45			0	4	1	5	6	16	15	vn	1	cc		1	none	EA
									VC					CV	1.52			0	4	1	6	6	17	15	J	1			1	none	EA
130.1	131.6	1.50	100	1.50	100	3	375	250	VC	dark grey	fine grained		silicified	CV	0.10	50	5	0	4	1	5	6	16	15	vn	1	cc		1	VG	EA
									VC					CV	0.73	16	325	0	4	1	6	6	17	15	J	1			1	VG	EA
									VC					CV	1.41	60	30	0	4	1	5	6	16	15	vn	1	cc		1	VG	EA
131.6	133.2	1.59	99	1.41	88	4	318	150	VC	dark grey	fine grained		silicified	CV	0.62	78	60	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.94	18	280	0	2	1	2	4	9	15	vn	5	cc	ox	1	VG	MGW
									VC					CV	1.04	68	120	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	1.38	37	320	0	4	1	6	6	17	15	J	1			1	VG	MGW
133.2	135.0	1.41	78	1.30	72	4	282	100	VC	dark grey	fine grained		silicified	CV	0.31	72	70	0	4	1	6	5	16	15	J	1	ox		1	VG	MGW
									VC					CV	0.36	40	60	0	2	1	2	4	9	15	vn	5	ox		1	VG	MGW
									VC					CV	0.62	45	55	0	4	2	5	5	16	15	J	1	ox		1	VG	MGW
									VC					CV	0.89	28	110	0	4	3	4	5	16	15	J	1	ox		1	VG	MGW
135.0	136.5	1.50	100	1.50	100	10	136	100	VC	dark grey	fine grained		silicified	CV	0.32	57	45	0	4	1	5	6	16	15	J	1			1	VG	MGW
									VC					CV	0.48	78	80	0	4	1	5	6	16	15	J	1			1	VG	MGW
									VC					CV	0.62	43	35	0	4	1	2	5	12	15	vn	1	cc	ox	1	VG	MGW
									VC					CV	0.81	52	50	0	4	1	4	3	12	15	J	1	ox		1	VG	MGW
									VC					CV	1.04	66	30	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	1.28	75	55	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	1.44	50	70	0	4	1	2	5	12	15	J	1	cly	ox	1	VG	MGW
									VC					CV	1.48	40	50	0	4	1	2	5	12	15	J	1	cly	ox	1	VG	MGW
									VC					CV	1.51	65	50	0	4	1	2	5	12	15	J	1	cly	ox	1	VG	MGW
									VC					CV	1.64	52	40	0	4	1	2	5	12	15	J	1	cly	ox	1	VG	MGW
136.5	138.0	1.50	100	0.44	29	14	100	100	VC	dark grey	fine grained		silicified	CV	0.14			0	4	2	6	5	17	15	J	1	ox		1	none	MGW
									VC					CV	0.26			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.44			0	4	2	2	5	13	15	J	1	chl		7	none	MGW
									VC					CV	0.68			0	4	1	5	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.75			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.85			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.89			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.00			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
138.0	139.5	1.45	97	0.45	30	11	121	100	VC	dark grey	fine grained		silicified, green staining in joints	CV	0.15			0	4	2	4	5	15	15	J	1	ox		1	none	MGW
									VC					CV	0.38			0	0	1	0	5	6	15	J	10	cly	ox	1	none	MGW
									VC					CV	0.42			0	4	1	3	5	13	15	J	1	cly	ox	1	none	MGW
									VC					CV	0.48			0	4	1	2	5	12	15	J	1	chl		1	none	MGW
									VC					CV	0.61			0	4	1	2	5	12	15	J	1	chl		1	none	MGW
									VC					CV	0.70			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	0.71			0	4	3	4	5	16	15	J	1	ox		1	none	MGW
									VC					CV	0.83			0	4	2	6	6	18	15	J	1			1	none	MGW
									VC					CV	1.13			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.21			0	4	1	4	5	14	15	J	1	ox		1	none	MGW
									VC					CV	1.31			0	4	1	4	5	14	15	J	1	ox		1	none	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
139.5	141.0	1.45	97	1.06	71	5	242	100	VC	dark grey	fine grained		silicified, green staining in joints	CV	0.33	41	65	0	4	2	6	5	17	15	J	1	ox		1	VG	MGW
									VC					CV	0.44	60	55	0	4	1	3	4	12	15	J	1	cly	ox	1	VG	MGW
									VC					CV	0.88	50	160	0	4	1	2	5	12	15	J	1	chl		1	VG	MGW
									VC					CV	1.08	66	95	0	4	1	2	5	12	15	J	1	chl		1	VG	MGW
									VC					CV	1.21	14	200	0	4	5	2	5	16	15	J	1	chl		1	VG	MGW
141.0	142.5	1.47	98	1.38	92	6	210	100	VC	dark grey	fine grained		silicified	CV	0.21	44	140	0	4	2	5	6	17	15	J	1			1	VG	MGW
									VC					CV	0.24	48	155	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	0.65	44	150	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	0.86	70	50	0	4	1	2	5	12	15	J	1	cly	ox	1	VG	MGW
									VC					CV	1.08	70	65	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	1.28	53	40	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
142.5	144.0	1.50	100	1.22	81	7	188	100	VC	dark grey	fine grained		silicified	CV	0.12	33	155	0	4	2	5	6	17	15	J	1			1	VG	MGW
									VC					CV	0.22	39	170	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	0.61	44	150	0	4	1	5	6	16	15	J	1			1	VG	MGW
									VC					CV	0.75	46	160	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	1.05	76	25	0	4	2	4	5	15	15	J	1	ox		1	VG	MGW
									VC					CV	1.28	35	160	0	4	3	4	5	16	15	J	1	ox		1	VG	MGW
									VC					CV	1.39	25	85	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
144.0	145.5	1.50	100	0.85	57	6	214	100	VC	light grey	fine grained		silicified	CV	0.24	28	315	0	4	2	5	6	17	15	J	1			1	VG	MGW
									VC					CV	0.42	58	160	0	4	2	5	6	17	15	J	1			1	VG	MGW
									VC					CV	0.63	10	300	0	4	3	6	6	19	15	J	1			1	VG	MGW
									VC					CV	0.82	68	30	0	4	2	4	5	15	15	J	1	ox		1	VG	MGW
									VC					CV	1.03	65	35	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	1.06	62	30	0	4	2	5	6	17	15	J	1			1	VG	MGW
145.5	147.0	1.50	100	0.93	62	8	167	100	VC	light grey	fine grained		silicified	CV	0.07	54	330	0	4	2	4	5	15	15	J	1	ox		1	VG	MGW
									VC					CV	0.11	52	345	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	0.29	45	150	0	4	1	4	5	14	15	J	1	ox		1	VG	MGW
									VC					CV	0.55	67	100	0	4	1	5	6	16	15	J	1			1	VG	MGW
									VC					CV	0.60	52	340	0	4	1	5	5	15	15	J	1	ox		1	VG	MGW
									VC					CV	0.83	53	80	0	4	3	5	5	17	15	J	1	ox		1	VG	MGW
									VC					CV	1.00	52	335	0	4	2	3	4	13	15	J	1	cly	ox	1	VG	MGW
									VC					CV	1.26	35	190	0	4	2	3	6	15	15	J	1	cly		1	VG	MGW
147.0	148.5	1.50	100	1.11	74	7	188	100	VC	light grey	fine grained		silicified	CV	0.14	45	350	0	4	2	2	5	13	15	J	1	cly	ox	1	VG	MGW
									VC					CV	0.29	47	355	0	4	2	2	5	13	15	J	1	cly		1	VG	MGW
									VC					CV	0.34	63	25	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	0.45	67	65	0	4	4	6	6	20	15	J	1			1	VG	MGW
									VC					CV	0.78	50	320	0	4	4	6	6	20	15	J	1			1	VG	MGW
									VC					CV	0.83	54	350	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.21	68	80	0	4	3	6	6	19	15	J	1			1	VG	MGW
148.5	150.0	1.40	93	0.94	63	8	156	150	VC	light grey	fine grained		silicified	CV	0.36	53	65	0	4	2	4	5	15	15	J	1			1	VG	MGW
									VC					CV	0.52	55	65	0	4	2	5	5	16	15	J	1			1	VG	MGW
									VC					CV	0.57	45	100	0	4	1	2	5	12	15	J	1	cly		1	VG	MGW
									VC					CV	0.72	40	100	0	0	1	1	5	7	15	J	5	cly		1	VG	MGW
									VC					CV	0.87	38	20	0	4	1	3	5	13	15	J	1	cly		1	VG	MGW
									VC					CV	0.93	40	260	0	4	4	5	6	19	15	J	1			1	VG	MGW
									VC					CV	1.00	42	90	0	4	1	4	5	14	15	J	1			1	VG	MGW
									VC					CV	1.20	42	30	0	4	1	3	5	13	15	J	1	cly		1	VG	MGW
150.0	151.5	1.40	93	1.36	91	8	156	100	VC	dark grey	fine grained		silicified	CV	0.13	70	65	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.34	60	245	0	4	2	6	6	18	15	J	1			1	P	MGW
									VC					CV	0.42	60	200	0	4	1	2	5	12	15	vn	1	cc		1	P	MGW
									VC					CV	0.87	65	220	0	4	1	4	5	14	15	J	1			1	P	MGW
									VC					CV	1.06	75	0	0	4	1	2	5	12	15	vn	1	cc		1	P	MGW
									VC					CV	1.11	70	190	0	4	1	2	5	12	15	vn	1			1	P	MGW
									VC					CV	1.33	68	120	0	4	1	5	5	15	15	J	1			1	P	MGW
									VC					CV	1.37	17	120	0	4	3	4	6	17	15	J	1			1	P	MGW
151.5	153.0	1.50	100	1.15	77	7	188	100	VC	dark grey	fine grained		silicified, clay coatings	CV	0.12	65	120	0	2	1	2	5	10	15	vn	5	cly		1	P	MGW
									VC					CV	0.20	60	70	0	2	1	2	5	10	15	vn	5	cly		1	P	MGW
									VC					CV	0.28	64	80	0	2	1	2	5	10	15	vn	5	cly		1	P	MGW
									VC					CV	0.38	42	80	0	2	1	2	5	10	15	vn	5	cly		1	P	MGW
									VC					CV	0.54	74	100	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.83	65	80	0	4	1	5	5	15	15	J	1			1	P	MGW
									VC					CV	1.01	67	100	0	4	2	5	6	17	15	J	1			1	P	MGW
153.0	154.5	1.40	93	1.22	81	3	350	100	VC	dark grey	fine grained		silicified	CV	0.10	55	270	0	4	2	5	6	17	15	J	1			1	P	MGW
									VC					CV	0.25	55	280	0	0	1	0	3	4	15	Rub	30	cly		1	P	MGW
									VC					CV	0.52	72	110	0	4	2	5	6	17	15	J	1			1	P	MGW
154.5	156.0	1.47	98	1.36	91	4	294	100	VC	dark grey	fine grained		silicified	CV	0.38	44	85	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.89	46	350	0	4	1	4	5	14	15	J	1			1	P	MGW
									VC					CV	0.91	45	125	0	4	2	4	5	15	15	J	1			1	P	MGW
									VC					CV	1.35	43	5	0	4	1	2	5	12	15	vn	1			1	P	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
156.0	157.5	1.50	100	1.05	70	13	107	150	VC	dark grey	fine grained		silicified, green staining in joints, pyrite can be seen in fresh joints, last 2 joints have a very thin soapy green infill	CV	0.34	70	110	0	4	3	5	5	17	15	J	1			1	P	MGW
									VC					CV	0.56	70	140	0	4	1	5	5	15	15	J	1			1	P	MGW
									VC					CV	0.58	30	310	0	4	1	5	5	15	15	J	1			1	P	MGW
									VC					CV	0.68	48	320	0	4	1	4	5	14	15	J	1			1	P	MGW
									VC					CV	0.92	65	50	0	4	1	4	5	14	15	J	1			1	P	MGW
									VC					CV	1.00	38	125	0	4	1	4	5	14	15	J	1			1	P	MGW
									VC					CV	1.31	52	310	0	4	1	2	5	12	15	J	1			1	P	MGW
									VC					CV	1.43	52	110	0	4	1	2	5	12	15	J	1	cly	chl	1	P	MGW
157.5	159.0	1.27	85	1.27	85	1	635	150	VC	dark grey	fine grained		silicified	CV	0.31	28	120	0	4	1	2	5	12	15	J	1	cly	chl	1	P	MGW
159.0	160.5	1.39	93	1.25	83	7	174	250	VC	dark grey	fine grained		silicified	CV	0.25	60	160	0	4	1	6	5	16	15	J	1			1	P	EA
									VC					CV	0.55	40	105	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.62			0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.73	36	340	0	4	1	6	5	16	15	J	1			1	P	EA
									VC					CV	0.93	38	350	0	4	1	6	5	16	15	J	1			1	P	EA
									VC					CV	1.19	15	150	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	1.31			0	4	1	6	6	17	15	J	1			1	P	EA
160.5	162.0	1.50	100	1.48	99	6	214	100	VC	dark grey	fine grained		red-brown staining in joints, silicified	CV	0.32	43	320	0	4	1	5	5	15	15	J	1	ox		1	P	EA
									VC					CV	0.47	70	135	0	4	2	6	6	18	15	J	1			1	P	EA
									VC					CV	0.77	25	35	0	4	1	5	5	15	15	J	1	ox		1	P	EA
									VC					CV	1.19	30	20	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	1.30	24	260	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	1.38	30	330	0	4	1	6	6	17	15	J	1			1	P	EA
162.0	163.5	1.46	97	1.30	87	10	133	100	VC	dark grey	fine grained		red-brown staining in joints, silicified	CV	0.36	30	80	0	1	3	2	5	11	15	J	5	chl		1	P	EA
									VC					CV	0.49	30	90	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.76	40	145	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	1.00	48	340	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	1.18	62	80	0	4	1	2	5	12	15	vn	1	cc		1	P	EA
163.5	165.0	1.50	100	1.12	75	11	125	50	VC	dark grey	fine grained		red-brown staining in joints, silicified	CV	0.10	37	100	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	0.16	50	30	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.33	35	50	0	4	1	2	5	12	15	J	1	cly	ox	1	P	EA
									VC					CV	0.46	27	300	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.61	35	310	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.73	65	140	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	1.07	52	190	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	1.15	44	20	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	1.27	25	25	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	1.30	45	165	0	4	1	2	5	12	15	J	1	cly	ox	1	P	EA
									VC					CV	1.40			0	4	1	2	5	12	15	J	1	cly	ox	1	P	EA
165.0	166.5	1.49	99	1.29	86	7	186	100	VC	dark grey	fine grained		red-brown staining in joints, silicified	CV	0.22	30	250	0	1	1	2	5	9	15	J	5	cly	cc	1	P	EA
									VC					CV	0.46	32	220	0	4	1	2	5	12	15	J	1	cly		1	P	EA
									VC					CV	0.62	18	40	0	4	1	6	5	16	15	J	1			1	P	EA
									VC					CV	0.76	32	360	0	4	1	2	5	12	15	J	1	cly	cc	1	P	EA
									VC					CV	0.86	36	24	0	4	1	5	5	15	15	J	1	cc		1	P	EA
									VC					CV	0.95	49	90	0	4	1	6	6	17	15	J	1			1	P	EA
									VC					CV	1.05	50	250	0	4	1	4	6	15	15	vn	1	qtz		1	P	EA
									VC					CV	1.13	40	100	0	4	1	2	5	12	15	J	1	cly		1	P	EA
166.5	168.0	1.50	100	0.95	63	17	83	50	VC	light grey	fine grained		red-brown staining in joints	CV	0.18	55	60	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.25	28	220	0	4	1	4	5	14	15	J	1	ox		1	P	EA
									VC					CV	0.47	25	150	0	1	1	2	5	9	15	J	1	cly	ox	1	P	EA
									VC					CV	0.65	20	20	0	1	1	4	5	11	15	J	1	ox		1	P	EA
									VC					CV	0.72	64	50	0	1	1	4	5	11	15	J	1	ox		1	P	EA
									VC					CV	0.83			0	1	1	4	5	11	15	J	1	ox		6	none	EA
									VC					CV	1.28			0	4	3	6	5	18	15	J	1			6	none	EA
168.0	169.5	1.34	89	0.20	13	41	32	50	VC	light grey	fine grained		red-brown staining in joints	CV	0.00			0	1	3	4	5	13	15	J	1			41	none	EA
169.5	171.0	1.50	100	1.02	68	11	125	100	VC	light grey	fine grained		red-brown staining in joints, silicified	CV	0.11			0	1	2	2	5	10	15	J	1	cly		1	none	EA
									VC					CV	0.21			0	4	5	6	5	20	15	J	1			1	none	EA
									VC					CV	0.28			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.61			0	4	3	6	6	19	15	J	1			1	none	EA
									VC					CV	0.66			0	4	3	6	6	19	15	J	1			1	none	EA
									VC					CV	0.68			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.96			0	1	1	2	5	9	15	J	1	cly		1	none	EA
									VC					CV	1.11			0	1	1	2	5	9	15	J	1	cly		1	none	EA
									VC					CV	1.15			0	1	1	2	5	9	15	J	1	cly		1	none	EA
									VC					CV	1.32			0	1	1	2	5	9	15	J	1	cly		1	none	EA
									VC					CV	1.42			0	4	1	2	5	12	15	J	1			1	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
171.0	172.5	1.50	100	1.45	97	4	300	100	VC	light grey	fine grained		silicified, red-brown staining on joints	CV	0.23			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.66			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.99			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.43			0	4	1	4	5	14	15	J	1	ox		1	none	EA
172.5	173.7	1.15	100	0.78	68	9	115	25	VC	pearl to grey	fine grained		microfolds, very broken rock is vuggy and has red-brown staining on surface, weathered, calcite veins are pink	CV	0.03			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.26			0	1	1	2	3	7	15	J	1	cly	ox	1	none	EA
									VC					CV	0.36			0	1	1	4	5	11	15	J	1	ox		1	none	EA
									VC					CV	0.40			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.48			0	4	1	4	5	14	15	J	1	ox		1	none	EA
									VC					CV	0.56			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	0.72			0	1	1	2	5	9	15	vn	1	cly	cc	1	none	EA
									VC					CV	0.94			0	4	1	2	5	12	15	J	1	cly	ox	1	none	EA
									VC					CV	1.13			0	4	3	2	5	14	15	J	1	cly	cc	1	none	EA
173.7	174.0	0.35	100	0.00	0	9	35	25	VC	pearl to grey	fine grained		rubble	CV	0.00			0	0	1	0	3	4	15	rub	100	cly	gg	1	none	EA
174.0	175.5	1.48	99	1.06	71	16	87	25	VC	light grey	fine grained		very broken, red-brown staining on joints, pink calcite veins	CV	0.35			0	4	1	2	5	12	15	J	1	cly		6	none	EA
									VC					CV	0.41			0	1	1	2	5	9	15	J	1	cly		1	none	EA
									VC					CV	0.56			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.73			0	1	5	2	6	14	15	vn	1	cc		1	none	EA
									VC					CV	0.83			0	1	1	2	5	9	15	vn	1	cly	cc	1	none	EA
									VC					CV	0.98			0	1	1	2	5	9	15	vn	1	cly	cc	5	none	EA
175.5	175.7	0.18	100	0.00	0	7	23	25	VC	light grey	fine grained		rubble	CV	0.00			0	0	1	0	3	4	15	rub	100	cly		1	none	EA
175.7	176.5	0.82	100	0.66	80	7	102	25	VC	dark grey	fine grained		silicified, red-brown staining in joints and surface of core, rubble zone: 0.00-0.18m, 1.00-1.13m	CV	0.00			0	4	3	5	5	17	15	J	1	cly		1	none	EA
									VC					CV	0.05			0	4	1	2	5	12	15	J	1	cly		1	none	EA
									VC					CV	0.16			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.41			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.49			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.56			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.80			0	4	1	6	5	16	15	J	1			1	none	EA
176.5	177.0	0.13	26	0.00	0	7	16	25	VC	dark grey	fine grained		rubble	CV	0.00			0	0	1	0	3	4	15	rub	100	cly		1	none	EA
177.0	178.3	1.30	100	1.16	89	9	130	50	VC	dark grey	fine grained		silicified, red-brown staining in joints, green staining in joints	CV	0.05			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.09			0	4	2	2	5	13	15	J	1	chl		1	none	EA
									VC					CV	0.14			0	4	2	2	5	13	15	J	1	chl		1	none	EA
									VC					CV	0.35			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	0.62			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	0.66			0	4	1	2	6	13	15	J	1	cc		1	none	EA
									VC					CV	0.97			0	4	1	2	5	12	15	J	1	cc		1	none	EA
									VC					CV	1.09			0	4	1	2	5	12	15	J	1	cc		1	none	EA
									VC					CV	1.14			0	4	1	2	5	12	15	J	1	cly		1	none	EA
178.3	179.9	1.56	98	1.30	81	9	156	25	VC	dark grey	fine grained		silicified, red-brown staining in joints, very vuggy	CV	0.16	54	320	0	4	1	6	6	17	15	J	1			1	F	EA
									VC					CV	0.37	12	245	0	4	1	2	5	12	15	J	1	cly		1	F	EA
									VC					CV	0.59	60	20	0	4	1	2	6	13	15	J	1	cc		1	F	EA
									VC					CV	0.81	56	20	0	4	1	2	5	12	15	J	1	cc		1	F	EA
									VC					CV	0.91	42	330	0	4	1	2	5	12	15	J	1	cc		1	F	EA
									VC					CV	1.14	34	290	0	1	1	2	2	6	15	vn	5	cly		1	F	EA
									VC					CV	1.31	72	180	0	4	1	5	5	15	15	J	1	cc		1	F	EA
									VC					CV	1.40	28	335	0	4	1	6	5	16	15	J	1			1	F	EA
									VC					CV	1.46	40	280	0	4	1	2	5	12	15	J	1	cly		1	F	EA
179.9	181.5	1.53	96	1.44	90	10	139	50	VC	dark grey	fine grained		silicified, red-brown staining on joints	CV	0.09			0	4	1	2	5	12	15	J	1	cly		1	none	EA
									VC					CV	0.28			0	4	1	2	5	12	15	vn	1	cly	cc	1	none	EA
									VC					CV	0.36			0	4	1	2	5	12	15	J	1	cc		1	none	EA
									VC					CV	0.52			0	4	1	2	5	12	15	J	1	cly	cc	1	none	EA
									VC					CV	0.63			0	4	1	2	5	12	15	J	1	cly		1	none	EA
									VC					CV	0.75			0	4	1	6	5	16	15	J	1			1	none	EA
									VC					CV	1.03			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.21			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.27			0	4	1	6	6	17	15	J	1			1	none	EA
									VC					CV	1.36			0	4	3	6	6	19	15	J	1			1	none	EA
181.5	183.0	1.50	100	1.50	100	3	375	100	VC	dark grey	fine grained		silicified	CV	1.09	25	20	0	4	1	6	6	17	15	J	1			1	G	EA
									VC					CV	1.37	60	80	0	4	1	6	6	17	15	J	1			1	G	EA
									VC					CV	1.47	52	315	0	4	1	6	6	17	15	J	1			1	G	EA
183.0	184.5	1.50	100	1.34	89	10	136	50	VC	dark grey	fine grained		silicified	CV	0.18	52	360	0	4	1	6	5	16	15	J	1			1	G	EA
									VC					CV	0.23	35	90	0	4	1	6	5	16	15	J	1			1	G	EA
									VC					CV	0.33	36	100	0	4	1	6	5	16	15	J	1			1	G	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition						Water							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.57	64	60	0	4	1	2	5	12	15	J	1	cly		1	G	EA
									VC					CV	0.61	25	290	0	4	1	6	5	16	15	J	1			1	G	EA
									VC					CV	0.86	32	300	0	4	1	6	5	16	15	J	1	cly		1	G	EA
									VC					CV	1.11	40	75	0	4	1	2	5	12	15	J	1			1	G	EA
									VC					CV	1.23	65	340	0	4	1	6	5	16	15	J	1			1	G	EA
									VC					CV	1.41	39	150	0	4	1	6	5	16	15	J	1			1	G	EA
									VC					CV	1.45	20	130	0	4	1	6	5	16	15	J	1			1	G	EA
184.5	186.0	1.50	100	1.50	100	2	500	50	VC	dark grey	fine grained		silicified	CV	0.52	64	310	0	4	1	6	5	16	15	J	1			1	G	EA
									VC					CV	1.39	58	140	0	4	1	2	5	12	15	vn	1	cc		1	G	EA
186.0	187.5	1.50	100	1.50	100	2	500	250	VC	dark grey	fine grained		silicified	CV	0.55	24	40	0	4	1	6	6	17	15	J	1			1	G	EA
									VC					CV	1.34	10	10	0	4	1	6	6	17	15	J	1			1	G	EA
187.5	189.0	1.50	100	1.50	100	2	500	50	VC	dark grey	fine grained		silicified	CV	0.71	16	265	0	4	1	6	6	17	15	J	1			1	G	EA
									VC					CV	0.96	62	45	0	4	2	2	5	13	15	vn	1	cc		1	G	EA
189.0	190.5	1.44	96	1.44	96	2	480	50	VC	dark grey	fine grained		silicified	CV	0.94	55	5	0	4	1	2	5	12	15	vn	1	cc		1	G	EA
									VC					CV	1.35	36	300	0	4	1	6	6	17	15	J	1			1	G	EA
190.5	192.0	1.50	100	1.45	97	5	250	150	VC	light grey	fine grained		silicified	CV	0.56	40	290	0	4	1	2	5	12	15	vn	1	cc		1	G	EA
									VC					CV	0.64	40	310	0	4	1	2	5	12	15	vn	1	cc		1	G	EA
									VC					CV	0.69	32	90	0	4	1	2	5	12	15	J	1	cc		1	G	EA
									VC					CV	1.25	55	260	0	4	1	2	5	12	15	vn	1	cc		1	G	EA
									VC					CV	1.41	58	160	0	4	3	6	6	19	15	J	1			1	G	EA
192.0	193.5	1.41	94	1.33	89	5	235	150	VC	light grey	fine grained		equigranular	CV	0.18	85	330	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.60	32	145	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	1.15	34	150	0	4	1	2	6	13	15	J	1	cc		1	G	BOC
									VC					CV	1.33	35	320	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	1.41	70	190	0	4	1	6	6	17	15	J	1			1	G	BOC
193.5	195.0	1.50	100	1.50	100	2	500		VC					CV	0.58	87	140	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	1.36	59	110	0	5	1	6	6	18	15	J	0			1	VG	BOC
195.0	196.5	1.45	97	1.28	85	7	181	150	VC	grey/white	fine grained		white 5mm grains	CV	0.09	58	40	0	4	1	4	6	15	15	J	1			1	G	BOC
									VC					CV	0.13	43	310	0	1	1	2	6	10	15	J	5			1	G	BOC
									VC					CV	0.17	43	310	0	4	1	4	6	15	15	J	1			1	G	BOC
									VC					CV	0.37	20	110	0	4	1	2	6	13	15	J	1	cc		1	G	BOC
									VC					CV	0.65	20	125	0	4	1	4	6	15	15	J	1			1	G	BOC
									VC					CV	1.01	24	180	0	4	1	4	6	15	15	J	0			1	G	BOC
									VC					CV	1.17	43	100	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	1.39	20	320	0	4	1	2	6	13	15	J	1	cc		1	G	BOC
196.5	197.2	0.70	100	0.62	89	3	175	150	VC					CV	0.11	45	250	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	0.44	45	10	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	0.62	50	20	0	4	3	4	6	17	15	J	1	ox		1	P	BOC
197.2	197.4	0.18	100	0.00	0	max	5	50	VC				rubble	CV	0.00			0	0	1	0	3	4	15	rub	180			1	none	BOC
197.4	198.0	0.62	100	0.40	65	10	56	150	VC	grey/white	fine grained			CV	0.00	35	330	0	1	1	3	3	8	15	J	1	Rub		1	G	BOC
									VC					CV	0.00	50	330	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.23	73	30	0	4	1	6	6	17	15	J	0			1	G	BOC
									VC					CV	0.44	57	245	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	0.62	45	340	0	5	1	6	6	18	15	J	0			1	G	BOC
198.0	199.5	1.50	100	1.34	89	6	214	150	VC	grey/white	fine grained		large dark grey clasts, green staining in joints	CV	0.30	64	40	0	4	3	5	6	18	15	J	1			1	G	MGW
									VC					CV	0.44	35	320	0	4	2	5	6	17	15	J	1			1	G	MGW
									VC					CV	0.63	62	0	0	4	2	4	6	16	15	J	1			1	G	MGW
									VC					CV	1.08	45	330	0	4	4	4	5	17	15	J	1			1	G	MGW
									VC					CV	1.22	80	50	0	4	4	5	6	19	15	J	1			1	G	MGW
									VC					CV	1.38	50	250	0	4	1	5	6	16	15	J	1			1	G	MGW
199.5	201.0	1.50	100	0.60	40	11	125	100	VC	grey/white	fine grained		dark grey clasts, green staining on core	CV	0.04	30	340	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	0.20	28	340	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	0.40	41	350	0	4	2	6	6	18	15	J	1			1	F	MGW
									VC					CV	0.53	48	170	0	4	2	6	6	18	15	J	1			1	F	MGW
									VC					CV	0.58	30	330	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	0.59	48	110	0	4	2	5	6	17	15	J	1			1	F	MGW
									VC					CV	0.74	56	250	0	5	1	5	6	17	15	J	0			1	F	MGW
									VC					CV	0.82	30	330	0	4	1	2	6	13	15	br	1			1	F	MGW
									VC					CV	0.96	37	320	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	1.17	30	100	0	0	1	0	5	6	15	rub	5	cly		1	F	MGW
									VC					CV	1.42	53	325	0	4	2	6	6	18	15	J	1			1	F	MGW
201.0	202.5	1.50	100	0.69	46	11	125	150	VC	grey/white	fine grained		dark grey clasts, green staining in joints	CV	0.28	54	20	0	4	2	5	6	17	15	J	1			1	P	MGW
									VC					CV	0.60	80	25	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.62	80	25	0	4	1	5	6	16	15	J	1			1	P	MGW
									VC					CV	0.76	55	240	0	0	2	0	3	5	15	rub	10	cly		1	P	MGW
									VC					CV	0.91	34	240	0	4	1	2	5	12	15	J	1	cly		1	P	MGW
									VC					CV	1.01	30	135	0	4	1	2	5	12	15	br	1	cly		1	P	MGW
									VC					CV	1.25	48	50	0	4	1	2	3	10	15	J	1			5	P	MGW
202.5	204.0	1.50	100	1.25	83	3	375	150	VC	grey/white	fine grained		dark grey clasts	CV	1.13	44	25	0	4	3	6	6	19	15	J	1			1	VG	MGW
									VC					CV	1.29	80	10	0	4	3	6	6	19	15	J	1			1	VG	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.45	65	60	0	4	2	6	6	18	15	J	1			1	VG	MGW
204.0	205.5	1.50	100	1.37	91	3	375	200	VC	grey/white	fine grained		dark grey clasts	CV	0.80	20	230	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	0.95	78	250	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	1.36	80	100	0	4	1	6	6	17	15	J	1			1	VG	MGW
205.5	207.0	1.50	100	1.50	100	3	375	200	VC	grey/white	fine grained		dark grey clasts	CV	0.27	62	220	0	4	2	6	6	18	15	J	1			1	G	MGW
									VC					CV	0.71	26	310	0	4	2	5	6	17	15	J	1			1	G	MGW
									VC					CV	1.29	64	245	0	4	1	2	4	11	15	J	1			1	G	MGW
207.0	208.5	1.46	97	1.40	93	2	487	150	VC	dark grey	fine grained		silicified	CV	0.43	75	80	0	5	2	6	6	19	15	J	0			1	VG	MGW
									VC					CV	1.06	80	100	0	5	2	6	6	19	15	J	0			1	VG	MGW
208.5	210.0	1.50	100	1.13	75	5	250	150	VC	dark grey	fine grained		silicified	CV	0.36	35	130	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	0.38	18	5	0	4	1	5	6	16	15	J	1			1	F	MGW
									VC					CV	0.52	80	30	0	4	1	5	5	15	15	J	1			1	P	MGW
									VC					CV	1.00	85	100	0	4	1	5	5	15	15	J	1			1	F	MGW
									VC					CV	1.39	78	80	0	4	1	4	6	15	15	J	1	FeO		1	F	MGW
210.0	211.5	1.45	97	1.36	91	3	363	200	VC	dark grey	fine grained		silicified	CV	0.10	62	300	0	4	1	5	6	16	15	J	1			1	G	MGW
									VC					CV	0.51	74	40	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	1.17	38	135	0	2	1	4	6	13	15	J	5	qtz		1	G	MGW
211.5	213.0	1.50	100	1.03	69	5	250	100	VC	dark grey	fine grained		silicified	CV	0.09	72	100	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	0.52	83	65	0	4	2	6	6	18	15	J	1			1	G	MGW
									VC					CV	0.53	13	230	0	4	2	6	6	18	15	J	1			1	G	MGW
									VC					CV	0.80	53	175	0	4	2	6	6	18	15	J	1			1	G	MGW
									VC					CV	1.39	45	320	0	4	1	3	4	12	15	br	1			1	G	MGW
213.0	214.5	1.50	100	1.50	100	3	375	100	VC	light grey	fine grained		silicified	CV	0.29	42	170	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.60	60	250	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	1.37	41	170	0	4	2	6	6	18	15	J	1			1	VG	MGW
214.5	216.0	1.50	100	1.41	94	6	214	150	VC	light grey	fine grained		silicified	CV	0.34	30	280	0	4	5	4	6	19	15	J	1			1	P	MGW
									VC					CV	0.40	50	80	0	4	4	6	6	20	15	J	1			1	P	MGW
									VC					CV	0.65	55	40	0	4	1	6	6	17	15	J	1			1	P	MGW
									VC					CV	0.74	44	10	0	4	1	6	6	17	15	J	1			1	P	MGW
									VC					CV	0.97	30	115	0	4	2	6	6	18	15	J	1			1	P	MGW
									VC					CV	1.33	83	40	0	4	1	6	6	17	15	J	1			1	P	MGW
216.0	217.5	1.50	100	1.36	91	5	250	150	VC	light grey	fine grained		silicified	CV	0.32	30	280	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	0.61	50	80	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	0.88	55	40	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	1.10	68	260	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	1.36	47	165	0	4	1	6	6	17	15	J	1			1	G	MGW
217.5	219.0	1.50	100	1.18	79	7	188	150	VC	light grey	fine grained		silicified	CV	0.22	60	40	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.26	35	170	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	0.39	63	280	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.60	85	180	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.07	85	130	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.36	47	305	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.46	32	335	0	4	3	6	6	19	15	J	1			1	VG	MGW
219.0	220.5	1.50	100	1.50	100	4	300	150	VC	light grey	fine grained		silicified	CV	0.70	80	135	0	5	1	6	6	18	15	J	0			1	VG	MGW
									VC					CV	0.81	83	135	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	1.06	62	100	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	1.31	80	110	0	4	1	2	5	12	15	J	1	cc		1	VG	MGW
220.5	222.0	1.50	100	1.50	100	3	375	150	VC	light grey	fine grained		silicified	CV	0.39	58	275	0	4	1	2	5	12	15	J	1	cc		1	G	MGW
									VC					CV	0.67	65	50	0	4	1	6	6	17	15	J	1			1	G	MGW
									VC					CV	1.20	34	40	0	4	6	6	5	21	15	J	1			1	G	MGW
222.0	223.5	1.45	97	1.38	92	4	290	150	VC	light grey	fine grained		silicified, large quartz veins cross cutting core	CV	0.21	72	350	0	4	3	6	5	18	15	J	1			1	VG	MGW
									VC					CV	0.45	84	60	0	4	2	6	6	18	15	J	1			1	VG	MGW
									VC					CV	0.85	32	340	0	4	3	4	6	17	15	J	1	qtz		1	VG	MGW
									VC					CV	0.97	75	40	0	4	1	6	6	17	15	J	1			1	VG	MGW
223.5	225.0	1.50	100	1.26	84	6	214	150	VC	light grey	fine grained		silicified	CV	0.44	27	300	0	4	3	6	6	19	15	J	1			1	VG	MGW
									VC					CV	0.69	53	165	0	4	2	5	6	17	15	J	1			1	VG	MGW
									VC					CV	1.01	41	335	0	0	1	0	3	4	15	SH	35	cly	py	1	VG	MGW
									VC					CV	1.15	62	350	0	4	3	5	6	18	15	J	1			1	VG	MGW
									VC					CV	1.30	55	125	0	4	1	4	6	15	15	J	1			1	VG	MGW
									VC					CV	1.42	43	320	0	4	2	6	6	18	15	J	1			1	VG	MGW
225.0	226.5	1.46	97	1.44	96	3	365	150	VC	light grey	fine grained		silicified	CV	0.40	74	270	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.74	84	100	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.35	41	210	0	4	1	5	6	16	15	J	1			1	VG	MGW
226.5	228.0	1.50	100	1.50	100	2	500	150	VC	light grey	fine grained		silicified	CV	0.20	47	130	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.41	78	85	0	4	1	2	5	12	15	J	1	cc		1	VG	MGW
228.0	229.5	1.50	100	1.50	100	3	375	150	VC	light grey	fine grained		silicified	CV	0.15	54	185	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	0.81	65	50	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.07	78	80	0	4	1	6	6	17	15	J	1			1	VG	MGW
229.5	231.0	1.46	97	1.32	88	3	365	150	VC	light grey	fine grained		silicified	CV	0.37	40	170	0	4	3	6	5	18	15	J	1			1	VG	MGW
									VC					CV	0.40	26	60	0	1	3	4	5	13	15	J	5	qtz		1	VG	MGW
									VC					CV	0.76	35	130	0	4	2	4	5	15	15	J	1	qtz		1	VG	MGW
231.0	232.5	1.50	100	1.50	100	5	250	150	VC	light grey	fine grained		silicified	CV	0.41	84	260	0	5	1	6	6	18	15	J	0			1	VG	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	1.22	84	60	0	5	1	6	6	18	15	J	0			1	VG	MGW
									VC					CV	1.37	23	255	0	4	3	4	6	17	15	J	1	qtz		1	VG	MGW
									VC					CV	1.44	87	90	0	4	1	6	6	17	15	J	1			1	VG	MGW
									VC					CV	1.54	86	280	0	4	3	6	6	19	15	J	1			1	VG	MGW
232.5	234.0	1.48	99	1.37	91	3	370	100	VC	light grey	fine grained		silicified	CV	1.19	36	320	0	4	3	4	5	16	15	J	1	qtz		1	VG	MGW
									VC					CV	1.35	36	320	0	4	3	4	5	16	15	J	1	qtz		1	VG	MGW
									VC					CV	1.48	75	300	0	4	3	6	6	19	15	J	1			1	VG	MGW
234.0	235.5	1.50	100	1.38	92	6	214	100	VC	light grey	fine grained		silicified with quartz and pyrite	CV	0.25	54	110	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	0.67	65	90	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	1.07	65	95	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	1.27	76	270	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	1.32	72	240	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	1.39	22	260	0	4	3	4	5	16	15	J	1	qtz		1	VG	BOC
235.5	237.0	1.50	100	1.50	100	4	300	100	VC	grey	fine grained		equigranular, siltstone with some calcite veins and qtz <5mm	CV	0.35	66	270	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	0.88	67	295	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	1.44	26	90	0	4	3	4	6	17	15	J	1	qtz		1	G	BOC
									VC					CV	1.58	31	140	0	4	1	4	6	15	15	J	1	qtz		1	G	BOC
237.0	238.5	1.46	97	1.46	97	5	243	100	VC	grey	fine grained		equigranular, siltstone with some calcite veins and qtz <5mm	CV	0.35	63	350	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.64	73	10	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.73	67	130	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.96	73	160	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	1.34	46	320	0	4	3	4	6	17	15	J	1	qtz		1	VG	BOC
238.5	240.0	1.50	100	1.50	100	8	167	100	VC	grey	fine grained		equigranular, siltstone with some calcite veins and qtz <5mm	CV	0.20	73	320	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.32	39	90	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	0.48	77	130	0	4	3	4	5	16	15	J	1	qtz		1	VG	BOC
									VC					CV	0.60	80	90	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.86	80	90	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	1.15	77	100	0	5	1	4	5	15	15	J	0	qtz		1	VG	BOC
									VC					CV	1.33	44	20	0	4	1	4	6	15	15	J	0			1	VG	BOC
									VC					CV	1.52	78	90	0	4	3	6	6	19	15	J	0			1	VG	BOC
240.0	241.5	1.45	97	1.43	95	5	242	100	VC	grey	fine grained		equigranular tuff calcite/quartz <5mm	CV	0.14	72	35	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	0.58	37	80	0	5	1	4	6	16	15	J	0	qtz		1	P	BOC
									VC					CV	0.98	73	350	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.29	74	100	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.43	76	15	0	5	1	6	6	18	15	J	0			1	P	BOC
241.5	243.0	1.50	100	1.33	89	7	188	100	VC	grey	fine grained		equigranular tuff calcite/quartz <5mm	CV	0.27	28	80	0	5	1	4	5	15	15	J	0	qtz		1	P	BOC
									VC					CV	0.65	77	350	0	5	1	4	5	15	15	J	0	qtz		1	P	BOC
									VC					CV	1.03	26	260	0	5	1	4	5	15	15	J	0	qtz		1	P	BOC
									VC					CV	1.09	56	20	0	4	3	6	6	19	15	J	1			1	P	BOC
									VC					CV	1.10	77	20	0	4	3	6	6	19	15	J	1			1	P	BOC
									VC					CV	1.16	78	30	0	4	1	6	6	17	15	J	1			1	P	BOC
									VC					CV	1.32	34	270	0	4	1	4	5	14	15	J	1	qtz		1	P	BOC
243.0	244.5	1.48	99	1.39	93	6	211	100	VC	grey	fine grained		equigranular tuff calcite/quartz <5mm	CV	0.28	30	40	0	5	1	4	6	16	15	J	0			1	G	BOC
									VC					CV	0.40	37	330	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	0.84	44	350	0	4	1	4	6	15	15	J	1	qtz		1	G	BOC
									VC					CV	1.17	79	130	0	5	1	6	5	17	15	J	0			1	G	BOC
									VC					CV	1.39	33	340	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	1.48	37	350	0	5	1	6	6	18	15	J	0			1	G	BOC
244.5	246.0	1.50	100	1.50	100	6	214	100	VC	grey	fine grained		equigranular, tuff with some calcite quartz veins<5mm and 7mm cly infill	CV	0.36	24	310	0	0	1	0	6	7	15	J	7	cly		1	G	BOC
									VC					CV	0.58	27	320	0	4	1	6	6	17	15	J	0			1	G	BOC
									VC					CV	0.60	24	325	0	4	1	6	6	17	15	J	0			1	G	BOC
									VC					CV	0.79	55	130	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	0.98	80	120	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	1.29	32	330	0	5	1	4	5	15	15	J	0	qtz		1	G	BOC
246.0	247.5	1.41	94	1.36	91	6	201	100	VC	grey	fine grained		equigranular, tuff with some calcite quartz veins<5mm and 7mm cly infill	CV	0.24	39	120	0	5	1	4	5	15	15	J	0	qtz		1	G	BOC
									VC					CV	0.30	20	250	0	5	1	4	5	15	15	J	0	qtz		1	G	BOC
									VC					CV	0.65	72	250	0	5	1	6	6	18	15	J	0			1	G	BOC
									VC					CV	0.83	66	130	0	5	3	6	6	20	15	J	0			1	G	BOC
									VC					CV	1.07	25	320	0	5	1	3	5	14	15	J	0	qtz		1	G	BOC
									VC					CV	1.41	64	320	0	4	3	6	6	19	15	J	0			1	G	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
247.5	249.0	1.50	100	1.48	99	6	214	100	VC	grey	fine grained		equigranular, tuff with some calcite quartz veins<5mm and 7mm cly infill	CV	0.18	76	100	0	4	3	6	6	19	15	J	0			1	VG	BOC
									VC					CV	0.36	80	110	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.88	70	90	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	1.24	76	220	0	4	3	6	6	19	15	J	1			1	VG	BOC
									VC					CV	1.30	82	90	0	4	3	6	6	19	15	J	0			1	VG	BOC
									VC					CV	1.54	87	10	0	5	1	6	6	18	15	J	0			1	VG	BOC
249.0	250.5	1.45	97	1.45	97	4	290	100	VC	grey	fine grained		equigranular, tuff with some calcite quartz veins<5mm and 7mm cly infill	CV	0.25	67	270	0	4	1	6	6	17	15	J	0			1	VG	BOC
									VC					CV	0.53	33	300	0	4	1	6	6	17	15	J	0			1	VG	BOC
									VC					CV	1.31	81	50	0	4	1	3	5	13	15	J	0	qtz		1	VG	BOC
									VC					CV	1.45	87	350	0	4	3	6	6	19	15	J	0			1	VG	BOC
250.5	252.0	1.49	99	1.24	83	8	166	75	VC	grey	fine grained		equigranular, many calcite veins<5mm	CV	0.31	74		0	5	1	6	6	18	15	J	0			1	none	BOC
									VC					CV	0.79	74		0	5	1	6	6	18	15	J	0			1	none	BOC
									VC					CV	0.85	70		0	5	1	6	6	18	15	J	0			1	none	BOC
									VC					CV	0.96	65		0	5	1	6	6	18	15	J	0			1	none	BOC
									VC					CV	1.08	63		0	5	1	6	6	18	15	J	0			1	none	BOC
									VC					CV	1.26	32		0	4	3	6	6	19	15	J	0			1	none	BOC
									VC					CV	1.41	31		0	4	3	6	6	19	15	J	0			1	none	BOC
									VC					CV	1.49	55		0	4	3	6	6	19	15	J	1			1	none	BOC
252.0	253.5	1.50	100	1.50	100	4	300	100	VC	grey	fine grained		equigranular, many calcite veins<5mm	CV	0.78	83	130	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.04	37	310	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.15	74	30	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.37	45	160	0	5	3	0	0	8	15	J	0			1	P	BOC
253.5	255.0	1.49	99	1.24	83	6	213	75	VC					CV	0.20	54	210	0	4	1	6	6	17	15	J	1			1	P	BOC
									VC					CV	0.54	60	50	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.05	38	50	0	5	1	3	6	15	15	J	0			1	P	BOC
									VC					CV	1.21	62	70	0	5	1	3	6	15	15	J	0			1	P	BOC
									VC					CV	1.28	40	350	0	5	1	6	6	18	15	J	0			1	P	BOC
									VC					CV	1.34	42	350	0	5	1	6	6	18	15	J	0			1	P	BOC
255.0	256.5	1.42	95	0.72	48	13	101	75	VC	grey green	fine grained		Tuff with many quartz veins and chlorite stain, rubblized zones	CV	0.05	88		0	4	3	6	6	19	15	J	1			5	none	BOC
									VC					CV	0.11	36		0	4	3	0	5	12	15	J	1	chl		1	none	BOC
									VC					CV	0.30	34		0	4	1	2	5	12	15	J	0	chl		1	none	BOC
									VC					CV	0.44	69		0	4	3	2	5	14	15	J	0	chl		1	none	BOC
									VC					CV	0.59	80		0	4	3	2	5	14	15	J	0	chl		1	none	BOC
									VC					CV	0.75	44		0	4	3	2	5	14	15	J	0	chl		1	none	BOC
									VC					CV	0.83	46		0	4	3	4	6	17	15	J	0			1	none	BOC
									VC					CV	1.23	52		0	5	1	2	5	13	15	J	0	chl		1	none	BOC
									VC					CV	1.40	48		0	4	1	4	6	15	15	J	0			1	none	BOC
256.5	258.0	1.50	100	0.64	43	14	100	75	VC	grey green	fine grained		Tuff with many quartz veins and chlorite stain, rubblized zones with clay infilling. 257.3 - 257.42, highly altered silica material	CV	0.05	35	300	0	5	1	2	5	13	15	J	0	cly		1	F	BOC
									VC					CV	0.15	25	310	0	1	1	2	6	10	15	J	3			1	F	BOC
									VC					CV	0.23	28	310	0	5	1	6	6	18	15	J	0			1	F	BOC
									VC					CV	0.40	38	90	0	4	3	6	6	19	15	J	1			1	F	BOC
									VC					CV	0.62	81	180	0	5	1	2	5	13	15	J	0	cly		1	F	BOC
									VC					CV	0.74	46	320	0	1	3	2	5	11	15	J	2	cly		1	F	BOC
									VC					CV	0.86	46	300	0	1	3	2	6	12	15	J	4			1	F	BOC
									VC					CV	1.03	56	16	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	1.14	44	320	0	4	3	4	5	16	15	J	0	qtz		1	F	BOC
									VC					CV	1.19	28	290	0	4	3	4	6	17	15	J	0			1	F	BOC
									VC					CV	1.35	75	250	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	1.36	22	300	0	4	1	2	5	12	15	J	3	cly		1	F	BOC
									VC					CV	1.42	28	110	0	4	1	2	5	12	15	J	0	chl		1	F	BOC
									VC					CV	1.48	83	20	0	4	3	2	5	14	15	J	1	chl		1	F	BOC
258.0	259.5	1.50	100	0.87	58	12	115	50	VC				rubblized top	CV	0.05	55	70	0	0	3	0	6	9	15	J	1000			1	F	BOC
									VC					CV	0.20	56	30	0	4	5	6	6	21	15	J	1			1	F	BOC
									VC					CV	0.41	64	50	0	4	1	2	5	12	15	J	0	cc		1	F	BOC
									VC					CV	0.85	34	310	0	1	1	2	5	9	15	J	4	cly		1	F	BOC
									VC					CV	0.92	34	320	0	1	1	2	5	9	15	J	2	cly		1	F	BOC
									VC					CV	1.16	29	320	0	1	1	2	5	9	15	J	2	cly		1	F	BOC
									VC					CV	1.26	43	100	0	4	3	6	6	19	15	J	0			1	F	BOC
									VC					CV	1.33	31	310	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	1.34	31	310	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	1.44	34	120	0	4	3	6	6	19	15	J	0			1	F	BOC
									VC					CV	1.48	22	40	0	4	3	6	6	19	15	J	0			1	F	BOC
259.5	261.0	1.50	100	0.74	49	14	100	50	VC					CV	0.08	30	330	0	1	3	2	5	11	15	J	3	cly		1	F	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition						Water							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.24	72	100	0	4	3	6	6	19	15	J	0			1	F	BOC
									VC					CV	0.34	72	30	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	0.57	37	320	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	0.66	67	70	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	0.71	31	280	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	0.74	62	30	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	0.85	28	300	0	0	1	6	6	13	15	J	7	qtz		1	F	BOC
									VC					CV	0.87	28	300	0	0	1	6	6	13	15	J	6	qtz		1	F	BOC
									VC					CV	0.95	32	300	0	4	3	6	6	19	15	J	1	cc		1	F	BOC
									VC					CV	1.05	76	40	0	0	3	6	6	15	15	J	1000			1	F	BOC
									VC					CV	1.10	40	10	0	4	3	6	6	19	15	J	1	qtz		1	F	BOC
									VC					CV	1.14	71	340	0	5	1	6	6	18	15	J	0			1	F	BOC
									VC					CV	1.41	44	180	0	5	1	6	6	18	15	J	0			1	P	M6W
261.0	262.5	1.40	93	0.21	14	10	127	50	VC	light grey	fine grained		silicified, slightly mechanically broken	CV	0.13			0	4	3	6	6	19	15	J	1			1	P	M6W
									VC					CV	0.23			0	4	2	6	6	18	15	J	1			1	P	M6W
									VC					CV	0.28			0	4	1	6	6	17	15	J	1			1	P	M6W
									VC					CV	0.34			0	4	2	6	6	18	15	J	1			1	P	M6W
									VC					CV	0.43			0	4	1	6	6	17	15	J	1			1	P	M6W
									VC					CV	0.57			0	4	1	6	6	17	15	J	1			1	P	M6W
									VC					CV	0.71			0	4	1	6	6	17	15	J	1			1	P	M6W
									VC					CV	0.88			0	4	2	6	6	18	15	J	1			1	P	M6W
									VC					CV	0.97			0	4	3	6	6	19	15	J	1			1	P	M6W
									VC					CV	1.10			0	4	3	6	6	19	15	J	1			1	P	M6W
262.5	264.0	1.50	100	0.60	40	14	100	100	VC	light grey	fine grained		silicified	CV	0.00			0	0	1	Hard > 5mm	5	9	15	J	240	Rub		1	VG	BOC
									VC					CV	0.43	72	110	0	4	2	5	6	17	15	J	1			1	VG	BOC
									VC					CV	0.49	80	45	0	0	1	3	5	9	15	J	140	Rub		1	VG	BOC
									VC					CV	0.94	30	305	0	0	1	4	5	10	15	J	1	Rub		1	VG	BOC
									VC					CV	1.13	62	130	0	4	1	4	5	14	15	J	1			1	VG	BOC
									VC					CV	1.14	72	80	0	4	1	5	6	16	15	J	1			1	VG	BOC
									VC					CV	1.30	30	10	0	4	3	6	6	19	15	J	1			1	VG	BOC
									VC					CV	1.43	72	75	0	4	3	6	6	19	15	J	1			1	VG	BOC
264.0	265.5	1.50	100	1.06	71	8	167	150	VC	light grey	fine grained		silicified	CV	0.23	63	35	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.41	72	30	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.75	38	100	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.87	49	145	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.92	32	315	0	4	1	6	5	16	15	J	1			1	VG	BOC
									VC					CV	1.04	35	310	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	1.05	66	30	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	1.24	40	315	0	4	3	6	5	18	15	J	1			1	VG	BOC
265.5	267.0	1.50	100	1.09	73	9	150	100	VC	light grey	fine grained		silicified	CV	0.21	70	35	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.55	38	70	0	4	4	6	6	20	15	J	1			1	VG	BOC
									VC					CV	0.64	22	310	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.79	70	130	0	4	4	6	6	20	15	J	1			1	VG	BOC
									VC					CV	0.85	26	315	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	1.08	76	10	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	1.28	75	350	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	1.37	80	325	0	4	2	5	6	17	15	J	1			1	VG	BOC
									VC					CV	1.47	75	85	0	4	1	6	6	17	15	J	1			1	VG	BOC
267.0	268.5	1.50	100	0.85	57	10	136	100	VC	light grey	fine grained		silicified	CV	0.10	20	15	0	5	1	6	6	18	15	J	0			1	VG	BOC
									VC					CV	0.32	29	295	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.34	28	180	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.52	32	170	0	4	3	6	6	19	15	J	1			1	VG	BOC
									VC					CV	0.62	30	305	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.67	84	120	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.70	33	295	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.91	65	10	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	1.28	20	305	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	1.36	67	10	0	4	1	6	6	17	15	J	1			1	VG	BOC
268.5	270.0	1.50	100	1.18	79	7	188	100	VC	light grey	fine grained		silicified	CV	0.13	30	320	0	4	3	6	6	19	15	J	1			1	G	BOC
									VC					CV	0.29	30	10	0	4	4	6	6	20	15	J	1			1	G	BOC
									VC					CV	0.57	42	70	0	4	3	5	6	18	15	J	1			1	G	BOC
									VC					CV	0.70	64	10	0	4	2	4	6	16	15	J	1			1	G	BOC
									VC					CV	1.01	65	30	0	4	2	4	6	16	15	J	1			1	G	BOC
									VC					CV	1.25	40	125	0	4	2	6	6	18	15	J	1			1	G	BOC
									VC					CV	1.51	37	0	0	4	2	6	6	18	15	J	1			1	G	BOC
270.0	271.5	1.50	100	1.14	76	5	250	100	VC	light grey	fine grained			CV	0.43	38	175	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.68	45	150	0	4	3	6	6	19	15	J	1			1	VG	BOC
									VC					CV	0.77	15	10	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	1.14	26	80	0	4	4	6	6	20	15	J	1			1	VG	BOC
									VC					CV	1.48	40	170	0	4	1	6	6	17	15	J	1			1	VG	BOC
271.5	273.0	1.50	100	0.84	56	8	167	100	VC	light grey	fine grained			CV	0.24			0	4	1	6	6	17	15	J	0			1	P	BOC
									VC					CV	0.26			0	4	1	6	6	17	15	J	0			1	P	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					CV	0.41			0	4	1	6	6	17	15	J	0			1	P	BOC
									VC					CV	0.47			0	4	1	6	6	17	15	J	0			1	P	BOC
									VC					CV	0.54			0	4	3	6	6	19	15	J	0			1	P	BOC
									VC					CV	0.75			0	4	1	6	6	17	15	J	0			1	P	BOC
									VC					CV	0.94			0	0	1	4	5	10	15	J	100			1	P	BOC
									VC					CV	1.35			0	4	3	6	6	19	15	J	1			1	G	BOC
273.0	274.5	1.40	93	0.52	35	8	156	100	VC	light grey	fine grained		silicified, very mechanically broken	CV	0.06	38	320	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.19	40	195	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.21	32	310	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.60	54	195	0	4	2	6	6	18	15	J	1			1	G	BOC
									VC					CV	0.62	32	310	0	4	1	2	5	12	15	J	1	ser		1	G	BOC
									VC					CV	0.75	30	75	0	4	4	2	5	15	15	J	1	ser		1	G	BOC
									VC					CV	1.18	34	310	0	4	2	2	5	13	15	J	1	ser		1	G	BOC
									VC					CV	1.20	40	45	0	4	2	6	6	18	15	J	1			1	G	BOC
274.5	276.0	1.50	100	0.96	64	9	150	50	VC	light grey	fine grained		silicified	CV	0.41	40	120	0	4	1	2	5	12	15	J	1	ser		1	F	BOC
									VC					CV	0.44	35	130	0	4	2	6	6	18	15	J	1			1	F	BOC
									VC					CV	0.51	33	160	0	4	1	2	5	12	15	J	1	ser		1	F	BOC
									VC					CV	0.56	43	130	0	4	1	2	5	12	15	J	1	chl		1	F	BOC
									VC					CV	0.69	40	125	0	4	3	6	6	19	15	J	40			1	F	BOC
									VC					CV	0.86	44	220	0	0	1	0	5	6	15	J	40	chl		1	F	BOC
									VC					CV	1.04			0	0	1	0	3	4	15	J	60	Rub		1	F	BOC
									VC					CV	1.06			0	2	1	0	5	8	15	J	5	cly		1	F	BOC
									VC					CV	1.46			0	4	1	2	5	12	15	J	1	chl		1	F	BOC
276.0	277.5	1.50	100	1.10	73	7	188	100	VC	light grey	fine grained		silicified	CV	0.23	56	165	0	4	3	6	6	19	15	J	1			1	G	BOC
									VC					CV	0.45	80	165	0	4	3	6	6	19	15	J	1			1	G	BOC
									VC					CV	0.57	42	295	0	0	2	0	5	7	15	J	10	cly		1	G	BOC
									VC					CV	0.65	70	50	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.83	33	310	0	1	2	0	5	8	15	J	5	cly		1	G	BOC
									VC					CV	1.01	62	160	0	4	3	6	6	19	15	J	1			1	G	BOC
									VC					CV	1.32	84	80	0	1	3	2	5	11	15	J	5	ser		1	G	BOC
277.5	279.0	1.50	100	1.33	89	5	250	100	VC	light grey	fine grained		silicified	CV	0.06	42	35	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.09	45	10	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.18	65	50	0	4	2	2	5	13	15	J	1	chl		1	VG	BOC
									VC					CV	0.57	70	75	0	4	2	2	5	13	15	J	1	chl		1	VG	BOC
									VC					CV	0.91	15	340	0	4	2	4	5	15	15	J	1	qtz		1	VG	BOC
279.0	280.5	1.50	100	1.30	87	5	250	100	VC	light grey	fine grained		silicified	CV	0.24	64	150	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.60	65	65	0	2	2	4	6	14	15	J	5	qtz		1	VG	BOC
									VC					CV	0.84	40	100	0	4	2	6	6	18	15	J	1			1	VG	BOC
									VC					CV	0.94	52	110	0	4	1	6	5	16	15	J	1			1	VG	BOC
									VC					CV	1.40	38	350	0	4	2	4	5	15	15	J	1	qtz		1	VG	BOC
280.5	282.0	1.50	100	0.95	63	9	150	100	VC	light grey	fine grained		silicified	CV	0.31	18	0	0	4	2	4	5	15	15	J	1	qtz		1	G	BOC
									VC					CV	0.51	30	320	0	4	1	2	5	12	15	J	1	chl		1	G	BOC
									VC					CV	0.59	55	80	0	4	2	6	6	18	15	J	1			1	G	BOC
									VC					CV	0.67	58	10	0	4	2	6	6	18	15	J	1			1	G	BOC
									VC					CV	0.68	60	100	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	0.84	30	300	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	1.07	68	70	0	4	1	6	6	17	15	J	1			1	G	BOC
									VC					CV	1.18	30	320	0	4	1	6	6	17	15	J	1			1	G	BOC
282.0	283.5	1.50	100	0.95	63	9	150	100	VC	light grey	fine grained		silicified	CV	0.12	47	350	0	4	2	6	6	18	15	J	1			1	G	BOC
									VC					CV	0.30	40	340	0	4	1	2	6	13	15	J	1	chl		1	VG	BOC
									VC					CV	0.34	33	340	0	4	2	2	6	14	15	J	1	chl		1	VG	BOC
									VC					CV	0.47	65	170	0	4	2	2	6	14	15	J	1	chl		1	VG	BOC
									VC					CV	0.61	35	290	0	0	1	0	3	4	15	J	50	Rub		1	VG	BOC
									VC					CV	0.81	40	350	0	0	1	0	5	6	15	J	15	cly		1	VG	BOC
									VC					CV	1.04	73	165	0	4	3	2	5	14	15	J	1	chl		1	VG	BOC
									VC					CV	1.29	78	200	0	5	2	4	5	16	15	J	0	qtz		1	VG	BOC
									VC					CV	1.44	40	330	0	4	2	6	6	18	15	J	1			1	VG	BOC
283.5	285.0	1.50	100	1.34	89	7	188	100	VC	light grey	fine grained		silicified	CV	0.22	62	170	0	4	3	2	5	14	15	J	1	chl		1	F	BOC
									VC					CV	0.31	50	20	0	4	1	4	5	14	15	J	1	qtz	chl	1	F	BOC
									VC					CV	0.50	50	170	0	4	1	4	5	14	15	J	1	qtz		1	F	BOC
									VC					CV	0.75	35	350	0	4	2	2	5	13	15	J	1	chl		1	F	BOC
									VC					CV	0.96	55	170	0	4	1	4	5	14	15	J	1	qtz		1	F	BOC
									VC					CV	1.10	25	155	0	4	2	6	6	18	15	J	1			1	F	BOC
									VC					CV	1.26	35	155	0	4	1	6	6	17	15	J	1			1	F	BOC
285.0	286.5	1.50	100	1.50	100	4	300	100	VC	light grey	fine grained		silicified	CV	0.35	62	230	0	4	1	6	6	17	15	J	1			1	F	BOC
									VC					CV	0.55	60	170	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	0.84	27	165	0	4	1	6	6	17	15	J	1			1	VG	BOC
									VC					CV	1.21	36	160	0	4	2	6	6	18	15	J	1			1	VG	BOC
286.5	288.0	1.50	100	1.50	100	2	500	150	VC	light grey	fine grained		silicified	CV	0.60	39	300	0	4	1	6	6	17	15	J	1			1	VG	BOC
									PPY					CV	1.02	54	120	0	4	2	6	6	18	15	J	1			1	VG	BOC
288.0	289.5	1.50	100	1.50	100	1	750	200	PPY	light grey	fine grained		silicified	CV	1.03	15	70	0	4	3	2	5	14	15	J	1	chl		1	VG	BOC
289.5	291.0	1.50	100	1.50	100	2	500	150	PPY	light grey	fine grained		silicified	CV	0.57	42	40	0	0	1	0	5	6	15	J	10	cly		1	G	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									PPY					CV	1.32	34	60	0	4	2	4	6	16	15	J	0	qtz		1	G	BOC
291.0	292.5	1.40	93	1.40	93	1	700	150	PPY	light grey	fine grained		silicified	CV	1.05	48	160	0	4	1	4	5	14	15	J	0	chl		1	G	BOC
292.5	294.0	1.50	100	1.50	100	3	375	150	PPY	light grey	fine grained		silicified	CV	0.26	45	160	0	4	2	6	6	18	15	J	0			1	G	BOC
									PPY					CV	0.84	38	80	0	4	3	4	5	16	15	J	1	qtz		1	G	BOC
									PPY					CV	1.18	35	80	0	4	2	4	5	15	15	J	0	qtz		1	G	BOC
294.0	295.5	1.45	97	1.45	97	2	483	150	PPY	light grey	fine grained		silicified	CV	0.68	45	100	0	4	3	4	5	16	15	J	0	qtz		1	G	BOC
									PPY					CV	1.04	53	120	0	4	2	6	6	18	15	J	0			1	G	BOC
295.5	297.0	1.50	100	1.50	100	1	750	250	PPY	light grey	fine grained		silicified	CV	0.74	25	110	0	4	3	2	5	14	15	J	0	ser		1	VG	BOC
297.0	298.5	1.50	100	1.50	100	1	750	250	PPY	light grey	fine grained		silicified	CV	1.08	30	320	0	4	1	4	5	14	15	J	1	qtz		1	VG	BOC
298.5	300.0	1.50	100	1.40	93	3	375	250	PPY	light grey	fine grained		silicified	CV	0.64	27	330	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	1.04	34	310	0	4	1	6	6	17	15	J	0			1	F	BOC
									VC					CV	1.40	85	130	0	5	1	6	6	18	15	J	0			1	F	BOC
EOH																														

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. BWWR13

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[BWWR13 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	43.0	0.0		0									**OVERBURDEN**	OB																
43.0	43.5	0.50	100	0.00	0	5	83	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces		0.00			0	4	3	4	3	14	15	J	1.0	ox		5	None	MF
43.5	45.0	1.50	100	0.50	33	13	107	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces		0.00			0	4	3	4	3	14	15	J	1.0	ox		13	None	MF
45.0	46.5	1.50	100	1.30	87	13	107	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.05	72		0	1	5	0	3	9	15	J	5.0	cly		1	None	BOC
															0.16	24		0	1	3	2	3	9	15	J	3.0	cly		1	None	BOC
															0.50	83		0	1	5	2	3	11	15	J	3.0	cly		1	None	BOC
															0.62	31		0	1	3	2	3	9	15	J	2.0	cly		1	None	BOC
															0.72	34		0	4	1	2	3	10	15	J	0.5	cly		1	None	BOC
															1.03	34		0	4	1	2	3	10	15	J	0.5	cly		1	None	BOC
															1.05	43		0	4	1	2	3	10	15	J	0.5	cly		1	None	BOC
															1.35	31	220	0	4	3	4	3	14	15	J	0.7	ox	cly	1	VG	BOC
															1.50	54	220	0	4	3	4	3	14	15	J	0.5	ox	cly	1	VG	BOC
46.5	48.0	1.50	100	0.65	43	13	107	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.15	28	110	0	4	3	2	3	12	15	J	0.5	cly		1	VG	BOC
															0.25	40	10	0	1	5	2	3	11	15	J	2.0	cly		1	VG	BOC
															0.33	30	110	0	1	5	2	3	11	15	J	1.0	cly		1	VG	BOC
															0.36	88	10	0	1	5	2	3	11	15	J	2.0	cly		1	VG	BOC
															0.42	15	320	0	1	5	2	3	11	15	J	2.0	cly		1	VG	BOC
															0.44	56	80	0	1	5	2	3	11	15	J	2.0	cly		1	VG	BOC
															0.61	28	120	0	4	3	2	3	12	15	J	1.0	cly		1	VG	BOC
															0.83	70	100	0	1	5	2	3	11	15	J	2.0	cly		1	VG	BOC
															1.06	45	30	0	1	5	2	3	11	15	J	2.0	cly		1	VG	BOC
															1.37	56	170	0	4	3	2	3	12	15	J	0.5	cly		1	VG	BOC
															1.43	31	55	0	4	3	2	3	12	15	J	0.5	cly		1	VG	BOC
															1.50	45	30	0	4	3	2	3	12	15	J	0.5	cly		1	VG	BOC
48.0	49.5	1.50	100	0.90	60	7	188	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.20	85	340	0	0	5	0	3	8	15	J	70.0	cly	ox	1	F	BOC
															0.64	63	160	0	1	5	2	3	11	15	J	1.2	cly	ox	1	F	BOC
															0.73	53	20	0	4	3	2	3	12	15	J	0.5	cly	ox	1	F	BOC
															0.93	32	20	0	4	3	2	3	12	15	J	0.5	cly	ox	1	F	BOC
															1.12	32	320	0	4	3	2	3	12	15	J	0.5	cly	ox	1	F	BOC
															1.25	38	200	0	4	5	2	3	14	15	J	0.5	cly	ox	1	F	BOC
															1.33	77	80	0	1	5	0	3	9	15	J	12.0	cly	ox	1	F	BOC
49.5	51.0	1.50	100	0.84	56	9	150	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.11	47	60	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.21	33	60	0	4	1	4	3	12	15	J	0.5	ox		2	VG	BOC
															0.60	37	60	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.78	43	300	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.85	66	30	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.91	71	30	0	4	3	4	3	14	15	J	0.5	ox		1	VG	BOC
															1.09	46	290	0	4	3	4	3	14	15	J	0.5	ox		1	VG	BOC
															1.24	33	30	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
51.0	52.5	1.50	100	0.81	54	9	150	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.11	43	150	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.40	55	30	0	4	3	4	3	14	15	J	0.5	ox		1	VG	BOC
															0.44	32	270	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.56	82	290	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															0.78	32	20	0	0	5	0	3	8	15	J	5.0	cly	ox	1	VG	BOC
															0.94	32	20	0	0	5	2	3	10	15	J	3.0	cly	ox	1	VG	BOC
															1.14	27	290	0	4	1	4	3	12	15	J	0.5	ox		1	VG	BOC
															1.27	37	130	0	1	1	4	3	9	15	J	0.5	ox		1	VG	BOC
															1.42	39	20	0	1	3	4	3	11	15	J	0.5	ox		1	VG	BOC
52.5	54.0	1.50	100	1.20	80	7	188	100	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.17	41	290	0	4	1	4	4	13	15	J	0.5	ox		1	G	BOC
															0.32	60	110	0	4	1	4	4	13	15	J	0.5	ox		1	G	BOC
															0.55	63	50	0	4	3	4	4	15	15	J	0.5	ox		1	G	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															1.10	42	230	0	4	1	2	4	11	15	J	0.5	cly	ox	1	G	BOC
															1.22	3	300	0	4	3	4	4	15	15	J	0.5	ox		1	G	BOC
															1.24	42	280	0	4	1	2	4	11	15	J	0.5	cly	ox	1	G	BOC
															1.37	66	250	0	4	1	4	4	13	15	J	0.5	ox		1	G	BOC
54.0	55.5	1.50	100	0.63	42	17	83	200	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.15	54	90	0	0	3	0	3	6	15	Rub	90.0	ox		1	F	BOC
															0.26	25	20	0	0	3	0	3	6	15	Rub	390.0	ox		1	F	BOC
															0.30	30	50	0	4	3	4	3	14	15	J	0.5	ox		1	F	BOC
															0.41	42	20	0	4	3	4	4	15	15	J	0.5	ox		1	F	BOC
															0.57	36	330	0	4	1	4	4	13	15	J	0.5	ox		2	F	BOC
															0.62	32	70	0	4	1	4	4	13	15	J	0.5	ox		2	F	BOC
															0.76	31	310	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.89	46	270	0	4	3	4	4	15	15	J	0.5	ox		1	F	BOC
															1.07	71	270	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															1.19	70	270	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															1.25	36	70	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															1.42	66	360	0	4	3	4	4	15	15	J	0.5	ox		1	F	BOC
															1.50	47	190	0	4	3	4	4	15	15	J	0.5	ox		1	F	BOC
55.5	56.2	0.67	100	0.24	36	7	84	200	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.10	45		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.18	45		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.38	40		0	4	1	2	4	11	15	J	0.5	cly		1	P	BOC
															0.39	25		0	1	1	2	4	8	15	J	0.5	cly		1	P	BOC
															0.46	44		0	1	1	2	3	7	15	J	0.5	cly		1	P	BOC
															0.51	85		0	1	1	2	3	7	15	J	0.5	cly		1	P	BOC
															0.64	33		0	1	3	2	3	9	15	J	3.0	cly		1	P	BOC
56.2	56.6	0.43	100	0.00	0	max	5	200	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.00			0	0	1	0	3	4	15	Rub	430.0	ox	cly	1	P	BOC
56.6	57.0	0.39	98	0.11	28	4	78	200	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces	FT	0.08	41		0	4	1	2	3	10	15	J	0.5	ox		1	P	BOC
															0.21	52		0	4	1	2	3	10	15	J	0.5	ox		1	P	BOC
															0.28	46		0	1	3	2	3	9	15	J	3.0	ox		1	P	BOC
															0.29	43		0	1	3	2	3	9	15	J	3.0	ox		1	P	BOC
57.0	58.5	0.90	60	0.00	0	max	5	200	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces, rubble	FT	0.00			0	0	1	0	3	4	15	Rub	1500.0	cly	ox	1	P	BOC
58.5	60.0	0.72	48	0.00	0	max	5	75	VC	grey	fine grained	massive	Highly weathered with healed fractures and oxide <3mm on fracture surfaces, rubble	FT	0.00			0	0	1	0	3	4	15	Rub	1500.0	cly	ox	1	P	BOC
60.0	61.1	1.10	100	0.00	0	max	5	25	VC	grey	fine grained	massive	Fault zone, clay / rubble zone	FT	0.00			0	0	1	0	3	4	15	F	1500.0	cly	Rub	1	P	BOC
61.1	61.5	0.40	100	0.00	0	25	15	200	VC	grey	fine grained	massive	With iron oxide staining and weathered fractures	FT	0.00	30	140	0	0	1	0	3	4	15	J	5.0	cly	ox	1	F	BOC
															0.04	80	20	0	0	1	0	3	4	15	Rub	70.0	cly	ox	1	F	BOC
															0.14	76	10	0	1	3	2	3	9	15	J	2.0	cly	ox	1	F	BOC
															0.26	67	100	0	0	1	0	3	4	15	Rub	30.0	cly	ox	1	F	BOC
															0.35	81	320	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
61.5	63.0	1.50	100	0.11	7	max	5	200	VC	grey	fine grained	massive	With iron oxide staining and weathered fractures, rubble	FT	0.00			0	0	1	0	3	4	15	Rub	1500.0	ox	cly	1	P	BOC
63.0	64.5	0.84	56	0.00	0	max	5	75	VC	grey	fine grained	massive	With iron oxide staining and weathered fractures, rubble	FT	0.00			0	0	1	0	3	4	15	Rub	840.0	cly		1	P	BOC
64.5	66.0	0.56	37	0.00	0	max	5	75	VC	grey	fine grained	massive	With iron oxide staining and weathered fractures, rubble	FT	0.00			0	0	1	0	3	4	15	Rub	560.0	cly		1	P	BOC
66.0	67.5	1.50	100	0.74	49	10	136	200	VC	grey	fine grained	massive	With iron oxide staining	FT	0.12	69		0	1	5	4	5	15	15	J	3.0	ox	cly	1	P	BOC
															0.28	72		0	1	5	4	5	15	15	J	5.0	ox	cly	1	P	BOC
															0.34	21		0	1	3	4	5	13	15	J	2.0	ox	cly	1	P	BOC
															0.43	39		0	4	5	4	5	18	15	J	0.9	ox	cly	1	P	BOC
															0.59	41		0	1	1	4	5	11	15	J	2.0	ox	cly	1	P	BOC
															0.68	46		0	1	3	4	5	13	15	J	2.0	ox	cly	1	P	BOC
															0.73	66		0	1	3	4	5	13	15	J	1.5	ox	cly	1	P	BOC
															0.87	76		0	1	3	4	5	13	15	J	1.5	ox	cly	1	P	BOC
															1.17	56		0	4	1	4	5	14	15	J	0.4	ox		1	P	BOC
															1.43	52		0	4	1	4	5	14	15	J	0.3	ox		1	P	BOC
67.5	69.0	1.50	100	0.52	35	8	167	200	VC	grey	fine grained	massive	With iron oxide staining	FT	0.08	20	50	0	4	1	4	5	14	15	J	0.3	ox		1	F	BOC
															0.32	85	10	0	4	3	4	5	16	15	J	0.3	ox		1	F	BOC
															0.37	34	270	0	4	1	4	5	14	15	J	0.3	ox		1	F	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.63	38	280	0	4	1	4	5	14	15	J	0.3	ox		1	F	BOC
															0.93	25	270	0	4	1	5	5	15	15	J	0.3	ox		1	F	BOC
															1.10	71	160	0	4	5	4	5	18	15	J	0.3	ox		1	F	BOC
															1.31	50	240	0	1	1	4	5	11	15	J	0.3	ox		1	F	BOC
															1.41	34	300	0	4	1	4	5	14	15	J	0.3	ox		1	F	BOC
69.0	70.5	1.50	100	0.57	38	10	136	200	VC	grey	fine grained	massive	With iron oxide staining	FT	0.16	45		0	1	5	4	5	15	15	J	2.0	ox		1	P	BOC
															0.30	37		0	1	3	4	5	13	15	J	3.0	ox		1	P	BOC
															0.42	72		0	1	1	4	5	11	15	J	2.0	ox		1	P	BOC
															0.64	48		0	4	1	4	5	14	15	J	0.5	ox		1	P	BOC
															0.67	34		0	4	1	4	5	14	15	J	0.5	ox		1	P	BOC
															0.83	51		0	4	1	4	5	14	15	J	0.5	ox		1	P	BOC
															0.92	47		0	4	1	4	5	14	15	J	0.5	ox		1	P	BOC
															1.10	40		0	4	1	4	5	14	15	J	0.5	ox		1	P	BOC
															1.40	26		0	4	1	4	5	14	15	J	0.5	ox		1	P	BOC
															1.47	46		0	4	3	4	5	16	15	J	0.5	ox		1	P	BOC
70.5	72.0	1.50	100	0.26	17	10	136	200	VC	grey	fine grained	massive	With iron oxide staining	FT	0.18	73		0	1	1	4	4	10	15	Rub	3.0	ox		1	P	BOC
															0.27	38		0	1	3	4	4	12	15	Rub	2.0	ox		1	P	BOC
															0.42	70		0	1	3	4	4	12	15	J	2.0	ox		1	P	BOC
															0.46	49		0	1	1	4	4	10	15	J	1.0	ox		1	P	BOC
															0.54	44		0	1	1	4	4	10	15	Rub	0.5	ox		1	P	BOC
															0.56	31		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.70	32		0	4	3	4	4	15	15	J	0.5	ox		1	P	BOC
															0.91	27		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.91	69		0	4	3	4	4	15	15	J	0.5	ox		1	P	BOC
															1.08	45		0	4	3	4	4	15	15	J	0.5	ox		1	P	BOC
															1.13	47		0	1	3	4	4	12	15	Rub	0.5	ox		1	P	BOC
															1.28	50		0	1	3	4	4	12	15	Rub	0.5	ox		1	P	BOC
															1.37	22		0	1	3	4	4	12	15	Rub	0.5	ox		1	P	BOC
72.0	73.5	1.40	93	0.00	0	MAX	5	125	FLTP	grey	fine grained	massive	With iron oxide staining, clay, silt, sand infilling	FT	0.00			0	0	3	0	3	6	15	Rub	1400.0	ox	cly	1	P	BOC
73.5	75.0	1.50	100	0.39	26	11	125	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.21	47		0	0	1	4	3	8	15	Rub	60.0	ox		1	P	BOC
															0.34	57		0	0	1	4	3	8	15	Rub	7.0	ox		1	P	BOC
															0.43	45		0	0	1	4	3	8	15	Rub	5.0	ox	Rub	1	P	BOC
															0.46	85		0	4	1	4	3	12	15	Rub	0.5	ox		1	P	BOC
															0.49	54		0	0	3	4	3	10	15	Rub	20.0	ox		1	P	BOC
															0.75	48		0	4	1	4	3	12	15	J	0.5	ox		1	P	BOC
															0.79	48		0	4	3	4	3	14	15	J	0.5	ox		1	P	BOC
															0.90	36		0	4	1	4	3	12	15	J	0.5	ox		1	P	BOC
															1.16	22		0	4	3	4	3	14	15	J	0.5	ox		1	P	BOC
															1.27	36		0	4	1	4	3	12	15	J	0.5	ox		1	P	BOC
															1.34	41		0	1	1	4	3	9	15	Rub	0.5	ox		1	P	BOC
75.0	76.5	1.50	100	0.64	43	10	136	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.12	40		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.21	72		0	1	1	4	4	10	15	Rub	0.5	ox		1	P	BOC
															0.34	47		0	4	1	4	4	13	15	Rub	0.5	ox		1	P	BOC
															0.38	38		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.48	44		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.62	24		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.92	37		0	1	1	4	4	10	15	J	0.5	ox		1	P	BOC
															0.94	80		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															1.10	20		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															1.20	51		0	4	1	4	4	13	15	J	0.5			1	P	BOC
															1.41	16		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
76.5	78.0	1.50	100	0.72	48	13	107	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.34	21		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.49	80		0	0	3	4	4	11	15	Rub	9.0	ox		1	P	BOC
															0.55	87		0	1	3	4	4	12	15	J	3.0	ox		1	P	BOC
															0.76	85		0	1	1	6	4	12	15	J	2.0			1	P	BOC
															0.97	86		0	4	3	6	4	17	15	J	0.5			1	P	BOC
															1.04	74		0	4	3	4	4	15	15	J	0.5	ox		1	P	BOC
															1.08	81		0	1	3	4	4	12	15	J	2.0	ox		1	P	BOC
															1.14	70		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															1.30	60		0	4	1	4	4	13	15	Rub	0.5	ox		1	P	BOC
															1.35	65		0	4	1	4	4	13	15	Rub	0.5	ox		1	P	BOC
78.0	79.5	1.50	100	0.51	34	12	115	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.07	37	90	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.20	27	110	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.28	29	110	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.36	31	180	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.49	22	60	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.54	86	60	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.74	64	100	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															0.93	34	190	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															1.02	73	0	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															1.19	56	170	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															1.32	48	280	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
															1.50	62	120	0	4	1	4	4	13	15	J	0.5	ox		1	F	BOC
79.5	80.0	0.50	100	0.00	0	MAX	5	200	FLTP	grey	fine grained	massive	Rubble, with iron oxide staining, clay, silt, sand infilling	FT	0.00			0	0	1	0	3	4	15	Rub	500.0	ox	Rub	1	P	BOC
80.0	80.3	0.30	100	0.00	0	3	75	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.00	35		0	1	1	4	4	10	15	J	0.5	ox		1	P	BOC
															0.12	88		0	4	1	4	4	13	15	J	0.5	ox		1	P	BOC
															0.22	31		0	1	1	4	4	10	15	J	0.5	ox		1	P	BOC
80.3	80.6	0.30	100	0.00	0	MAX	5	200	FLTP	grey	fine grained	massive	Rubble, with iron oxide staining, clay, silt, sand infilling	FT	0.00			0	0	1	0	3	4	15	Rub	300.0	ox	Rub	1	P	BOC
80.6	81.0	0.40	100	0.16	40	4	80	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.05	90	0	0	1	3	4	3	11	15	J	2.0	ox		1	F	BOC
															0.13	65	40	0	4	3	4	3	14	15	J	0.5	ox		1	F	BOC
															0.30	24	60	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
															0.41	22	60	0	0	1	0	3	4	15	Rub	70.0	ox		1	F	BOC
81.0	81.9	0.90	100	0.42	47	7	113	200	FLTP	grey	fine grained	massive	With iron oxide staining	FT	0.17	17	110	0	1	1	4	3	9	15	J	3.0	ox		1	F	BOC
															0.50	29	340	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
															0.54	89	350	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
															0.62	67	7	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
															0.72	74	7	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
															0.79	76	110	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
															0.84	27	100	0	4	1	4	3	12	15	J	0.5	ox		1	F	BOC
81.9	82.5	0.60	100	0.00	0	MAX	5	200	FT	grey	fine grained	massive	Rubble, with iron oxide staining, clay, silt, sand infilling	FT	0.00			0	0	1	0	3	4	15	Rub	600.0	ox	Rub	1	F	BOC
82.5	84.0	1.50	100	0.00	0	MAX	5	200	FT	grey	fine grained	massive	Rubble, with iron oxide staining, clay, silt, sand infilling	FT	0.00			0	0	1	0	3	4	15	Rub	1500.0	ox	Rub	1	F	BOC
84.0	84.5	0.50	100	0.00	0	MAX	5	200	FT	grey	fine grained	massive	Rubble, with iron oxide staining, clay, silt, sand infilling	FT	0.00			0	0	1	0	3	4	15	Rub	500.0	ox	Rub	1	F	BOC
84.5	85.5	1.00	100	0.11	11	20	48	200	FT	grey	fine grained	massive	With iron oxide staining	FT	0.11	44		0	1	3	4	3	11	15	Rub	3.0	ox		1	P	BOC
															0.19	76		0	1	1	4	3	9	15	J	2.0	ox		1	P	BOC
															0.28	85		0	1	3	4	3	11	15	J	1.5	ox		1	P	BOC
															0.42	14		0	1	1	4	3	9	15	J	1.0	ox		1	P	BOC
															0.49	62		0	4	1	4	3	12	15	J	0.5	ox		1	P	BOC
															0.62	76		0	0	1	3	3	7	15	Rub	7.0	ox		1	P	BOC
															0.73	34		0	4	1	4	3	12	15	J	0.5	ox		1	P	BOC
															0.82	64		0	4	1	4	3	12	15	J	0.2	ox		1	P	BOC
															0.93	40		0	0	1	3	3	7	15	Rub	6.0	ox		1	P	BOC
85.5	87.0	0.90	60	0.00	0	20	43	200	FT	grey	fine grained	massive	With iron oxide staining	FT	0.00			0	0	1	0	3	4	15	Rub	90.0	ox		1	P	MGW
															0.09			0	4	2	4	3	13	15	J	0.5	ox		1	P	MGW
															0.24			0	4	1	4	3	12	15	J	0.1	ox		1	P	MGW
															0.27			0	4	1	4	3	12	15	J	0.1	ox		1	P	MGW
															0.38			0	0	2	0	3	5	15	Rub	130.0	ox		1	P	MGW
															0.64			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.72			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.80			0	0	1	4	3	8	15	B	100.0	ox		1	P	MGW
87.0	88.5	1.50	100	0.00	0	20	71	200	FT	grey	fine grained	massive	With iron oxide staining	FT	0.00			0	0	1	0	3	4	15	Rub	140.0	ox		1	P	MGW
															0.20			0	0	1	0	3	4	15	Rub	120.0	ox		1	P	MGW
															0.33			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.41			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.57			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.66			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.69			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.70			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.73			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.78			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.90			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.92			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															1.05			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															1.10			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															1.32			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															1.33			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															1.40			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
88.5	90.0	1.30	87	0.13	9	20	62	200	FT	grey	fine grained	massive	With iron oxide staining	FT	0.00			0	0	1	0	3	4	15	Rub	170.0	ox		1	P	MGW
															0.20			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.28			0	4	1	4	3	12	15	J	0.1	ox		1	P	MGW
															0.35			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.37			0	4	1	4	3	12	15	J	0.1	ox		1	P	MGW
															0.40			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.65			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.72			0	2	2	4	3	11	15	J	3.0	ox		1	P	MGW
															0.76			0	4	1	4	3	12	15	J	0.1	ox		1	P	MGW
															0.82			0	4	1	4	3	12	15	J	0.1	ox		1	P	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.93			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.96			0	4	3	4	3	14	15	J	0.1	ox		1	P	MGW
															1.12			0	0	1	0	3	4	15	Rub	180.0	ox		1	P	MGW
90.0	91.5	1.50	100	0.63	42	20	71	150	FT	grey	fine grained	massive	With iron oxide staining	FT	0.34			0	4	4	4	3	15	15	J	1.0	ox		1	P	MGW
															0.44			0	4	2	4	3	13	15	J	0.1	ox		1	P	MGW
															0.55			0	4	3	4	3	14	15	J	0.1	ox		1	P	MGW
															0.60			0	4	4	4	3	15	15	J	1.0	ox		1	P	MGW
															0.65			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.81			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.92			0	4	3	4	3	14	15	J	0.1	ox		1	P	MGW
															1.02			0	4	3	4	3	14	15	J	0.1	ox		1	P	MGW
															1.05			0	4	2	4	3	13	15	J	0.1	ox		1	P	MGW
															1.10			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															1.18			0	0	1	0	3	4	15	Rub	150.0	cly		1	P	MGW
															1.42			0	0	1	0	3	4	15	Rub	80.0	ox		1	P	MGW
91.5	93.0	1.50	100	0.00	0	16	88	150	FT	light grey	fine grained	massive	With wavy laminations 30 degrees TCA., some dissolution of intact rock in isolated 1 to 2 cm structures	FT	0.00			0	0	1	0	3	4	15	Rub	50.0	ox		1	P	MGW
															0.06			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.19			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.25			0	0	1	0	3	4	15	Rub	90.0	ox		1	P	MGW
															0.43			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.47			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.52			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.54			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.61			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.64			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.81			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.89			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															1.00			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															1.13			0	2	2	4	3	11	15	J	5.0	ox		1	P	MGW
															1.20			0	4	4	4	3	15	15	J	1.0	ox		1	P	MGW
															1.39			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
93.0	94.5	1.50	100	0.38	25	18	79	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, trace clay and oxide coatings on joints surfaces, healed fractures and wavy laminations 30 degrees TCA.	FT	0.06			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.11			0	0	1	0	3	4	15	Rub	70.0	ox		1	P	MGW
															0.34			0	4	4	4	3	15	15	J	1.0	ox		1	P	MGW
															0.42			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.48			0	0	1	0	3	4	15	Rub	150.0	ox	cly	1	P	MGW
															0.96			0	0	2	3	3	8	15	Rub	20.0	ox		1	P	MGW
															1.12			0	0	1	0	3	4	15	Rub	60.0	ox	cly	1	P	MGW
															1.21			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															1.28			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
94.5	96.0	1.45	97	0.23	15	18	76	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, trace clay and oxide coatings on joints surfaces, healed fractures and wavy laminations 30 degrees TCA.	FT	0.00			0	0	3	4	3	10	15	B	210.0	ox		1	P	MGW
															0.26			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.33			0	0	1	0	3	4	15	Rub	100.0	ox		1	P	MGW
															0.58			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.67			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.80			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.94			0	0	1	0	3	4	15	Rub	40.0	ox		1	P	MGW
															1.04			0	4	4	4	3	15	15	J	1.0	ox		1	P	MGW
															1.30			0	0	3	3	3	9	15	B	200.0	ox		1	P	MGW
96.0	97.5	1.50	100	0.41	27	18	79	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, trace clay and oxide coatings on joints surfaces, healed fractures and wavy laminations 30 degrees TCA.	FT	0.25			0	0	2	4	3	9	15	B	200.0	ox		1	P	MGW
															0.71			0	2	2	4	3	11	15	J	5.0	ox		1	P	MGW
															0.80			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.98			0	0	1	0	3	4	15	Rub	120.0	ox		1	P	MGW
															1.15			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition					Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															1.18			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															1.30			0	0	2	4	3	9	15	Rub	150.0	ox		1	P	MGW
97.5	99.0	1.50	100	0.32	21	19	75	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures	FT	0.15			0	0	2	4	3	9	15	Rub	30.0	ox		1	P	MGW
															0.34			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.42			0	2	3	4	3	12	15	J	5.0	ox		1	P	MGW
															0.52			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.63			0	0	1	0	3	4	15	Rub	30.0	ox		1	P	MGW
															0.90			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.98			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															1.00			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															1.10			0	0	1	0	3	4	15	Rub	100.0	ox		1	P	MGW
99.0	100.5	1.50	100	0.10	7	39	38	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures	FT	0.00			0	0	1	0	3	4	15	Rub	30.0	ox		1	P	MGW
															0.82			0	4	3	4	3	14	15	J	1.0	ox		2	P	MGW
															0.84			0	4	3	4	3	14	15	J	1.0	ox		2	P	MGW
															0.92			0	4	2	4	3	13	15	J	1.0	ox		2	P	MGW
															1.02			0	4	2	4	3	13	15	J	1.0	ox		2	P	MGW
															1.10			0	4	2	4	3	13	15	J	1.0	ox		2	P	MGW
															1.20			0	4	2	4	3	13	15	J	1.0	ox		2	P	MGW
															1.29			0	4	3	4	3	14	15	J	1.0	ox		2	P	MGW
															1.39			0	4	3	4	3	14	15	J	1.0	ox		2	P	MGW
100.5	102.0	1.50	100	0.64	43	10	136	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.10			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.21			0	0	1	0	3	4	15	Rub	170.0	ox		1	P	MGW
															0.38	35	315	0	4	2	4	3	13	15	J	1.0	ox		1	F	MGW
															0.42	30	315	0	4	2	4	3	13	15	J	1.0	ox		1	F	MGW
															0.62	55	10	0	2	2	4	3	11	15	J	5.0	ox		1	F	MGW
															0.65	46	10	0	4	2	4	3	13	15	J	1.0	ox		1	F	MGW
															1.05	47	255	0	4	3	4	3	14	15	J	1.0	ox		1	F	MGW
															1.18	45	90	0	3	2	4	3	12	15	J	3.0	ox		1	F	MGW
															1.37	52	250	0	2	1	4	3	10	15	J	2.0	ox		1	F	MGW
102.0	103.5	1.40	93	0.20	13	19	70	100	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.09			0	2	1	3	3	9	15	J	5.0	ox		1	P	MGW
															0.22			0	4	3	4	3	14	15	J	1.0	ox		1	P	MGW
															0.34			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.38			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.58			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.64			0	0	1	0	3	4	15	Rub	80.0	cly		1	P	MGW
															0.89			0	4	3	4	3	14	15	J	0.1	ox		1	P	MGW
															0.94			0	4	2	4	3	13	15	J	0.1	ox		12	P	MGW
															1.26			0	0	2	1	3	6	15	Rub	100.0	ox		1	P	MGW
103.5	105.0	1.50	100	0.00	0	31	47	100	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.00			0	0	1	0	3	4	15	Rub	570.0	ox		1	P	MGW
															0.60			0	4	2	4	3	13	15	J	1.0	ox		21	P	MGW
															0.89			0	0	1	2	3	6	15	Rub	100.0	ox		1	P	MGW
															0.95			0	4	1	4	3	12	15	J	1.0	ox		8	P	MGW
105.0	106.5	1.50	100	0.31	21	20	71	100	FT	light grey	fine grained	massive	Moderately weathered felsic tuff, several fractured zones, oxide coatings on joints surfaces, healed fractures, fractures are dominantly 20 to 40 degrees TCA.	FT	0.19			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.23			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.34			0	4	1	4	3	12	15	J	1.0	ox		1	P	MGW
															0.61			0	4	2	4	3	13	15	J	1.0	ox		17	P	MGW
															1.10			0	2	1	4	3	10	15	J	5.0	ox		1	P	MGW
															1.16			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
106.5	108.0	1.50	100	0.18	12	33	44	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures	FT	0.06			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW
															0.15			0	4	2	4	3	13	15	J	1.0	ox		1	P	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis-P	Joint Condition Apert-A	Joint Condition Rough R	Joint Condition Infill I	Joint Condition Weath W	Joint Condition TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															0.21			0	0	2	3	3	8	15	Rub	70.0	ox		1	P	MGW
															0.30			0	0	1	0	3	4	15	J	70.0	cly		1	P	MGW
															0.40			0	4	2	3	3	12	15	J	1.0	ox		5	P	MGW
															0.45			0	0	1	0	3	4	15	Rub	100.0	ox		1	P	MGW
															0.60			0	2	1	2	3	8	15	J	5.0	cly		1	P	MGW
															0.63			0	2	1	4	3	10	15	J	1.0	ox		1	P	MGW
															1.10			0	0	1	0	3	4	15	Rub	150.0	ox		1	P	MGW
108.0	109.5	1.50	100	0.00	0	28	52	150	FT	light grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.00			0	0	1	0	3	4	15	Rub	200.0	ox		1	P	MGW
															0.55			0	0	1	0	3	4	15	Rub	50.0	ox		1	P	MGW
															0.70			0	0	1	4	3	8	15	J	1.0	ox		25	P	MGW
109.5	111.0	0.82	55	0.00	0	MAX	5	50	SED	grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run, washed away	FT	0.00			0	0	1	4	4	9	15	Rub	1.5	ox		1	P	MGW
111.0	112.5	1.50	100	0.00	0	18	79	150	SED	grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.00			0	0	1	4	5	10	15	Rub	220.0	ox		1	P	MGW
															0.30			0	2	2	0	3	7	15	J	40.0			1	P	MGW
															0.40			0	0	1	3	4	8	15	Rub	150.0	ox		1	P	MGW
															0.65			0	4	2	4	4	14	15	J	1.0	ox		1	P	MGW
															0.76			0	0	1	0	4	5	15	Rub	200.0	ox		1	P	MGW
															0.98			0	3	2	4	4	13	15	J	1.0	ox		7	P	MGW
															1.45			0	0	1	3	4	8	15	Rub	50.0	ox		1	P	MGW
112.5	114.0	1.50	100	0.10	7	29	50	150	SED	grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.00			0	0	2	0	4	6	15	Rub	200.0	ox		1	P	MGW
															0.36			0	4	1	4	5	14	15	J	1.0	ox		1	P	MGW
															0.39			0	2	1	4	4	11	15	J	5.0	ox		5	P	MGW
															0.66			0	0	1	0	3	4	15	Rub	300.0	ox		1	P	MGW
															1.00			0	2	2	4	3	11	15	J	3.0	ox		7	P	MGW
															1.15			0	4	2	2	4	12	15	J	1.0	chl		14	P	MGW
114.0	115.5	1.50	100	0.70	47	28	52	100	SED	grey	fine grained	massive	light grey fine grained and moderately weathered felsic tuff. Several fractured zones. Oxide coatings on joints surfaces. Healed fractures. Blocked run.	FT	0.17			0	4	3	2	5	14	15	J	1.0	chl		1	P	MGW
															0.22			0	4	3	2	5	14	15	J	1.0	chl		1	P	MGW
															0.35			0	4	2	2	5	13	15	J	1.0	chl		3	P	MGW
															0.56			0	4	2	2	5	13	15	J	1.0	chl		1	P	MGW
															0.66			0	4	2	2	5	13	15	J	1.0	chl		22	P	MGW
115.5	117.0	1.50	100	0.14	9	31	47	150	SED	grey	fine grained	massive	Moderately weathered, several fractured zones, oxide coatings on joints surfaces, healed fractures, blocked run	FT	0.15			0	4	1	3	5	13	15	J	0.1	chl		1	None	MGW
															0.24			0	4	1	2	5	12	15	J	1.0	chl		1	None	MGW
															0.26			0	4	1	2	5	12	15	J	1.0	chl		1	None	MGW
															0.39			0	2	1	1	4	8	15	J	5.0	chl	cly	1	None	MGW
															0.48			0	4	1	2	4	11	15	J	1.0	chl		6	None	MGW
															1.19			0	4	1	2	4	11	15	J	1.0	chl	ox	1	None	MGW
															1.21			0	4	1	2	4	11	15	J	1.0	chl		1	None	MGW
															1.23			0	4	1	2	4	11	15	J	1.0	chl	ox	5	None	MGW
															1.26			0	4	1	2	4	11	15	J	1.0	chl		1	None	MGW
															1.28			0	4	1	2	4	11	15	J	1.0	chl	ox	12	None	MGW
															1.45			0	0	1	2	3	6	15	Rub	50.0	chl		1	None	MGW
117.0	118.5	1.50	100	0.00	0	MAX	5	150	SED	grey	fine grained	massive	Blocked run multiple times, likely fault zone, broken rocks, gravel at the end of run is clay coated. 1 to 5 mm oxide at 118.4	FT	0.00			0	0	1	0	3	4	15	F	1500.0	cc	Rub	1	None	MGW
118.5	120.0	1.50	100	0.24	16	13	107	150	SED	grey	fine grained	massive	Out of weathered zone, several fractured zones, chlorite coatings on joints surfaces, healed fractures, shears present at top of run	FT	0.06			0	4	2	3	4	13	15	J	1.0			1	None	MGW
															0.20			0	2	2	2	5	11	15	SH	3.0	chl		1	None	MGW
															0.60			0	4	3	2	5	14	15	J	1.0	cc	chl	6	None	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															0.72			0	4	3	2	5	14	15	J	1.0	chl		1	None	MGW
															0.92			0	4	3	2	5	14	15	J	1.0	chl		1	None	MGW
															1.01			0	4	1	2	5	12	15	J	1.0	chl		1	None	MGW
															1.13			0	4	1	2	5	12	15	J	1.0	chl		1	None	MGW
															1.20			0	4	1	2	5	12	15	J	1.0	chl		1	None	MGW
120.0	121.5	1.50	100	0.74	49	7	188	150	SED	grey	fine grained	massive	Several fractured zones, chlorite coatings on joints surfaces, healed fractures	FT	0.15	18	20	0	4	1	2	5	12	15	J	1.0	chl		1	VG	MGW
															0.42	40	125	0	1	1	4	5	11	15	J	1.0	qtz		1	VG	MGW
															0.60	22	110	0	1	1	4	5	11	15	J	1.0	qtz		1	VG	MGW
															0.63	19	345	0	1	1	4	5	11	15	J	1.0	qtz		1	VG	MGW
															0.98	13	70	0	1	1	4	5	11	15	J	1.0	qtz		1	VG	MGW
															1.20	78	340	0	4	3	6	6	19	15	J	1.0			1	VG	MGW
															1.40	18	245	0	1	1	2	5	9	15	J	1.0	cc	qtz	1	VG	MGW
121.5	123.0	1.50	100	1.01	67	7	188	150	SED	grey	fine grained	massive	Several fractured zones, chlorite coatings on joints surfaces, healed fractures	FT	0.27	44	70	0	1	1	4	5	11	15	J	0.5	qtz		1	VG	MGW
															0.58	50	65	0	4	2	6	6	18	15	J	1.0			1	VG	MGW
															0.63	28	85	0	1	1	2	5	9	15	J	1.0	cc		1	VG	MGW
															0.90	25	70	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.90	22	65	0	1	2	4	5	12	15	J	1.0	qtz		1	VG	MGW
															1.05	35	315	0	4	1	6	6	17	15	J	0.1			1	VG	MGW
															1.45	78	230	0	4	1	6	6	17	15	J	0.1			1	VG	MGW
123.0	124.5	1.50	100	0.65	43	8	167	150	SED	grey	fine grained	massive	Several fractured zones, silicified joints, healed fractures	FT	0.30	12	60	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
															0.32	36	320	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
															0.34	50	340	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
															0.51	48	340	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
															0.55	18	200	0	4	1	4	5	14	15	J	0.1	qtz		1	VG	MGW
															0.80	47	330	0	4	5	6	6	21	15	J	0.1			1	VG	MGW
															0.94	47	30	0	4	2	4	5	15	15	J	0.1	qtz		1	VG	MGW
															1.12	48	35	0	4	2	4	5	15	15	J	0.1	qtz		1	VG	MGW
124.5	126.0	1.50	100	1.40	93	8	167	150	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.32	42	20	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.60	42	10	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.72	53	350	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.81	22	220	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.02	57	340	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.13	57	20	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.25	52	30	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.44	57	30	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
126.0	127.5	1.50	100	1.41	94	6	214	150	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.21	24	200	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.52	51	20	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.97	51	20	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.15	32	250	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.32	52	350	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.40	54	350	0	4	1	4	6	15	15	J	0.3			1	VG	BOC
127.5	129.0	1.50	100	1.22	81	6	214	150	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.23	57	260	0	4	1	6	6	17	15	J	0.3			1	VG	BOC
															0.34	17	100	0	4	3	6	6	19	15	J	0.3			1	VG	BOC
															0.70	57	20	0	4	1	6	6	17	15	J	0.3			1	VG	BOC
															0.88	36	290	0	5	0	6	6	17	15	J	0.1			1	VG	BOC
															1.21	21	100	0	5	0	2	5	12	15	J	0.1	cc		1	VG	BOC
															1.27	32	320	0	4	5	6	6	21	15	J	0.3			1	VG	BOC
129.0	130.5	1.45	97	1.10	73	10	132	150	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.45	82	60	0	4	3	2	5	14	15	J	0.3	cc		1	VG	BOC
															0.68	40	160	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.91	54	320	0	4	1	6	6	17	15	J	0.3			1	VG	BOC
															1.03	33	260	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.38			0	0	3	0	5	8	15	Rub	70.0	cc	Rub	1	VG	BOC
130.5	132.0	1.50	100	1.11	74	8	167	150	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.34	75	280	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.42	30	90	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.45	40	90	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															0.73	17	350	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.03	18	90	0	5	1	2	5	13	15	J	0.1	cc		1	VG	BOC
															1.03	56	350	0	4	1	2	5	12	15	J	0.3	cc		1	VG	BOC
															1.33	59	350	0	4	1	6	6	17	15	J	0.3			1	VG	BOC
															1.37	22	90	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
132.0	133.5	1.41	94	0.49	33	27	50	200	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.00			0	0	3	0	5	8	15	Rub	90.0	Rub		1	P	BOC
															0.19			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.24			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.41			0	0	3	0	5	8	15	Rub	40.0	Rub		1	P	BOC
															0.52			0	0	3	0	5	8	15	Rub	50.0	Rub		1	P	BOC
															0.61			0	4	1	6	6	17	15	J	0.3			1	P	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.77			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.99			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															1.22			0	0	3	0	5	8	15	Rub	40.0	Rub		1	P	BOC
															1.40			0	0	3	0	5	8	15	Rub	90.0	Rub		1	P	BOC
133.5	135.0	1.50	100	0.57	38	25	58	200	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.10			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.18			0	0	3	0	5	8	15	Rub	80.0	Rub		1	P	BOC
															0.28			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.33			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.57			0	4	3	6	6	19	15	J	0.3			1	P	BOC
															0.64			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.76			0	5	0	6	6	17	15	J	0.3			1	P	BOC
															0.89			0	0	3	0	5	8	15	Rub	40.0	Rub		1	P	BOC
															1.20			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															1.40			0	0	3	0	5	8	15	Rub	90.0	Rub		1	P	BOC
135.0	136.5	1.50	100	0.87	58	25	58	200	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.05	22	40	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.06	57	250	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.30	59	170	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.44	66	310	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.64	56	320	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.75	56	280	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.79	66	340	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															1.04			0	0	3	0	5	8	15	Rub	90.0	Rub		1	F	BOC
															1.07	21	40	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															1.19	60	180	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															1.23	64	350	0	4	3	6	6	19	15	J	0.3			6	F	BOC
															1.40	64	20	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															1.45	65	10	0	4	1	6	6	17	15	J	0.3			1	F	BOC
136.5	138.0	1.50	100	1.32	88	15	94	200	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.13	69	10	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.32	74	350	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.49	74	20	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.71	72	10	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															0.85	69	350	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															1.15	65	40	0	4	1	6	6	17	15	J	0.3			1	F	BOC
															1.37			0	0	3	0	5	8	15	Rub	95.0	Rub		1	P	BOC
138.0	138.9	0.90	100	0.40	44	5	150	200	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.05			0	0	3	6	6	15	15	J	0.3			1	P	BOC
															0.27			0	0	3	6	6	15	15	J	0.3			1	P	BOC
															0.42			0	0	5	6	6	17	15	J	0.3			1	P	BOC
															0.67			0	0	5	6	6	17	15	J	0.3			1	P	BOC
															0.79			0	0	3	6	6	15	15	J	0.3			1	P	BOC
138.9	139.5	0.60	100	0.00	0	30	19	200	SED	grey	fine grained	massive	With trace calcite veins, chlorite weathering	FT	0.00			0	0	1	0	5	6	15	Rub	60.0	Rub		1	P	BOC
139.5	141.0	1.41	94	0.00	0	MAX	5	200	SED	grey	fine grained	massive	With trace calcite veins, chlorite weathering	FT	0.00			0	0	1	0	5	6	15	Rub	1500.0	Rub		1	P	BOC
141.0	142.5	1.50	100	0.70	47	25	58	200	SED	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.08			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.12			0	0	1	0	5	6	15	Rub	60.0	Rub		1	P	BOC
															0.57			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.71			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.80			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															0.93			0	4	1	6	6	17	15	J	0.3			1	P	BOC
															1.00			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															1.09			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															1.13			0	4	0	6	6	16	15	J	0.3			1	None	BOC
															1.15			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															1.17			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															1.20			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															1.36			0	0	1	0	5	6	15	Rub	100.0	Rub		1	None	BOC
142.5	144.0	1.50	100	0.78	52	20	71	100	CGL	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.10			0	4	1	2	6	13	15	J	0.3	cc		3	None	BOC
															0.19			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															0.73			0	4	3	2	5	14	15	J	0.3	cc		1	None	BOC
															0.96			0	0	1	0	5	6	15	Rub	80.0	Rub		1	None	BOC
															1.04			0	0	1	0	5	6	15	Rub	20.0	Rub		1	None	BOC
															1.17			0	1	3	0	5	9	15	J	1.7	cc		1	None	BOC
															1.48			0	0	1	0	5	6	15	Rub	20.0	Rub		1	None	BOC
144.0	145.5	1.30	87	0.72	48	9	130	75	CGL	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.30	70	320	0	1	3	0	6	10	15	J	3.0			1	F	BOC
															0.52	25	80	0	4	1	4	6	15	15	J	0.3			1	F	BOC
															0.60	44	280	0	4	3	4	5	16	15	J	0.3	qtz		1	F	BOC
															0.81	60	340	0	4	3	6	6	19	15	J	0.3			1	F	BOC
															0.96	74	340	0	4	3	6	6	19	15	J	0.3			1	F	BOC
															1.07	58	10	0	4	3	6	6	19	15	J	0.3			1	F	BOC
															1.18	48	350	0	4	3	4	5	16	15	J	0.3	qtz	py	1	F	BOC
															1.25	55	350	0	4	3	4	5	16	15	J	0.3	qtz	py	1	F	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
															1.29	62	10	0	4	3	4	5	16	15	J	0.3	qtz	py	1	F	BOC
145.5	147.0	1.47	98	0.79	53	30	47	75	CGL	grey	fine grained	massive	With trace calcite veins, fresh	FT	0.26			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
															0.34			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
															0.37			0	4	3	4	6	17	15	J	0.3			1	None	BOC
															0.50			0	0	1	0	5	6	15	Rub	50.0	Rub	qtz	1	None	BOC
															0.68			0	0	1	0	5	6	15	Rub	70.0	Rub	qtz	1	None	BOC
															0.96			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															1.30			0	4	3	4	6	17	15	J	0.7	cc		1	None	BOC
															1.36			0	0	3	0	6	9	15	Rub	90.0	cc		1	None	BOC
147.0	148.5	1.40	93	0.21	14	MAX	5	75	CGL	grey	fine grained	massive	With trace calcite veins, chlorite weathering	FT	0.00			0	0	3	0	6	9	15	Rub	1400.0	chl	qtz	1	None	BOC
148.5	150.0	1.45	97	0.23	15	Max	5	100	CGL	grey	fine grained	massive	With trace calcite veins	FT	0.07			0	0	3	6	6	15	15	J	5.0			1	None	BOC
															0.19			0	0	3	6	6	15	15	J	7.0			1	None	BOC
															0.27			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															0.44			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															0.64			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															0.67			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															0.74			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															0.79			0	0	1	0	5	6	15	Rub	90.0			1	None	BOC
															0.88			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															0.99			0	0	1	0	5	6	15	Rub	70.0			1	None	BOC
															1.07			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															1.19			0	0	1	0	5	6	15	Rub	30.0			1	None	BOC
															1.20			0	4	3	6	6	19	15	J	0.3			1	None	BOC
															1.30			0	0	1	0	5	6	15	Rub	50.0			1	None	BOC
150.0	151.2	1.01	84	0.00	0	Max	5	100	CGL	grey	fine grained	massive	With trace calcite veins	FT	0.00			0	0	1	0	5	6	15	Rub	50.0			1	None	BOC
151.2	151.5	0.30	100	0.30	100	2	100	100	CGL	grey	fine grained	massive	With trace calcite veins	FT	0.00			0	4	1	6	6	17	15	J	0.3			1	None	BOC
															0.14			0	4	1	6	6	17	15	J	0.3			1	None	BOC
151.5	153.0	1.50	100	1.21	81	6	214	100	CGL	grey	fine grained	massive	With few fractures, fresh	FT	0.31	60	245	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
															0.71	55	310	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.77	18	70	0	4	3	2	6	15	15	J	0.5			1	VG	MGW
															0.95	64	310	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.01	30	60	0	4	1	2	6	13	15	J	0.5			1	VG	MGW
															1.34	47	325	0	4	2	4	6	16	15	J	0.5			1	VG	MGW
153.0	154.5	1.50	100	0.73	49	5	250	100	CGL	grey	fine grained	massive	With few fractures, fresh	FT	0.03	45	180	0	4	1	6	6	17	15	J	1.0			1	VG	MGW
															0.40	12	335	0	4	3	4	6	17	15	J	0.5			1	VG	MGW
															0.71	50	310	0	4	2	4	6	16	15	J	1.0			1	VG	MGW
															1.05	53	330	0	4	1	6	6	17	15	J	0.5			1	VG	MGW
															1.23	45	345	0	4	2	2	6	14	15	J	0.5			1	VG	MGW
154.5	156.0	1.50	1	0.59	39	8	167	100	CGL	grey	fine grained	massive	With few fractures and many quartz and calcite veins cross cutting core, fresh	FT	0.24	42	350	0	4	4	4	5	17	15	J	5.0	qtz		1	VG	MGW
															0.37	54	335	0	4	2	2	5	13	15	J	5.0	cc		1	VG	MGW
															0.44	59	320	0	4	4	4	5	17	15	J	5.0	qtz		1	VG	MGW
															0.45	20	280	0	4	4	4	5	17	15	J	1.0	qtz		1	VG	MGW
															0.77	35	190	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MGW
															0.85	45	270	0	2	2	2	5	11	15	J	2.0	cc		1	VG	MGW
															1.04	35	290	0	2	2	2	5	11	15	J	2.0	cc		1	VG	MGW
															1.06	40	290	0	2	2	2	5	11	15	J	3.0	cc		1	VG	MGW
156.0	157.5	1.50	100	1.50	100	1	750	100	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, fresh	FV	0.72	37	55	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
157.5	159.0	1.50	100	1.50	100	4	300	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, pyrite visible on core and in joints	FV	0.22	25	100	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
															0.43	54	235	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
															0.85	38	5	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.23	70	290	0	4	1	6	6	17	15	J	0.5			1	VG	MGW
159.0	160.5	1.50	100	1.20	80	4	300	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, pyrite visible on core and in joints	FV	0.18	28	280	0	4	3	2	5	14	15	J	0.5	cly		1	G	MGW
															0.79	39	220	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
															0.84	70	100	0	4	2	6	6	18	15	J	1.0			1	G	MGW
															1.29	80	100	0	4	2	6	6	18	15	J	0.5			1	G	MGW
160.5	162.0	1.50	100	1.50	100	2	500	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, pale green alteration on core and pyrite is visible in some joints, veins have 1 to 2 cm alteration halos, fresh	FV	0.70	52	10	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
															1.30	74	330	0	4	2	6	6	18	15	J	0.5			1	VG	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
162.0	163.5	1.50	100	1.42	95	3	375	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, pale green alteration on core and pyrite is visible in some joints, veins have 1 to 2 cm alteration halos, fresh, some healed joints	FV	0.44	28	280	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
															0.66	32	110	0	2	2	1	5	10	15	J	2.0	cly		1	VG	MGW
															1.34	40	0	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
163.5	165.0	1.50	100	1.43	95	3	375	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, fresh, some healed joints.	FV	0.73	27	180	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.85	25	300	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
															1.30	38	295	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
165.0	166.5	1.50	100	1.50	100	1	750	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, fresh, some healed joints.	FV	0.99	40	280	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
166.5	168.0	1.50	100	1.40	93	2	500	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, fresh, some healed joints.	FV	0.77	50	305	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
															1.02	43	275	0	4	1	4	5	14	15	J	0.5	qtz		1	VG	MGW
168.0	169.5	1.50	100	1.50	100	2	500	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, some healed joints, pyrite is visible in some joints	FV	0.53	50	350	0	4	1	4	5	14	15	J	0.5	qtz		1	VG	MGW
															1.17	48	0	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
169.5	171.0	1.50	100	1.50	100	3	375	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, some healed joints, pyrite is visible in some joints	FV	0.18	40	300	0	4	3	4	6	17	15	J	0.5			1	G	MGW
															0.36	30	70	0	4	3	6	5	18	15	J	0.5	qtz		1	G	MGW
															0.70	47	295	0	4	2	4	6	16	15	J	0.5			1	G	MGW
171.0	172.5	1.50	100	1.50	100	2	500	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, some healed joints, pyrite is visible in some joints	FV	0.43	79	320	0	4	1	6	5	16	15	J	0.5	qtz		1	G	MGW
															0.57	58	305	0	4	2	2	6	14	15	J	0.5			1	G	MGW
172.5	174.0	1.50	100	1.50	100	1	750	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, some healed joints, pyrite is visible in some joints	FV	0.95	45	290	0	4	5	2	5	16	15	J	0.5	chl		1	VG	MGW
174.0	175.5	1.50	100	1.15	77	8	167	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, some healed joints, pyrite is visible in some joints	FV	0.27	82	220	0	4	2	2	6	14	15	J	0.5			1	VG	MGW
															0.36	48	260	0	4	2	2	5	13	15	J	0.3	chl		1	VG	MGW
															0.76	70	200	0	4	3	2	5	14	15	J	0.3	chl		1	VG	MGW
															1.01	54	265	0	4	2	2	6	14	15	J	0.8			1	VG	MGW
															1.12	37	330	0	4	1	2	5	12	15	J	0.3	chl		1	VG	MGW
															1.14	65	180	0	4	1	2	5	12	15	J	0.3	chl		1	VG	MGW
															1.22	38	340	0	4	1	2	6	13	15	J	0.3			1	VG	MGW
															1.45	43	280	0	4	4	2	5	15	15	J	0.3	chl		1	VG	MGW
175.5	177.0	1.50	100	1.50	100	3	375	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, some healed joints, pyrite is visible in some joints	FV	0.38	18	60	0	4	3	2	5	14	15	J	1.0	chl		1	VG	MGW
															0.73	20	40	0	2	2	5	6	15	15	J	2.0			1	VG	MGW
															1.35	75	310	0	4	4	4	5	17	15	J	0.1	qtz		1	VG	MGW
177.0	178.5	1.50	100	1.36	91	2	500	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, sub angular to angular poorly sorted clasts, some healed joints, pyrite is visible in some joints	FLPT	0.91	50	150	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
															1.36	49	40	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
178.5	180.0	1.50	100	1.44	96	3	375	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, sub angular to angular poorly sorted clasts, some healed joints, pyrite is visible in some joints	FLPT	1.01	57	165	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
															1.02	70	50	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
															1.14	40	20	0	4	4	6	6	20	15	J	0.5			1	VG	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
180.0	181.5	1.50	100	1.50	100	2	500	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, sub angular to angular poorly sorted clasts, some healed joints, pyrite is visible in some joints	FLPT	1.02	25	20	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.13	40	180	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
181.5	183.0	1.50	100	1.36	91	4	300	200	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, sub angular to angular poorly sorted clasts, some healed joints, pyrite is visible in some joints	FLPT	0.68	40	35	0	4	2	6	6	18	15	J	0.2			1	G	MGW
															0.92	55	340	0	4	2	6	6	18	15	J	0.2			1	G	MGW
															0.97	13	270	0	4	2	6	6	18	15	J	0.2			1	G	MGW
															1.10	47	345	0	4	2	6	6	18	15	J	0.2			1	G	MGW
183.0	184.5	1.50	100	1.50	100	3	375	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, sub angular to angular poorly sorted clasts, some healed joints, pyrite is visible in some joints	FLPT	0.37	60	35	0	2	2	4	6	14	15	J	2.0			1	VG	MGW
															0.60	48	25	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.24	40	300	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
184.5	186.0	1.50	100	1.50	100	4	300	150	CGL	grey	fine grained	massive	With few fractures and trace quartz and calcite veins, sub angular to angular poorly sorted clasts, some healed joints, pyrite is visible in some joints	FLPT	0.80	60	240	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.95	44	35	0	2	4	4	6	16	15	J	3.0			1	VG	MGW
															1.06	50	180	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.46	55	320	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
186.0	187.5	1.47	98	1.47	98	2	490	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	0.67	46	280	0	4	3	6	6	19	15	J	0.5			1	VG	BOC
															1.47	58	70	0	4	3	6	6	19	15	J	0.5			1	VG	BOC
187.5	189.0	1.50	100	1.46	97	4	300	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	0.22	69	280	0	4	1	6	6	17	15	J	0.5			1	G	BOC
															0.26	62	280	0	4	1	6	6	17	15	J	0.5			1	VG	BOC
															0.64	22	80	0	4	1	4	6	15	15	J	0.5			1	VG	BOC
															1.10	81	50	0	4	3	4	6	17	15	J	0.5			1	VG	BOC
189.0	190.5	1.50	100	1.42	95	4	300	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	0.65			0	5	1	6	6	18	15	J	0.1			1	P	BOC
															0.77			0	5	1	6	6	18	15	J	0.1			1	P	BOC
															1.41			0	5	1	6	6	18	15	J	0.1			1	P	BOC
															1.49			0	4	1	0	0	5	15	J	0.5			1	P	BOC
190.0	192.0	1.50	75	1.50	75	3	375	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	0.65	44	270	0	4	1	4	6	15	15	J	0.5			1	F	BOC
															0.76	62	20	0	4	1	4	6	15	15	J	0.5			1	F	BOC
															1.12	66	330	0	5	0	6	6	17	15	J	0.1			1	F	BOC
192.0	193.5	1.50	100	1.50	100	2	500	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	0.92	66	30	0	4	1	6	6	17	15	J	0.5			1	G	BOC
															1.45	40	280	0	4	1	0	0	5	15	J	0.5			1	G	BOC
193.5	195.0	1.50	100	1.50	100	1	750	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	1.00	61	50	0	5	0	6	6	17	15	J	0.1			1	VG	BOC
195.0	196.5	1.50	100	1.50	100	0	1500	150	CGL	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins	FLPT	0.00			0	6	6	6	6	24	15	J	0.0			1	VG	BOC
196.5	198.0	1.50	100	1.07	71	5	250	150	SED	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins, pyrite is visible in less than 5mm formations	FLPT	0.10	77	350	0	5	0	6	6	17	15	J	0.1			1	P	BOC
															0.86	50	190	0	5	1	4	6	16	15	J	0.1			2	P	BOC
															0.87	22	90	0	5	0	4	6	15	15	J	0.1			1	P	BOC
															1.24	5	10	0	4	3	4	6	17	15	J	0.5			1	P	BOC
198.0	199.5	1.50	100	1.15	77	5	250	150	SED	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins, pyrite is visible in less than 5mm formations	FLPT	0.43	40	160	0	4	3	4	6	17	15	J	0.5			1	VG	BOC
															0.51	23	170	0	4	3	4	6	17	15	J	0.5			1	VG	BOC
															0.70	37	160	0	4	3	4	6	17	15	J	0.5			1	VG	BOC
															0.81	70	320	0	4	3	4	6	17	15	J	0.5			1	VG	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															1.05	50	160	0	4	1	4	0	9	15	J	0.5			1	VG	BOC
199.5	201.0	1.50	100	0.87	58	8	167	150	SED	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins, pyrite is visible in less than 5mm formations	FLPT	0.29	30	140	0	4	1	6	6	17	15	J	0.4			1	G	BOC
															0.34	16	110	0	4	1	6	6	17	15	J	0.4			1	G	BOC
															0.60	38	180	0	4	1	6	6	17	15	J	0.4			2	G	BOC
															0.77	14	100	0	5	1	6	6	18	15	J	0.1			2	G	BOC
															0.96	62	190	0	5	1	6	6	18	15	J	0.1			1	G	BOC
															1.04	17	310	0	5	1	6	6	18	15	J	0.1			1	G	BOC
201.0	202.5	1.50	100	1.42	95	3	375	150	SED	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins, pyrite is visible in less than 5mm formations	FLPT	0.80	17	100	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															1.04	45	20	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
															1.50	66	20	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
202.5	204.0	1.50	100	1.41	94	5	250	150	SED	grey	fine grained	massive	With angular to sub-rounded 1 to 4 cm clasts and trace quartz veins, pyrite is visible in less than 5mm formations	FLPT	0.06	67	30	0	0	1	0	5	6	15	Rub	30.0	Rub		1	VG	BOC
															0.25	38	230	0	4	3	6	6	19	15	J	0.3			1	VG	BOC
															0.45	37	280	0	4	3	6	6	19	15	J	0.3			1	VG	BOC
															0.78	17	170	0	5	0	4	5	14	15	J	0.1	qtz		1	VG	BOC
															1.05	74	350	0	4	1	4	5	14	15	J	0.3	qtz		1	VG	BOC
204.0	205.5	1.50	100	0.80	53	16	88	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.43			0	4	3	4	5	16	15	J	0.3	qtz		1	P	BOC
															0.57			0	4	1	6	5	16	15	J	0.3			1	P	BOC
															1.00			0	4	1	2	5	12	15	J	0.3	cc		1	P	BOC
															1.13			0	0	1	0	5	6	15	Rub	35.0	Rub		1	P	BOC
															1.32			0	5	1	6	6	18	15	J	0.1			1	P	BOC
															1.47			0	0	1	0	5	6	15	Rub	25.0	Rub		1	P	BOC
205.5	207.0	1.50	100	1.43	95	4	300	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.38	80	180	0	4	3	6	6	19	15	J	0.5			1	F	BOC
															0.54	33	30	0	5	0	6	6	17	15	J	0.1			1	F	BOC
															0.94	44	290	0	5	0	6	6	17	15	J	0.1			1	F	BOC
															1.19	30	70	0	4	3	6	6	19	15	J	0.3			1	F	BOC
207.0	208.5	1.50	100	1.43	95	2	500	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.43	60	340	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
															1.35	20	200	0	4	3	6	6	19	15	J	0.3			1	VG	BOC
208.5	210.0	1.50	100	1.44	96	3	375	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.06	40	280	0	5	0	4	5	14	15	J	0.1	qtz		1	VG	BOC
															0.16	42	280	0	5	0	4	5	14	15	J	0.1	qtz		1	VG	BOC
															0.92	35	290	0	4	3	4	5	16	15	J	0.3	qtz		1	VG	BOC
210.0	211.5	1.50	100	1.30	87	3	375	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.03	37	10	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															0.91	47	270	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															0.96	40	70	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
211.5	213.0	1.50	100	1.50	100	3	375	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.13	51	280	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
															0.53	70	60	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
															1.15	47	240	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
213.0	214.5	1.50	100	1.10	73	4	300	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.36			0	4	1	4	5	14	15	J	0.3	qtz	py	1	VG	BOC
															0.81			0	4	3	6	5	18	15	J	0.3			1	None	BOC
															1.20			0	4	3	4	5	16	15	J	0.3	qtz	py	1	None	BOC
															1.28			0	0	3	0	5	8	15	Rub	45.0	qtz	cc	1	None	BOC
214.5	216.0	1.50	100	1.50	100	3	375	150	SED	grey	fine grained	massive	With trace calcite and quartz veins and pyrite in 0.5 to 2 cm bands	FT	0.43	27	270	0	4	3	4	5	16	15	J	0.3	qtz		1	F	BOC
															1.04	50	180	0	4	3	4	5	16	15	J	0.3	qtz		1	F	BOC
															1.40	57	190	0	4	1	4	5	14	15	J	0.3	qtz		1	F	BOC
216.0	217.5	1.50	100	1.50	100	6	214	150	SED	grey	fine grained	massive	With 1 to 2 cm bands of pyrite. Fractures are 30 to 50 degrees TCA, trace quartz veins, some wavy laminations are present on core	FT	0.32			0	4	3	6	6	19	15	J	0.5			1	None	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.42			0	4	2	6	6	18	15	J	0.5			1	None	MGW
															0.50			0	4	1	4	5	14	15	J	0.5	qtz		1	None	MGW
															0.57			0	4	2	4	5	15	15	J	0.5	qtz		1	None	MGW
															0.94			0	4	2	4	5	15	15	J	0.5	qtz		1	None	MGW
															1.35			0	4	2	4	5	15	15	J	0.5	qtz		1	None	MGW
217.5	219.0	1.50	100	1.41	94	4	300	150	SED	grey	fine grained	massive	With 1 to 2 cm bands of pyrite. Fractures are 30 to 50 degrees TCA, trace quartz veins, some wavy laminations are present on core	FT	0.62	12	195	0	4	1	4	5	14	15	J	0.3	qtz		1	None	MGW
															0.73	50	195	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															1.20	50	270	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															1.35	46	295	0	4	1	6	6	17	15	J	0.5			1	F	MGW
219.0	220.5	1.50	100	1.32	88	5	250	150	SED	grey	fine grained	massive	With 1 to 2 cm bands of pyrite. Fractures are 30 to 50 degrees TCA, trace quartz veins, some wavy laminations are present on core	FT	0.12	40	270	0	4	2	4	5	15	15	J	0.5	qtz		1	F	MGW
															0.36	53	265	0	4	1	4	6	15	15	J	0.5			1	F	MGW
															0.59	40	10	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															0.81	45	10	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															1.14	38	245	0	4	1	2	5	12	15	J	0.5	cc		1	F	MGW
220.5	222.0	1.50	100	1.50	100	3	375	150	CGL	grey	fine grained	massive	Poorly graded with 1 to 4 cm diameter sub-angular to angular clasts, trace quartz veins, pyrite is visible on core surface	FLPT	0.40	58	330	0	4	3	4	5	16	15	J	0.5	qtz		1	VG	MGW
															0.60	60	170	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.37	65	290	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
222.0	223.5	1.50	100	1.50	100	3	375	150	CGL	grey	fine grained	massive	dark grey fine grained FLPT. Poorly graded with 1-4 cm diameter sub-angular to angular clasts. Trace quartz veins. Pyrite is visible on core surface.	FLPT	0.51	62	330	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
															0.84	25	70	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.35	69	240	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
223.5	225.0	1.50	100	1.50	100	2	500	150	CGL	grey	fine grained	massive	Poorly graded with 1 to 4 cm diameter sub-angular to angular clasts, trace quartz veins, pyrite is visible on core surface	FLPT	0.22	75	210	0	4	2	6	6	18	15	J	0.5			1	G	MGW
															1.23	58	190	0	4	2	6	6	18	15	J	0.5			1	G	MGW
225.0	226.6	1.50	94	1.50	94	2	500	150	CGL	grey	fine grained	massive	Poorly graded with 1 to 4 cm diameter sub-angular to angular clasts, trace quartz veins, pyrite is visible on core surface	FLPT	0.43	65	190	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.32	28	80	0	4	1	4	5	14	15	J	0.5	qtz		1	VG	MGW
226.5	228.0	1.15	77	0.14	9	Max	5	100	CGL	grey	fine grained	massive	Majority of run is a mix of clay and rubble, rubble is medium to fine gravel, poorly graded sub angular clasts, some washed away	FLPT	0.13			0	4	3	6	6	19	15	J	0.5			50	None	MGW
															0.16			0	0	1	0	3	4	15	F	730.0			1	None	MGW
228.0	228.5	0.50	100	0.50	100	Max	5	50	CGL	grey	fine grained	massive	First 0.5 m of run is a mix of clay and rubble, rubble is medium to fine gravel	FLPT	0.00			0	0	1	0	3	4	15	F	500.0	Rub	cly	1	None	MGW
228.5	229.5	1.00	100	1.00	100	Max	5	100	CGL	grey	fine grained	massive	Poorly graded sub angular clasts	FLPT	0.00			0	0	1	0	3	4	15	F	500.0	Rub	cly	1	F	MGW
															0.95	50	60	0	1	1	2	5	9	15	J	3.0	cly		1	F	MGW
															1.13	60	55	0	4	3	6	6	19	15	J	0.5			1	F	MGW
229.5	231.0	1.50	100	0.72	48	9	150	100	CGL	grey	fine grained	massive	Poorly graded 1 to 5 cm sub angular clasts, some healed joints, pyrite is visible on core	FLPT	0.18	72	150	0	4	2	6	5	17	15	J	0.3			1	G	MGW
															0.20	28	130	0	4	2	2	5	13	15	J	0.5	cly		1	G	MGW
															0.57	65	10	0	4	2	6	6	18	15	J	0.5			1	G	MGW
															0.89			0	4	2	2	5	13	15	J	0.5	cly		1	G	MGW
															0.94	28	310	0	1	1	2	3	7	15	J	2.0	cly		1	G	MGW
															1.12	65	10	0	4	2	2	5	13	15	J	0.5	cly		1	G	MGW
															1.22	52	30	0	4	2	6	6	18	15	J	0.5			1	G	MGW
															1.30	50	330	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
															1.34	40	310	0	4	2	6	6	18	15	J	0.5			1	G	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
231.0	232.5	1.50	100	0.86	57	8	167	100	SED	grey	fine grained	massive	Poorly graded 1 to 5 cm sub angular clasts, some healed joints, pyrite is visible on core	FLPT	0.26	70	30	0	4	2	4	5	15	15	J	0.5	qtz		1	P	MGW
															0.43	45	185	0	4	2	6	6	18	15	J	0.5			1	P	MGW
															0.60	40	85	0	4	1	6	6	17	15	J	0.5			1	P	MGW
															0.68	40	10	0	1	2	2	5	10	15	J	1.0	cly		1	P	MGW
															0.76	70	20	0	4	1	6	6	17	15	J	0.5			1	P	MGW
															0.98	35	90	0	4	1	6	6	17	15	J	0.5			1	P	MGW
															1.37	65	60	0	4	1	6	6	17	15	J	0.5			1	P	MGW
232.5	234.0	1.50	100	0.16	11	20	71	50	SED	grey	fine grained	massive	Dissolution of rock is apparent on core surface (some infilling of pyrite), chlorite alteration in joints, 0.5 to1 cm quartz veins cross cut core at the top of the run. moderately weathered, healed fractures	AND	0.28			0	4	2	2	5	13	15	J	0.5	chl		3	None	MGW
															0.32			0	4	2	2	5	13	15	J	0.5	chl		5	None	MGW
															0.44			0	4	2	2	4	12	15	J	0.5	cc		5	None	MGW
															0.55			0	4	2	6	5	17	15	J	0.5			3	None	MGW
															0.73			0	4	2	2	4	12	15	J	0.5	chl		2	None	MGW
															1.15			0	4	2	2	5	13	15	J	0.5	chl		2	None	MGW
234.0	235.5	1.50	100	0.58	39		1500	50	SED	grey	fine grained	massive	Dissolution of rock is apparent on core surface (some infilling of pyrite), chlorite alteration in joints. 1 to 2 cm quartz veins cross cut core at the top of the run. moderately weathered, healed fractures, blocked run	AND	0.06			0	2	1	2	5	10	15	J	2.0	cc		1	None	MGW
															0.11			0	5	3	2	6	16	15	J	0.1	chl		6	None	MGW
															0.62			0	4	1	6	6	17	15	J	0.5			1	None	MGW
															0.71			0	4	4	2	5	15	15	J	0.3	cly		1	None	MGW
															0.89			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW
															1.20			0	4	3	4	6	17	15	J	0.3	qtz		1	None	MGW
															1.28			0	4	1	6	6	17	15	J	0.3			5	None	MGW
235.5	237.0	1.50	100	1.50	100		1500	50	SED	grey	fine grained	massive	Dissolution of rock is apparent on core surface (some infilling of pyrite), chlorite alteration in joints, 0.5 to1 cm quartz veins cross cut core at the top of the run. moderately weathered, healed fractures	AND	0.02			0	4	2	6	5	17	15	J	0.5			8	None	MGW
															0.07			0	2	2	2	5	11	15	J	2.0	chl		4	None	MGW
															0.59			0	4	2	3	5	14	15	J	0.5	chl		6	None	MGW
237.0	238.5	1.50	100	1.02	68	8	167	50	SED	GREY	fine grained	massive	Dissolution of rock is apparent on core surface (some infilling of pyrite), chlorite alteration in joints, 0.5 to1 cm quartz veins cross cut core at the top of the run. moderately weathered, healed fractures, fractures are 30 to 50 degrees TCA	AND	0.12			0	4	2	4	5	15	15	J	1.0	qtz		1	None	MGW
															0.30			0	0	2	3	5	10	15	J	50.0	qtz		1	None	MGW
															0.62			0	4	1	4	6	15	15	J	0.5	qtz		1	None	MGW
															0.63			0	4	1	6	6	17	15	J	0.5			1	None	MGW
															0.81			0	2	1	4	5	12	15	J	2.0	qtz		1	None	MGW
															0.92			0	4	1	4	5	14	15	J	0.5	qtz		1	None	MGW
															1.24			0	4	3	6	6	19	15	J	0.5			1	None	MGW
															1.43			0	4	2	4	5	15	15	J	0.5	qtz		1	None	MGW
238.5	240.0	1.50	100	0.97	65	7	188	50	SED	grey	fine grained	massive	With 0.5 to 1cm quartz veins	AND	0.28	80	180	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.75	40	10	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															0.88	43	10	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															0.98	35	20	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															1.03	13	245	0	4	2	2	5	13	15	J	0.3	cc		1	F	MGW
															1.26	40	10	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															1.40	50	10	0	4	1	2	5	12	15	J	0.1	cly		1	F	MGW
240.0	241.5	1.50	100	0.46	31	16	88	50	SED	grey	fine grained	massive	With trace 0.5 to 1mm quartz veins, pyrite blebs are visible on core and joints (0.5 to 1cm diameter)	AND	0.00			0	4	2	2	5	13	15	J	0.5	chl		9	None	MGW
															0.46			0	3	4	6	3	16	15	J	1.0			7	None	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
241.5	243.0	1.50	100	0.60	40	12	115	100	SED	dark grey	fine grained	massive	With trace 0.5 to1mm quartz veins, pyrite blebs are visible on core and joints (0.5 to 1cm diameter)	AND	0.31	45	360	0	4	2	2	5	13	15	J	0.5	chl		6	F	MGW
															0.40	43	10	0	3	1	4	5	13	15	J	1.0	qtz		1	F	MGW
															0.55	28	320	0	4	2	6	5	17	15	J	0.5			1	F	MGW
															0.70	13	170	0	4	3	6	5	18	15	J	0.5			1	F	MGW
															0.79	58	340	0	4	3	6	5	18	15	J	0.5			1	F	MGW
															0.92	60	60	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															1.12	56	10	0	4	2	6	5	17	15	J	0.5			1	F	MGW
															1.27	43	20	0	4	2	6	5	17	15	J	0.5			1	F	MGW
243.0	244.5	1.50	100	0.60	40	12	115	100	SED	dark grey	fine grained	massive	With trace 0.5 to1mm quartz veins, pyrite blebs are visible on core and joints (0.5 to 1cm diameter)	AND	0.25	28	245	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															0.30	70	300	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.40	64	320	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
															0.43	30	265	0	4	1	6	6	17	15	J	0.5			1	F	MGW
															0.68	35	40	0	2	2	2	5	11	15	J	3.0	cly	slk	1	F	MGW
															0.75			0	0	2	0	5	7	15	rub	60.0	Rub	cly	1	F	MGW
															1.16	70	10	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															1.26	50	240	0	4	3	2	5	14	15	J	0.5	cly		1	F	MGW
244.5	246.0	1.50	100	0.86	57	15	94	100	SED	dark grey	fine grained	massive	With trace 0.5 to1mm quartz veins, pyrite blebs are visible on core and joints (0.5 to 1cm diameter)	AND	0.32			0	4	2	6	6	18	15	J	0.5			4	None	MGW
															0.85			0	4	2	2	6	14	15	J	0.5	chl		11	None	MGW
246.0	247.5	1.50	100	0.33	22	18	79	100	SED	dark grey	fine grained	massive	With 0.5 to 2 mm quartz veins, pyrite blebs are visible in some joints, blocked run, suspect fault zone	AND	0.18			0	4	2	6	6	18	15	J	0.5			8	None	MGW
															0.50			0	4	2	2	5	13	15	J	0.5	chl		10	None	MGW
															1.10			0	0	1	0	3	4	15	F	300.0	Rub		1	None	MGW
247.5	247.9	0.40	100	0.00	0	MAX	5	100	SED	dark grey	fine grained	massive	With quartz veins and pyrite	AND	0.00			0	0	2	0	5	7	15	Rub	400.0			1	None	BOC
247.9	249.0	0.80	73	0.40	36	4	160	100	SED	dark grey	fine grained	massive	With quartz veins and pyrite	AND	0.25			0	1	2	4	5	12	15	J	3.0	Rub	py	2	None	BOC
															0.52			0	1	2	4	5	12	15	J	3.0	Rub	py	1	None	BOC
															0.63			0	1	5	3	5	14	15	J	5.0	qtz		1	None	BOC
															0.80			0	4	1	6	6	17	15	J	6.3			1	None	BOC
249.0	250.5	1.45	97	0.69	46	6	207	100	SED	dark grey	fine grained	massive	With quartz veins and pyrite, blocked run	AND	0.13			0	4	1	4	5	14	15	J	6.3	qtz		1	None	BOC
															0.25			0	4	3	4	5	16	15	J	6.3	qtz		1	None	BOC
															0.36			0	4	1	6	5	16	15	J	6.3	qtz		1	None	BOC
															0.64			0	4	1	4	5	14	15	J	6.3	qtz		1	None	BOC
															1.04			0	4	3	4	5	16	15	J	6.3	qtz		1	None	BOC
250.5	252.0	1.40	93	0.28	19	MAX	5	75	SED	dark grey	fine grained	massive	With quartz veins and pyrite, blocked run	AND	0.00			0	0	3	0	5	8	15	Rub	90.0	qtz	py	1	None	BOC
															0.09			0	1	3	4	5	13	15	J	5.0	py		2	None	BOC
															0.31			0	0	3	0	5	8	15	Rub	90.0	qtz		1	None	BOC
															0.65			0	0	3	0	5	8	15	Rub	50.0	py	Rub	1	None	BOC
															0.82			0	4	3	4	5	16	15	J	1.0	Rub	py	1	None	BOC
															0.91			0	0	3	0	5	8	15	Rub	70.0	rub	py	1	None	BOC
															1.29			0	4	3	4	6	17	15	J	1.0	py		1	None	BOC
252.0	253.5	1.50	100	0.19	13	MAX	5	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, blocked, predominantly rubble with some 45 degree fractures evident, many healed fractures on rare intact sections	AND	0.00			0	0	3	3	5	11	15	J	1.0	py	qtz	1	None	BOC
253.5	255.0	0.97	65	0.00	0	MAX	5	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, blocked, predominantly rubble with some 45 degree fractures evident, many healed fractures on rare intact sections	AND	0.00			0	0	3	0	5	8	15	Rub	1.0	py	qtz	1	None	BOC
255.0	256.5	1.37	91	0.81	54	10	125	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, blocked, predominantly rubble with some 45 degree fractures evident, many healed fractures on rare intact sections	AND	0.05			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															0.13			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															0.32			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															0.61			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															0.81			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															0.85			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															0.94			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Joint Condition: Apert-A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															1.01			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															1.20			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
															1.33			0	4	1	4	5	14	15	J	0.5	qtz	py	1	None	BOC
256.5	256.9	0.40	100	0.19	48	3	100	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, blocked, predominantly rubble with some 45 degree fractures evident, many healed fractures on rare intact sections	AND	0.10			0	4	3	4	5	16	15	J	0.5	qtz		1	None	BOC
															0.15			0	4	1	4	5	14	15	J	0.5	qtz		1	None	BOC
															0.34			0	4	1	4	5	14	15	J	0.5	qtz		1	None	BOC
256.9	257.1	0.15	100	0.00	0	MAX	5	75	SED	dark grey	fine grained	massive	Rubble zone with clay infill	AND	0.00			0	0	3	0	5	8	15	Rub	150.0	cly	Rub	1	None	BOC
257.1	258.0	0.95	100	0.45	47	4	190	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, many healed fractures on rare intact sections	AND	0.05			0	5	0	4	5	14	15	J	0.1	qtz		1	F	BOC
															0.10			0	5	0	4	6	15	15	J	0.1			1	F	BOC
															0.20			0	5	0	4	6	15	15	J	0.1			1	F	BOC
															0.70			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
258.0	259.5	1.50	100	0.51	34	20	71	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, many healed fractures on rare intact sections	AND	0.00			0	0	3	0	5	8	15	Rub	60.0	qtz	py	1	None	BOC
															0.15			0	4	3	4	5	16	15	J	0.3			1	None	BOC
															0.24			0	0	3	0	5	8	15	Rub	40.0	py	qtz	1	None	BOC
															0.39			0	4	3	4	5	16	15	J	0.3	qtz	py	1	None	BOC
															0.49			0	4	1	4	5	14	15	J	0.3	qtz	py	1	None	BOC
															0.67			0	4	1	4	5	14	15	J	0.3	qtz	py	1	None	BOC
															0.84			0	4	1	4	5	14	15	J	0.3	qtz	py	1	None	BOC
															0.98			0	0	3	0	5	8	15	Rub	80.0	py	Rub	1	None	BOC
															1.30			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															1.40			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
259.5	261.0	1.05	70	0.00	0	MAX	5	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, many healed fractures on rare intact sections, blocked and washed	AND	0.00			0	0	3	0	5	8	15	Rub	1050.0	qtz	py	1	None	BOC
261.0	261.2	0.20	100	0.00	0	MAX	5	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, many healed fractures on rare intact sections, blocked and washed	AND	0.00			0	0	3	0	5	8	15	Rub	200.0	qtz	py	1	None	BOC
261.1	261.8	0.60	86	0.60	86	1	300	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, many healed fractures on rare intact sections, blocked and washed	AND	0.50			0	4	1	4	6	15	15	J	0.3	qtz		1	None	BOC
261.8	262.5	0.70	100	0.00	0	MAX	5	75	SED	dark grey	fine grained	massive	With many quartz veins and pyrite, many healed fractures on rare intact sections, blocked and washed	AND	0.00			0	0	3	0	5	8	15	Rub	200.0	qtz	py	1	None	BOC
262.5	263.6	1.10	100	0.00	0	MAX	5	75	SED	grey	fine grained	massive	With many quartz and calcite veins, chlorite weathering throughout	FT	0.00			0	0	3	3	5	11	15	J	1100.0	qtz	py	1	None	BOC
263.6	264.0	0.40	100	0.23	58	1	200	75	CGL	grey	fine grained	massive	With many quartz and calcite veins, chlorite weathering throughout	FT	0.30			0	4	3	3	5	15	15	J	0.3	qtz		1	None	BOC
264.0	264.3	0.30	100	0.27	90	1	150	75	CGL	grey	fine grained	massive	With many quartz and calcite veins, chlorite weathering throughout	FT	0.30			0	1	1	1	5	8	15	Rub	0.3	qtz		1	None	BOC
264.3	265.5	0.50	42	0.00	0	MAX	5	75	CGL	grey	fine grained	massive	With many quartz and calcite veins, chlorite weathering throughout	FT	0.00			0	0	3	3	5	11	15	J	500.0	qtz	Rub	1	None	BOC
265.5	267.0	1.50	100	1.50	100	7	188	75	CGL	grey	fine grained	massive	With many quartz and calcite veins, chlorite weathering throughout	FT	0.34	30	260	0	5	0	0	5	10	15	J	0.1	qtz		1	F	BOC
															0.61	84	90	0	4	3	3	5	15	15	J	0.3	qtz		1	F	BOC
															0.76	63	70	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															0.89	71	260	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															1.05	71	75	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															1.23	73	40	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															1.45	44	100	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
267.0	268.5	1.50	100	0.92	61	7	188	75	CGL	grey	fine grained	massive	With many quartz and calcite veins, chlorite weathering throughout	FT	0.05	73	40	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															0.16	60	340	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															0.22	30	250	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															0.55	35	130	0	4	3	3	5	15	15	J	0.3	qtz		1	F	BOC
															0.70	40	300	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC
															0.81	30	120	0	4	1	1	5	11	15	J	0.3	qtz		1	F	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
															0.98	44	10	0	4	3	3	5	15	15	J	0.3	qtz		1	F	BOC
268.5	270.0	1.50	100	0.52	35	11	125	100	CGL	dark grey	fine grained	massive	With trace quartz and calcite veins, pyrite is visible on core, 1 to 4 cm diameter angular to sub angular poorly graded clasts, some healed fractures	AND	0.15	35	130	0	4	2	2	5	13	15	J	0.5	cly		1	None	MGW
															0.25	70	20	0	4	3	4	6	17	15	J	0.5	qtz		1	None	MGW
															0.41	47	45	0	4	3	2	5	14	15	J	0.8	qtz	chl	1	None	MGW
															0.65	30	50	0	2	2	4	6	14	15	J	2.0	qtz		1	None	MGW
															0.77	43	70	0	2	3	4	6	15	15	J	2.0	qtz		1	None	MGW
															0.86	75	30	0	2	2	2	5	11	15	J	1.0	qtz	chl	1	None	MGW
															0.98	30	270	0	4	2	6	6	18	15	J	0.5	slk		1	None	MGW
															1.15	26	80	0	4	2	4	6	16	15	J	0.5	qtz		1	None	MGW
															1.19	35	120	0	2	1	4	6	13	15	J	2.0	qtz		1	None	MGW
															1.35	20	70	0	4	2	6	6	18	15	J	0.5			1	None	MGW
															1.44	32	215	0	4	1	6	6	17	15	J	0.5			1	None	MGW
270.0	271.5	1.50	100	0.63	42	9	150	100	CGL	dark grey	fine grained	massive	With trace quartz and calcite veins, pyrite is visible on core, 1 to 4 cm diameter angular to sub angular poorly graded clasts, some healed fractures	AND	0.1	40	265	0	2	1	2	5	10	15	J	2.0	qtz	chl	1	None	MGW
															0.25	56	25	0	4	2	6	6	18	15	J	0.5			1	None	MGW
															0.3	32	120	0	3	1	2	5	11	15	J	1.0	cly	slk	1	None	MGW
															0.4	70	130	0	2	1	2	5	10	15	J	2.0	cly	slk	1	None	MGW
															0.58	65	210	0	4	1	4	6	15	15	J	0.5	qtz		1	None	MGW
															0.61	43	85	0	2	1	2	5	10	15	J	2.0	cc		1	None	MGW
															0.67	63	170	0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
															1.04	16	115	0	2	1	2	6	11	15	J	2.0	cc		1	None	MGW
															1.25	30	260	0	4	1	2	6	13	15	J	0.5	cc		1	F	MGW
271.5	273.0	1.50	100	1.04	69	8	167	100	CGL	dark grey	fine grained	massive	With trace quartz and calcite veins, pyrite is visible on core, 1 to 4 cm diameter angular to sub angular poorly graded clasts, some healed fractures	AND	0.45	30	100	0	4	2	4	6	16	15	J	0.5	qtz		1	VG	MGW
															0.63	35	270	0	2	1	2	5	10	15	J	2.0	cc		1	VG	MGW
															0.70	36	100	0	0	1	0	5	6	15	J	20.0	cc		1	VG	MGW
															0.77	34	260	0	4	2	4	6	16	15	J	0.5	qtz		1	VG	MGW
															0.81	40	270	0	2	1	2	6	11	15	J	2.0	cc	slk	1	VG	MGW
															0.89	40	235	0	4	1	6	6	17	15	J	0.5			1	VG	MGW
															1.10	38	40	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															1.39	35	115	0	4	2	4	6	16	15	J	0.5	qtz		1	VG	MGW
273.0	274.5	1.50	100	0.83	55	9	150	100	CGL	dark grey	fine grained	massive	With trace quartz and calcite veins, pyrite is visible on core, 1 to 4 cm diameter angular to sub angular poorly graded clasts, some healed fractures	AND	0.20	73	180	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
															0.22	48	240	0	2	2	4	5	13	15	J	2.0	qtz		1	VG	MGW
															0.30	30	255	0	2	1	4	5	12	15	J	2.0	cc		1	VG	MGW
															0.50	67	290	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.63	62	20	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.71	48	30	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.77	53	150	0	2	1	2	5	10	15	J	2.0	cc	slk	1	VG	MGW
															0.79	46	195	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
															1.17	46	190	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
274.5	276.0	1.50	100	0.95	63	8	167	100	CGL	dark grey	fine grained	massive	With trace quartz and calcite veins, pyrite is visible on core, 1 to 4 cm diameter angular to sub angular poorly graded clasts, some healed fractures	AND	0.08			0	4	4	4	5	17	15	J	0.5	qtz		1	None	MGW
															0.25			0	4	1	6	6	17	15	J	0.5			1	None	MGW
															0.47			0	4	1	6	6	17	15	J	0.5			1	None	MGW
															0.60			0	4	1	6	6	17	15	J	0.5			1	None	MGW
															1.04			0	4	1	2	5	12	15	J	0.5	cc		1	None	MGW
															1.18			0	4	1	2	5	12	15	J	0.5	cc		1	None	MGW
															1.24			0	2	1	2	5	10	15	J	2.0	cc		1	None	MGW
															1.41			0	4	2	6	6	18	15	J	0.5			1	None	MGW
276.0	277.5	1.50	100	0.17	11	18	79	100	CGL	dark grey	fine grained	massive	With trace quartz and calcite veins, pyrite is visible on core, 1 to 4 cm diameter angular to sub angular poorly graded clasts, some healed fractures	AND	0.05			0	2	1	2	5	10	15	J	2.0	chl		1	None	MGW
															0.22			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW
															0.33			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.38			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW
															0.46			0	4	1	2	5	12	15	J	0.5	chl		3	None	MGW
															0.55			0	4	2	6	6	18	15	J	0.5			4	None	MGW
															0.58			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW
															0.66			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW
															0.79			0	4	2	2	5	13	15	J	0.5	chl		1	None	MGW
															0.84			0	4	3	6	6	19	15	J	0.5			1	None	MGW
															0.98			0	4	2	2	5	13	15	J	0.5	chl		1	None	MGW
277.5	279.0	1.50	100	0.32	21	19	75	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints, joints are 40 to 70 degrees TCA	FT	0.14			0	4	1	2	5	12	15	J	0.5	chl		6	None	MGW
															0.28			0	4	1	2	5	12	15	J	0.5	chl		13	None	MGW
															1.14			0	4	1	2	5	12	15	J	0.5	chl	py	5	None	MGW
279.0	280.5	1.50	100	0.37	25	17	83	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints, joints are 40 to 70 degrees TCA	FT	0.09			0	4	2	6	6	18	15	J	0.5			4	None	MGW
															0.16			0	4	2	2	5	13	15	J	0.5	chl		13	None	MGW
															0.94	62	310	0	4	1	2	5	12	15	J	0.5	chl	py	1	G	MGW
															1.15	39	100	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
															1.18	62	300	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
															1.39	53	305	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
280.5	282.0	1.50	100	0.60	40	12	115	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints, joints are 40 to 70 degrees TCA	FT	0.06	30	200	0	4	3	2	5	14	15	J	0.3	chl		1	G	MGW
															0.15	32	265	0	4	3	2	5	14	15	J	0.3	chl		1	G	MGW
															0.27	53	345	0	4	2	2	5	13	15	J	0.3	chl		1	G	MGW
															0.36	56	340	0	4	2	2	5	13	15	J	0.3	chl	py	1	G	MGW
															0.40	55	235	0	4	1	2	5	12	15	J	0.3	chl		1	G	MGW
															0.60	30	10	0	4	2	2	5	13	15	J	0.3	chl		1	G	MGW
															0.78	45	95	0	4	2	2	5	13	15	J	0.3	chl		1	G	MGW
															0.90	25	235	0	4	1	2	5	12	15	J	0.3	chl		1	G	MGW
															0.97	52	300	0	4	2	2	5	13	15	J	0.3	chl		1	G	MGW
															1.22	35	40	0	4	2	2	5	13	15	J	0.3	chl		1	G	MGW
															1.47	40	30	0	4	3	2	5	14	15	J	0.3	chl		1	G	MGW
															1.49	36	15	0	4	3	2	5	14	15	J	0.3	chl		1	G	MGW
282.0	283.5	1.50	100	0.86	57	9	150	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.07	32	310	0	4	2	2	5	13	15	J	0.3	chl		1	VG	MGW
															0.26	37	270	0	4	1	6	6	17	15	J	0.3			1	VG	MGW
															0.43	70	340	0	4	1	2	5	12	15	J	0.3	chl		1	VG	MGW
															0.62	50	210	0	4	1	2	5	12	15	J	0.3	chl		1	VG	MGW
															0.71	42	220	0	4	1	2	5	12	15	J	0.3	chl		1	VG	MGW
															0.75	68	290	0	4	1	2	5	12	15	J	0.3	chl		1	VG	MGW
															0.92	25	245	0	4	2	2	5	13	15	J	0.3	chl		1	VG	MGW
															1.06	65	320	0	4	2	2	5	13	15	J	0.3	chl		1	VG	MGW
															1.30	55	340	0	4	3	2	5	14	15	J	0.3	chl		1	VG	MGW
283.0	285.0	1.50	75	0.98	49	9	150	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.18	25	245	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															0.26	65	320	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															0.51	45	345	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															0.97	30	350	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															1.03	25	330	0	4	3	2	5	14	15	J	0.3	chl		1	F	MGW
															1.05	35	95	0	4	1	2	5	12	15	J	0.3	chl		1	F	MGW
															1.09	68	270	0	4	3	6	6	19	15	J	0.3			1	F	MGW
															1.21			0	4	4	6	6	20	15	J	0.3			3	F	MGW
285.0	286.5	1.50	100	0.42	28	24	60	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.03			0	4	2	2	5	13	15	J	0.3	chl		15	P	MGW
															0.33	30	100	0	4	4	2	5	15	15	J	0.3	chl		1	P	MGW
															0.60	15	210	0	4	2	2	5	13	15	J	0.3	chl		1	P	MGW
															0.77	40	10	0	4	3	2	5	14	15	J	0.3	chl		1	P	MGW
															0.92	14	210	0	4	3	2	5	14	15	J	0.3	chl		1	P	MGW
															1.03	30	95	0	4	2	2	5	13	15	J	0.3	chl		1	P	MGW
															1.28	76	320	0	4	3	6	6	19	15	J	0.3			1	P	MGW
															1.37	45	180	0	4	3	6	6	19	15	J	0.3			1	P	MGW
															1.42	72	180	0	4	1	2	5	12	15	J	0.5	chl		1	P	MGW
															1.47	82	60	0	4	1	2	5	12	15	J	0.5	chl		1	P	MGW
286.5	288.0	1.50	100	0.54	36	9	150	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.10	26	0	0	4	1	2	5	12	15	J	0.3	chl		1	F	MGW
															0.20	40	190	0	4	1	6	6	17	15	J	0.3			1	F	MGW
															0.50	15	0	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															0.61			0	4	2	2	5	13	15	J	0.3	chl		3	None	MGW
															0.75	50	250	0	4	2	6	6	18	15	J	0.3			1	F	MGW
															0.81	45	300	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
															0.88	16	35	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
288.0	289.5	1.50	100	0.76	51	12	115	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.36	52	240	0	4	1	2	5	12	15	J	0.1	chl		1	F	MGW
															0.45	20	225	0	2	1	2	5	10	15	J	2.0	cly		1	F	MGW
															0.5	62	60	0	4	3	6	6	19	15	J	0.3			1	F	MGW
															0.58	42	230	0	4	2	6	6	18	15	J	0.3			1	F	MGW
															0.63	45	230	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
															1.15	40	60	0	4	2	2	5	13	15	J	0.5	cc		1	F	MGW
															1.2			0	4	2	6	6	18	15	J	0.5			6	None	MGW
289.5	291.0	1.50	100	0.88	59	10	136	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.13	15	225	0	4	2	2	5	13	15	J	0.5	cc		1	F	MGW
															0.24	50	230	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.38	60	205	0	4	1	6	6	17	15	J	0.3			1	F	MGW
															0.50	20	260	0	4	1	6	6	17	15	J	0.3			1	F	MGW
															0.68	65	300	0	4	2	6	6	18	15	J	0.3			1	F	MGW
															0.93	64	340	0	4	2	2	5	13	15	J	0.5	cc		1	F	MGW
															0.95	25	240	0	4	1	2	5	12	15	J	0.3	chl		1	F	MGW
															1.19	61	20	0	4	3	2	5	14	15	J	0.3	chl		1	F	MGW
															1.28	70	45	0	4	2	6	6	18	15	J	0.3			1	F	MGW
															1.44	60	20	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
291.0	292.5	1.50	100	0.59	39	10	136	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.19	55	0	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
															0.26			0	0	2	0	5	7	15	Rub	20.0	rub		1	F	MGW
															0.36	35	270	0	4	3	2	5	14	15	J	0.3	chl		1	F	MGW
															0.86	15	40	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															0.98	85	80	0	4	1	2	5	12	15	J	0.3	chl		1	F	MGW
															0.99	23	245	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															1.14	55	75	0	4	3	2	5	14	15	J	0.3	chl		1	F	MGW
															1.17	28	290	0	4	1	2	5	12	15	J	0.3	cc		1	F	MGW
															1.35	68	190	0	4	1	2	5	12	15	J	0.5	cc	chl	1	F	MGW
															1.43	53	90	0	4	3	2	5	14	15	J	0.5	chl		1	F	MGW
292.5	294.0	1.50	100	0.62	41	12	115	100	CGL	dark grey	fine grained	massive	With chlorite alteration in joints	FT	0.05			0	0	2	0	5	7	15	Rub	20.0	rub		1	F	MGW
															0.18	80	140	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.45	40	45	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.80	50	90	0	4	2	2	5	13	15	J	0.3	chl		2	F	MGW
															0.89	62	350	0	4	2	6	6	18	15	J	0.3			1	F	MGW
															1.00	50	130	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															1.28	85	170	0	4	1	2	5	12	15	J	0.3	chl	py	1	F	MGW
															1.33	15	240	0	4	1	2	5	12	15	J	0.8	chl	py	1	F	MGW
															1.44	57	160	0	4	1	2	5	12	15	J	0.8	chl	py	2	F	MGW
294.0	295.5	1.50	100	0.14	9	17	83	100	CGL	dark grey	fine grained	massive	Chlorite alteration in joint, some healed joints, trace quartz veins	FT	0.12			0	4	2	6	6	18	15	J	0.5			1	None	MGW
															0.27			0	4	1	2	5	12	15	J	0.5	chl		1	None	MGW
															0.28			0	4	3	6	6	19	15	J	0.5			1	None	MGW
															0.32			0	4	2	2	5	13	15	J	0.5	chl		3	None	MGW
															0.54	33	280	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															0.70	47	80	0	4	1	2	5	12	15	J	0.3	chl		1	F	MGW
															0.74	36	315	0	4	1	2	5	12	15	J	0.3	chl		1	F	MGW
															0.88	55	270	0	4	3	6	5	18	15	J	0.3			1	F	MGW
															0.95	40	40	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															1.03	15	320	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															1.10	38	30	0	4	1	6	5	16	15	J	0.5			1	F	MGW
															1.26	50	250	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															1.32	35	70	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															1.36	38	35	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															1.42	38	35	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
295.5	297.0	1.50	100	1.38	92	5	250	100	CGL	dark grey	fine grained	massive	Chlorite alteration in joint, some healed joints, trace quartz veins	FT	0.24	52	245	0	4	4	2	5	15	15	J	0.3	chl		1	F	MGW
															0.39	70	260	0	4	1	2	5	12	15	J	0.5	cc	chl	1	F	MGW
															1.06	30	240	0	4	1	2	5	12	15	J	0.5	chl	cc	1	F	MGW
															1.35	65	55	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
															1.38	42	150	0	4	2	2	5	13	15	J	0.3	chl		1	F	MGW
297.0	298.5	1.50	100	1.16	77	4	300	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins, some healed joints mechanical breakage at top of run	FT	0.37	60	360	0	4	3	4	5	16	15	J	0.5	qtz		1	F	MGW
															0.51	64	50	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.60	28	260	0	4	2	2	5	13	15	J	0.3	cc		1	F	MGW
															1.40	85	210	0	4	2	6	6	18	15	J	0.5			1	F	MGW
298.5	300.0	1.50	100	0.73	49	8	167	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins, some healed joints	FT	0.28	46	120	0	5	0	4	5	14	15	J	0.1	qtz		1	F	BOC
															0.36	32	340	0	4	1	4	5	14	15	J	0.3	qtz		1	F	BOC
															0.68	30	230	0	4	1	4	5	14	15	J	0.3	qtz		1	F	BOC
															0.73	41	280	0	4	1	4	5	14	15	J	0.3	qtz		1	F	BOC
															0.77	49	280	0	4	1	4	5	14	15	J	0.3	qtz		1	F	BOC
															0.93	55	260	0	4	1	3	5	13	15	J	0.3	qtz		1	F	BOC
															1.03	52	240	0	4	0	4	5	13	15	J	0.3	qtz		1	F	BOC
															1.20	52	270	0	4	1	4	5	14	15	J	0.3	qtz		1	F	BOC
															1.33	41	350	0	4	3	4	5	16	15	J	0.3	qtz		1	F	BOC
300.0	301.5	1.50	100	1.50	100	5	250	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins, some healed joints	FT	0.20	31	10	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															0.44	34	270	0	5	3	4	5	17	15	J	0.1	qtz		1	VG	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition					Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.64	72	10	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															1.18	80	340	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															1.38	81	280	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
301.5	303.0	1.50	100	1.21	81	5	250	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins, some healed joints	FT	0.13	42	100	0	5	1	4	5	15	15	J	0.1	qtz		1	F	BOC
															0.64	19	250	0	4	1	4	5	14	15	J	0.3	qtz	py	1	F	BOC
															1.12	60	250	0	4	3	4	5	16	15	J	0.3	qtz		1	F	BOC
															1.27	25	230	0	5	1	4	5	15	15	J	0.1	qtz		1	F	BOC
															1.32	76	270	0	4	3	4	5	16	15	J	0.3	qtz		1	F	BOC
303.0	304.5	1.50	100	1.25	83	5	250	150	CGL	grey	fine grained	massive	With quartz veins and some healed joints	FT	0.14	57	340	0	4	3	4	5	16	15	J	0.3	qtz		1	G	BOC
															0.30	43	310	0	4	1	4	5	14	15	J	0.3	qtz		1	G	BOC
															0.31	43	310	0	4	1	4	5	14	15	J	0.3	qtz		1	G	BOC
															0.79	30	240	0	4	1	4	5	14	15	J	0.3	qtz		1	G	BOC
															1.24	18	270	0	5	3	4	5	17	15	J	0.1	qtz		1	G	BOC
304.5	306.0	1.50	100	1.40	93	3	375	150	CGL	grey	fine grained	massive	With quartz veins and some healed joints	FT	1.02	32	220	0	5	3	4	5	17	15	J	0.1	qtz		1	F	BOC
															1.24	54	100	0	5	1	4	5	15	15	J	0.1	qtz		2	F	BOC
															1.47	52	80	0	5	0	4	5	14	15	J	0.1	qtz		1	F	BOC
306.0	307.5	1.50	100	1.50	100	2	500	200	CGL	grey	fine grained	massive	With quartz veins and some healed joints	FT	0.20	50	220	0	5	1	4	5	15	15	J	0.1	qtz		1	F	BOC
															0.78	65	110	0	5	1	4	5	15	15	J	0.1	qtz		1	F	BOC
307.5	309.0	1.50	100	1.25	83	2	500	200	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins, some healed joints mechanical breakage at top of run	FT	0.55	84	270	0	4	1	4	5	14	15	J	0.1	qtz		2	G	BOC
309.0	310.5	1.50	100	1.41	94	2	500	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.92	73	16	0	4	1	4	5	14	15	J	0.3	qtz		1	VG	BOC
															1.36	46	330	0	4	1	4	5	14	15	J	0.3	qtz		1	VG	BOC
310.5	312.0	1.50	100	1.21	81	5	250	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.25	43	340	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															0.61	35	20	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
															1.18	34	260	0	4	1	4	5	14	15	J	0.3	qtz		1	VG	BOC
															1.32	58	10	0	4	1	4	5	14	15	J	0.3	qtz		1	VG	BOC
															1.41	42	20	0	5	1	4	5	15	15	J	0.1	qtz		1	VG	BOC
312.0	313.5	1.50	100	0.92	61	10	136	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.40	48	50	0	0	3	0	5	8	15	Rub	30.0	cc	qtz	1	VG	BOC
															0.41	25	270	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															0.54	41	120	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															0.58	63	30	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															0.64	50	30	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															0.73	54	20	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															0.82	38	120	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															0.85	34	260	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															1.01	65	10	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
															1.20	59	340	0	5	1	2	5	13	15	J	0.1	cc	qtz	1	VG	BOC
313.5	315.0	1.47	98	1.18	79	4	294	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.40	81	260	0	4	1	2	5	12	15	J	0.3	cc		1	G	BOC
															0.68	49	300	0	4	1	2	5	12	15	J	0.3	cc		1	G	BOC
															1.00	24	250	0	4	1	2	5	12	15	J	0.3	cc		1	G	BOC
															1.32	79	100	0	4	1	2	5	12	15	J	0.3	cc		1	G	BOC
315.0	316.5	1.50	100	0.56	37	10	136	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.06			0	5	1	2	5	13	15	J	0.1	cc		1	None	BOC
															0.25			0	5	1	2	6	14	15	J	0.1	cc		1	None	BOC
															0.36			0	4	1	2	6	13	15	J	0.1	cc		1	None	BOC
															0.43			0	5	1	2	6	14	15	J	0.1	cc		1	None	BOC
															0.45			0	5	1	2	6	14	15	J	0.1	cc		1	None	BOC
															0.54			0	5	1	2	6	14	15	J	0.1	cc		1	None	BOC
															0.76			0	4	1	2	6	13	15	J	0.1	cc		1	None	BOC
															0.79			0	4	1	2	6	13	15	J	0.1	cc		1	None	BOC
															1.02			0	4	1	2	6	13	15	J	0.1	cc		1	None	BOC
															1.22			0	4	1	2	6	13	15	J	0.1	cc		1	None	BOC
316.5	318.0	1.50	100	1.20	80	4	300	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.01	52	290	0	0	3	0	5	8	15	Rub	20.0	rub		1	F	BOC
															0.34	40	40	0	0	3	0	5	8	15	Rub	20.0	rub		1	F	BOC
															0.89	48	15	0	0	3	0	5	8	15	Rub	20.0	rub		1	F	BOC
															1.08	37	20	0	0	3	0	5	8	15	Rub	20.0	rub		1	F	BOC
318.0	319.5	1.50	100	0.78	52	11	125	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.16			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.41			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.51			0	5	1	4	5	15	15	J	0.1	qtz		1	None	BOC
															0.64			0	0	1	0	3	4	15	Rub	10.0	rub		1	None	BOC
															0.90			0	5	1	4	5	15	15	J	0.1	qtz		1	None	BOC
															1.03			0	5	1	4	5	15	15	J	0.1	qtz		1	None	BOC
															1.05			0	5	1	4	5	15	15	J	0.1	qtz		1	None	BOC
															1.14			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															1.20			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
															1.27			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															1.37			0	0	1	0	3	4	15	J	70.0	rub		1	None	BOC
319.5	321.0	1.50	100	0.42	28	29	50	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.07			0	5	1	4	5	15	15	J	0.1	qtz		1	None	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.11			0	5	1	4	6	16	15	J	0.1	qtz		1	None	BOC
															0.58			0	5	1	4	6	16	15	J	0.1	qtz		1	None	BOC
															0.71			0	0	3	0	5	8	15	J	60.0	rub	qtz	1	None	BOC
															0.81			0	0	1	0	3	4	15	J	70.0	rub	qtz	1	None	BOC
															0.93			0	4	1	4	6	15	15	J	0.1	qtz		1	None	BOC
															0.99			0	0	3	0	5	8	15	J	30.0	rub	qtz	1	None	BOC
															1.10			0	0	1	0	3	4	15	J	25.0	rub	qtz	1	None	BOC
															1.24			0	4	1	4	6	15	15	J	0.3	qtz		1	None	BOC
															1.40			0	0	3	0	5	8	15	J	40.0	rub	qtz	1	None	BOC
321.0	322.5	0.38	25	0.38	25	MAX	5	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.07			0	0	1	0	3	4	15	Rub	30.0	rub		1	None	BOC
															0.11			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.20			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.21			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.24			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.31			0	5	1	4	5	15	15	J	0.1	qtz		1	None	BOC
															0.36			0	0	1	0	3	4	15	Rub	25.0	rub		1	None	BOC
															0.42			0	4	3	4	6	17	15	J	0.3	qtz		1	None	BOC
															0.46			0	4	3	4	6	17	15	J	0.3	qtz		1	None	BOC
															0.51			0	4	1	4	6	15	15	J	0.3	qtz		1	None	BOC
															0.59			0	0	1	0	3	4	15	Rub	20.0	rub		1	None	BOC
															0.77			0	4	1	3	5	13	15	J	0.3	qtz		1	None	BOC
															0.83			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															1.06			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
															1.24			0	0	3	0	5	8	15	J	0.3	qtz		1	None	BOC
															1.39			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
															1.45			0	4	3	4	5	16	15	J	0.3	qtz		1	None	BOC
322.5	322.7	0.20	100	0.00	0	MAX	5	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.00			0	0	1	0	3	4	15	Rub	200.0	qtz		1	None	BOC
322.7	323.1	0.40	100	0.25	62	3	100	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.12			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.18			0	4	1	4	5	14	15	J	0.3	qtz		1	None	BOC
															0.40			0	4	3	6	5	18	15	J	0.3	qtz		1	None	BOC
323.1	324.0	0.90	100	0.00	0	MAX	5	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.00			0	0	1	0	3	4	15	Rub	400.0	qtz	cly	1	None	MGW
324.0	324.6	0.58	100	0.14	24	7	72	100	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.00			0	2	3	2	5	12	15	J	2.0	cc	chl	7	None	MGW
324.6	324.8	0.20	95	0.00	0	MAX	5	100	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.00			0	0	1	0	3	4	15	Rub	200.0	chl		1	None	MGW
324.8	325.5	0.63	90	0.00	0	MAX	5	150	CGL	dark grey	fine grained	massive	Trace quartz and calcite veins	FT	0.00			0	2	3	2	5	12	15	J	3.0	cc	chl	10	None	MGW
325.5	327.0	1.50	100	0.95	63	10	136	150	CGL	dark grey	fine grained	massive	Poorly graded, volcanic breccia, 1 to 3 cm, angular to sub angular clasts, some healed joints	FLTP	0.05	14	310	0	4	4	2	5	15	15	J	0.5	chl		1	F	MGW
															0.07	13	310	0	4	4	2	5	15	15	J	0.5	chl		1	F	MGW
															0.20	60	65	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															0.41	23	250	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.47	68	270	0	4	3	4	5	16	15	J	0.1	py		1	F	MGW
															0.51	43	145	0	4	2	6	6	18	15	J	0.5			1	F	MGW
															0.88	35	10	0	4	4	6	6	20	15	J	0.5			1	F	MGW
															1.10	44	140	0	4	3	6	6	19	15	J	0.5			1	F	MGW
															1.27	32	330	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
327.0	328.5	1.50	100	0.28	19	22	65	150	CGL	dark grey	fine grained	massive	Poorly graded, volcanic breccia, 1 to 3 cm, angular to sub angular clasts, many healed fractures and micro fractures that break when moved	FLTP	0.00			0	0	2	0	5	7	15	Rub	80.0	rub		1	None	MGW
															0.18			0	4	2	2	5	13	15	J	0.5	chl		17	None	MGW
															0.43			0	2	2	2	5	11	15	J	3.0	cc	chl	4	None	MGW
328.5	330.0	1.50	100	0.57	38	14	100	100	CGL	grey	fine grained	massive	With some healed joints	FT	0.16			0	0	1	0	5	6	15	J	17.0	cly		5	F	MGW
															0.23	44	340	0	0	1	0	5	6	15	J	10.0	cly		1	F	MGW
															0.41	30	240	0	1	1	2	5	9	15	J	4.0	cly	chl	1	F	MGW
															0.46	65	250	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
															0.66	55	60	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
															0.70	26	240	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
															0.77	64	235	0	4	3	2	5	14	15	J	0.5	chl		1	F	MGW
															0.91	25	120	0	4	3	6	5	18	15	J	0.5			1	F	MGW
															0.99	38	265	0	4	3	2	5	14	15	J	0.5	cc		1	F	MGW
															1.46	30	240	0	4	1	4	5	14	15	J	0.5	qtz		1	F	MGW
330.0	331.5	1.50	100	0.85	57	10	136	100	CGL	grey	fine grained	massive	With some healed joints	FT	0.15	75	245	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
															0.31	40	65	0	4	3	2	5	14	15	J	0.5	cc		1	G	MGW
															0.49	50	50	0	4	3	2	5	14	15	J	0.5	cc		1	G	MGW
															0.90	52	215	0	4	2	2	5	13	15	J	0.5	chl	qtz	1	G	MGW
															1.01	63	300	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
															1.15	65	285	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
															1.20	70	290	0	4	1	6	6	17	15	J	0.5			1	G	MGW
															1.33	50		0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
															1.37			0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
															1.42			0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
331.5	333.0	1.50	100	1.46	97	3	375	100	CGL	light grey	fine grained	massive	1 to 4 cm diameter angular to subangular clasts, healed joints and quartz and calcite veining	FLTP	0.20	30	100	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
															0.65	44	80	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
															1.15	43	325	0	1	1	2	5	9	15	J	4.0	cc		1	G	MGW
333.0	334.5	1.42	95	1.42	95	3	355	100	CGL	light grey	fine grained	massive	1 to 4 cm diameter angular to subangular clasts, healed joints and quartz and calcite veining	FLTP	0.05	30	220	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
															0.48	45	340	0	2	3	2	5	12	15	J	2.0	cc		1	VG	MGW
															0.75	45	80	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
334.5	336.0	1.50	100	1.38	92	2	500	100	CGL	light grey	fine grained	massive	1 to 4 cm diameter angular to subangular clasts, healed joints and quartz and calcite veining	FLTP	0.42	40	310	0	0	1	0	5	6	15	J	12.0	cc		1	VG	MGW
															1.35	58	20	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
336.0	337.5	1.50	100	1.02	68	8	167	100	CGL	light grey	fine grained	massive	1 to 4 cm diameter angular to subangular clasts, healed joints and quartz and calcite veining	FLTP	0.15	73	330	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
															0.22	62	340	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
															0.28	55	50	0	2	2	4	5	13	15	J	3.0	qtz		1	VG	MGW
															0.40	90		0	4	4	6	6	20	15	J	0.5			1	VG	MGW
															0.68	37	225	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
															0.82	43	20	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
															1.17	65	120	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
															1.34	25	220	0	4	1	2	5	12	15	J	0.5	cc	qtz	1	VG	MGW
337.5	339.0	1.50	100	1.07	71	5	250	150	CGL	grey	fine grained	massive	Felsic tuff with healed joints and qtz/calcite veins, white alteration halos around some joints and veins	FT	0.12	50	85	0	0	3	3	5	11	15	J	7.0	qtz		1	VG	MGW
															0.18	33	235	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
															0.24	28	225	0	4	1	2	5	12	15	J	0.5	cc	chl	1	VG	MGW
															0.88	25	210	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
															1.24	25	40	0	4	4	4	5	17	15	J	0.5	qtz		1	VG	MGW
339.0	340.5	1.50	100	1.15	77	4	300	150	CGL	grey	fine grained	massive	Felsic tuff with healed joints and qtz/calcite veins, white alteration halos around some joints and veins	FT	0.15	64	175	0	4	1	4	5	14	15	J	0.5	qtz		1	G	MGW
															0.26	58	260	0	4	3	2	5	14	15	J	0.5	cc		1	G	MGW
															1.22	40	350	0	3	2	4	5	14	15	J	1.0	qtz		1	G	MGW
															1.40	30	285	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
340.5	342.0	1.50	100	1.44	96	1	750	150	CGL	grey	fine grained	massive	Felsic tuff with healed joints and qtz/calcite veins, white alteration halos around some joints and veins	FT	1.09	28	250	0	4	1	2	5	12	15	J	0.5	cc	cly	1	VG	MGW
324.0	343.5	1.50	8	1.50	8	0	1500	150	CGL	grey	fine grained	massive	Felsic tuff with healed joints and qtz/calcite veins, white alteration halos around some joints and veins	FT	0.00			0	6	6	6	6	24	15		0.0			1	VG	MGW
343.5	345.0	1.50	100	1.50	100	3	375	150	CGL	grey	fine grained	massive	Felsic tuff with healed joints and qtz/calcite veins, white alteration halos around some joints and veins	FT	1.00	48	10	0	4	3	6	6	19	15	J	0.5			1	G	MGW
															1.15	59	350	0	4	2	6	6	18	15	J	0.5			1	G	MGW
															1.34	45	350	0	4	2	6	5	17	15	J	0.5	cc		1	G	MGW
345.0	346.5	1.50	100	1.26	84	4	300	150	CGL	grey	fine grained	massive	Felsic tuff with healed joints and qtz/calcite veins, white alteration halos around some joints and veins	FT	0.43	50	350	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
															0.84	26	245	0	4	2	6	5	17	15	J	0.5	qtz		1	VG	MGW
															1.13	58	0	0	4	2	6	5	17	15	J	0.5	qtz		1	VG	MGW
															1.23	80	350	0	4	3	6	5	18	15	J	0.5	qtz		1	VG	MGW
346.5	348.0	1.50	100	1.24	83	3	375	50	CGL	grey	fine grained	massive	High density of healed micro fractures	FT	1.09			0	2	2	2	5	11	15	J	2.0	cc		1	None	MGW
															1.33			0	2	1	2	5	10	15	J	2.0	cc		2	None	MGW
348.0	349.5	1.50	100	1.36	91	5	250	100	CGL	grey	fine grained	massive	High density of healed micro fractures	FT	0.03	31	30	0	4	1	2	5	12	15	J	0.5	cc		1	G	MGW
															0.09	34	25	0	4	1	2	5	12	15	J	0.5	cc		1	G	MGW
															0.54	30	250	0	4	1	6	5	16	15	J	0.5	cc		1	G	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															1.08	35	250	0	4	1	2	5	12	15	J	0.5	cc		1	G	MGW
															1.30	28	55	0	4	3	4	5	16	15	J	0.5	cc		1	G	MGW
349.5	351.0	1.50	100	1.50	100	2	500	100	CGL	grey	fine grained	massive	Some healed fractures	FT	0.30	50	340	0	4	2	6	5	17	15	J	0.5	qtz	slk	1	VG	MGW
															0.41	58	285	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
351.0	352.5	1.50	100	1.50	100	2	500	100	CGL	grey	fine grained	massive	Some healed fractures	FT	0.50	37	330	0	4	2	6	6	18	15	J	0.5			1	G	MGW
															0.79	52	50	0	4	2	6	6	18	15	J	0.5			1	G	MGW
352.5	354.0	1.50	100	1.30	87	3	375	100	CGL	grey	fine grained	massive	Some healed fractures	FT	0.22	45	0	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
															1.06	13	170	0	4	2	4	5	15	15	J	0.5	qtz		1	G	MGW
															1.28	28	250	0	4	1	4	5	14	15	J	0.5	qtz		1	G	MGW
354.0	355.5	1.44	96	1.36	91	3	360	150	CGL	dark grey/brown	fine grained	massive	With angular clasts 3mm to 20mm wide, healed fractures, weak clay zone at 0.18 to 0.24m vuggy zone around joints, possible fault breccia	VC	0.18	50	330	0	0	1	0	5	6	15	J	60.0	gg		1	F	MGW
															0.35	32	245	0	4	1	2	5	12	15	J	1.0	cc		1	F	MGW
															0.42	55	300	0	4	3	2	5	14	15	J	1.0	cc		1	F	MGW
															0.57	60	285	0	4	3	2	5	14	15	J	1.0	cc		1	F	MGW
355.5	357.0	1.50	100	1.50	100	3	375	200	CGL	dark grey	fine grained	massive	Many healed joints	FLTP	0.79	65	5	0	4	3	3	5	15	15	J	0.1	cc		1	F	MGW
															1.18	58	15	0	4	3	3	5	15	15	J	0.1	cc		1	VG	MGW
															1.45	29	35	0	4	3	6	6	19	15	J	0.1			1	VG	MGW
357.0	358.5	1.50	100	1.45	97	2	500	50	CGL	dark grey	fine grained	massive	Chaotic micro fractures, weak	FLTP	0.97	29	255	0	4	1	3	5	13	15	J	1.0	cc		1	VG	MGW
															1.02	34	70	0	4	1	6	6	17	15	J	0.1			1	None	MGW
358.5	359.0	0.48	100	0.48	100	0	480	100	CGL	dark grey	fine grained	massive	Healed micro fractures	FLTP	0.00			0	6	6	6	6	24	15		0.0			1	None	MGW
359.0	359.4	0.42	100	0.00	0	MAX	5	25	CGL	dark grey	fine grained	massive	Chaotic micro fractures, weak, clay zones throughout, very friable	FLTP	0.00			0	0	1	0	3	4	15	Rub	10.0			1	None	MGW
359.4	359.9	0.45	100	0.40	89	5	75	100	CGL	dark grey	fine grained	massive	Healed micro fractures	FLTP	0.00			0	0	3	2	5	10	15	J	1.0	cc		5	None	MGW
359.9	360.0	0.15	100	0.00	0	MAX	5	25	CGL	dark grey	fine grained	massive	Chaotic micro fractures, weak, clay zones throughout, very friable	FLTP	0.00			0	0	1	0	3	4	15	Rub	10.0			1	None	MGW
360.0	361.5	1.50	100	1.50	100	5	250	250	CGL	dark grey	fine grained	massive	Hard, healed micro fractures, large angular clasts, some pyrite at end of run	FLTP	0.00	58	360	0	0	1	0	5	6	15	J	10.0	cly		1	F	MGW
															0.27	35	105	0	4	1	2	5	12	15	J	0.5	cc		1	F	MGW
															0.56	40	175	0	4	3	6	6	19	15	J	0.1			1	F	MGW
															0.93	58	320	0	4	3	6	6	19	15	J	0.1			1	F	MGW
															1.34	78	145	0	4	3	2	5	14	15	J	0.1	cc		1	F	MGW
361.5	363.0	1.46	97	1.46	97	2	487	50	CGL	dark grey	fine grained	massive	Hard, healed micro fractures, large angular clasts, some pyrite	FLTP	0.80	60	345	0	4	1	6	6	17	15	J	0.1			1	F	MGW
															0.89	35	105	0	4	3	5	5	17	15	J	0.1	qtz		1	F	MGW
363.0	364.5	1.50	100	1.45	97	4	300	100	CGL	dark grey	fine grained	massive	Hard, healed micro fractures, large angular clasts, some pyrite	FLTP	0.74	15	120	0	4	5	5	5	19	15	J	0.1	cc		1	VG	MGW
															1.08	29	330	0	4	3	2	5	14	15	J	0.1	cc		1	VG	MGW
															1.16	70	340	0	4	3	6	6	19	15	J	0.1			1	F	MGW
															1.42			0	4	3	2	5	14	15	J	0.1	cc		1	P	MGW
364.5	366.0	1.44	96	1.44	96	0	1440	250	CGL	dark grey	fine grained	massive	Hard, healed micro fractures, large angular clasts, some pyrite	FLTP	0.00			0	6	6	6	6	24	15		0.0			1	P	MGW
366.0	366.4	0.38	100	0.38	100	0	380	100	CGL	dark grey	fine grained	massive	Hard, healed micro fractures, large angular clasts, some pyrite	FLTP	0.00			0	6	6	6	6	24	15		0.0			1	P	MGW
366.4	366.6	0.22	100	0.00	0	MAX	5	1	CGL	light grey	fine grained	massive	Soft broken clay and gouge	FLTP	0.00			0	0	1	0	5	6	15	F	100.0	cc	cly	1	P	MGW
366.6	367.5	0.90	100	0.90	100	3	225	100	CGL	dark grey	fine grained	massive	With chaotic micro fractures	FLTP	0.86	64	285	0	4	1	6	6	17	15	J	0.1			1	F	MGW
															1.30	55	320	0	4	1	5	5	15	15	J	0.1	qtz		1	F	MGW
															1.51	38	90	0	4	1	2	5	12	15	J	0.1	cly	cc	1	F	MGW
367.5	367.8	0.25	100	0.25	100	2	83	100	CGL	dark grey	fine grained	massive	With chaotic micro fractures	FLTP	0.13			0	4	3	6	6	19	15	J	0.1			1	None	MGW
367.8	369.0	1.25	100	0.00	0	MAX	5	1	CGL	light grey/white	fine grained	massive	Very broken, fault zone consists with clay and gouge throughout, breaks apart when picked up	FLTP	0.00			0	0	1	0	3	4	15	F	100.0	cly	cc	1	None	MGW
369.0	369.7	0.65	100	0.00	0	MAX	5	1	CGL	light grey/white	fine grained	massive	Very broken, fault zone consists with clay and gouge throughout, breaks apart when picked up	FLTP	0.00			0	0	1	0	3	4	15	F	100.0	gg	cc	1	None	MGW
369.7	370.5	0.85	100	0.76	89	4	170	150	CGL	dark grey	fine grained	massive	Chaotic, micro fractured	FLTP	0.84	48	70	0	4	3	2	5	14	15	J	0.2	cc		1	F	MGW
															1.28	62	360	0	4	1	0	5	10	15	J	1.0	cly		1	F	MGW
															1.45			0	4	5	6	6	21	15	J	0.1			1	F	MGW
															1.48			0	4	5	6	6	21	15	J	0.1			1	F	MGW
370.5	372.0	1.50	100	1.33	89	8	167	50	CGL	dark grey	fine grained	massive	Chaotic micro fractures, very broken, some rubble between 0.96 to 0.99m	FLTP	0.12			0	4	1	6	6	17	15	J	0.1			1	None	MGW
															0.45			0	4	3	2	5	14	15	J	0.1	cc		1	None	MGW
															0.71			0	4	1	2	5	12	15	J	0.1	cc		1	None	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
															0.74			0	4	1	2	5	12	15	J	0.1	cc		1	None	MGW
															0.96			0	4	3	2	5	14	15	J	1.0	cc		1	None	MGW
															0.99			0	4	1	2	5	12	15	J	1.0	cc		1	None	MGW
															1.06			0	4	3	6	6	19	15	J	0.1			1	None	MGW
															1.45			0	4	1	2	5	12	15	J	20.0	cc	cly	1	None	MGW
372.0	373.5	1.50	100	1.50	100	5	250	50	CGL	dark grey	fine grained	massive	Throughout run 2 to 5 cm zones of micro fractured clay zones at 0.33, 0.86,1.12 and 1.34m, calcite veinlets near those zones, some veins broke when picked up	FLTP	0.24	36	300	0	4	3	2	5	14	15	J	0.1	cc		1	F	MGW
															0.40	62	320	0	4	3	2	5	14	15	J	0.1	cc		1	F	MGW
															0.72	54	120	0	4	3	2	5	14	15	J	0.1	cc		1	F	MGW
															1.35	40	120	0	4	0	2	5	11	15	J	1.0	cc		1	F	MGW
373.5	373.8	0.33	100	0.00	0	MAX	5	1	CGL	dark grey	fine grained	massive	Highly fractured, calcite and clay zones, breaks when picked up	FLTP	0.00			0	0	1	0	3	4	15	F	10.0	cly	cc	1	F	MGW
373.8	375.0	1.17	100	1.17	100	5	195	50	CGL	dark grey	fine grained	massive	Hard	FLTP	0.58	65	100	0	4	3	2	5	14	15	J	0.1	cc		1	None	MGW
															0.84	52	350	0	4	3	2	5	14	15	J	0.1	cc		1	None	MGW
															1.14	64	330	0	4	3	6	6	19	15	J	0.1			1	None	MGW
															1.45	72	35	0	4	3	2	5	14	15	J	0.1	cc		1	None	MGW
															1.47	58	40	0	4	3	6	6	19	15	J	0.1			1	None	MGW
375.0	376.5	1.48	99	1.13	75	5	247	200	CGL	grey	fine grained	massive	Quartz infilled, trace healed fractures	FLTP	0.20	76	160	0	5	1	2	5	13	15	J	0.1	cc		1	VG	BOC
															0.53	20	280	0	4	1	4	5	14	15	J	0.3	cc		1	VG	BOC
															0.62	68	350	0	4	1	6	5	16	15	J	0.3			1	VG	BOC
															0.83	68	320	0	0	3	0	5	8	15	J	30.0	Rub	cc	1	VG	BOC
															1.02	61	320	0	4	1	2	3	10	15	J	0.3	cc		1	VG	BOC
376.5	377.3	0.80	100	0.80	100	2	267	150	CGL	grey	fine grained	massive	Quartz infilled, trace healed fractures	FLTP	0.42	59	340	0	4	3	6	6	19	15	J	0.3			1	F	BOC
															0.63	66	320	0	4	1	2	5	12	15	J	0.3	cc		1	F	BOC
377.3	378.0	0.70	100	0.00	0	3	175	50	CGL	light grey	fine grained	massive	With < 15 mm clasts, matrix supported	FLTP	0.00			0	0	1	0	3	4	15	F	10.0	cc	cly	3	F	BOC
378.0	379.5	1.50	100	0.00	0	MAX	5	25	CGL	light grey	fine grained	massive	With < 15 mm clasts, matrix supported	FLTP	0.00			0	0	1	0	3	4	15	F	1500.0	cc	cly	1	None	BOC
379.5	380.7	1.20	100	0.00	0	MAX	5	25	CGL	light grey	fine grained	massive	With < 15 mm clasts, matrix supported	FLTP	0.00			0	0	1	0	3	4	15	F	200.0	cc	cly	1	None	BOC
380.7	381.0	0.30	100	0.00	0	4	60	150	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.00	60	180	0	1	3	2	6	12	15	J	2.0	cc		1	F	BOC
															0.03	64	180	0	1	1	2	6	10	15	J	1.5	cc		1	F	BOC
															0.08	55	240	0	1	3	2	6	12	15	J	1.5	cc		1	F	BOC
															0.19	52	150	0	1	1	2	6	10	15	J	1.5	cc		1	F	BOC
381.0	382.5	1.50	100	0.00	0	MAX	5	25	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.00			0	0	1	0	3	4	15	F	200.0	cc	cly	1	None	BOC
382.5	384.0	1.50	100	0.00	0	MAX	5	25	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.00			0	0	1	0	3	4	15	F	200.0	cc	cly	1	None	BOC
384.0	385.5	1.50	100	1.07	71	5	250	50	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.44	60	30	0	4	1	2	6	13	15	J	0.3	cc		1	VG	BOC
															0.63	62	280	0	4	1	2	6	13	15	J	0.3	cc		1	VG	BOC
															0.88	65	210	0	4	1	2	6	13	15	J	0.3	cc		1	VG	BOC
															1.21	60	270	0	4	1	2	6	13	15	J	0.3	cc		1	VG	BOC
															1.38	60	260	0	4	1	2	6	13	15	J	0.3	cc		1	VG	BOC
385.5	387.0	1.50	100	1.26	84	5	250	50	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.08	40	50	0	5	0	2	6	13	15	J	0.1	cc		1	VG	BOC
															0.15	51	100	0	4	1	2	6	13	15	J	0.1	cc		1	VG	BOC
															0.41	31	330	0	5	1	2	6	14	15	J	0.1	cc		1	VG	BOC
															0.94	55	240	0	5	1	2	6	14	15	J	0.1	cc		1	VG	BOC
															1.42	77	210	0	5	0	2	6	13	15	J	0.1	cc		1	VG	BOC
387.0	388.5	1.50	100	0.29	19	MAX	5	50	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.00			0	0	1	0	3	4	15	F	1500.0	cc	cly	1	VG	BOC
388.5	390.0	1.50	100	0.39	26	MAX	5	25	CGL	grey	fine grained	massive	With many healed fractures	FLTP	0.00			0	0	1	0	3	4	15	F	150.0	cc	cly	1	None	BOC
390.0	391.5	1.50	100	0.00	0	MAX	5	5	CGL	grey	fine grained	massive	With many healed fractures, crumbles	FLTP	0.00			0	0	1	0	3	4	15	F	1500.0	cly	cc	1	None	BOC
391.5	393.0	1.50	100	0.00	0	MAX	5	25	CGL	grey	fine grained	massive	With many healed fractures, crumbles	FLTP	0.00			0	0	1	0	3	4	15	F	1500.0	cly	cc	1	None	BOC

EOH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. BWWR14

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[BWWR14 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
0.0	42.0	0.0		0					OB					OB	0																
42.0	43.5	1.05	70	0.42	28	14	70	100	VC	dark grey	fine grained	massive	slightly weathered, strong	CV	0.00			0	4	3	4	2	13	15	J	1	ox		14	None		MGW
43.5	45.0	0.97	65	0.41	27	13	69	100	VC	dark grey	fine grained	massive	slightly weathered, strong	CV	0.00			0	4	3	4	2	13	15	J	1	ox		13	None		MGW
45.0	46.5	1.50	100	0.22	15	26	56	50	VC	dark grey	fine grained	massive	slightly weathered, strong	CV	0.00			0	4	2	2	5	13	15	J	1	ox		26	None		MGW
46.5	48.0	1.50	100	1.31	87	10	136	50	VC	medium grey	fine grained	massive	slightly, strong, unable to orientate entire run	CV	0.13	60	64	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.37	70	348	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.68			0	4	3	4	5	16	15	J	1	ox		8	None		MGW
48.0	49.5	1.50	100	0.50	33	13	107	50	VC	medium grey	fine grained	massive	slightly weathered, strong, unable to orientate	CV	0.00			0	4	2	2	5	13	15	J	1	ox		13	None		MGW
49.5	51.0	1.44	96	0.30	20	12	111	50	VC	medium grey	fine grained	massive	slightly weathered strong	CV	0.20	80	30	0	4	4	4	5	17	15	J	1	ox		1	None		MGW
									VC					CV	0.28	60	60	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.34	68	50	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.36	74	75	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.41	75	70	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.56	65	10	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.66	83	120	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.83	56	268	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	0.88	55	80	0	4	3	2	5	14	15	J	1	ox		1	None		MGW
														CV	0.91			0	0	3	4	5	12	15	J	80	ox		1	None		MGW
									VC					CV	0.98	58	20	0	4	3	4	5	16	15	J	1	ox		1	None		MGW
									VC					CV	1.11	82	22	0	4	3	2	5	14	15	J	1	ox		1	None		MGW
51.0	52.5	1.49	99	0.78	52	8	166	50	VC	medium grey	fine grained	massive	reddish brown staining on joints	CV	0.00	60		0	4	1	6	5	16	15	J	1			1	None		EA
									VC				lightly weathered	CV	0.09	40		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	0.35	67		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	0.58	65		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	0.94	26		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	1.18	60		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	1.25	50		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	1.34	60		0	4	1	6	5	16	15	J	1			1	None		EA
52.5	54.0	1.48	99	0.94	63	7	185	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00	50.0		0	4	1	6	6	17	15	J	1			1	None		EA
									VC				reddish brown staining on joints	CV	0.08	47.0		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.22	15.0		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.32	67.0		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.43	65.0		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.50	55.0		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.72	50.0		0	4	1	6	6	17	15	J	1			1	None		EA
54.0	55.5	1.49	99	1.11	74	6	213	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.10	20.0		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC				reddish brown staining on joints	CV	0.24	25.0		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC				rubble zone from 1.26-1.41 m	CV	0.73	54.0		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	1.08	60.0		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	1.15	80.0		0	0	1	0	5	6	15	J	5	cly	Ox	1	None		EA
									VC					CV	1.26			0	4	1	4	5	14	15	J	1	ox		1	None		EA
55.5	57.0	1.50	100	0.28	19	25	58	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints	CV	0.00			0	0	1	0	3	4	15	Rub	1220	Rub	Ox	25	None		EA
57.0	58.5	1.43	95	0.00	0	30	46	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints	CV	0.00			0	0	1	0	3	4	15	Rub	1430	Rub	Ox	30	None		EA
58.5	58.8	0.25	100	0.00	0	Max	5	125	VC	medium grey	fine grained	massive	rubble zone from 0-0.25 m	CV	0.00			0	0	1	0	3	4	15	F	250	Rub		1	None		EA
58.8	60.0	1.25	100	0.95	76	9	125	125	VC	medium grey	fine grained	massive	lightly weathered	CV	0.25	60		0	0	1	2	5	8	15	J	250	Cl		1	None		EA
									VC				reddish brown staining on joints	CV	0.40	60		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	0.49	40		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	0.65	26		0	0	1	4	5	10	15	J	100	Ox		1	None		EA
									VC					CV	0.74	35	360	0	0	1	6	6	13	15	J	60			1	F		EA
									VC					CV	0.80	35	290	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.84	55	30	0	4	1	4	5	14	15	J	1	Ox		1	F		EA
									VC					CV	0.97	57	35	0	4	1	4	5	14	15	J	1	Ox		1	F		EA
									VC					CV	1.48	30	290	0	4	1	4	5	14	15	J	1	Ox		1	F		EA
60.0	61.5	1.50	100	0.36	24	14	100	125	VC	medium grey	fine grained	massive	lightly weathered	CV	0.00	60		0	4	1	6	6	17	15	J	1			1	None		EA
									VC				reddish brown staining on joints	CV	0.12	20		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.31	50		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.38	40		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.47	40		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.64	60		0	4	1	5	5	15	15	J	1	Ox		1	None		EA
									VC					CV	0.70	30		0	1	1	2	5	9	15	J	5	cly		1	None		EA
									VC					CV	0.84	57		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	0.88	20		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	0.90	0		0	4	1	5	5	15	15	J	1	Ox		1	None		EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC					CV	0.96	55		0	1	1	2	5	9	15	J	5	cly		1	None		EA
									VC					CV	1.13	55		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	1.20	50		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
									VC					CV	1.37	30		0	4	1	4	5	14	15	J	1	Ox		1	None		EA
61.5	62.4	0.90	100	0.19	21	6	129	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.09	25	90	0	4	1	4	5	14	15	J	1	Ox		1	F		EA
									VC				reddish brown staining on joints	CV	0.14	70	190	0	1	1	2	5	9	15	J	5	cly		1	F		EA
									VC					CV	0.22	35	320	0	1	1	2	5	9	15	J	5	cly		1	F		EA
									VC					CV	0.32	40	30	0	1	1	2	5	9	15	J	5	cly		1	F		EA
									PPY					CV	0.58	25		0	1	1	2	5	9	15	J	5	cly		1	None		EA
									PPY					CV	0.85	55		0	1	1	2	5	9	15	J	5	cly		1	None		EA
62.4	62.7	0.30	100	0.00	0	Max	5	10	PPY				0-0.3 = very soft rock (crumbles when moved), lots of clay	CV	0.00			0	0	1	0	3	4	15	F	300	gg	Cly	1	None		EA
62.7	63.0	0.30	100	0.14	47	3	75	125	PPY					CV	0.00	30	150	0	4	1	6	6	17	15	J	1			1	F		EA
									PPY					CV	0.14	45	200	0	4	1	6	6	17	15	J	1			1	F		EA
									PPY					CV	0.21	20	100	0	4	1	6	6	17	15	J	1			1	F		EA
63.0	64.5	1.50	100	1.24	83	6	214	125	PPY	medium grey	fine grained	massive	medium grey, moderately weathered, fine grained, iron staining on joints	CV	0.16	65		0	4	1	6	6	17	15	J	1			1	None		EA
									PPY				hard and fine grained	CV	0.26	65		0	4	1	6	5	16	15	J	1			1	None		EA
									PPY					CV	0.91	25		0	4	1	6	5	16	15	J	1			1	None		EA
									PPY					CV	1.02	68		0	4	1	6	6	17	15	J	1			1	None		EA
									PPY					CV	1.25	25		0	4	1	6	5	16	15	J	1			1	None		EA
									PPY					CV	1.43	45		0	4	1	6	6	17	15	J	1			1	None		EA
64.5	66.0	1.48	99	0.20	13	23	62	125	PPY	medium grey	fine grained	massive	iron staining on joints	CV	0.10			0	4	3	4	5	16	15	J	0.1	Ox		23	None		EA
66.0	66.5	0.40	80	0.13	26	10	36	125	VC	medium grey	fine grained	massive	slightly weathered, Highly fractured zone from 0.13 - 0.50 m	CV	0.13	50		0	1	3	4	5	13	15	J	1	Ox		10	None		EA
66.5	67.5	1.00	100	0.66	66	6	143	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.04	30		0	4	1	2	5	12	15	J	1	Chl		1	None		EA
									VC				green staining on first 2 joints	CV	0.04	20		0	4	1	2	5	12	15	J	1	Chl		1	None		EA
									VC					CV	0.17	65		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	0.25	60		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	0.62	60		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.79	60		0	4	1	6	6	17	15	J	1			1	None		EA
67.5	67.9	0.40	100	0.35	87	1	200	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.30	45		0	4	1	6	6	17	15	J	1			1	None		EA
67.9	68.1	0.20	100	0.00	0	max	5	50	VC	medium grey	fine grained	massive	mod. Weathered rubble zone	CV	0.00			0	0	1	0	3	4	15	Rub	150	Rub		1	None		EA
68.1	69.0	0.90	100	0.13	14	7	113	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00	15		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.11	20		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.40	35		0	0	1	0	5	6	15	J	5	cly		1	None		EA
									VC					CV	0.45	55		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	0.60	45		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.69	70		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.80	60		0	4	1	6	6	17	15	J	1			1	None		EA
69.0	70.5	1.50	100	1.15	77	10	136	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.06	55		0	4	1	4	5	14	15	J	1	ox	chl	1	None		EA
									VC				reddish brown and green staining on joints	CV	0.33	65		0	4	1	4	5	14	15	J	1	ox	chl	1	None		EA
									VC					CV	0.48	72		0	4	1	4	6	15	15	J	1	ox	chl	1	None		EA
									VC					CV	0.55	36		0	4	1	4	5	14	15	J	1	ox	chl	1	None		EA
									VC					CV	0.69	45		0	4	1	4	5	14	15	J	1	ox	chl	1	None		EA
									VC					CV	0.75	65	210	0	4	1	4	5	14	15	J	1	ox	chl	1	F		EA
									VC					CV	0.97	65	350	0	4	1	4	5	14	15	J	1	ox	chl	1	F		EA
									VC					CV	1.20	25	250	0	4	1	4	5	14	15	J	1	ox	chl	1	F		EA
									VC					CV	1.42	68	320	0	4	2	4	5	15	15	J	1	ox	chl	1	F		EA
									VC					CV	1.53	25	320	0	4	1	5	5	15	15	J	1	ox	chl	1	F		EA
70.5	72.0	1.50	100	0.33	22	10	136	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00			0	1	2	4	5	12	15	J	1	Ox		9	None		MGW
									VC					CV	1.02	40	10	0	4	2	4	5	15	15	J	1	ox		1	None		MGW
72.0	73.5	1.25	83	0.22	15	Max	5	50	VC	medium grey	fine grained	massive	slightly weathered, broken zone from 0.15-0.35 and 0.58-0.78 m	CV	0.00			0	0	1	0	3	4	15	J	10	Rub		2	None		MGW
									VC					CV	1.02	62	20	0	4	2	4	5	15	15	J	1			1	None		MGW
73.5	75.0	1.50	100	0.33	22	16	88	125	VC	medium grey	fine grained	massive	slightly weathered		0.38			0	0	1	0	3	4	15	Rub	60	Rub		6	None		MGW
									VC						0.77			0	0	1	0	3	4	15	Rub	90	Rub		7	None		MGW
									VC					CV	1.20	54	140	0	4	2	4	5	15	15	J	1			1	F		MGW
									VC				unable to extend beta line	CV	1.36	75	90	0	4	2	4	5	15	15	J	1			1	F		MGW
									VC				rubble zone from 0.38-0.42 and 0.77-0.86	CV	1.41	62	5	0	4	2	4	5	15	15	J	1			1	F		MGW
75.0	76.5	1.50	100	0.32	21	25	58	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints, highly fractured, beta line was continued from prev. run	CV	0.00			0	4	2	4	5	15	15	J	1	Ox		23	None		MGW
									VC					CV	0.20	74	186	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	0.26	53	194	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
76.5	78.0	1.50	100	0.17	11	20	71	125	VC	medium grey	fine grained	massive	slightly weathered , reddish brown staining along joints		0.00			0	4	2	4	5	15	15	J	1	Ox		19	None		MGW
									VC					CV	1.38	40	50	0	2	2	4	5	13	15	J	1	ox		1	P		MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
78.0	79.5	1.50	100	0.26	17	20	71	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints, unable to extend beta line, rubble zone from 0 to 0.1 m	CV	0.00			0	0	1	0	3	4	15	Rub	100	Rub	cly	19	None		MGW
									VC					CV	0.10			0	2	2	4	5	13	15	J	1	ox		1	None		MGW
79.5	81.0	1.50	100	0.33	22	16	88	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints	CV	0.00			0	2	2	4	5	13	15	J	1	ox		16	None		MGW
81.0	82.5	1.47	98	0.75	50	5	245	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.46	58	30	0	1	2	6	5	14	15	J	1			1	F		MGW
									VC				could not continue beta line past 1.07 m	CV	0.59	55	350	0	2	2	4	5	13	15	J	1	ox		1	F		MGW
									VC				reddish brown staining on joints	CV	0.65	21	220	0	2	2	4	5	13	15	J	1	ox		1	F		MGW
									VC					CV	1.11	55	200	0	2	2	6	5	15	15	J	1			1	F		MGW
									VC					CV	1.37	70	90	0	2	2	4	5	13	15	J	1	ox		1	F		MGW
82.5	84.0	1.50	100	0.52	35	10	136	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints	CV	0.10	62	115	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	0.59	59	45	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	0.79	30	185	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	0.88	45	150	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.01	50	150	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.08	50	35	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.19	58	165	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.30	58	130	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.40	40	118	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.44	64	140	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
84.0	85.5	1.50	100	0.87	58	6	214	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.32	63.0	145	0	4	3	4	5	16	15	J	1	ox		1	F		MGW
									VC				reddish brown staining on joints	CV	0.50	40.0	150	0	4	2	6	5	17	15	J	1			1	F		MGW
									VC					CV	0.82	25.0	140	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	0.93	40.0	150	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.33	60.0	145	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.46	60.0	150	0	4	2	6	5	17	15	J	1			1	F		MGW
85.5	87.0	1.48	99	0.48	32	11	123	125	VC	medium grey	fine grained	massive	slightly weathered, reddish brown staining on joints		0.00			0	4	2	4	5	15	15	J	0.1	ox		10	None		MGW
									VC					CV	1.43	61.0	85	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
87.0	88.5	1.50	100	0.83	55	8	167	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00			0	4	2	6	5	17	15	J	1			8	F		MGW
88.5	90.0	1.50	100	1.02	68	6	214	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.17	63	145	0	4	2	6	5	17	15	J	1			1	F		MGW
									VC					CV	0.38	62	210	0	4	2	6	5	17	15	J	1			1	F		MGW
									VC					CV	0.45	64	180	0	4	4	6	5	19	15	J	1			1	F		MGW
									VC					CV	0.91	35	10	0	4	3	6	5	18	15	J	1			1	F		MGW
									VC					CV	1.12	56	15	0	4	2	6	5	17	15	J	1			1	F		MGW
									VC					CV	1.43	45	340	0	4	3	4	5	16	15	J	1	ox		1	F		MGW
90.0	91.5	1.50	100	0.62	41	14	100	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.54			0	4	3	4	5	16	15	J	1	ox		8	F		MGW
									VC					CV	0.84			0	0	1	0	3	4	15	F	10	Rub	GG	3	F		MGW
91.5	93.0	1.50	100	0.65	43	7	188	125	PPY	medium grey	fine grained	massive	slightly weathered	CV	0.35	40	325	0	4	2	4	5	15	15	J	1			1	F		MGW
									PPY					CV	0.42	28	60	0	4	2	4	5	15	15	J	1			1	F		MGW
									PPY					CV	0.48			0	4	2	4	5	15	15	J	1			1	F		MGW
									VC					CV	0.71	37	265	0	4	2	4	5	15	15	J	1			1	F		MGW
									VC					CV	0.78	42	320	0	4	2	4	5	15	15	J	1			1	F		MGW
									VC					CV	0.84	80	90	0	0	1	1	3	5	15	Rub	50	GG	Cly	1	F		MGW
									VC					CV	0.92	40	170	0	1	1	1	3	6	15	Rub	1	GG	Cly	1	F		MGW
93.0	94.5	1.50	100	1.16	77	6	214	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.30	49	65	0	4	2	4	5	15	15	J	1	Ox		1	VG		MGW
									VC					CV	0.49	46	65	0	4	2	4	5	15	15	J	1	Ox		1	VG		MGW
									VC					CV	0.64	19	105	0	4	2	4	5	15	15	J	1	Ox		1	VG		MGW
									VC					CV	1.05	68	80	0	4	2	4	5	15	15	J	1	Ox		1	VG		MGW
									VC					CV	1.09			0	4	2	4	5	15	15	J	1	Ox		1	VG		MGW
									VC					CV	1.29	56	205	0	4	2	4	5	15	15	J	1	Ox		1	VG	0	MGW
94.5	96.0	1.50	100	0.83	55	14	100	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00			0	4	2	5	5	16	15	J	1			12	None		MGW
96.0	97.5	1.50	100	1.20	80	9	150	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00			0	4	2	4	5	15	15	J	1	ox		9	None		MGW
97.5	99.0	1.50	100	1.20	80	11	125	125	VC	medium grey	fine grained	massive	slightly weathered	CV	0.00			0	4	2	5	5	16	15	J	1			11	None		MGW
99.0	100.5	1.50	100	1.18	79	5	250	125	VC	medium grey	fine grained	massive	slightly weathered	CV	1.00	28	260	0	4	2	5	5	16	15	J	1			1	F	0	MGW
									VC					CV	1.10			0	4	2	5	5	16	15	J	1			1	None		MGW
									VC					CV	1.45	27	75	0	4	2	5	5	16	15	J	1			1	F		MGW
100.5	102.0	1.50	100	1.47	98	4	300	125	VC	medium grey	fine grained	massive	fresh joints, metallic mineral (sulphide) visible in fresh break, silicified	CV	0.53	23	270	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.56	70	330	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.68	70	180	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.31	75	210	0	4	1	6	6	17	15	J	1			1	F		EA
102.0	103.5	1.47	98	1.10	73	5	245	125	VC	medium grey	fine grained	massive	lightly weathered	CV	0.05	53		0	4	1	6	6	17	15	J	1			1	F		EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC				some red-tan staining on surface of core and red-brown staining on joints, metallic (sulphide) visible in fresh fractures, staining and vugs between 0.6-.82 m and trace fossils between 0.82-1.1m, silicified	CV	0.14	40		0	1	1	6	5	13	15	J	3.0	ox		1	None		EA
									VC					CV	0.52	55	170	0	1	1	4	5	11	15	J	3.0	ox		1	F		EA
									VC					CV	0.60	65	45	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	1.38	80	270	0	4	1	4	5	14	15	J	1	ox		1	F		EA
103.5	105.0	1.50	100	1.50	100	4	300	125	VC	medium grey	fine grained	massive	red-brown staining on first joint	CV	0.62	40		0	1	1	4	5	11	15	J	2.0	ox		1	None		EA
									VC				silicified	CV	0.83	55		0	4	1	4	5	14	15	J	1	ox		1	None		EA
									VC					CV	0.97	60		0	4	1	4	5	14	15	J	1	ox		1	None		EA
									VC					CV	1.17	50		0	4	1	4	5	14	15	J	1	ox		1	None		EA
105.0	106.5	1.50	100	1.28	85	4	300	125	VC	medium grey	fine grained	massive	green staining on first joint	CV	0.62	40		0	4	3	2	5	14	15	J	1	chl		1	None		EA
									VC				driller messed up act tool (no orientation)	CV	0.83	55		0	4	1	6	6	17	15	J	1			1	None		EA
									VC				dropped core	CV	0.97	60		0	4	3	6	6	19	15	J	1			1	None		EA
									VC					CV	1.17	50		0	4	1	6	5	16	15	J	1			1	None		EA
106.5	106.7	0.20	100	0.14	70	2	67	125	VC	medium grey	fine grained	massive	green and red-brown staining on joints	CV	0.14			0	1	5	4	5	15	15	J	2.0	ox	chl	1	None		EA
									VC				silicified	CV	0.20	35		0	4	2	4	5	15	15	J	1	ox	chl	1	None		EA
106.7	107.8	0.96	87	0.93	85	3	240	125	VC	medium grey	fine grained	massive	red-brown staining on joints	CV	0.48	35		0	1	1	4	5	11	15	J	5	ox	chl	1	None		EA
									VC				silicified	CV	0.77	30		0	4	1	4	6	15	15	J	1	ox	chl	1	None		EA
									VC					CV	0.96	50		0	4	1	4	5	14	15	J	1	ox	chl	1	None		EA
107.8	109.0	1.18	100	0.76	64	4	236	125	VC	medium grey	fine grained	massive	very mechanically broken	CV	0.14	40		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.24	35		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.37	60		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.71	45		0	4	1	6	6	17	15	J	1			1	None		EA
109.0	109.3	0.32	100	0.00	0	Max	5	50	VC				rubble zone from 0-0.24 m	CV	0.00			0	0	1	0	3	4	15	F	240	Rub	Cly	1	None		EA
109.3	110.9	1.55	97	1.55	97	4	310	125	VC	medium grey	fine grained	massive	green staining on joints	CV	0.18	20		0	4	1	2	5	12	15	J	1	chl		1	None		EA
									VC					CV	0.22	40	280	0	4	1	2	5	12	15	J	1	chl		1	F		EA
									VC					CV	1.11	30	270	0	4	1	2	5	12	15	J	1	chl		1	F		EA
									VC					CV	1.30	40	40	0	4	1	2	5	12	15	J	1	chl		1	F		EA
110.9	112.4	1.46	97	0.75	50	4	292	125	VC	medium grey	fine grained	massive	green staining along joints	CV	0.00			0	4	1	2	5	12	15	J	1	chl		4	None		MGW
112.4	113.5	1.10	100	0.75	68	4	220	125	VC	medium grey	fine grained	massive	green and red-brown staining on joints	CV	0.00			0	4	1	4	5	14	15	J	1	ox	chl	4	None		MGW
113.5	115.5	1.93	97	1.54	77	7	241	125	VC	medium grey	fine grained	massive	silicified	CV	0.04	65	240	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC				green staining on joints	CV	0.24	58	315	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC					CV	0.49	61	310	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC					CV	0.66	39	330	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC					CV	1.01	18	270	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC					CV	1.20	58	310	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC					CV	1.66	25	345	0	4	3	2	5	14	15	J	1	chl		1	F		MGW
115.5	117.0	1.42		1.19	79	4	284	125	VC	medium grey	fine grained	massive	silicified	CV	0.64	10	300	0	4	1	6	5	16	15	J	1			1	P	-35	MGW
									VC				green and red-brown staining on joints	CV	0.71	13	335	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.33	70	135	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.36	55	70	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
117.0	118.5	1.50	100	1.11	74	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.30	35	260	0	4	2	4	5	15	15	J	1	ox	chl	1	VG	0	MGW
									VC				green and red-brown staining on joints	CV	0.32	42	192	0	4	3	4	5	16	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.04	33	218	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.12	35	194	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.32	73	176	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
118.5	120.0	1.50	100	0.97	65	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.19	70	350	0	4	2	4	5	15	15	J	1	ox		1	VG	0	MGW
									VC				red-brown staining on joints	CV	0.39	35	240	0	4	1	4	5	14	15	J	1	ox		1	VG		MGW
									VC				bottom of run is highly weathered	CV	0.83	57	48	0	4	1	4	5	14	15	J	1	ox		1	VG		MGW
									VC					CV	1.26	34	150	0	4	1	4	5	14	15	J	1	ox		1	VG		MGW
									VC					CV	1.27	42	162	0	4	1	4	5	14	15	J	1	ox		1	VG		MGW
									VC					CV	1.46			0	4	1	4	5	14	15	J	1	ox		1	VG		MGW
120.0	121.5	1.50	100	1.36	91	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.16	44	162	0	4	2	6	6	18	15	J	1			1	VG	+3	MGW
									VC					CV	0.68	35	250	0	4	2	6	6	18	15	J	1			1	VG		MGW
									VC					CV	1.46	68	348	0	4	2	6	6	18	15	J	1			1	VG		MGW
121.5	123.0	1.43	95	1.18	79	3	358	125	VC	medium grey	fine grained	massive	silicified	CV	0.30	5	130	0	4	3	4	5	16	15	J	1	ox	chl	1	VG	-3	MGW
									VC				green and red-brown staining on joints	CV	0.51	35	222	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.01	54	38	0	4	1	6	6	17	15	J	1			1	VG		MGW
123.0	124.5	1.50	100	1.42	95	3	375	125	VC	medium grey	fine grained	massive		CV	0.56	42	208	0	4	1	5	6	16	15	J	1			1	VG		MGW
									VC					CV	0.78	54	246	0	4	2	5	6	17	15	J	1			1	VG		MGW
									VC					CV	1.12	50	238	0	4	1	6	6	17	15	J	1			1	VG		MGW
124.5	126.0	1.50	100	1.50	100	4	300	125	VC	medium grey	fine grained	massive	silicified	CV	0.50	38	282	0	4	1	4	6	15	15	J	1	chl		1	VG	0	MGW
									VC				green staining along joints	CV	0.93	17	290	0	4	1	4	6	15	15	J	1	chl		1	VG		MGW
									VC					CV	1.16	30	10	0	4	1	4	6	15	15	J	1	chl		1	VG		MGW
									VC					CV	1.17	50	82	0	4	1	4	6	15	15	J	1	chl		1	VG		MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
126.0	127.5	1.39	93	1.39	93	2	463	125	VC	medium grey	fine grained	massive	silicified	CV	0.35	42	180	0	4	1	4	6	15	15	J	1	chl		1	VG		MGW
									VC				green staining along joints; joint 1 terminates part way through the core	CV	0.40	14	305	0	4	1	4	5	14	15	J	1	chl		1	G	-8	MGW
127.5	129.0	1.50	100	0.75	50	7	188	125	VC	medium grey	fine grained	massive	green and red-brown staining on joints	CV	0.18	49	50	0	4	1	6	6	17	15	J	1			1	VG	0	MGW
									VC				unable to fully extend beta line	CV	0.55	14	290	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC				broken zone at the bottom of the run	CV	0.78	40	332	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV				0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV				0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV				0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV				0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
129.0	130.5	1.45	97	1.21	81	3	363	125	VC	medium grey	fine grained	massive	silicified	CV	0.94	43	290	0	4	1	4	5	14	15	J	1			1	G	+4	MGW
									VC				green and red-brown staining on joints	CV	1.13	47	222	0	4	1	4	6	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.25	45	65	0	4	1	6	6	17	15	J	1			1	G		MGW
130.5	131.8	1.26	100	1.17	93	3	315	125	VC	medium grey	fine grained	massive	silicified	CV	0.08	28	72	0	4	2	6	5	17	15	J	1			1	VG	0	MGW
									VC				green and red-brown staining on joints	CV	0.18	48	335	0	4	2	6	5	17	15	J	1			1	VG		MGW
									VC				unable to fully extend beta line from the bottom of the run due to a rubble zone	CV	1.24	65	12	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
131.8	132.0	0.24	100	0.00	0	Max	5	125	VC				rubble zone from 131.94 to 131.76 m	CV	0.00			0	0	1	0	3	4	15	F	180	Rub	cly	1	None		MGW
132.0	133.5	1.46	97	1.11	74	6	209	125	VC	medium grey	fine grained	massive	silicified	CV	0.32	63	5	0	4	1	4	5	14	15	J	1	ox	chl	1	G	+5	MGW
									VC				green and red-brown staining on joints	CV	0.42	46	20	0	4	2	4	5	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.55	25	255	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.94	73	10	0	4	2	4	5	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.14	35	42	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.29	58	285	0	4	1	6	6	17	15	J	1			1	G		MGW
133.5	135.0	1.50	100	1.05	70	7	188	125	VC	medium grey	fine grained	massive	silicified	CV	0.13	26	62	0	4	1	4	5	14	15	J	1	ox	chl	1	VG	0	MGW
									VC				green and red-brown staining on joints	CV	0.32	35	118	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.64	47	40	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.94	52	45	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.16	44	222	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.26	46	230	0	1	2	4	5	12	15	J	1	ox	chl	1	VG		MGW
									VC					CV	1.31	48	210	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
135.0	136.5	1.44	96	1.24	83	2	480	125	VC	medium grey	fine grained	massive	silicified	CV	0.90	51	45	0	4	1	6	6	17	15	J	1			1	VG	+5	MGW
									VC				red-brown staining on joints	CV	1.00	15	265	0	4	2	4	5	15	15	J	1	ox		1	VG		MGW
136.5	137.8	1.28	100	0.41	32	4	256	125	VC				silicified	CV	0.20	5	70	0	4	1	6	6	17	15	J	1			1	F	0	MGW
									VC				red-brown staining on joints	CV	0.52	60	5	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC				unable to orientate from bottom	CV	0.75	14	100	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	1.18	36	252	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
137.8	138.0	0.22	100	0.00	0	10	20	125	VC				Highly fracture zone from 137.78-137.91 m	CV	0.02	33	325	0	1	1	2	5	9	15	J	1	Rub	cly	1	F		MGW
														CV				0	1	1	2	6	10	15	J	5	ox		9	None		MGW
138.0	139.5	1.44	96	1.29	86	6	206	125	VC	medium grey	fine grained	massive	silicified	CV	0.19	35		0	4	5	4	5	18	15	J	1	cc	ox	1	None	-	EA
									VC				joint infilled with soapy green material	CV	0.78	78		0	4	1	6	6	17	15	J	1			1	None		EA
									VC				red-brown staining on joints	CV	1.04	34		0	4	1	2	5	12	15	J	1	chl	ox	1	None		EA
									VC					CV	1.09	80		0	4	1	4	5	14	15	J	1	cc	ox	1	None		EA
									VC					CV	1.28	47		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	1.31	40		0	4	1	2	5	12	15	J	1	cc	ox	1	None		EA
139.5	141.0	1.50	100	1.40	93	7	188	125	VC	medium grey	fine grained	massive	silicified	CV	0.17	25	90	0	4	1	4	5	14	15	J	1	ox		1	F	-	EA
									VC				red-brown staining on joints	CV	0.49	30	85	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	0.59	45	70	0	4	1	4	6	15	15	J	1	ox		1	F		EA
									VC					CV	0.73	45	78	0	4	1	4	6	15	15	J	1	ox		1	F		EA
									VC					CV	0.89	67	360	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	1.08	20		0	4	1	4	5	14	15	J	1	ox	cc	1	None		EA
									VC					CV	1.34	20	300	0	4	1	4	5	14	15	J	1	ox	cc	1	F		EA
141.0	142.5	1.50	100	1.42	95	4	300	125	VC	medium grey	fine grained	massive	silicified	CV	0.34	62	20	0	4	1	6	6	17	15	J	1			1	F	-	EA
									VC				altered, weathered and broken veinlet system between 141.77-142.2 m	CV	0.44	30	170	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.75	50	225	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.20	70		0	4	1	6	6	17	15	J	1			1	F		EA
142.5	144.0	1.50	100	0.20	13	Max	5	100	VC	medium grey	fine grained	massive	silicified	CV	0.08	16	335	0	1	1	2	5	9	15	J	5	cly	ox	1	F	-	EA
									VC				altered, weathered and highly fractured veinlet system between 142.5-143 m	CV	0.17	10		0	1	1	2	5	9	15	J	5	cly	ox	1	None		EA
									VC				red-tan alteration, very mechanically broken, green alteration	CV	0.27	25		0	1	1	2	5	9	15	J	1	cly	ox	1	None		EA
									VC					CV	0.33	20		0	4	1	4	5	14	15	J	1	ox		1	None		EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
144.0	145.5	1.40	93	1.33	89	4	280	100	VC	medium grey	fine grained	massive	silicified	CV	0.43	47	320	0	4	1	6	6	17	15	J	1			1	F	-	EA
									VC					CV	0.93	45	120	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.21	76	235	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.32	40	40	0	4	1	6	6	17	15	J	1			1	F		EA
145.5	147.0	1.50	100	0.92	61	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.08	30	290	0	4	1	6	5	16	15	J	1			1	F	-	EA
									VC				high density of veinlet's	CV	0.12	35	240	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.39	80	260	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.46	70	205	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.68	57	184	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.85	64	200	0	4	1	6	6	17	15	J	1			1	F		EA
146.7	147.0	0.28	100	0.00	0	Max	5	50	VC				rubble zone between 0-0.28 m, rubble pieces have light blue/green soft infill, soapy looking clay	CV	0.00			0	0	1	3	5	9	15	F	280	Rub		1	None		EA
147.0	148.5	1.50	100	0.82	55	8	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	40		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.41	65		0	4	1	6	6	17	15	J	1			1	None	-	EA
									VC				highly mechanically broken	CV	0.75	20		0	4	1	6	6	17	15	J	1			1	None		EA
									VC				clay/sand between 1.07-1.14 m	CV	0.82	42		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.93			0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	0.99	60		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	1.07	70		0	1	1	0	5	7	15	V	5	cly		1	None		EA
									VC					CV	1.14	60		0	1	1	0	5	7	15	J	5	cly		1	None		EA
148.5	150.0	1.50	100	1.50	100	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.10	46	20	0	4	1	6	6	17	15	J	1			1	VG	-	EA
									VC				hard rock	CV	0.37	55	232	0	4	1	6	6	17	15	J	1			1	VG		EA
									VC					CV	1.28	47	210	0	4	1	6	6	17	15	J	1			1	VG		EA
150.0	151.3	1.25	96	1.25	96	3	313	125	VC	medium grey	fine grained	massive	silicified	CV	0.21	35	285	0	4	1	6	6	17	15	J	1			1	VG	0	EA
									VC					CV	0.65	45	225	0	4	1	6	6	17	15	J	1			1	VG		EA
									VC					CV	1.06	43	80	0	4	3	6	6	19	15	J	1			1	VG		EA
151.3	152.9	1.55	97	1.36	85	7	194	125	VC	medium grey	fine grained	massive	silicified	CV	0.21	50	50	0	4	1	6	6	17	15	J	1			1	F	-15	EA
									VC				hard rock	CV	0.44	65	270	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.80	65	27	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.06	22	290	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.16	44	75	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.19	67	345	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.32	44	170	0	4	1	6	6	17	15	J	1			1	F		EA
152.9	154.4	1.50	100	0.98	65	9	150	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	53	220	0	4	1	6	5	16	15	J	1			1	P		EA
									VC					CV	0.30	72	270	0	4	1	6	6	17	15	J	1			1	P	+40	EA
									VC				metallic mineral visible on surface of core at 154.2 m	CV	0.65	45	200	0	4	1	6	6	17	15	J	1			1	P		EA
									VC				alteration in joints	CV	0.73	78	220	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	0.80	75	310	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	0.89	40	45	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	0.97	40	200	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	1.10	40	180	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	1.26	50	265	0	4	1	6	5	16	15	J	1			1	P		EA
154.4	156.0	1.54	96	1.38	86	6	220	125	VC	medium grey	fine grained	massive	silicified	CV	0.10	60	280	0	4	1	6	6	17	15	J	1			1	VG	0	EA
									VC					CV	0.16	60	280	0	4	1	6	6	5	15	J	1			1	VG		EA
									VC					CV	0.32	60	20	0	4	1	6	6	17	15	J	1			1	VG		EA
									VC					CV	0.73	33	90	0	4	1	6	6	17	15	J	1			1	VG		EA
									VC					CV	0.98	25	65	0	4	1	6	6	17	15	J	1			1	VG		EA
									VC					CV	1.26	70	70	0	4	1	6	6	17	15	J	1			1	VG		EA
156.0	157.5	1.50	100	1.31	87	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.08	50	210	0	4	1	6	6	17	15	J	1			1	G	-10	EA
									VC					CV	0.12	45	245	0	4	1	6	6	17	15	J	1			1	G		EA
									VC					CV	0.98	20	90	0	4	1	6	5	16	15	J	1			1	G		EA
									VC					CV	1.30	65	240	0	4	1	6	5	16	15	J	1			1	G		EA
									VC					CV	1.35	25	300	0	4	1	6	5	16	15	J	1			1	G		EA
									VC					CV	1.40	60	30	0	4	1	6	5	16	15	J	1			1	G		EA
157.5	159.0	1.50	100	0.81	54	8	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.27		20	0	4	1	5	6	16	15	J	1			1	F	+15	MGW
									VC					CV	0.46		36	0	4	1	5	6	16	15	J	1			1	F		MGW
									VC					CV	0.64		23	0	4	3	5	6	18	15	J	1			1	F		MGW
									VC					CV	0.74		17	0	4	1	5	6	16	15	J	1			1	F		MGW
									VC					CV	0.83		42	0	4	1	5	6	16	15	J	1			1	F		MGW
									VC					CV	0.93		58	0	4	2	5	6	17	15	J	1			1	F		MGW
									VC					CV	1.19		34	0	4	1	5	5	15	15	J	1			1	F		MGW
									VC					CV	1.25		64	0	4	1	6	6	17	15	J	1			1	F		MGW
159.0	160.5	1.50	100	1.15	77	8	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.07		110	0	4	1	6	6	17	15	J	1			1	P	-30	MGW
									VC				green and red-brown staining on joints	CV	0.23		115	0	4	1	6	6	17	15	J	1			1	P		MGW
									VC					CV	0.38		72	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
									VC					CV	0.64			0	4	1	4	5	14	15	J	1	ox	chl	1	None		MGW
									VC					CV	0.87		54	0	4	3	5	5	17	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.11		40	0	4	1	4	5	14	15	J	1			1	F		MGW
									VC					CV	1.13		215	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.38		252	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
160.5	161.5	1.00	100	0.42	42	5	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.37		292	0	4	1	4	5	14	15	J	1	ox	chl	1	G	+5	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
									VC				red-brown staining on joints	CV	0.48		292	0	2	1	4	4	11	15	J	1	ox	chl	1	G		MGW
									VC				rubble zone from 0.6-0.67	CV	0.60			0	0	1	0	3	4	15	F	70	Rub	cly	1	None		MGW
									VC					CV	0.72		295	0	4	1	5	6	16	15	J	1	ox	chl	1	None		MGW
									VC					CV	0.89			0	4	1	5	6	16	15	J	1			1	None		MGW
161.5	161.6	0.15	100	0.00	0	Max	5	10	VC				fault zone from 0-0.15	CV	0.00			0	0	1	0	3	4	15	F	150	gg	cly	1	None		MGW
161.6	162.0	0.40	100	0.10	25	6	57		VC					CV	0.26			0	4	1	4	6	15	15	J	1			6	G		MGW
162.0	163.5	1.40	93	0.26	17	11	117	125	VC	medium grey	fine grained	massive	silicified	CV	0.26			0	4	1	6	6	17	15	J	1			1	None	-	MGW
									VC				red-brown staining on joints	CV	0.39			0	4	1	6	6	17	15	J	1			1	None		MGW
									VC				unable to orientate from either side of run	CV	0.51			0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	0.61			0	4	1	6	6	17	15	J	1			1	None		MGW
									VC					CV	0.74			0	4	1	6	6	17	15	J	1			1	None		MGW
									VC					CV	0.75			0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	0.87			0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	0.93			0	4	1	6	6	17	15	J	1			1	None		MGW
									VC					CV	1.03			0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	1.20			0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	1.21			0	4	1	4	5	14	15	J	1	ox		1	None		MGW
163.5	165.0	1.50	100	0.29	19	7	188	125	VC	medium grey	fine grained	massive	silicified	CV	0.40		242	0	4	1	4	5	14	15	J	1	ox		1	G	-10	MGW
									VC				red-brown staining on joints	CV	0.65			0	4	2	5	5	16	15	J	1	ox		1	G		MGW
									VC					CV	0.81		190	0	4	1	2	5	12	15	J	1	chl		1	G		MGW
									VC					CV	1.00		295	0	4	1	5	5	15	15	J	1	ox		1	G		MGW
									VC					CV	1.18		302	0	4	1	2	5	12	15	J	1	chl		1	G		MGW
									VC					CV	1.32		350	0	4	3	4	5	16	15	J	1	ox		1	G		MGW
									VC					CV	1.41		280	0	4	1	4	5	14	15	J	1	ox		1	G		MGW
165.0	166.5	1.47	98	0.97	65	6	210	125	VC	medium grey	fine grained	massive	silicified	CV	0.10		270	0	4	1	4	5	14	15	J	1	ox	chl	1	G	+10	MGW
									VC				green and red-brown staining on joints	CV	0.23		275	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.31		270	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.51		285	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.63		265	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.40		295	0	4	3	4	5	16	15	J	1	ox	chl	1	G		MGW
166.5	167.7	1.22	100	1.00	82	1	610	125	VC	medium grey	fine grained	massive	silicified; green and red-brown staining on joints	CV	0.60		95	0	4	1	4	5	14	15	J	1	ox	chl	1	F	-	MGW
167.7	168.0	0.28	100	0.00	0	Max	5	125	VC				could not continue orientation line through highly fractured zone from 167.72-167.8 m	CV	0.00			0	1	1	2	5	9	15	J	5	cly	Rub	1	None		MGW
168.0	169.5	1.48	99	0.60	40	8	164	125	VC	medium grey	fine grained	massive	silicified	CV	0.23		330	0	4	1	0	3	8	15	J	1	cly	cly	1	VG	0	MGW
									VC				Red brown & green staining along joints; some infill of white clay	CV	0.32		330	0	4	1	2	5	12	15	J	1	cly	cly	1	VG		MGW
									VC					CV	0.48		120	0	4	1	2	5	12	15	J	1	cly	cly	1	VG		MGW
									VC					CV	0.54		135	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.55		295	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.74		298	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.88		230	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.94		275	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
169.5	171.0	1.50	100	1.22	81	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.67		305	0	4	1	2	5	12	15	J	1	chl	chl	1	G	+10	MGW
									VC				green staining on joints	CV	0.94		302	0	4	1	2	5	12	15	J	1	chl	chl	1	G		MGW
									VC					CV	1.33		285	0	4	1	2	5	12	15	J	1	chl	chl	1	G		MGW
									VC					CV	1.44			0	4	1	2	5	12	15	J	1	chl	chl	1	G		MGW
									VC					CV	1.51	61	205	0	4	1	2	5	12	15	J	1	chl	chl	1	G		MGW
171.0	172.4	1.36	100	0.92	68	3	340	125	VC	medium grey	fine grained	massive	silicified	CV	0.32	74	350	0	4	1	4	5	14	15	J	1	ox	ox	1	F	-	MGW
									VC				red-brown staining on joints	CV	0.50	63	210	0	4	2	4	5	15	15	J	1	ox	ox	1	F		MGW
									VC				unable to orient from bottom of run	CV	0.94	15	145	0	4	4	4	5	17	15	J	1	ox	ox	1	F		MGW
172.4	172.5	0.14	100	0.00	0	6	20	125	VC				Fractured zone from1.36-1.45	CV	1.36			0	1	4	5	5	15	15	J	5	ox	ox	6	F		MGW
172.5	174.0	1.50	100	0.86	57	8	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.10	38	280	0	4	3	4	5	16	15	J	1	ox		1	F	-	MGW
									VC				red-brown staining on joints	CV	0.15	25	295	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC				unable to orient from bottom of run	CV	0.24	60	10	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	0.36	28	275	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	0.78	45	250	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	1.09	77	190	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	1.12	70	12	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	1.37	18	275	0	4	1	5	5	15	15	J	1	ox		1	F		MGW
174.0	175.5	1.50	100	1.13	75	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.52	32	270	0	4	1	6	6	17	15	J	1			1	F	-	MGW
									VC				unable to orientate from bottom of run	CV	0.70	63	352	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	0.76	52	182	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	0.79	44	195	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	1.25	38	220	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
175.5	177.0	1.50	100	0.55	37	2	500	125	VC	medium grey	fine grained	massive	silicified	CV	0.74	18	105	0	4	1	6	6	17	15	J	1			1	G	+5	MGW
									VC				fresh rock	CV	1.02	30	100	0	4	1	6	6	17	15	J	1			1	G		MGW
177.0	178.5	1.46	97	1.46	97	2	487	125	VC	medium grey	fine grained	massive	silicified	CV	0.62	65	275	0	4	1	6	6	17	15	J	1			1	VG	0	MGW
									VC				fresh rock	CV	1.27	60	30	0	4	1	6	6	17	15	J	1			1	VG		MGW
178.5	180.0	1.50	100	1.45	97	2	500	125	VC	medium grey	fine grained	massive	silicified	CV	0.54	34	62	0	4	3	6	6	19	15	J	1			1	G	+5	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC				fresh rock	CV	0.94	12	285	0	4	1	6	6	17	15	J	1			1	G		MGW
180.0	181.5	1.50	100	1.50	100	2	500	125	VC	medium grey	fine grained	massive	silicified	CV	0.25	46	0	0	4	2	6	6	18	15	J	1			1	P	-45	MGW
									VC				fresh rock	CV	0.92	17	235	0	4	1	6	6	17	15	J	1			1	P		MGW
181.5	183.0	1.50	100	1.50	100	0	1500	125	VC	medium grey	fine grained	massive	silicified; fresh and strong rock ;no joints	CV	0.00			6	6	6	6	6	30	15		0			1	P	-20	MGW
183.0	184.5	1.45	97	1.22	81	4	290	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	65	10	0	4	1	6	6	17	15	J	1			1	F	from last run	EA
									VC					CV	0.63	15	270	0	4	1	6	6	17	15	V	1			1	F		EA
									VC					CV	0.86	50	40	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.25	36	250	0	4	1	6	6	17	15	J	1			1	F		EA
184.5	186.0	1.50	100	1.31	87	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.08	20		0	4	1	6	6	17	15	V	1			1	None	-	EA
									VC				no orientation line	CV	0.25	46		0	4	1	5	6	16	15	J	1			1	None		EA
									VC				broken end	CV	0.51	45		0	4	1	6	6	17	15	J	1			1	None		EA
									VC				metallic mineral visible in joints	CV	0.85	55		0	4	2	5	6	17	15	J	1			1	None		EA
									VC					CV	1.09	60		0	4	1	6	6	17	15	J	1			1	None		EA
									VC					CV	1.22	54		0	4	1	5	6	16	15	J	1			1	None		EA
186.0	187.2	1.19	100	0.88	74	5	198	125	VC	medium grey	fine grained	massive	silicified	CV	0.03	20		0	4	1	4	5	14	15	J	1	ox		1	None	-	EA
									VC				rubble zone on both ends of run, no orientation	CV	0.53	54		0	4	1	4	5	14	15	J	1	ox		1	None		EA
									VC				red-brown staining on joints	CV	0.68	46		0	4	1	4	5	14	15	J	1	ox		1	None		EA
									VC					CV	0.80	24		0	4	1	4	5	14	15	J	1	ox		1	None		EA
									VC					CV	0.88	45		0	4	1	4	5	14	15	J	1	ox		1	None		EA
187.2	187.5	0.27	100	0.00	0	Max	5	125	VC				rubble zone between 1.19-1.46	CV	0.00			0	0	1	3	5	9	15	F	270	Rub		1	None		EA
187.5	187.9	0.35	100	0.30	86	2	117	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	60		0	4	1	6	6	17	15	J	1			1	None	-	EA
									VC					CV	0.11	75		0	4	1	6	6	17	15	J	1			1	None		EA
187.9	188.0	0.18	100	0.00	0	Max	5	125	VC				rubble zone between 187.85-188.03 m	CV	0.00			0	0	1	3	5	9	15	F	180	Rub		1	None		EA
188.0	189.0	0.97	100	0.74	76	4	194	125	VC	medium grey	fine grained	massive	silicified	CV	0.25	67	20	0	4	1	6	6	17	15	J	1			1	F	-	EA
									VC					CV	0.69	38	75	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.78	75	18	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.93	30	310	0	4	1	4	5	14	15	J	1	ox		1	F		EA
189.0	190.5	1.50	100	0.96	64	7	188	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	30	110	0	4	1	4	5	14	15	V	1	Qtz	Calc	1	F	-	EA
									VC				rubble zone between 1.03-1.34 and 1.50-1.55m	CV	0.12	30	280	0	4	1	4	5	14	15	V	1	Qtz	Calc	1	F		EA
									VC					CV	0.24	40	300	0	4	1	4	5	14	15	V	1	Qtz	Calc	1	F		EA
									VC					CV	0.27	36	265	0	4	1	4	5	14	15	J	1	Qtz	Calc	1	F		EA
									VC					CV	0.43	36	170	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.60	62	195	0	4	1	4	5	14	15	J	1	Qtz	Calc	1	F		EA
									VC					CV	0.84	26	350	0	4	1	4	5	14	15	J	1	Qtz	Calc	1	F		EA
190.0	190.5	0.31	66	0.16	34	Max	5	125	VC				rubble zone between 190.03-190.34	CV	0.00			0	0	1	2	3	6	15	J	310	Rub		1	None		EA
190.5	192.0	1.50	100	1.42	95	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	23	20	0	4	1	5	6	16	15	J	1			1	G	+10	EA
									VC					CV	0.01	68	335	0	4	1	2	6	13	15	J	1	cc		1	G		EA
									VC					CV	0.85	56	15	0	4	1	6	6	17	15	J	1			1	G		EA
									VC					CV	1.17	70	320	0	4	1	2	6	13	15	J	1	cc		1	G		EA
									VC					CV	1.27	10	75	0	4	1	2	5	12	15	J	1	cc		1	G		EA
									VC					CV	1.43	46	270	0	4	3	2	5	14	15	J	1	cc		1	G		EA
192.0	193.5	1.50	100	1.39	93	1	750	125	VC	medium grey	fine grained	massive	silicified; red-brown staining on joints	CV	1.44	55	205	0	4	1	4	5	14	15	J	1	ox		1	G	+10	EA
193.5	195.0	1.45	97	1.45	97	5	242	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	65	50	0	4	1	4	5	14	15	J	1	ox		1	P	-20	EA
									VC				metallic mineral visible in joints	CV	0.46	70	10	0	4	1	4	5	14	15	J	1	ox		1	P		EA
									VC				red-brown staining on joints	CV	0.65	70	10	0	4	1	4	5	14	15	J	1	ox		1	P		EA
									VC				alteration in fractures from UCS test is red-brown	CV	1.05	36	310	0	4	1	4	5	14	15	J	1	ox		1	P		EA
									VC					CV	1.25	56	70	0	4	1	4	5	14	15	J	1	ox		1	P		EA
195.0	196.5	1.50	100	1.26	84	7	188	125	VC	medium grey	fine grained	massive	silicified	CV	0.25	62	5	0	4	1	2	5	12	15	J	1	cc		1	F	-	EA
									VC					CV	0.57	50	60	0	4	1	2	5	12	15	J	1	cc		1	F		EA
									VC					CV	0.76	55	35	0	4	1	6	6	17	15	J	1			1	F		EA
									VC				rubble zone from 0.84-0.91 m	CV	0.84	50	270	0	0	1	2	5	8	15	J	70	cc		1	F		EA
									VC					CV	1.14	53		0	4	1	6	5	16	15	J	1			1	None		EA
									VC					CV	1.35	30		0	4	1	5	6	16	15	J	1	cc		1	None		EA
									VC					CV	1.51	60		0	4	1	6	6	17	15	J	1			1	None		EA
196.5	198.0	1.48	99	0.86	57	3	370	125	VC	medium grey	fine grained	massive	silicified	CV	0.43	33	62	0	4	1	2	6	13	15	J	1	cc		1	G	-10	MGW
									VC				fresh rock	CV	0.69	11	302	0	2	1	4	5	12	15	V	1	Qtz	cc	1	G		MGW
									VC					CV	1.25	11	285	0	2	1	4	5	12	15	V	1	Qtz	cc	1	G		MGW
198.0	199.5	1.50	100	1.47	98	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.56	40	60	0	4	1	6	6	17	15	J	1			1	P	+45	MGW
									VC				fresh rock	CV	0.95	58	320	0	4	1	5	6	16	15	J	1			1	P		MGW
									VC					CV	1.03	62	340	0	4	1	6	6	17	15	J	1			1	P		MGW
199.5	201.0	1.50	100	1.50	100	4	300	125	VC	medium grey	fine grained	massive	silicified	CV	0.15	46	222	0	4	1	6	6	17	15	J	1			1	P	-20	MGW
									VC				fresh rock	CV	0.48	57	305	0	4	1	6	6	17	15	J	1			1	P		MGW
									VC				green staining on joint at 1.15 m	CV	0.56	50	205	0	4	1	6	6	17	15	J	1			1	P		MGW
									VC					CV	1.15	13	280	0	4	1	2	5	12	15	J	1	chl		1	P		MGW
201.0	201.3	0.33	100	0.33	100	0	330	125	VC	medium grey	fine grained	massive	silicified	CV	0.00			6	6	6	6	6	30	15		0			1	G	-5	MGW
201.3	202.5	1.17	100	0.00	0	15	73	236	VC					CV	0.13	10	270	0	4	1	6	6	17	15	J	1			1	G		MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC				green and red-brown staining on joints	CV	0.59	60	342	0	4	1	6	6	17	15	J	1			1	G		MGW
									VC					CV	0.70	70	290	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.84	73	260	0	4	4	4	5	17	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.86	80		0	4	4	4	5	17	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.94	18	270	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC				Fractured zone from 0.96-1.01 m	CV	0.96			0	0	1	2	5	8	15	J	50	Rub	cly	1	None		MGW
									VC					CV	1.10	42	30	0	4	1	6	6	17	15	J	1			1	None		MGW
202.5	204.0	1.50	100	1.21	81	4	300	125	VC	medium grey	fine grained	massive	silicified	CV	0.20	61.0	305	0	4	1	4	5	14	15	J	1	ox		1	VG	0	MGW
									VC				fresh rock	CV	0.62	43.0	180	0	4	1	4	5	14	15	J	1	ox		1	VG		MGW
									VC				red-brown staining on joints	CV	0.99	30.0	20	0	4	2	6	6	18	15	J	1			1	VG		MGW
									VC					CV	1.04	68.0	320	0	4	1	6	6	17	15	J	1			1	VG		MGW
204.0	205.5	1.50	100	1.50	100	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.20	32	88	0	4	2	2	5	13	15	J	1	ox		1	G	-5	MGW
									VC				fresh rock	CV	0.74	40	40	0	4	1	2	5	12	15	J	1	ox		1	G		MGW
									VC					CV	1.10	71	312	0	4	1	6	6	17	15	J	1			1	G		MGW
205.5	207.0	1.50	100	1.43	95	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.28	23	322	0	4	4	6	6	20	15	J	1			1	G	+5	MGW
									VC				fresh rock	CV	0.88	50	25	0	4	2	6	6	18	15	J	1			1	G		MGW
									VC				green staining on joint at 1.4 m	CV	1.40	15	285	0	4	3	2	5	14	15	J	1	chl		1	G		MGW
207.0	208.5	1.38	92	1.38	92	2	460	125	VC	medium grey	fine grained	massive	silicified	CV	0.65	41	5	0	4	3	5	6	18	15	J	1			1	P	+30	MGW
									VC				fresh rock	CV	1.18			0	4	1	6	6	17	15	J	1			1	P		MGW
208.5	210.0	1.50	100	1.50	100	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.38	58	40	0	4	2	6	6	18	15	J	1			1	VG	0	MGW
									VC				fresh rock	CV	0.91	66	255	0	4	1	6	6	17	15	J	1			1	VG		MGW
									VC					CV	1.44	73	330	0	4	2	5	5	16	15	J	1			1	VG		MGW
210.0	211.5	1.50	100	1.47	98	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.53	69	310	0	4	1	6	6	17	15	J	1			1	G	-5	MGW
									VC				fresh rock	CV	0.82	63	172	0	4	1	6	6	17	15	J	1			1	G		MGW
									VC				iron staining on surface of core from 1-1.08 m	CV	1.07	66	90	0	4	5	4	5	18	15	J	1	ox	chl	1	G		MGW
									VC				green and red-brown staining on joints	CV	1.30	60	348	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.32	64	65	0	4	2	4	5	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.50	42	55	0	4	1	4	6	15	15	J	1	ox	chl	1	G		MGW
211.5	213.0	1.50	100	1.36	91	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.05	25	55	0	4	1	4	6	15	15	J	1	ox		1	F	-15	MGW
									VC				fresh rock	CV	0.38	45	292	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC				red-brown staining on joints	CV	0.40	50	285	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	1.03	55	70	0	4	3	6	6	19	15	J	1			1	F		MGW
									VC					CV	1.19	55	260	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
213.0	214.5	1.41	94	1.41	94	2	470	125	VC	medium grey	fine grained	massive	silicified	CV	0.10	40	212	0	4	1	4	5	14	15	J	1	ox		1	VG	0	MGW
									VC				fresh rock; red-brown staining on joint at 0.1 m	CV	0.84	22	75	0	4	2	6	6	18	15	J	1			1	VG		MGW
214.5	216.0	1.50	100	1.00	67	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.58	50	145	0	4	1	4	5	14	15	J	1	ox		1	F	-	MGW
									VC				fresh rock	CV	0.68	45	260	0	2	3	4	5	14	15	J	1	ox		1	F		MGW
									VC				red-brown staining on joints	CV	0.94	25	45	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
									VC					CV	1.30	45	45	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.34	65	345	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
									VC					CV	1.34	26	52	0	4	2	4	5	15	15	J	1	ox		1	F		MGW
216.0	217.5	1.29	86	1.05	70	4	258	125	VC	medium grey	fine grained	massive	silicified	CV	0.18	10	55	0	4	3	4	5	16	15	J	1	ox		1	F	+15	MGW
									VC				red-brown staining on joints	CV	0.52	65	50	0	4	3	4	5	16	15	J	1	ox		1	F		MGW
									VC					CV	0.69	48	35	0	4	4	4	5	17	15	J	1	ox		1	F		MGW
									VC					CV	0.91	40	10	0	4	4	4	5	17	15	J	1	ox		1	F		MGW
217.5	219.0	1.50	100	1.27	85	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.86	18	145	0	4	3	4	5	16	15	J	1	ox		1	VG	0	MGW
									VC				green and red-brown staining on joint at 1.04 m	CV	1.04	37	325	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC				fresh rock	CV	1.29	25	145	0	4	2	6	6	18	15	J	1			1	VG		MGW
219.0	220.5	1.50	100	1.39	93	2	500	125	VC	medium grey	fine grained	massive	silicified	CV	0.52	42	80	0	4	2	6	6	18	15	J	1			1	G	-5	MGW
									VC				fractured zone from 0.58-0.62 m	CV	0.58	60	47	0	4	3	6	6	19	15	J	1			1	G		MGW
220.5	222.0	1.50	100	1.38	92	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.40	32	140	0	4	2	5	6	17	15	J	1			1	VG	0	MGW
									VC				green and red-brown staining in joints	CV	0.71	58	282	0	4	2	6	6	18	15	J	1			1	VG		MGW
									VC				broken zone from 0.4-0.44 m	CV	0.77	51	235	0	4	2	5	6	17	15	J	1			1	VG		MGW
									VC				fresh rock	CV	0.88	38	225	0	4	1	5	5	15	15	J	1			1	VG		MGW
									VC					CV	0.98	56	310	0	4	2	5	6	17	15	J	1			1	VG		MGW
									VC					CV	1.25	33	290	0	1	3	4	5	13	15	J	1			1	VG		MGW
222.0	223.5	1.50	100	1.50	100	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.53	36	310	0	4	2	6	6	18	15	J	1			1	F	-	MGW
									VC				fresh rock	CV	0.80	73	230	0	1	1	4	5	11	15	J	1	ox		1	F		MGW
									VC				rec-brown staining on joints at 0.8 and 1.33 m	CV	1.33	61	315	0	4	1	4	5	14	15	J	1	ox		1	F		MGW
223.5	225.0	1.50	100	1.50	100	9	150	125	VC	medium grey	fine grained	massive	silicified	CV	0.23	27	200	0	4	1	4	5	14	15	J	1	ox		1	F	-	EA
									VC				fresh rock	CV	0.33	50	10	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC				red-brown staining in joints	CV	0.46	42	0	0	4	1	2	5	12	15	J	1	cly	cc	1	F		EA
									VC					CV	0.60	60	40	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	0.80	40	270	0	4	3	4	5	16	15	J	1	ox		1	F		EA
									VC					CV	1.00	38	160	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	1.07	85	20	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	1.40	55	150	0	4	1	4	5	14	15	J	1	ox		1	F		EA
									VC					CV	1.53	80	20	0	4	1	6	5	16	15	J	1	ox		1	F		EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
225.0	226.5	1.41	94	1.41	94	3	353	125	VC	medium grey	fine grained	massive	silicified	CV	0.48	65	272	0	4	1	6	6	17	15	J	1			1	P	-20	EA
									VC				hard rock	CV	0.70	70	20	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	1.10	30	40	0	4	1	2	5	12	15	V	1	cc		1	P		EA
226.5	228.0	1.50	100	1.50	100	4	300	125	VC	medium grey	fine grained	massive	silicified	CV	0.13	45	250	0	4	1	6	6	17	15	J	1			1	G	-7	EA
									VC					CV	0.31	48	240	0	4	1	2	5	12	15	V	1	cc		1	G		EA
									VC					CV	0.53	45	70	0	4	1	6	6	17	15	J	1			1	G		EA
									VC					CV	0.90	12	305	0	4	1	2	5	12	15	V	1	cc		1	G		EA
228.0	229.5	1.43	95	1.43	95	2	477	125	VC	medium grey	fine grained	massive	silicified	CV	0.51	35	35	0	4	1	2	5	12	15	J	1	cc		1	P	+35	EA
									VC				some 5-20mm diameter dark grey clasts	CV	1.18	70	235	0	4	1	6	6	17	15	J	1			1	P		EA
229.5	231.0	1.50	100	1.50	100	2	500	125	VC	medium grey	fine grained	massive	silicified	CV	1.24	33.0	60	0	4	1	6	6	17	15	J	1			1	VG	0	EA
									VC				some 5-20mm diameter dark grey clasts	CV	1.48	68.0	190	0	4	1	6	6	17	15	J	1			1	VG		EA
231.0	232.5	1.47	98	1.47	98	3	366	125	VC	medium grey	fine grained	massive	silicified	CV	0.12	47.0	20	0	4	1	6	6	17	15	J	1			1	P	+20	EA
									VC				some 5-20mm diameter dark grey clasts	CV	0.76	36.0	310	0	4	2	6	6	18	15	J	1			1	P		EA
									VC				brecciated?	CV	1.26	58.0	100	0	4	1	2	5	12	15	V	1	cc		1	P		EA
232.5	234.0	1.42	95	1.42	95	0	1420	125	VC	medium grey	fine grained	massive	silicified	CV	0.00			6	6	6	6	6	30	15		0			1	P	-40	EA
234.0	235.5	1.46	97	1.37	91	4	292	125	VC	medium grey	fine grained	massive	silicified	CV	0.66	80	350	0	4	1	6	6	17	15	J	1			1	P		EA
									VC					CV	1.36	55	100	0	1	1	6	5	13	15	J	1			1	P	+20	EA
									VC				some 5-20mm diameter dark grey clasts	CV	1.44	50	270	0	4	1	6	5	16	15	J	1			1	P		EA
									VC					CV	1.46	46	105	0	4	1	6	5	16	15	J	1			1	P		EA
235.5	236.3	0.77	100	0.77	100	2	257	125	VC	medium grey	fine grained	massive	silicified	CV	0.15	72.0	60	0	1	2	6	5	14	15	J	5			1	F	-	MGW
									VC				fresh rock	CV	0.70	20.0	200	0	4	2	4	6	16	15	J	1			1	F		MGW
236.3	236.5	0.22	100	0.00	0	5	37	125	VC				Fractured zone from 236.27-236.49 m	CV	0.00	53.0	178	0	1	1	5	6	13	15	J	5			5	F		MGW
236.5	237.0	0.51	100	0.13	25	2	170		VC				green and red-brown staining on joints	CV	0.11	20.0	355	0	4	2	4	5	15	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.13			0	4	4	4	5	17	15	J	1	ox	chl	1	F		MGW
237.0	238.5	1.50	100	1.33	89	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	1.02	55.0	70	0	4	1	5	6	16	15	J	1			1	F	-	MGW
									VC				fresh rock	CV	1.18	55.0	250	0	4	1	4	5	14	15	J	1			1	F		MGW
									VC					CV	1.27	38.0	335	0	2	1	3	5	11	15	J	5			1	F		MGW
238.5	240.0	1.50	100	0.83	55	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.29	50	55	0	1	3	0	2	6	15	J	5			1	F	-	MGW
									VC				red-brown staining in joints on the lower quarter of the run	CV	0.42	33	275	0	4	3	5	6	18	15	J	1			1	F		MGW
									VC					CV	0.54	18	265	0	4	3	5	6	18	15	J	1			1	F		MGW
									VC					CV	0.90	61	50	0	4	4	4	5	17	15	J	1	ox		1	F		MGW
									VC					CV	1.36	45	345	0	4	4	4	5	17	15	J	1	ox		1	F		MGW
240.0	240.3	0.30	100	0.15	50	4	60	10	VC	medium grey	fine grained	massive	silicified; weak fractured rock from 0-0.3 m	CV	0.00			0	0	1	0	3	4	15	F	300	GG	cly	4	None	-	MGW
240.3	241.5	1.20	100	0.00	0	Max	5	0.5	VC				decomposed rock / clay from 0-0.65; joints and core surface have bright green and red brown staining in them	CV	0.00			0	0	1	0	3	4	15	F	1200	cly	Rub	1	None		MGW
									VC					CV	1.04			0	4	3	4	4	15	15	J	1	ox	chl	1	None		MGW
241.5	243.0	1.38	92	0.76	51	11	115	50	VC	medium grey	fine grained	massive	silicified	CV	0.11	64	315	0	4	1	4	5	14	15	J	1			1	F	-	MGW
									VC				green and red-brown staining on joints	CV	0.21	56	10	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.34	42	60	0	4	4	4	5	17	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.49	30	70	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.62	56	5	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.64	48	60	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.76	32	90	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.80	60	100	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.90	36	230	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.09	73	320	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.21	14	75	0	4	2	4	5	15	15	J	1	ox	chl	1	F		MGW
243.0	243.3	0.30	100	0.13	43	Max	5	50	VC				broken zone from 0.13 to 0.3	CV	0.13			0	0	1	3	5	9	15	F	170	ox	chl	1	None		MGW
243.3	244.5	1.20	100	0.63	53	10	109	50	VC	medium grey	fine grained	massive	silicified	CV	0.01			0	4	1	5	5	15	15	J	1	ox	chl	1	F	-	MGW
									VC				green and red brown staining in joints	CV	0.44	66	245	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.54	28	70	0	4	4	4	5	17	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.61	66	265	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.68	50	240	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.78	50	5	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.04	70	115	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.12	40	10	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.21	68	40	0	4	4	4	5	17	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.34	24	100	0	4	4	4	5	17	15	J	1	ox	chl	1	F		MGW
244.5	244.9	0.35	100	0.00	0	Max	5	50	VC	medium grey	fine grained	massive	silicified; broken zone from 0.19-0.35	CV	0.19			0	0	1	3	5	9	15	F	350	Rub	ox	1	None		MGW
									VC				green and red-brown staining in joints	CV	0.21	55	70	0	4	1	4	5	14	15	J	1	ox	chl	1	VG	0	MGW
									VC				very mechanically fractured	CV	0.27	50	250	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.33	20	255	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
244.9	246.0	1.15	100	0.79	69	15	72	125	VC					CV	0.02	55	65	0	4	3	4	5	16	15	J	1	ox	chl	1	VG		MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC					CV	0.20	14	235	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.47	30	40	0	4	3	4	5	16	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.53	55	250	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.75	65	60	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.89	60	335	0	4	1	4	5	14	15	J	1	ox	chl	1	VG		MGW
									VC					CV	0.98	50		0	4	3	4	5	16	15	J	1	ox	chl	9	VG		MGW
246.0	247.5	1.48	99	0.93	62	12	114	125	VC	medium grey	fine grained	massive	silicified	CV	0.06	70	255	0	4	1	4	5	14	15	J	1	ox	chl	1	G	-10	MGW
									VC				green and red-brown staining in joints	CV	0.08	56	125	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.20	78	115	0	4	3	4	5	16	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.33	50	332	0	4	2	4	5	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.44	55	205	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.51	73	210	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.57	18	15	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.71	60	180	0	4	4	4	5	17	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.94	55	40	0	4	2	4	5	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.04	54	275	0	4	2	4	5	15	15	J	1	ox	chl	1	G		MGW
									VC					CV	1.10	28	278	0	1	2	3	5	11	15	J	5	ox	chl	1	G		MGW
									VC					CV	1.35	43	188	0	4	2	4	4	14	15	J	1	ox	chl	1	G		MGW
247.5	247.7	0.22	100	0.00	0	Max	5	125	VC	medium grey	fine grained	massive	rubble zone between 0-0.22	CV	0.00			0	0	1	3	5	9	15	F	220	Rub	cly	1	None		MGW
247.7	249.0	1.28	100	0.82	64	5	213	125	VC	medium grey	fine grained	massive	silicified	CV	0.35	54	95	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC				green and red-brown staining on joints	CV	0.48	20	280	0	4	1	2	6	13	15	J	1	cly		1	F		MGW
									VC					CV	1.09	62	25	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.35	25	80	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.43	50	50	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
249.0	250.5	1.49	99	1.38	92	2	497	125	VC	medium grey	fine grained	massive	silicified	CV	0.75	41	180	0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.38	37	28	0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
250.5	252.0	1.50	100	1.40	93	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.69			0	4	3	6	6	19	15	J	1			1	F		MGW
									VC					CV	0.80			0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.86			0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.91			0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	1.30			0	4	1	2	5	12	15	J	1	CL		1	F		MGW
									VC					CV	1.40			0	4	1	5	6	16	15	J	1			1	F		MGW
252.0	253.5	1.40	93	1.15	77	5	233	125	VC	medium grey	fine grained	massive	silicified	CV	0.50	25	298	0	1	3	6	6	16	15	V	1			1	F	15	MGW
									VC					CV	0.61	80	30	0	4	2	5	6	17	15	J	5	QTZ		1	F		MGW
									VC					CV	1.00	40	210	0	4	1	5	6	16	15	J	1			1	F		MGW
									VC					CV	1.15	45	100	0	4	4	6	6	20	15	J	1			1	F		MGW
									VC					CV	1.29	53	80	0	4	4	5	6	19	15	J	1			1	F		MGW
253.5	255.0	1.50	100	1.50	100	2	500	125	VC	medium grey	fine grained	massive	silicified	CV	1.04	40	340	0	4	1	5	6	16	15	J	1			1	VG		MGW
									VC					CV	1.31	45	220	0	4	1	5	6	16	15	J	1			1	VG		MGW
255.0	256.5	1.47	98	1.27	85	6	210	125	VC	medium grey	fine grained	massive	silicified	CV	0.12	58	310	0	4	4	5	6	19	15	J	1			1	F	12	MGW
									VC				fresh, green staining along joints	CV	0.41	30	208	0	4	2	5	6	17	15	J	1			1	F		MGW
									VC					CV	0.69	43	42	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	0.76	54	30	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	1.15	35	20	0	4	2	5	6	17	15	J	1			1	F		MGW
									VC					CV	1.34	57	200	0	4	1	6	6	17	15	J	1			1	F		MGW
256.5	258.0	1.50	100	1.20	80	6	214	125	VC	medium grey	fine grained	massive	silicified	CV	0.40	60	70	0	4	4	6	6	20	15	J	1			1	P	-20	MGW
									VC				fresh, green and red-brown staining in joints	CV	0.60	43	350	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
									VC					CV	0.70	38	320	0	4	1	4	4	13	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.00	55	5	0	4	2	4	5	15	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.24	60	65	0	4	5	4	5	18	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.35	26	280	0	0	1	3	5	9	15	J	80	ox	chl	1	P		MGW
258.0	258.1	0.12	100	0.00	0	1	60	125	VC	medium grey	fine grained	massive	fractured zone from 0-0.12m	CV	0.00			0	1	1	4	5	11	15	J	5	ox	chl	1	F		MGW
258.1	259.3	1.17	100	0.76	65	6	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.17			0	4	1	2	5	12	15	J	1	cly		1	F		MGW
									VC				red-brown and green staining on joints(unable to orient due to spun ends)	CV	0.56			0	4	5	4	5	18	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.67			0	4	3	4	5	16	15	J	1	ox	chl	1	F		MGW
									VC					CV	0.81			0	4	2	4	5	15	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.06			0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
									VC					CV	1.28			0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
259.3	259.5	0.21	100	0.00	0	Max	5	125	VC				fractured zone from 0-0.19m	CV	0.00			0	4	1	4	5	14	15	J	1	ox	chl	1	F		MGW
259.5	261.0	1.50	100	1.15	77	7	188	125	VC	medium grey	fine grained	massive	silicified	CV	0.34	48	10	0	4	2	4	5	15	15	J	1	ox	chl	1	P	35	MGW
									VC				red-brown and green staining on joints, Quartz vein cross cuts core @0.98m(well cemented)	CV	0.51	48	20	0	4	2	4	5	15	15	J	1	ox	chl	1	P		MGW
									VC					CV	0.72	45	32	0	4	2	4	5	15	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.12	65	325	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.17	43	35	0	4	1	4	5	14	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.34	79	350	0	4	4	4	5	17	15	J	1	ox	chl	1	P		MGW
									VC					CV	1.42	35	190	0	4	3	3	5	15	15	J	5	ox	chl	1	P		MGW
261.0	262.5	1.50	100	1.01	67	8	167	125	VC	medium grey	fine grained	massive	silicified, broken zone from 0.12-0.18m	CV	0.12			0	0	1	0	3	4	15	F	60	Rub	cly	1	None		MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC				red-brown staining on joints,	CV	0.36	60	255	0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	0.67	67	360	0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	0.70	47	345	0	4	2	4	5	15	15	J	1	ox		1	None		MGW
									VC					CV	0.84	65	10	0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	1.10	60	50	0	4	2	4	5	15	15	J	1	ox		1	None		MGW
									VC					CV	1.28	63	50	0	4	1	4	5	14	15	J	1	ox		1	None		MGW
									VC					CV	1.40	56	75	0	4	2	4	5	15	15	J	1	ox		1	None		MGW
262.5	264.0	1.50	100	1.01	67	3	375	125	VC	medium grey	fine grained	massive	silicified	CV	0.23	59	275	0	4	1	4	5	14	15	J	1	ox	chl	1	G	-10	MGW
									VC				green and red-brown staining on joints	CV	0.60	72	110	0	4	1	4	5	14	15	J	1	ox	chl	1	G		MGW
									VC					CV	0.78	66	75	0	1	2	4	5	12	15	J	5	ox		1	G		MGW
264.0	265.5	1.44	96	1.36	91	5	240	125	VC	medium grey	fine grained	massive	silicified	CV	0.37	60	65	0	4	1	6	5	16	15	J	1			1	F	U-MATCH	EA
									VC				green-blue staining in joints (chlorite?)	CV	0.70	20	280	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.05	64	280	0	4	1	6	5	16	15	J	1			1	F		EA
									VC					CV	1.33	65	185	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.35	60	10	0	4	1	5	5	15	15	J	1			1	F		EA
265.5	267.0	1.50	100	1.31	87	8	167	125	VC	medium grey	fine grained	massive	silicified	CV	0.20	70	200	0	4	1	2	5	12	15	J	1	chl		1	F	U-MATCH	EA
									VC				green-blue staining in joints (chlorite?)	CV	0.56	35	290	0	1	1	2	5	9	15	V	5	cly	cc	1	F		EA
									VC					CV	0.68	54	230	0	4	1	2	6	13	15	J	1	chl		1	F		EA
									VC					CV	0.78	45	48	0	4	1	2	5	12	15	J	1	chl		1	F		EA
									VC					CV	0.85	55	170	0	4	1	2	5	12	15	J	1	chl		1	F		EA
									VC					CV	1.02	70	25	0	4	1	2	5	12	15	J	1	chl		1	F		EA
									VC					CV	1.33	32		0	4	1	2	5	12	15	J	1	chl		1	none		EA
									VC					CV	1.46	46		0	1	1	6	5	13	15	J	1			1	none		EA
267.0	268.5	1.50	100	1.32	88	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.63	60	310	0	4	1	6	5	16	15	J	1			1	F	U-MATCH	EA
									VC				green-blue staining in joints (chlorite?)	CV	0.74	40	200	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.82	55	235	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.97	55	190	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.12	25	295	0	4	1	6	6	17	15	J	1			1	F		EA
268.5	270.0	1.50	100	1.19	79	10	136	125	VC	medium grey	fine grained	massive	silicified	CV	0.20	25		0	4	1	6	6	17	15	J	1			1	none	U-Match	EA
									VC				very mechanically broken 40+breaks	CV	0.32	22		0	4	1	2	5	12	15	J	1	cc		1	none		EA
									VC					CV	0.53	45		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	0.63	65		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	0.77	25		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	0.95	27		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	1.07	30		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	1.17	55		0	4	1	2	6	13	15	J	1	cly		1	none		EA
									VC					CV	1.25	25		0	4	1	2	6	13	15	J	1	cly		1	none		EA
									VC					CV	1.37	52		0	4	1	6	6	17	15	J	1			1	none		EA
270.0	271.5	1.50	100	0.37	25	Max	5	125	VC	medium grey	fine grained	massive	silicified	CV	0.12	68		0	4	1	6	6	17	15	J	1			1	none	U-Match	EA
									VC				very mechanically broken 50+breaks	CV	0.18	24		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	0.26	30		0	4	2	5	6	17	15	J	1	cc		1	none		EA
									VC					CV	0.35	56		0	4	1	2	6	13	15	J	1			1	none		EA
271.5	271.9	0.43	100	0.18	42	5	72	125	VC	medium grey	fine grained	massive	silicified	CV	0.07	46		0	4	1	2	5	12	15	J	1	cly		1	none	U-MATCH	EA
									VC				Joints visible from :0.00-0.43	CV	0.14	90		0	1	1	2	5	9	15	J	5	cly		1	none		EA
									VC					CV	0.25	40		0	1	5	2	5	13	15	J	5	cly		1	none		EA
									VC					CV	0.30	90		0	1	1	6	5	13	15	J	5			1	none		EA
									VC					CV	0.33	90		0	1	1	6	5	13	15	J	5			1	none		EA
271.9	272.5	0.57	100	0.00	0	Max	5	1	VC				rubble zone: 0-0.57, very vuggy weak greenish grey zone altered weak middle zone break once touched into clay like material.	CV	0.10			0	0	1	0	3	4	15	Rub	570			1	none		EA
272.5	273.0	0.50	100	0.00	0	Max	5	10	VC				broken zone	CV	0.00			0	0	1	0	3	4	15	Rub	500	Rub	cly	1	none		EA
273.0	274.3	1.30	100	1.30	100	4	260	125	VC	medium grey	fine grained	massive	silicified	CV	0.19	40	50	0	4	1	2	6	13	15	J	1	cc		1	F		EA
									VC					CV	0.70	40	210	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.85	22	290	0	4	1	2	5	12	15	J	1	cc		1	F		EA
									VC					CV	1.00	55	130	0	4	1	6	6	17	15	J	1			1	F		EA
274.3	275.9	1.50	94	1.34	84	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.03	60	50	0	4	1	6	6	17	15	J	1			1	F	15	EA
									VC					CV	0.60	26	260	0	4	1	2	5	12	15	V	1	cc		1	F		EA
									VC					CV	0.87	70	105	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.21	58	55	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.38	35	305	0	4	2	2	5	13	15	J	1	cc		1	F		EA
275.9	277.2	1.29	100	1.29	100	4	258	125	VC	medium grey	fine grained	massive	silicified	CV	0.20	78		0	4	1	6	6	17	15	J	1			1	none	U-MATCH	EA
									VC					CV	0.56	58		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	0.76	65		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	1.05	66		0	4	1	5	6	16	15	J	1	cc		1	none		EA
277.2	277.4	0.21	100	0.00	0	Max	5	125	VC				rubble at end of run	CV	0.00			0	0	1	3	5	9	15	Rub	210	Rub	cly	1	none		EA
									VC					CV	1.38	40		0	4	1	2	4	11	15	J	1	cc		1	none		EA
277.4	278.6	1.20	100	1.09	91	4	240	250	VC	medium grey	fine grained	massive	silicified	CV	0.38	68		0	4	1	6	6	17	15	J	1			1	none	U-MATCH	EA
									VC					CV	0.71	33		0	4	1	2	5	12	15	V	1	calc		1	none		EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
									VC					CV	0.83	56		0	4	1	6	6	17	15	J	1			1	none		EA
									VC					CV	0.98	55		0	4	1	2	5	12	15	J	1	cc		1	none		EA
278.6	279.0	0.40	100	0.00	0	Max	5	125	VC				rubble at end of run	CV	0.00	25		0	0	1	3	5	9	15	Rub	400	Rub		1	none		EA
279.0	279.1	0.10	100	0.09	90		100		VC	medium grey	fine grained	massive	silicified, blocked up short run	CV	0.00	90		0	0	1	3	5	9	15	Rub	100	Rub		1	none		EA
279.1	280.5	1.40	100	1.40	100	4	280	250	VC	medium grey	fine grained	massive	silicified	CV	0.56	65	350	0	4	2	2	6	14	15	J	1	calc		1	F	U-MATCH	EA
									VC				calcite veinlets throughout	CV	0.73	68	290	0	4	1	2	6	13	15	J	1	cc		1	F		EA
									VC					CV	1.05	60	185	0	4	2	2	6	14	15	J	1	cc		1	F		EA
									VC					CV	1.30			0	4	1	2	6	13	15	J	1	cc		1	none		EA
280.5	280.7	0.20	100	0.00	0	3	50	125	VC	medium grey	fine grained	massive	silicified	CV	0.06	20	80	0	4	1	2	5	12	15	J	1	cc		1	F		EA
									VC				red-brown alteration on joints	CV	0.17	66	50	0	4	1	6	5	16	15	J	1			2	F		EA
280.7	280.8	0.10	100	0.00	0	Max	5	125	VC				rubble zone: 0 -0.1m	CV	0.00			0	0	1	0	3	4	15	Rub	100	Rub	cly	1	F		EA
280.8	282.0	1.20	100	1.11	93	3	300	125	VC	medium grey	fine grained	massive	silicified	CV	0.44	75	120	0	0	1	3	5	9	15	J	80	Rub	cly	1	F		EA
									VC					CV	0.62	60	245	0	4	1	6	5	16	15	J	1			1	F		EA
									VC					CV	1.43	37	260	0	4	1	6	6	17	15	J	1			1	F		EA
282.0	283.5	1.50	100	1.47	98	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.13	30		0	0	1	3	5	9	15	J	70	Rub		1	none	U-MATCH	EA
									VC				fractured zone between 0.13-0.20m	CV	0.20	60	40	0	0	0	6	6	12	15	J	1			1	F		EA
									VC					CV	0.30	45	320	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	0.82	58	200	0	4	1	6	6	17	15	J	1			1	F		EA
									VC					CV	1.17	50	310	0	4	1	2	5	12	15	J	1	cly	calc	1	F		EA
283.5	285.0	1.48	99	1.48	99	2	493	250	VC	medium grey	fine grained	massive	silicified	CV	0.29	61	335	0	4	2	5	6	17	15	J	1			1	G	-10	MGW
									VC					CV	1.05	30	300	0	4	4	6	6	20	15	J	1			1	G		MGW
285.0	286.5	1.50	100	1.40	93	5	250	125	VC	medium grey	fine grained	massive	silicified	CV	0.28	50	235	0	4	2	5	6	17	15	J	1			1	G	10	MGW
									VC					CV	0.34	40	190	0	4	1	5	6	16	15	J	1			1	G		MGW
									VC					CV	0.51	45	315	0	4	2	5	6	17	15	J	1			1	G		MGW
									VC					CV	0.90	72	345	0	4	4	6	6	20	15	J	1			1	G		MGW
									VC					CV	1.43	68	270	0	4	2	5	5	16	15	J	1			1	G		MGW
286.5	288.0	1.50	100	1.34	89	2	500	100	VC	medium grey	fine grained	massive	silicified	CV	0.39	58	300	0	4	2	6	6	18	15	J	1			1	VG	0	MGW
									VC				drillers had a problem with ACT tool and could not orientate from bottom, oriented from last run	CV	1.34	15	285	0	2	1	4	5	12	15	V	5	qtz		1	VG		MGW
288.0	289.5	1.40	93	1.32	88	2	467	200	VC	medium grey	fine grained	massive	silicified	CV	0.09	44	10	0	4	2	5	6	17	15	J	1			1	VG	0	MGW
									VC					CV	0.57	45	340	0	4	3	5	6	18	15	J	1			1	VG		MGW
289.5	291.0	1.50	100	1.28	85	6	214	100	VC	medium grey	fine grained	massive	silicified	CV	0.48	21	20	0	4	2	5	6	17	15	J	1			1	VG	0	MGW
									VC				unable to orientate from bottom of run (spun end)	CV	0.90	39	50	0	4	2	5	6	17	15	J	1			1	VG		MGW
									VC					CV	1.15	37	50	0	2	2	4	5	13	15	V	5	qtz	calc	1	VG		MGW
									VC					CV	1.27	30	250	0	4	1	6	6	17	15	J	1			1	VG		MGW
									VC					CV	1.38	30	20	0	4	1	4	5	14	15	V	1	qtz	calc	1	VG		MGW
									VC				broken zone from 1.42-1.48m	CV	1.42			0	0	1	3	5	9	15	Rub	60	Rub	cly	1	VG		MGW
291.0	291.7	0.74	100	0.30	41	7	93	125	VC	medium grey	fine grained	massive	silicified	CV	0.08			0	4	1	4	5	14	15	J	1	qtz		1	F		MGW
									VC				unable to orient from bottom(spun end) highly mechanically broken large amount of clay/qtz infilling joints unable to orient from last run, brown clay,	CV	0.10			0	4	1	4	5	14	15	J	1	qtz		1	None		MGW
									VC					CV	0.36			0	2	1	4	5	12	15	V	5	qtz	CL	1	None		MGW
									VC					CV	0.57			0	4	2	4	5	15	15	J	1	qtz	CL	1	None		MGW
									VC					CV	0.60			0	4	4	6	6	20	15	J	1			1	None		MGW
									VC				rubble zone from 0.67-0.74m,	CV	0.67			0	4	3	4	5	16	15	J	1	qtz	cly	1	None		MGW
291.7	291.9	0.12	100	0.00	0	Max	5	25	VC				rubble/clay zone 0-0.0.12m,	CV	0.00			0	0	1	0	3	4	15	Rub	120	Rub	cly	1	None		MGW
291.9	292.5	0.64	98	0.00	0	8	71	125	VC					CV	0.00			0	4	4	2	5	15	15	J	1	cly	cly	1	None		MGW
									VC					CV	0.11			0	4	2	2	5	13	15	J	1	cly		1	None		MGW
									VC					CV	0.13			0	2	1	2	5	10	15	J	1	cly		1	None		MGW
									VC				rubble zone from 0.17-0.2m	CV	0.17			0	0	1	2	3	6	15	Rub	30	Rub		1	None		MGW
									VC					CV	0.20			0	4	4	3	5	16	15	J	1	cly		1	None		MGW
									VC					CV	0.28			0	4	2	5	5	16	15	J	1			1	None		MGW
									VC					CV	0.34			0	4	2	5	5	16	15	J	1			1	None		MGW
									VC					CV	0.44			0	4	2	5	5	16	15	J	1			1	None		MGW
292.5	292.7	0.20	100	0.00	0	Max	5	125	VC	medium grey	fine grained	massive	broken zone from 0.09-0.20	CV	0.09			0	0	1	2	3	6	15	Rub	200	Rub		1	None		MGW
292.7	294.0	1.30	100	1.14	88	7	163	125	VC	medium grey	fine grained	massive	silicified	CV	0.00	56	330	0	4	1	4	5	14	15	J	1	qtz		1	F		MGW
									VC				light blue-green clay infill in some joints,	CV	0.08	52	35	0	4	4	6	5	19	15	J	1			1	F		MGW
									VC					CV	0.29	35	60	0	4	3	2	5	14	15	J	1	chl		1	F		MGW
									VC					CV	0.83	68	50	0	4	1	2	5	12	15	J	1	chl		1	F		MGW
									VC					CV	0.93	45	10	0	4	3	2	5	14	15	J	1	cly		1	F		MGW
									VC					CV	1.22	77	350	0	4	2	2	5	13	15	J	1	cly		1	F		MGW
									VC					CV	1.29	38	350	0	4	2	2	5	13	15	J	1	cly		1	F		MGW
294.0	294.2	0.17	100	0.00	0	2	57	125	VC	medium grey	fine grained	massive	silicified	CV	0.03	65	120	0	4	2	4	5	15	15	J	1	ox	chl	1	F		MGW
									VC				red-brown and green staining in joints, pyrite present in join @0.40m, some joints are coated with soapy substance	CV	0.17	36	285	0	4	2	2	4	12	15	J	1	cly		1	F		MGW
294.2	294.3	0.14	100	0.00	0	Max	5	125	VC				highly mechanically broken, broken zone from 0-0.14m	CV	0.00			0	0	1	2	3	6	15	Rub	140.0	Rub		1	F		MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
294.3	295.5	1.19	100		0	10	108	125	VC					CV	0.03	78	330	0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.05	56	10	0	4	3	6	6	19	15	J	1			1	F		MGW
									VC					CV	0.09	38	40	0	4	3	6	6	19	15	J	1			1	F		MGW
									VC					CV	0.09	17	90	0	4	2	2	5	13	15	J	1	cly		1	F		MGW
									VC					CV	0.26	69	290	0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.37	30	330	0	0	1	0	5	6	15	J	80	cly	Sand	1	F		MGW
									VC				clay seam from 0.51-0.55	CV	0.57			0	4	2	2	5	13	15	J	1	cly	Sand	1	F		MGW
									VC					CV	0.59	80	10	0	4	2	5	5	16	15	J	1			1	F		MGW
									VC					CV	0.67	40	335	0	4	1	2	5	12	15	J	1	cly		1	F		MGW
									VC					CV	0.94	65	60	0	4	1	2	5	12	15	J	1	cly		1	F		MGW
295.5	295.9	0.37	100	0.00	0	Max	5	125	VC	medium grey	fine grained	massive	silicified; unable to orientate, 50+ joints, fractured zone	CV	0.00			0	1	1	2	3	7	15	Rub	5	Rub		1	F		MGW
295.9	296.1	0.27	100	0.00	0	1	135	125	VC	medium grey	fine grained	massive	green staining in joints	CV	0.11			0	4	2	3	5	14	15	J	1	Chl		1	F		MGW
296.1	297.0	0.86	100	0.10	12	Max	5	125	VC	medium grey	fine grained	massive	silicified	CV	0.00			0	1	1	2	5	9	15	Rub	5	Rub		1	F		MGW
297.0	298.5	1.50	100	0.58	39	10	136	125	VC	medium grey	fine grained	massive	silicified	CV	0.10	79	230	0	4	1	6	6	17	15	J	1			1	F		MGW
									VC					CV	0.21	68	180	0	4	3	6	6	19	15	J	1			1	F		MGW
									VC					CV	0.36	77	330	0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.40	20	125	0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.50	23	125	0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.68	62	25	0	4	2	6	6	18	15	J	1			1	F		MGW
									VC					CV	0.79	45	90	0	4	5	2	5	16	15	J	1			1	F		MGW
									AND					CV	0.92	82	310	0	4	1	2	5	12	15	J	1	cly		1	F		MGW
									AND					CV	1.19	58	110	0	4	3	6	6	19	15	J	1			1	F		MGW
									AND					CV	1.30	60	10	0	4	1	6	6	17	15	J	1			1	F		MGW
298.5	300.0	1.50	100	1.50	100	3	375	150	AND	medium grey	fine grained	massive	silicified	CV	0.69	78	198	0	4	3	6	6	19	15	J	1			1	VG	0	MGW
									AND				green staining in joints	CV	1.20	65	100	0	4	2	2	5	13	15	J	1	chl		1	VG		MGW
									AND					CV	1.43	50	80	0	4	2	2	5	13	15	J	1	chl		1	VG		MGW
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-01

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
0.0	10.5	0.0		0					Overburden				**OVERBURDEN**																	AB
10.5	11.5	0.98	98	0.44	44	9	98	75	VC	dark grey	fine grained	Breccia	highly weathered with iron stained joints				0	1	5	3	3	12	15	J	1.0	ox		9	None		AB
11.5	13.0	1.47	98	0.32	21	15	92	75	VC	dark grey	fine grained	Breccia	highly weathered with iron stained joints				0	1	3	3	3	10	15	J	1.0	ox		15	None		AB
13.0	14.5	1.46	97	0.00	0	15	91	110	VC	dark grey	fine grained	Breccia	highly weathered with iron stained joints				0	1	3	3	3	10	15	J	1.0	ox		15	None		AB
14.5	16.0	1.45	97	0.45	30	17	81	75	VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	1	3	3	3	10	15	J	1.0	ox		17	None		AB
16.0	17.5	1.47	98	0.70	47	15	92	75	VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	1	3	3	3	10	15	J	1.0	ox		15	None		AB
17.5	19.0	1.48	99	0.97	65	14	99	75	VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	4	3	3	3	13	15	J	1.0	ox		14	None		AB
19.0	20.5	1.50	100	1.25	83	6	214	75	VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	4	3	3	3	13	15	J	1.0	ox		6	None		AB
20.5	22.0	1.50	100	0.80	53	12	115	75	VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	4	3	3	3	13	15	J	1.0	ox		12	None		AB
22.0	23.5	1.42	95	0.53	35	10	129	75	VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	4	1	3	3	11	15	J	1.0	ox		10	None		AB
23.5	25.0	1.50	100	0.95	63	15	94	75	VC	light grey	fine grained	massive	As above; last 38 cm change to grey mottled Breccia				0	4	1	3	3	11	15	J	1.0	ox		15	None		AB
25.0	26.5	1.50	100	0.96	64	20	71	75	VC	dark grey	fine grained	massive	Dark grey mottled Breccia				0	4	1	4	3	12	15	J	1.0	ox		20	None		AB
26.5	28.0	1.43	95	0.86	57	12	110	70	VC	dark grey	fine grained	massive	Dark grey mottled Breccia, very vuggy and iron stained. Some Rubble zones.				0	4	1	4	3	12	15	J	1.0	ox		12	None		AB
28.0	29.5	1.50	100	0.91	61	15	94	75	VC	dark grey	fine grained	massive	Dark grey mottled Breccia, very vuggy and iron stained. Less Rubble zones than above.				0	4	1	4	3	12	15	J	1.0	ox		15	None		AB
19.0	20.5	1.50	100	1.17	78	14	100		VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	4	1	4	3	12	15	J	1.0	ox		14	None		AB
20.5	22.0	1.50	100	0.20	13	10	136		VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints				0	4	1	4	3	12	15	J	1.0	ox		10	None		AB
22.0	23.5	1.50	100	0.76	51	18	79		VC	light grey	fine grained	massive	vuggy, moderately weathered with iron stained joints with 7cm additional core				0	4	1	4	3	12	15	J	1.0	ox		18	None		AB
23.5	25.0	1.50	100	0.58	39	21	68		VC	dark grey	fine grained	massive	as above then last 40 cm dark grey dyke mafic volcanic				0	4	1	4	3	12	15	J	1.0	ox		21	None		AB
25.0	26.5	1.50	100	0.88	59	16	88		VC	dark grey	fine grained	massive	Volcanic dyke				0	4	1	4	3	12	15	J	1.0	ox		16	None		AB
26.5	28.0	1.41	94	0.90	60	20	67		VC	light grey	fine grained	massive	end of volcanic dyke and large weathered contact back into tuff with cly and rubble				0	1	3	4	3	11	15	J	1.0	ox		20	None		AB
28.0	29.5	1.49	99	1.26	84	16	88		VC	light grey	fine grained	massive	moderately weathered, massive orange to pink to grey vuggy, strong with iron.				0	4	3	4	3	14	15	J	1.0	ox		16	None		AB
29.5	31.0	1.50	100	1.00	67	9	150		VC	light grey	fine grained	massive	as above, staining on joints				0	4	3	4	3	14	15	J	1.0	ox		9	None		AB
31.0	32.5	1.42	95	0.44	29	15	89		VC	medium grey	fine grained	massive	change to medium grey less weathered and altered cly seam at bottom				0	4	1	4	5	14	15	J	1.0	ox		15	None		AB
32.5	34.0	1.50	100	0.68	45	11	125		VC	medium grey	fine grained	massive	change to medium grey less weathered and altered cly seam at bottom				0	5	1	4	3	13	15	J	1.0			11	None		AB
34.0	35.5	1.45	97	0.79	53	10	132		VC	medium grey	fine grained	massive	change to medium grey less weathered and altered cly seam at bottom				0	5	3	4	3	15	15	J	1.0			10	None		AB
35.5	37.0	1.50	100	1.44	96	8	167		VC	dark grey	fine grained	massive	not vuggy anymore, dark grey mottled with iron staining				0	5	3	4	3	15	15	J	1.0			8	None		AB
37.0	38.5	1.50	100	0.98	65	9	150		VC	dark grey	fine grained	massive	not vuggy anymore, dark grey mottled with iron staining				0	5	3	4	5	17	15	J	1.0			9	None		AB
38.5	40.0	1.50	100	0.90	60	13	107		VC	dark grey	fine grained	massive	not vuggy anymore, dark grey mottled with iron staining				0	5	3	4	5	17	15	J	1.0			13	None		AB
40.0	41.5	1.50	100	0.88	59	13	107		VC	dark grey	fine grained	massive	not vuggy anymore, dark grey mottled with iron staining				0	5	3	4	5	17	15	J	1.0			13	None		AB
41.5	43.0	1.50	100	1.08	72	10	136		VC	dark grey	medium grained	massive	dark grey, mottled, Breccia in places, iron staining on joint				0	5	3	4	5	17	15	J	1.0			10	None		AB
43.0	44.5	1.50	100	1.05	70	7	188		VC	dark grey	medium grained	massive	dark grey, mottled, Breccia in places, iron staining on joint surfaces				0	4	3	4	5	16	15	J	1.0			7	None		AB
44.5	46.0	1.50	100	1.22	81	9	150		VC	dark grey	medium grained	massive	dark grey, mottled, Breccia in places, iron staining on joint surfaces				0	4	3	4	5	16	15	J	1.0			9	None		AB
46.0	47.5	1.48	99	1.07	71	11	123		VC	dark grey	medium grained	massive	dark grey, mottled, Breccia in places, iron staining on joint surfaces				0	4	3	4	5	16	15	J	1.0			11	None		AB
47.5	49.0	1.50	100	0.81	54	9	150		VC	dark grey	fine grained	massive	dark grey, iron staining on joint surfaces, mottled, fine grained				0	4	3	4	5	16	15	J	1.0			9	None		AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
49.0	50.5	1.44	96	0.94	63	12	111		VC	dark grey	fine grained	massive	dark grey, iron staining on joint surfaces, mottled, fine grained				0	4	3	6	5	18	15	J	1.0			12	None		AB
50.5	52.0	1.50	100	0.24	16	18	79		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, but very fractured				0	5	1	6	5	17	15	J	1.0			18	None		AB
52.0	53.5	1.46	97	0.61	41	18	77		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, but very fractured				0	5	1	4	5	15	15	J	1.0			18	None		AB
53.5	55.0	1.50	100	1.00	67	11	125		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, but very fractured				0	5	1	4	5	15	15	J	1.0			11	None		AB
55.0	56.5	1.50	100	1.34	89	8	167		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, not as fractured as above				0	4	1	4	5	14	15	J	1.0			8	None		AB
56.5	58.0	1.45	97	1.45	97	4	290		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, not as fractured as above				0	4	1	6	5	16	15	J	1.0			4	None		AB
58.0	59.5	1.50	100	1.43	95	4	300		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, not as fractured as above				0	4	1	6	5	16	15	J	1.0			4	None		AB
59.5	61.0	1.46	97	1.38	92	3	365		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, not as fractured as above				0	4	1	6	5	16	15	J	1.0			3	None		AB
61.0	62.3	1.20	96	0.93	74	6	171		VC	dark grey	fine grained	massive	dark grey, fine grained, strong, not as fractured as above				0	4	1	6	5	16	15	J	1.0			6	None		AB
62.3	62.8	0.54	98	0.00	0	50	11		VC	dark grey	fine grained	massive	mini Rubble/shear zone				0	0	1	0	3	4	15	F	1.0	Rub	GG	50	None		AB
62.8	63.8	1.00	100	1.00	100	3	250		VC	dark grey	fine grained	massive	strong, dark grey, fine grained, many breaks and some natural fractures				0	4	1	6	6	17	15		1.0			3	None		AB
63.8	65.4	1.60	100	1.60	100	2	533		VC	dark grey	fine grained	massive	as above but more competent; stick rock 1.04 m in length. Alteration increasing at bottom of run				0	4	1	6	6	17	15		1.0			2	None		AB
65.4	66.0	0.59	99	0.38	63	4	119		VC	dark grey	fine grained	massive	as above, some sub-parallel discontinuities				0	4	1	4	5	14	15		1.0			4	None		AB
66.0	67.0	1.00	100	1.00	100	2	333		VC	dark grey	fine grained	massive	as above, less weathered/altered				0	4	1	4	5	14	16		1.0			2	None		AB
67.0	68.5	1.50	100	1.50	100	4	300		VC	dark grey	fine grained	massive	as above, with less weathering				0	4	1	4	5	14	16		1.0			4	None		AB
68.5	70.0	1.50	100	1.04	69	6	214		VC	dark grey	fine grained	massive	as above, with less weathering				0	4	1	4	5	14	15		1.0			6	None		AB
70.0	71.5	1.50	100	0.96	64	6	214		VC	dark grey	fine grained	massive	as above, with less weathering				0	4	1	4	5	14	15		1.0			6	None		AB
71.5	73.0	1.50	100	0.94	63	9	150		VC	dark grey	fine grained	massive	increase in fracturing				0	4	1	2	5	12	15		1.0			9	None		AB
73.0	74.5	1.50	100	0.52	35	10	136		VC	med grey	fine grained	Breccia	very fractured				0	1	1	2	5	9	15		1.0			10	None		AB
74.5	76.0	1.41	94	0.52	35	10	128		VC	med grey	fine grained	Breccia	some rubble zones				0	1	1	2	5	9	15		1.0			10	None		AB
76.0	77.5	1.50	100	1.08	72	8	167		VC	med grey	fine grained	Breccia	some rubble zones				0	2	1	2	5	10	15		1.0			8	None		AB
77.5	79.0	1.00	67	0.00	0	15	63		VC	med grey	fine grained	Breccia	rubble zone				0	0	1	0	3	4	15		1.0			15	None		AB
79.0	80.5	1.30	87	0.20	13	20	62		VC	dark grey	fine grained	Breccia	rubble zone				0	0	1	0	3	4	15		1.0			20	None		AB
80.5	82.0	1.00	67	0.00	0	50	20		VC	dark grey	fine grained	Breccia	rubble with lots of pyrite				0	0	1	0	3	4	15		1.0			50	None		AB
82.0	83.5	0.80	53	0.00	0	50	16		VC	dark grey	fine grained	Breccia	rubble with lots of pyrite				0	0	1	0	3	4	15		1.0			50	None		AB
83.5	85.0	1.50	100	0.36	24	50	29		VC	dark grey	fine grained	Breccia	rubble possible fault zone				0	0	2	0	5	7	15		1.0			50	None		AB
85.0	86.5	1.50	100	0.00	0	50	29		VC	dark grey	fine grained	Breccia	rubble possible fault zone				0	1	1	4	5	11	15		1.0			50	None		AB
86.5	88.0	1.50	100	0.73	49	12	115		VC	dark grey	fine grained	Breccia	rubble but getting less fractured				0	1	1	4	5	11	15		1.0			12	None		AB
88.0	89.5	1.40	93	0.30	20	18	74		VC	dark grey	fine grained	Breccia	fractured, pyrite in joints				0	4	3	4	5	16	15		1.0			18	None		AB
89.5	91.0	0.83	55	0.00	0	40	20		VC	dark grey	fine grained	Breccia	heavily fractured, pyrite in joints				0	0	1	0	3	4	15		1.0			40	None		AB
91.0	92.5	0.70	47	0.00	0	40	17		VC	dark grey	fine grained	Breccia	cly towards end of run, fractured				0	0	1	0	3	4	15		1.0			40	None		AB
92.5	94.0	1.50	100	0.00	0	11	125		AND	dark grey	fine grained	Breccia	less fractured				0	4	2	4	5	15	15		1.0			11	None		AB
94.0	95.5	1.50	100	0.75	50	11	125		AND	dark grey	fine grained	Breccia	as above				0	4	2	4	5	15	15		1.0			11	None		AB
95.5	97.0	1.35	90	0.48	32	10	123		AND	dark grey	fine grained	Breccia	as above, pyrite in joints				0	4	2	4	5	15	15		1.0			10	None		AB
97.0	98.3	1.28	98	1.00	77	5	213		AND	dark grey	fine grained	Breccia	highly fractured, many healed joints, very weathered/altered				0	4	1	4	5	14	15		1.0			5	None		AB
98.3	98.9	0.60	100	0.00	0	40	15		AND	dark grey	fine grained	Breccia	rubble / Rubble/shear zone				0	0	1	0	3	4	15		1.0			40	None		AB
98.9	100.0	1.03	94	0.56	51	6	147		AND	dark grey	fine grained	Breccia	increasing competence				0	4	1	5	5	15	15		1.0			6	None		AB
100.0	101.1	1.09	99	0.60	55	6	156		AND	dark grey	fine grained	Breccia	increasing competence				0	4	1	5	5	15	15		1.0			6	None		AB
101.1	102.6	1.50	100	1.06	71	9	150		AND	dark grey	fine grained	Breccia	as above				0	4	3	5	5	17	15		1.0			9	None		AB
102.6	103.1	0.50	100	0.00	0	15	31		AND	dark grey	fine grained	Breccia	Rubble/shear zone				0	1	1	0	5	7	15		1.0			15	None		AB
103.1	103.8	0.67	96	0.35	50	3	168		AND	dark grey	fine grained	massive	change in rock type to andesite				0	4	1	5	5	15	15		1.0			3	None		AB
103.8	105.3	1.43	95	1.43	95	3	358		AND	dark grey	fine grained	massive	slightly weathered, grey, strong				0	4	3	6	5	18	15		1.0			3	None		AB
105.3	107.2	1.90	100	1.88	99	4	380		AND	dark grey	fine grained	massive	slightly weathered, grey, strong				0	4	1	5	5	15	15		1.0			4	None		AB
107.2	107.5	0.30	100	0.14	47	15	19		AND	dark grey	fine grained	massive	Rubble Rubble/shear zone				0	1	1	0	5	7	15		1.0			15	None		AB
107.5	108.8	1.21	93	0.95	73	4	242		AND	dark grey	fine grained	massive	slightly weathered, strong				0	4	1	5	5	15	15		1.0			4	None		AB
108.8	110.3	1.50	100	1.50	100	4	300		AND	dark grey	fine grained	massive	as above				0	4	1	4	5	14	15		1.0			4	None		AB
110.3	112.9	1.47	58	1.17	46	5	245		AND	dark grey	fine grained	massive	slightly weathered, strong				0	4	1	4	5	14	15		1.0			5	None		AB
112.9	113.4	0.50	100	0.23	46	12	38		AND	dark grey	fine grained	massive	slightly weathered, grey, strong	0.09			0	4	3	0	5	12	15	Rub	5.0	chl	Rub	3	F		AB
														0.30	18	345	0	4	3	2	5	14	15	J	3.0	Rub	gg	1	F		AB
														0.30	58	220	0	4	1	2	5	12	15	J	3.0	chl		1	F		AB
														0.60	25	220	0	4	1	6	5	16	15	J	3.0	chl		1	F		AB
														0.70	44	225	0	4	3	6	5	18	15	J	3.0	chl		1	F		AB
														0.70	5	290	0	4	3	6	5	18	15	J	3.0	gg		1	F		AB
														1.10	45	230	0	4	3	6	5	18	15	J	3.0	nil		1	F		AB
														1.26	74	40	0	4	3	6	5	18	15	J	3.0	nil		1	F		AB
														1.30	22	310	0	4	3	6	5	18	15	J	2.0	nil		1	F		AB
														1.35	28	35	0	4	3	6	5	18	15	J	2.0	nil		1	F		AB
113.4	115.0	1.53	96	0.54	34	11		75	AND	dark grey	fine grained	massive	slightly weathered, grey, strong	0.40	30	250	0	4	1	2	5	12	15	J	2.0	chl		2	VG		AB
														0.53	25	330	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.60	30	350	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.78	54	280	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.90	15	115	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)									
														1.15	31	20	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
115.0	116.5	1.50	100	0.88	59	10	136	75	AND	dark grey	fine grained	massive	slightly weathered, grey, strong	0.10	15	90	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.20	44	160	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.30	45	180	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.40	20	90	0	4	1	2	5	12	15	J	2.0	chl		1	VG		AB
														0.50	12	220	0	4	1	2	5	12	15	J	3.0	chl	cc	1	VG		AB
116.5	118.0	1.50	100	0.47	31	10	136	75	AND	dark grey	fine grained	massive	slightly weathered, grey, strong	0.35	11	80	0	4	1	2	5	12	15	J	2.0	gg	chl	2	F		AB
														0.70	20	180	0	4	1	2	5	12	15	J	2.0	Rub	chl	1	F		AB
														0.96	11	110	0	4	1	4	5	14	15	J	2.0	nil		1	F		AB
														1.10	16	110	0	4	1	2	5	12	15	J	2.0	chl		1	F		AB
														1.40	18	280	0	4	1	2	5	12	15	J	2.0	chl		1	F		AB
118.0	119.5	1.50	100	1.25	83	4	300	75	AND	dark grey	fine grained	massive	slightly weathered, grey, strong	1.08	24	340	0	4	3	2	5	14	15	J	2.0	chl		1	F		AB
														1.15	27	340	0	4	3	2	5	14	15	J	2.0	chl		1	F		AB
														1.50	29	145	0	4	3	2	5	14	15	J	2.0	chl		2	F		AB
119.5	121.0	1.48	99	0.25	17	7	185	75	AND	dark grey	fine grained	Breccia	slightly weathered, strong, highly fractured	0.26	39	120	0	4	3	2	5	14	15	J	4.0	chl	gg	4	F		AB
														1.00	35	110	0	4	3	2	5	14	15	J	3.0	chl		1	F		AB
														1.20	18	110	0	4	3	4	5	16	15	J	3.0	chl		1	F		AB
														1.30	9	60	0	4	3	2	5	14	15	J	3.0	chl		1	F		AB
121.0	122.5	1.20	80	0.33	22	10	109	25	AND	dark grey	fine grained	Breccia	very Rubble up, some core lost	0.80	24	80	0	4	3	4	5	16	15	J	3.0	chl	gg	6	F		AB
														0.85	9	50	0	4	3	2	5	14	15	J	3.0	chl		1	F		AB
														1.00	35	310	0	4	3	4	5	16	15	J	3.0	chl		2	F		AB
														1.20	13	130	0	4	3	2	5	14	15	J	3.0	chl		1	F		AB
122.5	124.0	0.50	33	0.00	0	40	12	25	AND	dark grey	fine grained	Breccia	very Rubble up, core lost, frozen	0.40	27	220	0	1	3	0	5	9	15	J	2.0	chl		9	F		AB
														0.50	13	165	0	4	3	0	5	12	15	J	2.0	chl		1	P		AB
124.0	125.5	1.38	92	0.95	63	5	230	75	AND	dark grey	fine grained	Breccia	less Rubble, dark grey, fine grained, slightly weathered, strong	0.17	23	180	0	4	3	2	5	14	15	J	2.0	chl		3	G		AB
														0.92	48	100	0	4	3	2	5	14	15	J	2.0	chl		1	G		AB
														1.38	17	270	0	4	3	2	5	14	15	J	2.0	chl		1	F		AB
125.5	126.7	1.20	100	1.06	88	2	400	75	VC	grey	fine grained		As above	0.53	16	352	0	4	3	2	5	14	15	J	<1	chl		1	F	Un-M	CMS
														1.17			0	4	3	2	5	14	15	Rub	<1	chl		1	P	Un-M	CMS
126.7	128.3	1.53	96	1.26	79	2	510	70	VC	grey	fine grained	Breccia	Change at 127.7 m to Breccia	0.25	53	13	0	4	3	2	5	14	15	J	<1	chl		1	F	Un-M	CMS
														1.29			0	1	1	2	5	9	15	Rub	5.0	cly		1	F	Un-M	CMS
128.3	129.7	1.45	100	1.18	81	3	362	70	VC	grey	fine grained	Breccia	As above	0.00	16	125	0	4	3	2	5	14	15	J	<1	chl		1	P	-160	CMS
														0.45	8	40	0	4	1	2	5	12	15	J	<1	cly		1	P	-160	CMS
														1.32	25	280	0	4	3	4	3	14	15	J	<1	chl		1	P	-160	CMS
129.7	131.3	1.53	96	1.53	96	2	510	60	VC	grey	fine grained	Breccia	As above	0.07	30	76	0	1	3	2	5	11	15	J	<1	cly		1	G	-9	CMS
														0.97	30	217	0	4	1	6	5	16	15	J	2.0			1	G	-9	CMS
131.3	132.9	1.59	99	1.16	73	1	795	50	VC	grey	fine		As above	0.37	42	207	0	4	1	2	5	12	15	J	<1	cly		1	F	14	CMS
132.9	134.4	1.55	100	1.55	100	1	775	60	VC	grey	fine		As above	0.64	47	235	0	4	3	6	5	18	15	Rub?	<1			1	G	-9	CMS
134.4	136.0	1.59	99	1.46	91	2	530	60	VC	grey	fine		As above	1.22	20	230	0	1	1	2	5	9	15	J	2.0	cly		1	VG	0	CMS
														1.41	28	106	0	1	1	2	5	9	15	J	3.0	cly	chl	1	VG	0	CMS
136.0	137.5	1.50	100	1.25	83	2	500	75	VC	grey	fine	massive	Lots of mechanical breaks, usually along healed joints	0.22	8	210	0	4	3	4	5	16	15	J	1.0	cc		1	G	140	AB
														0.98	15	310	0	4	3	6	5	18	15	J	3.0	cc		1	G	0	AB
137.5	139.0	1.41	94	1.41	94	1	705	125	VC	grey	fine	massive	one mechanical rubble along joint	1.02	42	105	0	4	3	6	5	18	15	J	1.0			1	VG	0	AB
139.0	140.5	1.50	100	1.17	78	4	300	75	VC	grey	fine grained	massive		0.05	22	270	0	4	5	3	5	17	15	J	1.0			1	G	10	AB
														0.38	36	140	0	4	5	3	5	17	15	J	1.0			2	G	10	AB
														1.35	18	240	0	4	4	1	5	14	15	J	2.5			1	F	?	AB
140.5	142.0	1.43	95	1.14	76	1	715	75	VC	grey	fine grained	massive	sulphides in joints (pyrite & arsen?)	1.10	24	355	0	4	1	6	5	16	15	J	1.0			1	P	-70	AB
142.0	143.5	1.50	100	1.50	100	2	500	75	VC	grey	fine grained	massive	only mechanical breaks along joints. No sulphides in joints	0.48	22	175	0	4	1	6	5	16	15	J	1.0			1	P	70	AB
														1.50	10	165	0	4	1	6	5	16	15	J	1.0			1	P		AB
143.5	145.0	1.43	95	1.43	95	1	715	75	VC	grey	fine grained	massive	as above, tight joint, no infill	1.15	22	90	0	5	1	6	6	18	15	J	<1			1	P	170	AB
145.0	146.5	1.48	99	0.93	62	4	296	75	VC	grey	fine grained	massive	pyrite in joints, calcite infill in 2 joints, halo on veins	0.40	20	340	0	4	3	4	5	16	15	J	2.5	cc		2	F	20	AB
														0.65	49	20	0	5	3	6	5	19	15	J	1.0			1	F	20	AB
														0.91	9	110	0	4	3	4	5	16	15	J	1.0	cc		1	F	20	AB
146.5	148.0	1.48	99	1.44	96	2	493	125	VC	grey	fine grained	massive	As above	0.45	42	50	0	4	3	6	5	18	15	J	1.0			1	F	-20	AB
														0.95	29	50	0	4	3	6	5	18	15	J	1.0			1	F	-20	AB
148.0	149.5	1.40	93	1.40	93	1	700	125	VC	grey	fine grained	massive	As above	1.16	55	195	0	1	5	6	5	17	15	J	1.0			1	F		AB
149.5	151.0	1.44	96	1.44	96	1	720	160	VC	grey	fine grained	massive	solid, only one mechanical rubble before hitting with hammer				0	5	3	6	6	20	15		1.0			1	F		AB
151.0	152.5	1.50	100	1.50	100	1	750	125	VC	grey	fine grained	massive	slightly weathered to fresh, massive, grey, fine grained, strong	0.70	23	40	0	5	3	6	5	19	15	J	1.0			1	F		AB
152.5	154.0	1.36	91	1.36	91	1	680	125	VC	grey	fine grained	massive	As above	0.98	68	350	0	1	3	2	5	11	15	J	2.0	cc	chl	1	P	84	CMS
154.0	155.5	1.50	100	1.50	100	1	750	125	VC	grey	fine grained	massive	As above	0.35	27	312	0	4	3	2	5	14	15	J	<1	cc	chl	1	P	100	CMS
155.5	157.0	1.50	100	1.50	100	1	750	125	VC	grey	fine grained	massive	As above	0.56	52	225	0	4	3	2	5	14	15	J	<1	cc	chl	1	G	10	CMS
157.0	158.2	1.20	100	1.20	100	0	1199	125	VC	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	VG	5	CMS
158.2	159.7	1.50	100	1.50	100	1	750	125	VC	grey	fine grained	massive	As above	0.97	62	245	0	4	3	2	5	14	15	J	<1	cc	chl	1	VG	-5	CMS
159.7	161.3	1.59	99	1.59	99	1	795	125	VC	grey	fine grained	massive	As above	1.18	21	325	0	1	3	2	5	11	15	J	4.0	cc		1	VG	0	CMS
161.3	162.7	1.37	98	1.37	98	0	1370	125	VC	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	VG	10	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
162.7	163.1	0.40	100	0.40	100	0	400	125	VC	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	VG	-3	CMS
163.1	164.6	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	VG	NA	CMS
164.6	166.0	1.40	100	1.40	100	1	700	125	VC	grey	fine grained	massive	As above	0.55	50	313	0	4	4	2	5	15	15	J	<1	cc		1	G	-8	CMS
166.0	167.5	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	F	Un-M	CMS
167.5	169.0	1.46	97	1.46	97	1	730	125	VC	grey	fine grained	massive	As above	1.27	55	242	0	1	3	2	5	11	15	J	5.0	cc	chl	1	G	5	CMS
169.0	170.5	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	G	7	CMS
170.5	172.0	1.43	95	1.43	95	1	715	125	VC	grey	fine grained	massive	As above	0.37	76	248	0	4	5	6	5	20	15	J	<1	cc		1	G	-2	CMS
172.0	173.5	1.50	100	1.50	100	1	750	125	AND	grey	fine grained	massive	As above	0.16	30	204	0	4	5	2	5	16	15	J	<1	cc	chl	1	G	4	CMS
173.5	175.0	1.50	100	1.50	100	0	1500	125	AND	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	VG	Un-M	CMS
175.0	176.5	1.50	100	1.50	100	1	750	125	AND	grey	fine grained	massive	As above	0.50	24	94	0	1	1	2	5	9	15	J	2.0	cc		1	VG	0	CMS
176.5	178.0	1.50	100	1.50	100	2	500	125	AND	grey	fine grained	massive	As above	0.41	25	298	0	1	3	2	5	11	15	J	2.0	cc		1	VG	0	CMS
														0.85	29	30	0	4	3	2	5	14	15	J	<1	cc		1	VG	0	CMS
178.0	179.5	1.50	100	1.50	100	0	1500	125	AND	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	G	-15	CMS
179.5	181.0	1.45	97	1.45	97	1	725	125	AND	grey	fine grained	massive	slightly weathered to fresh, one joint with calcite infill	0.70	24	85	0	4	3	4	5	16	15	J	1.5	cc		1	VG	0	AB
181.0	182.5	1.50	100	1.50	100	0	1500	125	AND	grey	fine grained	massive	stick, when Rubble lots of pyrite showing				0	6	5	6	5	22	15		0.0			0	G	-10	AB
182.5	184.0	1.36	91	1.36	91	1	680	160	AND	grey	fine grained	massive	one joint with calcite infill	0.48	24	5	0	4	1	4	5	14	15	J	3.0	cc		1	P	60	AB
184.0	185.5	1.41	94	1.41	94	0	1410	110	AND	grey	fine grained	massive	solid stick				0	4	3	3	5	15	15		0.0			0	P	170	AB
185.5	187.0	1.50	100	1.40	93	2	500	75	AND	grey	fine grained	massive	more Rubble than in the previous runs	0.27	20	180	0	4	3	6	5	18	15	J	2.0			1	VG	5	AB
														1.00	13	5	0	4	3	6	5	18	15	J	1.0			1	VG	5	AB
187.0	188.4	1.39	99	1.39	99	1	695	125	AND	grey	fine grained	massive	As above	0.64	18	238	0	1	3	4	5	13	15	J	2.0	cc		1	VG	5	CMS
188.4	189.1	0.68	97	0.68	97	0	680	125	AND	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	P	-70	CMS
189.1	190.3	1.17	97	1.17	97	0	1170	125	AND	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	P	-75	CMS
190.3	191.8	1.44	99	1.44	99	1	720	125	AND	grey	fine grained	massive	As above	0.54	29	50	0	1	3	4	4	12	15	J	2.0	cc		1	F	Un-M	CMS
191.8	193.0	1.25	100	1.25	100	2	417	125	AND	grey	fine grained	massive	As above	0.42	35	110	0	5	1	6	5	17	15	J	1.0			1	F	Un-M	CMS
														0.86	33	292	0	1	3	4	5	13	15	J	2.0	cc		1	F	Un-M	CMS
193.0	194.5	1.50	100	1.50	100	0	1500	125	AND	grey	fine grained	massive	As above				6	6	6	6	6	30	15		0.0			0	G	10	CMS
194.5	196.0	1.47	98	1.47	98	1	735	125	AND	grey	fine grained	massive	As above	0.97	35	267	0	0	1	3	5	9	15	J	5.0	cc		1	G	10	CMS
196.0	197.5	1.50	100	1.50	100	0	1500	125	AND	grey	fine grained	massive	As above				6	6	6	2	6	26	15		0.0			0	VG	0	CMS
197.5	199.0	1.49	99	1.49	99	1	745	125	AND	grey	fine grained	massive	As above	0.63	29	121	0	4	5	2	5	16	15	J	<1	cc		1	VG	2	CMS
199.0	200.5	1.49	99	1.49	99	1	745	125	AND	grey	fine grained	massive	As above	1.27	51	81	0	4	3	2	5	14	15	J	<1	cc		1	VG	0	CMS
200.5	202.0	1.42	95	1.42	95	1	710	125	AND	grey	fine grained	massive	As above	0.13	44	83	0	4	3	2	5	14	15	J	<1	cc		1	G	16	CMS
202.0	203.5	1.50	100	1.50	100	1	750	125	AND	grey	fine grained	massive	As above	0.00	19	128	0	1	3	2	5	11	15	J	5.0	cc		1	G	16	CMS
203.5	205.0	1.45	97	1.45	97	2	483	125	AND	grey	fine grained	massive	As above	0.25	14	337	0	4	3	2	5	14	15	J	1.0	cc		1	G	-12	CMS
														1.06	18	325	0	4	3	2	5	14	15	J	1.0	cc		1	G	-12	CMS
205.0	206.5	1.50	100	0.72	48	1	750	125	AND	grey	fine grained	massive	slightly weathered, calcite infill	1.45	7	355	0	4	3	2	5	14	15	J	1.0	cc		1	G	-10	AB
206.5	208.0	1.41	94	1.41	94	1	705	125	AND	grey	fine grained	massive	slightly weathered, calcite infill, some mechanical breaks	0.70	11	315	0	5	4	2	5	16	15	J	1.0	cc		1	F	-25	AB
208.0	209.5	1.50	100	1.50	100	9	150	75	AND	grey	fine grained	massive	more joints/fractures than in previous runs	0.15	31	5	0	4	3	2	5	14	15	J	1.5	cc		5	P	45	AB
														0.60	22	180	0	4	3	2	5	14	15	J	1.0	cc		3	P	45	AB
														1.20	14	235	0	4	2	2	5	13	15	J	1.0	cc		1	P	45	AB
209.5	211.0	1.46	97	1.46	97	4	292	75	AND	grey	fine grained	massive	more weathered and mechanical fractures, in some cases the infill (calcite?) has not fully hardened	0.28	16	350	0	4	3	2	3	12	15	J	3.0	cc		2	P	Un-M	AB
														0.98	13	20	0	1	1	5	3	10	15	J	2.0	cc		1	P	Un-M	AB
														1.40	11	345	0	4	3	4	4	15	15	J	1.0	cc		1	P	Un-M	AB
211.0	212.5	1.50	100	1.50	100	7	188	75	AND	grey	fine grained	massive	slightly weathered, calcite infill in joints	0.55	8	305	0	4	3	2	5	14	15	J	1.0	cc		1	VG	0	AB
														0.65	10	235	0	5	0	2	5	12	15	J	<1	cc		1	VG	0	AB
														1.31	29	65	0	4	4	2	5	15	15	J	1.0	cc		1	VG	0	AB
														1.32	25	340	0	4	3	2	5	14	15	J	1.5	cc		1	VG	0	AB
														1.35	10	0	0	4	1	2	5	12	15	J	1.0	cc		3	VG	0	AB
212.5	214.0	1.36	91	1.36	91	1	680	125	AND	grey	fine grained	massive	more competent than previous runs, sulphide minerals present, calcite infilling in joints	0.23	10	120	0	1	3	4	5	13	15	J	3.0	cc		1	F	Un-M	AB
214.0	215.5	1.43	95	1.43	95	4	286	125	AND	grey	fine grained	massive	one of the joints infilled by a cluster of individual calcite crystals (2-3.5cm), I also think the helper may have incorrectly marked the core (marked it at the top instead of the bottom) as it's out from the previous run by 180 degrees	0.21	25	260	0	4	3	6	5	18	15	J	1.0	cc		1	P	180	AB
														0.53	26	190	0	4	2	5	5	16	15	J	1.0	cc		2	P	180	AB
														0.97	32	310	0	0	3	0	5	8	15	J	20-35	cc		1	P	180	AB
215.5	217.0	1.50	100	1.50	100	2	500	110	AND	grey	fine grained	massive	calcite and chlorite infill	0.67	6	220	0	4	1	2	5	12	15	J	1.0	cc		2	P	Un-M	AB
217.0	218.5	1.50	100	0.87	58	2	500	75	AND	grey	fine grained	massive	calcite and chlorite infill	0.30	10	250	0	4	1	2	5	12	15	J	1.0	cc	chl	1	G	10	AB
														1.60	10	330	0	4	1	2	5	12	15	J	<1	chl		1	G	10	AB
218.5	220.0	1.44	96	0.61	41	5	240	75	AND	grey	fine grained	massive	no calcite, pyrite present in joints	0.10	26	60	0	4	3	4	5	16	15	J	1.0	chl		3	G	5	AB
														1.10	44	70	0	4	1	4	5	14	15	J	1.0	chl	pyr	2	G	5	AB
220.0	221.5	1.50	100	1.21	81	3	375	125	AND	grey	fine grained	massive	pyrite present	0.35	42	115	0	4	1	4	5	14	15	J	1.0	chl		2	G	5	AB
														1.30	11	0	0	4	3	4	5	16	15	J	1.5	cc	chl	1	G	5	AB
221.5	223.0	1.50	100	0.56	37	6	214	75	AND	grey	fine grained	massive	lots of mechanical breaks along joints	0.08	45	305	0	4	3	4	5	16	15	J	1.0	chl	pyr	1	F	20	AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
														0.39	21	85	0	4	3	6	5	18	15	J	1.0			1	F	20	AB
														0.86	47	20	0	4	1	6	5	16	15	J	1.0			3	F	20	AB
														1.30	16	15	0	4	1	6	5	16	15	J	1.0			1	F	20	AB
223.0	224.5	1.50	100	1.41	94	2	500	125	AND	grey	fine grained	massive		0.32	45	290	0	4	3	4	5	16	15	J	1.0	cc		2	P	35	AB
224.5	226.0	1.41	94	1.32	88	4	282	140	AND	grey	fine grained	massive		0.37	60	35	0	5	1	4	6	16	15	J	<1	cc	Pyr	1	F	20	AB
														0.43	40	260	0	5	1	4	6	16	15	J	<1	cc	pyr	1	F	21	AB
														0.97	43	120	0	5	1	4	6	16	15	J	<1	pyr		1	F	22	AB
														1.40	33	20	0	4	3	4	5	16	15	J	<1	cc		1	F	23	AB
226.0	227.5	1.50	100	1.50	100	1	750	125	AND	grey	fine grained	massive		0.31	66	227	0	5	2	6	5	18	15	J	<1			1	None	Un-M	CMS
227.5	229.0	1.50	100	1.32	88	4	300	95	AND	grey	fine grained	massive		0.36	77	7	0	5	2	6	5	18	15	J	<1			1	G	8	CMS
														0.43	75	342	0	5	2	6	5	18	15	J	<1			1	G	8	CMS
														0.66			0	1	1	2	3	7	15	Rub	90.0	cc		1	G	8	CMS
														1.26	34	23	0	4	3	4	5	16	15	J	1.0	cc		1	G	8	CMS
229.0	230.5	1.50	100	1.20	80	3	375	95	AND	grey	fine grained	massive		0.81	24	328	0	4	3	4	5	16	15	J	1.0	cc		1	F	Un-M	CMS
														1.03			0	1	1	2	5	9	15	Rub	10.0	cc		1	F	Un-M	CMS
														1.36			0	1	1	2	5	9	15	Rub	10.0	cc		1	F	Un-M	CMS
230.5	232.0	1.43	95	0.64	43	20	68	70	AND	grey	fine grained	massive					0	1	1	2	5	9	15	Rub	10.0	cc		10	None	Un-M	CMS
232.0	233.5	1.47	98	1.10	73	7	184	70	AND	grey	fine grained	massive					0	1	1	2	5	9	15	Rub	10.0	cc		7	None	Un-M	CMS
233.5	234.7	1.15	96	0.45	38	5	192	55	AND	grey	fine grained	massive					0	1	1	2	5	9	15	Rub	10.0			5	None	Un-M	CMS
234.7	235.5	0.72	90	0.19	24	5	120	55	AND	grey	fine grained	massive					0	1	1	2	5	9	15	Rub	10.0			5	None	Un-M	CMS
235.5	236.9	1.35	100	0.47	35	12	104	60	AND	grey	fine grained	massive					0	1	1	2	5	9	15	Rub	10.0	cc		12	None	Un-M	CMS
236.9	238.0	1.15	100	0.85	74	8	128	55	AND	grey	fine grained	massive					0	4	2	4	5	15	15	J	1.0	cc		8	None	Un-M	CMS
238.0	239.0	1.00	100	0.20	20	10	91	25	AND	grey	fine grained	massive					0	1	1	2	5	9	15	Rub	10.0	cc	chl	10	None	Un-M	CMS
239.0	239.8	0.75	100	0.00	0	15	47	25	AND	grey	fine grained	massive					0	0	1	0	3	4	15	Rub	10.0			15	None	Un-M	CMS
239.8	241.0	1.25	100	0.68	54	25	48	15	AND	grey	fine grained	massive					0	1	1	0	5	7	15	Rub	10.0	chl	cc	25	None	Un-M	CMS
241.0	242.5	1.50	100	0.53	35	9	150	25	AND	grey	fine grained	massive					0	1	1	0	5	7	15	Rub	1.0	cly		9	None	Un-M	CMS
242.5	243.7	1.20	100	0.00	0	20	57	25	AND	grey	fine grained	massive	jointed, lots of cly and calcite infilling				0	0	1	0	3	4	15	Rub	2.0	cly	cc	9	None	Un-M	AB
243.7	245.5	1.58	88	0.52	29	20	75	75	AND	grey	fine grained	massive	change in rock type (shift from greenish grey to grey), becomes less jointed with depth	0.38	24	125	0	0	1	0	3	4	15	J	2.5	cc	chl	6	F	Un-M	AB
														1.03	9	310	0	4	3	2	5	14	15	J	2.0	cc		1	F	Un-M	AB
245.5	247.0	1.50	100	0.86	57	6	214	75	AND	grey	fine grained	massive	slightly weathered	0.32	67	120	0	4	3	4	5	16	15	J	1.0	chl		2	F	Un-M	AB
														0.71	18	115	0	4	1	6	5	16	15	J	<1			1	F	Un-M	AB
														0.92	31	25	0	4	1	2	5	12	15	J	<1	cly	chl	1	F	Un-M	AB
														1.26	11	15	0	4	3	2	5	14	15	J	1.0	cc		1	F	Un-M	AB
														1.32	9	95	0	4	1	2	5	12	15	J	1.0	cc		1	F	Un-M	AB
247.0	248.5	1.50	100	0.42	28	3	375	75	AND	grey	fine grained	massive	as above	0.33	33	330	0	5	3	6	5	19	15	J	1.0			1	F	-10	AB
														0.41	50	160	0	4	3	2	5	14	15	J	1.0	cc	chl	1	F	-10	AB
														1.58	18	345	0	4	1	2	5	12	15	J	1.0	cc		1	F	-10	AB
248.5	250.0	1.25	83	0.15	10	3	313	75	AND	grey	fine grained	massive		0.20	30	350	0	4	1	4	5	14	15	J	1.0	cc	chl	2	P	130	AB
														0.95	30	165	0	4	1	4	5	14	15	J	1.0	cc		1	P	131	AB
250.0	251.5	1.50	100	0.00	0	40	37	25	AND	grey	fine grained	massive	hit cly seem that's about 40 cm long, pyrite and chlorite in joints	0.70	26	290	0	0	1	0	3	4	15	J	1.0	chl		1	F	Un-M	AB
														1.60	17	80	0	0	1	0	5	6	15	J	1.0	chl	pyr	1	F	Un-M	AB
251.5	253.0	1.40	93	0.00	0	40	34	50	AND	grey	fine grained	massive	heavily fractured/jointed				0	0	1	0	5	6	15	Rub	1.0			15	None	Un-M	AB
253.0	254.5	1.50	100	0.10	7	40	37	50	AND	grey	fine grained	massive	some areas rubble, pyrite & chlorite infill				0	0	1	0	3	4	15	Rub	1.0		pyr	20	None	Un-M	AB
254.5	256.0	1.50	100	0.15	10	12	115	75	AND	grey	fine grained	massive	last half of run heavily fractured/jointed	0.45	29	325	0	4	5	4	5	18	15	J	1.0			11	F	Un-M	AB
														0.80	13	20	0	4	3	4	5	16	15	J	1.0			1	F	Un-M	AB
256.0	257.5	1.50	100	0.45	30	10	136	75	AND	grey	fine grained	massive	heavily fractured near end of run	1.20	15	130	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
257.5	259.0	0.80	53	0.00	0	40	20	50	AND	grey	fine grained	massive	half rubble, some cly				0	0	1	0	3	4	15		1.0			8	F	Un-M	AB
259.0	260.5	1.50	100	0.00	0	40	37	50	AND	grey	fine grained	massive	large cly seem with pyrite, cly throughout	0.73	16	180	0	0	1	0	3	4	15	J	1.0	cly		1	F	Un-M	AB
260.5	262.0	1.50	100	0.00	0	40	37	75	AND	grey	fine grained	massive		0.20	12	70	0	1	3	2	3	9	15	J	1.0			1	F	Un-M	AB
														0.22	28	150	0	1	1	2	3	7	15	J	1.0			1	F	Un-M	AB
														0.40	39	30	0	1	1	2	3	7	15	J	1.0	pyr		1	F	Un-M	AB
262.0	263.5	1.30	87	0.00	0	9	130	50	FT	grey	fine grained	massive	iron staining throughout, rubble/heavily jointed				0	0	1	0	3	4	15	Rub	1.5			9	None	Un-M	AB
263.5	265.0	1.50	100	0.50	33	11	125	60	FT	grey	fine grained	rubble	bleached				0	1	1	3	3	8	15	Rub	10.0	chl		11	None	Un-M	CMS
265.0	267.1	2.00	95	0.61	29	20	95	55	FT	grey	fine grained	Rubble zone					0	1	1	3	3	8	15	Rub	10.0	chl		20	None	Un-M	CMS
267.1	268.0	0.90	100	0.49	54	10	82	50	FT	grey	fine grained	Rubble zone					0	1	1	3	3	8	15	Rub	10.0	chl		10	None	Un-M	CMS
268.0	269.5	1.50	100	0.44	29	10	136	60	FT	grey	fine grained	Rubble zone					0	1	1	3	3	8	15	Rub	10.0	chl	cly	10	None	Un-M	CMS
269.5	270.9	0.85	61	0.00	0	40	21	5	FT	grey	fine grained	shear zone	Lots of cly				0	1	1	0	3	5	15	She	10.0	cly		25	None	Un-M	CMS
270.9	271.7	0.66	82	0.00	0	40	16	25	FT	grey	fine grained	Rubble zone					0	1	1	3	3	8	15	Rub	10.0	chl	cly	15	None	Un-M	CMS
271.7	272.8	0.55	50	0.00	0	40	13	15	FT	grey	fine grained	Rubble zone					0	1	1	2	2	6	15	She	10.0	chl		25	None	Un-M	CMS
272.8	273.5	0.25	36	0.00	0	40	6	10	FT	grey	fine grained	Rubble zone					0	1	1	2	3	7	15	Rub	10.0	chl		10	None	Un-M	AB
273.5	274.0	0.40	80	0.00	0	40	10	10	FT	grey	fine grained	Rubble zone					0	1	1	2	3	7	15	Rub	10.0	chl		25	None	Un-M	AB
274.0	275.5	1.40	93	0.00	0	50	27	15	AND	grey	fine grained	Rubble zone					0	1	1	2	3	7	15	Rub	1.0	chl	cly	50	None	Un-M	AB
275.5	277.0	1.20	80	0.00	0	40	29	25	AND	grey	fine grained	Rubble zone					0	1	3	4	3	11	15	Rub	1.0	pyr	chl	15	None	Un-M	AB
277.0	278.5	1.50	100	0.00	0	20	71	50	AND	grey	fine grained	Rubble zone					0	1	1	3	3	8	15	Rub	1.0	pyr	chl	20	None	Un-M	AB
278.5	280.0	1.35	90	0.55	37	40	33	75	AND	grey	fine grained	massive/Rubble	more competent and is heavily fractured at the ends (cant orient)				0	1	3	0	3	7	15	Rub	1.0	chl		12	None	Un-M	AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
280.0	281.5	1.50	100	0.65	43	30	48	5	AND	grey	fine grained	massive/Rubble	able to orient joints near top of run, iron staining from 0.6 - 1.15m, cly near end of run	0.17	16	310	0	1	3	0	3	7	15	J	1.0	chl		1	G	10	AB
														0.30	30	280	0	4	5	4	3	16	15	J	1.0	chl		1	G	10	AB
														0.70			0	4	3	4	3	14	15	Rub	1.0	cly	chl	10	G	10	AB
281.5	283.0	0.15	10	0.00	0	30	5	75	AND	grey	fine grained		hardly any recovery, cave in, quartz and pyr infill	0.04	34	24	0	4	1	4	3	12	15	J	1.0	quartz	pyr	1	G	10	AB
283.0	284.5	1.35	90	0.80	53	40	33	75	AND	grey	fine grained	massive	one rubble/Rubble zone from 0.2-0.35m	1.05	50	100	0	4	3	4	3	14	15	J	1.0	chl		1	VG	0	AB
284.5	286.0	1.50	100	0.45	30	4	300	75	AND	grey	fine grained	massive	iron staining on last half of run	0.79	25	350	0	1	1	4	3	9	15	J	1.0	chl		1	F	Un-M	AB
														0.97	38	40	0	4	3	6	3	16	15	J	1.0			3	F	Un-M	AB
286.0	287.2	1.05	88	0.18	15	40	26	5	AND	grey	fine grained	massive/Rubble	Rubble zone grading into cly/Rubble/shear zone				0	1	1	0	3	5	15	Rub	10.0	chl	cly	15	None	Un-M	CMS
287.2	288.8	1.32	85	0.28	18	40	32	5	AND	grey	fine grained	massive/Rubble	cly/Rubble/shear zone grading into Rubble zone				0	1	1	0	3	5	15	Rub	10.0	chl	cly	15	None	Un-M	CMS
288.8	290.1	1.35	100	0.43	32	40	33	5	AND	grey	fine grained	massive/Rubble	Extremely fractured, soft rock				0	0	1	0	3	4	15	Rub	10.0	chl	cly	15	None	Un-M	CMS
290.1	291.4	1.15	92	0.48	38	15	72	25	AND	grey	fine grained	massive/Rubble	As above				0	1	1	2	5	9	15	Rub	10.0	chl	cly	15	None	Un-M	CMS
291.4	292.0	0.65	100	0.53	82	4	130	45	AND	grey	fine grained	massive/Rubble	More competent than above	0.15			0	1	1	2	5	9	15	Rub	10.0	chl	cly	1	G	14	CMS
														0.21			0	1	1	2	5	9	15	Rub	10.0	chl	cly	1	G	15	CMS
														0.35			0	1	1	2	5	9	15	Rub	10.0	chl	cly	1	G	16	CMS
														0.61			0	4	1	2	5	12	15	J	1.0	chl	cly	1	G	17	CMS
292.0	293.5	1.45	97	0.97	65	3	363	50	AND	grey	fine grained	massive/Rubble	As above	0.15	42	8	0	4	1	2	5	12	15	J	1.0	chl	cly	1	F	27	CMS
														0.54			0	1	1	2	5	9	15	Rub	10.0	chl	cly	1	F	28	CMS
														1.30			0	1	1	2	5	9	15	Rub	10.0	chl	cly	1	F	29	CMS
293.5	294.4	0.85	100	0.18	21	40	21	25	AND	grey	fine grained	massive/Rubble	Smashed to pieces				0	1	1	2	5	9	15	Rub	10.0	chl		20	None	Un-M	CMS
294.4	295.0	0.48	74	0.00	0	40	12	25	AND	grey	fine grained	massive/Rubble	As above				0	1	1	2	3	7	15	Rub	10.0	chl		20	None	Un-M	CMS
295.0	296.1	0.84	76	0.42	38	8	93	50	AND	grey	fine grained	massive/Rubble	Some Breccia, Rubble zones				0	1	1	2	3	7	15	Rub	10.0	chl	cly	8	None	Un-M	CMS
296.1	297.7	1.38	89	0.70	45	40	34	40	AND	grey	fine grained	massive/Rubble	very soft rock, cly infill				0	0	1	0	3	4	15	Rub	10.0	cly	chl	12	None	Un-M	CMS
297.7	298.6	0.84	88	0.18	19	40		40	AND	grey	fine grained	massive/Rubble	Rubbly, Rubble				0	0	1	0	5	6	15	Rub	10.0	chl		15	None	Un-M	CMS
298.6	300.0	0.80	57	0.18	13	40	20	20	AND	grey	fine grained	massive/Rubble					0	0	1	2	5	8	15	Rub	10.0	chl		15	None	Un-M	CMS
300.0	301.0	0.83	83	0.00	0	15	52	20	AND	grey	fine grained	massive/Rubble					0	1	1	2	5	9	15	Rub	10.0	cly	chl	15	None	Un-M	CMS
301.0	301.7	0.55	85	0.00	0	40	13	50	AND	grey	fine grained	massive/Rubble	Rubble				0	0	1	0	3	4	15	Rub	10.0	cly	chl	15	None	Un-M	CMS
301.7	302.5	0.85	100	0.10	12	7	106	50	AND	grey	fine grained	massive/Rubble		0.12	20	280	0	0	1	0	3	4	15	J	1.0	chl		1	F	Un-M	AB
														0.25	39	70	0	4	1	2	5	12	15	J	1.0	cly		5	F	Un-M	AB
														0.75	9	340	0	4	1	2	5	12	15	J	1.0	cly		1	F	Un-M	AB
302.5	304.0	1.43	95	0.85	57	3	358	75	AND	grey	fine grained	massive/Rubble		0.38	11	30	0	1	1	2	5	9	15	J	1.0	chl		2	G	-10	AB
														1.00	42	300	0	1	3	2	5	11	15	J	1.0			1	G	-10	AB
304.0	305.5	1.40	93	0.00	0	50	27	25	AND	grey	fine grained	massive/Rubble	Rubble/Rubble				0	0	1	0	3	4	15	Rub	2.0	cly	chl	15	None	Un-M	AB
305.5	307.0	1.45	97	0.75	50	5	242	75	AND	grey	fine grained	massive	more competent than the last run	0.45	27	350	0	4	3	2	5	14	15	J	1.0	chl		3	F	Un-M	AB
														0.95	69	320	0	4	3	4	5	16	15	J	1.0			1	F	Un-M	AB
														1.35	46	60	0	4	1	4	5	14	15	J	1.0			1	F	Un-M	AB
307.0	308.5	1.50	100	0.60	40	4	300	75	AND	grey	fine grained	massive	as above	0.18	34	45	0	4	3	2	5	14	15	J	1.0	chl		1	VG	0	AB
														0.33	18	355	0	4	1	2	5	12	15	J	1.0	chl		2	VG	0	AB
														1.50	13	25	0	4	1	4	5	14	15	J	1.0	chl		1	VG	0	AB
308.5	310.0	1.45	97	0.90	60	2	483	75	AND	grey	fine grained	massive	as above	0.25	17	200	0	4	1	6	5	16	15	J	1.0			1	F	Un-M	AB
														0.77	48	310	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
310.0	311.5	1.34	89	0.90	60	3	335	125	AND	grey	fine grained	massive	as above	0.50	36	340	0	4	4	4	5	17	15	J	1.0	chl		1	G	10	AB
														0.94	48	60	0	4	5	6	5	20	15	J	1.0			1	G	10	AB
														1.04	31	160	0	4	1	4	5	14	16	J	1.0	chl		1	G	10	AB
311.5	313.0	1.50	100	0.90	60	5	250	125	AND	grey	fine grained	massive	as above	0.69	41	50	0	4	1	2	5	12	16	J	1.0	cly		5	F	Un-M	AB
313.0	314.5	1.50	100	0.70	47	6	214	75	AND	grey	fine grained	massive	Oxidation occurring mostly in joints	0.32	15	180	0	4	1	4	5	14	15	J	1.0	chl		2	F	Un-M	AB
														0.70	24	350	0	4	1	4	5	14	15	J	1.0	chl	FeO	1	F	Un-M	AB
														1.02	38	70	0	4	3	4	5	16	15	J	1.0	FeO		3	F	Un-M	AB
314.5	316.0	1.50	100	1.28	85	10	136	125	VC	grey	fine grained	massive	oxidation still occurs	0.55	25	315	0	1	1	2	5	9	15	J	1.0			1	F	Un-M	AB
														0.91	21	20	0	1	1	2	5	9	15	J	1.0	cly		2	F	Un-M	AB
316.0	317.5	1.50	100	0.00	0	20	71	50	VC	grey	fine grained	massive/Rubble	lots of cly, Rubble				0	0	1	0	3	4	15	J	2.0	cly		20	F	Un-M	AB
317.5	319.0	1.48	99	0.69	46	20	70	50	VC	grey	fine grained	massive	oxidized	0.35	37	90	0	0	1	0	3	4	15	J	1.0	cly		2	F	Un-M	AB
														0.57	38	40	0	0	1	0	3	4	15	J	2.0	cly	cc	2	F	Un-M	AB
														1.00	39	325	0	0	1	0	3	4	16	J	1.0	cc		1	F	Un-M	AB
319.0	320.5	1.23	82	0.10	7	20	59	50	VC	grey	fine grained	massive/Rubble	rubble/Rubble from 0-.53m	0.72	18	75	0	0	1	0	3	4	16	J	1.0	cly		3	F	Un-M	AB
320.5	322.0	1.45	97	0.42	28	20	69	50	VC	grey	fine grained	massive		0.47	23	280	0	0	1	0	3	4	15	J	1.0			2	F	Un-M	AB
														0.86	24	60	0	4	3	4	3	14	15	J	1.0	chl		2	F	Un-M	AB
														1.15	15	310	0	4	5	4	3	16	15	J	1.0	chl		1	F	Un-M	AB
322.0	323.5	1.50	100	1.05	70	3	375	75	VC	grey	fine grained	massive	competent	0.05	12	325	0	4	3	4	3	14	15	J	1.0	chl		1	F	Un-M	AB
														0.42	40	60	0	4	3	4	3	14	15	J	1.0	chl		1	F	Un-M	AB
														1.25	49	170	0	4	1	6	5	16	15	J	1.0			1	F	Un-M	AB
323.5	325.0	1.50	100	0.20	13	8	167	75	VC	grey	fine grained	massive	oxidation occurring in some joints	0.47	35	315	0	1	1	2	5	9	15	J	1.0	chl		5	F	Un-M	AB
														1.30	24	270	0	1	1	2	5	9	15	J	1.0	chl		3	F	Un-M	AB
325.0	326.5	1.47	98	0.56	37	5	245	75	VC	grey	fine grained	massive	use the end crumbled so I tried to pi	0.23	28	340	0	1	3	4	5	13	16	J	1.0			1	F	Un-M	AB
														0.48	31	290	0	1	1	4	5	11	16	J	1.0	chl		2	F	Un-M	AB
														0.83	28	160	0	1	1	4	5	11	15	J	1.0	chl		1	F	Un-M	AB
														1.16	20	200	0	1	3	4	5	13	15	J	1.0	chl		1	F	Un-M	AB
326.5	328.0	1.47	98	0.71	47	5	245	75	VC	grey	fine grained	massive	some clay in joints	0.04	36	180	0	1	3	2	5	11	15	J	1.0	cly		2	VG	0	AB
														1.01	35	220	0	1	1	2	5	9	15	J	1.0	cly		3	VG	0	AB
328.0	329.5	1.50	100	1.50	100	0	1500	75	VC	grey	fine grained	massive	Only mechanical breaks				6	6	6	6	6	30	15	J	1.0			0	VG	0	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
329.5	330.7	1.17	98	0.53	44	6	167	60	VC	grey	fine grained	massive					0	1	1	4	3	9	15	J	1.0			6	G	10	CMS
330.7	332.3	1.53	99	0.59	38	5	255	75	VC	grey	fine grained	massive		0.15			0	1	1	2	3	7	15	Rub	100.0			1	None	Un-M	CMS
														0.27			0	1	1	2	3	7	15	J	1.0			1	None	Un-M	CMS
														0.75			0	1	1	4	5	11	16	Rub	80.0			1	None	Un-M	CMS
														1.06	25	333	0	4	1	4	5	14	16	J	1.0			1	None	Un-M	CMS
														1.18	20	270	0	4	1	4	5	14	15	J	1.0			1	None	Un-M	CMS
332.3	333.8	1.54	99	1.54	99	3	385	75	VC	grey	fine grained	massive	mechanical breaks	0.68	29	278	0	4	1	2	2	9	15	J	1.0	chl		1	G	5	CMS
														1.26	35	330	0	4	1	4	3	12	15	J	1.0	FeO		1	G	5	CMS
														1.41	31	336	0	4	1	4	3	12	15	J	1.0	FeO		1	G	5	CMS
333.8	334.6	0.80	100	0.80	100	0	800	75	VC	grey	fine grained	massive					6	6	6	6	6	30	15		1.0			0	F	Un-M	CMS
334.6	335.1	0.50	100	0.00	0	20	24	5	VC	grey	fine grained	rubble/Rubble	soft rock/Rubble/shear zone				0	0	1	0	3	4	15	She	500.0	cly	FeO	20	F	Un-M	CMS
335.1	335.4	0.25	100	0.25	100	5	42	75	VC	grey	fine grained						6	6	6	2	5	25	15		200.0			0	F	Un-M	CMS
335.4	336.2	0.80	100	0.18	23	15	50	35	VC	grey	fine grained	Rubble	Rubble zone				0	1	1	4	5	11	15	Rub	30.0	FeO		15	F	Un-M	CMS
336.2	337.0	0.84	99	0.41	48	5	140	45	VC	grey	fine grained	massive	Rubble, fractured, weak rock	0.05			0	1	1	4	5	11	16	Rub	1.0	FeO	chl	1	F	Un-M	CMS
														0.13			0	1	1	4	5	11	16	Rub	1.0	FeO	chl	1	F	Un-M	CMS
														0.23			0	1	1	4	5	11	15	Rub	1.0	FeO	chl	1	F	Un-M	CMS
														0.55			0	1	1	4	5	11	15	Rub	1.0	FeO	chl	1	F	Un-M	CMS
														0.78			0	1	1	4	5	11	15	Rub	1.0	FeO	chl	1	F	Un-M	CMS
337.0	338.5	1.50	100	0.78	52	8	167	45	VC	grey	fine grained	massive					0	1	1	4	5	11	15	J/Rub	10.0	FeO	chl	8	F	Un-M	CMS
339.0	340.0	0.95	95	0.95	95	1	475	55	VC	grey	fine grained	massive		0.60	32	75	0	1	1	4	5	11	15	J/Rub	10.0	FeO		1	F	Un-M	CMS
340.0	341.5	1.47	98	1.37	91	5	245	35	VC	grey	fine grained	massive	weak/Rubble rock, many mech. Fractures, average properties used				0	4	1	4	5	14	15	J/Rub	10.0	FeO		5	F	Un-M	CMS
341.5	343.0	1.37	91	0.00	0	40	33	15	VC	grey	fine grained	Rubble	Rubble/shear zone				0	0	1	0	3	4	15	She	1.0	cly	chl	20	F	Un-M	CMS
343.0	344.5	1.42	95	0.00	0	40	35	15	VC	grey	fine grained	Rubble	Rubble/shear zone				0	0	1	0	3	4	15	She	1.0	cly	chl	20	F	Un-M	CMS
344.5	346.0	1.05	70	0.00	0	40	26	50	VC	grey	fine grained	Rubble	Rubble/Rubble/shear zone				0	0	0	0	3	3	16	She	1.0	cly	chl	20	F	Un-M	CMS
346.0	346.5	0.50	94	0.50	94	3	125	50	VC	grey	fine grained	Rubble	more competent	0.11	40	351	0	1	1	4	5	11	16	J	1.0	chl	FeO	1	VG	0	CMS
346.5	347.5	0.97	100	0.50	52	15	61	25	VC	grey	fine grained	Rubble	Rubble zone				0	1	1	1	5	8	15	Rub	10.0	cly	chl	15	VG	0	CMS
347.5	348.9	1.40	100	0.55	39	9	140	50	VC	grey	fine grained	Rubble		0.14	47	325	0	4	1	4	5	14	15	J	1.0	chl		8	F	Un-M	AB
														1.33	17	210	0	4	3	6	5	18	15	J	1.0			1	F	Un-M	AB
348.9	350.5	1.48	92	0.83	52	5	247	50	VC	grey	fine grained	Rubble	some cave rock at the top of the run	0.30	47	15	0	4	1	4	5	14	15	J	1.0	FeO		5	F	Un-M	AB
350.5	352.0	1.50	100	0.45	30	6	214	50	VC	grey	fine grained	Rubble		0.15	44	330	0	4	1	2	5	12	15	J	1.0	cly		5	F	20	AB
														1.35	16	185	0	4	1	4	5	14	15	J	1.0	FeO		1	F	21	AB
352.0	353.5	1.50	100	0.86	57	3	375	75	VC	grey	fine grained	Rubble		0.18	26	355	0	4	2	4	5	15	15	J	1.0	FeO	chl	2	G	10	AB
														0.66	43	300	0	4	1	4	5	14	15	J	1.0	FeO		1	G	11	AB
353.5	355.0	1.50	100	1.25	83	2	500	110	VC	grey	fine grained	Rubble	competent run, nearly a complete stick, calcite infill	0.50	38	20	0	4	3	4	5	16	16	J	1.0	cc		1	F	Un-M	AB
														0.92	14	30	0	4	3	4	5	16	16	J	1.0	cc		1	F	Un-M	AB
355.0	356.5	1.50	100	0.80	53	4	300	110	VC	grey	fine grained	Rubble		0.27	25	80	0	4	1	4	5	14	15	J	1.0	cc		1	G	15	AB
														1.04	45	25	0	4	3	2	5	14	15	J	1.0	cc	FeO	3	G	16	AB
356.5	358.0	1.50	100	1.00	67	4	300	110	VC	grey	fine grained	Rubble	grey, slightly to moderately weathered, massive, strong	0.15	38	50	0	4	1	2	5	12	15	J	1.0	cc		1	F	Un-M	AB
														0.78	44	290	0	4	1	2	5	12	15	J	1.0	cc		2	F	Un-M	AB
														1.02	22	220	0	4	1	4	5	14	15	J	1.0	cc	FeO	1	F	Un-M	AB
358.0	359.5	1.50	100	0.85	57	20	71	75	VC	grey	fine grained	Rubble	Rubble at end, several mechanical breaks throughout	0.92	42	350	0	1	1	4	5	11	15	J	1.0	cc		1	P	80	AB
359.5	361.0	1.45	97	1.03	69	1	725	75	VC	grey	fine grained	Rubble		0.30	46	345	0	4	1	4	5	14	15	J	1.0	cc		1	P	81	AB
361.0	362.5	1.50	100	1.02	68	2	500	75	VC	grey	fine grained	Rubble	middle of run is Rubble up	0.87	37	40	0	4	3	4	5	16	15	J	1.0	chl		1	G	10	AB
														1.20	53	100	0	4	3	4	5	16	16	J	1.0	cc		1	G	11	AB
362.5	364.0	1.42	95	1.15	77	3	355	75	VC	grey	fine grained	Rubble		0.23	24	40	0	4	3	4	5	16	16	J	1.0	cc		1	P	55	AB
														1.08	46	335	0	4	3	4	5	16	15	J	1.0	chl		1	P	55	AB
														1.26	36	350	0	4	3	4	5	16	15	J	1.0	cc	chl	1	P	55	AB
364.0	365.5	1.48	99	0.97	65	2	493	75	VC	grey	fine grained	Rubble	calcite infill not fully hardened	0.41	27	290	0	4	3	2	5	14	15	J	1.0	cc		1	G	25	AB
														1.10	31	120	0	4	3	2	5	14	15	J	1.0	cc		1	G	26	AB
365.5	366.3	0.76	100	0.72	95	2	253	80	VC	grey	fine grained	massive					0	4	3	4	5	16	15	J	1.0	cc		2	F	Un-M	CMS
366.3	367.0	0.54	73	0.00	0	15	34	25	VC	grey	fine grained	shear/Rubble	shear zone/rubble				0	0	1	0	3	4	15	Rub/Rubble/ shear	1.0	cc		15	F	Un-M	CMS
367.0	367.4	0.35	88	0.00	0	15	22	25	VC	grey	fine grained	Rubble/shear	Rubble/shear zone				0	0	1	0	3	4	15	Rubble/shea r	1.0	cly		15	F	Un-M	CMS
367.4	368.5	1.10	100	0.66	60	3	275	45	VC	grey	fine grained	massive	soft rock with Rubble zones	0.18			0	1	1	0	3	5	15	Rub	100.0	cly		1	None	Un-M	CMS
														0.51			0	1	1	0	3	5	16	Rub	80.0	cly		1	None	Un-M	CMS
														0.94			0	1	1	0	3	5	16	Rub	100.0	cly		1	None	Un-M	CMS
368.5	369.0	0.50	100	0.20	40	1	250	50	VC	grey	fine grained	massive		0.10			0	1	1	0	3	5	15	Rub	100.0			1	None	Un-M	CMS
369.0	370.0	1.00	100	0.58	58	5	167	50	VC	grey	fine grained	massive					0	4	3	4	5	16	15	J	1.0	FeO		5	F	Un-M	CMS
370.0	371.5	1.41	94	1.04	69	5	235	50	VC	grey	fine grained	massive					0	4	3	2	5	14	15	J	1.0	FeO	chl	5	F	Un-M	CMS
371.5	373.0	1.50	100	0.97	65	4	300	45	VC	grey	fine grained	Breccia		0.25	43	337	0	4	3	2	5	14	15	J	1.0	chl		1	F	Un-M	CMS
														0.60			0	1	1	0	5	7	15	Rub	200.0	chl	cly	1	None	Un-M	CMS
														1.04			0	1	1	0	5	7	15	Rub	90.0	chl	cly	1	None	Un-M	CMS
														1.22	7	270	0	4	1	1	5	11	15	J/Rub	1.0	chl	cly	1	F	Un-M	CMS
373.0	374.5	1.50	100	1.50	100	3	375	75	VC	grey	fine grained	massive		0.88	33	318	0	4	1	4	5	14	15	J	<1	FeO		1	F	Un-M	CMS
														1.07	43	319	0	4	1	4	5	14	16	J	<1	chl		1	F	Un-M	CMS
														1.22	44	140	0	4	5	4	5	18	16	Rub	<1	FeO		1	None	Un-M	CMS
374.5	376.0	1.48	99	1.48	99	3	370	75	VC	grey	fine grained	massive		0.15	38	310	0	4	1	2	5	12	15	J	<1	chl		1	VG	4	CMS
														0.39	35	315	0	4	1	2	5	12	15	J	<1	chl		1	VG	4	CMS
														0.82	44	33	0	4	3	4	5	16	15	J	<1	FeO	chl	1	VG	4	CMS
376.0	376.9	0.90	100	0.90	100	1	450	125	VC	grey	fine grained	massive	very competent	0.62	25	280	0	4	3	4	5	16	15	J	2.0	cc		1	VG	0	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
376.9	378.5	1.57	98	1.57	98	2	523	125	VC	grey	fine grained	massive	as above	0.84	38	8	0	4	3	4	5	16	15	J	1.0	cc		2	VG	2	CMS
378.5	380.0	1.50	100	1.50	100	0	1500	150	VC	grey	fine grained	massive	as above				6	6	6	6	5	29	15	J	0.0			0	None	Un-M	CMS
380.0	380.5	0.43	86	0.43	86	0	430	150	VC	grey	fine grained	massive	as above, think last run was out by 180 degrees				6	6	6	6	5	29	15	J	0.0			0	P	180	AB
380.5	382.0	1.45	97	1.45	97	0	1450	150	VC	grey	fine grained	massive	cave rock on top, stick rock				6	6	6	6	6	30	15	J	0.0			0	P	Un-M	AB
382.0	383.5	1.50	100	1.49	99	1	750	125	VC	grey	fine grained	massive	soft calcite infill all mechanical breaks one joint	0.79	30	340	0	4	1	2	5	12	16	J	1.0	cc		1	F	Un-M	AB
383.5	385.0	1.43	95	0.67	45	2	477	125	VC	grey	fine grained	massive		0.65	33	320	0	4	1	4	5	14	16	J	1.0	cc		1	F	Un-M	AB
														0.94	29	185	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
385.0	386.5	1.49	99	0.87	58	1	745	125	VC	grey	fine grained	massive		1.17	30	340	0	4	3	4	5	16	15	J	1.0	cc	chl	1	G	-10	AB
386.5	388.0	1.50	100	1.24	83	1	750	125	VC	grey	fine grained	massive		1.00	24	10	0	4	3	4	5	16	15	J	1.0	cc		1	P	35	AB
388.0	389.5	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	stick rock				6	6	6	6	6	30	15		0.0			0	G	7	CMS
389.5	391.0	1.44	96	1.44	96	0	1440	125	VC	grey	fine grained	massive	only mechanical breaks (2)				6	6	6	6	6	30	15		0.0			0	P	-102	CMS
391.0	392.5	1.49	99	1.49	99	1	745	125	VC	grey	fine grained	massive	very competent	0.10	10	36	0	4	1	4	5	14	15	J	1.0	cc	chl	1	P	116	CMS
392.5	394.0	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	stick				6	6	6	6	6	30	15		0.0			0	G	-8	CMS
394.0	395.5	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	1 mechanical break only				6	6	6	6	6	30	15		0.0			0	VG	3	CMS
395.5	397.0	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive					6	6	6	6	6	30	16		0.0			0	VG	0	CMS
397.0	398.5	1.46	97	1.28	85	10	133	125	VC	grey	fine grained	massive	complete w/one Rubble/shear zone	0.38			0	0	1	0	3	4	16	Rub	150.0	cly		1	P	Un-M	CMS
398.5	400.0	1.41	94	1.41	94	0	1410	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	P	Un-M	CMS
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-02

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-02_Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Depth To (ft)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
0.0	5.0		0.4		0					OB				Overburden																		
5.0	6.2	20.34	1.00	83	0.64	53	6	143	50	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	3	2	3	9	15	J	2.5	cly	FeO	6	None	Un-M	CMS
6.2	7.0	22.97	0.80	100	0.31	39	5	133	60	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	3	2	3	9	15	J	2.5	cly	FeO	5	None	Un-M	CMS
7.0	8.5	27.89	1.37	91	1.12	75	6	196	70	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	3	2	3	9	15	J	2.5	FeO	cly	6	None	Un-M	CMS
8.5	10.0	32.81	1.30	87	0.67	45	10	118	70	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	4	3	2	3	12	15	J	1.0	FeO	cly	10	None	Un-M	CMS
10.0	11.5	37.73	1.50	100	0.50	33	11	125	70	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	4	3	2	3	12	15	J	1.0	FeO	cly	11	None	Un-M	CMS
11.5	13.0	42.65	1.50	100	0.98	65	8	167	70	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	4	3	4	3	14	15	J	1.0	FeO		8	None	Un-M	CMS
13.0	14.5	47.57	1.50	100	0.57	38	10	136	70	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	3	2	3	9	15	J	1.0	cly	FeO	10	None	Un-M	CMS
14.5	16.0	52.50	0.93	62	0.38	25	7	116	50	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	1	2	3	7	15	J/Rub	2.5	cly	FeO	7	None	Un-M	CMS
16.0	17.5	57.42	0.86	57	0.12	8	7	108	25	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	1	2	3	7	15	Rub	2.5	cly	FeO	7	None	Un-M	CMS
17.5	18.8	61.68	1.08	83	0.23	18	10	98	45	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	1	2	3	7	15	Rub	2.5	cly	FeO	10	None	Un-M	CMS
18.8	20.5	67.26	0.57	34	0.11	6	10	52	45	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	1	2	3	7	15	Rub	2.5	cly	FeO	10	None	Un-M	CMS
20.5	22.0	72.18	1.00	67	0.25	17	7	125	45	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	1	2	3	7	15	Rub	2.5	FeO		7	None	Un-M	AB
22.0	23.5	77.10	1.43	95	0.49	33	15	89	45	FLPT	grey	fine grained, with vuggy	massive	moderately weathered				0	1	3	2	3	9	15	Rub	2.0	FeO		15	None	Un-M	AB
23.5	25.0	82.03	1.45	97	0.45	30	10	132	25	FLPT	grey	fine grained, with vuggy	massive	moderately weathered, weak				0	1	3	2	3	9	15	Rub	2.0	FeO		10	None	Un-M	AB
25.0	26.5	86.95	1.50	100	0.36	24	2	500	50	FLPT	grey	fine grained, with vuggy	massive	more competent than previous runs, mod. Weathered	0.94	14	170	0	1	3	2	3	9	15	J	2.0	FeO		1	None	Un-M	AB
															1.20	23	170	0	1	3	2	3	9	15	J	2.0	FeO		1	None	Un-M	AB
26.5	28.0	91.87	1.50	100	1.07	71	2	500	50	FLPT	grey	fine grained, with vuggy	massive	moderately weathered, not very strong, mechanical breaks throughout	0.39	48	300	0	1	3	2	3	9	15	J	2.0	FeO		1	None	Un-M	AB
															0.84	21	290	0	1	3	2	3	9	15	J	2.0	FeO		1	None	Un-M	AB
28.0	29.5	96.79	1.50	100	1.04	69	2	500	75	FLPT	grey	fine grained, with vuggy	massive	moderately weathered, slightly stronger than last run, mechanical breaks throughout	0.28	22	340	0	1	3	2	5	11	15	J	2.0	FeO		1	P	-170	AB
															1.23	16	60	0	1	3	2	5	11	15	J	2.0	FeO		1	P	-170	AB
29.5	31.0	101.71	1.48	99	1.11	74	1	740	110	FLPT	grey	fine grained, with vuggy	massive	stronger, some mechanical breaks	0.09	47	90	0	1	3	2	5	11	15	J	2.0	FeO		1	P	30	AB
31.0	32.5	106.63	1.50	100	1.15	77	2	500	75	FLPT	grey	fine grained, with vuggy	massive		0.24	36	350	0	4	3	6	5	18	15	J	1.0	FeO		1	P	-35	AB
															0.81	10	170	0	1	3	2	5	11	15	J	2.0	FeO		1	P	-35	AB
32.5	34.0	111.55	1.26	84	0.86	57	2	420	25	FLPT	grey/orange/white	fine grained, with vuggy	massive	heavily weathered, clay throughout, bleached, rubble area, mostly together, cannot orient				0	1	3	1	3	8	15	J/Rub	2.5	FeO	cly	2	None	Un-M	AB
34.0	35.5	116.48	0.65	43	0.32	21	30	21	25	FLPT	grey/orange/white	fine grained, with vuggy	massive	as above, some cave rock				0	0	1	0	3	4	15	J/Rub	2.5	FeO	cly	2	None	Un-M	AB
35.5	37.0	121.40	1.35	90	0.30	20	40	33	15	FLPT	grey/orange/white	fine grained, with vuggy	massive	as above, no cave, crumbles easily, competent at end				0	0	1	0	3	4	15	J/Rub	2.5	FeO	cly	7	None	Un-M	AB
37.0	38.5	126.32	1.44	96	0.88	59	2	480	75	FLPT	grey	fine grained, with vuggy	massive	competent run	0.21	34	350	0	4	3	2	5	14	15	J	1.0	FeO	cly	1	None	Un-M	AB
															0.90	13	60	0	4	3	2	5	14	15	J	1.0	FeO		1	None	Un-M	AB
38.5	40.0	131.24	1.50	100	0.64	43	10	136	50	FLPT	grey	fine grained, with vuggy	massive	broken area				0	1	3	2	3	9	15	J/Rub	2.5	FeO	cly	10	None	Un-M	AB
40.0	41.5	136.16	1.50	100	0.61	41	14	100	50	FLPT	grey	fine grained, with vuggy	massive					0	1	3	2	3	9	15	J/Rub	2.5	FeO		14	None	Un-M	AB
41.5	43.0	141.08	1.50	100	0.58	39	14	100	50	FLPT	grey	fine grained, with less vuggy	massive	brecciated, moderately weathered				0	1	3	4	3	11	15	J/Rub	2.5	FeO		14	None	Un-M	AB
43.0	44.5	146.00	1.50	100	0.90	60	1	750	50	FLPT	grey	fine grained, with less vuggy	massive	several mechanical breaks	0.55	31	60	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	None	Un-M	AB
44.5	46.0	150.93	1.38	92	0.72	48	2	460	75	FLPT	grey	fine grained, with less vuggy	massive		0.37	27	350	0	4	1	4	3	12	15	J	1.0	cc	FeO	1	P	75	AB
															0.58	18	300	0	4	1	2	3	10	15	J	1.0	FeO		1	P	75	AB
46.0	47.5	155.85	1.50	100	1.50	100	1	750	75	FLPT	grey/orange	fine grained	massive	2 mechanical breaks and one joint, other than that full stick	0.52	52	230	0	4	3	6	5	18	15	J	1.0	FeO		1	P	130	AB
47.5	49.0	160.77	1.40	93	0.15	10	40	34	50	FLPT	grey/orange	fine grained	massive	broken/rubble, oriented first part of run using previous run				0	0	1	0	3	4	15	J/Rub	2.5	FeO	cly	10	VG	0	AB
49.0	50.5	165.69	1.38	92	0.67	45	25	53	50	FLPT	grey/orange	fine grained	massive	broken or mechanical breaks				0	0	1	0	3	4	15	J/Rub	2.5	FeO	cly	9	None	Un-M	AB
50.5	52.0	170.61	1.50	100	0.97	65	10	136	50	FLPT	grey/orange	fine grained	massive	stick from 0-.97, then broken, brecciated				0	1	1	2	3	7	15	J/Rub	2.5	FeO	cly	10	None	Un-M	AB
52.0	53.5	175.53	1.48	99	0.28	19	18	78	50	FLPT	grey/orange	fine grained	massive	broken				0	1	1	2	3	7	15	J/Rub	2.5	FeO	cly	18	None	Un-M	AB
53.5	55.0	180.46	1.50	100	0.24	16	14	100	50	FLPT	grey/orange	fine grained	massive	broken				0	1	1	2	3	7	15	J/Rub	2.5	FeO	cly	14	None	Un-M	AB
55.0	56.5	185.38	1.45	97	0.48	32	6	207	50	FLPT	grey/orange	fine grained	massive		0.31	29	55	0	4	1	2	3	10	15	J	1.0	FeO		1	None	Un-M	AB
															0.83	14	340	0	1	1	2	3	7	15	J	1.0	FeO	cly	1	None	Un-M	AB
															1.12	20	35		1	1	2	3	7	15	J	1.0	FeO		4	None	Un-M	AB
56.5	58.0	190.30	1.15	77	0.25	17	25	44	50	FLPT	grey/orange	fine grained	massive	bleached on bottom end of run, broken, clayey @ bottom				0	0	1	0	3	4	15	J/Rub	2.5	FeO	cly	13	None	Un-M	AB
58.0	59.5	195.22	1.20	80	0.28	19	25	46	50	FLPT	grey/orange	fine grained	massive	rubble and broken				0	0	1	0	3	4	15	J/Rub	2.5	FeO	cly	10	None	Un-M	AB
59.5	61.0	200.14	1.50	100	0.86	57	8	167	50	FLPT	grey/orange	fine grained	massive		0.27	36	320	0	1	1	4	5	11	15	J	2.0	FeO		6	None	Un-M	AB
															0.89	36	30	0	1	1	4	5	11	15	J	2.0	FeO		2	None	Un-M	AB
61.0	62.5	205.06	1.50	100	0.42	28	13	107	50	FLPT	grey/orange	fine grained	broken					0	1	1	2	5	9	16	J/Rub	2.0	FeO	wcl	13	None	Un-M	CMS
62.5	64.0	209.98	1.50	100	1.22	81	5	250	50	FLPT	grey/orange	fine grained	broken	`	0.26			0	1	1	0	5	7	16	Rub	100.0	FeO		1	None	Un-M	CMS
															0.55			0	1	1	0	5	7	15	Rub	100.0	FeO		1	None	Un-M	CMS
															0.97	51	32	0	1	1	2	5	9	15	J	2.0	FeO		1	None	Un-M	CMS
															1.21	34	349	0	1	1	0	5	7	15	J/Rub	20.0	FeO		1	None	Un-M	CMS
															1.36			0	1	1	0	5	7	15	Rub	70.0	FeO		1	None	Un-M	CMS
64.0	64.8	212.44	0.66	88	0.00	0	20	31	30	FLPT	grey/orange	fine grained	broken					0	0	1	0	3	4	15	Rub	20.0	FeO	wcl	10	None	Un-M	CMS

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From	Depth To	Depth To	Recov. Length	Recov.	RQD Length	RQD	# of Fractures	Average Fracture Spac.	UCS (Est.)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run	Alpha	Beta	Joint Condition					Water Rating	Disc. Type	Aper.	Fill. Type 1	Fill. Type 2	QTY	Orientation Quality	Orientation Line Difference	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
(m)	(m)	(ft)	(m)	(%)	(m)	(%)		(mm)	(MPa)						(m)	(deg.)	(deg.)								(mm)	(see Leg)	(see Leg)			(deg.)	
64.8	66.3	217.53	1.54	99	0.93	60	4	308	45	FLPT	grey/orange	fine grained	broken		0.00			0	1	1	4	3	9	15	Rub	100.0	FeO		1	None	Un-M	CMS
															0.40	43	230	0	4	1	4	3	12	15	J	1.0	FeO		1	None	Un-M	CMS
															0.82			0	1	1	4	3	9	15	Rub	100.0	FeO		1	None	Un-M	CMS
															1.04			0	1	1	0	3	5	15	Rub	400.0	FeO		1	None	Un-M	CMS
66.3	67.8	222.45	1.50	100	0.00	0	50	29	15	FLPT	grey/orange	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	FeO	cly	50	P	-45	CMS
67.8	68.7	225.40	0.76	84	0.00	0	50	15	15	FLPT	grey/orange	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	FeO	cly	50	None	Un-M	CMS
68.7	69.5	227.87	0.61	81	0.00	0	50	12	15	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	FeO	cly	50	None	Un-M	CMS
69.5	71.1	233.28	1.52	92	0.00	0	50	30	15	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly		50	None	Un-M	CMS
71.1	72.6	238.20	1.50	100	0.55	37	50	29	15	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly		50	None	Un-M	CMS
72.6	74.0	242.79	1.34	96	0.00	0	50	26	25	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly		50	None	Un-M	CMS
74.0	75.5	247.72	0.75	50	0.00	0	50	15	25	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly		50	None	Un-M	CMS
75.5	77.0	252.64	1.14	76	0.00	0	50	22	25	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly		50	None	Un-M	CMS
77.0	78.5	257.56	0.75	50	0.00	0	50	15	25	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly		50	None	Un-M	CMS
78.5	79.0	259.20	0.25	50	0.00	0	50	5	5	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly		50	None	Un-M	CMS
79.0	79.8	261.82	0.50	63	0.00	0	50	10	5	FLPT	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly		50	None	Un-M	CMS
79.8	81.3	266.58	1.45	100	0.38	26	50	28	35	VC	grey	fine grained	broken					0	1	1	2	3	7	15	cly	50.0	cly		50	None	Un-M	CMS
81.3	82.8	271.67	1.54	99	0.38	25	12	118	30	VC	grey	fine grained	broken					0	1	1	2	3	7	15	cly	50.0	cly		12	None	Un-M	CMS
82.8	84.0	275.60	1.11	92	0.00	0	13	79	30	VC	grey	fine grained	broken					0	1	1	2	3	7	15	cly	50.0	cly		13	None	Un-M	CMS
84.0	85.0	278.89	0.99	99	0.00	0	14	66	45	VC	grey	fine grained	broken					0	1	1	2	3	7	15	Rub	50.0	cly		14	None	Un-M	CMS
85.0	85.9	281.84	0.87	97	0.39	43	10	79	85	VC	grey	fine grained	broken					0	1	1	2	5	9	15	Rub	50.0	chl		10	None	Un-M	CMS
85.9	87.0	285.45	1.10	100	0.00	0	13	79	60	VC	grey	fine grained	broken					0	1	1	2	5	9	15	Rub	50.0	chl		13	None	Un-M	CMS
87.0	88.0	288.73	1.00	100	0.10	10	50	20	60	VC	grey	fine grained	broken					0	1	1	2	5	9	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
88.0	89.1	292.34	0.83	75	0.00	0	50	16	60	VC	grey	fine grained	broken					0	0	1	0	3	4	15	cly	50.0	cly	chl	50	None	Un-M	CMS
89.1	90.6	297.26	1.10	73	0.00	0	50	22	50	VC	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
90.6	92.2	302.51	0.95	59	0.00	0	50	19	50	VC	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
92.2	93.7	307.43	0.75	50	0.00	0	50	15	25	VC	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
93.7	95.3	312.68	1.02	64	0.00	0	50	20	25	VC	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
95.3	96.9	317.76	1.20	77	0.25	16	50	24	20	VC	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
96.9	98.4	322.85	0.67	43	0.00	0	50	13	20	VC	grey	fine grained	broken					0	0	1	0	3	4	15	Rub	50.0	cly	chl	50	None	Un-M	CMS
98.4	100.0	328.10	1.15	72	0.00	0	50	23	25	VC	grey	fine grained	broken	heavily broken although fairly good recovery, sulphides present				0	1	1	2	3	7	15	Rub	50.0	cly	chl	50	None	Un-M	AB
100.0	101.5	333.02	0.90	60	0.00	0	50	18	25	VC	grey	fine grained	broken					0	1	1	2	3	7	15	Rub	50.0	cly	chl	50	None	Un-M	AB
101.5	103.0	337.94	1.50	100	0.48	32	50	29	50	VC	grey	fine grained	broken	rubble/broken, sulphides present				0	1	3	2	3	9	15	Rub	50.0	cly	chl	50	None	Un-M	AB
103.0	104.5	342.86	1.31	87	0.74	49	4	262	110	VC	grey	fine grained	massive	fairly strong rock	0.23	52	100	0	4	3	4	5	16	15	J	1.0	chl		1	None	Un-M	AB
															0.43	25	95	0	4	1	4	5	14	15	J	1.0	chl		2	None	Un-M	AB
															1.00	37	340	0	4	1	4	5	14	15	J	1.0	chl		1	None	Un-M	AB
104.5	106.0	347.79	1.25	83	0.23	15	50	25	75	VC	grey	fine grained	broken	broken, increase in chlorite content				0	1	1	2	5	9	15	Rub	2.5	chl		50	None	Un-M	AB
106.0	107.5	352.71	1.38	92	0.21	14	3	345	75	VC	grey	fine grained	broken		0.68	24	230	0	0	1	0	3	4	15	J	2.0	chl		2	None	Un-M	AB
															0.85	48	280	0	0	1	0	3	4	15	J	1.0	chl		1	None	Un-M	AB
107.5	109.0	357.63	1.50	100	0.20	13	50	29	50	VC	grey	fine grained	broken	broken				0	0	1	0	3	4	15	J	2.0	chl		50	None	Un-M	AB
109.0	110.5	362.55	1.05	70	0.00	0	15	66	50	VC	grey	fine grained	broken					0	0	1	0	3	4	15	J	2.0	chl		15	None	Un-M	AB
110.5	112.0	367.47	1.50	100	0.26	17	50	29	25	VC	grey	fine grained	broken	high clay content	0.51	36	50	0	0	1	0	3	4	15	J	2.0	chl	pyr	1	None	Un-M	AB
															0.71	30	200	0	0	1	0	3	4	15	J	4.0	chl	pyr	1	None	Un-M	AB
112.0	112.9	370.26	0.75	88	0.00	0	50	15	20	VC	grey	fine grained	broken	clay and rubble				0	0	1	0	3	4	15	rub	2.5	chl	cly	7	None	Un-M	AB
112.9	114.2	374.69	1.32	98	0.78	58	1	660	75	VC	grey	fine grained	broken/massive	more competent than above	1.04			0	1	1	2	5	9	15	Rub	20.0	chl	cly	1	None	Un-M	CMS
114.2	115.0	377.32	0.80	100	0.68	85	1	400	115	VC	grey	fine grained	massive	much more competent	0.00			0	1	1	2	5	9	15	Rub	70.0	chl	cly	1	None	Un-M	CMS
115.0	116.5	382.24	1.50	100	1.24	83	1	750	115	VC	grey	fine grained	massive		0.66			0	1	1	2	5	9	15	Rub	30.0	chl		1	F	0	CMS
116.5	118.0	387.16	1.46	97	1.16	77	1	730	115	VC	grey	fine grained	massive	mechanical breaks, 1 partially spun joint	0.31			0	1	1	4	5	11	15	Sp	1.0	chl		1	None	Un-M	CMS
118.0	119.6	392.41	1.57	98	1.23	77	1	785	115	VC	grey	fine grained	massive		1.23			0	1	1	2	5	9	15	Rub	240.0	chl	cly	1	None	Un-M	CMS
119.6	121.0	397.00	1.40	100	1.40	100	0	1400	100	VC	grey	fine grained	massive	only mechanical breaks				6	6	6	6	5	29	15		0.0			0	F	-13	CMS
121.0	122.6	402.09	1.55	100	1.29	83	2	517	100	VC	grey	fine grained	massive		0.37			0	1	1	2	5	9	15	Rub	40.0	chl		1	F	25	CMS
															0.92			0	1	1	2	5	9	15	Rub	220.0	chl		1	F	25	CMS
122.6	124.0	406.84	1.39	96	1.39	96	2	463	115	VC	grey	fine grained	massive		0.35	37	280	0	4	5	2	5	16	15	J	<1	cc		1	VG	0	CMS
															0.50	29	18	0	4	5	2	5	16	15	J	<1	cc		1	VG	1	CMS
124.0	125.4	411.44	1.30	93	0.48	34	7	163	50	VC	grey	fine grained	broken	poor quality rock				0	1	1	2	5	9	15	Rub	20.0	cly		7	None	Un-M	CMS
125.4	127.0	416.69	1.55	97	1.55	97	2	517	65	VC	grey	fine grained	broken/massive	more competent	0.21	46	318	0	4	3	2	5	14	15	J	1.0	cly	chl	1	None	Un-M	CMS
															1.01			0	1	1	2	5	9	15	Rub	140.0	cly		1	None	Un-M	CMS
127.0	128.5	421.61	1.50	100	1.50	100	0	1500	60	VC	grey	fine grained	massive	7 mechanical breaks - brittle?				6	6	6	6	6	30	15		0.0			0	F	-14	CMS
128.5	130.0	426.53	1.50	100	1.49	99	1	750	60	VC	grey	fine grained	massive	many mechanical breaks	0.35			0	1	1	2	5	9	15	Rub	60.0	gyp	py	1	G	-12	CMS
130.0	131.6	431.78	1.58	99	1.55	97	1	790	85	VC	grey	fine grained	massive	many mechanical breaks	0.12			0	1	1	2	5	9	15	Rub	30.0			1	P	-70	CMS
131.6	133.0	436.37	1.40	100	1.40	100	2	467	85	VC	grey	fine grained	massive	many mechanical breaks	0.33	14	3	0	4	1	2	2	9	15	J	1.0	cly	chl	1	P	50	CMS
															0.45			0	1	1	3	5	10	15	Rub	45.0			1	P	51	CMS
133.0	134.5	441.29	1.43	95	0.51	34	8	159	25	VC	grey	fine grained	massive	suddenly more fractured, softer. Not oriented				0	1	1	2	5	9	15	Rub	20.0	chl	cly	8	None	Un-M	CMS
134.5	136.0	446.22	1.43	95	0.51	34	8	159	25	VC	grey	fine grained	massive	as above				0	1	1	2	5	9	15	Rub	20.0	chl		8	None	Un-M	CMS
136.0	137.6	451.47	1.60	100	1.60	100	0	1599	45	VC	grey	fine grained	massive	only mechanical breaks. Most along veins/weak planes				6	6	6	6	5	29	15		0.0			0	None	Un-M	CMS
137.6	139.0	456.06	1.40	100	1.40	100	0	1400	65	FLPT	grey	fine grained	massive	only mechanical breaks				6	6	6	6	5	29	15		0.0			0	P	-128	CMS
139.0	140.5	460.98	1.45	97	1.45	97	0	1450	65	FLPT	grey	fine grained	massive	as above				6	6	6	6	5	29	15		0.0			0	P	-128	CMS
140.5	142.0	465.90	1.46	97	1.32	88	0	1460	75	FLPT	grey	fine grained	massive	as above				6	6	6	6	5	29	15		0.0			0	None	Un-M	CMS
142.0	143.5	470.82	1.50	100	1.07	71	3	375	110	FLPT	grey	fine grained	massive	slightly to moderately weathered, strong	0.40	25	55	0	4	1	4	5	14	15	J	1.0	chl		1	F	30	AB
															0.96	39	70	0	4	3	2	5	14	15	J	1.0	chl		1	F	31	AB
															1.37	43	120	0	4	1	2	5	12	15	J	1.0	chl		1	F	32	AB

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Depth To (ft)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
143.5	145.0	475.75	1.45	97	0.91	61	4	290	75	FLPT	grey	fine grained	massive		0.09	39	265	0	4	1	2	5	12	15	J	1.0	chl		3	F	33	AB
															0.70	35	80	0	4	1	2	5	12	15	J	1.0	chl		1	F	34	AB
145.0	146.5	480.67	1.50	100	0.63	42	4	300	75	FLPT	grey	fine grained	massive	lots of sulphides	0.12	46	46	0	4	1	2	5	12	15	J	1.0	chl	pyr	3	F	Un-M	AB
															0.70	30	30	0	4	1	2	5	12	15	J	1.0	chl	pyr	1	F	Un-M	AB
146.5	148.0	485.59	1.50	100	1.18	79	0	1500	75	FLPT	grey	fine grained	massive					6	6	6	2	5	25	15		0.0			0	None	Un-M	AB
148.0	149.5	490.51	1.50	100	0.60	40	4	300	75	FLPT	grey	fine grained	massive		0.09	26	60	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															0.60	9	330	0	4	1	2	5	12	15	J	1.0	chl	pyr	1	F	Un-M	AB
															1.02	31	70	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															1.14	28	330	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
149.5	151.0	495.43	1.28	85	0.66	44	3	320	75	FLPT	grey	fine grained	massive	lots of sulphides	0.11	23	120	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	G	10	AB
															0.55	20	20	0	4	1	2	5	12	15	J	1.0	chl	pyr	1	G	11	AB
															0.86	10	10	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	G	12	AB
151.0	152.5	500.35	1.50	100	1.40	93	0	1500	75	FLPT	grey	fine grained	massive	only mechanical breaks, almost stick rock, oriented using previous run				6	6	6	6	5	29	15		0.0			0	VG	0	AB
152.5	154.0	505.27	1.43	95	1.00	67	2	477	125	VC	grey	fine grained	massive		0.97	39	260	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															1.31	21	150	0	1	3	2	5	11	15	J	2.0	chl	pyr	1	F	Un-M	AB
154.0	155.5	510.20	1.50	100	1.02	68	6	214	125	VC	grey	fine grained	massive		0.05	67	160	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															0.25	35	25	0	4	1	2	5	12	15	J	1.0	chl	pyr	3	F	Un-M	AB
															0.89	24	105	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															1.30	31	120	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
155.5	157.0	515.12	1.50	100	0.92	61	1	750	75	VC	grey	fine grained	massive	mostly mechanical breaks	1.32	43	275	0	4	3	2	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
157.0	158.5	520.04	1.47	98	1.47	98	1	735	160	VC	grey	fine grained	massive	strong rock, nearly a stick	0.08	39	320	0	4	3	4	5	16	15	J	1.0	chl		1	G	-15	AB
158.5	160.0	524.96	1.50	100	1.37	91	2	500	160	VC	grey	fine grained	massive	strong, fresh	0.70	42	30	0	4	1	2	5	12	15	J	1.0	chl	pyr	1	P	-145	AB
															1.22	12	65	0	4	1	2	5	12	15	J	1.0	chl		1	P	-144	AB
160.0	161.5	529.88	1.50	100	0.83	55	8	167	75	VC	grey	fine grained	massive	more jointed/broken than in previous runs	0.55	61	260	0	4	1	2	5	12	15	J	1.0	chl	pyr	5	G	20	AB
															0.76	35	290	0	4	1	2	5	12	15	J	1.0	chl	pyr	1	G	21	AB
															1.15	10	60	0	4	3	2	5	14	15	J	1.0	chl	pyr	2	G	22	AB
161.5	163.0	534.80	1.50	100	1.29	86	1	750	110	VC	grey	fine grained	massive		0.92	46	185	0	4	1	2	5	12	15	J	1.0	chl	pyr	1	F	Un-M	AB
163.0	164.5	539.72	1.50	100	1.10	73	1	750	110	VC	grey	fine grained	massive		0.84			0	1	1	2	5	9	15	Rub	290.0	chl		1	P	165	CMS
164.5	166.0	544.65	1.44	96	0.75	50	3	360	95	VC	grey	fine grained	massive		0.25			0	0	1	2	5	8	15	Rub	70.0	chl		1	G	-9	CMS
															0.66	25	66	0	4	1	2	5	12	15	J	5.0	chl	pyr	1	G	-8	CMS
															1.32			0	0	1	2	5	8	15	Rub	20.0	chl	cly	1	G	-7	CMS
166.0	166.7	546.94	0.70	100	0.00	0	6	100	45	VC	grey	fine grained	broken					0	1	1	2	5	9	15	Rub	1.0	chl		6	F	Un-M	CMS
166.7	167.5	549.57	0.80	100	0.80	100	0	800	110	VC	grey	fine grained	massive					6	6	6	6	6	30	15		1.0			0	F	Un-M	CMS
167.5	169.0	554.49	1.47	98	1.47	98	0	1470	150	VC	grey	fine grained	massive					6	6	6	6	6	30	15		1.0			0	G	8	CMS
169.0	170.5	559.41	1.50	100	1.50	100	1	750	150	VC	grey	fine grained	massive		1.09	22	300	0	4	1	2	5	12	15	J	<1	chl	mt	1	VG	0	CMS
170.5	172.0	564.33	1.50	100	1.18	79	1	750	140	VC	grey	fine grained	massive		1.07			0	1	1	6	5	13	15	BR	10.0			1	VG	1	CMS
172.0	172.7	566.63	0.67	96	0.45	64	2	223	80	VC	grey	fine grained	massive		0.17			0	1	1	6	5	13	15	Rub	80.0			1	F	Un-M	CMS
															0.37			0	1	1	2	5	9	15	Rub	15.0	cly		1	F	Un-M	CMS
172.7	174.3	571.88	1.60	100	1.60	100	1	800	125	VC	grey	fine grained	massive		0.96			0	4	1	2	5	12	15	J	<1	chl		1	F	Un-M	CMS
174.3	175.9	577.13	1.57	98	1.57	98	0	1570	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	F	Un-M	CMS
175.9	177.5	582.38	1.56	98	1.56	98	0	1560	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	F	Un-M	CMS
177.5	179.0	587.30	1.50	100	1.50	100	1	750	125	VC	grey	fine grained	massive		1.40	37	257	0	4	1	4	5	14	15	J	<1	chl		1	F	Un-M	CMS
179.0	180.5	592.22	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	G	18	CMS
180.5	181.0	593.86	0.50	100	0.50	100	0	500	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	G	19	CMS
181.0	182.5	598.78	1.44	96	1.39	93	1	720	85	VC	grey	fine grained	massive		0.60			0	1	1	4	4	10	15	Rub	10.0			1	None	Un-M	CMS
182.5	184.0	603.70	1.50	100	1.24	83	1	750	110	VC	grey	fine grained	massive		1.10			0	0	1	4	5	10	15	VN	100.0	chl	wcl	1	None	Un-M	CMS
184.0	184.8	606.16	0.60	80	0.00	0	15	38	75	VC	grey	fine grained	broken	shear/broken zone				0	0	1	0	3	4	15	Rub	10.0	chl		15	None	Un-M	CMS
184.8	186.3	611.15	1.52	100	0.86	57	50	30	45	VC	grey	fine grained	broken/shear	shear/broken/fault zone				0	0	1	0	3	4	15	sh	10.0	chl	wcl	50	None	Un-M	CMS
186.3	187.0	613.55	0.73	100	0.73	100	0	730	85	VC	grey	fine grained	massive	I mechanical break				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
187.0	188.5	618.47	1.50	100	0.17	11	15	94	75	VC	grey	fine grained	broken/shear	several mechanical breaks, broken/shear				0	0	1	0	3	4	15	Rub	10.0		chl	15	None	Un-M	AB
188.5	190.0	623.39	1.50	100	0.92	61	4	300	75	VC	grey	fine grained	massive		0.15	46.0	210	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
															0.56	36.0	230	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
															0.81	29.0	330	0	4	1	4	5	14	15	J	1.0	chl	pyr	2	F	Un-M	AB
190.0	191.5	628.31	1.50	100	0.88	59	4	300	75	VC	grey	fine grained	massive	several mechanical breaks	0.79	31	260	0	4	1	2	5	12	15	J	1.0	chl	cly	1	F	Un-M	AB
															1.07	34	270	0	4	1	4	5	14	15	J	1.0	chl	pyr	2	F	Un-M	AB
															1.40	54	260	0	4	1	4	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
191.5	193.0	633.23	1.50	100	0.00	0	15	94	50	VC	grey	fine grained	broken/shear					0	1	1	4	5	11	15	Rub	2.0	chl	pyr	15	F	Un-M	AB
193.0	194.5	638.15	1.50	100	1.13	75	3	375	75	VC	grey	fine grained	massive		0.85	30	260	0	4	1	4	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															1.40	32	40	0	4	1	4	5	14	15	J	1.0	chl	pyr	2	F	Un-M	AB
194.5	196.0	643.08	1.37	91	0.47	31	2	457	75	VC	grey	fine grained	massive/broken	two joints, other than that all mechanical breaks/broken	1.37	35	35	0	1	1	2	5	9	15	J	2.0	cly	pyr	2	F	Un-M	AB
196.0	197.5	648.00	1.50	100	0.77	51	2	500	75	VC	grey	fine grained	massive	many mechanical breaks	0.82			0	4	1	2	5	12	15	J	1.0	chl		1	None	Un-M	CMS
															1.11			0	0	1	2	5	8	15	Rub	10.0	chl	cly	1	None	Un-M	CMS
197.5	199.0	652.92	1.42	95	0.71	47	1	710	60	VC	grey	fine grained	massive		1.09			0	0	1	2	5	8	15	Rub	10.0	chl	cly	1	None	Un-M	CMS
199.0	200.3	657.02	1.23	98	0.00	0	15	77	100	VC	grey	fine grained	broken/fault					0	0	1	2	5	8	15	Rub	10.0	chl		15	None	Un-M	CMS
200.3	201.8	661.94	1.50	100	1.50	100	0	1500	110	VC	grey	fine grained	massive					6	6	6	6	6	30	15		10.0			0	None	Un-M	CMS
201.8	203.3	667.06	1.56	100	1.52	97	1	780	110	VC	grey	fine grained	massive					0	0	1	0	5	6	15	Rub	40.0	chl		1	None	Un-M	CMS
203.3	204.9	672.15	1.55	100	1.35	87	2	517	90	VC	grey	fine grained	massive		0.82			0	0	1	0	5	6	15	Rub	50.0	chl	pyr	1	F	-20	CMS
															1.18			0	4	1	4	5	14	15	J	<1	chl		1	F	-19	CMS
204.9	206.4	677.10	1.50	99	1.05	70	5	250	60	VC	grey	fine grained	massive					0	4	1	2	5	12	15	J	<1	chl		5	None	Un-M	CMS
206.4	208.0	682.45	1.57	96	1.57	96	0	1570	110	VC	grey	fine grained	massive					6	6	6	6	6	30	15		10.0			0	P	140	CMS
208.0	209.5	687.37	1.47	98	1.47	98	0	1470	125	VC	grey	fine grained	massive	only mechanical breaks				6	6	6	6	6	30	15		10.0			0	P	Un-M	CMS
209.5	211.0	692.29	1.50	100	1.18	79	1	750	85	VC	grey	fine grained	massive		0.78			0	0	1	4	5	10	15	Rub	340.0	chl		1	G	33	CMS
211.0	212.1	695.74	0.60	57	0.00	0	15	38	100	VC	grey	fine grained	broken					0	1	1	4	5	11	15	Rub	10.0	chl		15	None	Un-M	CMS

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS								ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Depth To (ft)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
212.1	213.4	700.17	1.35	100	0.22	16	15	84	100	VC	grey	fine grained	broken					0	0	1	4	5	10	15	Rub	10.0	chl		15	None	Un-M	CMS
213.4	215.0	705.42	1.54	96	0.12	8	15	96	100	VC	grey	fine grained	broken					0	0	1	4	5	10	15	Rub	10.0	chl		15	None	Un-M	CMS
215.0	215.5	707.06	0.50	100	0.00	0	5	83	100	VC	grey	fine grained	broken	broken/rubble				0	0	1	4	5	10	15	Rub	2.5	chl		5	None	Un-M	AB
215.5	217.0	711.98	1.48	99	0.44	29	0	1480	100	VC	grey	fine grained	broken	no joints, only mechanical breaks, rubble & cave				6	6	6	6	6	30	15		10.0			0	None	Un-M	AB
217.0	218.5	716.90	1.38	92	1.03	69	5	230	50	VC	grey	fine grained	massive	only mechanical breaks				0	1	1	4	5	11	15	Rub	2.0	chl		5	None	Un-M	AB
218.5	220.0	721.82	1.50	100	0.67	45	1	750	75	VC	grey	fine grained	broken		1.05	8	210	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
220.0	221.5	726.74	1.50	100	1.25	83	2	500	75	VC	grey	fine grained	massive		0.70	47	340	0	4	1	2	5	12	15	J	1.0			1	F	Un-M	AB
															1.29	27	10	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
221.5	223.0	731.66	1.43	95	0.22	15	15	89	75	VC	grey	fine grained	broken	broken				0	1	1	4	5	11	15	Rub	2.0	chl		15	VG	5	AB
223.0	224.5	736.58	1.50	100	1.50	100	0	1500	95	VC	grey	fine grained	massive	only mechanical breaks				6	6	6	6	5	29	15		10.0			0	F	Un-M	CMS
224.5	226.0	741.51	1.50	100	0.82	55	2	500	55	VC	grey	fine grained	massive		0.09			0	4	1	1	5	11	15	J	<1	chl		1	F	Un-M	CMS
															0.47			0	0	1	0	5	6	15	Rub	180.0	chl		1	F	Un-M	CMS
226.0	227.6	746.76	1.59	99	1.59	99	0	1590	110	VC	grey	fine grained	massive	Vocaniclastic				6	6	6	6	5	29	15		10.0			0	G	-10	CMS
227.6	229.0	751.35	1.40	100	1.33	95	2	467	125	FT	grey	fine grained	massive	Felsic Tuff for one run	0.05			0	0	1	0	5	6	15	Rub	90.0	chl		1	G	-9	CMS
															0.34	60	345	0	4	1	4	5	14	15	J	<1	chl		1	G	-8	CMS
229.0	230.5	756.27	1.50	100	0.00	0	15	94	45	VC	grey	fine grained	massive/broken	Volcanicastic				0	0	1	0	5	6	15	Rub	20.0	chl	pyr	15	None	Un-M	CMS
230.5	232.0	761.19	1.50	100	0.31	21	10	136	45	VC	grey	fine grained	massive/broken					0	0	1	0	5	6	15	Rub	20.0	chl	pyr	10	None	Un-M	CMS
232.0	233.5	766.11	1.50	100	0.48	32	50	29	5	VC	grey	fine grained	shear/fault					0	0	1	0	3	4	15	sh	20.0	chl	wcl	50	None	Un-M	CMS
233.5	235.0	771.04	1.41	94	0.00	0	50	28	5	VC	grey	fine grained	shear/fault					0	0	1	0	3	4	15	sh	20.0	chl		50	None	Un-M	CMS
235.0	236.5	775.96	1.50	100	0.00	0	50	29	5	VC	grey	fine grained	shear/fault					0	0	1	0	3	4	15	sh	20.0	chl	wcl	50	None	Un-M	CMS
236.5	238.0	780.88	1.50	100	1.50	100	0	1500	45	VC	grey	fine grained	massive					6	6	6	6	6	30	15		20.0			0	None	Un-M	CMS
238.0	239.5	785.80	1.50	100	1.50	100	0	1500	65	VC	grey	fine grained	massive					6	6	6	6	6	30	15		20.0			0	G	-12	CMS
239.5	241.0	790.72	1.50	100	1.17	78	1	750	65	VC	grey	fine grained	massive		0.82			0	1	1	2	5	9	15	Rub	290.0	chl		1	None	Un-M	CMS
241.0	242.5	795.64	1.50	100	1.50	100	0	1500	85	VC	grey	fine grained	massive					6	6	6	6	6	30	15		20.0			0	G	-10	CMS
242.5	244.0	800.56	1.35	90	1.35	90	0	1350	110	VC	grey	fine grained	massive					6	6	6	6	6	30	15		20.0			0	F	-24	CMS
244.0	245.5	805.49	1.50	100	1.50	100	0	1500	110	VC	grey	fine grained	massive	all mechanical breaks				6	6	6	6	6	30	15		20.0			0	F	30	AB
245.5	247.0	810.41	1.43	95	1.33	89	1	715	125	VC	grey	fine grained	massive		1.05	32	330	0	4	1	2	5	12	15	J	1.0	cly		1	VG	0	AB
247.0	248.5	815.33	1.50	100	1.38	92	2	500	110	VC	grey	fine grained	massive	mostly mechanical breaks	0.41	39	345	0	4	1	6	5	16	15	J	1.0			1	VG	0	AB
															0.51	28	300	0	4	3	4	5	16	15	J	2.0	chl		1	VG	1	AB
248.5	250.0	820.25	1.50	100	1.30	87	1	750	110	VC	grey	fine grained	massive		0.60	32	350	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
250.0	251.5	825.17	1.50	100	1.25	83	2	500	110	VC	grey	fine grained	massive		0.29	29	350	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
															1.40	64	105	0	1	3	4	5	13	15	J	2.0	pyr		1	F	Un-M	AB
251.5	253.0	830.09	1.33	89	1.22	81	1	665	110	VC	grey	fine grained	massive		0.71	33	325	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
253.0	254.5	835.01	1.50	100	1.02	68	2	500	110	VC	grey	fine grained	massive	brecciated, end of run pretty broken up	0.67	21	330	0	4	1	4	5	14	15	J	1.0	chl	pyr	2	F	Un-M	AB
254.5	256.0	839.94	1.44	96	0.97	65	2	480	110	VC	grey	fine grained	massive		0.69	27	320	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
															0.96	39	10	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
256.0	257.5	844.86	1.50	100	1.27	85	2	500	110	VC	grey	fine grained	massive	unable to orient from top or bot	0.12			0	0	1	0	5	6	15	Rub	6.0	pyr		1	F	Un-M	CMS
															1.15			0	0	1	0	5	6	15	Rub	200.0	pyr		1	F	Un-M	CMS
257.5	259.0	849.78	1.50	100	1.42	95	3	375	110	VC	grey	fine grained	massive	many mechanical breaks	0.10	19	333	0	4	1	4	5	14	15	J	<1	chl	pyr	1	F	Un-M	CMS
															0.14			0	1	1	3	5	10	15	Rub	45.0	chl	pyr	1	F	Un-M	CMS
															0.72	38	254	0	4	1	4	5	14	15	J	<1	chl	pyr	1	F	Un-M	CMS
259.0	260.5	854.70	1.50	100	1.50	100	0	1500	110	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	G	-8	CMS
260.5	262.0	859.62	1.41	94	1.41	94	0	1410	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	P	-28	CMS
262.0	263.5	864.54	1.50	100	1.50	100	1	750	125	VC	grey	fine grained	massive		1.08	35	21	0	4	3	2	5	14	15	J	<1	chl	wcl	1	G	-17	CMS
263.5	265.0	869.47	1.43	95	1.43	95	1	715	125	VC	grey	fine grained	massive		1.00	51	316	0	4	1	2	5	12	15	J	<1	chl	cly	1	F	Un-M	CMS
265.0	266.5	874.39	1.50	100	1.50	100	0	1500	125	VC	grey	fine grained	massive	many mechanical breaks				6	6	6	6	6	30	15		0.0			0	F	Un-M	CMS
266.5	268.0	879.31	1.49	99	0.50	33	4	298	65	VC	grey	fine grained	broken	very fractured; unable to orient				0	4	1	2	5	12	15	J/Rub	<1	chl		4	F	Un-M	CMS
268.0	269.5	884.23	1.50	100	1.17	78	1	750	110	VC	grey	fine grained	massive		0.00			0	0	1	2	5	8	15	Rub	400.0	chl		1	F	Un-M	CMS
269.5	271.0	889.15	1.49	99	1.49	99	0	1490	125	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	VG	2	CMS
271.0	272.5	894.07	1.50	100	1.34	89	2	500	110	VC	grey	fine grained	massive		0.44	31	287	0	1	1	2	5	9	15	J/Rub	5.0	chl	wcl	1	P	-42	CMS
															0.90			0	0	1	2	5	8	15	Rub	120.0	chl		1	P	-42	CMS
272.5	273.2	896.30	0.68	100	0.68	100	0	680	110	VC	grey	fine grained	massive					6	6	6	6	6	30	15		0.0			0	P	-42	CMS
273.2	274.0	898.99	0.82	100	0.00	0	5	137	65	VC	grey	fine grained	broken	Heavily sheared/altered				0	0	1	0	3	4	15	Sh	7.0	chl	pyr	5	P	-42	CMS
274.0	275.5	903.92	1.44	96	0.74	49	8	160	75	VC	grey	fine grained	massive/broken					0	4	1	2	5	12	15	Sh	8.0	chl	pyr	8	None	Un-M	CMS
275.5	277.0	908.84	1.49	99	0.40	27	20	71	25	VC	grey	fine grained	massive/broken					0	0	1	0	3	4	15	Sh	9.0	chl	pyr	0	None	Un-M	CMS
277.0	278.5	913.76	1.50	100	0.50	33	20	71	80	VC	grey	fine grained	massive/broken	0.98 m as above, below much more competent				0	1	1	0	3	5	15	Sh	10.0	chl	pyr	0	None	Un-M	CMS
278.5	280.0	918.68	1.50	100	1.12	75	1	750	75	VC	grey	fine grained	massive		0.07	38	345	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
280.0	281.5	923.60	1.50	100	0.77	51	0	1500	75	VC	grey	fine grained	massive	broken from .77-1.53				6	6	6	6	6	30	15	J	1.0			0	F	Un-M	AB
281.5	283.0	928.52	1.50	100	1.00	67	1	750	75	VC	grey	fine grained	massive		1.35	32	260	0	4	1	4	5	14	15	J	1.0	J	Pyr	1	F	Un-M	AB
283.0	284.5	933.44	1.50	100	1.50	100	0	1500	75	VC	grey	fine grained	massive	all mechanical breaks				6	6	6	6	5	29	15	J	1.0			0	F	Un-M	AB
284.5	286.0	938.37	1.48	99	1.17	78	2	493	75	VC	grey	fine grained	massive	broken at end	0.79	16	340	0	4	1	4	5	14	15	J	1.0	J	Pyr	2	F	Un-M	AB
286.0	287.5	943.29	1.50	100	0.54	36	15	94	50	VC	grey	fine grained	broken/shear	broken/shear zone				0	1	1	2	5	9	15	Rub/sh	2.5	pyr	cly	15	G	-20	AB
287.5	289.0	948.21	1.50	100	0.20	13	4	300	75	VC	grey	fine grained	massive		0.06	28	90	0	4	3	6	5	18	15	J	1.0			1	F	Un-M	AB
															0.99	34	75	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
															1.30	25	105	0	1	1	4	5	11	15	J	2.0	pyr		2	F	Un-M	AB
289.0	290.5	953.13	1.50	100	0.68	45	3	375	75	VC	grey	fine grained	massive	clay zone from .15-.3m	0.36	45	310	0	1	3	2	5	11	15		1.0	pyr		3	F	Un-M	AB
290.5	292.0	958.05	1.41	94	1.20	80	1	705	110	VC	grey	fine grained	massive	nearly a complete stick	0.13	30	35	0	4	3	4	5	16	15	J	1.0	pyr		1	G	-25	AB
292.0	293.5	962.97	1.50	100	0.67	45	2	500	75	VC	grey	fine grained	massive	broken at beginning of run 0 - 0.35m	1.10	44	330	0	4	1	4	5	14	15	J	1.0	cc		1	G	-24	AB
															1.14	9	350	0	4	1	4	5	14	15	J	1.0	chl		1	G	-23	AB
293.5	295.0	967.90	1.28	85		0	15	80	35	VC	grey	fine grained	broken/shear	broken/shear				0	1	1	2	5	9	15	Rub	2.5	pyr	chl	15	F	Un-M	AB
295.0	296.5	972.82	1.50	100		0	5	250	50	VC	grey	fine grained	massive	same joint set throughout	0.31	35	290	0	1	1	4	5	11	15	J	1.0	pyr	chl	5	F	Un-M	AB
296.5	298.0	977.74	1.42	95		0	2	473	75	VC	grey	fine grained	massive		0.50	39	350	0	1	1	4	5	11	15	J	5.0	chl	pyr	2	P	155	AB
298.0	299.5	982.66	1.47	98		0	2	490	75	VC	grey	fine grained	massive	unable to determine beta angle with any amount of confidence	1.20	36		0	1	1	2	5	9	15	J	2.0	cly	pyr	2	F	Un-M	AB
299.5	301.0	987.58	1.50	100		0	3	375	75	VC	grey	fine grained	massive	mostly mechanical breaks	0.86	24	15	0	4	1	4	5	14	15	J	1.0	chl	pyr	1	VG	0	AB

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Depth To (ft)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
															1.38	39	10	0	4	1	2	5	12	15	J	1.0	cly	pyr	2	VG	1	AB
301.0	302.5	992.50	1.45	97		0	4	290	75	VC	grey	fine grained	massive/broken		0.12	39	10	0	4	1	2	5	12	15	J	1.0	pyr	cly	1	F	Un-M	AB
															0.79	16	265	0	1	3	4	5	13	15	J	4.0	pyr		1	F	Un-M	AB
															1.10	33	0	0	4	1	4	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
															1.12	41	55	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
302.5	304.0	997.42	1.50	100	1.00	67	1	750	60	VC	grey	fine grained	massive/broken		1.00			0	1	1	4	5	11	15	Rub/sh	300.0	pyr		1	F	Un-M	CMS
304.0	305.5	1002.35	1.47	98	0.19	13	3	368	45	VC	grey	fine grained	massive/broken					0	1	1	4	5	11	15	Rub	10.0	pyr	chl	3	None	Un-M	CMS
305.5	307.0	1007.27	1.50	100	1.44	96	1	750	110	VC	grey	fine grained	massive		1.35			0	1	1	4	5	11	15	sh	160.0	cly		1	None	Un-M	CMS
307.0	308.5	1012.19	1.50	100	0.38	25	9	150	65	VC	grey	fine grained	massive/broken					0	1	1	2	5	9	15	sh	10.0	cly	chl	9	None	Un-M	CMS
308.5	310.0	1017.11	1.44	96	1.00	67	5	240	75	VC	grey	fine grained	massive/broken					0	1	1	2	5	9	15	sh/Rub	10.0	cly	chl	5	None	Un-M	CMS
310.0	311.5	1022.03	1.50	100	1.20	80	3	375	75	VC	grey	fine grained	massive/broken		0.17			0	1	1	2	5	9	15	J	1.0	chl	pyr	1	None	Un-M	CMS
															1.00			0	1	1	2	5	9	15	J	1.0	chl	pyr	1	None	Un-M	CMS
															1.31			0	1	1	2	5	9	15	sh/Rub	10.0	chl	pyr	1	None	Un-M	CMS
311.5	313.0	1026.95	1.41	94	0.29	19	6	201	55	VC	grey	fine grained	massive/broken					0	0	1	0	3	4	15	Rub	10.0	pyr	chl	6	None	Un-M	CMS
313.0	314.5	1031.87	1.41	94	0.00	0	4	282	40	VC	grey	fine grained	massive/broken					0	0	1	0	3	4	15	sh	10.0	cly	pyr	4	None	Un-M	CMS
314.5	315.9	1036.47	1.32	94	0.51	36	5	220	40	VC	grey	fine grained	massive/broken					0	1	1	2	5	9	15	Rub	10.0	cly	chl	5	None	Un-M	CMS
315.9	316.7	1039.09	0.80	100	0.00	0	0	800	20	VC	grey	fine grained	massive/broken					6	1	1	2	5	15	15	sh	10.0	cly		0	None	Un-M	CMS
316.7	318.1	1043.69	1.40	100	0.68	49	4	280	50	VC	grey	fine grained	massive/broken					0	0	1	0	3	4	15	Rub	10.0	cly		4	None	Un-M	CMS
318.1	319.5	1048.41	1.44	100	0.61	42	4	288	75	VC	grey	fine grained	massive/broken					0	1	1	2	5	9	15	J	10.0	cly	pyr	4	None	Un-M	CMS
319.5	321.0	1053.20	1.46	100	0.90	62	2	486	120	VC	grey	fine grained	massive		0.73			0	1	1	2	5	9	15	sh	300.0	cly	pyr	1	None	Un-M	CMS
															1.29			0	1	1	2	5	9	15	sh	140.0	cly	pyr	1	None	Un-M	CMS
321.0	322.0	1056.48	1.00	100	0.00	0	15	63	50	VC	grey	fine grained	broken					0	1	1	2	5	9	15	sh	140.0	cly	pyr	15	None	Un-M	CMS
322.0	323.5	1061.40	1.50	100	0.00	0	25	58	40	VC	grey	fine grained	broken	includes some "stick-up" from last run				0	0	1	0	3	4	15	sh	3.0	cly	pyr	25	None	Un-M	AB
323.5	325.0	1066.33	1.50	100	1.08	72	15	94	75	VC	grey	fine grained	massive		0.14	43	320	0	4	1	4	5	14	15	J	1.0	pry		5	None	Un-M	AB
325.0	326.5	1071.25	0.81	54	0.68	45	2	270	50	VC	grey	fine grained	massive	competent from 0-0.81m then the rest of the run is broken	0.42	42	25	0	4	1	2	5	12	15	J	1.0	pyr		2	p	-155	AB
326.5	328.0	1076.17	0.68	45	0.00	0	8	76	25	VC	grey	fine grained	broken					0	1	1	2	5	9	15	Rub	3.0	cly	pyr	8	None	Un-M	AB
328.0	329.5	1081.09	1.50	100	0.82	55	1	750	75	VC	grey	fine grained	massive	mostly mechanical breaks	0.53	21	20	0	4	1	4	5	14	15	J	1.0	pyr		1	VG	0	AB
329.5	331.0	1086.01	1.46	97	0.37	25	20	70	30	VC	grey	fine grained	broken	mostly broken, massive at end of run				0	0	1	0	3	4	15	Rub	3.0	pyr	cly	12	None	Un-M	AB
331.0	332.5	1090.93	1.50	100	0.00	0	50	29	30	VC	grey	fine grained	broken					0	1	1	4	5	11	15	Rub	3.0	pyr		50	None	Un-M	AB
332.5	334.0	1095.85	1.50	100	0.28	19	15	94	30	VC	grey	fine grained	broken	mostly broken				0	0	1	0	3	4	15	Rub	3.0	pyr	cc	15	None	Un-M	AB
334.0	335.5	1100.78	1.50	100	0.97	65	3	375	50	VC	grey	fine grained	massive	unable to determine beta angle with any confidence, vuggy in the pyrite	0.52	44		0	4	1	1	5	11	15	J	6.0	pyr		1	F	Un-M	AB
															0.70	15		0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
															1.08	15		0	4	3	1	5	13	15	J	3.0	cc	chl	1	F	Un-M	AB
335.5	337.0	1105.70	1.50	100	0.72	48	2	500	75	VC	grey	fine grained	massive		0.20	57	240	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
															0.88	39	350	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
337.0	338.5	1110.62	1.50	100	0.88	59	3	375	75	VC	grey	fine grained	massive	almost all mechanical breaks	0.29	33	270	0	1	3	1	5	10	15	J	3.0	cc		1	G	-20	AB
															0.33	19	280	0	4	3	4	5	16	15	J	1.0	pyr	chl	1	G	-20	AB
															0.56	40	250	0	4	1	4	5	14	15	J	1.0	pyr		1	G	-20	AB
338.5	340.0	1115.54	1.40	93	0.63	42	50	27	5	VC	grey	fine grained	massive/broken	clay seam from approximately 0.8 - 1.5m	0.44	41	280	0	0	1	0	3	4	15	J	1.0	pyr		1	P	30	AB
															0.52	43	290	0	0	1	0	3	4	15	J	1.0	cly	cc	1	P	30	AB
340.0	341.5	1120.46	1.50	100	0.00	0	50	29	5	VC	grey	fine grained	broken	broken, lots of calcite infill				0	0	1	0	3	4	15	Rub/sh	3.0	cc	cly	50	VG	5	AB
341.5	343.0	1125.38	1.48	99	0.00	0	50	29	70	VC	grey	fine grained	highly fractured	broken, lots of calcite infill				0	1	1	2	3	7	15	Rub/sh	3.0	cc	cly	50	VG	5	JS
343.0	344.5	1130.30	1.38	92	0.58	39	50	27	70	VC	grey	fine grained	highly fractured	getting more competent				0	1	1	2	3	7	15	Rub/sh	3.0	cc	cly	50	VG	5	JS
344.5	346.0	1135.23	1.50	100	0.83	55	50	29	110	VC	grey	fine grained	breccia	some small shear and rubble zones	0.60	51	120	0	1	6	0	5	12	15	J	2.0	chl	cc	44	F	Un-M	JS
															0.80	52	110	0	1	6	0	5	12	15	J	2.0	chl	cc	1	F	Un-M	JS
															0.90	38	340	0	0	6	2	5	13	15	sh	50.0	gg	cly	1	F	Un-M	JS
															1.10	38	120	0	0	6	2	5	13	15	sh	30.0	chl	cly	1	F	Un-M	JS
															1.20	32	140	0	1	6	0	5	12	15	J	2.0	chl	cc	1	F	Un-M	JS
															1.30	50	320	0	1	6	0	5	12	15	J	2.0	chl	cc	1	F	Un-M	JS
															1.40	50	340	0	1	6	0	5	12	15	J	2.0	chl	cc	1	F	Un-M	JS
346.0	347.5	1140.15	1.50	100	0.14	9	20	71	110	VC	grey	fine grained	breccia	very fractured some joints are healed with cc	0.20	50	340	0	1	6	2	5	14	15	J	2.0	chl	gg	42	F	Un-M	JS
															0.40	58	67	0	1	6	2	5	14	15	J	2.0	chl	gg	1	F	Un-M	JS
															0.40	28	110	0	1	1	2	5	9	15	J	2.0	cc		1	F	Un-M	JS
															0.60	30	360	0	1	1	2	5	9	15	J	2.0	cc	gg	1	F	Un-M	JS
															0.70	15	330	0	1	6	2	5	14	15	J	2.0	cc	gg	1	F	Un-M	JS
															0.80	45	60	0	1	5	2	5	13	15	J	2.0	cc		1	F	Un-M	JS
															0.90	40	110	0	1	5	2	5	13	16	J	2.0	cc	chl	1	F	Un-M	JS
															1.00	50	300	0	1	5	2	5	13	16	J	2.0	cc	chl	1	F	Un-M	JS
															1.10	20	80	0	1	5	2	5	13	15	J	2.0	cc	chl	1	F	Un-M	JS
347.5	349.0	1145.07	1.44	96	0.14	9	13	103	25	VC	grey	fine grained	breccia	several 4 cm crush shear zones				0	1	5	0	5	11	15	sh	40.0	cc	cly	13	F	Un-M	JS
349.0	350.5	1149.99	1.48	99	0.65	43	10	135	75	VC	grey	fine grained	breccia		0.10	25	160	0	1	5	0	5	11	15	J	2.0	cc	chl	2	F	Un-M	JS
															0.20	80	110	0	1	5	0	5	11	15	J	2.0	cc	chl	1	F	Un-M	JS
															0.30	50	280	0	1	5	0	5	11	15	J	2.0	cc	chl	2	F	Un-M	JS
															0.82	44	310	0	4	3	2	5	14	15	J	2.0	cc	chl	1	F	Un-M	JS
															0.83	55	120	0	4	3	2	5	14	15	J	2.0	cc	chl	1	F	Un-M	JS
															1.01	38	340	0	1	3	2	5	11	15	J	5.0	cc	chl	1	F	Un-M	JS
															1.22	60	310	0	4	3	2	5	14	16	J	2.0	cc	chl	1	F	Un-M	JS
															1.48	70	290	0	4	3	2	5	14	16	J	2.0	cc	chl	1	F	Un-M	JS
350.5	352.0	1154.91	1.50	100	0.51	34	12	115	75	VC	grey	fine grained	breccia	getting more competent	0.03	48	360	0	4	3	2	5	14	15	J	2.0	cc	py	1	VG	0	JS

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From	Depth To	Depth To	Recov. Length	Recov.	RQD Length	RQD	# of Fractures	Average Fracture Spac.	UCS (Est.)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run	Alpha	Beta	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper.	Fill. Type 1	Fill. Type 2	QTY	Orientation Quality	Orientation Line Difference	Logger
(m)	(m)	(ft)	(m)	(%)	(m)	(%)		(mm)	(MPa)						(m)	(deg.)	(deg.)									(mm)	(see Leg)	(see Leg)			(deg.)	
															0.30	30	340	0	4	3	2	5	14	15	J	2.0	cc	py	1	VG	0	JS
															0.50	30	70	0	4	3	2	5	14	15	J	2.0	cc	py	1	VG	0	JS
															0.50	80	40	0	4	3	2	5	14	15	J	2.0	cc	py	1	VG	0	JS
															0.72	60	200	0	1	3	2	5	11	15	J	50.0	cc	gg	1	VG	0	JS
															0.84	25	280	0	4	3	2	5	14	15	J	2.0	qtz	gg	1	VG	0	JS
															0.91	53	220	0	4	3	2	5	14	15	J	2.0	qtz	py	1	VG	0	JS
															0.94	20	150	0	4	3	2	5	14	15	J	2.0	qtz	py	1	VG	0	JS
															1.08	60	320	0	4	3	2	5	14	16	J	2.0	qtz	py	1	VG	0	JS
															1.20	35	270	0	4	3	2	5	14	16	J	2.0	qtz	py	1	VG	0	JS
															1.28	75	330	0	4	3	2	5	14	15	J	2.0	qtz	py	1	VG	0	JS
															1.38	55	30	0	4	3	2	5	14	15	J	2.0	qtz	py	1	VG	0	JS
352.0	353.5	1159.83	1.50	100	0.68	45	5	250	75	VC	grey	fine grained	breccia	1 m section of sick rock with crush zones either side	0.10	30	340	0	4	3	2	5	14	15	J	2.0	cly	gg	2	VG	0	JS
															0.20	20	320	0	4	3	2	5	14	15	J	2.0	gg	cc	1	VG	0	JS
															1.30	35	350	0	1	3	2	5	11	15	J	50.0	gg	cc	1	VG	0	JS
															1.40	70	340	0	4	3	2	5	14	15	J	2.0	qtz	py	1	VG	0	JS
353.5	355.0	1164.76	1.47	98	0.14	9	50	29	25	VC	grey	fine grained	breccia	very crushed up gouge				0	4	3	2	3	12	15	sh	50.0	gg	cly	50	None	Un-M	JS
355.0	356.5	1169.68	1.13	75	0.00	0	50	22	25	AND	light grey	fine grained	clay seam	core loss in thick clay seam				0	0	1	0	3	4	15	Sh	50.0	cly	gg	50	None	Un-M	JS
356.5	357.9	1174.27	1.15	82	0.00	0	50	23	25	AND	light grey	fine grained	clay seam	core loss in thick clay seam				0	0	1	0	3	4	16	Sh	50.0	cly	gg	50	None	Un-M	JS
357.9	359.3	1178.70	1.08	80	0.00	0	50	21	25	AND	light grey	fine grained	clay seam	core loss in thick clay seam				0	0	1	0	3	4	16	Sh	50.0	cly	gg	50	None	Un-M	JS
359.3	359.5	1179.52	0.21	84	0.00	0	50	4	25	AND	light grey	fine grained	clay seam	as above				0	0	1	0	3	4	15	Sh	50.0	cly	gg	50	None	Un-M	JS
359.5	361.0	1184.44	1.36	91	0.00	0	50	27	25	SED	light grey	fine grained	clay seam	as above				0	0	1	0	3	4	15	Sh	3.0	cly	gg	50	None	Un-M	AB
361.0	362.5	1189.36	1.50	100	0.00	0	50	29	25	SED	light grey	fine grained	clay seam	as above				0	0	1	0	3	4	15	Sh	3.0	cly	gg	50	None	Un-M	AB
362.5	364.0	1194.28	1.13	75	0.12	8	14	75	75	SED	black	fine grained	massive	dark obsidian like andesite				0	4	1	0	3	8	15	rubble	3.0	gg		14	None	Un-M	JS
364.0	365.5	1199.21	1.50	100	0.68	45	7	188	75	SED	black	fine grained	massive	dark obsidian like andesite	0.10	25	65	0	1	1	2	3	7	15	J	4.0	cly	chl	2	F	Un-M	JS
															0.20	45	20	0	1	1	2	3	7	15	J	4.0	cly	chl	1	F	Un-M	JS
															0.30	26	50	0	4	1	2	3	10	15	J	2.0	chl		1	F	Un-M	JS
															0.40	54	310	0	4	1	2	3	10	15	J	2.0	chl		1	F	Un-M	JS
															0.60	50	30	0	4	1	2	3	10	16	J	2.0	chl		1	F	Un-M	JS
															0.70	50	140	0	4	1	2	3	10	16	J	2.0	chl		1	F	Un-M	JS
365.5	367.0	1204.13	1.43	95	0.56	37	50	28	75	SED	black	fine grained	massive	dark obsidian like andesite, two large crush zones with no clay				0	0	1	0	3	4	15	Rub	3.0	gg		50	None	Un-M	JS
367.0	368.5	1209.05	1.50	100	0.56	37	50	29	75	SED	black	fine grained	massive	dark obsidian like andesite, crush zones with no clay				0	0	1	0	3	4	15	Rub	3.0	gg		50	None	Un-M	JS
368.5	370.0	1213.97	1.41	94	0.00	0	50	28	25	SED	light grey	fine grained	massive	crush zone breccia like				0	0	1	0	3	4	15	sh	3.0	cly	gg	50	None	Un-M	JS
370.0	371.5	1218.89	1.50	100	0.93	62	6	214	75	SED	black	fine grained	massive	dark obsidian like andesite	0.10	20	315	0	4	5	2	5	16	15	J	4.0	chl	cly	1	F	Un-M	JS
															0.44	42	350	0	4	1	0	5	10	15	J	2.0	qtz		1	F	Un-M	JS
															1.10	59	355	0	4	0	4	5	13	15	J	2.0	cc		1	F	Un-M	JS
															1.21	53	20	0	4	0	4	5	13	15	J	2.0	cc		1	F	Un-M	JS
															1.28	66	230	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															1.50	40	340	0	4	1	4	5	14	16	J	2.0	cc		1	F	Un-M	JS
371.5	373.0	1223.81	1.47	98	0.58	39	8	163	75	SED	black	fine grained	massive	dark obsidian like andesite	0.10	20	260	0	4	1	4	5	14	16	J	2.0	qtz		1	F	Un-M	JS
															0.28	54	330	0	4	1	4	5	14	15	J	2.0	qtz		1	F	Un-M	JS
															0.47	60	340	0	4	1	4	5	14	15	J	2.0	qtz		1	F	Un-M	JS
															0.69	60	330	0	4	1	4	5	14	15	J	2.0	qtz		1	F	Un-M	JS
															0.69	24	245	0	4	1	4	5	14	15	J	2.0	rub		1	F	Un-M	JS
															0.80	62	360	0	4	1	4	5	14	15	J	2.0	qtz		1	F	Un-M	JS
															1.01	64	20	0	4	1	4	5	14	15	J	2.0	chl	qtz	1	F	Un-M	JS
															1.20			0	4	1	2	5	12	15	Sh	20.0	gg	cly	1	F	Un-M	JS
373.0	374.5	1228.73	1.50	100	0.96	64	14	100	75	SED	black	fine grained	massive	dark obsidian like andesite				0	1	1	4	5	11	15	Sh	20.0	qtz		14	None	Un-M	JS
374.5	375.0	1230.38	0.50	100	0.00	0	50	10	25	SED	black	fine grained	massive	dark obsidian like andesite				0	1	1	4	5	11	16	Sh	20.0	qtz	rub	50	None	Un-M	JS
375.0	376.0	1233.66	0.90	90	0.12	12	15	56	25	SED	black	fine grained	massive/broken					0	1	1	4	5	11	16	Rub	20.0	cc	rub	15	None	Un-M	AB
376.0	377.5	1238.58	1.35	90	0.00	0	18	71	25	SED	black	fine grained	massive/broken					0	1	1	4	5	11	15	Rub	20.0	cc		18	None	Un-M	AB
377.5	379.0	1243.50	1.50	100	0.14	9	50	29	25	SED	black	fine grained	broken	broken, fine grained dark grey, calcite infill, andesite				0	0	1	0	3	4	15	Rub	20.0	cc		50	None	Un-M	AB
379.0	380.5	1248.42	1.50	100	0.14	9	50	29	25	SED	black	fine grained	broken	as above				0	4	1	4	5	14	15	Rub	20.0	cc		50	None	Un-M	AB
380.5	382.0	1253.34	0.85	57	0.00	0	50	17	20	SED	black	fine grained	broken	poor recovery, heavily fractured/broken				0	4	1	4	5	14	15	Rub	20.0	cc		50	None	Un-M	AB
382.0	383.5	1258.26	1.50	100	0.53	35	9	150	50	SED	black	fine grained	massive	rock becomes more competent	0.24	35	310	0	1	1	2	5	9	15	J	1.0	cc	cly	1	F	15	AB
															0.40	71	25	0	1	1	2	5	9	15	J	1.0	cc	cly	1	F	16	AB
															0.49	50	100	0	1	1	4	5	11	15	J	3.0	cc		1	F	17	AB
															1.07	18	270	0	1	3	4	5	13	15	J	1.0	cc		1	F	18	AB
															1.08	32	100	0	1	3	4	5	13	16	J	1.0	cc		1	F	19	AB
															1.27	16	355	0	1	1	2	5	9	16	J	1.0	cly		1	F	20	AB
															1.34	35	350	0	1	3	4	5	13	15	J	1.0	cc		1	F	21	AB
															1.36	44	290	0	1	1	2	5	9	15	J	2.0	cc	cly	2	F	22	AB
383.5	385.0	1263.19	1.35	90	0.33	22	10	123	35	SED	black	fine grained	massive	unable to orient with any confidence				0	1	1	2	5	9	15	J	1.0	cc		10	None	Un-M	AB
385.0	386.5	1268.11	1.50	100	0.19	13	13	107	50	SED	black	fine grained	massive		0.20	54	190	0	2	1	2	5	10	15	J	1.0	cc		1	G	10	AB
															0.27	62	170	0	2	1	2	5	10	15	J	1.0	cc		1	G	11	AB
															0.36	62	180	0	2	1	2	5	10	15	J	1.0	cc		1	G	12	AB
															0.45	64	160	0	2	1	2	5	10	15	J	1.0	cc		1	G	13	AB
															0.50	48	165	0	2	1	2	5	10	15	J	1.0	cc		1	G	14	AB
															0.58	30	165	0	2	1	2	5	10	16	J	1.0	cc		1	G	15	AB
															0.82	52	0	0	2	1	2	5	10	16	J	1.0	cc		1	G	16	AB
															1.00	25	285	0	2	1	2	5	10	15	J	1.0	cc		1	G	17	AB
															1.18	8	40	0	2	3	2	5	12	15	J	1.0	cc	pyr	1	G	18	AB
															1.28	24	90	0	2	1	2	5	10	15	J	1.0	cc	pyr	1	G	19	AB
															1.45	25	60	0	2	1	2	5	10	15	J	1.0	cc		2	G	20	AB

DRILL RUN DATA										GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Depth To (ft)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
															1.46	19	295	0	2	1	2	5	10	15	J	1.0	cc	pyr	1	G	21	AB
386.5	388.0	1273.03	1.30	87	0.00	0	50	25	35	SED	black	fine grained	broken	broken, fine grained dark grey, calcite infill, andesite				0	0	1	0	3	4	15	Rub	1.0	cc	pyr	50	None	Un-M	AB
388.0	389.5	1277.95	1.28	85	0.00	0	15	80	35	SED	black	fine grained	broken	broken, fine grained dark grey, calcite infill, andesite				0	0	1	0	3	4	15	Rub	1.0	cc	pyr	15	None	Un-M	AB
389.5	391.0	1282.87	1.50	100	0.35	23	10	136	50	SED	black	fine grained	massive	more competent	0.17	39	265	0	4	3	4	5	16	15	J	1.0	cc		1	F	Un-M	AB
															0.57	12	85	0	4	1	4	5	14	16	J	1.0	cc		1	F	Un-M	AB
															0.71	23	100	0	4	1	4	5	14	16	J	1.0	cc		1	F	Un-M	AB
															0.72	57	110	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															0.77	28	110	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															0.84	21	110	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															0.86	57	280	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															0.95	67	290	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															1.06	57	100	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															1.43	15	95	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
391.0	392.5	1287.79	1.50	100	0.70	47	11	125	50	SED	black	fine grained	massive	lots of calcite veins	0.06	39	250	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															0.39	57	25	0	4	1	4	5	14	16	J	1.0	cc	pyr	1	F	Un-M	AB
															0.51	37	50	0	4	1	4	5	14	16	J	1.0	cc	pyr	1	F	Un-M	AB
															0.58	62	20	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															0.77	72	200	0	4	1	4	5	14	15	J	1.0	cc		2	F	Un-M	AB
															0.79	69	215	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															1.16	38	190	0	4	1	4	5	14	15	J	1.0	cc	pyr	1	F	Un-M	AB
															1.22	48	355	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	AB
															1.23	26	180	0	4	1	4	5	14	15	J	1.0	cc	pyr	1	F	Un-M	AB
															1.39	32	190	0	4	1	4	5	14	15	J	1.0	cc	pyr	1	F	Un-M	AB
392.5	394.0	1292.71	1.50	100	0.40	27	8	167	75	SED	black	fine grained	massive	lots of cc veins				0	4	1	4	5	14	15	J	1.0	cc		8	None	Un-M	JS
394.0	395.5	1297.64	1.50	100	0.57	38	13	107	75	SED	black	fine grained	massive	lots of calcite veins	0.05	65	275	0	4	1	4	5	14	16	J	2.0	cc		2	F	Un-M	JS
															0.10	20	270	0	4	1	4	5	14	16	J	1.0	cc		1	F	Un-M	JS
															0.28	50	85	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	JS
															0.35	43	350	0	4	1	4	5	14	15	J	1.0	cc		1	F	Un-M	JS
															0.44	54	250	0	4	1	4	5	14	15	J	8.0	cc		2	F	Un-M	JS
															0.84	18	280	0	4	1	4	5	14	15	J	2.0	cc		2	F	Un-M	JS
															0.87	5	160	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															1.20	60	270	0	4	1	4	5	14	15	J	2.0	cc		3	F	Un-M	JS
395.5	397.0	1302.56	1.45	97	0.80	53	12	112	75	SED	black	fine grained	massive	lots of calcite veins	0.30	20	54	0	4	1	4	5	14	15	J	2.0	cc	cly	4	F	Un-M	JS
															0.40	46	59	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															0.52	64	230	0	4	1	4	5	14	16	J	2.0	cc		4	F	Un-M	JS
															0.92	50	50	0	4	1	4	5	14	16	J	2.0	cc		1	F	Un-M	JS
															1.10	18	330	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															1.30	60	210	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
397.0	398.5	1307.48	1.47	98	0.84	56	9	147	75	SED	black	fine grained	massive	lots of calcite veins	0.40	56	40	0	4	1	4	5	14	15	J	2.0	cc		4	F	Un-M	JS
															0.88	66	42	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															0.99	17	355	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															1.10	38	345	0	4	1	4	5	14	15	J	2.0	cc		3	F	Un-M	JS
398.5	400.0	1312.40	1.36	91	0.89	59	11	113	75	SED	black	fine grained	massive	lots of calcite veins	0.30	74	285	0	4	1	4	5	14	15	J	2.0	cc		6	F	Un-M	JS
															0.35	62	30	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															0.51	60	304	0	4	1	4	5	14	16	J	4.0	cc		1	F	Un-M	JS
															0.76	68	40	0	4	1	4	5	14	16	J	4.0	cc		1	F	Un-M	JS
															0.83	66	70	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
															1.35	64	62	0	4	1	4	5	14	15	J	2.0	cc		1	F	Un-M	JS
EOH																																

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-03

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-03_Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																	Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
0.0	49.0								OB																						JS
49.0	50.5	1.50	100	0.22	15	50	29	25	VC	light grey	fine grained	massive	completely weathered				0	1	1	2	3	7	15	J	3.0	cly	FeO	50	None	Un-M	JS
50.5	52.0	1.35	90	0.54	36	50	26	25	VC	light grey	fine grained	massive	completely weathered				0	1	1	2	3	7	15	J	3.0	cly	FeO	50	None	Un-M	JS
52.0	53.5	1.35	90	0.18	12	50	26	25	VC	light grey	fine grained	massive	completely weathered				0	1	1	2	3	7	15	J	3.0	cly	FeO	50	None	Un-M	JS
53.5	55.0	1.44	96	0.88	59	50	28	25	VC	light grey	fine grained	massive	completely weathered				0	1	1	2	3	7	15	J	3.0	cly	FeO	50	None	Un-M	JS
55.0	56.5	1.50	100	0.44	29	14	100	75	VC	light grey	fine grained	massive	becoming more competent				0	1	1	2	3	7	15	J	3.0	cly	FeO	14	None	Un-M	JS
56.5	58.0	1.44	96	0.69	46	9	144	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	1	1	2	3	7	15	J	4.0	cly	FeO	9	None	Un-M	JS
58.0	59.0	1.00	100	0.70	70	1	500	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	1	3	2	3	9	15	J	4.0	cly	FeO	1	None	Un-M	JS
59.0	60.5	1.50	100	1.08	72	6	214	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	1	3	2	3	9	15	J	4.0	cly	FeO	6	None	Un-M	JS
60.5	61.0	0.50	100	0.50	100	1	250	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	1	3	2	3	9	15	J	4.0	cly	FeO	1	None	Un-M	JS
61.0	62.5	1.40	93	1.30	87	4	280	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	1	3	2	3	9	15	J	4.0	cly	FeO	4	None	Un-M	JS
62.5	64.0	1.50	100	1.06	71	8	167	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.20	47	30	0	1	3	2	3	9	15	J	4.0	cly	FeO	2	VG	0	JS
														0.30	30	325	0	1	3	2	3	9	15	J	2.0	cly	FeO	1	VG	0	JS
														0.50	40	310	0	1	3	2	3	9	15	J	2.0	cly	FeO	1	VG	0	JS
														0.60	49	144	0	1	3	2	3	9	15	J	2.0	cly	FeO	1	VG	0	JS
														0.88	35	338	0	1	3	2	3	9	15	J	5.0	cly	FeO	1	VG	0	JS
														1.20	26	332	0	1	3	2	3	9	15	J	2.0	cly	FeO	1	VG	0	JS
														1.50	64	200	0	1	3	2	3	9	15	J	2.0	cly	FeO	1	VG	0	JS
64.0	65.5	1.50	100	1.48	99	2	500	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	1.00	35	100	0	1	3	2	3	9	15	J	10.0	cly	FeO	1	VG	0	JS
														1.20	30	330	0	1	3	2	3	9	15	J	2.0	cly	FeO	1	VG	0	JS
65.5	67.0	1.50	100	1.08	72	4	300	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.81	64	245	0	4	3	0	3	10	15	J	2.0	FeO	cly	2	VG	0	JS
														0.90	34	135	0	4	3	2	3	12	15	J	2.0	FeO	cly	1	VG	0	JS
														1.10	32	280	0	4	3	2	3	12	15	J	2.0	FeO	cly	1	VG	0	JS
67.0	68.5	1.50	100	0.85	57	4	300	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	4	3	2	2	11	15	J	2.0	cly	FeO	4	VG	0	JS
68.5	70.0	1.49	99	0.74	49	15	93	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.10	15	300	0	1	3	2	3	9	15	J	2.0	cly	rub	1	None	Un-M	JS
														0.25	42	69	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
														0.30	70	180	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
														0.58	15	340	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
														0.69	64	150	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
														1.10	56	90	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
														1.20	46	75	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
														1.30	60	44	0	3	3	2	3	11	15	J	2.0	cly	rub	1	None	Un-M	JS
70.0	71.5	1.50	100	1.09	73	7	188	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.10	32	305	0	4	5	2	3	14	15	J	2.0	cly	rub	3	VG	0	JS
														0.60	50	110	0	4	5	2	3	14	15	J	2.0	cly	rub	1	VG	0	JS
														0.62	42	260	0	4	5	2	3	14	15	J	2.0	cly	rub	1	VG	0	JS
														1.50	56	80	0	4	5	2	3	14	15	J	2.0	cly	rub	2	VG	0	JS
71.5	73.0	1.49	99	1.14	76	5	248	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.00	20	110	0	4	3	2	3	12	15	J	2.0	cly	FeO	1	VG	0	JS
														0.10	20	140	0	4	3	2	3	12	15	J	2.0	cly	FeO	1	VG	0	JS
														0.20	38	230	0	4	3	2	3	12	15	J	2.0	cly	FeO	1	VG	0	JS
														0.30	40	120	0	4	3	2	3	12	15	J	2.0	cly	FeO	1	VG	0	JS
														0.40	75	270	0	4	1	2	3	10	15	J	2.0	cly	FeO	1	VG	0	JS
73.0	74.5	1.50	100	1.18	79	6	214	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.20	66	105	0	4	5	2	3	14	15	J	2.0	cly	FeO	3	VG	0	JS
														0.34	35	310	0	4	5	2	3	14	15	J	2.0	cly	FeO	1	VG	0	JS
														0.64	42	280	0	4	5	2	3	14	15	J	2.0	cly	FeO	1	VG	0	JS
														0.66	46	50	0	4	5	2	3	14	15	J	2.0	cly	FeO	1	VG	0	JS
74.5	76.0	1.46	97	0.59	39	7	183	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces	0.20	30	340	0	2	3	2	3	10	15	J	2.0	cly	FeO	1	F	Un-M	JS
														0.22			0	0	1	0	3	4	15	Rub	10.0	cly	rub	1	F	Un-M	JS
														0.90	64	275	0	2	3	2	3	10	15	J	2.0	cly	FeO	1	F	Un-M	JS
														1.00	63	200	0	2	3	2	3	10	16	J	2.0	cly	FeO	1	F	Un-M	JS
														1.20	28	44	0	2	3	2	3	10	16	J	2.0	cly	FeO	3	F	Un-M	JS
76.0	77.5	1.50	100	0.69	46	8	167	125	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces				0	1	1	0	3	5	15	Rub	4.0	cly	FeO	8	None	Un-M	JS
77.5	79.0	1.46	97	0.95	63	8	162	75	VC	light grey	fine grained	breccia	competent, iron weathering and orange clay on joint faces and rubble zones				0	1	1	2	3	7	15	Rub	10.0	cly	FeO	8	None	Un-M	JS
79.0	80.5	1.50	100	0.35	23	3	375	125	VC	light grey	fine grained	breccia	clay and rubble zones make it unable to orientate				0	3	3	2	3	11	15	Rub	4.0	cly	FeO	3	None	Un-M	JS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
																	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
80.5	82.0	1.45	97	1.13	75	4	290	75	VC	light grey	fine grained	breccia	clay and rubble zones make it unable to orientate				0	2	3	2	3	10	15	Rub	4.0	cly	FeO	4	None	Un-M	JS
82.0	82.8	0.80	100	0.80	100	2	266	75	VC	light grey	fine grained	breccia	clay and rubble zones make it unable to orientate				0	2	3	2	3	10	15	Rub	4.0	cly	FeO	2	None	Un-M	JS
82.8	84.3	1.50	100	1.25	83	4	300	125	VC	light grey	fine grained	breccia	clay and rubble zones make it unable to orientate	0.80	54	150	0	2	3	2	3	10	15	J	4.0	cly	FeO	1	F	Un-M	JS
														0.85	60	155	0	1	3	2	3	9	15	Rub	100.0	cly	FeO	1	F	Un-M	JS
														1.20	50	85	0	1	3	2	3	9	15	J	4.0	cly	FeO	1	F	Un-M	JS
														1.35	44	320	0	1	3	2	3	9	15	J	4.0	cly	FeO	1	F	Un-M	JS
84.4	85.0	0.60	100	0.48	80	20	29	5	VC	white orange	fine grained	breccia	white clay seam				0	0	1	0	3	4	15	Sh	600.0	cly	wt. cly	3	None	Un-M	JS
85.0	86.5	1.50	100	0.29	19	13	107	25	VC	white orange	fine grained	breccia	weak highly weathered bedrock				0	0	1	0	3	4	15	Sh	600.0	cly	wt cly	13	None	Un-M	JS
86.5	88.0	1.30	87	0.16	11	50	25	25	VC	white orange	fine grained	breccia	weak highly weathered bedrock				0	0	1	0	3	4	15	Sh	600.0	cly	wt cly	50	None	Un-M	JS
88.0	89.5	1.50	100	1.06	71	1	750	40	VC	white orange	fine grained	breccia	2 small clay seams, iron stained	1.14	31	50	0	2	2	2	3	9	15	J	2.0	cly		1	F	Un-M	AB
89.5	91.0	1.50	100	1.06	71	12	115	35	VC	white orange	fine grained	breccia	2 small clay seams, iron stained				0	0	1	0	3	4	15	Sh	100.0	cly		12	None	Un-M	AB
91.0	92.5	1.10	73	0.10	7	12	85	25	VC	white orange	fine grained	breccia	small clay seam				0	0	1	0	3	4	15	Sh	4.0	cly	rub	12	None	Un-M	AB
92.5	94.0	1.46	97	0.32	21	10	133	35	VC	white orange	fine grained	breccia	clay and rubble in joints				0	0	1	0	3	4	15	Sh	4.0	cly	rub	10	None	Un-M	AB
94.0	95.5	1.50	100	0.95	63	4	300	50	VC	white orange/grey	fine grained	breccia	rock is becoming less weathered, more competent than previous runs	0.09	24	220	0	1	3	2	5	11	15	J	5.0	cly	rub	1	G	0	AB
														0.72	36	230	0	1	1	2	5	9	15	J	2.0	cly		1	G	0	AB
														0.97	48	310	0	1	1	2	5	9	15	J	2.0	cly		1	G	0	AB
														1.22	51	80	0	1	3	2	5	11	15	J	2.0	cly		1	G	0	AB
95.5	97.0	1.50	100	0.91	61	3	375	50	VC	grey	fine grained	breccia	some mechanical breaks	0.32	37	260	0	1	1	2	5	9	15	J	2.0	cly	rub	1	G	0	AB
														0.38	61	290	0	4	3	2	5	14	15	J	2.0	cly		1	G	0	AB
														1.17	45	80	0	4	3	4	5	16	15	J	1.0	FeO		1	G	0	AB
97.0	98.5	1.50	100	1.04	69	2	500	50	VC	grey	fine grained	breccia	mostly mechanical breaks, staining in joints	0.27	77	270	0	4	3	4	3	14	15	J	1.0	FeO		1	G	0	AB
														1.23	23	320	0	4	1	4	3	12	15	J	1.0	FeO		1	G	0	AB
98.5	100.0	1.50	100	0.80	53	5	250	50	VC	grey	fine grained	breccia	one rubble area around 7 cm, more weathered than previous runs	0.19	68	160	0	1	3	0	3	7	15	J	5.0	cly	FeO	1	G	10	AB
														0.53	27	120	0	4	1	4	3	12	15	J	1.0	FeO		1	G	10	AB
														0.69	68	50	0	1	3	2	3	9	15	J	3.0	cly	FeO	1	G	10	AB
														0.95	14	0	0	4	3	4	3	14	15	J	1.0	FeO		1	G	10	AB
														1.33	20	330	0	1	3	2	3	9	15	J	30.0	FeO	rub	1	G	10	AB
100.0	101.5	1.50	100	0.25	17	3	375	35	VC	grey	fine grained	breccia	2 rubble areas, oxidation occurs	0.62	27	260	0	1	1	0	3	5	15	J	2.0	FeO	cly	1	F	Un-M	AB
														0.68	9	70	0	0	1	2	3	6	15	J	5.0	pyr	cly	1	F	Un-M	AB
														1.20	20	180	0	4	1	2	3	10	15	J	1.0	cly		1	F	Un-M	AB
101.5	103.0	1.43	95	0.79	53	4	286	50	VC	grey	fine grained	breccia	mostly mechanical breaks	0.43	61	250	0	4	1	6	3	14	15	J	1.0			1	G	-10	AB
														0.83	21	335	0	4	1	4	3	12	15	J	1.0	FeO		1	G	-10	AB
														1.32	18	350	0	4	1	6	3	14	15	J	1.0			1	G	-10	AB
														1.36	34	200	0	4	1	4	3	12	15	J	1.0	pyr		1	G	-10	AB
103.0	104.5	1.50	100	0.93	62	3	375	50	VC	grey	fine grained	breccia	fresh to moderately weathered, rubble from 0 - 0.3 m	0.44	15	270	0	4	3	6	3	16	15	J	1.0			1	F	Un-M	AB
														0.60	55	285	0	4	1	6	3	14	15	J	1.0			1	F	Un-M	AB
														0.92	25	100	0	4	3	4	3	14	15	J	1.0	FeO		1	F	Un-M	AB
104.5	106.0	1.43	95	0.64	43	2	477	50	VC	grey	fine grained	breccia	broken area from .12-.43 m, bleach spots surrounding sulphides (SIL 5?) near bottom	0.90	38	305	0	4	3	4	3	14	15	J	1.0	FeO	pyr	1	F	Un-M	AB
														1.03	32	310	0	4	3	4	3	14	15	J	1.0	FeO	pyr	1	F	Un-M	AB
106.0	107.5	1.50	100	0.32	21	20	71	40	VC	grey	fine grained	breccia	some cave rock at of, several mechanical breaks	0.53	44	270	0	4	1	4	3	12	15	J	1.0	FeO		1	F	Un-M	AB
														0.62	42	60	0	4	0	6	3	13	15	J	1.0			1	F	15	AB
														0.96	37	85	0	1	1	2	3	7	15	J	1.0	FeO	cc	1	F	15	AB
														0.96	54	280	0	4	1	4	3	12	15	J	1.0	FeO	chl	1	F	15	AB
														0.99	29	210	0	4	1	4	3	12	15	J	1.0	FeO		1	F	15	AB
														1.18	67	70	0	4	1	4	3	12	15	J	1.0	FeO		1	F	15	AB
														1.32	26	250	0	4	3	4	3	14	15	J	1.0	FeO	chl	1	F	15	AB
														1.43	62	190	0	4	3	4	3	14	15	J	1.0	FeO		1	F	15	AB
107.5	109.0	1.49	99	0.98	65	10	135	40	VC	grey	fine grained	breccia	same joint set, some mechanical breaks	0.50	53	320	0	0	1	0	3	4	15	J	1.0	FeO	cly	2	F	15	AB
109.0	110.5	1.50	100	0.51	34	10	136	25	VC	grey	fine grained	breccia	shear zone and clay gouge				0	0	1	0	3	4	15	J	3.0	FeO	cly	5	None	Un-M	JS
110.5	112.0	1.50	100	1.50	100	10	136	25	VC	grey	fine grained	breccia	shear zone and clay gouge, heavy iron stained joints				0	0	1	0	3	4	15	J	3.0	FeO	cly	3	None	Un-M	JS
112.0	113.5	1.50	100	0.63	42	5	250	25	VC	grey	fine grained	breccia	shear zone and clay gouge completely weathered bedrock, heavy iron stained joints				0	1	1	2	5	9	15	J	3.0	FeO	cly	3	None	Un-M	JS
113.5	115.0	1.50	100	0.00	0	10	136	25	VC	grey	fine grained	breccia	Driller dropped sleeve dropping core, shear zone and clay gouge completely weathered bedrock, heavy iron stained joints				0	0	1	0	3	4	15	J	3.0	FeO	cly	10	None	Un-M	JS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																	Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
115.0	116.5	1.50	100	0.45	30	10	136	25	VC	dark grey	fine grained	breccia	highly fractured, weak, heavy iron staining along joints, rock is vuggy and friable				0	0	1	0	3	4	15	J	3.0	FeO	cly	9	None	Un-M	JS
116.5	118.0	1.45	97	0.40	27	50	28	25	VC	dark grey	fine grained	breccia	highly fractured, weak, heavy iron staining along joints, rock is vuggy and friable				0	0	1	0	3	4	15	F	2.0	cly	rub	50	None	Un-M	JS
118.0	118.8	0.40	50	0.00	0	50	8	25	AND	dark grey	fine grained	breccia	highly fractured, weak, heavy iron staining along joints, rock is vuggy and friable				0	0	1	0	3	4	15	F	2.0	cly	rub	50	None	Un-M	JS
118.8	119.9	1.05	95	0.16	15	50	21	25	AND	dark grey	fine grained	breccia	highly fractured, weak, heavy iron staining along joints, rock is vuggy and friable				0	0	1	0	3	4	15	F	2.0	cly	rub	50	None	Un-M	JS
119.9	120.0	0.10	99	0.00	0	50	2	25	AND	dark grey	fine grained	breccia	highly fractured, weak, heavy iron staining along joints, rock is vuggy and friable				0	0	1	0	3	4	15	F	2.0	cly	rub	50	None	Un-M	JS
120.0	122.4	1.25	52	0.90	37	50	25	25	AND	dark grey	fine grained	breccia	highly fractured, weak, heavy iron staining along joints, rock is vuggy and friable, large core loss during bit change				0	1	2	4	5	12	15	F	2.0	cly	rub	50	None	Un-M	JS
122.4	123.0	0.40	67	0.16	27	5	67	25	AND	dark grey	fine grained	breccia	some cave rock at top of run				0	1	5	2	3	11	15	F	2.0	cly	rub	5	None	Un-M	AB
123.0	124.5	1.13	75	0.20	13	50	22	25	AND	grey	fine grained	breccia					0	4	3	2	3	12	15	F	2.0	cly	rub	50	None	Un-M	AB
124.5	125.5	1.00	100	0.00	0	50	20	25	AND	grey	fine grained	breccia	highly fractured, weak,, rock is vuggy and friable				0	4	5	2	3	14	15	F	2.0	cly	rub	50	None	Un-M	AB
125.5	127.0	1.50	100	0.33	22	50	29	50	AND	grey	fine grained	breccia	highly fractured, weak, rock is vuggy and friable				0	4	3	2	3	12	15	F	2.0	cly	rub	50	None	Un-M	AB
127.0	128.5	1.50	100	0.00	0	5	250	75	AND	grey	fine grained	breccia	first 50 cm crush/heavily fractured, several mechanical breaks throughout	0.52	41	30	0	1	3	2	5	11	15	J	2.0	cly	pyr	1	F	Un-M	AB
														0.63	7	205	0	4	3	2	5	14	15	J	1.0	cly		1	F	Un-M	AB
														1.22	49	10	0	1	3	2	5	11	15	J	3.0	cly	pyr	1	F	Un-M	AB
														1.44	34	15	0	1	3	2	5	11	15	J	2.0	cly		1	F	Un-M	AB
														1.44	38	200	0	1	3	2	5	11	15	J	2.0	cly		1	F	Un-M	AB
128.5	129.6	1.10	100	0.41	37	4	220	75	AND	grey	fine grained	breccia	some mechanical breaks	0.22	63	40	0	0	1	0	3	4	15	J	1.0	cly		1	F	Un-M	AB
														0.56	47	80	0	4	3	4	3	14	15	J	1.0	cly	pyr	1	F	Un-M	AB
														0.76	48	305	0	1	3	2	3	9	15	J	2.0	cly		1	F	Un-M	AB
														0.77	15	170	0	0	1	0	3	4	15	J	2.0	cly		1	F	Un-M	AB
129.6	130.0	0.38	95	0.00	0	1	190	75	AND	grey	fine grained	breccia	mechanical breaks	0.15	15	80	0	4	3	2	3	12	15	J	1.0	cly		1	F	Un-M	AB
130.0	131.5	1.23	82	0.21	14	2	410	75	AND	grey	fine grained	breccia	all mechanical breaks				6	4	3	4	5	22	15		0.0			0	None	Un-M	AB
131.5	132.7	1.20	100	0.21	18	5	200	75	AND	grey	fine grained	breccia	several mechanical breaks, some vuggy pyrite	0.20	54	290	0	4	3	4	5	16	15	J	1.0		pyr	2	F	Un-M	AB
														0.62	20	290	0	4	1	2	5	12	15	J	2.0	cly	pyr	1	F	Un-M	AB
														0.75	65	48	0	1	3	2	5	11	15	J	1.0	cly	pyr	1	F	Un-M	AB
														1.06	28	260	0	4	1	4	5	14	15	J	1.0		pyr	1	F	Un-M	AB
132.7	133.0	0.30	100	0.00	0	0	300	75	AND	grey	fine grained	breccia	several mechanical breaks				6	6	6	6	6	30	15	F	300.0			0	None	Un-M	AB
133.0	134.5	1.45	97	0.00	0	50	28	75	AND	grey	fine grained	breccia	rubble and clay seam, heavily fractured (mech.) often along joints				0	0	1	0	3	4	15	F	2.0	cly	pyr	50	None	Un-M	AB
134.5	136.0	1.49	99	0.23	15	50	29	75	AND	grey	fine grained	breccia	highly fractured, strong				0	0	1	0	3	4	15	F	2.0	cly	pyr	50	None	Un-M	AB
136.0	137.5	1.47	98	0.22	15	50	29	50	AND	grey	fine grained	breccia	rubble from 136.96 to 137.4, some vuggy pyrite, some mechanical breaks				0	0	1	0	3	4	15	F	2.0	cly	pyr	50	None	Un-M	AB
137.5	139.0	1.45	97	0.13	9	18	76	50	AND	grey	fine grained	breccia	2 rubble areas				0	0	1	0	3	4	15	F	2.0	cly		18	None	Un-M	AB
139.0	140.5	1.50	100	0.22	15	50	29	50	AND	grey	fine grained	breccia	rubble for last 50 cm of the run				0	1	3	2	5	11	15	F	2.0	cly		50	None	Un-M	AB
140.5	142.0	1.42	95	0.00	0	50	28	75	AND	grey	fine grained	breccia	mechanical breaks throughout				0	4	3	2	3	12	15	F	2.0	cly		50	None	Un-M	AB
142.0	143.5	1.50	100	0.00	0	50	29	50	AND	dark grey	fine grained	breccia	30cm clay seam				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	AB
143.5	145.0	1.50	100	0.00	0	50	29	25	AND	dark grey	fine grained	breccia	highly fractured, weak				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	AB
145.0	146.5	0.62	41	0.00	0	50	12	10	AND	dark grey	fine grained	breccia	highly fractured, weak, very poor recovery				0	0	1	0	3	4	15	F	2.0	cly	rub	10	None	Un-M	AB
146.5	148.0	1.50	100	0.00	0	50	29	25	AND	dark grey	fine grained	breccia	highly fractured, weak, moderately weathered				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	AB
148.0	149.4	1.34	99	1.20	89	2	447	50	AND	grey	fine grained	breccia	moderately weathered	0.97	31	35	0	0	1	0	3	4	15	J	1.0	cly	cc	1	G	10	AB
														1.11	21	40	0	0	1	0	3	4	15	J	1.0	cc		1	G	11	AB
149.4	150.7	1.35	100	0.38	28	50	26	5	AND	grey	fine grained	breccia	fault gouge				0	0	1	0	3	4	15	F	2.0	cly	chl	8	None	Un-M	JS
150.7	151.1	0.35	100	0.00	0	50	7	5	AND	grey	fine grained	breccia	fault gouge				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
151.1	152.5	1.34	92	0.18	12	50	26	5	AND	grey	fine grained	breccia	fault gouge				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
152.5	153.5	0.20	20	0.00	0	50	4	5	AND	grey	fine grained	breccia	fault gouge				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
153.5	154.0	0.38	76	0.00	0	50	7	5	AND	grey	fine grained	breccia	fault gouge				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
154.0	154.5	0.43	96	0.00	0	50	8	5	AND	grey	fine grained	breccia	fault gouge, lots of sand				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
154.5	155.0	0.39	78	0.00	0	50	8	5	AND	grey	fine grained	breccia	fault gouge, mainly rubble fines have washed away				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
155.0	156.5	1.50	100	0.20	13	50	29	5	AND	grey	fine grained	breccia	fault gouge, getting beta, lots of chl and cc on joint faces				0	0	1	0	3	4	15	F	2.0	cly	chl	50	None	Un-M	JS
156.5	157.4	0.95	100	0.00	0	50	19	5	AND	grey	fine grained	breccia	fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded				0	0	1	0	3	4	15	F	30.0	cly	gg	50	None	Un-M	JS
157.4	159.0	1.56	98	0.20	13	50	31	5	AND	grey	fine grained	breccia	** fault contact at 158.4 m, 15 dig alpha, 234 dig beta ** fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded	0.80	40	310	0	0	1	0	3	4	15	J	2.0	chl	cc	1	F	Un-M	JS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
														1.01	38	60	0	0	1	0	3	4	15	J	2.0	chl	cc	1	F	Un-M	JS
														1.20	34	105	0	0	1	0	3	4	15	J	2.0	chl	cc	1	F	Un-M	JS
														1.30	15	234	0	0	1	0	3	4	15	F	30.0	cly	gg	47	F	Un-M	JS
159.0	160.0	1.00	100	0.18	18	50	20	25	AND	grey	fine grained	breccia	fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded	0.05	41	230	0	1	3	0	3	7	15	J	2.0	chl	cc	1	F	Un-M	JS
														0.10	40	15	0	1	3	0	3	7	15	J	2.0	chl	cc	1	F	Un-M	JS
														0.12	45	36	0	1	3	0	3	7	15	J	2.0	chl	cc	1	F	Un-M	JS
														0.20			0	1	5	2	3	11	15	F	30.0	cly	gg	47	F	Un-M	JS
160.0	161.5	1.50	100	0.00	0	50	29	25	AND	light grey to white	fine grained	breccia	** possible fault surface at 0.5 m alpha 34 dig, 325 beta, not sure on orientation line*** fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded	0.50	34	325	0	0	1	0	3	4	15	F	3.0	cly	gg	49	F	Un-M	JS
														0.56	45	270	0	0	1	0	3	4	15	F	3.0	cly	gg	1	F	Un-M	JS
161.5	162.5	0.70	70	0.00	0	50	14	25	AND	light grey to white	fine grained	breccia	fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded				0	0	1	0	3	4	15	F	30.0	cly	gg	50	None	Un-M	JS
162.5	163.0	0.50	100	0.00	0	50	10	25	AND	light grey to white	fine grained	breccia	fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded				0	0	1	0	3	4	15	F	30.0	cly	gg	50	None	Un-M	JS
163.0	163.6	0.50	83	0.00	0	50	10	25	AND	light grey to white	fine grained	breccia	fault gouge, just clay, sand and gravel up to 2 cm in size semi rounded				0	1	1	2	3	7	15	F	10.0	cly	gg	50	None	Un-M	JS
163.6	164.9	0.80	64	0.00	0	50	16	25	AND	light grey to white	fine grained	breccia	becoming more competent				0	4	5	0	3	12	15	F	10.0	cly	gg	50	None	Un-M	JS
164.9	165.9	0.90	86	0.00	0	50	18	25	AND	light grey to white	fine grained	breccia	sand zone, very crushed up rock				0	4	5	0	3	12	15	F	10.0	cly	gg	50	None	Un-M	JS
165.9	167.5	0.70	45	0.00	0	50	14	0	AND	light grey to white	fine grained	breccia	***large sand zone, 40 cm recovered*** sand zone, very crushed up rock, wireline was stuck in sand layer				0	0	1	0	3	4	15	F	10.0	cly	sand	50	None	Un-M	JS
167.5	168.8	0.62	48	0.15	12	50	12	25	AND	light grey to white	fine grained	breccia	solidified breccia and a lot of redrilled rubble				0	1	3	2	3	9	15	F	10.0	cly	sand	50	None	Un-M	JS
168.8	169.6	0.72	90	0.00	0	50	14	5	AND	light grey to white	fine grained	breccia	very weak rock, not as much clay as before, mainly chlorite and calcite				0	4	3	0	3	10	15	F	10.0	sand	rub	50	None	Un-M	JS
169.6	169.9	0.30	100	0.00	0	8	33	25	AND	light grey to white	fine grained	breccia	inner tube blocked -> have to pull rods weak rock, chlorite and calcite infill				0	1	3	0	3	7	15	F	10.0	sand	chl	8	None	Un-M	JS
169.9	171.4	1.50	100	0.90	60	2	500	50	AND	light grey to white	fine grained	breccia	heavily jointed but still together, clay throughout last 45 cm of run, rubble from 0.8 to 1.15, vuggy pyrite (mostly in joints)	1.48	25	20	0	1	1	2	3	7	15	J	2.0	cly	chl	1	F	Un-M	JS
														1.50	70	355	0	1	3	2	3	9	15	J	2.0	cly	chl	1	F	Un-M	JS
171.4	172.0	0.00	0	0.00	0	50	0	25	AND				cave rock				0	1	3	2	3	9	15	F	140.0			50	None	Un-M	JS
172.0	173.3	1.17	90	0.00	0	50	23	25	AND	light green	fine grained	breccia	some cave rock, then altered green andesite, highly fractured breccia				0	0	1	0	3	4	15	F	20.0	chl	cc	50	None	Un-M	JS
173.3	173.8	0.44	98	0.00	0	50	9	25	AND	light green	fine grained	breccia	very broken up rock with no clay				0	0	1	0	3	4	15	F	20.0	chl	cc	50	None	Un-M	JS
173.8	175.0	1.17	94	0.00	0	50	23	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	3	2	3	8	15	F	0.0	cly	gg	1	None	Un-M	JS
175.0	176.5	1.47	98	0.00	0	50	29	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	3	2	3	8	15	F	0.0	cly	gg	1	None	Un-M	JS
176.5	177.8	1.07	86	0.00	0	50	21	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
177.8	178.4	0.25	42	0.00	0	50	5	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
178.4	179.3	0.88	98	0.00	0	50	17	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
179.3	180.8	1.38	92	0.00	0	50	27	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
180.8	182.0	1.17	94	0.00	0	50	23	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix, change to dark grey at 181.2 m				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
182.0	182.8	0.43	54	0.00	0	50	8	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix, change to light green				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
182.8	184.0	0.92	77	0.00	0	50	18	5	AND	light green	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
184.0	185.0	0.50	50	0.00	0	50	10	5	AND	light green	fine grained	breccia	rubble, fines washed away driller said he increased the water				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
185.0	186.6	1.53	96	0.00	0	50	30	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
186.6	188.2	1.57	98	0.00	0	50	31	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
188.2	189.8	1.57	98	0.00	0	50	31	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
189.8	191.5	1.54	93	0.00	0	50	30	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	1	0	3	4	15	F	0.0	cly	gg	1	None	Un-M	JS
191.5	192.4	0.78	87	0.00	0	50	15	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	3	3	3	9	15	F	0.0	cly	gg	1	None	Un-M	JS
192.4	192.6	0.27	100	0.00	0	50	5	25	AND	black	fine grained	massive	rubble				0	4	3	6	3	16	15	F	0.4	rub		50	None	Un-M	JS
192.6	194.0	0.84	62	0.00	0	1	420	5	AND	dark grey	fine grained	breccia	cemented fault gouge, breccia of med gravel in clay and sand matrix				0	0	3	3	3	9	15	F	0.0	cly	gg	1	None	Un-M	JS
194.0	195.3	1.35	100	0.41	30	50	26	25	AND	black	fine grained	massive	highly fractured with chl and cc on joint faces, definite change from fault gouge				0	4	1	0	3	8	15	J	4.0	chl	cc	50	None	Un-M	JS
195.3	196.0	0.64	91	0.00	0	50	13	25	AND	black	fine grained	massive	highly fractured				0	4	1	2	3	10	15	J	4.0	chl	cc	50	None	Un-M	JS
196.0	196.7	0.65	100	0.00	0	50	13	25	AND	black	fine grained	massive	highly fractured				0	0	1	0	3	4	15	J	4.0	chl	cc	50	None	Un-M	JS
196.7	197.3	0.60	100	0.00	0	50	12	25	AND	black	fine grained	massive	highly fractured				0	4	1	0	3	8	15	J	4.0	chl	cc	50	None	Un-M	JS
197.3	199.0	0.73	43	0.14	8	50	14	25	AND	black	fine grained	massive	highly fractured, chlorite and calcite on joint faces				0	4	1	0	3	8	15	J	4.0	chl	cc	50	None	Un-M	JS
199.0	200.0	0.95	100	0.00	0	50	19	25	AND	black	fine grained	massive	highly fractured, chlorite and calcite on joint faces				0	0	1	0	3	4	15	J	4.0	chl	cc	50	None	Un-M	JS
200.0	200.5	0.55	100	0.00	0	5	92	25	AND	black	fine grained	massive	highly fractured, chlorite and calcite on joint faces, several mechanical breaks	0.00	9	50	0	1	1	4	5	11	15	J	3.0	cc	chl	1.0	F	Un-M	AB
														0.12	36	220	0	1	3	4	5	13	15	J	2.0	cc	chl	1.0	F	Un-M	AB
														0.36	26	290	0	4	1	4	5	14	15	J	1.0	cc	chl	1.0	F	Un-M	AB
														0.54	25	31	0	1	1	2	5	9	15	J	3.0	cc	cly	1.0	F	Un-M	AB
														0.55	46	335	0	4	1	2	5	12	15	J	1.0	cc	cly	1.0	F	Un-M	AB
200.5	202.0	1.43	95	0.10	7	8	159	50	AND	black	fine grained	massive	last 30 cms of run is rubble	0.00	8	140	0	1	1	4	5	11	15	J	3.0	cc	chl	2.0	F	Un-M	AB
														0.25	50	80	0	4	1	4	5	14	15	J	1.0	cc	chl	2.0	F	Un-M	AB
														0.56	62	260	0	4	3	4	5	16	15	J	1.0	cc	chl	1.0	F	Un-M	AB
														0.67	63	95	0	1	3	0	3	7	15	J	1.0	cc	chl	1.0	F	Un-M	AB
														0.79	58	285	0	1	1	0	3	5	15	J	1.0	cc	chl	2.0	F	Un-M	AB
202.0	203.5	1.41	94	0.11	7	6	201	50	AND	black	fine grained	massive	chlorite and calcite on joint faces, several mechanical breaks	0.34	31	150	0	4	1	4	5	14	15	J	1.0	cc	chl	3.0	F	Un-M	AB
														0.54	27	350	0	4	1	4	5	14	15	J	1.0	cc	chl	1.0	F	Un-M	AB
														0.80	65	160	0	4	1	4	3	12	15	J	1.0	cc	chl	1.0	F	Un-M	AB
														0.92	12	110	0	4	3	4	3	14	15	J	1.0	cc	chl	1.0	F	Un-M	AB
203.5	205.0	1.35	90	0.00	0	50	26	25	AND	black	fine grained	massive	highly fractured/rubble				0	4	1	2	3	10	15	J	1350.0	cly	chl	50	VG	0	AB
205.0	206.5	1.50	100	0.47	31	9	150	50	AND	black	fine grained	massive	vuggy pyrite, last 55 cms of run is rubble	0.06	65	180	0	0	1	0	3	4	15	J	1.0	chl		1	F	Un-M	AB
														0.17	22	5	0	4	1	4	3	12	15	J	1.0	chl	pyr	2	F	Un-M	AB
														0.37	25	40	0	4	1	4	3	12	15	J	1.0	chl	pyr	1	F	Un-M	AB
														0.45	37	120	0	4	1	4	3	12	15	J	1.0	chl		1	F	Un-M	AB
														0.72	47	120	0	4	1	2	3	10	15	J	1.0	chl	pyr	1	F	Un-M	AB
														0.79	46	340	0	4	1	4	3	12	15	J	1.0	chl	pyr	1	F	Un-M	AB
														0.83	43	25	0	4	3	4	3	14	15	J	1.0	chl		1	F	Un-M	AB
														1.06	51	10	0	4	5	4	3	16	15	J	1.0	chl		1	F	Un-M	AB
206.5	208.0	0.80	53	0.00	0	50	16	25	AND	black	fine grained	massive	all rubble				0	0	1	0	3	4	15	F	800.0	cly	pyr	50	F	Un-M	AB
208.0	209.5	1.41	94	0.00	0	15	88	25	AND	black	fine grained	massive	mostly rubble				0	0	1	0	3	4	15	F	1400.0	cly	chl	15	F	Un-M	AB
209.5	211.0	1.48	99	0.36	24	13	106	40	AND	black	fine grained	massive	more competent than previous runs, some small rubble areas	0.16	31	300	0	4	5	4	5	18	15	J	1.0	chl		1	F	Un-M	AB
														0.29	20	230	0	4	1	4	5	14	15	J	1.0	chl	cc	1	F	Un-M	AB
														0.34	30	235	0	4	5	4	5	18	15	J	1.0	chl	cc	1	F	Un-M	AB
														0.50	36	335	0	4	1	2	5	12	15	J	1.0	chl	cc	1	F	Un-M	AB
														0.55	38	70	0	1	1	2	5	9	15	J	2.0	chl	cc	1	F	Un-M	AB
														0.56	24	90	0	4	1	2	5	12	15	J	1.0	chl	cc	1	F	Un-M	AB
														0.65	43	230	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
														0.99	43	70	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
														1.05	51	290	0	4	1	4	5	14	15	J	1.0	chl		1	F	Un-M	AB
														1.12	9	65	0	4	1	2	5	12	15	J	1.0	chl	cc	1	F	Un-M	AB
														1.22	39	50	0	4	1	2	5	12	15	J	1.0	chl	cc	1	F	Un-M	AB
														1.23	7	200	0	4	1	2	5	12	15	J	1.0	chl	cc	2	F	Un-M	AB
211.0	212.5	1.25	83	0.47	31	6	179	75	AND	black	fine grained	massive	As above	0.24	7	120	0	4	3	4	5	16	15	J	1.0	chl		1	VG	0	AB
														0.45	39	330	0	4	1	4	5	14	15	J	1.0	chl		1	VG	0	AB
														0.77	67	50	0	4	1	6	5	16	15	J	1.0			1	VG	0	AB
														0.89	44	110	0	4	1	2	5	12	15	J	1.0	chl	cc	1	VG	0	AB
														0.93	54	210	0	4	1	2	5	12	15	J	1.0	chl	cc	1	VG	0	AB
														1.01	39	340	0	4	1	4	5	14	15	J	1.0	chl	cc	1	VG	0	AB
212.5	214.0	1.48	99	0.00	0	50	29	25	AND	black	fine grained	massive	highly fractured/rubble				0	0	1	0	3	4	15	rub	1.0	chl	pry	50	None	Un-M	AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
214.0	215.5	1.42	95	0.42	28	3	355	75	AND	black	fine grained	massive	first half of run is broken up but then it becomes more competent in the last half, several mechanical breaks	0.64	26	95	0	0	1	0	3	4	15	J	1.0	cly	chl	1	F	Un-M	AB
														1.24	23	80	0	4	5	2	3	14	15	J	1.0	cly	chl	1	F	Un-M	AB
														1.25	25	150	0	4	5	2	3	14	15	J	1.0	cly	chl	1	F	Un-M	AB
215.5	217.0	1.50	100	0.60	40	6	214	75	AND	black	fine grained	massive		0.26	33	330	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	0	AB
														0.91	30	270	0	4	1	4	5	14	15	J	1.0	pry	chl	1	VG	0	AB
														1.02	4	325	0	4	0	6	5	15	15	J	1.0			1	VG	0	AB
														1.12	31	140	0	4	1	4	5	14	15	J	1.0	pry	chl	1	VG	0	AB
														1.37	47	220	0	4	3	6	5	18	15	J	1.0			1	VG	0	AB
														1.42	35	210	0	4	3	2	5	14	15	J	1.0	cly	chl	1	VG	0	AB
217.0	218.5	1.43	95	0.00	0	50	28	75	AND	black	fine grained	massive	broken				0	4	1	4	5	14	15	Rub	1.0	chl	pyr	50	None	Un-M	AB
218.5	220.0	1.50	100	0.71	47	5	250	75	AND	black	fine grained	massive	several mechanical breaks, fresh to moderately weathered, strong	0.12	16	355	0	4	1	4	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
														0.36	45	355	0	4	1	4	5	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
														1.02	38	120	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
														1.22	32	80	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
														1.42	41	310	0	4	1	4	5	14	15	J	1.0	pyr		1	F	Un-M	AB
220.0	221.5	1.42	95	0.75	50	5	237	75	AND	black	fine grained	massive	from 0.95 till end of the run it is rubble/sandy	0.64	16	30	0	4	1	4	5	14	15	J	1.0	pyr		1	VG	0	AB
														0.83	52	240	0	4	3	4	3	14	15	J	1.0	pyr	chl	2	VG	0	AB
														1.10	49	49	0	1	1	0	3	5	15	J	7.0	cly	cc	2	VG	0	AB
221.5	223.0	0.70	47	0.40	27	10	64	110	AND	black	fine grained	massive	cave in due to packer test				0	0	1	0	3	4	15	J	2.0	chl	cc	10	None	Un-M	JS
223.0	224.4	0.46	33	0.00	0	50	9	5	AND	black	fine grained	massive	highly fractured sand and gravel				0	0	1	0	3	4	15	F	480.0	sand	cly	50	None	Un-M	JS
224.4	225.9	1.45	97	1.10	73	25	56	25	AND	black	fine grained	massive	12 cm clay at top of run	0.00			0	0	1	0	3	4	15	Sh	120.0	cly	gg	6	None	Un-M	JS
225.9	227.5	1.45	91	0.00	0	50	28	5	AND	black	fine grained	massive	40 cm brown clay at top of run, rest of run is competent bedrock	0.00	74	245	0	0	1	0	3	4	15	Sh	400.0	cly	gg	3	Poor	Un-M	JS
														0.10	52	290	0	0	1	0	3	4	15	slicks	2.0	chl		1	Poor	Un-M	JS
														0.50	32	0	0	0	1	0	3	4	15	Sh	200.0	cly	gg	1	Poor	Un-M	JS
														0.60	35	150	0	0	1	0	3	4	15	Sh	100.0	cly	gg	1	Poor	Un-M	JS
														1.20	55	10	0	0	1	0	3	4	15	Rub	100.0	cly	gg	1	Poor	Un-M	JS
227.5	229.0	1.50	97	0.00	0	50	29	5	AND	black	fine grained	massive	solid conglomerate of gravel and clay				0	0	1	0	3	4	15	F	1500.0	sand	cly	1	None	Un-M	JS
229.0	229.3	0.25	100	0.00	0	50	5	5	AND	black	fine grained	massive	solid conglomerate of gravel and clay				0	0	1	0	3	4	15	F	430.0	sand	cly	1	None	Un-M	JS
229.3	230.3	0.70	67	0.00	0	50	14	5	AND	black	fine grained	massive	loose gravel sand and clay				0	0	1	0	3	4	15	F	700.0	sand	cly	1	None	Un-M	JS
230.3	231.9	1.50	94	0.58	36	50	29	5	AND	black	fine grained	massive	solid conglomerate of gravel and clay				0	0	1	0	3	4	15	F	1500.0	sand	cly	1	None	Un-M	JS
231.9	233.5	1.47	92	0.00	0	50	29	5	AND	black	fine grained	massive	highly fractured rock with thick chlorite and calcite on joint faces and clay seams				0	0	1	0	3	4	15	F	10.0	cly	chl	1	None	Un-M	JS
233.5	235.0	1.47	98	0.90	60	11	123	50	AND	black	fine grained	massive	30 cm clay at top of run, can't continue drill hole without adding bentonite to water				0	1	1	2	3	7	15	F	4.0	cly	chl	11	None	Un-M	JS
235.0	235.4	0.30	75	0.00	0	50	6	50	AND	black	fine grained	massive	mainly cave in				0	4	3	2	3	12	15	F	4.0	cly	chl	50	None	Un-M	JS
235.4	235.8	0.41	98	0.00	0	15	26	50	AND	black	fine grained	massive	mostly rubble, some clay				0	0	1	0	3	4	15	F	5.0	cly		15	None	Un-M	AB
235.8	237.7	0.90	47	0.14	7	15	56	25	AND	grey	fine grained	massive	weak, brecciated rock (conglomerate?), clay infill, mostly rubble (one solid piece)				0	4	3	2	3	12	15	F	5.0	cly		15	None	Un-M	AB
237.7	238.0	0.27	100	0.00	0	15	17	25	AND	grey	fine grained	massive	rubble/cave				0	0	1	0	3	4	15	J	2.0	cly		15	None	Un-M	AB
238.0	239.5	1.04	69	0.00	0	50	20	25	AND	grey	fine grained	massive	highly fractured/rubble				0	0	1	0	3	4	15	J	2.0	cly	pyr	50	None	Un-M	AB
239.5	241.0	1.41	94	0.16	11	50	28	35	AND	grey	fine grained	massive	As above				0	0	1	0	3	4	15		1400.0			50	None	Un-M	AB
241.0	242.5	1.50	100	0.51	34	5	250	75	AND	grey	fine grained	massive	about 20 cm clay seam near top of run	0.42	47	230	0	4	1	2	3	10	15	J	1.0	cly		1	F	Un-M	AB
														0.70	41	50	0	1	1	2	3	7	15	J	2.5	cc	cly	1	F	Un-M	AB
														1.23	40	270	0	4	3	2	3	12	15	J	1.0	cly		3	F	Un-M	AB
242.5	242.7	0.20	100	0.00	0	1	100	75	AND	grey	fine grained	massive		0.07	53	120	0	4	1	4	3	12	15	J	1.0	chl		1	G	0	AB
242.7	244.0	1.26	97	0.00	0	15	79	25	AND	grey	fine grained	massive					0	0	1	0	3	4	15	F	200.0	chl	cly	15	None	Un-M	AB
244.0	245.5	1.50	100	0.00	0	50	29	50	AND	grey	fine grained	massive	heavily fractured/jointed, moderately weathered				0	0	1	0	3	4	15	F	1570.0	cly	chl	50	None	Un-M	AB
245.5	247.0	1.05	70	0.00	0	50	21	35	AND	grey	fine grained	massive	as above, with rubble				0	0	1	0	3	4	15	F	1000.0	cly	chl	50	None	Un-M	AB
247.0	247.7	0.65	93	0.00	0	50	13	25	AND	grey	fine grained	massive	weak, brecciated, mostly rubble				0	0	1	0	3	4	15	F	1000.0	cly		50	None	Un-M	AB
247.7	248.5	0.80	100	0.60	75	3	200	75	AND	grey	fine grained	massive	brecciated, calcite infill	0.40	33	290	0	0	1	0	3	4	15	J	1.0	cc	cly	1	None	Un-M	AB
														0.50	62	280	0	4	3	4	5	16	15	J	1.0	cc		1	None	Un-M	AB
														0.60	39	130	0	4	1	4	5	14	15	J	1.0	cc		1	None	Un-M	AB
248.5	250.0	1.33	89	1.17	78	2	443	50	AND	grey	fine grained	massive	slightly softer rock than the previous run, higher clay content near end, some mechanical breaks	0.46			0	4	3	2	5	14	15	J	1.0	cc		1	None	Un-M	AB
														0.57			0	4	1	2	5	12	15	J	1.0	cc		1	None	Un-M	AB
250.0	251.5	1.48	99	1.09	73	4	296	50	AND	grey	fine grained	massive	competent rock, calcite infill, clay brecciated parts in first half of the run, some mechanical breaks	0.12	32	100	0	4	5	2	5	16	15	J	1.0	cly	chl	1	None	Un-M	AB
														0.83	55	340	0	4	1	2	5	12	15	J	1.0	cly	cc	1	None	Un-M	AB
														1.33	30	25	0	4	1	2	5	12	15	J	1.0	cly	cc	1	None	Un-M	AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
														1.48	20	20	0	4	1	4	5	14	15	J	1.0	cc		1	None	Un-M	AB
251.5	253.0	1.50	100	1.37	91	2	500	110	AND	grey	fine grained	massive	strong competent rock, calcite infill in the joints/veins	0.33	27	115	0	4	1	4	5	14	15	J	1.0	cc		1	G	15	AB
														1.14	66	240	0	4	1	4	5	14	15	J	1.0	cc		1	G	15	AB
253.0	254.5	1.50	100	1.30	87	3	375	110	AND	grey	fine grained	massive	as above	0.08	57	310	0	4	1	3	5	13	15	J	1.0	cc		1	VG	0	AB
														0.33	61	255	0	4	1	4	5	14	15	J	1.0	cc		1	VG	0	AB
														1.10	40	0	0	4	1	4	5	14	15	J	1.0	cc		1	VG	0	AB
254.5	256.0	1.31	87	1.19	79	3	328	110	AND	grey	fine grained	massive	as above	0.63	61	60	0	4	3	4	5	16	15	J	1.0	cc		1	VG	0	AB
														0.73	69	130	0	4	3	4	5	16	15	J	1.0	cc		1	VG	0	AB
														1.05	67	30	0	4	3	4	5	16	15	J	1.0	cc		1	VG	0	AB
256.0	256.5	0.45	100	0.45	100	1	225	110	AND	grey	fine grained	massive		0.39	20	87	0	4	1	4	5	14	15	J	1.0	cc	chl	1	F	Un-M	GV
256.5	258.0	1.52	98	1.12	72	4	304	75	AND	grey	fine grained	massive	soft, very veined rock	0.24			0	0	1	0	5	6	15	SR/Vn	180.0	cc	chl	1	G	-10	GV
														0.56	41	33	0	4	1	2	5	12	15		1.0	cc	chl	1	G	-10	GV
														0.86			0	0	1	0	5	6	15	SR/Vn	120.0	cc	chl	1	G	-10	GV
														1.38			0	0	1	0	5	6	15	SR/Vn	100.0	cc	chl	1	G	-10	GV
258.0	259.0	1.00	100	1.00	100	0	1000	95	AND	grey	fine grained	massive	Much more competent strong				6	6	6	6	5	29	15		100.0			0	G	-8	GV
259.0	260.5	1.50	100	1.39	93	1	750	80	AND	grey	fine grained	massive		0.24			0	0	1	0	5	6	15	rub/Rub	110.0	cc	chl	1	F	Un-M	GV
260.5	261.6	1.07	100	1.07	100	50	21	80	AND	grey	fine grained	massive	Top 1.07m is as above, bottom is a broken zone	0.99	11		0	4	1	2	3	10	15	J/Br?	1.0	cc	chl	1	G	0	GV
261.6	262.0	0.42	98	0.00	0	4	84	65	AND	grey	fine grained	massive					0	0	1	0	3	4	15	Brok	420.0	cly	cc	4	None	Un-M	GV
262.0	263.5	1.50	100	1.24	83	50	29	50	AND	grey	fine grained	massive	unable to orient from bottom or previous lots of clay				0	0	1	0	3	4	15	rub	105.0	cly	chl	1	None	Un-M	GV
263.5	265.0	1.48	99	0.00	0	50	29	25	AND	grey	fine grained	massive	as above. No match top or bottom lots of clay				6	4	1	2	3	16	15	soft-run	1500.0	cly	chl	0	None	Un-M	GV
265.0	266.2	1.13	98	0.00	0	50	22	25	AND	grey	fine grained	massive	still very soft and clayey				0	0	1	0	3	4	15	soft rock	1130.0	cly		0	None	Un-M	GV
266.2	267.8	1.56	97	0.00	0	50	31	25	AND	grey	fine grained	massive	as above				0	0	1	0	3	4	15	soft rock	1560.0	cly		0	None	Un-M	GV
267.8	269.4	1.56	97	1.56	97	50	31	25	AND	grey	fine grained	massive	much more competent, less clay, many mechanical breaks				0	0	1	0	3	4	15		1560.0			0	None	Un-M	GV
269.4	271.0	1.52	95	0.90	56	50	30	25	AND	grey	fine grained	massive	more clay again				0	0	1	0	3	4	15	rub	1560.0	cly		1	None	0	GV
271.0	272.5	1.55	100	1.22	79	50	30	25	AND	grey	fine grained	massive	soft rock, no joints				0	0	1	0	3	4	15	soft rock	1560.0	cly		0	None	Un-M	GV
272.5	274.0	1.50	100	1.50	100	0	1500	80	AND	grey	fine grained	massive	more competent				6	6	6	6	6	30	15		1560.0			0	None	15	GV
274.0	275.5	1.50	100	1.50	100	0	1500	80	AND	grey	fine grained	massive	as above, only mechanical breaks				6	6	6	6	6	30	15		1560.0			0	None	-20	GV
275.5	277.0	1.46	97	1.31	87	1	730	65	AND	grey	fine grained	massive		1.31			0	0	1	0	6	7	15	rub	100.0	cly	chl	1	None	-20	GV
277.0	278.5	1.50	100	0.54	36	50	29	75	AND	grey	fine grained	massive	heavily fractured/veined whole run logged as broken zone				0	0	1	0	3	4	15	rub	1540.0	cly		0	None	-20	GV
278.5	279.3	0.57	71	0.00	0	50	11	50	AND	grey	fine grained	massive	fault/broken zone				0	0	1	0	3	4	15	rub/shear	570.0	cly	chl	0	None	Un-M	GV
279.3	280.0	0.60	86	0.00	0	50	12	50	AND	grey	fine grained	massive	fault/broken zone, some cave/rubble at top of run				0	0	1	0	3	4	15	rub/shear	600.0	cly	chl	0	None	Un-M	AB
280.0	281.5	1.50	100	0.60	40	6	214	75	AND	grey	fine grained	massive	fractured run, clay throughout, some mechanical breaks	0.13	29	150	0	1	1	2	3	7	16	shear	2.5	cly	pry	3	F	Un-M	AB
														0.64	32	160	0	4	3	2	3	12	16	J	1.0	cly	pry	1	F	Un-M	AB
														0.98	45	145	0	4	1	0	3	8	15	shear	10.0	cly	rub	1	F	Un-M	AB
														1.13	37	160	0	1	3	2	3	9	15	shear	2.5	cly	pry	1	F	Un-M	AB
281.5	283.0	1.38	92	0.30	20	6	197	75	AND	grey	fine grained	massive	as above	0.07	15	155	0	0	5	0	3	8	15	shear	10.0	chl	cly	2	F	Un-M	AB
														0.74	43	160	0	1	3	2	3	9	15	J	2.5	cly		2	F	Un-M	AB
														1.02	41	160	0	0	3	0	3	6	15	shear	10.0	cly	cc	1	F	Un-M	AB
														1.26	69	80	0	4	3	4	3	14	15	J	1.0	chl	pyr	1	F	Un-M	AB
283.0	284.5	1.50	100	0.82	55	9	150	75	AND	grey	fine grained	massive	as above	0.40	53	130	0	4	1	4	5	14	15	J	1.0	chl	cc	2	F	Un-M	AB
														0.80	33	20	0	4	1	2	5	12	15	J	1.0	cly	cc	4	F	Un-M	AB
														1.18	55	60	0	4	1	2	5	12	16	J	1.0	cc	pry	1	F	Un-M	AB
														1.18	54	200	0	4	1	2	5	12	16	J	1.0	cc	chl	1	F	Un-M	AB
														1.50	54	220	0	4	1	2	5	12	15	J	1.0	cc	pyr	1	F	Un-M	AB
284.5	286.0	1.45	97	1.43	95	1	725	75	AND	grey	fine grained	massive	2 mech. Breaks, strong, fresh	0.34	64	170	0	4	1	2	5	12	15	J	1.0	cc	chl	1	VG	0	AB
286.0	287.5	1.50	100	1.01	67	4	300	110	AND	grey	fine grained	massive		0.26	63	30	0	4	1	2	5	12	15	J	1.0	cc	chl	1	VG	0	AB
														0.86	16	40	0	4	1	2	5	12	15	J	1.0	cc	chl	1	VG	0	AB
														0.93	62	190	0	4	1	2	5	12	15	J	1.0	cc	chl	1	VG	0	AB
														1.22	66	190	0	4	1	2	5	12	15	J	1.0	cc	chl	1	VG	0	AB
287.5	287.9	0.40	100	0.35	88	0	399	110	AND	grey	fine grained	massive					6	6	6	6	6	30	15		400.0			0	None	Un-M	AB
287.9	288.5	0.60	100	0.56	93	1	300	110	AND	grey	fine grained	massive	moderately weathered	0.45	35	30	0	4	1	4	5	14	15	J	1.0	cc	chl	1	VG	0	AB
288.5	289.0	0.35	70	0.20	40	0	350	75	AND	grey	fine grained	massive	come cave, only mechanical breaks, rubble at end of run				6	6	6	6	5	29	16		0.0			0	VG	0	AB
289.0	290.5	1.50	100	1.36	91	4	300	75	AND	grey	fine grained	massive		0.38	32	90	0	4	1	2	5	12	16	J	1.0	cc		1	G	-10	AB
														0.40	40	355	0	4	1	2	5	12	15	J	1.0	cc		1	G	-10	AB
														0.68	59	100	0	4	1	2	5	12	15	J	1.0	cc		1	G	-10	AB
														1.36	54	190	0	4	1	2	5	12	15	J	1.0	chl		1	G	-10	AB
290.5	292.0	1.50	100	0.70	47	4	300	75	AND	grey	fine grained	massive	some mechanical breaks, clay seam running along run and another clay seam near end of run	0.04	80	70	0	4	1	2	5	12	15	J	1.0	chl		3	F	Un-M	AB
														1.30	27	310	0	4	3	2	5	14	15	J	1.0	cly		1	F	Un-M	AB
292.0	293.5	1.50	100	1.39	93	4	300	75	AND	grey	fine grained	massive		0.07	72	10	0	4	1	4	5	14	15	J	1.0	cc		1	VG	0	AB
														0.79	41	75	0	4	1	4	5	14	15	J	1.0	chl		1	VG	0	AB
														1.27	72	10	0	4	1	6	5	16	15	J	1.0			1	VG	0	AB
														1.41	42	75	0	4	1	4	5	14	16	J	1.0	cc		1	VG	0	AB
293.5	295.0	1.31	87	1.16	77	3	328	75	AND	grey	fine grained	massive		0.56	56	70	0	4	1	4	5	14	16	J	1.0	cc		1	G	5	AB
														0.98	37	45	0	4	1	2	5	12	15	J	1.0	cc		1	G	5	AB
														1.17	37	200	0	4	1	2	5	12	15	J	1.0	cc		1	G	5	AB

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
295.0	296.5	1.50	100	1.20	80	4	300	75	AND	grey	fine grained	massive	some mechanical breaks, strong andesite, calcite infill in joints/veins, some pyrite	0.09	27	270	0	1	1	3	5	10	15	J	1.0	cc	chl	1	G	15	AB
														0.80	32	20	0	4	3	2	5	14	15	J	1.0	cc		1	G	15	AB
														1.16	43	55	0	4	1	2	5	12	15	J	1.0	cc	chl	1	G	15	AB
														1.47	64	90	0	4	1	2	5	12	15	J	1.0	cc		1	G	15	AB
296.5	298.0	1.50	100	0.78	52	4	300	75	AND	grey	fine grained	massive	several mechanical breaks	0.12	20	50	0	4	1	2	5	12	15	J	1.0	cc		1	VG	0	AB
														0.33	39	110	0	4	1	2	5	12	15	J	1.0	cc		1	VG	0	AB
														1.02	18	70	0	4	1	2	5	12	16	J	1.0	cc		1	VG	0	AB
														1.23	25	130	0	4	3	2	5	14	16	J	1.0	cc		1	VG	0	AB
298.0	299.5	1.50	100	1.34	89	1	750	75	AND	grey	fine grained	massive	some mechanical breaks	0.08	18	40	0	4	1	4	5	14	15	J	1.0	cc		1	G	15	AB
299.5	301.0	1.50	100	1.50	100	2	500	85	AND	grey	fine grained	massive		0.52	43	173	0	4	3	2	5	14	15	J	<1	cc		1	P	160	CMS
														0.73	30	147	0	1	3	2	5	11	15	J	2.0	cc		1	P	160	CMS
301.0	302.5	1.50	100	1.50	100	2	500	85	AND	grey	fine grained	massive	some mechanical breaks	0.55	20	130	0	4	1	2	5	12	15	J	<1	cc		1	F	0	CMS
														0.71	70	105	0	4	3	2	5	14	15	J	1.0	cc	wcl	1	F	0	CMS
302.5	304.0	1.42	95	1.42	95	0	1420	80	AND	grey	fine grained	massive	some mechanical breaks and joints along weak planes				6	6		6	6	24	15		0.0			0	G	10	CMS
304.0	305.5	1.50	100	1.46	97	1	750	75	AND	grey	fine grained	massive	some mechanical breaks	0.32	27	60	0	4		4	5	13	15	J	<1	cc		1	F	Un-M	AB
305.5	307.0	1.41	94	1.41	94	0	1410	85	AND	grey	fine grained	massive	mechanical breaks only				6	6		6	5	23	15		0.0			0	VG	0	AB
307.0	308.5	1.50	100	1.08	72	2	500	75	AND	grey	fine grained	massive	some mechanical breaks, end of run is broken	0.72	26	350	0	4		2	5	11	16	J	1.0	cc	chl	1	VG	0	AB
														1.40	28	40	0	4		2	5	11	16	J	1.0	cc	chl	1	VG	0	AB
308.5	310.0	1.46	97	1.46	97	0	1460	75	AND	grey	fine grained	massive	all mechanical breaks				6	6		6	6	24	15		0.0			0	None	Un-M	AB
310.0	311.5	1.50	100	1.00	67	2	500	75	AND	grey	fine grained	massive	Some broken Zones 15cm x 2	0.20	16	60	0	4		2	5	11	15	J	1.0	cc	chl	1	None	Un-M	AB
														0.40	21	110	0	4		2	5	11	15	J	1.0	cc	chl	1	None	Un-M	AB
311.5	313.0	1.39	93	1.00	67	1	695	50	AND	grey	fine grained	massive	~45cm clay seam some mechanical breaks	0.80	14	60	0	0		0	3	3	15	J	1.0	wcl		1	G	10	AB
313.0	314.5	1.44	96	0.76	51	4	288	35	AND	grey	fine grained	massive	clay throughout, competent, broken t end of run	0.50	19	70	0	0		0	3	3	15	J	3.0	wcl		3	G	-10	AB
														1.30	50	20	0	0		0	3	3	15	J	1.0	wcl		1	G	-10	AB
314.5	316.0	1.50	100	1.28	85	2	500	50	AND	grey	fine grained	massive	moderately weathered, massive, grey, fine grained, soft from 0.61-0.73	0.40	66	80	0	1		2	5	8	15	J	3.0	cc	wcl	1	VG	0	AB
														0.54	70	70	0	1		2	5	8	15	J	3.0	cc	wcl	1	VG	0	AB
316.0	317.2	1.14	95	0.83	69	3	285	30	AND	grey	fine grained	massive	several mechanical breaks	0.18	55	120	0	4		4	5	13	16	J	1.0	cc		1	VG	0	AB
														0.93	32	70	0	1		2	5	8	16	J	2.0	cc	wcl	1	VG	0	AB
														1.09	56	50	0	4		4	5	13	15	J	1.0	cc	wcl	1	VG	0	AB
317.2	318.1	0.78	83	0.20	21	2	260	30	AND	grey	fine grained	massive	All of rock fragmented (rule zone), weak rock	0.27			0	0		0	3	3	15	J/Br?	1.0	cc		1	None	Un-M	GV
														0.30			0	0		0	3	3	15	Rub/Brok	450.0	cc	wcl	1	None	Un-M	GV
318.1	318.4	0.20	77	0.00	0	1	100	25	AND	grey	fine grained	massive	entire run broken/rubble zone, no infilling or discolouration	0.00			0	0		0	3	3	15	Rub/Brok	200.0			1	None	Un-M	GV
318.4	319.0	0.56	93	0.00	0	1	280	25	AND	grey	fine grained	massive	entire run broken/rubble zone	0.00			0	0		0	3	3	15	Rub/Brok	560.0	cc	wcl	1	None	Un-M	GV
319.0	319.7	0.66	92	0.00	0	1	330	25	AND	grey	fine grained	massive	entire run broken/rubble zone	0.00			0	0		0	3	3	15	Rub/Brok	660.0	cc	wcl	1	None	Un-M	GV
319.7	320.9	1.03	88	0.00	0	1	515	25	AND	grey	fine grained	massive	entire run broken/rubble zones	0.00			0	0		0	3	3	15	Rub/Brok	1030.0	cc	wcl	1	None	Un-M	GV
320.9	321.6	0.73	100	0.18	25	2	243	30	AND	grey	fine grained	massive	Highly fractured run with broken/ruble zone at bottom (0.12m long)	0.34	25	50	0	2		4	3	9	15	J	5.0	pyr		1	F	Un-M	GV
														0.53			0	1		4	3	8	16	Rub/Brok	120.0	cc	wcl	1	None	Un-M	GV
321.6	322.1	0.50	100	0.13	26	1	250	50	AND	grey	fine grained	massive	Top 0.46m fresh rock with mechanical breaks and fractures, bottom 0.09m broken/rubble zone	0.46			0	1		4	3	8	16	Rub/Brok	90.0	wcl	cc	1	None	Un-M	GV
322.1	323.3	0.96	82	0.26	22	1	480	50	AND	grey	fine grained	massive	Weak rock, fractures/joints mechanical	0.83	10	120	0	4		4	3	11	15	J/Br?	3.0	pyr		1	F	Un-M	GV
323.3	324.3	0.97	98	0.00	0	0	970	50	VC	grey	fine grained	massive	Highly fractured due to mechanical breaks/planes of weakness (pyrite infilling)				6	6		6	6	24	15		0.0	pyr		0	None	Un-M	GV
324.3	325.5	1.19	97	1.07	87	15	74	50	VC	grey	fine grained	massive	Broken Zone in middle of run, bottom half oriented	0.10	55		0	4		4	5	13	15	J	<1	pyr		1	None	Un-M	GV
														0.74			0	1		4	5	10	15	Brok/Rub	100.0	pyr	wcl	1	None	Un-M	GV
325.5	327.1	1.53	97	1.50	95	10	139	80	VC	grey	fine grained	massive	slightly weathered, grey, massive, fine grained, many mechanical breaks	0.64	70	220	0	5		4	5	14	15	J/Br?	<1	pyr		1	P	>30	GV
327.1	328.0	0.89	99	0.89	99	1	445	80	VC	grey	fine grained	massive	several mechanical breaks	0.68	41	190	0	4		2	5	11	15	J	<1	wcl	cc	1	G	15	GV
328.0	328.8	0.75	99	0.13	17	20	36	50	VC	grey	fine grained	massive	mechanical breaks at top, broken/rubble zone 0.2m from top. Top 0.2m oriented	0.20			0	0		0	3	3	15	Brok/Rub	630.0	cc		1	None	Un-M	GV
328.8	329.3	0.42	79	0.00	0	50	8	5	VC	grey	fine grained	massive	Entire run rubble zone with clay infill	0.00			0	0		0	3	3	15	Rubble	420.0	wcl		1	None	Un-M	GV
329.3	329.6	0.28	100	0.00	0	50	5	25	VC	grey	fine grained	massive	Entire run rubble zone with clay infill	0.00			0	0		0	3	3	16	Rubble	440.0	wcl		1	None	Un-M	GV
329.6	330.3	0.70	95	0.18	24	50	14	50	VC	grey	fine grained	massive	Top 0.38m rubble zone, to 0.06m broken zone	0.00			0	0		0	3	3	16	Rubble	380.0	wcl		1	None	Un-M	GV
														0.64			0	1		2	3	6	15	Broken	60.0			1	None	Un-M	GV
330.3	331.0	0.66	100	0.00	0	20	31	50	VC	grey	fine grained	massive		0.00			0	0		0	3	3	15	Rub/rub	920.0			1	None	Un-M	GV
331.0	332.1	1.05	100	0.00	0	50	21	50	VC	grey	fine grained	massive					0	0		0	3	3	15	Rub/rub	0.0	chl	cly	0	None	Un-M	CMS
332.1	333.1	0.99	94	0.00	0	50	19	35	VC	grey	fine grained	massive					0	0		0	3	3	15	Rub	0.0	chl	cly	0	None	Un-M	CMS
333.1	333.8	0.64	98	0.00	0	50	13	35	VC	grey	fine grained	massive					0	0		0	3	3	15	Rub/shear	0.0	cly	chl	0	None	Un-M	CMS
333.8	334.6	0.84	99	0.00	0	50	16	45	VC	grey	fine grained	massive					0	0		0	3	3	15	Rub/rub	0.0	chl	cly	0	None	Un-M	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
334.6	336.3	1.53	90	0.00	0	50	30	55	VC	grey	fine grained	massive					0	0		0	3	3	15	Brok	0.0	chl	cly	0	None	Un-M	CMS
336.3	338.0	1.57	92	0.61	36	25	60	55	VC	grey	fine grained	massive					0	2		2	3	7	15	Brok	0.0	chl	cly	0	None	Un-M	CMS
338.0	339.6	1.52	95	0.00	0	25	58	25	VC	grey	fine grained	massive					0	2		2	3	7	16	Soft Rock	0.0	cly		0	None	Un-M	CMS
339.6	341.1	1.50	100	0.66	44	25	58	55	VC	grey	fine grained	massive					0	3		2	3	8	16	Brok	0.0	chl	cly	0	None	Un-M	CMS
341.1	342.8	1.37	81	0.00	0	50	27	5	VC	grey	fine grained	massive	Very soft clay, altered extremely stinky (sulfur)				0	0		0	3	3	15	Sh	0.0	cly	chl	0	None	Un-M	CMS
342.8	344.3	1.43	99	0.00	0	50	28	5	VC	grey	fine grained	massive	More competent than prev run				0	0		0	3	3	15	Sh	0.0	cly	chl	0	None	Un-M	CMS
344.3	345.8	1.36	91	0.00	0	50	27	5	VC	grey	fine grained	massive					0	0		0	3	3	15	Brok	0.0	chl	clay	0	None	Un-M	CMS
345.8	347.4	1.54	96	0.37	23	25	59	25	VC	grey	fine grained	massive					0	2		3	3	8	15	Brok	0.0	cly	chl	0	None	0	CMS
347.4	348.8	1.32	98	0.30	22	25	51	75	VC	grey	fine grained	massive	Light grey, fine grained highly fractured rock, mostly ruble/broken zone				0	2		3	3	8	15	Brok	0.0	cly	chl	0	None	Un-M	GV
348.8	349.7	0.87	97	0.30	33	25	33	50	VC	grey	fine grained	massive	Extremely soft , rubble zones around central zone rock of 75MPa	0.00			0	1		2	3	6	15	Brok/Rub	200.0	cly		1	None	Un-M	GV
														0.66			0	1		2	2	5	15	Brok/Rub	200.0	cly	chl	1	None	Un-M	GV
349.7	350.7	0.91	91	0.12	12	50	18	25	VC	grey	fine grained	massive					0	0		0	3	3	15	Brok/Rub	0.0	chl	cly	0	None	Un-M	GV
350.7	351.9	0.90	76	0.30	25	20	43	75	VC	grey	fine grained	massive	More competent, less fractured, soft zone 0.44m from top	0.44			0	4		2	3	9	16	SR	40.0	cly	chl	1	None	Un-M	GV
351.9	353.5	1.51	96	1.20	76	2	503	75	VC	grey	fine grained	massive	Solid rock with 2 shear zones near bottom	0.90			0	1		2	5	8	16	SR	80.0	cly	chl	1	None	Un-M	GV
														1.22			0	1		2	3	6	15	SR	150.0	cly	chl	1	None	Un-M	GV
353.5	355.0	1.35	90	1.00	67	8	150	60	VC	grey	fine grained	massive	More fractured rock than prev run				0	4		4	5	13	15	Brok	1350.0	chl		0	None	Un-M	GV
355.0	355.6	0.40	73	0.00	0	2	133	75	VC	grey	fine grained	massive	Top is collapse material from packer				0	4		4	5	13	15	Cave in Material	400.0			0	None	Un-M	GV
355.6	357.0	1.38	100	0.84	61	25	53	60	VC	grey	fine grained	massive	Top 0.6m fresh, competent rock. Broken zone then followed y weak rock, couldn't orient past rub zone	0.60			0	0		0	3	3	15	Brok/SR	400.0	cly	chl	1	None	Un-M	GV
														1.00			0	0		0	3	3	15	Brok/SR	400.0	cly		1	None	Un-M	GV
357.0	358.0	0.90	90	0.69	69	1	450	30	SED	grey	fine grained	massive	Highly fractured rock, top 0.25m weak rule zone when disturbed	0.00			0	1		2	3	6	15	Rub/SR	250.0	cly		1	None	Un-M	GV
358.0	359.5	1.50	100	1.32	88	1	750	30	SED	grey	fine grained	massive	weak rock, fractures when disturbed				0	4		4	5	13	15		1500.0	cc		0	None	Un-M	GV
359.5	361.0	1.50	100	1.00	67	1	750	60	SED	grey	fine grained	massive	Weak rock, fractures when disturbed, more competent than prev run				0	4		4	5	13	15	Brok	1500.0	cc		0	None	Un-M	GV
361.0	362.5	1.45	97	0.30	20	25	56	30	SED	grey	fine grained	massive	Weak rock, fractures when disturbed, broken/rubble zones throughout				0	0		0	3	3	16	Brok/Rub	1450.0	chl	pyr	0	None	Un-M	GV
362.5	363.6	1.00	92	0.00	0	50	20	25	SED	grey	fine grained	massive	entire run rubble zone/fault				0	0		0	3	3	16	Rub/FLT	100.0	chl	pyr	0	None	Un-M	GV
363.6	365.2	1.48	93	1.37	86	4	296	40	SED	grey	fine grained	massive	breaks along planes of weakness, broken zone at top, soft zone at bottom				0	4		4	5	13	15		1480.0	clay		0	None	Un-M	GV
365.2	366.6	1.42	100	1.30	92	25	55	50	SED	grey	fine grained	massive	fractures through weak planes (breaks), soft zones	0.95			0	4		2	5	11	15	SR	100.0	cly	chl	1	None	Un-M	GV
366.6	368.2	1.43	88	1.43	88	15	89	75	SED	grey	fine grained	massive	fractures through weak planes (breaks), soft fault at bottom				0	4		0	5	9	15		1430.0	cc		0	None	Un-M	GV
368.2	369.8	1.52	99	1.00	65	1	760	100	SED	grey	fine grained	massive		0.72			0	0		0	5	5	15	SR/rub	280.0	cly		1	None	Un-M	CMS
369.8	370.0	0.25	100	0.25	100	1	125	110	SED	grey	fine grained	massive					6	4		4	5	19	15		1500.0			0	None	Un-M	CMS
370.0	371.5	1.50	100	1.28	85	1	750	160	SED	grey	fine grained	massive		1.28			0	1		2	5	8	15	Rub	260.0	cc		1	None	Un-M	CMS
371.5	373.0	1.43	95	0.89	59	3	358	75	SED	grey	fine grained	massive		0.31			0	1		2	5	8	15	SR	5.0	cly		1	None	Un-M	CMS
														0.48			0	1		2	5	8	15	SR	5.0	cly		1	None	Un-M	CMS
														0.63			0	1		2	3	6	16	SR	5.0	cly		1	None	Un-M	CMS
373.0	374.5	1.50	100	0.47	31	3	375	60	SED	grey	fine grained	massive					0	0		1	3	4	16	SR/rub	100.0	cly		3	None	Un-M	CMS
374.5	376.0	1.50	100	1.00	67	3	375	75	SED	grey	fine grained	massive					0	1		2	3	6	15	Brok	5.0	cc	cly	3	None	Un-M	CMS
376.0	376.7	0.44	61	0.32	44	1	220	60	SED	grey	fine grained	massive	Many cc veins/veinlet's, soft rock at bottom, top of run cave in material. Bottom broke on extraction	0.32			0	0		2	3	5	15	SR	100.0	cly	cc	1	None	Un-M	GV
376.7	378.2	1.48	100	1.46	99	1	740	75	SED	grey	fine grained	massive	Solid rock, broken zone at top, cc veins, breaks along planes of weakness. Full orientation	0.97			0	0		2	3	5	15	SR	40.0	cly	chl	1	None	Un-M	GV
378.2	379.4	1.14	97	1.14	97	1	570	75	SED	grey	fine grained	massive	Solid rock, less cc veins, soft rock at bottom				0	4		5	6	15	15		0.0			0	None	7	GV
379.4	380.9	1.53	99	1.17	76	20	73	75	SED	grey	fine grained	massive	Many cc veins, soft SR zone at top and 0.5m from top	0.00			0	0		2	5	7	15	SR	200.0	cc	chl	1	G	7	GV
														0.50			0	0		2	5	7	15	Sh	150.0	cc	chl	1	G	7	GV
380.9	381.9	0.84	87	0.82	85	1	420	75	SED	grey	fine grained	massive	Solid rock , less cc veins than prev run, soft SR 0.61m from top, oriented from prev	0.61			0	0		2	5	7	15	Sh	20.0	cly	chl	1	F	Un-M	GV
381.9	383.3	1.41	100	0.44	31	4	282	50	SED	grey	fine grained	massive	Highly fractured, many cc/chl veins and SR zones	0.36			0	0		2	5	7	15	Sh	100.0	cly	chl	1	F	Un-M	GV
														0.55			0	0		2	5	7	16	Sh	30.0	cly	chl	1	F	Un-M	GV
														0.78			0	0		2	5	7	16	Sh	20.0	cly	chl	1	F	Un-M	GV
														0.92			0	0		2	5	7	15	Sh	170.0	cly	chl	1	F	Un-M	GV
383.3	384.9	1.56	98	1.56	98	3	390	80	SED	grey	fine grained	massive	Few cc veins, breaks along planes of weakness				0	4		4	5	13	15	Sh	0.0	cly		0	None	Un-M	GV

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																	Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Log)	Fill. Type 2 (see Log)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
384.9	386.4	1.51	99	1.38	90	1	755	80	SED	grey	fine grained	massive	Few cc veins, breaks along planes of weakness, gravelly clayey in filled SR 0.66m from top	0.66			0	0		2	5	7	15	Sh	20.0	cly	pry	1	None	Un-M	GV
386.4	387.1	0.71	100	0.71	100	2	237	125	SED	grey	fine grained	massive	Break along planes of weakness, couple shear zones, axially fractured	0.33			0	0		2	5	7	15	Sh	50.0	cly	chl	1	None	Un-M	GV
														0.52			0	0		2	5	7	15	Sh	30.0	cc	chl	1	None	Un-M	GV
387.1	389.0	1.53	81	1.53	81	3	383	125	SED	grey	fine grained	massive	Strong rock, breaks along planes of weakness				0	4		2	5	11	15	Sh	0.0	cc	chl	0	None	Un-M	GV
389.0	390.4	1.40	100	1.40	100	2	466	125	SED	grey	fine grained	massive	Strong rock, couple clay seams, some cc veins	0.22			0	0		0	5	5	15	VN	10.0	cly		1	None	Un-M	GV
														0.71			0	0		0	5	5	15	VN	20.0	cly	cc	1	None	Un-M	GV
390.4	392.0	1.46	90	1.32	81	1	730	125	SED	grey	fine grained	massive	Strong rock, some cc veins, broken zone at top, no quality	0.07			0	0		4	5	9	16	Rub	80.0	cc		1	None	Un-M	GV
392.0	393.3	1.34	100	1.30	97	1	670	80	SED	grey	fine grained	massive	Strong rock, breaks along planes of weakness, bottom was dropped during extraction so no orientation	0.06			0	0		4	5	9	16	Rub	100.0	pyr		1	None	Un-M	GV
393.3	393.4	0.13	100	0.00	0	50	3	25	SED	grey	fine grained	massive	entire run clayey, gravelly, fragmented rubble zone				0	0		0	3	3	15	Rub	0.0	cly	chl	0	None	Un-M	GV
393.4	394.0	0.51	89	0.00	0	20	24	35	SED	grey	fine grained	massive					0	3		2	5	10	15	Rub	0.0	cly	chl	0	None	Un-M	CMS
394.0	394.5	0.50	100	0.11	22	20	24	50	SED	grey	fine grained	massive					0	3		2	5	10	15	Rub	0.0	chl	cc	0	None	Un-M	CMS
394.5	396.0	1.50	100	0.93	62	3	375	40	SED	grey	fine grained	massive	Heavily veined and broken with some soft broken zones	0.10			0	0		1	5	6	15	Rub	80.0	cly		1	None	Un-M	CMS
														0.54			0	0		4	5	9	15	Rub	20.0	cc	chl	1	None	Un-M	CMS
														0.88			0	0		2	5	7	15	Rub	80.0	cly	cc	1	None	Un-M	CMS
396.0	397.0	1.00	100	0.74	74	2	333	65	SED	grey	fine grained	massive		0.56			0	1		2	5	8	15	J	5.0	cly		1	None	Un-M	CMS
														0.63			0	1		2	5	8	15	J	5.0	cly		1	None	Un-M	CMS
397.0	398.3	1.30	100	1.06	82	1	650	75	SED	grey	fine grained	massive		0.44			0	0		0	5	5	16	Sh	230.0	cly	chl	1	None	Un-M	CMS
398.3	399.8	1.50	100	1.09	73	2	500	90	SED	grey	fine grained	massive	less clay than above	0.75			0	0		0	5	5	16	Rub	10.0	cly	chl	1	None	Un-M	CMS
														0.90			0	0		0	5	5	15	Rub	10.0	cly	chl	1	None	Un-M	CMS
399.8	400.0	0.19	95	0.19	95	0	190	90	SED	grey	fine grained	massive					6	6		6	5	23	15	J	0.0			0	None	Un-M	CMS
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	31MAR'13	ISSUED WITH REPORT	JBC	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-04

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-04_Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
0.0	8.5								OB	Brown	N/A	N/A	Gravelly cobbles, rounded, poorly graded, fines washed away																		GV
8.5	10.0	1.10	73	1.00	67	20	52	50	AND	Grey	Fine Grained	Massive	Yellowish Orange interior, conglomerate				0	0	1	0	3	4	15						none	Un-M	GV
10.0	11.5	1.46	100	0.20	14	25	56	50	AND	Grey	Fine Grained	Massive	Rusted joints soft zones throughout clay in filled	0.13			0	0	1	2	3	6	15	Sh	30.0	cly		1	none	Un-M	GV
														0.41			0	4	3	2	3	12	15	J	1.0	cly		1	none	Un-M	GV
														1.03			0	4	3	2	3	12	15	J	1.0	cly		1	none	Un-M	GV
11.5	13.0	1.54	100	1.44	94	25	59	50	AND	Grey	Fine Grained	Massive	Breaks along planes of weakness, clay seams	0.00			0	0	1	2	3	6	15	SR	50.0	cly		1	none	Un-M	GV
														0.11	60	270	0	4	3	6	3	16	15	Rub	1.0			1	none	Un-M	GV
														0.21	75	325	0	4	3	4	3	14	15	Rub	1.0	FeO		1	none	Un-M	GV
13.0	14.6	1.44	92	0.96	62	25	55	50	AND	Grey	Fine Grained	Massive	Top 0.96m weak grey rock, orangey yellow rusty clayey rock. Bottom 0.44m broken highly in filled with clay, no orientation	0.52			0	0	1	0	3	4	15	Rub	30.0	cly		1	none	Un-M	GV
														0.96			0	0	1	0	3	4	15	Rub	440.0			1	none	Un-M	GV
14.6	16.0	1.44	100	1.00	69	12	111	50	AND	Grey	Fine Grained	Massive	Top 0.23m broken clay in filled, rest breaks along weak planes, no orientation	0.00			0	0	2	0	3	5	15	Rub	230.0	cly		1	none	Un-M	GV
														0.41			0	4	3	2	3	12	15	J	1.0			1	none	Un-M	GV
														0.51			0	4	3	2	3	12	15	J	1.0			1	none	Un-M	GV
16.0	17.7	1.56	95	1.20	73	25	60	50	AND	Grey	Fine Grained	Massive	Broken zone at top many breaks, weak rock	0.00			0	0	1	0	3	4	15	Rub	280.0	cly		1	none	Un-M	GV
														0.33			0	4	3	4	3	14	15	J	1.0			1	none	Un-M	GV
17.7	19.0	1.35	100	0.90	67	12	104	50	AND	Grey	Fine Grained	Massive	Oriented from top, BZ 0.36m from top, bot clay BZ, no orientation	0.36			0	0	1	4	3	8	15	Rub	130.0			1	none	Un-M	GV
														0.71			0	4	1	2	3	10	15	J	1.0	cly		1	none	Un-M	GV
														1.09			0	4	2	4	3	13	15	J	1.0			1	none	Un-M	GV
														1.10			0	0	1	2	3	6	15	Rub	100.0	cly		1	none	Un-M	GV
19.0	20.6	1.56	99	0.90	57	20	74	75	AND	Grey	Fine Grained	Massive	Joints discoloured with iron oxide, BZ at top	0.44	50	50	0	1	2	4	3	10	15	J	1.0			1	F	Un-M	GV
														0.72	79	240	0	1	2	4	3	10	15	J	1.0			1	F	Un-M	GV
														0.94	48	320	0	1	2	4	3	10	15	J	1.0			1	F	Un-M	GV
														1.19	35		0	4	2	4	3	13	15	J	1.0	FeO		1	None	Un-M	GV
														1.49			0	4	5	4	3	16	15	Rub	1.0			1	None	Un-M	GV
20.6	21.4	0.81	95	0.00	0	20	39	50	AND	Grey	Fine Grained	Massive	Entire run broken zone, iron oxide on joints	0.00			0	0	1	4	3	8	15	Rub	620.0	cly		1	None	Un-M	GV
21.4	22.0	0.56	98	0.35	61	8	62	75	AND	Grey	Fine Grained	Massive	Joint faces have iron oxide	0.13	45	30	0	3	3	4	4	14	15	J	1.0			1	P	-100	GV
														0.35	64	220	0	3	3	4	4	14	15	J	1.0			1	P	-100	GV
														0.41	30	250	0	3	3	4	4	14	15	J	1.0			1	P	-100	GV
														0.49	47	250	0	3	3	4	4	14	15	J	<1			1	P	-100	GV
22.0	23.6	1.56	97	1.39	86	10	142	75	AND	Grey	Fine Grained	Massive	Yellow clay and iron oxide on joint faces	0.08	20	220	0	4	2	4	3	13	15	J	1.0			1	F	-30	GV
														0.37	71	330	0	4	3	4	3	14	15	J	1.0			1	F	-30	GV
														0.46	61	295	0	4	3	4	3	14	15	J	1.0			1	F	-30	GV
														1.26	51	125	0	4	2	4	3	13	15	J	1.0			1	F	-30	GV
23.6	25.0	1.39	100	0.50	36	25	53	50	AND	Grey	Fine Grained	Massive	Broken/Rub zone with lots of clay infill at bottom	0.12	65	287	0	1	3	2	3	9	15	J	3.0	cly		1	F	-30	GV
														0.18	66	300	0	1	2	2	3	8	15	J	5.0	cly		1	F	-30	GV
														0.45	51	272	0	5	3	4	3	15	15	J	<1	FeO		1	F	-30	GV
														0.52	48	272	0	5	2	4	3	14	15	Rub	<1	FeO		1	F	-30	GV
														0.81			0	0	1	0	3	4	15	Rub	440.0	cly		1	F	-30	GV
25.0	26.6	1.56	97	1.56	97	25	60	75	AND	Grey	Fine Grained	Massive	Clay in filled Broken/Rub at top of run, iron oxide on joint faces	0.67	32	38	0	4	2	2	3	11	15	Rub	3.0			1	None	Un-M	GV
														1.04	22	22	0	5	2	4	3	14	15	Rub	<1			1	None	Un-M	GV
26.6	28.0	1.39	100	1.33	96	5	232	75	AND	Grey	Fine Grained	Massive		0.29	73	192	0	4	3	4	3	14	15	J	1.0			1	VG	0	GV
														0.52	43	278	0	4	3	4	3	14	15	J	1.0			1	VG	0	GV
														0.85	46	235	0	1	3	2	3	9	15	J	5.0	cly		1	VG	0	GV
														1.08	85	300	0	4	1	2	3	10	15	Rub	1.0	cly		1	VG	0	GV
														1.32	60	301	0	4	3	2	3	12	15	J	1.0	cly		1	VG	0	GV
28.0	29.6	1.56	100	1.56	100	3	390	75	AND	Grey	Fine Grained	Massive	Less joints/breaks, more competent rock, iron oxide on faces	1.07	60	331	0	5	1	4	3	13	15	J	<1			1	VG	0	GV
														1.34	82	349	0	4	3	4	3	14	15	Rub	1.0			1	VG	0	GV
														1.48	70	30	0	1	3	2	3	9	15	Rub	3.0	cly		1	VG	0	GV
29.6	31.0	1.44	100	1.23	85	7	180	75	AND	Grey	Fine Grained	Massive	Soft zone at top, joint faces have iron oxide, yellow white clay	0.30	75	332	0	1	2	2	3	8	16	J	5.0	cly		1	F	Un-M	GV
														0.56	82	272	0	1	3	2	3	9	16	Rub	5.0	cly		1	F	Un-M	GV
														0.79	71	255	0	4	3	6	3	16	15	J	1.0			1	F	Un-M	GV

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
														0.83	65	175	0	4	3	2	3	12	15	J	1.0	cly		1	F	Un-M	GV
														0.96	75	105	0	4	3	6	3	16	15	Rub	1.0			1	F	Un-M	GV
														0.99	80	250	0	5	3	6	3	17	15	Rub	<1			1	F	Un-M	GV
														1.00	70	294	0	5	3	6	3	17	15	Rub	<1			1	F	Un-M	GV
31.0	32.4	1.37	99	1.37	99	4	274	75	AND	Grey	Fine Grained	Massive	Many spun joints. Some fe oxide on faces, yellowish white clay	0.19	80		0	3	3	4	3	13	15	Rub	<1			1	VG	0	GV
														1.17	56		0	4	1	2	3	10	15	J	1.0	cly		1	VG	1	GV
32.4	33.9	1.48	100	0.89	60	15	93	70	AND	Grey	Fine Grained	Massive	Softer rock than previous; 2 broken zones	0.20			0	0	1	0	3	4	15	Sh	300.0	cly		1	None	Un-M	GV
														0.93			0	0	1	2	3	6	15	Sh	170.0	cly		1	None	Un-M	GV
33.9	35.7	1.57	84	1.46	78	8	174	75	AND	Grey	Fine Grained	Massive	soft zones near top and bottom of run, iron oxide on faces	0.46			0	0	1	2	3	6	15	Sh	40.0	cly		1	F	5	GV
														0.90	15	20	0	0	1	2	3	6	15	J	<1			1	F	5	GV
35.7	36.9	1.16	99	1.16	99	8	129	75	AND	Grey	Fine Grained	Massive	iron oxide on joint surfaces	0.23	60	190	0	1	3	4	3	11	15	J	5.0	cly		1	F	5	GV
														0.55	27	210	0	5	3	4	3	15	15	Rub	<1	cly		1	F	5	GV
36.9	38.4	1.51	100	1.25	83	5	252	60	AND	Grey	Fine Grained	Massive	soft rock at bottom, fractures easily; iron oxide on surfaces	0.40	40		0	4	3	2	3	12	15	J	1.0	cly		1	F	5	GV
														0.71	38		0	5	3	2	3	13	15	Rub	<1	cly		1	F	5	GV
38.4	40.0	1.55	100	1.20	77	12	119	60	AND	Grey	Fine Grained	Massive	Rock easily fractured when disturbed, iron oxide on faces	0.19	47	25	0	5	3	4	3	15	15	J	<1			1	G	15	GV
														1.30	49	295	0	5	3	4	3	15	15	J	<1			1	G	15	GV
40.0	41.5	1.55	100	1.20	77	10	141	75	AND	Grey	Fine Grained	Massive	More competent rock, less fe-oxide	0.50	38	35	0	5	1	4	3	13	15	J	<1	cly		1	None	Un-M	GV
41.5	43.0	0.90	61	0.50	34	8	100	60	AND	Grey	Fine Grained	Massive		0.31	43	293	0	4	4	4	3	15	15	J	1.0	FeO		1	G	13	CMS
43.0	43.9	0.89	99	0.00	0	50	17	45	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	0.0	cly	FeO	50	None	Un-M	CMS
43.9	45.5	1.61	100	0.00	0	50	32	20	AND	Grey	Fine Grained	Massive	Shear/fault zone; lots of clay				0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
45.5	46.0	0.45	92	0.00	0	50	9	20	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
46.0	47.5	1.15	77	0.00	0	50	23	20	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
47.5	49.0	0.25	17	0.00	0	50	5	5	AND	Grey	Fine Grained	Massive	Rubble				0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
49.0	50.5	0.91	61	0.00	0	50	18	20	AND	Grey	Fine Grained	Massive	Rubble/shear				0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
50.5	52.0	1.50	100	0.00	0	50	29	5	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
52.0	53.8	1.48	85	0.12	7	50	29	15	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
53.8	55.0	1.20	96	0.00	0	50	24	15	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
55.0	56.2	1.05	91	0.00	0	50	21	5	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Sh	0.0	cly		50	None	Un-M	CMS
56.2	57.9	1.51	86	0.25	14	2	503	20	AND	Grey	Fine Grained	Massive		0.00			0	0	1	0	3	4	15	Sh	600.0	cly		1	None	Un-M	GV
														0.60			0	1	1	4	3	9	15	Rub	600.0	cly		1	None	Un-M	GV
57.9	59.5	1.55	95	1.25	76	10	141	50	AND	Grey	Fine Grained	Massive	More competent rock, less breaks, BZ at top of run	0.00			0	0	1	4	3	8	15	Rub	330.0	cly		1	None	Un-M	GV
														0.43	23	337	0	4	3	2	3	12	15	J	1.0	cly		1	None	Un-M	GV
														0.63	23	337	0	4	1	2	3	10	15	J	1.0	cly		1	None	Un-M	GV
59.5	60.2	0.50	82	0.00	0	4	100	50	AND	Grey	Fine Grained	Massive	Entire Run BZ, very little clay				0	4	3	4	3	14	15	Rub	500.0			0	None	Un-M	GV
60.2	61.0	0.70	82	0.00	0	0	700	50	AND	Grey	Fine Grained	Massive	Entire run BZ, more clay, top of run cave in material from re-drill				0	0	1	0	3	4	15	Rub	700.0			0	None	Un-M	GV
61.0	62.6	1.55	97	1.55	97	25	60	50	AND	Grey	Fine Grained	Massive	Highly Fractured rock, fractures when disturbed	0.44	73		0	0	3	4	3	10	15	J	1.0	pyr		1	None	Un-M	GV
62.6	64.0	1.41	100	1.24	88	10	128	50	AND	Grey	Fine Grained	Massive	Highly Fractured rock, fractures when disturbed	0.37	58	302	0	5	1	4	3	13	15	J	<1	pyr		1	G	5	GV
														0.90	55	305	0	4	3	2	3	12	15	J	1.0	cly		1	G	5	GV
														1.07			0	0	1	2	3	6	15	Rub	170.0	cly		1	G	5	GV
64.0	65.6	1.50	94	0.86	54	25	58	50	AND	Grey	Fine Grained	Massive	Highly fragmented when disturbed, broken/SR zones	0.20			0	0	1	2	3	6	15	Rub	420.0	cly	pyr	1	None	Un-M	GV
														0.94			0	0	1	0	3	4	15	Rub	500.0	cly		1	None	Un-M	GV
65.6	66.6	0.35	36	0.25	26	25	13	50	AND	Grey	Fine Grained	Massive	Top of run broken zone, bottom no match therefore no orientation	0.00			0	0	1	0	3	4	15	Rub	100.0	cly		1	None	Un-M	GV
66.6	66.8	0.19	100	0.00	0	50	4	25	AND	Grey	Fine Grained	Massive	Rubble zone, cave in material				0	0	1	0	3	4	15	Rub	400.0	cly		50	None	Un-M	GV
66.8	68.1	1.31	98	0.20	15	25	50	25	AND	Grey	Fine Grained	Massive	Very weak, soft rock, rub/SR zone at top, no orientation, RQD not representative of strength	0.00			0	0	1	0	3	4	15	Rub	400.0	cly		1	None	Un-M	GV
68.1	69.2	1.10	100	0.25	23	50	22	20	AND	Grey	Fine Grained	Massive	Broken/soft rock zone				0	0	1	4	3	8	15	Rub	1150.0	cly		50	None	Un-M	CMS
69.2	70.0	0.66	83	0.39	49	25	25	80	AND	Grey	Fine Grained	Massive	More competent but loss of recovery in clay				0	1	5	2	3	11	15	Rub	1150.0	chl		50	None	Un-M	CMS
70.0	71.6	1.53	94	0.28	17	10	139	60	AND	Grey	Fine Grained	Massive		0.63			0	1	1	2	3	7	15	Rub	100.0	chl		1	None	Un-M	CMS
														1.20			0	1	1	2	3	7	15	Rub	90.0	chl		1	None	Un-M	CMS
														1.42			0	1	1	2	3	7	15	Rub	110.0	chl		1	None	Un-M	CMS
71.6	72.9	1.13	89	0.00	0	50	22	40	AND	Grey	Fine Grained	Massive	Rubble				0	0	1	2	3	6	15	Rub	1130.0	chl	cly	50	None	Un-M	CMS
72.9	74.5	1.51	97	0.68	44	10	137	65	AND	Grey	Fine Grained	Massive					0	1	5	4	5	15	15	Rub	1500.0	chl	cly	50	None	Un-M	CMS
74.5	76.0	1.55	100	1.30	84	10	141	90	AND	Grey	Fine Grained	Massive		0.05			0	1	1	4	5	11	15	Sh	5.0	cly		1	None	Un-M	CMS
														0.32			0	0	1	0	5	6	15	Sh	170.0	cly		1	None	Un-M	CMS
76.0	77.3	1.24	98	0.43	34	10	113	75	AND	Grey	Fine Grained	Massive	Top 0.67m same shear zone as above, bottom 0.12m broken zone, no orientation	0.00			0	1	1	4	5	11	15	Sh	680.0	cly		1	None	Un-M	GV
														1.10			0	1	1	2	5	9	15	Sh	140.0	cly		1	None	Un-M	GV
77.3	78.7	1.26	86	0.37	25	10	115	75	AND	Grey	Fine Grained	Massive	Top 0.9m is highly fragmented shear zone, can't orient, top cobbles cave in material	0.00			0	1	1	4	5	11	15	Sh	900.0	cly		1	None	Un-M	GV
78.7	80.2	1.49	100	1.23	83	10	135	75	AND	Grey	Fine Grained	Massive	Highly fragmented shear/broken zone	0.71			0	0	1	4	5	10	15	Sh	320.0	cly	pyr	1	None	Un-M	GV

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
80.2	81.8	1.50	97	1.33	86	10	136	80	AND	Grey	Fine Grained	Massive	Broken zone at top, more competent rock	0.00			0	0	1	4	3	8	15	Rub	180.0			1	None	Un-M	GV
														0.56	37		0	4	1	4	5	14	15	Rub	1.0			1	None	Un-M	GV
														1.45	27		0	5	1	4	5	15	15	Rub	<1			1	None	Un-M	GV
81.8	83.3	1.52	100	1.52	100	5	253	90	AND	Grey	Fine Grained	Massive	Broken end therefore no orientation	1.41	45		0	1	1	2	5	9	15	Sh	5.0	cly		1	None	Un-M	GV
83.3	84.3	0.97	97	0.00	0	50	19	25	AND	Grey	Fine Grained	Massive	Entire run shear zone with 0.05m clay seam running axially				0	0	1	0	3	4	15	Sh	970.0	cly		50	None	Un-M	GV
84.3	85.0	0.70	99	0.00	0	50	14	25	AND	Grey	Fine Grained	Massive	Same as previous run, clay seam goes through entire cross sectional area				0	0	1	0	3	4	15	Sh	750.0	cly		50	None	Un-M	GV
85.0	86.6	1.53	94	1.43	88	2	510	70	AND	Grey	Fine Grained	Massive	Top 0.1m is shear zone, rest more competent rock, without clay seam	0.10			0	0	1	0	3	4	15	Sh	100.0	cly		1	None	Un-M	GV
														0.51	71	265	0	4	3	4	5	16	15	J	1.0	pyr		1	None	Un-M	GV
86.6	88.0	1.37	100	1.37	100	8	152	90	AND	Grey	Fine Grained	Massive	Top 0.1m Rubble Zone	0.00			0	0	1	6	5	12	15	Rub	100.0			1	None	Un-M	GV
88.0	89.2	1.05	86	0.38	31	50	21	30	AND	Grey	Fine Grained	Massive	Broken zone at top, shear zone at bottom, lots of clay infilling	0.18			0	0	1	0	3	4	15	Rub	50.0			1	None	Un-M	GV
														0.60			0	0	1	0	3	4	15	Sh	450.0	cly		1	None	Un-M	GV
89.2	90.8	1.45	90	0.40	25	50	28	50	AND	Grey	Fine Grained	Massive	2 shear zones with large amounts of clay infilling, no orientation, clay zone on bottom	0.00			0	0	1	2	5	8	15	Sh	170.0	cly		1	None	Un-M	GV
														0.33			0	0	1	2	5	8	15	Sh	540.0	cly		1	None	Un-M	GV
90.8	92.4	1.57	99	1.57	99	8	174	50	AND	Grey	Fine Grained	Massive	More competent rock, clay filled veins				0	4	2	2	5	13	15	Sh	1570.0	cly		0	None	Un-M	GV
92.4	93.8	1.42	100	0.87	61	10	129	75	AND	Grey	Fine Grained	Massive	Competent rock, bottom 0.87m SR zone, fully oriented	0.32	36	258	0	4	2	4	5	15	15	Sh	1.0			1	None	Un-M	GV
														0.87			0	0	1	0	4	5	15	Sh	600.0	cly		1	None	Un-M	GV
93.8	95.4	1.40	90	0.50	32	50	27	50	AND	Grey	Fine Grained	Massive	Clay in filled shear/rubble zones at top and bottom	0.00			0	0	1	0	3	4	15	Sh	440.0	cly		1	None	Un-M	GV
														1.08			0	0	1	0	3	4	15	Sh	320.0	cly		1	None	Un-M	GV
95.4	97.0	1.55	99	0.77	49	25	60	50	AND	Grey	Fine Grained	Massive	Top half of run clay in filled shear zone, rest competent rock	0.00			0	0	1	0	3	4	15	Sh	780.0	cly		1	None	Un-M	GV
														0.78	50		0	5	1	4	5	15	15	J	<1			1	None	Un-M	GV
97.0	98.4	1.44	100	1.44	100	0	1440	65	AND	Grey	Fine Grained	Massive					6	6	6	6	6	30	15	J	1530.0	chl		0	None	Un-M	CMS
98.4	99.9	1.50	100	1.50	100	0	1500	75	AND	Grey	Fine Grained	Massive					6	6	6	6	6	30	15	J	1530.0	chl		0	None	Un-M	CMS
99.9	101.5	1.59	99	1.24	78	2	530	70	AND	Grey	Fine Grained	Massive		0.82			0	0	1	0	5	6	15	Rub	60.0	chl		1	P	-56	CMS
														1.04			0	0	1	0	5	6	15	Rub	300.0	cly	chl	1	P	-55	CMS
101.5	103.0	1.47	98	1.47	98	0	1470	110	AND	Grey	Fine Grained	Massive					6	6	6	6	6	30	15	Rub	1470.0		chl	0	G	18	CMS
103.0	104.5	1.50	100	1.50	100	1	750	110	AND	Grey	Fine Grained	Massive					0	4	3	4	5	16	15	Rub	1470.0		chl	0	G	10	CMS
104.5	106.0	1.50	100	1.50	100	0	1500	110	AND	Grey	Fine Grained	Massive					6	6	6	6	6	30	15	Rub	1500.0		chl	0	P	-38	CMS
106.0	107.5	1.50	100	1.50	100	1	750	110	AND	Grey	Fine Grained	Massive		0.49	49	320	0	0	4	3	5	12	15	J	20.0	py		1	P	164	CMS
107.5	108.7	1.14	95	0.90	75	1	570	85	AND	Grey	Fine Grained	Massive		0.77			0	0	1	0	5	6	15	Rub	230.0	cly		1	None	Un-M	CMS
108.7	110.3	1.56	98	0.55	34	50	31	60	AND	Grey	Fine Grained	Massive	broken/shear zone				0	0	1	0	3	4	15	Sh	1560.0	cly		50	None	Un-M	CMS
110.3	111.9	1.57	98	1.01	63	3	393	60	AND	Grey	Fine Grained	Massive		0.09			0	1	1	0	4	6	15	Rub	100.0	cly	chl	1	P	133	CMS
														0.68			0	4	3	2	5	14	15	Rub	20.0	cly	chl	1	P	133	CMS
														1.14			0	4	3	2	5	14	15	Sh	260.0	cly	chl	1	P	133	CMS
111.9	113.5	1.49	96	0.24	15	50	29	20	VC	Grey	Fine Grained	Massive/Broken					0	0	1	0	3	4	15	Sh	1490.0	cly		50	None	Un-M	CMS
113.5	114.1	0.64	100	0.00	0	50	13	5	VC	Grey	Fine Grained	Massive/Broken					0	1	5	2	3	11	15	Sh	640.0	cly		50	None	Un-M	CMS
114.1	115.0	0.91	100	0.91	100	50	18	85	VC	Grey	Fine Grained	Massive					0	1	5	2	3	11	15	Sh	910.0			50	None	Un-M	CMS
115.0	116.5	1.50	100	1.50	100	50	29	110	VC	Grey	Fine Grained	Massive	All mechanical breaks				0	1	5	2	5	13	15	Sh	1550.0			50	P	-175	CMS
116.5	118.0	1.37	91	1.31	87	1	685	90	VC	Grey	Fine Grained	Massive	Competent rock, oriented from previous	0.06	51	315	0	5	3	6	5	19	15	Sh	<1			1	P	-175	GV
118.0	119.5	1.47	100	1.24	84	2	490	75	VC	Grey	Fine Grained	Massive	Broken Zone at top and bottom therefore no orientation, clay vein at bottom	0.04			0	4	1	6	5	16	15	Rub	40.0			1	None	Un-M	GV
														1.30			0	0	1	0	5	6	15	Rub	250.0	cly		1	None	Un-M	GV
119.5	121.0	1.50	98	0.68	44	25	58	60	VC	Grey	Fine Grained	Massive	3 shear zones, weaker rock, both ends broken so no orientation	0.23			0	0	1	0	3	4	15	Rub	230.0	cly		1	None	Un-M	GV
														0.55			0	0	1	2	3	6	15	Rub	320.0	cly		1	None	Un-M	GV
														1.23			0	0	1	2	3	6	15	Rub	270.0	cly		1	None	Un-M	GV
121.0	122.5	1.50	100	1.20	80	10	136	80	VC	Grey	Fine Grained	Massive	Top has shear/rub zone, rest is competent rock	0.18			0	0	1	2	5	8	15	Rub	340.0	cly		1	None	Un-M	GV
122.5	124.0	1.30	87	0.80	53	10	118	75	VC	Grey	Fine Grained	Massive	Competent rock at top, shear zone at bottom	0.80			0	0	1	2	5	8	15	Sh	440.0	cly		1	G	-15	GV
124.0	125.1	1.10	98	0.50	45	12	85	70	VC	Grey	Fine Grained	Massive	Top of run shear zone, bottom weak rock	0.00			0	1	1	2	5	9	15	Sh	620.0	cly		1	None	Un=M	GV
125.1	126.2	1.09	99	1.09	99	7	136	90	VC	Grey	Fine Grained	Massive	Shear zone at top, rest competent rock	0.00			0	4	1	4	5	14	15	Sh	240.0	cly		1	None	Un-M	GV
126.2	127.0	0.71	91	0.71	91	1	355	90	VC	Grey	Fine Grained	Massive	Top cave in material, no joints				0	5	5	3	5	18	15	Sh	710.0	pyr		0	G	0	GV
127.0	128.6	1.51	94	0.81	50	25	58	75	VC	Grey	Fine Grained	Massive	Shear zone with clay infilling	0.14			0	0	1	0	3	4	15	Sh	600.0	cly		1	None	Un-M	GV
														1.25			0	0	1	0	3	4	15	Sh	160.0	cly		1	None	Un-M	GV
128.6	130.0	1.38	99	0.86	62	20	66	75	VC	Grey	Fine Grained	Massive	Shear zone with clay infilling	0.33			0	0	1	2	5	8	15	Sh	370.0	cly		1	None	Un-M	GV
														0.87			0	0	1	2	5	8	15	Sh	290.0	cly		1	None	Un-M	GV
130.0	131.5	1.50	100	1.50	100	5	250	85	VC	Grey	Fine Grained	Massive	Many mechanical breaks	0.08			0	0	1	0	5	6	15	Rub	40.0	cly		1	P	115	CMS
131.5	133.0	1.48	99	1.46	97	5	247	85	VC	Grey	Fine Grained	Massive		0.25			0	0	1	3	5	9	15	Rub	15.0	chl		1	None	Un-M	CMS
133.0	134.5	1.48	99	1.48	99	1	740	110	VC	Grey	Fine Grained	Massive	More competent	0.39	29	332	0	4	1	4	5	14	15	J	1.0	cc		1	None	Un-M	CMS
134.5	136.0	1.47	98	1.47	98	0	1470	140	VC	Grey	Fine Grained	Massive	Only mechanical breaks				6	6	6	6	6	30	15		1470.0			0	G	-8	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
136.0	137.5	1.50	100	1.50	100	1	750	110	VC	Grey	Fine Grained	Massive	4 mechanical breaks	0.68			0	0	6	3	3	12	15	Vn	10.0	Pyr		1	None	Un-M	CMS
137.5	139.0	1.43	95	1.43	95	2	477	110	VC	Grey	Fine Grained	Massive		0.38	66	291	0	4	1	6	5	16	15	J	<1	chl		1	None	Un-M	CMS
														0.50	43	287	0	1	5	4	5	15	15	J/Vn	5.0	Pyr		1	None	Un-M	CMS
139.0	139.7	0.68	99	0.68	99	0	680	85	VC	Grey	Fine Grained	Massive	only mechanical breaks				6	6	6	6	6	30	15		690.0			0	G	0	CMS
139.7	140.5	0.81	100	0.00	0	50	16	25	VC	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	690.0	chl	cly	0	None	Un-M	CMS
140.5	141.6	0.99	90	0.00	0	50	19	25	VC	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	990.0	chl	pyr	0	None	Un-M	CMS
141.6	143.0	1.33	99	0.00	0	50	26	25	VC	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	1430.0			0	None	Un-M	CMS
143.0	143.4	0.30	75	0.30	75	0	300	75	VC	Grey	Fine Grained	Massive	only mechanical breaks				6	6	6	6	6	30	15	Rub	300.0			0	None	Un-M	GV
143.4	145.0	1.46	91	1.26	78	5	243	60	VC	Grey	Fine Grained	Massive		1.30			0	4	3	2	5	14	15	J	1.0	chl		1	None	Un-M	CMS
145.0	146.4	1.40	100	0.94	67	10	127	55	VC	Grey	Fine Grained	Massive		0.43			0	0	1	0	3	4	15	Rub	20.0	chl	cly	1	None	Un-M	CMS
														0.99			0	1	1	2	5	9	15	Rub	140.0	chl	cly	1	None	Un-M	CMS
146.4	147.9	1.15	79	0.00	0	50	23	20	VC	Grey	Fine Grained	Massive/broken	Lots washed away; broken/rubble				0	0	1	0	3	4	15	Rub	1150.0	cly	chl	50	None	Un-M	CMS
147.9	148.9	1.00	100	0.00	0	50	20	20	VC	Grey	Fine Grained	Massive/broken	Broken zone; some cave-in				0	0	1	0	3	4	15	Rub	1100.0	cly	chl	50	None	Un-M	CMS
148.9	149.4	0.55	100	0.00	0	50	11	15	VC	Grey	Fine Grained	Massive/broken	Washed a lot of clay away				0	0	1	0	3	4	15	Rub	550.0	cly	chl	50	None	Un-M	CMS
149.4	149.8	0.35	100	0.00	0	50	7	15	VC	Grey	Fine Grained	Massive/broken					0	0	1	0	3	4	15	Rub	350.0	cly	chl	50	None	Un-M	CMS
149.8	150.2	0.40	100	0.00	0	50	8	15	VC	Grey	Fine Grained	Massive/broken					0	0	1	0	3	4	15	Rub	520.0	cly	chl	50	None	Un-M	CMS
150.2	151.0	0.81	95	0.00	0	50	16	25	VC	Grey	Fine Grained	Massive/broken	Switched to bentonite mud				0	0	1	0	3	4	15	Rub	810.0	chl	cly	50	None	Un-M	CMS
151.0	152.0	0.74	78	0.00	0	50	15	20	VC	Grey	Fine Grained	Massive/broken					0	0	1	0	3	4	15	Rub	740.0	cly	chl	50	None	Un-M	CMS
152.0	152.9	0.95	100	0.26	27	50	19	35	VC	Grey	Fine Grained	Massive/broken					0	0	1	2	5	8	15	Rub	1600.0	cly	cc	50	None	Un-M	CMS
152.9	154.0	1.07	97	0.24	22	50	21	55	VC	Grey	Fine Grained	Massive/broken					0	1	1	2	5	9	15	Rub	1070.0	cc	chl	50	None	Un-M	CMS
154.0	154.3	0.25	100	0.00	0	50	5	60	VC	Grey	Fine Grained	Massive/broken					0	1	1	2	5	9	15	Rub	260.0	cc	chl	50	None	Un-M	CMS
154.3	155.8	1.48	95	1.02	66	2	493	60	VC	Grey	Fine Grained	Massive	Entire run highly fractured; fractures extremely slippery	0.37			0	1	1	2	5	9	15	Rub	150.0	cc	chl	1	None	Un-M	CMS
														1.30			0	0	1	0	5	6	15	Sh	200.0	cly	chl	1	None	Un-M	CMS
155.8	157.0	1.19	99	0.43	36	50	23	45	VC	Grey	Fine Grained	Massive	Entire run very broken				0	4	1	2	2	9	15	Rub	200.0	cc	chl	50	None	Un-M	CMS
157.0	157.7	0.61	94	0.41	63	8	68	50	VC	Grey	Fine Grained	Massive		0.41			0	1	1	4	5	11	15	Rub	200.0	cc	chl	1	None	Un-M	CMS
157.7	158.5	0.84	99	0.00	0	50	16	35	VC	Grey	Fine Grained	Massive					0	1	1	1	5	8	15	Rub	610.0	chl		50	None	Un-M	CMS
158.5	160.0	1.40	93	1.00	67	8	156	75	VC	Grey	Fine Grained	Massive	All mechanical breaks				0	4	3	4	5	16	15	Rub	1400.0	cly		50	None	Un-M	GV
160.0	161.6	1.51	96	1.25	80	50	30	75	VC	Grey	Fine Grained	Massive	Soft rock at bottom 0.23m	0.74			0	0	1	0	3	4	15	Sh	70.0	cly		1	None	Un-M	GV
161.6	163.0	1.43	100	1.37	96	25	55	75	VC	Grey	Fine Grained	Massive	Competent rock, rub/shear zone at top	0.00			0	0	1	0	3	4	15	Sh	100.0	cly	chl	1	None	Un-M	GV
163.0	164.6	1.60	100	1.60	100	4	320	60	VC	Grey	Fine Grained	Massive	All mechanical breaks				0	4	3	2	5	14	15	Sh	1600.0	cly	chl	0	G	10	GV
164.6	166.0	1.35	96	1.30	93	3	338	60	VC	Grey	Fine Grained	Massive	Rock fractures easily when disturbed	0.05	28	136	0	0	3	2	5	10	15	Rub	20.0	chl		1	VG	0	GV
166.0	167.6	1.57	100	1.57	100	5	262	60	VC	Grey	Fine Grained	Massive	Soft rock zone 0.84m from top, 0.31m long	0.64	21	130	0	5	2	2	5	14	15	J	<1	chl	cly	1	VG	3	GV
167.6	169.0	1.43	100	1.43	100	5	238	80	VC	Grey	Fine Grained	Massive	All mechanical breaks				0	5	2	2	5	14	15		0.0	chl		0	F	-25	GV
169.0	170.6	1.59	99	1.59	99	2	530	90	VC	Grey	Fine Grained	Massive	All mechanical breaks				0	4	1	2	5	12	15		0.0	chl		0	F	-25	GV
170.6	172.0	1.36	99	1.36	99	3	340	90	VC	Grey	Fine Grained	Massive		1.17	25	100	0	4	1	2	5	12	15	J	1.0	chl	cly	1	None	Un-M	GV
172.0	172.1	0.10	99	0.10	99	0	99	90	VC	Grey	Fine Grained	Massive	Top of run cave material				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
172.1	173.6	1.38	90	1.08	71	10	125	60	VC	Grey	Fine Grained	Massive	Shear zone in middle of run, clay in filled	0.69			0	0	1	2	3	6	15	Shear	330.0	cly	chl	1	None	Un-M	GV
173.6	174.8	0.99	86	0.00	0	50	19	35	VC	Grey	Fine Grained	Massive	Rubble zone				0	0	1	2	5	8	15	Rub	0.0	cly	chl	50	None	Un-M	CMS
174.8	176.3	1.50	100	0.69	46	20	71	35	AND	Grey	Fine Grained	Massive		0.14			0	0	1	0	5	6	15	Rub	60.0	chl	cc	1	None	Un-M	CMS
														0.28			0	1	1	2	5	9	15	Rub	120.0	chl	cc	1	None	Un-M	CMS
														0.54	38	27	0	1	1	2	5	9	15	J	5.0	chl	cc	1	None	Un-M	CMS
														0.58			0	1	1	2	5	9	15	Rub	5.0	chl	cc	1	None	Un-M	CMS
														0.65	23	318	0	0	1	2	5	8	15	J	30.0	chl	cc	1	None	Un-M	CMS
														1.28			0	0	1	2	5	8	15	Rub	250.0	chl	cc	1	None	Un-M	CMS
176.3	177.4	1.14	99	0.13	11	25	44	5	AND	Grey	Fine Grained	Massive	Terrible rock quality, disintegrates upon handling				0	0	1	0	3	4	15	Rub	1140.0	chl	cc	4	None	Un-M	CMS
177.4	178.9	1.43	99	0.00	0	50	28	35	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	1430.0	chl	cly	50	None	Un-M	CMS
178.9	180.1	1.20	100	0.00	0	50	24	15	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	900.0	chl		50	None	Un-M	CMS
180.1	181.0	0.90	95	0.00	0	50	18	15	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	520.0	chl		50	None	Un-M	CMS
181.0	181.7	0.52	80	0.00	0	50	10	5	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	520.0	chl		50	None	Un-M	CMS
181.7	182.5	0.55	65	0.00	0	50	11	5	AND	Grey	Fine Grained	Massive	Pea-gravel size fragments of rubble				0	0	1	0	3	4	15	Rub	550.0	chl		50	None	Un-M	CMS
182.5	183.4	0.77	86	0.00	0	50	15	5	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	770.0	chl		50	None	Un-M	CMS
183.4	183.9	0.50	100	0.10	20	50	10	20	AND	Grey	Fine Grained	Massive	Slightly increased competence				0	0	1	0	2	3	15	Rub	500.0	chl	cly	50	None	Un-M	CMS
183.9	185.2	1.25	100	0.40	32	50	25	55	AND	Grey	Fine Grained	Massive					0	0	1	0	3	4	15	Rub	1280.0	chl		50	None	Un-M	CMS
185.2	185.6	0.45	100	0.26	58	3	112	85	AND	Grey	Fine Grained	Massive	Much more competent	0.26			0	4	1	4	5	14	15	Rub	60.0	chl		1	None	Un-M	CMS
185.6	187.0	1.40	100	0.19	14	12	108	50	AND	Grey	Fine Grained	Massive					0	2	1	2	5	10	15	Rub	1500.0	chl	cc	50	VG	0	CMS
187.0	188.5	1.34	92	0.76	52	20	64	50	AND	Grey	Fine Grained	Massive		0.31			0	1	1	2	3	7	15	Rub	80.0	chl	cc	1	VG	0	CMS
														0.60			0	0	1	0	3	4	15	Rub	490.0	chl	cc	1	VG	0	CMS
188.5	189.6	1.10	100	0.61	55	5	183	70	AND	Grey	Fine Grained	Massive		0.11	40	349	0	1	1	2	5	9	15	J	5.0	chl	cc	1	None	Un-M	CMS
														0.40			0	0	1	0	3	4	15	Rub	90.0	chl	cc	1	None	Un-M	CMS
189.6	190.9	1.32	98	0.98	73	4	264	60	AND	Grey	Fine Grained	Massive	Very broken and jointed	0.23			0	0	1	0	5	6	15	Rub	60.0	chl	cc	1	None	Un-M	CMS
														0.68			0	4	1	2	5	12	15	J	1.0	chl	cc	1	None	Un-M	CMS
														0.84			0	4	1	2	5	12	15	J	1.0	chl	cc	1	None	Un-M	CMS
														0.97			0	0	1	0	5	6	15	Rub	120.0	chl	cc	1	None	Un-M	CMS
190.9	192.4	1.50	100	1.50	100	3	375	110	AND	Grey	Fine Grained	Massive	Only mechanical breaks				0	5	3	2	5	15	15		1500.0			0	None	Un-M	CMS
192.4	193.5	1.07	97	1.02	93	5	178	110	AND	Grey	Fine Grained	Massive	Only 1 SR zone	1.02			0	5	3	2	5	15	15	Sh	20.0	chl		1	G	7	CMS
193.5	195.1	1.53	99	1.40	90	10	139	110	AND	Grey	Fine Grained	Massive	1 SR zone	0.20			0	0	1	2	5	8	15	Sh	140.0	chl	cc	1	F	-35	GV
														0.92	55	295	0	4	3	6	5	18	15	Rub	1.0			1	F	-35	GV
195.1	196.7	1.55	94	1.55	94	5	258	110	AND	Grey	Fine Grained	Massive	No Shear	1.42	35	315	0	4	1	2	5	12	15	J	1.0	chl		1	P	150	GV
196.7	198.2	1.46	100	1.46	100	0	1460	110	AND	Grey	Fine Grained	Massive	All mechanical breaks				6	6	6	6	6	30	15		0.0			0	P	150	GV
198.2	199.6	1.40	100	1.40	100	0	1400	110	AND	Grey	Fine Grained	Massive	All mechanical breaks				6	6	6	6	6	30	15		0.0			0	P	150	GV

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
199.6	200.0	0.43	98	0.43	98	0	430	200	AND	Grey	Fine Grained	Massive	All mechanical breaks				6	6	6	6	6	30	15		0.0			0	G	7	GV
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-05

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-05_Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
0.0	55.0	0.0		0				5	OVERBURDEN				Cobble fine to coarse GRAVEL. Sub-angular, brown and orange-white mottled. Fines washed away, occasional recovery of sand. Increasing density with depth, approaching residual soil at bottom of interval.																			CMS
55.0	62.5	3.26	43	0.00	0	50	64	25	FT	Grey	Fine Grained	Laminated	Heavily weathered, bleached, iron-stained, and altered bedrock. Very highly fractured.				0	0	1	0	3	4	15	J/Br	5.0	cly	FeO	15	None	Un-M	CMS
62.5	64.0	1.50	100	1.41	94	10	136	95	FT	Grey	Fine Grained	Broken	Highly altered and bleached.	0.45			0	1	2	4	3	10	15	Rub	80.0	FeO		25	None	Un-M	CMS
														0.73			0	1	2	4	3	10	15	Brok	5.0	FeO		25	None	Un-M	CMS
64.0	65.5	0.52	35	0.52	35	15	33	95	FT	Grey	Fine Grained	Laminated	Lost some core. Zone lost is suspected to be very soft, clay-altered. Represented by "soft rock" zone.	0.42			0	1	3	4	3	11	15	sh	1000.0	cly		1	None	Un-M	CMS
65.5	67.0	1.41	94	0.85	57	12	108	70	FT	Grey	Fine Grained	Laminated		0.20			0	4	1	4	3	12	15	J	1.0	cly		11	None	Un-M	CMS
														1.08			0	0	1	4	3	8	15	Rub	120.0	FeO		1	None	Un-M	CMS
67.0	68.5	0.91	61	0.74	49	8	101	70	FT	Grey	Fine Grained	Laminated		0.05			0	4	1	4	3	12	15	Brok	130.0	FeO		1	None	Un-M	CMS
68.5	70.0	1.27	85	0.75	50	10	115	50	FT	Grey	Fine Grained	Laminated	Only mechanical breaks, but rock is weak.				0	4	3	4	3	14	15		0.0			0	None	Un-M	CMS
70.0	71.5	0.71	47	0.36	24	8	79	25	FT	Grey	Fine Grained	Broken	1 large broken zone	0.19			0	4	3	4	3	14	15	Brok	170.0	cly		50	None	Un-M	CMS
71.5	72.5	0.22	22	0.16	16	8	24	45	FT	Grey	Fine Grained	Broken	After pulling rods, lots of cuttings and poor recovery				0	4	3	4	3	14	15	Rub	60.0	FeO		50	None	Un-M	CMS
72.5	73.0	0.50	100	0.50	100	1	250	45	FT	Grey	Fine Grained	Laminated	Soft, but only mechanical breaks				0	4	3	4	3	14	15		0.0			0	None	Un-M	CMS
73.0	74.5	0.52	35	0.42	28	20	25	75	FT	Grey	Fine Grained	Broken	Driller pushed a block, hence poor recovery	0.26			0	4	1	4	3	12	15	Rub	lost	rub		50	None	Un-M	CMS
74.5	79.0	0.62	14	0.00	0	50	12	50	FT	Grey	Fine Grained	Broken	Gravelly rubble	0.00			0	0	1	0	3	4	15	Rub	lost	rub		50	None	Un-M	GV
79.0	80.5	1.45	100	1.20	83	20	69	50	FT	Grey	Fine Grained	Laminated	Soft, orangey yellow colour on joint faces, some BZ/RZ	0.08	40		0	4	2	4	3	13	15	J	1.0			1	None	Un-M	GV
														0.19	38		0	4	2	4	3	13	15	J	1.0			1	None	Un-M	GV
														0.32	45		0	4	3	4	3	14	15	J/Br?	1.0			1	None	Un-M	GV
														0.46			0	0	1	2	3	6	15	Brok	70.0	cly		25	None	Un-M	GV
									FT					1.02			0	0	1	4	3	8	15	Brok/Rub	190.0			25	None	Un-M	GV
80.5	82.0	1.53	99	1.53	99	10	139	50	FT	Grey	Fine Grained	Laminated	Mostly mechanical breaks	0.83	29	21	0	4	2	4	3	13	15	J	1.0			1	F	Un-M	GV
									FT	Grey	Fine Grained	Laminated		1.09	51	25	0	5	2	4	3	14	15	J/Br?	1.0			1	F	Un-M	GV
82.0	83.6	1.48	95	1.48	95	10	135	50	FT	Grey	Fine Grained	Laminated	Soft, with blackish coal on faces	0.16	25	340	0	4	1	2	3	10	15	J	1.0	cly		1	F	0	GV
									FT	Grey	Fine Grained	Laminated		1.29	21	73	0	4	3	2	3	12	15	J	1.0	gph		1	G	0	GV
83.6	85.0	1.44	100	1.44	100	10	131	60	FT	Grey	Fine Grained	Laminated	Soft rock, softer zone (some clay) @ 1.2m from top				0	1	0	2	3	6	15		0.0	cly		0	None	Un-M	GV
85.0	86.5	1.53	100	1.53	100	10	139	75	FT	Grey	Fine Grained	Laminated	Some soft rock				0	4	1	3	3	11	15		0.0	cly		0	G	-17	GV
86.5	88.0	1.47	100	1.47	100	10	134	60	FT	Grey	Fine Grained	Laminated	Soft rock bottom 0.23m	0.57	35	55	0	4	3	2	3	12	15	J/Br?	1.0	cly		1	F	-33	GV
88.0	89.6	1.60	100	0.75	47	20	76	50	FT	Grey	Fine Grained	Laminated/Shear	Soft rock at top, weak rock, fragments when disturbed	1.09			0	0	1	2	3	6	15	Shear	100.0	cly		1	None	Un-M	GV
														1.34	39	200	0	1	1	2	3	7	15	J	3.0	cly	gph	1	G	-17	GV
89.6	91.0	1.37	98	1.10	79	25	53	51	FT	Grey	Fine Grained	Laminated	Soft, broken zones, faces discoloured black (granular) and orange	0.46			0	1	1	4	3	9	15	Brok	190.0	gph		50	G	-17	GV
														1.28	40		0	1	1	4	3	9	15	J/Br?	1.0	gph		1	G	-17	GV
91.0	92.6	1.50	94	0.95	59	50	29	40	FT	Grey	Fine Grained	Shear	Shear zone at bottom of run, fragments extremely easily	0.94			0	0	1	0	3	4	15	Shear	560.0	cly	chl	50	None	Un-M	GV
92.6	94.0	1.40	100	1.40	100	10	127	40	FT	Grey	Fine Grained	Laminated	Soft shear rock at top, RQD not representative of strength				0	1	3	4	3	11	15		0.0	cly		0	None	Un-M	GV
94.0	95.6	1.50	96	1.25	80	10	136	50	FT	Grey	Fine Grained	Laminated	Soft but more competent than previous run	0.42	44	220	0	1	2	2	3	8	15	J	1.0	cly		1	F	0	GV
95.6	97.0	1.37	96	1.17	82	50	27	50	FT	Grey	Fine Grained	Laminated	As above	0.00			0	0	1	0	3	4	15	Rub	100.0	cly		16	None	Un-M	CMS
														0.44			0	0	1	0	3	4	15	Rub	50.0	cly		16	None	Un-M	CMS
														0.72	33	58	0	4	1	4	3	12	15	J	<1	FeO		1	None	Un-M	CMS
														0.77			0	0	1	0	3	4	15	Rub	50.0	cly		18	None	Un-M	CMS
97.0	98.5	1.47	98	0.65	43	50	29	35	FT	Grey	Fine Grained	Broken	Highly fractured/sheared. Black mineral, white clay, fe-oxides, etc.	0.84			0	0	1	0	3	4	15	Brok	550.0	cly	FeO	50	None	Un-M	CMS
98.5	100.0	1.49	99	1.33	89	10	135	45	FT	Grey	Fine Grained	Broken	More competent	0.47			0	0	1	2	3	6	15	Brok/shear	20.0	cly		25	VG	6	CMS
														0.82			0	0	1	2	3	6	15	Brok	90.0	cly	FeO	25	VG	6	CMS
100.0	101.5	1.50	100	0.75	50	15	94	75	FT	Grey	Fine Grained	Laminated	More competent	0.57	42	25	0	1	3	2	3	9	15	J	5.0	FeO	cly	1	G	-16	CMS
														1.33	23	12	0	1	3	2	3	9	15	J	5.0	FeO	cly	1	G	-16	CMS
101.5	103.0	1.41	94	1.41	94	3	353	90	FT	Grey	Fine Grained	Laminated		0.26	26	342	0	4	3	2	3	12	15	J	1.0	FeO	FeO	1	G	-16	CMS
103.0	104.9	1.87	100	1.87	100	5	312	90	FT	Grey	Fine Grained	Laminated	Dropped core and drilled ~1' to retrieve	0.59	43	210	0	4	3	2	3	12	15	J	1.0	FeO		1	VG	5	CMS
														1.50	78	55	0	4	3	2	3	12	15	J	1.0	FeO	FeO	1	VG	6	CMS
104.9	106.0	1.13	100	1.13	100	5	188	95	FT	Grey	Fine Grained	Laminated		0.83	65	180	0	1	3	4	3	11	15	J	2.0	FeO		1	P	-152	CMS
106.0	107.5	1.50	100	1.30	87	5	250	95	FT	Grey	Fine Grained	Laminated		0.14	34	55	0	1	3	4	3	11	15	J	2.0	FeO		1	P	137	CMS
														0.27	35	53	0	1	1	2	3	7	15	J	5.0	FeO		1	P	137	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																	Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
107.5	109.0	1.47	98	1.47	98	4	294	70	FT	Grey	Fine Grained	Laminated		0.64	20	148	0	1	3	2	3	9	16	J/Br	5.0	FeO		1	P	137	CMS
														1.08	68	129	0	1	3	2	3	9	16	J/Br	5.0	FeO		1	P	137	CMS
109.0	110.5	1.50	100	1.50	100	4	300	110	FT	Grey	Fine Grained	Laminated		0.78	49	303	0	1	3	2	3	9	15	J/Br	2.0	cly		1	None	Un-M	CMS
														0.91	36	340	0	1	3	2	3	9	15	J/Br	2.0	cly		1	None	Un-M	CMS
110.5	112.0	1.47	98	1.47	98	3	368	95	FT	Grey	Fine Grained	Laminated	Brecciated. RQD may be unnaturally high	0.17	74	42	0	4	3	2	3	12	15	J	1.0	cly		1	F	-34	CMS
														0.77	66	320	0	4	3	4	3	14	15	J	<1	py		1	F	-34	CMS
														1.25	75	217	0	4	1	4	3	12	15	J	<1	py		1	F	-34	CMS
112.0	113.5	1.50	100	1.20	80	5	250	25	FT	Grey	Fine Grained	Laminated	Very altered/intruded soft rock.				0	2	3	4	3	12	15	Soft Rock	0.0	FeO		0	F	-34	CMS
113.5	115.0	1.44	96	1.44	96	3	360	35	FT	Grey	Fine Grained	Laminated	As above, elevated RQD				0	2	3	4	3	12	15	Soft Rock	0.0	FeO		0	VG	3	CMS
115.0	116.5	1.36	91	1.36	91	3	340	125	FT	Grey	Fine Grained	Laminated	Stick Rock!				0	2	3	4	3	12	15		0.0			0	G	16	CMS
116.5	118.0	1.42	95	1.42	95	5	237	95	FT	Grey	Fine Grained	Laminated	Only mechanical breaks (healed fractures/joints)				0	2	3	4	3	12	15		0.0			0	G	7	CMS
118.0	119.5	1.50	100	1.50	100	3	375	100	FT	Grey	Fine Grained	Laminated		0.64	43	340	0	2	3	4	3	12	15	J	<1	FeO		1	G	-14	CMS
119.5	121.0	1.50	100	1.50	100	2	500	80	FT	Grey	Fine Grained	Laminated	Rock has many voids	1.15	52	327	0	4	3	2	3	12	15	J	1.0	cly		1	P	-48	GV
														1.24	41	308	0	5	1	4	3	13	15	J/Br?	<1	FeO		1	P	-48	GV
121.0	122.6	1.50	94	1.50	94	3	375	90	FT	Grey	Fine Grained	Laminated	Many healed joints	0.79	71	126	0	4	1	4	3	12	15	J/Br?	1.0			1	None	Un-M	GV
122.6	124.0	1.40	100	1.40	100	3	350	90	FT	Grey	Fine Grained	Laminated	All mechanical breaks along planes of weakness				0	4	1	4	3	12	15		0.0	FeO		0	G	10	GV
124.0	125.6	1.53	97	0.75	48	5	255	90	FT	Grey	Fine Grained	Laminated		0.45	68	110	0	0	1	2	3	6	15	J	1.0	cly		1	P	50	GV
														0.58	44	75	0	4	3	4	3	14	15	J	1.0	FeO		1	P	50	GV
														0.82	55	245	0	4	1	4	5	14	15	J/Br?	<1	FeO		1	P	50	GV
125.6	127.0	1.43	100	1.43	100	4	286	100	FT	Grey	Fine Grained	Laminated	Many healed fractures, breaks along them, all mechanical breaks, some salmon coloured spots				0	4	1	4	3	12	15		0.0	FeO		0	G	10	GV
127.0	128.6	1.55	97	1.55	97	6	221	100	FT	Grey	Fine Grained	Laminated	Same as above, iron oxide in breaks				0	4	1	4	4	13	15		0.0	FeO		0	G	10	GV
128.6	130.0	1.40	100	1.40	100	22	61	100	FT	Grey	Fine Grained	Laminated	Fewer healed fractures, more competent rock	0.47	64		0	5	2	4	4	15	15	J	<1	FeO		1	None	Un-M	GV
130.0	131.6	1.55	95	1.55	95	3	388	100	FT	Grey	Fine Grained	Laminated	Same as above	0.11	57	189	0	4	1	2	4	11	15	J	1.0			1	None	Un-M	GV
131.6	133.0	1.37	100	1.37	100	2	457	125	FT	Grey	Fine Grained	Laminated	Only 3 mechanical breaks!Competent Rock				0	4	3	4	4	15	15		0.0			0	F	27	GV
133.0	134.4	1.43	100	1.43	100	1	715	100	FT	Grey	Fine Grained	Shear	Goes from grey to pale milk colour, to tannish yellow, yellow clay	1.24			0	1	1	0	4	6	15	Shear	20.0	cly		1	VG	0	GV
134.4	136.0	1.56	99	1.06	68	50	31	100	FT	Grey	Fine Grained	Broken	Fractured rock (BZ) at top of run, competent rock after, couldn't orient top	0.00			0	1	1	4	4	10	15	Brok	490.0			50	None	Un-M	GV
136.0	137.5	1.52	100	1.35	89	2	507	100	FT	Grey	Fine Grained	Laminated	All mechanical breaks and along planes of weakness				0	4	3	4	4	15	15		0.0	FeO		0	F	-31	GV
137.5	139.0	1.48	100	1.48	100	1	740	90	FT	Grey	Fine Grained	Laminated		0.41	63	230	0	5	1	2	4	12	15	J	<1	cly		1	VG	0	GV
139.0	140.6	1.54	96	1.54	96	4	308	90	FT	Grey	Fine Grained	Laminated	Yellowish tan, fine grained, mostly mechanical breaks	0.65	55	210	0	1	1	2	4	8	15	J	5.0	cly	FeO	1	VG	-5	GV
140.6	142.0	1.40	100	1.40	100	3	350	110	FT	Grey	Fine Grained	Laminated	All mechanical breaks (3)				0	4	3	4	4	15	15		0.0			0	G	-10	GV
142.0	143.6	1.57	98	1.57	98	5	262	75	FT	Grey	Fine Grained	Laminated	Fragments when disturbed	1.50	72	175	0	1	3	4	4	12	15	J	<1			5	P	-140	GV
143.6	145.0	1.40	100	1.40	100	3	350	110	FT	Grey	Fine Grained	Laminated	More competent rock and stronger than prev	0.51	45	97	0	5	1	4	4	14	15	J/Br?	<1			1	VG	0	GV
145.0	146.6	1.60	100	1.60	100	0	1600	100	FT	Grey	Fine Grained	Laminated	Only mechanical breaks				6	6	6	6	4	28	15		0.0			0	None	Un-M	GV
146.6	148.0	1.40	100	1.40	100	0	1400	90	FT	Grey	Fine Grained	Laminated	One solid piece of core, mechanically broke				6	6	6	6	4	28	15		0.0			0	VG	0	GV
148.0	149.6	1.60	100	1.60	100	4	320	90	FT	Grey	Fine Grained	Laminated	Mech breaks, clay seam near bottom	1.42	32	230	0	1	1	0	4	6	15	J	20.0	cly	FeO	1	VG	0	GV
149.6	151.0	1.38	99	1.38	99	2	460	110	FT	Grey	Fine Grained	Laminated	All mechanical breaks				0	4	3	4	4	15	15		0.0			0	G	-11	GV
151.0	152.6	1.56	96	1.56	96	1	780	100	FT	Grey	Fine Grained	Laminated	Soft rock at top	0.86	47	110	0	4	2	2	4	12	15	J	1.0	cly		1	None	Un-M	GV
152.6	154.0	1.38	100	1.38	100	1	690	100	FT	Grey	Fine Grained	Laminated		0.86	45	32	0	5	3	4	4	16	15	J/Br?	<1	FeO		1	P	-165	GV
154.0	155.6	1.57	100	1.57	100	5	262	80	FT	Grey	Fine Grained	Laminated	Fragmented zone 0.48m from bottom	0.28	52	71	0	4	3	4	4	15	15	J	<1			50	P	-155	GV
155.6	157.0	1.43	100	1.43	100	3	358	100	FT	Grey	Fine Grained	Laminated	Starts quartz colour, becomes progressively tannish yellow towards bottom	0.93	29	338	0	5	1	4	4	14	15	J	<1	FeO		1	F	30	GV
157.0	158.5	1.50	100	1.50	100	3	375	100	FT	Grey	Fine Grained	Laminated		1.12	40	190	0	4	3	4	5	16	15	J	1.0	FeO	cly	1	P	-160	CMS
158.5	160.0	1.37	91	1.37	91	2	457	100	FT	Grey	Fine Grained	Laminated					0	4	1	4	5	14	15		0.0			0	P	-98	CMS
160.0	161.5	1.50	100	1.50	100	3	375	90	FT	Grey	Fine Grained	Laminated	Only mech. Breaks				0	4	3	4	5	16	15		0.0			0	P	-98	CMS
161.5	163.0	1.45	97	1.45	97	1	725	110	FT	Grey	Fine Grained	Laminated	Colour and comp. change	0.47	46	24	0	4	3	4	5	16	15	J	<1	FeO		1	None	Un-M	CMS
163.0	164.5	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated	Only mechanical breaks				0	5	3	4	5	17	15		0.0			0	P	180	CMS
164.5	166.0	1.45	97	1.45	97	1	725	125	FT	Grey	Fine Grained	Laminated	Only mechanical breaks				0	5	3	4	5	17	15		0.0			0	P	180	CMS
166.0	167.5	1.50	100	1.50	100	2	500	125	FT	Grey	Fine Grained	Laminated		0.91	44	20	0	4	2	4	5	15	15	J	1.0	cly	FeO	1	VG	-2	CMS
167.5	169.0	1.50	100	1.50	100	0	1500	150	FT	Grey	Fine Grained	Laminated	Only 1 mech. Break				6	6	6	6	6	30	15		0.0			0	G	10	CMS
169.0	170.5	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated		0.22	50	49	0	4	1	4	5	14	15	J	<1	FeO		1	G	-18	CMS
170.5	172.0	1.41	94	1.41	94	2	470	95	FT	Grey	Fine Grained	Laminated		0.07	50	147	0	4	3	4	5	16	15	J	1.0	FeO		1	G	-18	CMS
														1.26	35	197	0	4	5	4	5	18	15	J	1.0	FeO		1	G	-18	CMS
172.0	173.5	1.50	100	1.50	100	0	1500	125	FT	Grey	Fine Grained	Laminated	Only 2 mech. Breaks				6	6	6	6	5	29	15		0.0			0	F	-23	CMS
173.5	175.0	1.45	97	1.45	97	1	725	125	FT	Grey	Fine Grained	Laminated					0	5	3	4	5	17	15		0.0			0	VG	0	CMS
175.0	176.5	1.50	100	1.50	100	0	1500	125	FT	Grey	Fine Grained	Laminated					6	6	6	6	6	30	15		0.0			0	G	12	CMS
176.5	178.0	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated		0.33	72	195	0	1	1	2	5	9	15	J	1.0	cly	FeO	1	G	-17	CMS
178.0	179.5	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated	2 mech. Breaks				0	5	3	4	5	17	15		0.0			0	G	-17	CMS
179.5	181.0	1.50	100	1.50	100	2	500	125	FT	Grey	Fine Grained	Laminated					0	5	3	4	5	17	15		0.0			0	VG	-3	CMS
181.0	182.5	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated					0	5	3	4	5	17	15		0.0			0	VG	0	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																	Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
182.5	184.0	1.43	95	1.43	95	1	715	125	FT	Grey	Fine Grained	Laminated					0	5	3	4	5	17	15		0.0			0	VG	6	CMS
184.0	185.5	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated					0	4	3	5	5	17	15		0.0			0	G	15	CMS
185.5	187.0	1.50	100	1.50	100	1	750	125	FT	Grey	Fine Grained	Laminated					0	5	3	4	5	17	15		0.0			0	F	-33	GV
187.0	188.5	1.51	100	1.51	100	1	755	125	FT	Grey	Fine Grained	Laminated	Grey, fine grained, mechanical breaks mostly	0.67	49	335	0	5	1	4	5	15	15	J	<1	FeO		1	P	-135	GV
188.5	190.0	1.49	100	1.49	100	0	1490	125	FT	Grey	Fine Grained	Laminated	All mechanical breaks				6	6	6	6	6	30	15		0.0			0	P	65	GV
190.0	191.6	1.44	92	0.72	46	50	28	75	FT	Grey	Fine Grained	Shear	Shear zone at bottom, reduction in strength	0.72			0	0	1	0	3	4	15	Shear	720.0	cly	chl	50	None	Un-M	GV
191.6	192.6	1.07	100	0.00	0	50	21	50	FT	Grey	Fine Grained	Broken	Entire run broken/rubble zone, some clay	0.00			0	0	1	0	3	4	15	Brok/Rub	1200.0	cly		50	None	Un-M	GV
192.6	193.9	0.69	53	0.00	0	50	14	50	FT	Grey	Fine Grained	Broken	Rubble zone at top, broken zone at bottom, driller says feels like drilling through voids	0.00			0	0	1	0	3	4	15	Brok/Rub	690.0	cly		50	None	Un-M	GV
193.9	194.5	0.40	67	0.00	0	50	8	50	FT	Grey	Fine Grained	Broken	Entire run rubble zone	0.00			0	0	1	0	3	4	15	Rub	400.0			50	None	Un-M	GV
194.5	195.9	1.40	100	0.37	26	50	27	50	FT	Grey	Fine Grained	Shear	Entire run shear/fault	0.00			0	0	1	0	3	4	15	Shear/flt	1470.0	cly		50	None	Un-M	GV
195.9	196.7	0.80	100	0.00	0	50	16	50	FT	Grey	Fine Grained	Shear	Entire run shear/fault	0.00			0	0	1	0	3	4	15	Shear/flt	800.0	cly		50	None	Un-M	GV
196.7	197.6	0.87	100	0.35	40	51	17	50	FT	Grey	Fine Grained	Shear	Highly fractured, brok/rub zones at top/bot	0.00			0	0	1	0	3	4	15	Shear/flt	430.0	cly		50	None	Un-M	GV
														0.82			0	0	1	0	3	4	15	Shear/flt	230.0	cly		1	None	Un-M	GV
197.6	198.5	0.90	99	0.00	0	50	18	50	FT	Grey	Fine Grained	Shear	Entire run brok/rub zone (shear/flt?)	0.00			0	0	1	0	3	4	15	Shear/flt	900.0	cly		50	None	Un-M	GV
198.5	199.3	0.46	56	0.00	0	50	9	50	FT	Grey	Fine Grained	Broken/Shear	Entire run rubble zone, stratified rock	0.00			0	0	1	0	3	4	15	Rub/Shear	460.0			50	None	Un-M	GV
199.3	201.0	0.90	53	0.00	0	50	18	50	FT	Grey	Fine Grained	Broken/Shear	Shear zone (rubble zone)	0.00			0	0	1	0	3	4	15	Rub/Shear	900.0	cly		50	None	Un-M	GV
201.0	202.0	0.81	84	0.00	0	50	16	50	FT	Grey	Fine Grained	Broken/Shear	Shear zone (rubble zone)	0.00			0	0	1	0	3	4	15	Rub/Shear	810.0	cly		50	None	Un-M	GV
202.0	203.6	1.50	97	0.69	45	20	71	50	FT	Grey	Fine Grained	Broken/Shear	Shear zone at top, BZ's further down rock becoming more competent	0.00			0	0	1	0	3	4	15	Sh	330.0	cly		51	None	Un-M	GV
														0.90			0	4	1	6	5	16	15	BR	210.0			1	None	Un-M	GV
														1.32			0	4	1	6	5	16	15	BR	180.0			1	None	Un-M	GV
203.6	204.6	1.04	100	0.73	70	4	208	80	FT	Grey	Fine Grained	Laminated					0	4	3	6	5	18	15	J	1.0			4	None	Un-M	CMS
204.6	205.2	0.64	100	0.64	100	1	320	80	FT	Grey	Fine Grained	Laminated		0.45			0	4	3	6	5	18	15	J	1.0			1	None	Un-M	CMS
205.2	206.5	1.25	98	0.79	62	50	25	65	FT	Grey	Fine Grained	Broken		0.33			0	0	1	6	5	12	15	Rub	330.0			25	None	Un-M	CMS
														0.54			0	0	1	6	5	12	15	BR	110.0			25	None	Un-M	CMS
206.5	208.0	1.50	100	1.37	91	2	500	65	FT	Grey	Fine Grained	Laminated	Many mechanical fractures				0	4	3	6	5	18	15	Breaks	<1			0	None	Un-M	CMS
208.0	209.5	1.46	97	1.46	97	10	133	65	FT	Grey	Fine Grained	Laminated	10 mech. Breaks		33	15	0	6	3	6	5	20	15	Breaks	<1			10	F	30	CMS
209.5	211.0	1.50	100	1.50	100	0	1500	110	FT	Grey	Fine Grained	Laminated	1 mech. Break				6	6	6	6	6	30	15		0.0			0	G	10	CMS
211.0	212.5	1.50	100	1.50	100	0	1500	110	FT	Grey	Fine Grained	Laminated	1 partially spun mech. Break				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
212.5	214.0	1.50	100	1.50	100	0	1500	110	FT	Grey	Fine Grained	Laminated	Only mech. Breaks				6	6	6	6	6	30	15		0.0			0	F	-32	CMS
214.0	215.5	1.50	100	1.50	100	0	1500	110	FT	Grey	Fine Grained	Laminated	Only mech. Breaks				6	6	6	6	6	30	15		0.0			0	P	42	CMS
215.5	216.6	1.10	100	1.10	100	3	275	110	FT	Grey	Fine Grained	Laminated	Many breaks, but assume due to bit going/cutting VERY oversize				0	4	3	6	5	18	15		0.0			0	P	-42	CMS
216.6	217.3	0.68	97	0.68	97	0	680	110	FT	Grey	Fine Grained	Laminated	Top of hole cave material from reaming, assumed all mechanical breaks due to bit transfer				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
217.3	218.3	1.04	100	1.04	100	25	40	110	FT	Grey	Fine Grained	Laminated	Highly fractured but all mechanical breaks due to extraction				0	1	1	4	5	11	15		0.0			50	None	Un-M	GV
218.3	219.0	0.44	66	0.20	30	25	17	125	FT	Grey	Fine Grained	Broken	Entire run broken zone	0.00			0	1	1	4	5	11	15	Brok/Rub	440.0			50	None	Un-M	GV
219.0	221.0	1.99	100	1.73	87	20	95	100	FT	Grey	Fine Grained	Broken	Slightly more competent. Shift change mid-run(s). Unable to orient.				0	1	1	4	5	11	15	Brok	0.0			50	None	Un-M	CMS
221.0	221.5	0.50	100	0.50	100	10	45	110	FT	Grey	Fine Grained	Laminated					0	1	1	4	5	11	15		0.0			50	None	Un-M	CMS
221.5	223.0	1.28	85	1.28	85	15	80	110	FT	Grey	Fine Grained	Laminated	Very broken, brittle. (mechanical fractures)				0	1	1	2	5	9	15		0.0			50	None	Un-M	CMS
223.0	224.5	1.50	100	0.33	22	50	29	40	FT	Grey	Fine Grained	Broken	Broken/fracture zone with trace clay. Breccia				0	0	1	0	3	4	15	Brok	0.0		cly	50	None	Un-M	CMS
224.5	226.0	1.41	94	1.41	94	5	235	90	FT	Grey	Fine Grained	Laminated					0	0	1	2	5	8	15		0.0			50	F	26	CMS
226.0	227.5	1.49	99	1.30	87	10	135	85	FT	Grey	Fine Grained	Broken		1.30			0	2	1	2	5	10	15	Rub	190.0		cly	50	F	-23	CMS
227.5	229.0	1.50	100	1.31	87	10	136	85	AND	Grey	Fine Grained	Broken		0.94			0	0	1	2	5	8	15	Brok	210.0	chl		50	F	25	CMS
229.0	230.5	1.49	99	1.19	79	25	57	85	AND	Grey	Fine Grained	Broken		0.38			0	0	1	0	3	4	15	Rub	300.0	chl	cly	50	None	Un-M	CMS
230.5	232.0	1.50	100	1.50	100	0	1500	95	AND	Grey	Fine Grained	Amygdaloidal	Only mechanical breaks				6	6	6	6	6	30	15		0.0			0	G	8	CMS
232.0	233.5	1.50	100	1.50	100	4	300	95	AND	Grey	Fine Grained	Broken		0.23			0	1	3	2	5	11	15	Rub	25.0	chl	cly	25	G	8	CMS
														1.09			0	1	3	2	5	11	15	Rub	15.0	chl	cly	25	G	8	CMS
233.5	235.0	1.50	100	1.50	100	5	250	90	AND	Grey	Fine Grained	Amygdaloidal		0.42	29	350	0	4	1	2	5	12	15	J	5.0	chl	cly	1	G	18	CMS
235.0	236.5	1.50	100	1.50	100	1	750	90	AND	Grey	Fine Grained	Amygdaloidal	Only mechanical breaks				0	4	3	2	5	14	15		0.0			0	P	-43	CMS
236.5	238.0	1.50	100	1.50	100	1	750	90	AND	Grey	Fine Grained	Amygdaloidal	Many mechanical breaks, result of pushing a block				0	4	3	2	5	14	15		0.0			0	None	Un-M	CMS
238.0	239.6	1.54	96	1.38	86	25	59	85	AND	Grey	Fine Grained	Broken	Highly fractured, soft shear zones in rock near bot	0.08			0	1	3	2	5	11	15	Brok	100.0			51	None	Un-M	GV
														0.79	75		0	1	3	2	5	11	15	J	5.0	cly		1	None	Un-M	GV
239.6	240.3	0.65	100	0.00	0	50	13	85	AND	Grey	Fine Grained	Broken/Shear	Entire run broken/shear zone, soft rock	0.00			0	1	3	2	5	11	15	Brok/Shear	800.0	cly	chl	50	None	Un-M	GV
240.3	241.9	1.55	96	1.10	68	50	30	85	AND	Grey	Fine Grained	Broken/Shear	Grey, fine grained, breaks along healed joints, shear zones	0.48			0	0	1	0	3	4	15	Shear	110.0	chl		25	None	Un-M	GV
														1.20			0	0	1	0	3	4	15	Shear	350.0	chl	cly	25	None	Un-M	GV

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
241.9	243.8	1.61	85	1.48	78	1	805	100	AND	Grey	Fine Grained	Amygdaloidal	Included portion of a blocked run, combined them. Much more competent rock, no orientation	0.47	55		0	0	1	0	3	4	15	J	<1			1	None	Un-M	GV
243.8	244.8	1.00	100	0.52	52	50	20	85	AND	Grey	Fine Grained	Shear	Top 0.41m same as prev, rest shear zone	0.41			0	0	1	2	3	6	15	Shear	530.0	cly	chl	50	None	Un-M	GV
244.8	245.3	0.50	85	0.00	0	50	10	75	AND	Grey	Fine Grained	Shear	Entire run shear zone	0.00			0	0	1	2	3	6	15	Shear	500.0	cly	chl	50	None	Un-M	GV
245.3	246.4	1.09	100	0.15	14	50	21	85	AND	Grey	Fine Grained	Shear	Most of run shear zone, mark broke off, no orientation	0.15			0	0	1	2	3	6	15	Shear	1000.0	cly	chl	50	None	Un-M	GV
246.4	247.4	0.95	96	0.38	38	50	19	25	AND	Grey	Fine Grained	Shear	Top competent rock, 0.38m from top shear zone, both ends broke therefore no orientation	0.38			0	0	1	0	3	4	15	Shear	570.0	cly	pyr	50	None	Un-M	GV
247.4	248.1	0.65	92	0.00	0	50	13	75	AND	Grey	Fine Grained	Broken/Shear	Entire run brok/shear zone	0.00			0	0	1	2	3	6	15	Brok/Shear	650.0	cly	pyr	50	None	Un-M	GV
248.1	249.0	0.60	73	0.00	0	50	12	25	AND	Grey	Fine Grained	Broken/Shear	Entire run broken zone	0.00			0	0	1	0	3	4	15	Brok/Shear	600.0			50	None	Un-M	GV
249.0	249.8	0.63	79	0.36	45	50	12	25	AND	Grey	Fine Grained	Shear	Shear zone with large clay seam in middle of run	0.13			0	0	1	0	3	4	15	Shear	250.0	cly	pyr	50	None	Un-M	GV
249.8	250.6	0.73	83	0.34	39	50	14	75	AND	Grey	Fine Grained	Shear	Shear zone	0.34			0	0	1	2	3	6	15	Shear	390.0	cly	pyr	50	None	Un-M	GV
250.6	251.0	0.12	30	0.00	0	50	2	75	AND	Grey	Fine Grained	Broken	Blocked, had to pull	0.00			0	0	1	4	3	8	15	Brok	120.0	pyr		50	None	Un-M	GV
251.0	252.0	0.72	74	0.00	0	50	14	60	AND	Grey	Fine Grained	Broken		0.00			0	0	1	0	3	4	15	Brok	720.0	cly		50	None	Un-M	CMS
252.0	253.0	1.00	100	0.00	0	50	20	5	AND	Grey	Fine Grained	Shear	Shear zone				0	0	1	0	3	4	15	Shear	0.0	cly		50	None	Un-M	CMS
253.0	254.4	1.27	94	0.17	13	50	25	5	AND	Grey	Fine Grained	Shear	Shear zone				0	0	1	0	3	4	15	Shear	0.0	cly		50	None	Un-M	CMS
254.4	256.0	1.50	91	0.28	17	50	29	25	AND	Grey	Fine Grained	Shear/Broken	Slightly more competent				0	0	1	0	3	4	15	Shear/Brok	0.0	cly	pyr	50	None	Un-M	CMS
256.0	257.0	1.00	100	0.39	39	50	20	25	AND	Grey	Fine Grained	Broken		0.18			0	0	1	0	3	4	15	Brok	350.0	cly	chl	25	None	Un-M	CMS
														0.80			0	0	1	0	3	4	15	Brok	180.0	cly	chl	25	None	Un-M	CMS
257.0	257.9	0.82	91	0.17	19	20	39	50	AND	Grey	Fine Grained	Broken					0	4	1	2	3	10	15	Brok	650.0	cly	chl	50	None	Un-M	CMS
257.9	259.0	0.96	87	0.39	35	25	37	65	AND	Grey	Fine Grained	Broken	Slightly more competent	0.26			0	4	1	2	3	10	15	Brok	130.0	chl		25	None	Un-M	CMS
														0.58			0	4	1	2	3	10	15	Brok	70.0	chl		25	None	Un-M	CMS
259.0	260.2	1.20	100	0.69	58	20	57	65	AND	Grey	Fine Grained	Porhyritic	Slightly more competent again	0.23	47	152	0	4	1	2	3	10	15	J\Brok	180.0	chl		1	F	Un-M	CMS
														0.55	20	138	0	4	1	2	3	10	15	J\Brok	25.0	chl		1	F	Un-M	CMS
														0.74	36	150	0	4	1	2	3	10	15	J\Brok	5.0	chl		1	F	Un-M	CMS
260.2	260.7	0.50	100	0.00	0	10	45	45	AND	Grey	Fine Grained	Broken	Broken Zone				0	4	1	2	3	10	15	Brok	0.0	chl		50	None	Un-M	CMS
260.7	261.4	0.56	82	0.00	0	50	11	45	AND	Grey	Fine Grained	Broken	Broken Zone				0	0	1	0	3	4	15	Brok	0.0	chl		50	None	Un-M	CMS
261.4	262.0	0.30	48	0.00	0	50	6	55	AND	Grey	Fine Grained	Broken	Broken Zone				0	0	1	0	3	4	15	Brok	0.0	chl		50	None	Un-M	CMS
262.0	263.0	0.74	74	0.00	0	50	15	55	AND	Grey	Fine Grained	Broken	Broken Zone				0	4	1	2	3	10	15	Brok	0.0	chl		50	None	Un-M	CMS
263.0	264.5	1.48	99	1.06	71	10	135	75	AND	Grey	Fine Grained	Broken	More Competent	0.00			0	4	1	2	5	12	15	Brok	420.0	chl		51	None	Un-M	CMS
264.5	265.0	0.39	78	0.39	78	0	390	110	AND	Grey	Fine Grained	Porhyritic	Stick Rock				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
265.0	266.5	1.47	100	1.47	100	1	735	110	AND	Grey	Fine Grained	Porhyritic	Stick Rock!				0	4	3	2	5	14	15		0.0			0	None	Un-M	GV
266.5	268.0	1.53	100	1.53	100	1	765	125	AND	Grey	Fine Grained	Porhyritic	One mechanical break				0	4	3	2	6	15	15		0.0			0	F	25	GV
268.0	269.6	1.52	94	1.52	94	1	760	130	AND	Grey	Fine Grained	Porhyritic	All mechanical breaks				0	5	3	5	6	19	15		0.0			0	VG	0	GV
269.6	271.0	1.39	100	1.20	86	4	278	120	AND	Grey	Fine Grained	Porhyritic		0.40	51	265	0	5	1	6	5	17	15	J	<1			1	P	-60	GV
271.0	272.1	0.80	73	0.70	64	4	160	120	AND	Grey	Fine Grained	Porhyritic	Core dropped, recovered on dayshift				0	5	1	6	5	17	15		0.0			0	None	Un-M	CMS
272.1	274.0	1.87	98	1.87	98	0	1870	110	AND	Grey	Fine Grained	Porhyritic	Only mechanical breaks				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
274.0	275.5	1.50	100	1.50	100	3	375	110	AND	Grey	Fine Grained	Porhyritic	Breaking on weak mineral planes				0	6	1	2	5	14	15	J/Vn	0.0	cc		3	None	Un-M	CMS
275.5	277.0	1.49	99	1.49	99	50	29	70	AND	Grey	Fine Grained	Broken	Many cc veins, very low strength but rock itself is strong	0.10			0	1	1	2	5	9	15	Rub	60.0	cc	chl	25	None	Un-M	CMS
														0.56			0	1	1	2	5	9	15	Brok	140.0	cc		25	None	Un-M	CMS
277.0	278.5	1.50	100	1.50	100	5	250	70	AND	Grey	Fine Grained	Porhyritic	Soapy feeling rock	1.11	41	47	0	1	1	2	5	9	15	J/Brok	4.0	cc		1	None	Un-M	CMS
														1.48	26	352	0	1	1	2	5	9	15	J/Brok	2.0	cc	cly	1	None	Un-M	CMS
278.5	279.8	1.25	100	1.18	94	5	208	70	AND	Grey	Fine Grained	Porhyritic	Some core dropped on this run (full 1.5 m drilled)	0.66			0	0	1	0	3	4	15	Soft Rock	50.0	cly		1	None	Un-M	CMS
														0.81			0	0	1	0	2	3	15	Vn	20.0	cc		1	None	Un-M	CMS
279.8	280.0	0.08	32	0.00	0	1	40	70	AND	Grey	Fine Grained	Porhyritic	Dropped core recovered				0	4	2	6	6	18	15		0.0			0	None	Un-M	CMS
280.0	281.5	1.44	96	1.07	71	20	69	70	AND	Grey	Fine Grained	Porhyritic	Whole run is broken/soft and somewhat soapy				0	1	1	2	5	9	15	Brok/Soft Rock	0.0	cc	cly	50	None	Un-M	CMS
281.5	283.0	1.50	100	0.66	44	50	29	70	AND	Grey	Fine Grained	Porhyritic	As above, 1 major broken zone less competent than rest of (relatively poor quality) run				0	0	1	0	3	4	15	Brok/Soft Rock	0.0	cc	cly	51	None	Un-M	CMS
283.0	284.5	1.50	100	0.32	21	4	300	70	AND	Grey	Fine Grained	Porhyritic	cc vein failures throughout		27	15	0	4	1	2	5	12	15	J/Vn	<1	cc		4	F		CMS
284.5	286.0	1.47	98	1.45	97	51	28	75	AND	Grey	Fine Grained	Porhyritic	More competent	0.37	42	330	0	1	1	2	5	9	15	J/Vn	5.0	cc		1	None	Un-M	CMS
														0.78			0	0	1	0	5	6	15	Vn/Brok	20.0	cc	qtz	50	None	Un-M	CMS
286.0	287.5	1.50	100	1.50	100	1	750	80	AND	Grey	Fine Grained	Porhyritic	All breaks along planes of weakness				0	5	3	2	5	15	15		0.0	cc		0	F	31	GV
287.5	289.0	1.40	93	1.40	93	1	700	90	AND	Grey	Fine Grained	Porhyritic	All mechanical breaks				0	5	3	2	5	15	15		0.0	cc		0	F	31	GV
289.0	290.5	1.51	100	1.51	100	1	755	90	AND	Grey	Fine Grained	Porhyritic	cc veins in rock	0.84	73	180	0	4	3	2	5	14	15	J/Br?	1.0	cc		1	VG	0	GV
290.5	292.0	1.44	97	1.44	97	0	1440	110	AND	Grey	Fine Grained	Porhyritic	STICK ROCK! Bot broke from extraction				6	6	6	6	6	30	15		0.0			0	VG	0	GV
292.0	293.6	1.60	100	1.60	100	0	1600	110	AND	Grey	Fine Grained	Porhyritic	All mechanical breaks, prev bottom broken, current bottom is SP therefore no orientation				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
293.6	295.0	1.40	100	1.40	100	0	1400	110	AND	Grey	Fine Grained	Porhyritic	Stick Rock. Core slipped, retrieved but orientation taken from middle				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
295.0	296.5	1.33	88	1.33	88	10	121	100	AND	Grey	Fine Grained	Broken/Shear	Softer rock at bottom	1.02			0	0	1	2	5	8	15	Brok/Shear	180.0	cc	cly	10	G	-9	GV
296.5	298.0	1.44	100	1.44	100	1	720	110	AND	Grey	Fine Grained	Porhyritic	Breaks along calcite veins, many healed cc breaks	1.20	57	45	0	4	5	2	5	16	15	J/Br?	1.0	cc	cly	1	G	-9	GV
298.0	299.5	1.50	96	1.50	96	1	750	110	AND	Grey	Fine Grained	Porhyritic	Bottom fragmented and top SP therefore no orientation, all mechanical breaks				0	4	5	4	5	18	15		0.0			0	None	Un-M	GV

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
299.5	301.0	1.49	100	1.49	100	1	745	90	AND	Grey	Fine Grained	Broken/Shear	Breaks along healed joints and cc veins	1.39			0	0	1	2	5	8	15	Brok/Shear	70.0	cc		1	None	Un-M	GV
301.0	302.6	1.55	97	1.43	89	1	775	90	AND	Grey	Fine Grained	Broken/Shear	Breaks along healed joints and cc veins	1.15			0	0	1	2	5	8	15	Brok/Shear	100.0	cc		1	F		GV
302.6	304.0	1.40	100	1.40	100	1	700	90	AND	Grey	Fine Grained	Broken/Shear	Broken / Shear zone at top, same as now	0.00			0	0	1	2	5	8	15	Brok/Shear	170.0	cc	pyr	1	None	Un-M	GV
304.0	305.5	1.50	100	1.50	100	1	750	90	AND	Grey	Fine Grained	Porhyritic	Many breaks, no natural discontinuities				0	4	2	2	5	13	15		0.0			0	VG	0	CMS
305.5	307.0	1.50	100	1.50	100	1	750	75	AND	Grey	Fine Grained	Porhyritic	Many breaks along weak planes, usually of cc infill	0.81			0	0	1	2	5	8	15	Soft Rock	50.0	cly		1	VG	-5	CMS
307.0	308.5	1.49	99	1.20	80	5	248	75	AND	Grey	Fine Grained	Porhyritic	Whole run more or less a broken zone, breaking along cc veins of random orientation.				0	4	1	2	5	12	15	J/Brok	<1	cc	chl	5	F	30	CMS
308.5	310.0	1.48	99	1.48	99	0	1480	110	AND	Grey	Fine Grained	Porhyritic	Stick rock; 1 mechanical break				6	6	6	6	6	30	15		0.0			0	G	13	CMS
310.0	311.5	1.50	100	1.50	100	0	1500	125	AND	Grey	Fine Grained	Porhyritic	Stick rock; 1 mechanical break				6	6	6	6	6	30	15		0.0			0	VG	0	CMS
311.5	313.0	1.45	97	1.45	97	0	1450	125	AND	Grey	Fine Grained	Porhyritic	Stick rock; 1 mechanical break				6	6	6	6	6	30	15		0.0			0	G	-12	CMS
313.0	314.5	1.50	100	1.50	100	0	1500	125	AND	Grey	Fine Grained	Porhyritic	Stick rock; 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
314.5	316.0	1.50	100	1.50	100	0	1500	125	AND	Grey	Fine Grained	Porhyritic	Stick rock; 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	VG	2	CMS
316.0	317.5	1.50	100	1.50	100	0	1500	110	AND	Grey	Fine Grained	Porhyritic	Stick rock; 3 mechanical breaks on weak planes				6	6	6	6	6	30	15		0.0			0	F	-24	CMS
317.5	319.0	1.50	100	1.50	100	3	375	125	AND	Grey	Fine Grained	Porhyritic	1 major broken zone near bottom - nearly positive it's a result of twisting off lifter case.				0	4	3	2	5	14	15		0.0			0	F	-24	CMS
319.0	320.5	1.50	100	1.50	100	6	214	45	AND	Grey	Fine Grained	Porhyritic	6 breaks, adjusted UCS accordingly				0	4	3	2	5	14	15		0.0			0	None	Un-M	CMS
320.5	321.6	0.90	82	0.00	0	10	82	45	AND	Grey	Fine Grained	Volcanoclastic	Broken zone - but possibly driller error/not catching a block fast enough.				0	4	3	2	5	14	15		0.0			50	None	Un-M	CMS
321.6	322.0	0.40	100	0.40	100	5	67	45	AND	Grey	Fine Grained	Volcanoclastic	Broken zone - but possibly driller error/not catching a block fast enough.				0	1	1	2	5	9	15		0.0			50	None	Un-M	CMS
322.0	323.5	1.50	100	0.74	49	25	58	45	AND	Grey	Fine Grained	Volcanoclastic	Broken zone - but likely due to effort to remove lifter case.				0	4	2	4	5	15	15		0.0			50	None	Un-M	CMS
323.5	325.0	1.46	97	0.62	41	50	29	55	AND	Grey	Fine Grained	Volcanoclastic	Broken by handling (lifter case, drill, etc.)				0	1	1	0	3	5	15		0.0			50	None	Un-M	CMS
325.0	326.1	1.05	95	0.42	38	25	40	55	AND	Grey	Fine Grained	Broken	Whole run somewhat broken; natural broken zone near bottom	0.70			0	1	1	0	3	5	15	Rub	1.0	chl	cly	50	None	Un-M	CMS
326.1	327.5	1.40	100	0.00	0	50	27	5	AND	Grey	Fine Grained	Volcanoclastic	Entire run soft, clay-altered poor strength rock				0	0	1	0	3	4	15	Soft Rock	0.0	cly	chl	0	None	Un-M	CMS
327.5	328.0	0.37	74	0.20	40	0	370	90	AND	Grey	Fine Grained	Volcanoclastic	All mechanical breaks				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
328.0	329.4	1.44	100	1.15	80	25	55	75	AND	Grey	Fine Grained	Volcanoclastic	Top of run clay seam/shear zone, rest competent rock	0.00			0	0	1	0	3	4	15	Shear	220.0	cly		1	None	Un-M	GV
														1.14	35		0	5	1	4	5	15	15	J	<1	pyr		1	None	Un-M	GV
329.4	331.0	1.53	98	1.53	98	4	306	90	AND	Grey	Fine Grained	Volcanoclastic	cc healed joints that have rebroke at bottom	1.00	53		0	5	1	2	5	13	15	JVn	<1	cc	pyr	4	None	Un-M	GV
331.0	332.5	1.54	100	0.50	32	25	59	90	AND	Grey	Fine Grained	Shear	Top broken zone due to drilling, shear zone below	0.33			0	0	1	0	3	4	15	Shear	220.0	cly	chl	1	None	Un-M	GV
332.5	334.0	1.45	99	1.45	99	2	483	125	AND	Grey	Fine Grained	Volcanoclastic	Very strong rock, 2 cc veins, crystalized structure		31	190	0	4	3	3	5	15	15	Vn	1.0	cc		2	VG	0	GV
334.0	335.6	1.57	97	1.57	97	0	1570	125	AND	Grey	Fine Grained	Volcanoclastic	Calcite veins 1.14m from top, all mechanical breaks				6	6	6	6	5	29	15		0.0	cc		0	None	Un-M	GV
335.6	337.0	1.37	99	1.03	75	25	53	100	AND	Grey	Fine Grained	Broken/Shear	Broken/shear zone with cc infilling (axially as well)	0.80			0	1	1	2	5	9	15	Brok/Shear	340.0	cc		51	G	10	GV
337.0	338.6	1.56	99	1.56	99	4	312	110	AND	Grey	Fine Grained	Volcanoclastic	All breaks along cc veinlet's due to tube extraction				0	4	2	2	5	13	15		0.0	cc		0	VG	0	GV
338.6	340.0	1.43	100	1.43	100	1	715	100	AND	Grey	Fine Grained	Volcanoclastic	Breaks along cc veinlet's/planes of weakness	0.54	28	225	0	4	2	4	5	15	15	J/Vn	1.0	cc		1	VG	-5	GV
340.0	341.7	1.57	95	1.57	95	4	314	85	AND	Grey	Fine Grained	Volcanoclastic	Breaks long cc veins, weakened rock in cc vein area, UCS lowered				0	4	2	2	5	13	15		0.0	cc		0	F	30	GV
341.7	343.0	1.34	100	1.00	75	25	52	85	AND	Grey	Fine Grained	shear	Breaks long cc veins, weakened rock in cc vein area, UCS lowered, shear zone	0.82			0	0	1	0	3	4	15	Shear	160.0	cc	cly	1	None	Un-M	GV
343.0	343.5	0.48	96	0.48	96	0	480	110	AND	Grey	Fine Grained	Volcanoclastic	Stick Rock, all mechanical breaks				6	6	6	6	6	30	15		0.0			0	F	-20	GV
343.5	345.0	1.41	96	1.41	96	0	1410	85	AND	Grey	Fine Grained	Volcanoclastic	Breaks along healed cc planes of weakness				6	6	6	6	6	30	15		0.0	cc		0	F	-20	GV
345.0	346.0	1.03	100	1.03	100	0	1030	90	AND	Grey	Fine Grained	Volcanoclastic	Breaks mechanical or along planes of weakness/cc veins. Axial running cc vein				6	6	6	6	6	30	15		0.0	cc		0	VG	2	GV
346.0	347.1	0.85	77	0.32	29	50	17	25	AND	Grey	Fine Grained	Volcanoclastic	very broken				0	0	1	0	3	4	15		0.0			0	None	Un-M	CMS
347.1	348.6	0.91	61	0.66	44	1	455	55	AND	Grey	Fine Grained	Volcanoclastic	Competent but low strength rock				0	4	3	5	5	17	15	Soft Rock	0.0	chl	pyr	0	None	Un-M	CMS
348.6	349.0	0.40	100	0.39	98	1	200	65	AND	Grey	Fine Grained	Volcanoclastic	Slightly stronger				0	4	3	5	5	17	15		0.0			0	None	Un-M	CMS
349.0	350.5	1.46	97	1.46	97	2	487	65	AND	Grey	Fine Grained	Volcanoclastic	Many mechanical breaks along planes of weakness (healed cc)				0	6	1	4	5	16	15	Vn	1.0	cc		0	None	Un-M	CMS
350.5	352.0	1.50	100	1.50	100	0	1500	125	AND	Grey	Fine Grained	Volcanoclastic	Hard, stick rock				6	6	6	6	6	30	15		0.0			0	VG	0	CMS
352.0	353.5	1.50	100	1.50	100	0	1500	125	AND	Grey	Fine Grained	Volcanoclastic	3 mechanical breaks				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
353.5	355.0	1.50	100	1.50	100	0	1500	125	AND	Grey	Fine Grained	Volcanoclastic	2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	P	-38	CMS
355.0	356.5	1.48	99	1.20	80	15	93	75	AND	Grey	Fine Grained	Broken	2 broken zones	0.63			0	4	3	4	5	16	15	Rub	180.0			25	None	Un-M	CMS
														1.12			0	0	1	2	5	8	15	Rub	30.0			25	None	Un-M	CMS
356.5	357.6	0.88	80	0.46	42	25	34	45	AND	Grey	Fine Grained	Broken	Broken zone				0	1	1	2	5	9	15	Rub	0.0	chl		50	None	Un-M	CMS
357.6	358.5	0.75	83	0.00	0	50	15	45	AND	Grey	Fine Grained	Broken	Broken zone				0	0	1	0	3	4	15	Rub	0.0	chl	cly	50	None	Un-M	CMS

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Orientation Line Difference (deg.)	Logger
358.5	360.0	1.46	97	1.15	77	50	29	45	AND	Grey	Fine Grained	Broken/Shear	2 Soft rock/rubble zones	0.07			0	0	1	0	3	4	15	Rub	60.0	chl		49	None	Un-M	CMS
														0.53			0	0	1	0	3	4	15	Rub/SR	190.0	chl	cly	1	None	Un-M	CMS
360.0	361.0	0.94	94	0.63	63	50	18	50	AND	Grey	Fine Grained	Broken/Shear	Soft/broken rock				0	0	1	0	3	4	15	Brok/SR	0.0	chl	cly	50	None	Un-M	CMS
361.0	362.6	1.53	96	1.46	91	51	29	75	AND	Grey	Fine Grained	Volcanoclastic	More competent than prev	0.90	49	165	0	4	1	4	5	14	15	J/Br?	1.0	pyr	cc	1	G	17	GV
														1.29			0	0	1	4	3	8	15	Brok	70.0	pyr	cc	50	G	17	GV
362.6	364.0	1.40	100	1.40	100	0	1400	110	AND	Grey	Fine Grained	Volcanoclastic	Stick Rock				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
364.0	365.6	1.58	98	0.98	60	20	75	50	AND	Grey	Fine Grained	Broken/Shear	Top of run broken/shear zone, lowered UCS	0.60			0	0	1	4	5	10	15	Brok/SR	600.0	cc		1	F	20	GV
365.6	367.0	1.38	100	1.38	100	0	1380	110	AND	Grey	Fine Grained	Volcanoclastic	Stick rock, 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	P	-120	GV
367.0	368.5	1.43	97	1.43	97	0	1430	110	AND	Grey	Fine Grained	Volcanoclastic	Stick rock, 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	P	45	GV
368.5	370.0	1.53	100	1.53	100	10	139	50	AND	Grey	Fine Grained	Volcanoclastic	Soft rock zones and clay seam	0.25	32		0	2	3	2	5	12	15	Vn	40.0	cly		1	None	Un-M	GV
370.0	371.6	1.55	95	1.35	83	10	141	75	AND	Grey	Fine Grained	shear	Weak rock at both ends	0.00			0	2	1	0	5	8	15	Shear	200.0	cly	chl	1	VG	0	GV
371.6	373.0	1.37	100	1.23	90	10	125	50	AND	Greyish Brown	Fine Grained	Micro Breccia	Rock same as prev until 0.84m from top, gets softer, more cc veinlet's	0.84	53	330	0	3	2	6	5	16	15	J	<1			1	VG	0	GV
														1.27			0	0	1	0	3	4	15	SR	100.0	cly		1	VG	0	GV
373.0	374.5	1.45	97	1.45	97	3	363	90	AND	Greyish Brown	Fine Grained	Micro Breccia	All mechanical breaks, or breaks along cc veins/ planes of weakness				0	4	3	2	5	14	15	Vn	0.0	cc		0	G	-15	GV
374.5	376.0	1.49	99	1.49	99	2	497	90	AND	Greyish Brown	Fine Grained	Micro Breccia	Only damage to core result of lifter case removal				0	5	3	2	5	15	15		0.0			0	None	Un-M	CMS
376.0	377.5	1.50	100	1.50	100	1	750	90	AND	Greyish Brown	Fine Grained	Micro Breccia	Only breaking on healed cc veinlet's				0	5	3	2	5	15	15	Vn	0.0	cc		0	None	Un-M	CMS
377.5	379.0	1.44	96	1.44	96	0	1440	95	AND	Greyish Brown	Fine Grained	Micro Breccia	Only mechanical breaks				6	6	6	6	6	30	15		0.0			0	VG	0	CMS
379.0	380.5	1.50	100	1.50	100	1	750	90	AND	Greyish Brown	Fine Grained	Broken	Mostly mechanical breaks; one rubble zone	0.93			0	0	3	4	4	11	15	Rub	50.0			1	VG	-2	CMS
380.5	382.0	1.45	97	1.45	97	0	1450	105	AND	Greyish Brown	Fine Grained	Micro Breccia	Stick rock				6	6	6	6	6	30	15		0.0			0	F	21	CMS
382.0	383.5	1.50	100	1.50	100	0	1500	105	AND	Greyish Brown	Fine Grained	Micro Breccia					6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
383.5	385.0	1.50	100	1.50	100	0	1500	105	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	None	Un-M	CMS
385.0	386.5	1.49	99	1.49	99	0	1490	110	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 1 mechanical break				6	6	6	6	6	30	15		0.0			0	G	-10	CMS
386.5	388.0	1.50	100	1.50	100	2	500	110	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 2 mechanical breaks				0	5	3	2	6	16	15		0.0			0	G	-7	CMS
388.0	389.5	1.50	100	1.50	100	0	1500	110	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	G	16	CMS
389.5	391.0	1.44	96	1.44	96	2	480	125	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 2 mechanical breaks				6	5	3	2	5	21	15		0.0			0	VG	5	CMS
391.0	392.5	1.50	100	1.50	100	0	1500	125	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	G	13	CMS
392.5	394.0	1.47	98	1.47	98	0	1470	125	AND	Greyish Brown	Fine Grained	Micro Breccia	Only 2 mechanical breaks				6	6	6	6	6	30	15		0.0			0	VG	0	CMS
394.0	395.5	1.50	100	1.50	100	2	500	105	AND	Greyish Brown	Fine Grained	Broken	1 broken zone, mechanical breaks	1.22			0	5	3	2	5	15	15	Brok	20.0			1	VG	0	CMS
395.5	397.0	1.50	100	1.50	100	0	1500	115	AND	Greyish Brown	Fine Grained	Micro Breccia	Only mechanical breaks				6	6	6	6	6	30	15		0.0			0	VG	4	CMS
397.0	398.5	1.50	100	1.50	100	0	1500	115	AND	Greyish Brown	Fine Grained	Micro Breccia	Only mechanical breaks				6	6	6	6	6	30	15		0.0			0	VG	4	CMS
398.5	400.0	1.48	99	1.48	99	0	1480	125	AND	Greyish Brown	Fine Grained	Micro Breccia	Stick Rock				6	6	6	6	6	30	15		0.0			0	None	Un-M	GV
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-06

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-06 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
0.0	22.7	0.0		0					OB				**OVERBURDEN**	OB																
22.7	24.0	1.30	100	0.00	0	max	5	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, completely weathered, massive	FLPT	0.00			0	0	3	0	3	6	15	J	10.0	cly	ox		1	none	JS
24.0	25.5	1.50	100	0.60	40	9	150	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, completely weathered, massive	FLPT	0.00			0	0	3	0	3	6	15	J	10.0	cly	ox		1	none	JS
25.5	27.0	1.50	100	1.20	80	7	188	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, completely weathered, massive	FLPT	0.00			0	1	3	0	3	7	15	J	10.0	cly	ox		1	none	JS
27.0	28.5	1.50	100	1.38	92	11	125	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, completely weathered, massive	FLPT	0.00			0	0	3	0	3	6	15	J	10.0	cly	ox		3	None	MGP
28.5	30.0	1.50	100	0.13	9	16	88	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, completely weathered, massive	FLPT	0.00			0	0	3	0	3	6	15	J	10.0	cly	ox		16	None	MGP
30.0	31.5	1.50	100	0.69	46	14	100	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, highly weathered, massive	FLPT	0.00			0	0	3	0	3	6	15	J	10.0	cly	ox		14	None	MGP
31.5	33.0	1.50	100	0.60	40	8	167	0.25	FLPT	Yellowish white to light grey	Inequigranular	Rubble	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, completely to moderately weathered, massive	FLPT	0.00			0	0	3	0	3	6	15	F	10.0	cly	ox		7	None	MGP
									FLPT					FLPT	1.40	45	250	0	0	3	0	3	6	15	J	20.0	cly			1	F	MGP
33.0	34.5	1.50	100	1.09	73	5	250	0.25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, extremely weak, moderately to highly weathered, massive	FLPT	0.10	50	110	0	0	3	0	3	6	15	J	10.0	cly			1	P	MGP
									FLPT					FLPT	0.36	30	30	0	0	3	0	3	6	15	J	10.0	cly	ox		1	P	MGP
									FLPT					FLPT	0.71	68	40	0	1	3	4	3	11	15	J	5.0	ox			1	P	MGP
									FLPT					FLPT	0.97	35	220	0	1	5	3	3	12	15	J	5.0	ox	cly		1	P	MGP
									FLPT					FLPT	1.16	85	310	0	1	5	4	3	13	15	J	1.0	ox			1	P	MGP
34.5	36.0	1.50	100	0.51	34	15	94	25	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, weak, moderately weathered, massive	FLPT	0.20			0	0	3	0	3	6	15	J	10.0	Rub	cly		9	None	MGP
									FLPT					FLPT	0.50	50	210	0	1	3	4	3	11	15	J	5.0	ox			1	F	MGP
									FLPT					FLPT	0.62	40	220	0	1	3	4	3	11	15	J	1.0	ox			1	F	MGP
									FLPT					FLPT	0.78	75	230	0	1	3	4	3	11	15	J	1.0	ox			1	F	MGP
									FLPT					FLPT	0.93	45	190	0	1	3	4	3	11	15	J	1.0	ox			1	F	MGP
									FLPT					FLPT	1.15	30	190	0	1	3	4	3	11	15	J	5.0	ox	cly		1	F	MGP
									FLPT					FLPT	1.50	70	270	0	1	3	4	3	11	15	J	1.0	ox			1	F	MGP
36.0	37.5	1.45	97	1.28	85	3	363	100	FLPT	Yellowish white to light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, yellowish white to light grey, very strong, moderately weathered, massive	FLPT	0.30			0	1	1	4	3	9	15	J	1.0	ox			1	None	MGP
									FLPT					FLPT	0.75	55	190	0	1	1	4	3	9	15	J	1.0	ox			1	None	MGP
									FLPT					FLPT	1.30	20	240	0	1	1	4	3	9	15	J	1.0	ox			1	None	MGP
37.5	39.0	1.50	100	1.48	99	8	167	100	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, very strong, moderately weathered, massive	FLPT	0.00			0	4	3	4	3	14	15	J	1.0	ox			8	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
39.0	39.9	0.86	100	0.86	100	3	215	125	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, very strong, moderately weathered, massive	FLPT	0.00			0	4	3	4	3	14	15	J	1.0	ox			3	None	ML
39.9	40.0	0.14	100	0.00	0	max	5	0.25	FLPT	Light white yellow	-	Rubble	Rubble / fault zone	FLPT	0.38			0	0	6	0	3	9	15	F	140.0	gg	ox		1	None	ML
40.0	40.5	0.40	80	0.00	0	max	5	0.25	FLPT	Light white yellow	-	Rubble	Rubble / fault zone	FLPT	0.00			0	0	6	0	3	9	15	F	400.0	gg			1	None	ML
40.5	40.8	0.30	100	0.21	0	max	5	100	FLPT	Light white yellow	-	Rubble	Rubble / fault zone	FLPT	0.10			0	0	6	0	3	9	15	F	300.0	cly	gg		1	None	ML
40.8	41.1	0.30	100	0.30	100	max	5	0.25	FLPT	Light white yellow	-	Rubble	Rubble / fault zone	FLPT	0.00			0	1	6	0	3	10	15	F	300.0	gg	cly		1	None	ML
41.1	42.0	0.90	100	0.82	91	4	180	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.00			0	4	3	4	3	14	15	J	1.0	ox			4	None	ML
42.0	43.5	1.37	91	0.98	65	11	114	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.00			0	4	3	4	5	16	15	J	1.0	ox			8	None	ML
									FLPT					FLPT	0.96	13	170	0	4	3	2	5	14	15	J	1.0	ox	cly		1	G	ML
									FLPT					FLPT	1.12	42	180	0	4	3	2	5	14	15	J	1.0	ox	cly		1	G	ML
									FLPT					FLPT	1.23	23	180	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
43.5	45.0	1.50	100	1.35	90	6	214	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.22	45	325	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	0.46	40	320	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	0.88	20	325	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	1.00			0	4	3	2	5	14	15	J	1.0	ox	cly		1	G	ML
									FLPT					FLPT	1.10	28	40	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	1.30	35	335	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
45.0	46.5	1.50	100	1.43	95	4	300	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, very strong, moderately weathered, massive	FLPT	0.08	62	180	0	4	3	2	5	14	15	J	1.0	cly	ox		1	VG	ML
									FLPT					FLPT	0.92	51	30	0	4	3	2	5	14	15	J	1.0	cly	ox		1	VG	ML
									FLPT					FLPT	1.04	87	295	0	4	3	2	5	14	15	J	1.0	cly			1	VG	ML
									FLPT					FLPT	1.36	50	20	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
46.5	48.0	1.50	100	1.15	77	8	167	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.00			0	4	3	4	5	16	15	J	1.0	ox			7	None	ML
									FLPT					FLPT	0.97			0	4	3	2	5	14	15	J	1.0	cly	ox		1	None	ML
48.0	49.5	1.34	89	1.27	85	3	335	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately to highly weathered, massive	FLPT	0.05	32	225	0	4	3	2	5	14	15	J	1.0	cly	ox		1	None	ML
									FLPT					FLPT	0.63	33	105	0	0	1	0	5	6	15	J	5.0	cly			1	None	ML
									FLPT					FLPT	1.22	18	40	0	4	3	4	5	16	15	J	1.0	ox			1	F	ML
49.5	51.0	1.50	100	1.24	83	6	214	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, slightly to moderately weathered, massive	FLPT	0.04	48	185	0	4	3	4	5	16	15	J	1.0	ox			1	P	ML
									FLPT					FLPT	0.10	23	180	0	4	3	4	5	16	15	J	1.0	ox			1	P	ML
									FLPT					FLPT	0.38	63	55	0	5	3	6	5	19	15	J	0.1				1	P	ML
									FLPT					FLPT	0.60	52	35	0	4	3	2	5	14	15	J	1.0	cly			1	P	ML
									FLPT					FLPT	0.67	47	35	0	4	3	2	5	14	15	J	1.0	cly			1	P	ML
									FLPT					FLPT	1.26	52	30	0	4	1	2	5	12	15	J	1.0	cly			1	P	ML
									FLPT					FLPT	1.38	57	35	0	5	3	4	5	17	15	J	0.1	ox			1	P	ML
51.0	52.5	1.47	98	1.32	88	6	210	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, very strong, moderately weathered, massive	FLPT	0.07			0	0	0	0	3	3	15	F	60.0	gg			1	None	ML
									FLPT					FLPT	0.33	48	55	0	5	1	4	5	15	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	0.45	65	305	0	4	1	4	5	14	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	0.53	77	330	0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
									FLPT					FLPT	1.13	60	160	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									FLPT					FLPT	1.31	40	15	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
52.5	54.0	1.50	100	1.37	91	7	188	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.12			0	4	1	6	5	16	15	J	1.0	cly			1	None	ML
									FLPT				Gouge, completely weathered	FLPT	0.18			0	0	0	0	3	3	15	F	80.0	cly	Rub		1	None	ML
									FLPT					FLPT	0.38	18	305	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.89	82	170	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	1.10	27	325	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	1.54	35	10	0	4	3	2	5	14	15	J	1.0	cly	ox		1	VG	ML
54.0	55.5	1.50	100	1.43	95	7	188	75	FLPT	Light white yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately to highly weathered, massive	FLPT	0.10	28	90	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.30	67	235	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.43	50	20	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.52	63	215	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.61	40	300	0	4	3	4	5	16	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.73	38	0	0	4	3	2	5	14	15	J	1.0	cly			1	VG	ML
									FLPT					FLPT	1.06	42	20	0	4	3	2	5	14	15	J	1.0	cly			1	VG	ML
									FLPT					FLPT	1.29	57	160	0	4	3	2	5	14	15	J	1.0	cly			1	VG	ML
55.5	57.0	1.50	100	1.30	87	6	214	75	FLPT	Light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey with oxidized staining on surface and joints, slightly weathered, massive, chaotic micro fractures, clay at joint at 1.16m till next joint	FLPT	0.46			0	4	3	6	5	18	15	J	0.1	ox			1	None	EA
									FLPT					FLPT	0.82			0	4	3	2	5	14	15	J	0.1	ox	cly		1	None	EA
									FLPT					FLPT	1.16			0	0	3	2	5	10	15	J	10.0	ox	cly		3	None	EA
									FLPT					FLPT	1.34			0	4	5	2	5	16	15	J	0.1	ox	cly		1	None	EA
									FLPT					FLPT	1.44			0	4	5	2	5	16	15	J	0.1	ox	cly		1	None	EA
57.0	58.5	1.50	100	1.40	93	6	214	125	FLPT	Light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.15	15	75	0	4	1	4	5	14	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	0.34	70	260	0	4	1	4	5	14	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	0.75	37	275	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	0.86	28	140	0	1	1	0	5	7	15	J	5	cly			1	G	ML
									FLPT					FLPT	1.23	18	355	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
									FLPT					FLPT	1.38	69	10	0	4	3	4	5	16	15	J	1.0	ox			1	G	ML
58.5	60.0	1.50	100	1.50	100	3	375	100	FLPT	Light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey, weathered slightly with chaotic micro fractures and oxidized staining on surface and rock, some vuggy zones, massive	FLPT	0.32	54	150	0	4	1	2	5	12	15	J	0.1	cly	ox		1	G	EA
									FLPT					FLPT	0.57	51	155	0	4	3	2	5	14	15	J	0.1	cly	ox		1	VG	EA
									FLPT					FLPT	1.41	39	65	0	4	3	6	5	18	15	J	0.1	ox			1	VG	EA
60.0	61.5	1.47	98	1.28	85	5	245	125	FLPT	Light grey	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light white yellow, strong, moderately weathered, massive	FLPT	0.10	60	110	0	4	3	2	5	14	15	J	1.0	cly	ox		1	VG	ML
									FLPT					FLPT	0.37	57	0	0	4	1	4	5	14	15	J	1.0	ox			1	VG	ML
									FLPT					FLPT	0.86	77	65	0	4	1	2	5	12	15	J	1.0	cly			1	VG	ML
									FLPT					FLPT	1.03	23	105	0	0	1	3	5	9	15	J	10.0	ox			5	VG	ML
									FLPT					FLPT	1.45	70	285	0	4	3	2	5	14	15	J	1.0	cly	ox		1	VG	ML
61.5	63.0	1.50	100	1.15	77	9	150	100	FLPT	Light grey to tan	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey to tan, slightly weathered, extremely weak, oxide staining on surface and joints, massive	FLPT	0.05			0	4	5	6	5	20	15	J	0.1	ox			1	None	EA
									FLPT					FLPT	0.10			0	0	3	2	5	10	15	J	10.0	cly	ox		1	None	ML
									FLPT					FLPT	0.14			0	0	3	2	5	10	15	J	10.0	cly	ox		1	None	ML
									FLPT					FLPT	0.40			0	4	1	2	5	12	15	J	0.1	cly	ox		1	None	ML
									FLPT					FLPT	0.76			0	1	3	2	5	11	15	J	5.0	cly	ox		1	None	ML
									FLPT					FLPT	1.22			0	4	3	6	5	18	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	1.43			0	4	3	6	5	18	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	1.50			0	4	3	6	5	18	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	1.65			0	4	3	2	5	14	15	J	0.1	cly	ox		1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
63.0	64.5	1.50	100	1.50	100	3	375	160	FLPT	Light grey to tan	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey to tan, slightly weathered, extremely weak, oxide staining on surface and joints, massive	FLPT	0.61	73	200	0	5	3	4	5	17	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	1.21	53	180	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	1.43	50	0	0	5	3	4	5	17	15	J	0.1	ox			1	None	ML
64.5	66.0	1.43	95	1.43	95	2	477	110	FLPT	Light grey to tan	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey to tan, slightly weathered, extremely weak, oxide staining on surface and joints, massive	FLPT	0.30	18	300	0	4	3	2	5	14	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	0.50	55	230	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
66.0	67.5	1.45	97	1.45	97	4	290	125	FLPT	Light grey to tan	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey to tan, slightly weathered, extremely weak, oxide staining on surface and joints, massive	FLPT	0.47	73	280	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	0.86	48	175	0	5	3	4	5	17	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	0.97	23	85	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	1.31	25	0	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
67.5	69.0	1.50	100	1.15	77	6	214	110	FLPT	Light grey to tan	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey to tan, slightly weathered, extremely weak, oxide staining on surface and joints, massive	FLPT	0.07	78	120	0	5	3	4	5	17	15	J	0.1	ox			1	None	ML
									FLPT					FLPT	0.25	30	275	0	4	1	4	5	14	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	0.46	65	240	0	5	3	4	5	17	15	J	0.1	ox			1	None	ML
									FLPT				Rubble Zone	FLPT	0.80			0	0	1	0	3	4	15	J	37.0	ox			6	None	ML
									FLPT					FLPT	1.17	22	340	0	4	3	4	5	16	15	J	1.0	ox			1	None	ML
									FLPT					FLPT	1.40	50	275	0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
69.0	70.5	1.50	100	1.30	87	5	250	110	FLPT	Light grey to tan	Inequigranular	Massive	Rubble Zone	FLPT	0.18			0	0	1	0	3	4	15	Rub	200.0	cly	ox		1	F	ML
									FLPT					FLPT	0.59	40	305	0	5	1	2	5	13	15	J	0.1	cly			1	F	ML
									FLPT					FLPT	0.94	27	195	0	4	3	4	5	16	15	J	1.0	ox			1	F	ML
									FLPT					FLPT	1.28	72	280	0	1	1	0	5	7	15	J	5.0	cly			1	F	ML
									FLPT					FLPT	1.42	37	200	0	4	3	4	5	16	15	J	1.0	ox			1	F	ML
70.5	72.0	1.35	90	1.15	77	6	193	110	FLPT	Light grey to tan	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey and white with some yellow, slightly to moderately weathered, strong, massive	FLPT	0.26	42		0	1	3	2	5	11	15	J	2.0	cly			1	F	ML
									FLPT					FLPT	0.37	22		0	1	1	2	5	9	15	J	5.0	cly			1	F	ML
									FLPT					FLPT	0.55			0	0	5	0	5	10	15	J	100.0	cly			1	F	ML
									FLPT					FLPT	0.88	60		0	0	1	0	5	6	15	J	20.0	cly			1	F	ML
									FLPT					FLPT	1.04	43		0	0	3	4	5	12	15	J	15.0	ox			1	F	ML
									FLPT					FLPT	1.22			0	0	1	4	3	8	15	J	20.0	cly	ox		1	F	ML
72.0	73.5	1.29	86	1.07	71	3	323	100	FT	Light grey and white, some yellow	Inequigranular	Massive	FELSIC LAPILLI TUFF, fine to coarse grained, inequigranular, light grey and white with some yellow, slightly to moderately weathered, strong, massive	FT	0.15	40		0	0	1	0	5	6	15	J	30.0	cly	ox		1	None	MGP
									FT					FT	0.40	60		0	1	3	2	5	11	15	J	1.0	cly	ox		1	None	MGP
									FT					FT	1.05	25	250	0	1	3	4	5	13	15	J	1.0	ox			1	None	MGP
73.5	75.0	1.50	100	0.73	49	11	125	100	FT	Light Grey/white	Felsic tuff	layered	Iron oxidized staining in joints, slightly weathered	FT	0.00			0	1	1	4	5	11	15	J	2.0	ox			1	None	MGP
75.0	76.5	1.50	100	1.07	71	6	214	75	FT					FT	0.20			0	0	1	6	5	12	15	J	20.0	ox			2	None	MGP
									FT					FT	0.30	45	0	0	1	3	4	5	13	15	J	1.0	ox			1	F	MGP
									FT					FT	0.40	38	0	0	1	3	4	5	13	15	J	1.0	ox			1	F	MGP
									FT					FT	0.85	20	180	0	1	5	4	5	15	15	J	1.0	ox			1	F	MGP
									FT					FT	1.05	41	60	0	1	5	4	5	15	15	J	1.0	ox			1	F	MGP
76.5	78.0	1.50	100	1.20	80	4	300	100	FT	Dark grey	Felsic tuff	layered	Fault/ soft zone from 0.9m to 1.15m	FT	0.15	61	280	0	1	3	4	5	13	15	J	2.0	ox			1	VG	MGP
									FT					FT	0.26	49	60	0	1	3	4	5	13	15	J	4.0	ox			1	VG	MGP
									FT					FT	0.60	25	170	0	1	3	4	5	13	15	J	2.0	ox	chl		1	VG	MGP
									FT					FT	0.90	25	290	0	0	5	0	0	5	15	F	200.0	cly	Rub		1	VG	MGP
78.0	79.5	1.42	95	1.24	83	3	355	100	FT	Dark grey	Felsic tuff	layered		FT	0.00	20	150	0	1	5	4	5	15	15	J	3.0	ox			1	P	MGP
									FT					FT	0.60	45	0	0	1	3	4	5	13	15	J	1.0	ox			1	P	MGP
									FT					FT	1.35	35	0	0	1	3	4	5	13	15	J	1.0	ox			1	P	MGP
79.5	81.0	1.50	100	1.23	82	6	214	150	FT	Dark grey	Felsic tuff	of yellow/orange and	Infill is very dark oxide? Modernly weathered, strong	FT	0.23	28	180	0	1	5	4	5	15	15	J	1.0	ox			1	VG	MGP
									FT					FT	0.45	33	0	0	1	5	4	5	15	15	J	1.0	ox			1	VG	MGP
									FT					FT	0.74	60	30	0	1	3	4	5	13	15	J	1.0	ox			1	VG	MGP
									FT					FT	0.76	60	30	0	0	3	4	5	12	15	J	10.0	ox			1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									FT					FT	0.94	54	0	0	1	3	0	5	9	15	J	5.0	cly	ox		1	VG	MGP
									FT					FT	1.10	30	40	0	1	3	4	5	13	15	J	1.0	ox			1	VG	MGP
81.0	82.5	1.50	100	0.95	63	7	188	100	FT	ight yellowish orang	Tuff, fine grained	layered	Dark oxide infill	FT	0.10			0	1	3	4	5	13	15	J	5.0	ox			6	F	MGP
									FT					FT	1.10	15	330	0	1	3	4	5	13	15	J	5.0	ox			1	F	MGP
82.5	84.0	1.50	100	0.93	62	9	150	100	FT	ight yellowish orang	Tuff, fine grained	layered	Dark oxide infill	FT	0.15	35	350	0	1	3	4	5	13	15	J	5.0	ox			1	G	MGP
									FT					FT	0.30	42	280	0	4	3	4	5	16	15	J	0.5	ox			1	G	MGP
									FT					FT	0.40	54	30	0	4	3	4	5	16	15	J	0.5	ox			1	G	MGP
									FT					FT	0.53	45	170	0	1	3	4	5	13	15	J	1.0	ox			1	G	MGP
									FT					FT	0.62	47	30	0	4	3	4	5	16	15	J	0.5	ox			1	G	MGP
									FT					FT	1.15	74		0	4	3	4	5	16	15	J	0.5	ox			1	G	MGP
									FT					FT	1.18	70	260	0	4	3	4	5	16	15	J	0.5	ox			1	G	MGP
									FT					FT	1.32	55	10	0	1	3	4	5	13	15	J	1.0	ox			1	G	MGP
									FT					FT	1.40	35	180	0	1	3	4	5	13	15	J	1.0	ox			1	G	MGP
84.0	85.5	1.50	100	1.50	100	2	500	100	FT	light grey	Tuff, fine grained	layered	Dark oxide infill	FT	0.10	41	195	0	1	3	4	5	13	15	J	1.0	ox			1	G	MGP
									FT					FT	1.25	45	195	0	1	3	6	5	15	15	J	1.0				1	G	MGP
85.5	87.0	1.50	100	0.83	55	7	188	100	FT	light grey	Tuff, fine grained	layered	Dark oxide infill	FT	0.30	19	20	0	4	1	6	5	16	15	J	0.5				1	P	MGP
									FT					FT	0.60	74	180	0	0	3	0	5	8	15	J	25.0	gg	ox		1	P	MGP
									FT					FT	0.78	40	340	0	0	5	4	5	14	15	J	10.0	ox	cly		1	F	MGP
									FT					FT	0.95	35	20	0	1	3	4	5	13	15	J	3.0	ox			1	F	MGP
									FT					FT	1.01	70	180	0	1	3	4	5	13	15	J	2.0	ox			1	F	MGP
									FT					FT	1.25	22	70	0	1	1	4	5	11	15	J	1.0	ox			1	F	MGP
									FT					FT	1.50	20	10	0	0	3	4	5	12	15	J	15.0	ox			1	F	MGP
87.0	88.5	1.33	89	1.10	73	6	190	100	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	0.10			0	0	3	0	3	6	15	J	5.0	cly	ox		2	None	MGP
									FT					FT	0.25	40	20	0	1	1	0	5	7	15	J	1.0	cly	ox		1	F	MGP
									FT					FT	0.40	45	280	0	1	5	4	5	15	15	J	2.0	ox			1	F	MGP
									FT					FT	1.00	25	210	0	1	1	4	5	11	15	J	0.5	ox			1	F	MGP
									FT					FT	1.15	25	80	0	1	1	4	5	11	15	J	0.5	ox			1	F	MGP
88.5	90.0	1.50	100	1.33	89	1	750	150	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	0.33	35	40	0	1	3	4	5	13	15	J	1.0	ox			1	F	MGP
90.0	91.5	1.50	100	1.33	89	4	300	150	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	0.30	35	50	0	1	5	4	5	15	15	J	1.0	ox			1	VG	MGP
									FT					FT	0.65	30	10	0	0	5	0	5	10	15	J	30.0	gg	Rub		1	VG	MGP
									FT					FT	0.95			0	0	3	0	3	6	15	J	20.0	Rub	gg		1	None	MGP
									FT					FT	1.15			0	0	5	0	3	8	15	J	20.0	Rub	gg		1	None	MGP
91.5	93.0	1.50	100	1.34	89	2	500	150	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	1.20	20	0	0	4	3	4	5	16	15	J	0.5	ox			1	F	MGP
									FT					FT	1.45	20	180	0	4	3	4	5	16	15	J	0.5	ox			1	F	MGP
93.0	94.5	1.50	100	1.32	88	2	500	150	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	0.45	20	340	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									FT					FT	1.35	25	100	0	1	1	6	5	13	15	J	5				1	VG	MGP
94.5	96.0	1.49	99	1.05	70	4	298	150	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	0.45	25	20	0	1	3	4	5	13	15	J	2.0	ox			1	VG	MGP
									FT					FT	1.10	27	70	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									FT					FT	1.25	40	0	0	1	3	3	5	12	15	J	2.0	Rub			1	VG	MGP
									FT					FT	1.50	25	0	0	1	3	2	5	11	15	J	1.0	cly	Rub		1	VG	MGP
96.0	97.5	1.25	83	0.53	35	2	417	75	FT	Light grey	Felsic Tuff	layered	Dark brown/orange oxide staining in joints, strong.	FT	0.70			0	0	5	0	3	8	15	F	1000.0	gg	Rub		1	None	MGP
									FT					FT	1.10			0	0	5	0	3	8	15	F	500.0	gg	Rub		1	None	MGP
97.5	99.0	1.50	100	1.03	69	7	188	150	FT	nt grey with dark spe	Felsic Tuff	Massive	Strong, some orange oxide staining in joints, slightly weathered	FT	0.27	55	90	0	1	5	4	5	15	15	J	5.0	ox			1	VG	MGP
									FT					FT	0.70	15	220	0	1	1	4	5	11	15	J	1.0	ox			1	VG	MGP
									FT					FT	0.80	80	60	0	1	1	4	5	11	15	J	3.0	ox			1	VG	MGP
									FT					FT	1.25	32	50	0	1	1	2	5	9	15	J	2.0	cly			1	VG	MGP
									FT					FT	1.35	25	50	0	1	1	0	5	7	15	J	5.0	cly			1	VG	MGP
									FT					FT	1.40	25	60	0	1	1	6	5	13	15	J	2.0				1	VG	MGP
									FT					FT	1.50	35	330	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
99.0	100.5	1.50	100	0.82	55	5	250	150	FT	nt grey with dark spe	Felsic Tuff	Massive	Strong, some orange oxide staining in joints, slightly weathered	FT	0.20	25		0	0	1	6	5	12	15	J	10.0				1	None	MGP
									FT					FT	0.42	15		0	1	1	6	5	13	15	J	3.0				1	None	MGP
									FT					FT	0.60	30		0	1	1	6	5	13	15	J	2.0				1	None	MGP
									FT					FT	0.82	55	80	0	0	5	3	5	13	15	J	20.0	gg	cly		1	F	MGP
									FT					FT	1.30	15	60	0	1	3	6	5	15	15	J	1.0	ox			1	F	MGP
100.5	102.0	1.45	97	0.45	30	20	69	100	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.10	25		0	0	1	0	3	4	15	F	10.0	gg	cly		17	None	MGP
									FT					FT	0.95	25	50	0	1	1	6	5	13	15	J	3.0				1	F	MGP
									FT					FT	1.10	25	0	0	1	1	6	5	13	15	J	2.0				1	F	MGP
									FT					FT	1.40	30	180	0	4	1	6	5	16	15	J	0.5				1	F	MGP
102.0	103.5	1.50	100	0.60	40	6	214	100	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.80			0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									FT					FT	0.90			0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									FT					FT	1.00			0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									FT					FT	1.05			0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									FT					FT	1.15			0	1	1	6	5	13	15	J	5.0				1	VG	MGP
									FT					FT	1.35			0	1	1	3	5	10	15	J	5.0	gg			1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
103.5	103.7	0.20	100	0.15	75	1	100	75	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.20	25	315	0	1	3	2	5	11	15	J	3.0	cly			1	None	ML
103.7	104.1	0.35	100	0.00	0	max	5	0.05	FT	Medium grey	Felsic Tuff	Massive	Rubble Zone	FT	0.00			0	0	0	0	3	3	15	F	350.0	gg	Rub		1	None	ML
104.1	105.0	0.95	100	0.14	15	9	95	75	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.17	28	20	0	4	1	6	5	16	15	J	1.0				1	None	ML
									FT					FT	0.40	25	10	0	1	3	2	5	11	15	J	3.0	cly			1	None	ML
									FT					FT	0.44	38	275	0	4	3	2	5	14	15	J	1.0	cly			4	None	ML
105.0	106.5	1.40	93	0.50	33	5	233	75	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.08			0	4	2	6	5	17	15	J	1.0				1	None	ML
									FT					FT	0.42			0	0	0	0	3	3	15	F	150.0	Rub	cly		1	None	ML
									FT					FT	0.68			0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
									FT					FT	0.85			0	0	0	0	3	3	15	F	130.0	Rub	cly		1	None	ML
									FT					FT	1.13			0	0	0	0	3	3	15	F	180.0	Rub	cly		1	None	ML
106.5	108.0	1.50	100	1.03	69	12	115	110	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.05	30	85	0	4	3	6	5	18	15	J	1.0				1	F	ML
									FT					FT	0.10	43	350	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
									FT					FT	0.18	45	50	0	0	2	0	5	7	15	J	240.0	cly			1	F	ML
									FT					FT	0.42	33	325	0	5	1	2	5	13	15	J	0.1	cly			1	F	ML
									FT					FT	0.75	37	330	0	5	2	2	5	14	15	J	0.1	cly			4	F	ML
									FT					FT	1.13			0	0	0	0	3	3	15	J	80.0	gg	cly		1	F	ML
									FT					FT	1.30	25	320	0	5	1	6	5	17	15	J	0.1				1	F	ML
									FT					FT	1.43	68	255	0	4	3	2	5	14	15	J	1.0	cly			1	F	ML
108.0	108.3	0.30	100	0.00	0	6	43	110	FT	Medium grey	Felsic Tuff	Massive	Moderately to highly weathered	FT	0.10			0	4	2	2	5	13	15	J	1.0	cly			6	None	ML
108.3	108.9	0.60	100	0.00	0	8	67	50	FT	Medium grey	Felsic Tuff	Massive		FT	0.00			0	0	1	2	3	6	15	F	600.0	Rub			8	None	ML
108.9	109.1	0.20	100	0.13	65	2	67	125	FT	Medium grey	Felsic Tuff	Massive		FT	0.00	33	265	0	4	2	6	5	17	15	J	1.0				1	None	ML
									FT					FT	0.10	30	275	0	4	2	6	5	17	15	J	1.0				1	None	ML
109.1	109.5	0.30	75	0.13	32	max	5	1	FT	Medium grey	Felsic Tuff	Massive	Rubble Zone	FT	0.00			0	0	1	0	3	4	15	F	300.0	Rub	cly		1	None	ML
109.5	110.6	1.10	100	0.00	0	max	5	1	AND	Medium grey	fine grained	Massive	Rubble Zone	AND	0.00			0	0	0	0	3	3	15	F	1100.0	Rub	cly		1	None	ML
110.6	110.8	0.20	100	0.14	70	1	100	1	AND	Medium grey	fine grained	Massive		AND	0.10			0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
110.8	111.2	0.40	100	0.00	0	max	5	0.1	AND	Medium grey	fine grained	Massive	The core remains in contact in tube, however it is penetrable with knife and crumbles when holding up.	AND	0.00			0	0	0	0	3	3	15	F	400.0	gg	cly		1	None	ML
111.2	111.4	0.20	100	0.20	100	1	100	110	AND	Medium grey	fine grained	Massive		AND	0.00			0	5	3	2	5	15	15	J	0.1	cly			1	None	ML
111.4	112.0	0.60	100	0.00	0	max	5	1	AND	Medium grey	fine grained	Massive	The core remains in contact in tube, however it is penetrable with knife and crumbles when holding up.	AND	0.00			0	0	0	0	3	3	15	F	600.0	gg	cly		1	None	ML
112.0	112.5	0.50	100	0.00	0	max	5	1	AND	Medium grey	fine grained	Massive	The core remains in contact in tube, however it is penetrable with knife and crumbles when holding up.	AND	0.00			0	0	0	0	3	3	15	F	500.0	gg	cly		1	None	ML
112.5	112.8	0.30	100	0.00	0	max	5	3	AND	Medium grey	fine grained	Massive	Rubble Zone	AND	0.00			0	0	1	2	3	6	15	F	300.0	cly	Rub		1	None	ML
112.8	114.0	1.20	100	1.10	92	5	200	110	AND	Medium grey	fine grained	Massive	Moderately to highly weathered	AND	0.20	25	265	0	4	2	6	5	17	15	J	1.0				1	F	ML
									AND					AND	0.45	33	185	0	4	3	6	5	18	15	J	1.0				3	F	ML
									AND					AND	0.80	20	0	0	4	3	6	5	18	15	J	1.0				1	F	ML
114.0	115.5	1.40	93	1.15	77	5	233	125	AND	Medium grey	fine grained	Massive	Moderately to highly weathered	AND	0.10	50	195	0	4	3	2	5	14	15	J	1.0				1	P	ML
									AND					AND	0.18	45	120	0	4	3	6	5	18	15	J	1.0				1	P	ML
									AND					AND	0.45	72	195	0	5	3	6	5	19	15	J	0.1				1	P	ML
									AND					AND	0.52	53	210	0	4	2	6	5	17	15	J	1.0				1	P	ML
									AND					AND	1.33	32	350	0	4	3	6	5	18	15	J	1.0				1	P	ML
115.5	116.4	0.90	100	0.58	64	5	150	125	AND	Medium grey	fine grained	Massive	Moderately to highly weathered	AND	0.25			0	4	2	6	5	17	15	J	1.0				1	None	ML
									AND					AND	0.32			0	4	2	6	5	17	15	J	1.0				1	None	ML
									AND					AND	0.36			0	0	1	0	3	4	15	F	40.0	Rub	cly		1	None	ML
									AND					AND	0.48			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND				Dark charcoal colour infill	AND	0.88			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
116.4	117.0	0.60	100	0.10	17	5	100	3	AND	Medium grey	fine grained	Massive	Core can be peeled with knife	AND	0.05			0	4	3	2	3	12	15	J	1.0	cly			1	None	ML
									AND					AND	0.20			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	0.25			0	4	1	2	3	10	15	J	1.0	cly			1	None	ML
									AND					AND	0.32			0	4	2	2	5	13	15	F	1.0	Rub	cly		1	None	ML
									AND					AND	0.40			0	0	1	2	3	6	15	J	70.0	cly			1	None	ML
117.0	118.5	1.47	98	1.00	67	7	184	110	AND	Medium grey	fine grained	Massive	Moderately to highly weathered	AND	0.02	45	295	0	5	1	2	5	13	15	J	1.0	cly			1	F	ML
									AND					AND	0.10	37	140	0	4	3	2	5	14	15	J	1.0	cly			1	F	ML
									AND					AND	0.50	48	50	0	1	1	2	3	7	15	J	3.0	cly			1	F	ML
									AND					AND	0.80	12	320	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
									AND					AND	1.15	32	310	0	4	3	2	5	14	15	J	1.0	cly			1	F	ML
									AND					AND	1.25	38	110	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
									AND					AND	1.32	38	270	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
118.5	120.0	1.50	100	1.50	100	4	300	125	AND	Medium grey	fine grained	Massive	Hard charcoal grey infill ~5mm thick	AND	0.47	57	330	0	1	2	3	5	11	15	J	5.0				1	VG	ML
									AND					AND	0.90	15	130	0	5	3	6	5	19	15	J	0.1				1	VG	ML
									AND					AND	1.08	52	250	0	5	2	6	5	18	15	J	0.1				1	VG	ML
									AND					AND	1.40	35	5	0	4	3	6	5	18	15	J	1.0				1	VG	ML
120.0	121.5	1.50	100	1.50	100	3	375	200	AND	Medium grey	fine grained	Massive	Moderately to highly weathered	AND	0.23	65	270	0	5	4	6	5	20	15	J	0.1				1	VG	ML
									AND					AND	0.58	60	290	0	4	2	2	5	13	15	J	1.0	cly			1	VG	ML
									AND				Hard, olive green colour infill	AND	1.30	21	20	0	4	1	4	5	14	15	J	1.0				1	VG	ML
121.5	121.7	0.22	100	0.22	100	1	110	160	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.00			6	6	6	6	6	30	15		0.0				1	VG	ML
121.7	121.9	0.13	100	0.00	0	max	5	5	AND	Dark grey	fine grained	Massive	Rubble Zone	AND	0.00			0	0	1	0	3	4	15	F	130.0	cly	Rub		1	None	ML
121.9	123.0	1.15	100	1.15	100	2	383	200	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.31	23	180	0	5	2	6	5	18	15	J	0.1				1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.84	73	350	0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
123.0	124.5	1.45	97	1.45	97	3	363	110	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.32	60	30	0	5	3	6	5	19	15	J	0.1				1	VG	ML
									AND					AND	0.58	55	320	0	4	2	2	5	13	15	J	1.0	cly			1	VG	ML
									AND					AND	1.40	70	305	0	5	3	6	5	19	15	J	0.1				1	VG	ML
124.5	126.0	1.50	100	1.43	95	6	214	110	AND	Dark grey	fine grained	Massive	Brown Crystal infill	AND	0.55	23	5	0	4	3	4	5	16	15	J	1.0				1	P	ML
									AND					AND	0.87	32	200	0	1	3	4	5	13	15	J	3.0				1	P	ML
									AND					AND	1.32	90		0	4	2	2	5	13	15	J	1.0	cly			1	P	ML
									AND					AND	1.34	67	70	0	4	2	6	5	17	15	J	1.0				1	P	ML
									AND					AND	1.38	30	330	0	4	3	4	5	16	15	J	1.0				1	P	ML
									AND					AND	1.43	53	145	0	5	2	6	5	18	15	J	0.1				1	P	ML
126.0	127.5	1.45	97	1.45	97	4	290	110	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.25	52	10	0	4	3	4	5	16	15	J	1.0				1	F	ML
									AND					AND	0.49	52	350	0	4	1	6	5	16	15	J	1.0				1	F	ML
									AND					AND	0.85	50	30	0	4	4	4	5	17	15	J	1.0				1	F	ML
									AND					AND	1.25	30	175	0	4	2	6	5	17	15	J	1.0				1	F	ML
127.5	129.0	1.50	100	1.00	67	7	188	75	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.05			0	1	2	2	5	10	15	J	3.0	cly	Rub		1	None	ML
									AND					AND	0.10			0	1	1	2	5	9	15	J	4.0	cly			1	None	ML
									AND					AND	0.15			0	4	1	2	5	12	15	J	1.0	cly			1	None	ML
									AND					AND	0.38			0	1	1	2	5	9	15	J	3.0	cly			1	None	ML
									AND					AND	0.75			0	4	1	2	5	12	15	J	1.0	cly			1	None	ML
									AND					AND	1.08			0	5	1	2	5	13	15	J	0.1	cly			1	None	ML
									AND					AND	1.35			0	1	1	2	5	9	15	J	3.0	cly			1	None	ML
129.0	129.4	0.35	100	0.18	50	4	70	50	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.18			0	4	1	2	5	12	15	J	1.0	cly			4	None	ML
129.4	129.7	0.35	100	0.00	0	max	5	1	AND	Dark grey	fine grained	Massive	rubble zone	AND	0.00			0	0	0	0	3	3	15	F	350.0	cly	Rub		1	None	ML
129.7	130.5	0.80	100	0.00	0	max	5	50	AND	Dark grey	fine grained	Massive	rubble zone	AND	0.59			0	0	1	0	3	4	15	F	800.0	cly	Rub		1	None	ML
130.5	131.0	0.45	100	0.38	84	1	225	50	AND	Dark grey	fine grained	Massive		AND	0.28			0	0	1	0	3	4	15	F	60.0	gg	Rub		1	None	ML
131.0	131.4	0.45	100	0.00	0	max	5	1	AND	Dark grey	fine grained	Massive	rubble zone	AND	0.00			0	0	1	0	3	4	15	F	450.0	gg	Rub		1	None	ML
131.4	132.0	0.60	100	0.20	33	4	120	25	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.22			0	4	2	2	5	13	15	J	2.0	cly			1	None	ML
									AND				Rubble Zone	AND	0.32			0	0	1	0	3	4	15	F	40.0	Rub	cly		1	None	ML
									AND					AND	0.43			0	4	3	6	5	18	15	J	1.0				1	None	ML
									AND					AND	0.50	55	340	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
132.0	132.5	0.50	100	0.17	34	2	167	25	AND	Dark grey	fine grained	Massive	Horizontal Joint, green hard infill	AND	0.15			0	4	2	4	5	15	15	J	1.0				1	None	ML
									AND					AND	0.30			0	4	3	6	5	18	15	J	1.0				1	None	ML
132.5	132.6	0.10	100	0.00	0	max	5	5	AND	Dark grey	fine grained	Massive	rubble zone	AND	0.00			0	0	1	3	3	7	15	F	100.0	Rub			1	None	ML
132.6	133.2	0.60	100	0.43	72	2	200	25	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.43			0	5	1	2	5	13	15	J	0.1	cly			2	None	ML
133.2	133.5	0.30	100	0.00	0	max	5	3	AND	Dark grey	fine grained	Massive	rubble zone	AND	0.00			0	0	0	0	3	3	15	F	300.0	gg	cly		1	None	ML
133.5	135.0	1.50	100	0.46	31	8	167	75	AND	Dark grey	fine grained	Massive	Moderately to highly weathered	AND	0.08			0	5	1	2	5	13	15	J	0.1	cly			1	None	ML
									AND					AND	0.15			0	4	1	6	5	16	15	J	1.0				1	None	ML
									AND					AND	0.65			0	1	1	2	5	9	15	J	2.0	cly			1	None	ML
									AND					AND	0.80			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	1.13			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	1.28			0	5	1	2	5	13	15	J	0.1	cly			1	None	ML
									AND					AND	1.33			0	5	1	2	5	13	15	J	0.1	cly			1	None	ML
									AND					AND	1.40			0	0	1	2	5	8	15	J	2.0	cly			1	None	ML
135.0	136.5	1.42	95	0.80	53	4	284	50	AND	Dark grey	Fine to coarse grained	Breccia	ANDESITE BRECCIA, fine grained to coarse grained, dark grey, weak, slightly weathered, massive	AND	0.15	52	20	0	1	1	6	5	13	15	J	1.0				1	F	MGP
									AND					AND	0.25	45	120	0	1	1	6	5	13	15	J	2.0				1	F	MGP
									AND					AND	1.30	60	10	0	1	1	6	5	13	15	J	1.0				1	F	MGP
									AND					AND	1.35	45	325	0	1	1	6	5	13	15	J	3.0				1	F	MGP
136.5	138.0	1.46	97	0.99	66	4	292	75	AND	Dark grey	Fine to coarse grained	Breccia	Greenish blue infill	AND	0.05	30	110	0	1	1	2	5	9	15	J	0.5	chl			1	VG	MGP
									AND					AND	0.55	23	100	0	1	1	2	5	9	15	J	1.0				1	VG	MGP
									AND					AND	1.15	65	280	0	1	3	2	5	11	15	J	2.0				1	VG	MGP
									AND					AND	1.25	50	50	0	0	3	2	5	10	15	J	30.0	gg			1	VG	MGP
138.0	139.5	1.50	100	1.18	79	3	375	75	AND	Dark grey	Fine to coarse grained	Breccia	ANDESITE BRECCIA, fine grained to coarse grained, dark grey, weak, slightly weathered, massive	AND	0.75	46	30	0	1	1	6	5	13	15	J	1.0				1	P	MGP
									AND					AND	1.05	36	270	0	1	1	6	5	13	15	J	1.0				1	P	MGP
									AND					AND	1.25	31	80	0	1	1	6	5	13	15	J	0.5				1	P	MGP
139.5	141.0	1.50	100		0	5	250	75	AND	Dark grey	Fine to coarse grained	Breccia	ANDESITE BRECCIA, fine grained to coarse grained, dark grey, weak, slightly weathered, massive	AND	0.35	71	220	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	0.48	21	70	0	1	1	6	5	13	15	J	0.5				1	VG	MGP
									AND					AND	0.72	40	300	0	1	1	2	5	9	15	J	2.0	cly			1	VG	MGP
									AND					AND	1.30	25	80	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
									AND					AND	1.40	45	240	0	1	1	6	5	13	15	J	0.5				1	VG	MGP
141.0	142.5	1.50	100	0.80	53	4	300	25	AND	Dark grey	Fine to coarse grained	Breccia	ANDESITE BRECCIA, fine grained to coarse grained, dark grey, weak, slightly weathered, massive	AND	0.30	25	260	0	1	3	2	5	11	15	J	5.0	cly	chl		1	F	MGP
									AND					AND	0.46	20	40	0	1	3	2	5	11	15	J	5.0	cly	chl		1	F	MGP
									AND					AND	0.65	50	300	0	1	3	6	5	15	15	J	2.0				1	F	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.90	54	0	0	1	3	6	5	15	15	J	1.0				1	F	MGP
142.5	144.0	1.50	100	1.10	73	10	136	50	AND	Dark grey	Fine to coarse grained	Breccia	Highly rubblized ends	AND	0.10			0	1	1	2	5	9	15	J	1.0	chl			10	None	MGP
144.0	145.5	1.48	99	0.73	49	6	211	75	AND	Dark grey	Fine to coarse grained	Breccia	ANDESITE BRECCIA, fine grained to coarse grained, dark grey, weak, slightly weathered, massive	AND	0.50	29	65	0	1	1	2	5	9	15	J	2.0	chl			1	F	MGP
									AND					AND	0.75	35	280	0	1	1	6	5	13	15	J	0.5				1	F	MGP
									AND					AND	0.90	21	230	0	1	1	6	5	13	15	J	0.5				1	F	MGP
									AND					AND	1.00	15	240	0	1	1	6	5	13	15	J	0.5				1	F	MGP
									AND					AND	1.15	15	240	0	1	1	6	5	13	15	J	1.0				1	F	MGP
									AND					AND	1.25	25	280	0	1	1	2	5	9	15	J	1.0	chl			1	F	MGP
145.5	147.0	1.50	100	1.07	71	8	167	75	AND	Dark grey	Andesite breccia	Breccia	some pyrite infill	AND	0.25	22	270	0	1	1	6	5	13	15	J	1.0				1	G	MGP
									AND					AND	0.80	55	300	0	1	1	6	5	13	15	J	0.5				1	G	MGP
									AND					AND	0.95	34	240	0	1	1	2	5	9	15	J	1.0	chl			1	G	MGP
									AND					AND	1.09	60	330	0	0	1	0	3	4	15	J	30.0	gg	chl		1	G	MGP
									AND					AND	1.15	45	330	0	1	3	2	5	11	15	J	0.5	cly			1	G	MGP
									AND					AND	1.27	50	100	0	1	3	6	5	15	15	J	1.0				1	G	MGP
									AND					AND	1.35	28	170	0	1	3	2	5	11	15	J	0.5	cly			1	G	MGP
									AND					AND	1.45	60	20	0	1	3	2	5	11	15	J	1.0	cly			1	G	MGP
147.0	148.5	1.50	100	0.61	41	12	115	100	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered	AND	0.10			0	1	1	4	5	11	15	J	1.0	chl	py		12	None	MGP
148.5	150.0	1.50	100	1.14	76	7	188	100	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered	AND	0.05	62	50	0	0	1	0	3	4	15	J	1.0	cly	gg		1	VG	MGP
									AND					AND	0.25	28	270	0	1	1	6	5	13	15	J	0.5				1	VG	MGP
									AND					AND	0.35	41	335	0	1	1	2	5	9	15	J	2.0	cly			1	VG	MGP
									AND					AND	0.47	26	70	0	1	1	6	5	13	15	J	0.5				1	VG	MGP
									AND					AND	1.20	9	70	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	1.21	39	0	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	1.50	46	340	0	1	1	2	5	9	15	J	2.0	cly			1	VG	MGP
150.0	151.5	1.50	100	1.48	99	6	214	100	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered	AND	0.10	30	200	0	1	1	6	5	13	15	J	0.3				1	VG	MGP
									AND					AND	0.25	30	90	0	1	1	2	5	9	15	J	0.5	chl			1	VG	MGP
									AND					AND	0.55	60	350	0	1	1	2	5	9	15	VN	4.0	chl	py		1	VG	MGP
									AND					AND	0.72	32	90	0	1	1	2	5	9	15	J	2.0	chl			1	VG	MGP
									AND					AND	0.85	50	275	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	1.22	60	280	0	1	3	6	5	15	15	J	0.5				1	VG	MGP
151.5	153.0	1.50	100		0	8	167	125	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered, strong	AND	0.55	35	50	0	4	1	2	5	12	15	J	0.5	chl			1	F	MGP
									AND					AND	0.65	20	220	0	4	1	2	5	12	15	J	0.5	cly			1	F	MGP
									AND					AND	0.80			0	1	1	6	5	13	15	J	3.0				1	None	MGP
									AND					AND	0.85			0	4	1	6	5	16	15	J	0.5				1	None	MGP
									AND					AND	1.25			0	1	1	6	5	13	15	J	1.0				1	None	MGP
									AND					AND	1.30			0	1	1	6	5	13	15	J	1.0				1	None	MGP
									AND					AND	1.45			0	0	1	0	5	6	15	J	6.0	chl	cly		1	None	MGP
									AND					AND	1.50	47	0	0	4	1	2	5	12	15	J	0.3	chl			1	F	MGP
153.0	154.5	1.40	93	1.40	93	3	350	100	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered, strong	AND	0.20	54	350	0	4	1	6	5	16	15	J	0.3				1	VG	MGP
									AND					AND	0.35	35	60	0	4	1	2	5	12	15	J	0.3	chl			1	VG	MGP
									AND					AND	1.25	19	70	0	4	3	2	5	14	15	J	0.3	chl			1	VG	MGP
154.5	156.0	1.50	100	1.37	91	7	188	100	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered, strong	AND	0.20	61	350	0	4	1	4	5	14	15	J	0.5	cc			1	VG	MGP
									AND					AND	0.40	51	10	0	4	1	2	5	12	15	J	0.5	chl			1	VG	MGP
									AND					AND	0.60	20	150	0	4	1	6	5	16	15	J	0.5				1	VG	MGP
									AND					AND	0.70	35	330	0	4	1	2	5	12	15	J	0.5	chl			1	VG	MGP
									AND					AND	0.75	25	0	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	1.10	60	350	0	1	3	2	5	11	15	J	1.0	chl			1	VG	MGP
									AND					AND	1.40	25	0	0	4	1	6	5	16	15	J	0.5				1	VG	MGP
156.0	157.5	1.49	99	1.36	91	4	298	125	AND	Dark grey	Andesite breccia	Breccia	Slightly Weathered, strong	AND	0.10			0	4	1	4	6	15	15	J	0.3	cc			3	None	MGP
									AND					AND	0.70	36	25	0	4	1	6	6	17	15	J	0.3				1	VG	MGP
157.5	159.0	1.50	100	0.99	66	9	150	100	AND	Dark grey	Andesite breccia	Breccia	Strong, very little to no infill/staining	AND	0.10	26	310	0	1	3	4	6	14	15	J	1.0	cc			1	VG	MGP
									AND					AND	0.29	27	150	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
									AND					AND	0.35	30	320	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
									AND					AND	0.45	15	300	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	0.65	23	310	0	1	1	4	6	12	15	J	1.0	py			1	VG	MGP
									AND					AND	0.85	40	230	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	0.97	40	220	0	1	1	4	6	12	15	J	1.0	py			1	VG	MGP
									AND					AND	1.10	49	230	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.40	37	0	0	1	3	4	6	14	15	J	1.0	cc			1	VG	MGP
159.0	160.5	1.48	99	0.77	51	8	164	100	AND	Dark grey	Andesite breccia	Breccia	Strong, very little to no infill/staining	AND	0.10			0	1	1	4	5	11	15	J	1.0	cc			8	None	MGP
160.5	162.0	1.50	100	0.92	61	8	167	25	AND	Dark grey	Andesite breccia	Breccia	Strong, very little to no infill/staining	AND	0.15			0	4	1	4	6	15	15	J	0.5	cc			8	None	MGP
162.0	163.5	1.45	97	1.30	87	2	483	100	AND	Dark grey	Andesite breccia	Breccia	Strong, very little to no infill/staining	AND	0.25	40	210	0	1	1	2	5	9	15	J	1.0	cly			1	None	MGP
									AND					AND	0.55	41	340	0	1	1	6	5	13	15	J	2.0				1	VG	MGP
163.5	165.0	1.50	100	1.41	94	5	250	125	AND	Dark grey	Andesite breccia	Breccia	Strong, very little to no infill/staining	AND	0.20	35	110	0	1	1	2	6	10	15	J	1.0	cly			1	VG	MGP
									AND					AND	0.30	27	55	0	1	1	2	6	10	15	J	1.0	cly			1	VG	MGP
									AND					AND	0.55	48	20	0	1	1	6	6	14	15	J	1.5				1	VG	MGP
									AND					AND	0.75	51	230	0	4	1	6	6	17	15	J	0.5				1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.35	13	80	0	0	1	0	5	6	15	J	7.0	cly			1	VG	MGP
165.0	166.5	1.40	93	1.19	79	2	467	150	AND	Dark grey	Andesite breccia	Breccia	Fresh rock	AND	0.30	57	235	0	4	1	6	6	17	15	J	0.3				1	G	MGP
									AND					AND	1.25	10	60	0	1	5	6	6	18	15	J	1.0				1	G	MGP
166.5	166.9	0.40	100	0.40	100	2	133	150	AND	Dark grey	Andesite breccia	Breccia	Fresh rock	AND	0.15	39	40	0	4	1	2	5	12	15	J	0.5	chl			1	VG	MGP
									AND					AND	0.25	53	20	0	4	1	2	5	12	15	J	0.5	chl			1	VG	MGP
166.9	167.6	0.66	94	0.00	0	max	5	0.25	AND	Dark grey	Andesite breccia	Fault/gauge	Clay and rubble	AND	0.10			0	0	1	0	3	4	15	F	660.0	gg	cly		1	None	MGP
167.6	168.0	0.40	100	0.36	90	2	133	150	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.15	55	200	0	4	1	6	6	17	15	J	0.5				1	F	MGP
									AND					AND	0.35	66	290	0	4	1	6	6	17	15	J	0.5				1	F	MGP
168.0	169.5	1.43	95	1.01	67	5	238	150	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.20	30	0	0	1	5	2	5	13	15	J	1.0	chl			1	VG	MGP
									AND					AND	0.45	61	220	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	0.55	25	0	0	1	1	2	5	9	15	J	1.0	chl			1	VG	MGP
									AND					AND	0.60	17	250	0	1	1	2	5	9	15	J	1.0	chl			1	VG	MGP
									AND					AND	1.20	41	0	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
169.5	169.8	0.25	100	0.00	0	4	50	50	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.05			0	4	3	6	5	18	15	J	1.0				1	None	ML
									AND					AND	0.13			0	4	2	6	5	17	15	J	1.0				1	None	ML
									AND					AND	0.18			0	4	1	6	5	16	15	J	1.0				1	None	ML
									AND					AND	0.25			0	4	2	6	5	17	15	J	1.0				1	None	ML
169.8	170.5	0.75	100	0.65	87	4	150	110	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.05	23	80	0	4	2	6	6	18	15	J	1.0				1	None	ML
									AND					AND	0.35	15	305	0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	0.50	33	330	0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
									AND					AND	0.65	35	145	0	4	3	2	5	14	15	J	1.0	cly			1	None	ML
170.5	170.6	0.13	100	0.00	0	max	5	50	AND	Dark grey	Andesite breccia	Breccia	Highly Fractured Zone	AND	0.00			0	0	1	3	5	9	15	F	130.0	Rub			1	None	ML
170.6	171.0	0.31	84	0.18	49	1	155	125	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.09			0	0	2	2	5	9	15	J	30.0	cly			1	None	ML
171.0	171.4	0.38	100	0.25	66	3	95	110	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.13			0	4	1	6	6	17	15	J	1.0				1	F	ML
									AND					AND	0.20			0	4	2	4	5	15	15	J	1.0	py			1	F	ML
									AND					AND	0.25			0	5	2	6	6	19	15	J	0.1				1	F	ML
171.4	171.9	0.50	100	0.00	0	max	5	5	AND	Dark grey	Andesite breccia	Breccia	Highly Fractured Zone	AND	0.00			0	0	0	0	3	3	15	F	500.0	gg	cly		1	None	ML
171.9	172.5	0.62	100	0.19	31	max	5	5	AND	Dark grey	Andesite breccia	Breccia	Highly Fractured Zone	AND	0.00			0	0	0	0	3	3	15	F	620.0	gg	Rub		1	None	ML
172.5	174.0	1.50	100	1.50	100	3	375	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.18	80	155	0	5	1	6	6	18	15	J	0.1				1	F	ML
									AND					AND	0.35	78	235	0	5	2	6	6	19	15	J	0.1				1	F	ML
									AND					AND	1.37	43	160	0	4	3	6	6	19	15	J	1.0				1	F	ML
174.0	175.5	1.45	97	0.76	51	7	181	140	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.18	53	55	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.32	33	325	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.63	60	270	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.73	28	145	0	5	2	4	5	16	15	J	0.1	py			1	VG	ML
									AND					AND	0.82	63	305	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	1.00	12	95	0	4	2	2	6	14	15	J	1.0				1	VG	ML
									AND					AND	1.27	10	60	0	1	2	2	5	10	15	J	30.0	cly			1	VG	ML
175.5	177.0	1.50	100	1.41	94	6	214	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.25	57	350	0	4	3	4	6	17	15	J	1.0				1	VG	ML
									AND					AND	0.63	73	250	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.73	60	155	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	1.05	45	355	0	5	3	4	6	18	15	J	0.1				1	VG	ML
									AND					AND	1.25	85		0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	1.40	75	20	0	5	2	4	6	17	15	J	0.1				1	VG	ML
177.0	178.5	1.50	100	1.41	94	5	250	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.20	23	205	0	4	2	2	6	14	15	J	1.0				1	VG	ML
									AND					AND	0.33	30	280	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.83			0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	1.03	60	320	0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	1.41	63	295	0	4	3	4	6	17	15	J	1.0				1	VG	ML
178.5	180.0	1.50	100	1.47	98	4	300	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.30	73	210	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.70	40	20	0	4	2	4	5	15	15	J	1.0	cc			1	VG	ML
									AND					AND	1.33	80	270	0	5	1	6	6	18	15	J	0.1				1	VG	ML
									AND					AND	1.47	57	10	0	4	3	4	5	16	15	J	1.0	cc			1	VG	ML
180.0	181.5	1.45	97	1.01	67	9	145	110	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.20	27	205	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	0.43	68	200	0	5	1	6	6	18	15	J	0.1				1	VG	ML
									AND					AND	0.50	64	15	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.55	57	10	0	4	2	4	5	15	15	J	1.0	cc			1	VG	ML
									AND					AND	0.81	48	200	0	0	1	0	5	6	15	F	80.0	Rub	cly		1	VG	ML
									AND					AND	0.93	57	335	0	5	2	4	6	17	15	J	0.1				1	VG	ML
									AND					AND	1.13	12	265	0	4	2	4	6	16	15	J	1.0				1	VG	ML
									AND					AND	1.22	58	345	0	1	2	3	5	11	15	J	30.0	Rub			1	VG	ML
									AND					AND	1.33	22	60	0	0	2	0	5	7	15	J	10.0	cly			1	VG	ML
181.5	183.0	1.50	100	1.45	97	5	250	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.33	38	10	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	0.53	47	110	0	4	3	4	5	16	15	J	1.0	cc			1	VG	ML
									AND					AND	0.73	47	100	0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	0.78	62	345	0	4	1	4	5	14	15	J	1.0	cc			1	VG	ML
									AND					AND	1.08	48	0	0	5	2	6	6	19	15	J	0.1				1	VG	ML
183.0	184.5	1.50	100	0.99	66	4	300	125	AND	Dark grey	Andesite breccia	Breccia	Horizontal joint crossing from 0m to 0.55m from top	AND	0.00	10	240	0	4	1	4	5	14	15	J	1.0	cc			1	VG	ML
									AND					AND	0.55	60	145	0	4	2	4	5	15	15	J	1.0	cc			1	VG	ML
									AND					AND	0.73	45	165	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	1.10	47	335	0	5	2	6	6	19	15	J	0.1				1	VG	ML
184.5	186.0	1.45	97	1.45	97	4	290	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.22	48	140	0	5	3	4	5	17	15	J	0.1	cc			1	VG	ML
									AND					AND	0.38	67	145	0	5	2	6	6	19	15	J	0.1				1	VG	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.78	68	145	0	4	2	4	5	15	15	J	1.0	cc			1	VG	ML
									AND					AND	1.18	40	0	0	4	2	6	6	18	15	J	1.0				1	VG	ML
186.0	187.5	1.50	100	1.30	87	8	167	125	AND	Dark grey	Andesite breccia	Breccia	Mustard colour hard infill	AND	0.28			0	4	3	4	6	17	15	J	1.0				1	None	ML
									AND				Horizontal joint from 0.5m to 0.7m from top	AND	0.60			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	0.93			0	4	2	4	5	15	15	J	1.0	cc			1	None	ML
									AND					AND	0.95			0	5	2	4	5	16	15	J	0.1	cc			1	None	ML
									AND					AND	1.05			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	1.15			0	5	1	6	6	18	15	J	0.1				1	None	ML
									AND					AND	1.30			0	5	2	6	6	19	15	J	0.1				1	None	ML
									AND					AND	1.35			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
187.5	187.9	0.40	100	0.00	0	max	5	5	AND	Dark grey	Andesite breccia	Breccia	Rubble Zone	AND	0.00			0	0	1	3	5	9	15	F	400.0	Rub	cc		1	None	ML
187.9	189.0	1.10	100	1.00	91	5	183	110	AND	Dark grey	Andesite breccia	Breccia		AND	0.28	60	155	0	5	2	6	6	19	15	J	0.1				1	F	ML
									AND					AND	0.35	40	355	0	4	2	6	6	18	15	J	1.0				1	F	ML
									AND					AND	0.48	45	5	0	4	3	6	6	19	15	J	1.0				1	F	ML
									AND				Horizontal Joint from 0.5m to 0.8m from top	AND	0.60	22	305	0	4	2	4	5	15	15	J	1.0	cc			1	F	ML
									AND					AND	1.00	47	30	0	5	2	2	5	14	15	J	0.1	cly			1	F	ML
189.0	189.9	0.90	100	0.90	100	2	300	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.23	51	340	0	4	2	6	6	18	15	J	1.0				1	F	ML
									AND					AND	0.83	42	335	0	4	3	2	5	14	15	J	1.0	cly	cc		1	F	ML
189.9	190.5	0.60	100	0.46	77	3	150	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.28	37	25	0	4	2	2	5	13	15	J	1.0	cly			1	G	ML
									AND					AND	0.38	55	80	0	5	2	6	6	19	15	J	0.1				1	G	ML
									AND					AND	0.42	25	10	0	4	3	6	6	19	15	J	1.0				1	G	ML
190.5	190.7	0.20	100	0.13	65	2	67	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.05			0	4	2	6	6	18	15	J	1.0				1	None	ML
									AND					AND	0.18			0	4	1	2	5	12	15	J	1.0	cly			1	None	ML
190.7	191.0	0.25	100	0.00	0	max	5	3	AND	Dark grey	Andesite breccia	Breccia	Rubble Zone	AND	0.05			0	0	0	0	5	5	15	F	250.0	gg	cly		1	None	ML
191.0	192.0	1.05	100	0.97	92	7	131	125	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.00	45	335	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
									AND					AND	0.08	47	350	0	1	2	2	5	10	15	J	10.0	cly			1	F	ML
									AND					AND	0.15	50	0	0	4	2	2	6	14	15	J	1.0				1	F	ML
									AND					AND	0.23	25	345	0	4	3	4	5	16	15	J	1.0	cc			1	F	ML
									AND					AND	0.50	42	335	0	4	2	4	5	15	15	J	1.0	cc			1	F	ML
									AND					AND	0.70	28	270	0	5	1	2	5	13	15	J	0.1	cly			1	F	ML
									AND					AND	0.78	65	170	0	5	1	6	6	18	15	J	0.1				1	F	ML
192.0	193.5	1.43	95	1.43	95	5	238	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.05	55	175	0	4	2	4	5	15	15	J	1.0	cc			1	VG	ML
									AND					AND	0.37	78	195	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	0.68	75	220	0	5	1	4	5	15	15	J	0.1	cc			1	VG	ML
									AND					AND	1.03	52	35	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	1.17	78	155	0	5	2	6	6	19	15	J	0.1				1	VG	ML
193.5	195.0	1.50	100	1.50	100	4	300	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.08	73	155	0	5	1	6	6	18	15	J	0.1				1	P	ML
									AND					AND	0.50	60	185	0	4	3	6	6	19	15	J	1.0				1	P	ML
									AND					AND	0.93	77	175	0	5	3	6	6	20	15	J	0.1				1	P	ML
									AND					AND	1.28	68	150	0	5	2	6	6	19	15	J	0.1				1	P	ML
195.0	196.5	1.50	100	1.50	100	2	500	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	1.23	60	175	0	5	2	4	5	16	15	J	0.1	cc			1	G	ML
									AND					AND	1.43	52	205	0	4	2	6	6	18	15	J	1.0				1	G	ML
196.5	198.0	1.50	100	1.50	100	2	500	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.13	70	180	0	5	1	6	6	18	15	J	0.1				1	VG	ML
									AND					AND	1.03	78	165	0	4	2	6	6	18	15	J	1.0				1	VG	ML
198.0	199.5	1.50	100	1.38	92	1	750	150	AND	Dark grey	Andesite breccia	Breccia	Strong, fresh, no infill	AND	0.80	27	290	0	0	5	6	5	16	15	J	100.0	Rub			1	VG	MGP
199.5	201.0	1.50	100	1.44	96	2	500	150	AND	Dark grey	Andesite breccia	Breccia		AND	0.05	28	200	0	5	1	6	6	18	15	J	0.1				1	F	MGP
									AND					AND	0.61	40	200	0	5	1	6	6	18	15	J	0.1				1	F	MGP
201.0	202.5	1.48	99	1.48	99	2	493	200	AND	Dark grey	Andesite breccia	Breccia	Extremely strong	AND	0.85	65	245	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
									AND					AND	1.30	90	200	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
202.5	204.0	1.49	99	1.49	99	2	497	200	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.17	80	60	0	5	1	6	6	18	15	J	0.1				1	F	MGP
									AND					AND	1.30	71	350	0	5	1	6	6	18	15	J	0.1				1	F	MGP
204.0	205.5	1.46	97	1.46	97	2	487	225	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.20	32	200	0	4	1	6	6	17	15	J	0.5				1	F	MGP
									AND					AND	1.05	70	15	0	4	1	6	6	17	15	J	0.5				1	F	MGP
205.5	207.0	1.50	100	1.50	100	1	750	225	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.80	33	190	0	0	1	0	1	2	15	J	8.0	cly			1	P	MGP
207.0	208.5	1.40	93	1.26	84	6	200	225	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	0.05	51	340	0	4	1	4	5	14	15	J	0.5	cc			1	VG	MGP
									AND					AND	0.35	70	260	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	0.75	43	0	0	4	1	4	5	14	15	J	1.0	cc			1	VG	MGP
									AND					AND	0.85	31	100	0	4	1	4	5	14	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.00	75	300	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.20	78	120	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
208.5	210.0	1.50	100	1.11	74	3	375	225	AND	Dark grey	Andesite breccia	Breccia	Competent	AND	1.00	39	310	0	1	1	4	5	11	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.30	22	310	0	4	1	4	5	14	15	J	0.5	cc			1	VG	MGP
									AND	Dark grey	Andesite breccia	Breccia	Competent	AND	1.45	61	220	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
210.0	211.5	1.50	100	1.50	100	6	214	225	AND					AND	0.55	25	310	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	0.80	60	0	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	0.95	25	310	0	4	1	6	6	17	15	J	1.0				1	VG	MGP
									AND					AND	1.10	25	290	0	4	1	4	5	14	15	J	0.5	cc			1	VG	MGP
									AND					AND	1.25	25	90	0	4	1	4	5	14	15	J	0.5	cc			1	VG	MGP
									AND					AND	1.45	35	90	0	1	1	6	6	14	15	J	1.0				1	VG	MGP
211.5	212.0	0.54	100	0.54	100	1	270	100	AND	Dark grey	Andesite breccia	Clasts of light grey	Transition to breccia	AND	0.35	49	0	0	4	1	6	5	16	15	J	0.5				1	VG	MGP
212.0	212.3	0.26	100	0.00	0	max	5	0.25	AND	Dark grey	Andesite breccia	Breccia	Soft gauge/fault zone	AND	0.01		0	0	0	0	0	0	0	15	F	260.0	gg	cly		1	None	MGP
212.3	213.0	0.70	100	0.70	100	3	175	100	AND	Light grey to white	Andesite breccia	Breccia	Weaker than plain andesite previously	AND	0.20			0	4	1	2	5	12	15	J	0.5	cly			1	None	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.35	35	90	0	4	1	2	5	12	15	J	1.0	cly			1	F	MGP
									AND					AND	0.55	72	130	0	4	1	2	5	12	15	J	1.0	cly			1	F	MGP
213.0	214.5	1.44	96	0.99	66	6	206	100	AND	Light grey to white	Andesite breccia	Breccia	Strong, rubble in joints	AND	0.10			0	0	5	3	3	11	15	J	10.0	Rub	cly		6	None	MGP
214.5	216.0	1.48	99	0.39	26	max	5	25	AND	Light grey to white	Andesite breccia	Breccia	Rubble, some clay infill	AND	0.10			0	0	1	0	3	4	15	J	3.0	Rub	cly		1	None	MGP
216.0	217.5	1.50	100	1.02	68	9	150	50	AND					AND	0.10			0	1	3	3	3	10	15	J	3.0	Rub	cly		9	None	MGP
217.5	217.8	0.25	100	0.15	60	1	125	50	AND				Crumble	AND	0.10			0	1	3	6	5	15	15	J	1.0				1	None	MGP
217.8	218.6	0.81	100	0.00	0	max	5	0.75	AND				Fault zone, soft	AND	0.10			0	0	0	0	3	3	15	F	810.0	gg	cly		1	None	MGP
218.6	219.0	0.44	100	0.10	23	1	220	50	AND	Light grey to white	Weak andesite breccia	Breccia	Crumble	AND	0.20			0	1	3	6	5	15	15	J	1.0				1	None	MGP
219.0	219.9	0.86	100	0.00	0	max	5	0.25	AND				Highly rubblized, soft dark grey fault	AND	0.10			0	0	0	0	3	3	15	F	860.0	gg	Rub		1	None	MGP
219.9	220.5	0.59	92	0.00	0	max	5	0.25	AND	Light grey to white	breccia	Breccia	Soft fault	AND	0.10			0	0	0	0	3	3	15	F	590.0	gg	cly		1	None	MGP
220.5	220.7	0.17	100	0.00	0	max	5	0.25	AND					AND	0.05			0	0	0	0	3	3	15	F	170.0	gg	cly		1	None	MGP
220.7	222.0	1.33	100	0.93	70	2	443	75	AND	Dark grey	Andesite breccia	Breccia	Angular clasts up to 3 cm diameter	AND	0.30	35	310	0	1	1	2	5	9	15	J	1.0	chl			1	F	MGP
									AND					AND	1.15	40	110	0	1	1	2	5	9	15	J	1.0	chl			1	F	MGP
222.0	223.5	1.50	100	0.93	62	9	150	100	AND	Dark black	Andesite breccia	Breccia	Strong	AND	0.15	45	200	0	4	1	6	5	16	15	J	0.5				1	VG	MGP
									AND					AND	0.30	51	140	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	0.35	41	80	0	1	1	2	5	9	15	J	1.0	chl			1	VG	MGP
									AND					AND	0.40	54	320	0	4	1	6	5	16	15	J	0.5				1	VG	MGP
									AND					AND	1.00	40	240	0	1	1	2	5	9	15	J	1.0	chl	cly		1	VG	MGP
									AND					AND	1.15	40	260	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.25	75	30	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.30	43	240	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.35	19	110	0	4	1	2	5	12	15	J	0.5	cly			1	VG	MGP
223.5	225.0	1.45	97	1.27	85	2	483	100	AND	Dark black	Andesite breccia	Breccia	Strong	AND	0.20	32	190	0	4	2	6	6	18	15	J	0.5				1	VG	MGP
									AND					AND	0.70	41	280	0	4	2	4	5	15	15	J	0.5	py			1	VG	MGP
225.0	226.5	1.44	96	1.21	81	5	240	125	AND	Dark black	Andesite breccia	Breccia	Strong	AND	0.30	58	240	0	4	2	6	6	18	15	J	0.5				1	F	MGP
									AND					AND	0.40	52	250	0	4	2	6	6	18	15	J	0.5				1	F	MGP
									AND					AND	0.55	55	180	0	4	2	6	6	18	15	J	0.5				1	F	MGP
									AND					AND	1.30	53	10	0	4	2	4	5	15	15	J	0.5	cc			1	F	MGP
									AND					AND	1.45	45	0	0	4	2	6	6	18	15	J	0.5				1	F	MGP
226.5	228.0	1.50	100	1.50	100	3	375	225	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.45	47	170	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
									AND					AND	0.90	25	80	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
									AND					AND	1.00	44	0	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
228.0	229.5	1.50	100	1.23	82	3	375	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.40	59	310	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.15	46	340	0	4	1	4	5	14	15	J	0.8	cc			1	VG	MGP
									AND					AND	1.20	28	330	0	4	1	4	5	14	15	J	0.8	cc			1	VG	MGP
229.5	231.0	1.50	100	1.34	89	2	500	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.10	39	220	0	4	3	4	5	16	15	J	0.5	cc			1	VG	MGP
									AND					AND	1.15	30	0	0	4	3	2	6	15	15	J	0.5				1	VG	MGP
231.0	232.5	1.47	98	1.40	93	2	490	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.00	39	220	0	1	1	6	5	13	15	J	2.0				1	VG	MGP
									AND					AND	1.25	41	210	0	1	1	4	5	11	15	J	1.5	cc			1	VG	MGP
232.5	234.0	1.50	100	1.44	96	4	300	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.05	46	220	0	1	3	4	3	11	15	J	1.0	cc			1	VG	MGP
									AND					AND	0.35	21	75	0	1	3	4	5	13	15	J	1.5	cc			1	VG	MGP
									AND					AND	0.90	21	90	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.40	36	335	0	4	1	6	6	17	15	J	0.3				1	VG	MGP
234.0	235.5		0		0	2	0	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.10	35	340	0	1	1	4	5	11	15	J	2.0	cc			1	F	MGP
									AND					AND	1.20	43	230	0	4	1	6	6	17	15	J	0.5				1	F	ML
235.5	237.0	1.50	100	1.50	100	1	750	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.13	60	115	0	5	3	6	6	20	15	J	0.1				1	G	ML
237.0	238.5	1.40	93	1.40	93	1	700	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.18	33	325	0	5	2	6	6	19	15	J	0.1				1	VG	ML
238.5	240.0	1.50	100	1.50	100	1	750	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.83	58	290	0	4	3	6	6	19	15	J	0.5				1	F	ML
240.0	241.5	1.45	97	1.37	91	1	725	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.39	78	110	0	5	1	6	6	18	15	J	0.1				1	VG	ML
241.5	243.0	1.50	100	1.50	100	1	750	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.41	42	315	0	4	3	6	6	19	15	J	0.5				1	G	ML
243.0	244.5	1.50	100	1.47	98	1	750	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.77	52	65	0	4	2	6	6	18	15	J	0.5				1	VG	ML
244.5	246.0	1.50	100	1.48	99	2	500	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.00	68	55	0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	1.48			0	5	2	6	6	19	15	J	0.1				1	VG	ML
246.0	247.5	1.50	100	1.50	100	3	375	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.14	42	0	0	4	3	4	6	17	15	J	1.0	cc			1	VG	ML
									AND					AND	0.53	30	310	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	1.23	70	45	0	5	3	6	6	20	15	J	0.1				1	VG	ML
247.5	249.0	1.50	100	1.50	100	2	500	250	AND					AND	0.00			6	6	6	6	6	30	15		0.0				1	F	ML
249.0	250.5	1.40	93	1.40	93	1	700	250	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	1.27	47	250	0	4	1	6	6	17	15	J	0.5				1	G	ML
250.5	252.0	1.50	100	1.06	71	8	167	75	AND	Dark black	Andesite	Breccia	becoming weaker and less competent	AND	0.60	42	315	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	0.63	53	325	0	4	3	4	6	17	15	J	1.0	cc			1	VG	ML
									AND					AND	0.70	47	315	0	4	3	4	6	17	15	J	1.0	cc			1	VG	ML
									AND					AND	0.93			0	4	2	6	6	18	15	J	1.0				1	VG	ML
									AND					AND	1.03	62	285	0	1	3	6	6	16	15	J	5				1	VG	ML
									AND					AND	1.27	60	320	0	1	3	6	6	16	15	J	5				1	VG	ML
									AND					AND	1.35	35	200	0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	1.42	47	215	0	5	2	4	6	17	15	J	0.1	cc			1	VG	ML
252.0	252.2	0.22	100	0.10	45	1	110	50	AND	Dark black	Andesite	Breccia	becoming weaker and less competent	AND	0.05			0	0	2	3	5	10	15	J	40.0	Rub			1	None	ML
252.2	252.3	0.10	100	0.10	100	1	50	0.25	AND	Dark black	Andesite	Breccia	becoming weaker and less competent	AND	0.00			0	0	0	0	3	3	15	F	100.0	gg	cly		1	None	ML
252.3	252.7	0.38	100	0.00	0	max	5	1	AND	Dark black	Andesite	Breccia	Rubble Zone	AND	0.18			0	0	1	3	5	9	15	F	380.0	Rub			1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
252.7	253.5	0.80	100	0.60	75	4	160	50	AND	Dark black	Andesite	Breccia	becoming weaker and less competent	AND	0.25			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	0.48			0	4	1	6	5	16	15	J	1.0				1	None	ML
									AND					AND	0.68			0	4	1	4	5	14	15	J	1.0	cc			1	None	ML
									AND					AND	0.78			0	4	2	4	5	15	15	J	1.0	cc			1	None	ML
253.5	255.0	1.50	100	1.40	93	5	250	3	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.08			0	1	3	4	5	13	15	J	3.0	cc			1	None	ML
									AND					AND	0.42			0	4	3	4	5	16	15	J	1.0	cc			1	None	ML
									AND					AND	0.67			0	4	3	6	5	18	15	J	1.0				1	None	ML
									AND					AND	0.98			0	4	2	2	5	13	15	J	1.0	cly			1	None	ML
									AND					AND	1.38			0	1	2	2	3	8	15	J	2.0	gg	cly		1	None	ML
255.0	255.5	0.53	100	0.53	100	2	177	75	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.30			0	4	2	6	6	18	15	J	1.0				1	F	ML
									AND					AND	0.44	68	105	0	1	2	2	5	10	15	J	3.0	cly			1	F	ML
255.5	255.7	0.17	100	0.17	100	1	85	75	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.00	60	355	0	0	1	2	5	8	15	J	30.0	cly			1	F	ML
255.7	256.5	0.80	100	0.75	94	1	400	125	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.43	51	60	0	4	2	6	6	18	15	J	1.0				1	F	ML
256.5	258.0	1.48	99	1.48	99	3	370	140	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.60	70	340	0	4	2	6	6	18	15	J	1.0				1	F	ML
									AND					AND	1.08	37	270	0	5	2	6	6	19	15	J	0.1				1	F	ML
									AND					AND	1.35	40	95	0	1	1	4	5	11	15	J	2.0	cc			1	F	ML
258.0	259.5	1.41	94	1.32	88	4	282	110	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.78	42	30	0	4	2	2	5	13	15	J	1.0	cly			1	F	ML
									AND					AND	0.95			0	5	3	2	5	15	15	J	0.1	cly			1	F	ML
									AND					AND	1.18	28	70	0	4	1	4	5	14	15	J	1.0	cc			1	F	ML
									AND					AND	1.45	37	80	0	4	3	2	5	14	15	J	1.0	cly			1	F	ML
259.5	260.8	1.30	100	1.30	100	1	650	50	AND	Dark black	Andesite	Breccia	Fresh, strong	AND	0.94			0	4	3	4	5	16	15	J	1.0	cc			1	None	ML
260.8	260.9	0.14	100	0.00	0	max	5	3	AND					AND	0.00			0	0	0	0	3	3	15	F	140.0	gg	cly		1	None	ML
260.9	261.0	0.10	100	0.10	100	1	50	50	AND	Dark black	Andesite	Breccia	Horizontal joint cross the core	AND	0.00			0	1	2	4	3	10	15	J	3.0	cc			1	None	ML
261.0	262.5	1.33	89	1.33	89	1	665	75	AND	Dark grey	Andesite	Breccia	White calcite veins	AND	1.00	60	40	0	1	1	4	3	9	15	J	2.0	cc			1	F	ML
262.5	264.0	1.50	100	1.17	78	4	300	75	AND					AND	0.30	46	325	0	1	3	4	3	11	15	J	1.0	cc			1	P	MGP
									AND					AND	0.40	57	220	0	1	3	6	3	13	15	J	1.0				1	P	MGP
									AND					AND	0.50	29	100	0	1	6	6	3	16	15	J	3.0				1	P	MGP
									AND					AND	1.25	45	110	0	1	3	4	3	11	15	J	1.0	cc			1	P	MGP
264.0	265.5	1.46	97	1.29	86	2	487	175	AND	Dark grey	Andesite	Breccia	White calcite veins	AND	0.05			0	1	3	6	5	15	15	J	1.5				2	None	MGP
265.5	267.0	1.50	100	1.46	97	2	500	150	AND	Dark grey	Andesite	Breccia	White calcite veins	AND	0.90	43	100	0	1	1	4	5	11	15	J	1.0	cc			1	F	MGP
									AND					AND	1.35	69	285	0	4	3	6	5	18	15	J	0.5				1	F	MGP
267.0	268.5	1.42	95	1.42	95	3	355	200	AND	Dark grey	Andesite	Breccia	White calcite veins	AND	0.15	70	340	0	1	1	4	5	11	15	J	1.5	cc			1	G	MGP
									AND					AND	0.75	40	340	0	1	3	6	5	15	15	J	1.0				1	G	MGP
									AND					AND	1.30	55	350	0	1	3	6	5	15	15	J	1.0				1	G	MGP
268.5	270.0	1.50	100	1.43	95	4	300	200	AND	Dark grey	Andesite	Breccia	White calcite veins	AND	0.80	55	340	0	1	1	6	5	13	15	J	0.5				1	VG	MGP
									AND					AND	0.85	45	330	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
									AND					AND	1.15	63	340	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	1.20	43	350	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
270.0	271.5	1.50	100	1.50	100	0	1500	225	AND	Dark grey	Inequigrranular	Massive	Andesite	AND	0.00			6	6	6	6	6	30	15		0.0				1	VG	MGP
271.5	273.0	1.50	100	1.47	98	3	375	175	AND	Dark grey	Inequigrranular	Massive	Andesite	AND	0.95	68	110	0	1	1	6	5	13	15	J	1.0				1	P	MGP
									VC					VC	1.17	65	90	0	1	1	6	5	13	15	J	1.0				1	P	MGP
									VC					VC	1.38	71	60	0	1	3	6	5	15	15	J	1.5				1	P	MGP
273.0	274.5	1.50	100	1.50	100	1	750	200	VC	Dark grey	Inequigranular	Massive	Andesite rock transitions into andesite breccia, clasts up to 2cm diameter	VC	1.15	18	290	0	1	1	4	5	11	15	J	1.5	cc			1	F	MGP
274.5	276.0	1.50	100	0.72	48	11	125	175	VC	Dark grey	Inequigranular	Massive	Highly fractured andesite breccia	VC	0.09			0	1	6	6	5	18	15	J	2.0				8	None	MGP
									VC					VC	0.25	52	350	0	1	3	4	5	13	15	J	1.0	cc			1	F	MGP
									VC					VC	0.40	35	90	0	1	3	4	5	13	15	J	1.0	cc			1	F	MGP
									VC					VC	0.45	50	60	0	1	5	6	5	17	15	J	1.0				1	F	MGP
276.0	276.6	0.56	100	0.25	45	1	280	175	AND	Dark grey	Inequigranular	Massive	Highly fractured andesite breccia	AND	0.40			0	1	3	6	5	15	15	J	1.0				1	None	MGP
276.6	276.9	0.38	100	0.00	0	Max	5	1	AND	Dark grey	Inequigranular	Massive	Highly fractured andesite breccia, completely weathered	AND	0.00			0	0	0	6	3	9	15	F	380.0				1	None	MGP
276.9	277.5	0.50	89	0.44	79	2	167	175	AND	Dark grey	Inequigranular	Massive	Weathered dark andesite	AND	0.20			0	1	3	4	5	13	15	J	1.0	cc			2	None	MGP
277.5	277.7	0.20	100	0.00	0	Max	5	175	AND	Dark grey	Inequigranular	Massive	Rubble zone	AND	0.00			0	0	5	6	3	14	15	F	200.0	Rub			1	None	MGP
277.7	279.0	1.30	100	1.14	88	2	433	175	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.15	62	330	0	1	1	4	5	11	15	J	1.0	cc			1	F	MGP
									AND					AND	0.70	62	340	0	1	3	6	5	15	15	J	1.0				1	F	MGP
279.0	280.5	1.40	93	1.34	89	3	350	200	AND	Dark grey	Inequigranular	Massive	Dark andesite	AND	0.25	36	320	0	1	3	4	5	13	15	J	1.5	cc			1	VG	MGP
									AND					AND	0.85	40	330	0	1	1	6	5	13	15	J	1.0				1	VG	MGP
									AND					AND	1.05	36	300	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
280.5	282.0	1.50	100	1.47	98	2	500	200	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.25	45	230	0	1	1	6	5	13	15	J	0.5				1	VG	MGP
									AND					AND	0.85	21	310	0	1	1	4	5	11	15	J	1.0	cc			1	VG	MGP
282.0	283.5	1.50	100	1.50	100	4	300	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.30	54	90	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
									AND					AND	0.60	35	250	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
									AND					AND	0.70	55	110	0	1	1	6	6	14	15	J	1.0				1	VG	MGP
									AND					AND	1.40	32	300	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
283.5	285.0	1.50	100	1.50	100	2	500	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.75	35	10	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
									AND					AND	1.35	53	180	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
285.0	286.5	1.45	97	1.25	83	4	290	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.45	10	330	0	4	1	6	6	17	15	J	0.5				1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
									AND					AND	1.00	15	15	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.15	34	310	0	0	1	0	5	6	15	J	10.0	cc	gg		1	VG	MGP
									AND					AND	1.25	44	275	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
286.5	288.0	1.50	100	1.50	100	2	500	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	1.00	70	100	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.20	75	80	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
288.0	289.5	1.50	100	1.50	100	1	750	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.25	34	150	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
289.5	291.0	1.50	100	1.50	100	0	1500	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.00			6	6	6	6	6	30	15		0.0				1	VG	MGP
291.0	292.5	1.50	100	1.50	100	1	750	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.75	57	30	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
292.5	294.0	1.50	100	1.50	100	1	750	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	1.25	40	170	0	5	1	6	6	18	15	J	0.1				1	VG	MGP
294.0	295.5	1.50	100	1.50	100	1	750	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, extremely strong, fresh, minimal to no infilling	AND	0.75	40	35	0	0	5	3	5	13	15	VN	6.0	cc			1	VG	MGP
295.5	297.0	1.50	100	1.50	100	1	750	225	AND	Dark grey	Inequigranular	Massive	Dark andesite, very strong, some white veins	AND	1.05	46	15	0	1	3	4	5	13	15	J	1.0	cc			1	F	MGP
297.0	298.5	1.45	97	1.45	97		1450	225	AND	Dark grey	Inequigranular	Massive	Charcoal grey dark, andesite	AND	0.00			6	6	6	6	6	30	15		0.0				1	None	ML
298.5	300.0	1.40	93	1.40	93	1	700	225	AND	Dark grey	Inequigranular	Massive	Dark andesite	AND	1.13			0	4	2	6	6	18	15	J	1.0				1	None	ML
300.0	301.5	1.50	100	1.50	100	5	250	140	AND	Dark grey	Inequigranular	Massive	Dark andesite with multiple pre-healed calcite infill joints	AND	0.53	33	80	0	1	2	4	5	12	15	J	1.0	cc			1	F	ML
									AND					AND	1.02	33	40	0	5	2	4	6	17	15	J	0.1				1	F	ML
									AND					AND	1.15	35	15	0	1	2	4	5	12	15	J	1.0	cc			1	F	ML
									AND					AND	1.28	40	45	0	5	2	6	5	18	15	J	0.1				1	F	ML
									AND					AND	1.40	50	32	0	4	3	4	5	16	15	J	1.0	cc			1	G	ML
301.5	303.0	1.48	99	1.48	99	2	493	200	AND	Dark grey	Inequigranular	Massive	Dark andesite with multiple pre-healed calcite infill joints	AND	1.13	45	35	0	4	2	4	6	16	15	J	1.0	cc			1	G	ML
									AND					AND	1.38	62	90	0	5	2	6	6	19	15	J	0.1				1	G	ML
303.0	304.5	1.50	100	1.50	100	1	750	160	AND	Dark grey	Inequigranular	Massive	Dark andesite with multiple pre-healed calcite infill joints	AND	0.62	70	285	0	1	3	2	5	11	15	J	2.0	cly			1	VG	ML
304.4	304.7	0.20	67	0.20	67	0	200	125	AND	Dark grey	Inequigranular	Massive	Dark andesite with multiple pre-healed calcite infill joints	AND	0.00			6	6	6	6	5	29	15	J	0.0				1	VG	ML
304.7	304.8	0.10	100	0.00	0	Max	5	1	AND	Dark grey	Inequigranular	Massive	Gouge, fault dark clay deposit	AND	0.00			0	0	0	0	3	3	15	F	100.0	gg	cly		1	None	ML
304.8	305.4	0.55	100	0.37	67	4	110	3	AND	Dark grey	Inequigranular	Massive	Weak rock, peeled by knife	AND	0.05			0	4	2	2	3	11	15	J	1.0	cly			1	None	ML
									AND					AND	0.14			0	4	3	6	5	18	15	J	1.0				1	None	ML
									AND					AND	0.29			0	0	0	0	3	3	15	F	50.0	gg	cly		1	None	ML
									AND					AND	0.55			0	1	1	2	3	7	15	J	5.0	gg	cly		1	None	ML
305.4	306.0	0.65	100	0.65	100	0	650	75	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.00			6	6	6	6	5	29	15	J	0.0				1	F	ML
306.0	307.5	1.42	95	1.42	95	1	710	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.90	55	240	0	5	1	6	6	18	15	J	0.1				1	G	ML
307.5	309.0	1.50	100	1.50	100	1	750	225	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.40	50	245	0	5	2	6	6	19	15	J	0.1				1	F	ML
309.0	310.5	1.50	100	1.50	100	1	750	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.93	53	195	0	4	2	6	6	18	15	J	1.0				1	P	ML
310.5	312.0	1.50	100	1.50	100	4	300	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.53	72	205	0	5	1	6	6	18	15	J	0.1				1	P	ML
									AND					AND	0.88	77	145	0	5	1	6	6	18	15	J	0.1				1	P	ML
									AND					AND	1.02	27	245	0	5	2	6	6	19	15	J	0.1				1	P	ML
									AND					AND	1.18	27	348	0	4	2	6	6	18	15	J	1.0				1	P	ML
312.0	313.5	1.45	97	1.45	97	0	1450	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.00			6	6	6	6	6	30	15		0.0				1	P	ML
313.5	315.0	1.50	100	1.50	100	0	1500	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.00			6	6	6	6	6	30	15		0.0				1	P	ML
315.0	316.5	1.47	98	1.47	98	1	735	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.18	62	195	0	5	1	6	6	18	15	J	0.1				1	P	ML
316.5	318.0	1.50	100	1.50	100	1	750	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.50	25	25	0	1	3	2	5	11	15	J	5				1	P	ML
318.0	319.5	1.47	98	1.39	93	4	294	180	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.11	38	345	0	1	2	4	6	13	15	J	5				1	G	ML
									AND					AND	0.28	30	200	0	1	1	2	5	9	15	J	5				1	G	ML
									AND					AND	1.13	68	150	0	5	2	6	6	19	15	J	0.1				1	G	ML
									AND					AND	1.23	67	190	0	5	3	6	6	20	15	J	0.1				1	G	ML
319.5	321.0	1.50	100	1.50	100	1	750	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.05	48	245	0	5	1	6	6	18	15	J	0.1				1	VG	ML
321.0	322.5	1.50	100	1.50	100	1	750	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.40	62	175	0	5	1	6	6	18	15	J	0.1				1	F	ML
322.5	324.0	1.50	100	1.50	100	0	1500	250	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.00			6	6	6	6	6	30	15	J	0.0				1	VG	ML
324.0	325.5	1.45	97	1.38	92	0	1450	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.00			6	6	6	6	6	30	15	J	0.0				1	VG	ML
325.5	327.0	1.50	100	1.50	100	2	500	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.37	45	340	0	1	1	6	6	14	15	J	1.0				1	F	ML
									AND					AND	0.60	52	190	0	1	1	6	6	14	15	J	1.0				1	F	ML
327.0	328.5	1.43	95	1.43	95	0	1430	200	AND	Dark grey	Inequigranular	Massive	Andesite, stick rock	AND	0.00			6	6	6	6	6	30	15		0.0				1	VG	MGP
328.5	330.0	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.25	70	20	0	1	3	4	5	13	15	J	1.0	cc			1	P	MGP
330.0	331.5	1.43	95	1.43	95	2	477	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.90	60	280	0	1	3	4	5	13	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.20	60	10	0	1	3	4	5	13	15	J	1.0	cc			1	VG	MGP
331.5	333.0	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.50	71	130	0	4	1	6	6	17	15	J	0.5				1	G	MGP
333.0	334.5	1.41	94	1.37	91	5	235	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.10			0	4	1	6	6	17	15	J	0.5				5	NONE	MGP
334.5	336.0	1.50	100	1.41	94	2	500	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.90	70	25	0	4	3	6	6	19	15	J	0.5				1	F	MGP
									AND					AND	1.40	56	230	0	4	5	6	6	21	15	J	0.5				1	F	MGP
336.0	337.5	1.44	96	1.27	85	2	480	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.85	60	290	0	4	3	6	6	19	15	J	0.1				1	F	MGP
									AND					AND	1.30	61	240	0	4	3	6	6	19	15	J	0.1				1	F	MGP
337.5	339.0	1.50	100	1.43	95	2	500	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.00	28	230	0	4	3	6	6	19	15	J	0.1				1	VG	MGP
									AND					AND	1.47	60	325	0	4	3	6	6	19	15	J	0.1				1	VG	MGP
339.0	340.5	1.48	99	1.32	88	4	296	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.10	42	180	0	4	2	6	6	18	15	J	0.1				1	VG	MGP
									AND					AND	0.60	72	190	0	4	2	6	6	18	15	J	0.1				1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
									AND					AND	0.65	75	40	0	4	2	6	6	18	15	J	0.1				1	VG	MGP
									AND					AND	1.25	59	190	0	4	2	6	6	18	15	J	0.1				1	VG	MGP
340.5	342.0	1.50	100	1.49	99	4	300	200	AND	Dark grey	Inequigranular	Massive	Andesite, calcite veins	AND	0.47	34	230	0	1	2	6	5	14	15	J	1.0				1	VG	MGP
									AND					AND	1.05	74	155	0	1	2	4	5	12	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.25	31	260	0	1	2	4	5	12	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.49	54	270	0	1	2	4	5	12	15	J	1.0	cc			1	VG	MGP
342.0	343.5	1.48	99	1.25	83	2	493	150	AND	Dark grey	Inequigranular	Massive	Andesite, calcite veins	AND	0.60	75	140	0	1	2	4	5	12	15	J	2.0	cc			1	VG	MGP
									AND				This joint has sulfuric odor	AND	1.00	29	280	0	0	3	0	5	8	15	J	10.0	cly	cc		1	VG	MGP
343.5	345.0	1.50	100	1.43	95	3	375	175	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.65	61	270	0	1	2	6	6	15	15	J	1.0				1	F	MGP
									AND					AND	1.20	75	160	0	1	2	6	6	15	15	J	1.0				1	F	MGP
									AND					AND	1.45	60	230	0	1	2	6	6	15	15	J	1.0				1	F	MGP
345.0	346.5	1.35	90	1.35	90	1	675	175	AND	Dark grey	Inequigranular	Massive	Andesite, few healed calcite joints within	AND	1.00	43	30	0	4	3	4	5	16	15	J	1.0	cc			1	VG	ML
346.5	348.0	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite, few healed calcite joints within	AND	0.73	70	245	0	4	2	6	6	18	15	J	1.0				1	G	ML
348.0	349.5	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite, slightly weathered, discolouring around the joint	AND	1.05	40	5	0	5	2	4	5	16	15	J	0.1	cc			1	VG	ML
349.5	351.0	1.50	100	1.50	100	2	500	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.28	47	255	0	5	1	6	6	18	15	J	0.1				1	VG	ML
									AND					AND	1.45	55	305	0	4	2	6	6	18	15	J	1.0				1	VG	ML
351.0	352.5	1.48	99	1.48	99	3	370	200	AND	Dark grey	Inequigranular	Massive	Andesite, slightly weathered, discolouring around the joint	AND	0.97	40	260	0	5	2	4	5	16	15	J	0.1	cc			1	VG	ML
									AND					AND	1.23	42	320	0	4	3	4	5	16	15	J	1.0	cc			1	VG	ML
									AND					AND	1.35	49	260	0	5	2	4	5	16	15	J	0.1	cc			1	VG	ML
352.5	354.0	1.48	99	1.43	95	3	370	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.73	53	10	0	4	2	6	6	18	15	J	1.0				1	VG	ML
									AND					AND	1.17	47	260	0	5	2	6	6	19	15	J	0.1				1	VG	ML
									AND					AND	1.38	51	265	0	5	2	4	5	16	15	J	0.1	cc			1	VG	ML
354.0	355.5	1.48	99	1.48	99	2	493	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.23	50	255	0	4	2	4	5	15	15	J	1.0	cc			1	VG	ML
									AND					AND	1.21	57	270	0	5	2	6	6	19	15	J	0.1				1	VG	ML
355.5	357.0	1.50	100	1.50	100	2	500	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.62	38	355	0	5	2	6	5	18	15	J	0.1				1	P	ML
									AND					AND	1.35	43	25	0	4	3	6	6	19	15	J	1.0				1	P	ML
357.0	358.5	1.48	99	1.48	99	1	740	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.00	42	320	0	5	3	6	5	19	15	J	0.1				1	VG	ML
358.5	360.0	1.50	100	1.42	95	1	750	110	AND	Dark grey	Inequigranular	Massive	Andesite, strong before the joint	AND	1.15			0	0	0	0	3	3	15	F	80.0	gg	Rub		1	P	ML
360.0	361.5	1.50	100	1.29	86	6	214	75	AND	Dark grey	Inequigranular	Massive	Andesite, with calcite infill	AND	0.16			0	1	3	4	5	13	15	J	3.0	cc			1	NONE	ML
									AND					AND	0.30			0	1	2	2	5	10	15	J	3.0	cly			1	NONE	ML
									AND					AND	0.37			0	0	2	0	3	5	15	J	5.0	cly			1	NONE	ML
									AND					AND	0.78			0	1	2	4	5	12	15	J	3.0	cc			1	NONE	ML
									AND					AND	1.20			0	5	2	6	6	19	15	J	0.1				1	NONE	ML
									AND					AND	1.38			0	5	2	6	6	19	15	J	0.1				1	NONE	ML
361.5	363.0	1.48	99	1.48	99	1	740	200	AND	Dark grey	Inequigranular	Massive	Andesite, with calcite infill	AND	0.93	48	345	0	5	2	6	6	19	15	J	0.1				1	F	ML
363.0	364.5	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite, with calcite infill	AND	0.15			0	5	2	6	6	19	15	J	0.1				1	VG	ML
364.5	366.0	1.47	98	1.47	98	2	490	200	AND	Dark grey	Inequigranular	Massive	Andesite, with calcite infill	AND	0.18	70	45	0	4	2	4	6	16	15	J	2.0				1	F	ML
									AND					AND	1.25	61	325	0	4	3	6	6	19	15	J	1.0				1	F	ML
366.0	367.5	1.50	100	1.50	100	4	300	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.30	74	0	0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	0.45	69	110	0	5	3	6	6	20	15	J	0.1				1	VG	ML
									AND					AND	1.00	69	170	0	5	1	6	6	18	15	J	0.1				1	VG	ML
									AND					AND	1.35	80	70	0	4	5	6	6	21	15	J	1.0				1	VG	ML
367.5	369.0	1.50	100	1.44	96	4	300	175	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.20	64	20	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
									AND					AND	0.80	21	50	0	1	1	4	5	11	15	J	1.0	cc			1	VG	MGP
									AND					AND	0.90	50	275	0	4	1	6	6	17	15	J	0.5				1	VG	MGP
									AND					AND	1.00	50	330	0	4	3	6	6	19	15	J	0.5				1	VG	MGP
369.0	370.5	1.50	100	1.42	95	3	375	175	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.90	60	0	0	4	3	6	6	19	15	J	0.5				1	G	MGP
									AND					AND	1.00	54	340	0	4	3	6	6	19	15	J	0.5				1	G	MGP
									AND					AND	1.40	55	275	0	4	3	6	6	19	15	J	0.5				1	G	MGP
370.5	372.0	1.49	99	1.36	91	3	373	175	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.75	31	270	0	1	3	4	5	13	15	J	1.5	cc			1	VG	MGP
									AND					AND	0.90	44	270	0	1	3	4	5	13	15	J	2.0	cc			1	VG	MGP
									AND					AND	1.20	46	330	0	1	3	4	5	13	15	J	3.0	cc			1	VG	MGP
372.0	373.5	1.50	100	1.38	92	4	300	150	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.35	60	350	0	1	1	6	6	14	15	J	1.0				1	VG	MGP
									AND					AND	0.50	51	280	0	1	3	4	5	13	15	J	2.0	cc			1	VG	MGP
									AND					AND	0.95	52	330	0	1	3	2	5	11	15	J	2.0				1	VG	MGP
									AND					AND	1.15	50	320	0	1	3	4	6	14	15	J	1.0	cc			1	VG	MGP
373.5	375.0	1.50	100	1.19	79	3	375	150	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.65	49	330	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
									AND					AND	0.70	35	240	0	0	3	3	3	9	15	J	5.0	cc			1	VG	MGP
									AND					AND	1.20	42	270	0	1	3	6	5	15	15	J	2.0				1	VG	MGP
375.0	376.5	1.43	95	1.29	86	3	358	150	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.60	41	280	0	1	5	6	6	18	15	J	1.0				1	G	MGP
									AND					AND	1.00	53	310	0	4	2	4	5	15	15	J	0.5	cc			1	G	MGP
									AND					AND	1.25	70	220	0	1	3	6	5	15	15	J	1.0				1	G	MGP
376.5	378.0	1.50	100	1.49	99	0	1500	175	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.00			6	6	6	6	6	30	15		0.0				1	VG	MGP
378.0	379.5	1.42	95	1.31	87	1	710	225	AND	Dark grey	Inequigranular	Massive	Andesite, with veins of calcite	AND	1.30	42	15	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
379.5	380.7	1.15	96	0.93	78	2	383	200	AND				Blocked run	AND	0.45	15	150	0	1	5	4	5	15	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.00	60	10	0	1	2	6	5	14	15	J	3.0				1	VG	MGP
380.7	381.0	0.30	100	0.30	100	0	300	200	AND					AND	0.00			6	6	6	6	6	30	15		0.0				1	VG	MGP
381.0	382.5	1.43	95	1.43	95	1	715	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.75	60	300	0	1	2	6	5	14	15	J	1.0				1	VG	MGP
382.5	384.0	1.50	100	1.47	98	3	375	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.95	53	30	0	1	3	6	6	16	15	J	1.0				1	P	MGP
									AND					AND	1.20	60	50	0	1	3	6	6	16	15	J	1.0				1	P	MGP
									AND					AND	1.40	35	250	0	1	3	6	6	16	15	J	1.0				1	P	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA							
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	Fill. Type 3 (see Leg)	QTY	Orientation Quality	Logger
384.0	385.5	1.40	93	1.34	89	2	467	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.95	70	90	0	1	4	6	5	16	15	J	1.5				1	F	MGP
									AND					AND	1.25	70	40	0	1	4	6	5	16	15	J	1.5				1	F	MGP
385.5	387.0	1.50	100	1.45	97	4	300	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.35	70	70	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
									AND					AND	0.45	64	70	0	1	5	6	5	17	15	J	1.0				1	VG	MGP
									AND					AND	0.70	47	10	0	1	3	4	5	13	15	J	1.0	cc			1	VG	MGP
									AND					AND	1.45	55	70	0	1	2	6	5	14	15	J	1.0				1	VG	MGP
387.0	388.5	1.42	95	1.08	72	5	237	225	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.45	70	0	0	1	3	6	5	15	15	J	3.0				1	VG	MGP
									AND					AND	0.50	70	60	0	1	3	6	5	15	15	J	4.0				1	VG	MGP
									AND					AND	0.65	53	310	0	1	3	6	5	15	15	J	1.0				1	VG	MGP
									AND					AND	0.75	55	30	0	1	3	6	5	15	15	J	3.0				1	VG	MGP
									AND					AND	0.85	57	120	0	0	3	6	5	14	15	J	7.0				1	VG	MGP
388.5	390.0	1.50	100	1.50	100	4	300	200	AND	Dark grey	Inequigranular	Massive	Andesite, with healed calcite joints	AND	0.50	48	340	0	5	2	6	6	19	15	J	0.1				1	P	ML
									AND					AND	0.66	72	50	0	4	2	6	6	18	15	J	1.0				1	P	ML
									AND					AND	1.26	63	135	0	4	2	6	6	18	15	J	1.0				1	P	ML
									AND					AND	1.43	75	125	0	5	2	6	6	19	15	J	0.1				1	P	ML
390.0	391.5	1.43	95	1.43	95	2	477	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	1.03	67	325	0	4	3	4	6	17	15	J	1.0				1	G	ML
									AND					AND	1.27	43	335	0	5	2	4	6	17	15	J	1.0				1	G	ML
391.5	393.0	1.45	97	1.45	97	1	725	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.98	62	75	0	5	2	6	6	19	15	J	0.1				1	VG	ML
393.0	394.5	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.38	40	5	0	5	2	6	6	19	15	J	0.1				1	VG	ML
394.5	396.0	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.63	28	230	0	4	2	6	6	18	15	J	1.0				1	G	ML
396.0	397.5	1.45	97	1.45	97	3	363	200	AND	Dark grey	Inequigranular	Massive	Andesite, first joint is almost vertical, can't tell alpha and beta	AND	0.94			0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	1.08	30	310	0	4	3	6	6	19	15	J	1.0				1	VG	ML
									AND					AND	1.35	62	140	0	5	2	6	6	19	15	J	0.1				1	VG	ML
397.5	399.0	1.50	100	1.50	100	1	750	200	AND	Dark grey	Inequigranular	Massive	Andesite, waxy/soft infill	AND	0.28	70	200	0	5	2	2	5	14	15	J	0.1	chl			1	VG	ML
399.0	400.5	1.50	100	1.50	100	2	500	200	AND	Dark grey	Inequigranular	Massive	Andesite	AND	0.78	55	20	0	4	2	2	5	13	15	J	2.0	chl			1	VG	ML
									AND					AND	1.17	60	345	0	5	2	4	5	16	15	J	0.1	cc			1	VG	ML
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR'13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-07

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-07 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	3.7	0.0		0					OB				**OVERBURDEN**	OB																
3.7	4.5	0.80	100	0.23	29	20	38	50	FT	pale blue to white	fine grained		moderately weathered, clastic bedrock, yellowish clayey infill	FT	0.00			0	0	1	0	3	4	15	J	800.00	ox	cly	1	None	SRM
4.5	6.0	1.50	100	0.75	50	20	71	50	FT	pale blue to white	fine grained		severely weathered, clastic bedrock, yellowish clayey infill	FT	0.00			0	0	1	0	3	4	15	Rub	50.00	Rub	Ox	1	None	SRM
															0.12			0	1	3	5	3	12	15	J	5.0	Ox		14	None	MF
															1.00			0	0	1	0	3	4	15	Rub	100.0	Rub	Ox	1	None	MF
6.0	7.5	1.08	72	0.00	0	14	72	50	FT	pale blue to white	fine grained		moderately weathered, oxidized bedrock, very weak	FT	0.00			0	1	3	5	3	12	15	J	5.00	ox	cly	14	None	JBC
7.5	9.0	0.56	37	0.00	0	20	27	50	FT	pale blue to white	fine grained		moderately weathered, oxidized bedrock, very weak	FT	0.00			0	0	1	0	3	4	15	J	560.00	ox	cly	1	None	JBC
9.0	10.5	0.74	49	0.37	25	20	35	50	FT	pale blue to green	fine grained		moderately weathered, oxidized bedrock, lots of clasts	FT	0.00			0	0	1	0	3	4	15	J	740.00	ox	cly	1	None	JBC
10.5	12.0	0.64	43	0.00	0	14	43	50	FT	pale blue to green	fine grained		moderately weathered, oxidized bedrock, lots of clasts	FT	0.00			0	0	1	0	3	4	15	Rub	100.0	FeO	cly	1	None	JBC
															0.12			0	1	3	5	3	12	15	J	5.0	Ox	cly	8	None	MF
12.0	13.5	0.98	65	0.00	0	14	65	50	FT	pale blue to green	fine grained		moderately weathered, oxidized bedrock, lots of clasts	FT	0.00			0	0	1	0	3	4	15	Rub	100.0	FeO	cly	1	None	JBC
															0.12			0	3	3	5	3	14	15	J	1.0	Ox		8	None	MF
13.5	15.0	1.28	85	0.55	37	21	58	50	FT	pale grey to cream	fine grained		lots of fractures, moderately weathered	FT	0.40	25	340	0	0	1	Hard > 5mm	3	9	15	J	10.0	FeO	cly	1	F	JBC
									FT					FT	0.80	20	140	0	1	3	Hard > 5mm	3	12	15	J	5.0	FeO	cly	1	F	JBC
									FT					FT	1.10	40	65	0	4	1	Hard > 5mm	3	13	15	J	1.0	FeO	cly	1	F	JBC
15.0	16.5	1.35	90	0.24	16	18	71	50	FT	pale grey to cream	fine grained		lots of fractures, moderately weathered	FT	0.65	25	45	0	4	3	Hard > 5mm	3	15	15	J	1.0	FeO	cly	1	F	JBC
									FT					FT	0.85	10	270	0	0	3	Hard > 5mm	3	11	15	J	11.0	FeO	cly	1	F	JBC
									FT					FT	1.20	12	260	0	0	3	Hard > 5mm	3	11	15	J	10.0	FeO	cly	1	F	JBC
									FT					FT	1.30	50	350	0	0	3	Hard > 5mm	3	11	15	J	10.0	FeO	cly	1	F	JBC
16.5	18.0	1.38	92	0.63	42	25	53	50	FT	pale blue to cream white	fine grained		moderately weathered and oxidize at joints, weak	FT	0.00			0	0	3	Hard > 5mm	3	9	15	J	10.0	FeO	cly	25	None	JBC
18.0	19.5	1.36	91	0.00	0	30	44	50	FT	pale blue to cream white	fine grained		moderately weathered and oxidize at joints, weak	FT	0.00			0	0	3	Hard > 5mm	3	9	15	J	10.0	FeO	cly	30	None	JBC
19.5	20.9	1.39	99	0.23	16	24	56	50	FT	pale blue to cream white	fine grained		lots of calcite blebs, moderately weathered	FT	1.40	24	140	0	0	1	Soft < 5mm	3	6	15	J	10.0	cly	FeO	1	F	JBC
									FT						1.45	40	90	0	0	1	Soft < 5mm	3	6	15	J	10.0	cly	FeO	1	F	JBC
20.9	22.5	1.52	95	0.14	9	17	84	50	FT	pale blue to cream white	fine grained		lots of calcite blebs, moderately, lots of micro fractures	FT	0.00			0	0	1	2	3	6	15	J	10.0	cly	FeO	17	None	JBC
22.5	23.6	1.05	95	0.00	0	25	40	50	FT	pale blue to cream white	fine grained		lots of calcite blebs, moderately, lots of micro fractures	FT	0.00			0	0	1	2	3	6	15	J	10.0	cly	FeO	25	None	JBC
23.6	25.3	1.30	76	0.30	18	19	65	50	FT	pale blue to cream white	fine grained		lots of calcite blebs, moderately, lots of micro fractures	FT	0.00			0	0	1	2	3	6	15	J	10.0	cly	FeO	19	None	JBC
25.3	27.0	1.45	85	0.00	0	Max	5	25	FT	pale blue to cream white	fine grained		micro fractured, very weak clay infilled, moderately weathered	FT	0.00			0	0	1	2	3	6	15	J	1450.0	cly	FeO	1	None	JBC
27.0	27.5	0.50	100	0.00	0	25	19	25	FT	pale blue to cream white	fine grained		highly fractured, brecciated clayey white matrix with angular up to 5 cm clasts	FT	0.15	50	310	0	0	1	0	3	4	15	J	20.0	cly	FeO	1	VG	JBC
									FT					FT	0.35	35	45	0	0	1	0	3	4	15	J	20.0	cly	FeO	1	VG	JBC
									FT					FT	0.49	75	0	0	0	1	0	3	4	15	J	20.0	cly	FeO	1	VG	JBC
27.5	28.5	1.00	100	0.74	74	5	167	75	FT	light grey to white	porphyritic		with black (up to 3mm) phenocrysts, fresh to slightly weathered at joints	AND	0.30	18	50	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	JBC
									FT					AND	0.32	15	45	0	4	1	2	5	12	15	J	1.0	cly	FeO	1	VG	JBC
									FT					AND	0.50	50	60	0	4	1	2	5	12	15	J	1.0	cly	FeO	1	VG	JBC
									FT					AND	0.70	60	60	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	JBC
									FT					AND	0.85	10	130	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
28.5	30.0	1.50	100	0.67	45	7	188	50	FT	light grey to white	porphyritic		weaker rock at 29.00 m, more fractured	AND	0.10	65	290	0	4	3	Hard < 5mm	5	16	15	J	1.0	FeO		1	VG	JBC
									FT					AND	0.30	70	120	0	4	3	Hard < 5mm	5	16	15	J	1.0	FeO		1	VG	JBC
									FT					AND	0.45	75	260	0	4	1	Hard < 5mm	5	14	15	J	1.0	FeO	cly	1	VG	JBC
									FT					AND	0.50	25	60	0	4	3	Hard < 5mm	5	16	15	J	1.0	FeO	cly	1	VG	JBC
									FT					AND	0.65	40	340	0	4	1	Hard < 5mm	5	14	15	J	1.0	FeO	cly	1	VG	JBC
									FT					AND	0.80	35	120	0	4	3	Soft < 5mm	5	14	15	J	1.0	cly		1	VG	JBC
									FT					AND	1.05	10	220	0	4	3	Soft < 5mm	5	14	15	J	1.0	cly		1	VG	JBC
30.0	31.5	1.01	67	0.57	38	12	78	50	FT	pale blue to grey	fine grained		slightly weathered at joints, clay seam at 0.95 m to the end of the run	AND	0.00			0	4	1	2	5	12	15	J	1.0	FeO	cly	12	None	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
31.5	32.6	1.02	93	0.00	0	25	39	25	FT	pale grey to white	fine grained		with black (up to 2mm) phenocrysts) slightly weathered, lots of micro fractures, rubbly gougey zones at 0.5m to 0.6m and then at 0.9m to 1.02m	AND	0.00			0	0	1	0	3	4	15	F	10.0	Rub	cly	1	None	JBC
32.6	34.2	1.10	69	0.12	7	39	28	25	FT	pale grey to white	fine grained		rubbly gouge zone continued to 0.30m, highly fractured, with black 2mm phenocrysts until 1.05m, then 1.05m to 1.10m is broken gouge material	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	FeO	39	None	JBC
34.2	35.7	1.50	100	0.52	35	18	79	50	FT	pale grey to white	fine grained		slightly fractured/weathered	AND	0.10	65	320	0	4	1	2	5	12	15	J	1.0	cly	gg	7	F	JBC
									FT					AND	0.15	50	350	0	4	1	2	5	12	15	J	1.0	cly	gg	1	F	JBC
									FT					AND	0.20	34	180	0	4	1	2	5	12	15	J	1.0	cly	gg	1	F	JBC
									FT					AND	0.40	48	90	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									FT					AND	0.80	62	325	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									FT					AND	1.00	15	165	0	4	3	6	5	18	15	J	1.0	nil		1	F	JBC
									FT					AND	1.30	40	290	0	4	3	6	3	16	15	J	1.0	nil		1	F	JBC
									FT					AND	1.40	25	180	0	4	3	2	3	12	15	J	1.0	cly	gg	5	F	JBC
35.7	37.0	1.07	82	0.33	25	15	67	10	FT	pale grey to white	fine grained		with black phenocrysts, clayey gougey zone at 0.40m to 0.50m, slightly fractured run	AND	0.00			0	4	3	2	5	14	15	J	1.0	cc		14	None	JBC
															0.40			0	0	1	0	3	4	15	J	50.0	Rub	cc	1	None	MF
37.0	38.6	1.55	97	0.32	20	20	74	25	FT	pale grey to white	fine grained		highly micro fractured, end piece is clayey gouge crumbly	AND	0.00			0	4	3	2	5	14	15	J	19.0	cc		9	None	MF
															0.40			0	0	1	0	3	4	15	Rub	50.0	Rub	cc	1	None	JBC
38.6	40.1	1.50	100	0.77	51	20	71	16	VC	pale grey to white	fine grained		highly micro fractured, very weak	AND	0.00			0	4	3	2	5	14	15	J	1.0	cc		18	None	MF
															0.40			0	1	1	0	4	6	15	Rub	100.0	Rub	cc	2	None	JBC
40.1	41.6	1.46	97	0.20	13	max	5	25	VC	pale grey to white	fine grained		highly micro fractured, very weak	AND	0.00			0	4	3	5	5	17	15	J	1.0			20	None	MF
															1.00			0	1	1	0	4	6	15	Rub	500.0	Rub	cc	1	None	JBC
41.6	43.3	1.37	81	0.00	0	Max	5	20	VC	pale grey to white	fine grained		highly altered, fractured, very weak, easily peeled by hand	AND	0.00			0	0	1	0	3	4	15	F	1370.0	gg	cly	1	None	JBC
43.3	44.6	1.00	77	0.29	22	20	48	25	VC	pale white cream	fine grained		with black phenocrysts, highly fractured, w	AND	0.00			0	1	1	0	4	6	15	J	500.0	cly	gg	1	None	JBC
															0.00			0	4	3	2	5	14	15	J	1.0	cly		19	None	MF
44.6	46.1	1.50	100	0.85	57	5	250	75	VC	pale white "faded" cream	fine grained		slightly fractured, fresh rock to slightly weathered	FLT	0.15	32	210	0	0	3	2	5	10	15	J	30.0	cly	cc	1	G	JBC
									VC					FLPT	0.35	30	50	0	4	3	2	5	14	15	J	1.0	cly	cc	1	G	JBC
									VC					FLPT	0.55	26	250	0	4	1	2	5	12	15	J	1.0	cly	cc	1	G	JBC
									VC					FLPT	0.90	30	80	0	4	1	2	5	12	15	J	1.0	cly	cc	1	G	JBC
									VC					FLPT	1.35	20	65	0	4	3	2	5	14	15	J	1.0	cly	cc	1	G	JBC
46.1	47.7	1.58	99	0.86	54	5	263	100	VC	pale white to greyish green	fine grained		fresh, laminated, hard to scratch, some banding green to white texture	FLPT	0.70	75	45	0	1	3	2	5	11	15	J	15.0	cc	cly	5	G	JBC
									VC					FLPT	1.00	15	170	0	1	3	2	5	11	15	J	15.0	cc	cly	1	G	JBC
47.7	49.2	1.50	100	0.71	47	18	79	75	VC	pale white to greyish green	fine grained		fresh, laminated, hard to scratch, some banding green to white texture, slightly altered and weathered	FLPT	0.00			0	1	3	2	5	11	15	J	10.0	cc	cly	18	F	JBC
49.2	51.0	1.54	86	0.63	35	19	77	75	VC	pale white to greyish green	fine grained		fresh, laminated, hard to scratch, some banding green to white texture, slightly altered and weathered, rubble zones at .30 to .40m and at 1.10m to 1.20m	FLPT	0.10	20	90	0	0	1	0	3	4	15	J	20.0	cly	Rub	2	F	JBC
									VC					FLPT	0.20	35	40	0	0	3	0	3	6	15	Rub	10.0	cly	Rub	10	F	JBC
									VC					FLPT	0.45	5	65	0	0	3	2	5	10	15	J	30.0	cly	Rub	2	F	JBC
									VC					FLPT	0.55	30	190	0	1	3	2	5	11	15	J	10.0	cly		1	F	JBC
									VC					FLPT	0.80	50	320	0	0	1	0	5	6	15	J	10.0	cly		1	F	JBC
									VC					FLPT	1.00	40	330	0	0	1	0	5	6	15	J	10.0	cly		1	F	JBC
									VC					FLPT	1.14	60	330	0	0	1	0	3	4	15	Rub	50.0	Rub	cly	1	F	JBC
									VC					FLPT	1.20	75	25	0	0	1	0	3	4	15	Rub	50.0	Rub	cly	1	F	JBC
51.0	52.5	1.47	98	0.84	56	7	184	100	VC	pale grey to white	fine grained		some black phenocrysts	FLPT	0.25	30	310	0	0	3	0	5	8	15	J	10.0	cc		1	VG	JBC
									VC					FLPT	0.26	40	300	0	0	3	0	5	8	15	J	10.0	cc	cly	1	VG	JBC
									VC					FLPT	0.75	78	340	0	1	1	2	5	9	15	J	5.0	cc	cly	1	VG	JBC
									VC					FLPT	0.85	25	20	0	4	1	6	5	16	15	J	1.0			1	VG	JBC
									VC					FLPT	0.95	50	115	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	JBC
									VC					FLPT	1.36	30	85	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					FLPT	1.45	20	310	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
52.5	54.0	1.50	100	1.08	72	9	150	100	VC	pale grey to white	fine grained		some black phenocrysts	FLPT	0.18	7	210	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					FLPT	0.25	60	20	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					FLPT	0.55	52	230	0	1	3	2	5	11	15	J	4.0	cly		1	VG	JBC
									VC					FLPT	0.60	38	225	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																	Joint Condition						Water							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					FLPT	1.03	25	300	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
									VC					FLPT	1.35	35	280	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
									VC					FLPT	1.46	25	340	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
									VC					FLPT	1.48	35	100	0	4	3	2	5	14	15	J	1.0	cly	cc	1	VG	JBC
									VC					FLPT	1.49	25	300	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
54.0	55.5	1.43	95	0.62	41	10	130	75	VC	pale grey to white	fine grained		with black stringers and phenocrysts	FLPT	0.00			0	4	3	2	5	14	15	J	1.0	cly	py	10	None	JBC
55.5	57.0	1.50	100	1.46	97	4	300	125	VC	pale grey to green	fine grained		lots of black minerals as strings, blebs and prismatic , strong run	FT	0.60	30	60	0	0	3	3	5	11	15	J	10.0	py		1	F	JBC
									VC					FT	1.00	35	170	0	6	1	4	5	16	15	VN	0.1	py		1	F	JBC
									VC					FT	1.30	25	0	0	6	1	3	5	15	15	VN	0.1	py		1	F	JBC
									VC					FT	1.55	25	10	0	0	1	0	5	6	15	J	10.0	cly	gg	1	F	JBC
57.0	58.5	1.46	97	1.36	91	3	365	50	VC	pale grey to green	fine grained		lots of black minerals as strings, blebs and prismatic , strong run	FT	0.00	19	340	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					FT	1.14	58	90	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					FT	1.24	34	155	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
58.5	60.0	1.50	100	1.39	93	5	250	50	VC	pale grey to green	fine grained		lots of black minerals as strings, blebs and prismatic , strong run	FT	0.41	35	230	0	0	1	0	5	6	15	F	30.0	cly		1	F	SRM
									VC					FT	0.60	74	320	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					FT	0.64	56	200	0	0	1	0	5	6	15	F	30.0	cly		1	F	SRM
									VC					FT	0.69	47	160	0	4	1	2	6	13	15	J	1.0	cly		1	F	SRM
									VC					FT	1.21	37	0	0	5	1	6	5	17	15	J	0.1			1	F	SRM
									VC					FT	1.45	72	180	0	2	0	0	5	7	15	J	20.0	cly		1	F	SRM
60.0	61.5	1.42	95	0.75	50	9	142	50	VC	pale grey to green	fine grained		lots of black minerals as strings, blebs and prismatic , strong run	FT	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					FT	0.20			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					FT	0.28			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					FT	0.45			0	0	1	0	5	6	15	J	20.0	cc		1	None	SRM
									VC					FT	0.62			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					FT	0.69			0	1	1	2	5	9	15	J	5.0	Rub	cly	1	None	SRM
									VC					FT	0.83			0	1	1	2	5	9	15	J	5.0	Rub	cly	1	None	SRM
									VC					FT	0.90			0	0	1	0	5	6	15	J	10.0	Rub		1	None	SRM
									VC					FT	1.28			0	4	1	6	6	17	15	J	1.0			1	None	SRM
61.5	62.0	0.48	100	0.20	42	4	96	50	VC	pale grey to green	fine grained		lots of black minerals as strings, blebs and prismatic , strong run	FT	0.10	18	290	0	1	1	2	5	9	15	J	5.0	cc		1	None	SRM
									VC					FT	0.28	21	200	0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					FT	0.38	60	70	0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					FT	0.48	50	120	0	0	1	0	5	6	15	Rub	200.0	Rub	gg	1	None	SRM
62.0	63.0	1.00	98	0.00	0	Max	5	50	VC	pale grey to green	fine grained		broken micro fractured gouge	FT	0.00			0	4	1	2	5	12	15	J	1000.0	Rub		1	None	SRM
63.0	63.5	0.50	100	0.20	40	4	100	50	VC	pale grey to green	fine grained		broken micro fractured gouge	FT	0.00			0	4	5	2	5	16	15	J	1.0	cc	Rub	1	None	SRM
									VC					FT	0.14			0	4	1	2	5	12	15	J	1.0	cly	Rub	1	None	SRM
									VC					FT	0.26			0	4	1	2	5	12	15	J	30.0	gg	Rub	1	None	SRM
									VC					FT	0.50			0	0	1	0	5	6	15	J	50.0	Rub		1	None	SRM
63.5	63.9	0.40	100	0.00	0	Max	5	50	VC	pale grey to green	fine grained		broken micro fractured gouge	FT	0.00			0	0	5	2	5	12	15	J	400.0	Rub		1	None	SRM
63.9	64.5	0.60	100	0.25	42	7	75	50	VC	pale grey to green	fine grained		broken micro fractured gouge	FT	0.00			0	4	5	2	5	16	15	J	1.0	cc		1	None	SRM
									VC					FT	0.10			0	4	1	Hard < 5mm	5	14	15	J	1.0	Rub		1	None	SRM
									VC					FT	0.30			0	4	1	Hard < 5mm	5	14	15	J	5.0	Rub		1	None	SRM
									VC					FT	0.43			0	1	1	Hard < 5mm	5	11	15	J	5.0	Rub		1	None	SRM
									VC					FT	0.46			0	1	1	Hard < 5mm	5	11	15	J	5.0	Rub		1	None	SRM
									VC					FT	0.49			0	1	1	2	5	9	15	J	1.0	cc		1	None	SRM
									VC					FT	0.50			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
64.5	64.8	0.30	100	0.00	0	Max	5	50	VC	pale grey to green	fine grained		broken micro fractured gouge	FT	0.00			0	0	1	2	5	8	15	J	300.0	Rub	Cly	1	None	SRM
64.8	66.0	1.20	100	0.00	0	4	240	50	AND	dark grey	fine grained			AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.20			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.36			0	0	1	2	5	8	15	J	30.0	cc		1	None	SRM
									AND					AND	1.13			0	0	1	Hard > 5mm	5	9	15	J	30.0	Rub	Cly	1	None	SRM
66.0	66.1	0.12	100	0.00	0	Max	5	50	AND	dark grey	fine grained		rubble, breccia	AND	0.00			0	0	3	0	5	8	15	J	120.0	Rub		1	F	SRM
66.1	67.5	1.38	99	1.08	77	7	173	125	AND	dark grey	fine grained		rubble, breccia	AND	0.00	47	340	0	0	3	0	3	6	15	J	20.0	gg		1	F	SRM
									AND					AND	0.13	50	340	0	0	1	0	5	6	15	J	50.0	gg		1	F	SRM
									AND					AND	0.52	30	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.72	20	90	0	4	1	2	5	12	15	J	0.1	cly		1	F	SRM
									AND					AND	0.92	28	200	0	4	1	6	6	17	15	J	1.0	cly		1	F	SRM
									AND					AND	1.06	30	240	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									AND					AND	1.16	72	140	0	5	1	2	5	13	15	J	1.0	cly		1	F	SRM
67.5	69.0	1.50	100	1.50	100	5	250	125	AND	dark grey	fine grained		rubble, breccia	AND	0.30	47	130	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.68	44	140	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.90	29	355	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.22	45	165	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.47	39	50	0	4	1	Hard > 5mm	5	13	15	J	1.0	Rub		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
69.0	69.9	0.90	100	0.00	0	7	113	125	AND	dark grey	fine grained		micro fractured	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		7	None	SRM
69.9	70.1	0.20	100	0.00	0	Max	5	100	AND	dark grey	fine grained		fractured and micro fractured	AND	0.00			0	4	1	2	5	12	15	J	200.0	cly		1	None	SRM
70.1	70.5	0.40	100	0.00	0	7	50	125	AND	dark grey	fine grained		micro fractured	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		7	None	MF
70.5	71.2	0.60	86	0.00	0	8	67	100	AND	dark grey	fine grained		fractured and micro fractured	AND	0.00			0	4	1	2	5	12	15	J	5.0	cly		8	None	SRM
									AND					AND	0.07			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.15			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.21			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.28			0	0	1	0	3	4	15	F	30.0	gg		1	None	SRM
									AND					AND	0.33			0	0	1	0	3	4	15	F	40.0	gg		1	None	SRM
									AND					AND	0.41			0	0	1	0	3	4	15	F	50.0	gg		1	None	SRM
									AND					AND	0.67			0	1	1	2	5	9	15	J	5.0	cly	Rub	1	None	SRM
71.2	72.0	0.80	100	0.00	0	10	73	25	VC	pale green	fine grained		micro fractured, clay infill	FLT	0.00			0	0	1	0	3	4	15	F	800.0	cly	Rub	1	None	SRM
72.0	73.5	1.50	100	0.40	27	20	71	25	VC	pale green	fine grained		micro fractured, clay infill	FLT	0.00			0	0	3	2	5	10	15	J	5.0	cly	Rub	20	None	SRM
73.5	75.0	1.50	100	1.12	75	6	214	150	VC	pale green	fine grained		micro fractured, clay infill	FLT	0.00	50	70	0	1	3	2	3	11	15	J	5.0	cly	Rub	6	VG	SRM
									VC					FLT	0.38	20	10	0	0	1	0	5	6	15	J	40.0	cly		1	VG	SRM
									VC					FLT	0.48	49	130	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.66	60	110	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.73	27	20	0	4	1	2	3	10	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.77	83	190	0	4	1	2	3	10	15	J	1.0	cly		1	VG	SRM
75.0	76.5	1.49	99	0.40	27	14	99	150	VC	pale green	fine grained		micro fractured, clay infill	FLT	0.10	30	10	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.10	40	50	0	0	3	0	5	8	15	J	20.0	cly		1	VG	SRM
									VC					FLT	0.15	32	340	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.20	32	10	0	1	1	2	5	9	15	J	5.0	cly		1	VG	SRM
									VC					FLT	0.27	20	10	0	0	1	0	5	6	15	J	30.0	cly		1	VG	SRM
									VC					FLT	0.30	78	110	0	1	3	2	5	11	15	J	5.0	cly		1	VG	SRM
									VC					FLT	0.50	70	250	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.60	37	20	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					FLT	0.88	31	50	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					FLT	1.00	20	190	0	1	1	0	3	5	15	J	10.0	cly		1	VG	SRM
									VC					FLT	1.20	44	100	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	1.28	60	60	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									VC					FLT	1.48	60	170	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					FLT	1.48	15	240	0	4	1	2	3	10	15	J	1.0	cly		1	VG	SRM
76.5	77.3	0.80	100	0.00	0	6	114	150	VC	pale green	fine grained		micro fractured, clay infill	FLT	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.20			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.47			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.54			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.59			0	1	1	2	5	9	15	J	5.0	cly	Rub	1	None	SRM
									VC					FLT	0.80			0	0	1	0	3	6	15	J	40.0	gg	cly	1	None	SRM
77.3	78.0	0.70	100	0.00	0	10	64	25	VC	pale green	fine grained		micro fractured, clay and gouge infill	FLT	0.00			0	0	1	0	3	4	15	F	700.0	Rub	cly	1	None	SRM
78.0	79.5	1.50	100	0.40	27	Max	5	25	VC	pale green	fine grained		micro fractured, clay and gouge infill	FLT	0.00			0	0	1	0	3	4	15	F	1500.0	Rub	cly	1	None	SRM
79.5	80.0	0.50	100	0.43	86	3	125	100	VC	pale green	fine grained		micro fractured, clay infill	FLT	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.26			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.40			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
80.0	81.0	1.00	100	0.00	0	Max	5	25	VC	pale green	fine grained		micro fractured, rubble zone	FLT	0.00			0	4	1	Hard > 5mm	5	13	15	J	1000.0	Rub		1	None	SRM
81.0	82.5	1.47	98	0.60	40	8	163	25	VC	pale green	fine grained		micro fractured, clay and gouge infill	FLT	0.14			0	4	3	Hard < 5mm	5	16	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.44			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.49			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.78			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	0.78			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					FLT	1.42			0	4	3	2	3	12	15	J	1.0	cly		1	None	SRM
									VC					FLT	1.43			0	4	3	2	3	12	15	J	1.0	cly		1	None	SRM
									VC					FLT	1.43			0	4	3	2	3	12	15	J	1.0	cly		1	None	SRM
82.5	84.0	1.50	100	0.10	7	20	71	25	VC	pale green	fine grained		epiclastic, highly fractured and micro fractured, crumbles in hand, with clay and gouge infill	FLT	0.00			0	0	1	0	3	4	15	F	100.00	Rub		3	None	SRM
															0.00			0	4	3	2	5	14	15	J	1.0	Cly		17	None	MF
84.0	85.5	0.23	15	0.13	9	25	9	25	VC	pale green	fine grained		epiclastic, highly fractured with clay infill	FLT	0.00			0	4	3	2	4	13	15	J	1.00	Cly		1	None	SRM
85.5	87.0	1.50	100	1.25	83	8	167	50	VC	pale green	fine grained		epiclastic	FLT	0.00	41	200	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					FLT	0.38	14	0	0	4	3	2	5	14	15	J	1.0	cly	py	1	F	SRM
									VC					FLT	0.46	55	200	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					FLT	0.81	54	270	0	6	3	2	5	16	15	J	0.1	cly		1	F	SRM
									VC					FLT	0.93	50	350	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					FLT	1.14	47	60	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					FLT	1.39	32	20	0	4	3	2	3	12	15	J	1.0	cly		1	F	SRM
									VC					FLT	1.50	20	20	0	4	3	2	3	12	15	J	1.0	cly		1	F	SRM
87.0	87.4	0.40	100	0.13	32	4	80	50	VC	dark grey	fine grained		epiclastic	AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.20			0	4	3	6	6	19	15	J	1.0	cly		1	None	SRM
									VC					AND	0.40			0	4	3	2	3	12	15	J	1.0	cly	Rub	1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
87.4	88.5	1.10	100	0.00	0	8	122	50	VC	dark grey	fine grained			AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.26			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.30			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.66			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.70			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.98			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.99			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	1.00			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
88.5	90.0	1.50	100	1.39	93	5	250	100	VC	dark grey	fine grained		breccia	AND	0.23			0	4	3	2	5	14	15	J	1.0	cly	cc	1	None	SRM
									VC					AND	0.43			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					AND	1.24			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	1.34			0	4	3	6	6	19	15	J	1.0			1	None	SRM
									VC					AND	1.44			0	0	3	Hard > 5mm	5	11	15	Rub	10.0	Rub	cly	1	None	SRM
90.0	91.5	1.48	99	0.76	51	13	106	100	VC	dark grey	fine grained		breccia	AND	0.00	26	10	0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					AND	0.13	70	190	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									VC					AND	0.24	59	140	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									VC					AND	0.44	43	40	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					AND	0.49	44	70	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					AND	0.60	46	290	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					AND	0.78	74	340	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					AND	0.96	34	50	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					AND	0.99	55	140	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					AND	1.02	42	190	0	4	3	Hard > 5mm	3	13	15	J	1.0	Rub	cly	1	VG	SRM
									VC					AND	1.07	45	20	0	4	3	Hard > 5mm	3	13	15	J	1.0	Rub	cly	1	VG	SRM
									VC					AND	1.07	36	180	0	4	3	Hard > 5mm	3	13	15	J	1.0	Rub	cly	1	VG	SRM
									VC					AND	1.15	47	175	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
91.5	93.0	1.50	100	1.28	85	6	214	100	VC	dark grey	fine grained		breccia	AND	0.00	62	250	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					AND	0.71	62	70	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					AND	0.97	57	250	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					AND	1.20	36	100	0	0	1	0	3	4	15	Rub	10.0	Rub	cly	1	VG	SRM
									VC					AND	1.30	25	100	0	4	3	6	5	18	15	J	1.0			1	VG	SRM
									VC					AND	1.40	34	100	0	4	1	6	5	16	15	J	1.0			1	VG	SRM
93.0	94.5	1.50	100	1.06	71	5	250	100	VC	dark grey to light black	fine grained, equigranular		brecciated, lots of angular clasts	AND	0.64	35	70	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	F	JBC
									VC					AND	0.75	25	80	0	0	3	0	5	8	15	J	20.0	cly	Rub	1	F	JBC
									VC					AND	0.94	55	45	0	1	1	0	5	7	15	J	5.0	cly	py	1	F	JBC
									VC					AND	1.26	37	50	0	1	3	0	5	9	15	J	5.0	cly		1	F	JBC
									VC					AND	1.50	48	235	0	1	1	0	5	7	15	J	5.0	cly		1	F	JBC
94.5	96.1	1.50	94	0.11	7	20	71	50	VC	dark grey to light black	fine grained, equigranular		brecciated, weak run	AND	0.15	45	40	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									VC					AND	0.17	43	0	0	1	3	0	3	7	15	J	5.0	cly		1	F	JBC
									VC					AND	0.55	45	30	0	4	5	2	5	16	15	J	1.0	cly		1	F	JBC
									VC					AND	1.05	14	100	0	1	1	0	3	5	15	J	5.0	cly		1	F	JBC
									VC					AND	1.20	58	35	0	4	3	2	5	14	15	J	0.1	cly	cc	1	F	JBC
									VC					AND	1.40	40	355	0	1	1	0	3	5	15	Rub	5.0	cly	Rub	1	F	JBC
									VC					AND	1.44	45	30	0	0	1	0	3	4	15	Rub	10.0	cly	Rub	1	F	JBC
96.1	97.4	0.83	64	0.00	0	Max	5	20	VC	dark grey to light black	fine grained, equigranular		brecciated, lots of angular clasts	AND	0.00			0	0	1	0	3	4	15	Rub	830.0	Rub	Cly	1	None	JBC
97.4	98.1	0.30	43	0.00	0	15	19	20	VC	dark grey to light black	fine grained, equigranular		brecciated, lots of angular clasts	AND	0.00			0	0	0	1	3	4	15	Rub	5.0	Rub	Cly	1	None	JBC
98.1	99.0	0.77	86	0.00	0	30	25	20	VC	dark grey to light black	fine grained, equigranular		brecciated, lots of angular clasts	AND	0.00			0	0	5	0	3	8	15	Rub	10.0	cly	Rub	1	None	JBC
99.0	99.7	0.30	43	0.00	0	25	12	20	VC	dark grey to light black	fine grained, equigranular		brecciated, very rubbly and blocked run	AND	0.00			0	0	1	0	3	4	15	J	10.0	cly	Rub	25	None	JBC
99.7	100.5	0.80	100	0.00	0	33	24	25	VC	pale green	fine grained		rubbly and broken, tuffwith black specs, 1 cm clay seam at 0.30m	FT	0.35	50	30	0	0	1	0	3	4	15	Rub	10.0	Rub	cly	1	F	JBC
									VC					FT	0.55	55	75	0	1 - 5	1	Soft < 5mm	5	9	15	J	5.0	cly		1	F	JBC
									VC					FT	0.65	60	70	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									VC					FT	0.76	52	60	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									VC					FT	0.88	40	65	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									VC					FT	0.90	42	70	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									VC					FT	1.00	48	70	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
100.5	102.0	1.43	95	0.00	0	Max	5	50	VC	pale green to grey	fine grained		micro fractured, highly altered	FT	0.00			0	0	1	0	3	4	15	F	1430.0	cc	cly	1	None	JBC
102.0	103.5	1.23	82	0.00	0	Max	5	50	VC	pale green to grey	fine grained		micro fractured, highly altered	FT	0.00			0	0	1	0	3	4	15	F	1230.0	cc	cly	1	None	JBC
103.5	104.9	1.40	100	0.48	34	12	108	50	VC	pale green to grey	fine grained		micro fractured, highly altered	FT	0.15	18	20	0	1	3	0	3	7	15	J	100.0	gg	Rub	1	VG	JBC
									VC					FT	0.40	22	30	0	1	3	6	5	15	15	J	5.0			1	VG	JBC
									VC					FT	0.47	51	35	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					FT	0.52	10	330	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					FT	0.63	28	345	0	1	3	2	5	11	15	J	1.0	cly		1	VG	JBC
									VC					FT	0.88	54	230	0	1	3	2	5	11	15	J	1.0	cly		1	VG	JBC
									VC					FT	0.91	15	40	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					FT	1.05	18	200	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					FT	1.11	30	330	0	1	3	2	3	9	15	J	5.0	cly		1	VG	JBC
104.9	106.3	1.40	100	1.22	87	4	280	100	VC	pale green to grey	fine grained		highly fractured, some pyrite infill	FT	0.35	75	310	0	1	3	6	5	15	15	J	1.0	cly		1	VG	JBC
									VC					FT	0.74	30	110	0	1	3	4	5	13	15	J	5.0	py		1	VG	JBC
									VC					FT	1.27	35	110	0	0.1 - 1.0	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					FT	1.38	45	160	0	0	3	0	5	8	15	J	20.0	cly		1	VG	JBC
106.3	107.5	1.15	100	0.35	30	7	144	75	VC	pale green to grey	fine grained		slightly fractured	FT	0.15	43	200	0	0	3	0	5	8	15	J	10.0	cc	cly	1	P	JBC
									VC					FT	0.25	49	195	0	0	3	0	5	8	15	J	20.0	cc		1	P	JBC
									VC					FT	0.49	61	290	0	1	3	2	5	11	15	J	5.0	cly		1	P	JBC
									VC					FT	0.59	60	20	0	4	1	4	5	14	15	J	1.0	cly	py	1	P	JBC
									VC					FT	0.78	39	270	0	4	3	4	5	16	15	J	1.0	py		1	P	JBC
									VC					FT	0.87	35	330	0	6	1	0	5	12	15	J	0.1	cly	py	1	P	JBC
									VC					FT	1.00	30	50	0	0	3	0	5	8	15	J	10.0	cly	gg	1	P	JBC
107.5	107.9	0.38	84	0.00	0	Max	5	1	VC	black to brown	fine grained		very soft, easily peeled material gouge with angular black rock pieces	FT	0.00			0	0	1	0	3	4	15	F	380.00	Rub	Cly	1	None	JBC
107.9	109.4	0.60	40	0.00	0	Max	5	1	VC	pale green to grey	fine grained		highly fractured, fault zone, weak	FT	0.00			0	0	1	0	3	4	15	F	600.00	Rub	Cly	1	None	JBC
109.4	109.7	0.30	100	0.00	0	Max	5	0.25	VC	pale green to grey	fine grained		end of fault zone, from 107.45 to 109.7	FT	0.00			0	0	1	0	3	4	15	F	299.00	cly	Rub	1	None	JBC
109.7	111.0	1.18	91	0.20	15	14	79	25	VC	pale green to grey	fine grained		moderately fractured, pyrite and clay infill	FT	0.45			0	0.1 - 1.0	1	4	5	14	15	J	1.0	py		13	None	JBC
									VC					FT	1.00			0	0	3	0	3	6	15	J	10.0	cly	Rub	1	None	JBC
111.0	112.0	0.65	65	0.00	0	20	31	25	VC	pale green to grey	fine grained		moderately fractured	FT	0.00			0	0	3	0	3	6	15	Rub	10.0	cly	Rub	3	None	JBC
															0.00			0	3	3	2	5	13	15	J	1.0	cly		3	None	MF
112.0	112.4	0.40	100	0.00	0	15	25	25	VC	pale green to grey	fine grained		highly fractured, rubbly, with clay and gouge	FT	0.00			0	0	3	0	3	6	15	F	20.0	cly	Rub	15	None	JBC
112.4	113.6	1.20	100	0.13	11	13	86	50	VC	pale green to grey	fine grained		with some black phenocrysts could be sulphides	FT	0.17	40	350	0	4	1	2	5	12	15	J	1.0	cly	Rub	1	F	JBC
									VC					FT	0.23	38	10	0	1	3	0	5	9	15	J	5.0	cly		1	F	JBC
									VC					FT	0.35	55	150	0	1	1	0	5	7	15	J	5.0	cly		1	F	JBC
									VC					FT	0.45	52	170	0	1	3	0	5	9	15	J	5.0	cly		1	F	JBC
									VC					FT	0.50	28	140	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									VC					FT	0.58	35	175	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									VC					FT	0.68	51	18	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					FT	0.72	22	130	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
									VC					FT	0.86	29	90	0	1	1	2	5	9	15	J	5.0	cc	cly	1	F	JBC
									VC					FT	0.99	34	160	0	0	3	0	5	8	15	J	10.0	cc	cly	1	F	JBC
									VC					FT	1.05	60	320	0	1	1	6	5	13	15	J	5.0	nil		1	F	JBC
									VC					FT	1.10	35	18	0	1	3	6	5	15	15	J	5.0	nil		1	F	JBC
									VC					FT	1.10	70	230	0	1	3	2	5	11	15	J	5.0	cly	gg	1	F	JBC
113.6	114.5	0.88	98	0.28	31	7	110	50	VC	pale green to grey	fine grained		moderately fractured, weak	FT	0.30	22	140	0	0	1	0	5	6	15	J	10.0	cly	py	1	F	JBC
									VC					FT	0.45	20	165	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									VC					FT	0.50	28	170	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	JBC
									VC					FT	0.56	69	245	0	1	3	0	5	9	15	J	5.0	cly	gg	1	F	JBC
									VC					FT	0.73	40	130	0	1	3	0	5	9	15	Sh	25.0	cly	gg	1	F	JBC
									VC					FT	0.76	71	200	0	0	1	0	5	6	15	J	10.0	cly		1	F	JBC
									VC					FT	0.87	18	130	0	1	3	2	5	11	15	J	5.0	cly	py	1	F	JBC
114.5	114.9	0.36	100	0.18	50	4	72	25	VC	dark grey	fine grained		andesite breccia	AND	0.00			0	0	1	2	3	6	15	J	20.0	Rub	cly	1	F	JBC
									VC					AND	0.05			0	0	1	2	3	6	15	J	10.0	Rub	cly	1	F	JBC
									VC					AND	0.30			0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									VC					AND	0.66			0	4	3	2	3	12	15	J	1.0	cly		1	F	JBC
114.9	115.5	0.54	90	0.00	0	Max	5	5	VC	dark grey	fine grained		andesite breccia, highly fractured and broken with gouge and clay infill	AND	0.00			0	0	1	0	3	4	15	F	540.0	Rub		1	None	SRM
115.5	116.4	0.85	100	0.00	0	7	106	5	VC	dark grey	fine grained		andesite breccia, highly fractured and broken with gouge and clay infill	AND	0.00	79	180	0	1	5	6	6	18	15	J	5.0			1	F	SRM
									VC					AND	0.15	35	0	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					AND	0.23	33	240	0	0	3	0	3	6	15	Rub	10.0	gg		1	F	SRM
									VC					AND	0.53	35	90	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					AND	0.59	31	110	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					AND	0.65	60	130	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									VC					AND	0.79	45	320	0	4	3	2	5	14	15	J	1.0	gg		1	F	SRM
116.4	116.7	0.35	100	0.00	0	Max	5	5	VC	dark grey	fine grained		andesite breccia, highly fractured and broken with gouge and clay infill	AND	0.00			0	0	1	0	3	4	15	F	350.0	Rub		1	None	SRM
116.7	117.0	0.30	100	0.30	100	1	150	5	VC	dark grey	fine grained		andesite breccia, highly fractured and broken with gouge and clay infill	AND	0.10	38	350	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																	Joint Condition						Water							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
117.0	118.5	1.50	100	0.00	0	10	136	25	VC	dark grey	fine grained		andesite breccia, highly fractured and broken with gouge and clay infill	AND	0.15			0	0	1	0	3	4	15	J	60.0	cly		1	None	SRM
									VC					AND	0.32			0	4	3	2	5	14	15	J	1.0	Rub	gg	1	None	SRM
									VC					AND	0.45			0	4	3	6	6	19	15	J	1.0	cly		1	None	SRM
									VC					AND	0.53			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	0.56			0	4	3	6	6	19	15	J	1.0	cly		1	None	SRM
									VC					AND	0.81			0	4	3	2	3	12	15	J	1.0	cly		1	None	SRM
									VC					AND	0.98			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									VC					AND	1.15			0	4	3	2	3	12	15	J	1.0	gg		1	None	SRM
									VC					AND	1.41			0	1	3	2	3	9	15	J	5.0	gg		1	None	SRM
									VC					AND	1.48			0	1	3	2	3	9	15	J	5.0	gg		1	None	SRM
118.5	119.7	1.20	100	1.04	87	10	109	5	VC	dark grey	fine grained		andesite breccia, highly fractured and broken with gouge and clay infill	AND	0.07	78	150	0	0	3	2	5	10	15	J	10.0	gg		1	F	SRM
									VC					AND	0.45	43	150	0	4	1	2	5	12	15	J	10.0	gg		1	F	SRM
									VC					AND	1.06			0	4	3	2	3	12	15	J	10.0	cly		1	None	SRM
									VC					AND	1.20			0	0	1	0	3	4	15	F	200.0	gg		1	None	SRM
119.7	119.9	0.20	100	0.00	0	Max	5	5	VC	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	200.00	gg		1	None	SRM
119.9	120.0	0.10	99	0.10	99	1	50	5	VC	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	99.00	gg		1	None	SRM
120.0	121.5	1.15	77	0.00	0	Max	5	5	VC	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	1150.00	gg		1	None	SRM
121.5	123.0	0.42	28	0.00	0	Max	5	5	VC	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	420.00	gg		1	None	SRM
123.0	124.5	1.50	100	0.00	0	Max	5	5	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	1500.00	gg		1	None	SRM
124.5	125.4	0.00	0	0.00	0	8	0	25	AND	dark grey	fine grained		breccia, lots of micro fractures clay infill	AND	0.00			0	1	1	2	5	9	15	J	100.0	cly		1	None	SRM
									AND					AND	0.20			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.39			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.49			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.54			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.55			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.79			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.90			0	0	1	0	3	4	15	F	100.0	gg		1	None	SRM
125.4	125.7	0.25	100	0.00	0	Max	5	5	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	250.0	gg		1	None	SRM
125.7	126.0	0.35	100	0.00	0	2	117	25	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	4	3	2	5	14	15	J	100.0	cly		1	None	SRM
									AND					AND	0.34			0	1	1	2	5	9	15	J	100.0	Rub	cly	1	None	SRM
126.0	126.8	0.75	100	0.28	37	7	94	50	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.17			0	0	3	0	3	6	15	J	40.0	cly	Rub	1	None	SRM
									AND					AND	0.25			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.40			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.57			0	4	1	3	5	13	15	J	1.0	cly		1	None	SRM
									AND					AND	0.63			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.73			0	0	1	0	5	6	15	F	30.0	cly	gg	1	None	SRM
126.8	127.1	0.30	100	0.00	0	Max	5	5	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	300.0	gg	Rub	1	None	SRM
127.1	127.5	0.45	100	0.00	0	4	90	50	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00	39	200	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.10	18	120	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.24	72	50	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.35	36	230	0	4	3	2	3	12	15	J	1.0	cly	Rub	1	F	SRM
127.5	128.6	1.05	100	0.85	81	5	175	150	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00	50	225	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.50	47	100	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.60	54	330	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.90	20	60	0	0	1	0	5	6	15	J	10.0	gg	cly	1	F	SRM
									AND					AND	1.05	55	110	0	0	1	0	5	6	15	J	15.0	gg	cly	1	F	SRM
128.6	129.0	0.45	100	0.00	0	Max	5	5	AND	dark grey	fine grained		fault gouge, highly fractured rock	AND	0.00			0	0	1	0	3	4	15	F	450.0	Rub	gg	1	None	SRM
129.0	129.4	0.35	100	0.25	71	3	87	100	AND	dark grey	fine grained		breccia	AND	0.00	25	230	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.19	56	285	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.35	10	180	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
129.4	130.5	1.05	91	0.00	0	Max	5	5	AND	dark grey	fine grained		breccia	AND	0.00			0	0	1	0	3	4	15	F	1050.0	Rub	gg	1	None	SRM
130.5	130.8	0.25	98	0.00	0	4	50	5	AND	dark grey	fine grained		highly fractured	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.15			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.18			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.30			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
130.8	131.0	0.20	100	0.00	0	Max	5	5	AND	dark grey	fine grained		broken zone/ gouge	AND	0.00			0	0	1	0	3	4	15	F	199.00	gg	Rub	1	None	SRM
131.0	132.0	1.05	100	0.64	61	8	117	50	AND	dark grey	fine grained		broken zone/ gouge	AND	0.00			0	3	3	2	5	13	15	F	1050.00	gg	Rub	1	None	SRM
132.0	132.2	0.10	50	0.00	0	Max	5	50	AND	dark grey	fine grained		broken zone/ gouge	AND	0.00			0	0	1	0	3	4	15	F	100.00	gg	Rub	1	None	SRM
132.2	133.5	1.30	100	1.20	92	7	163	50	AND	dark grey	fine grained			AND	0.00	47	170	0	0	1	0	5	6	15	J	10.0	cly	gg	1	G	SRM
									AND					AND	0.17	76	180	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	G	SRM
									AND					AND	0.30	65	310	0	4	1	2	5	14	15	J	1.0	cly		1	G	SRM
									AND					AND	0.42	54	310	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									AND					AND	0.78	64	305	0	4	1	2	5	14	15	J	1.0	cly		1	G	SRM
									AND					AND	1.02	74	180	0	5	1	2	5	13	15	J	0.1	cly		1	G	SRM
									AND					AND	1.17	64	250	0	4	1	2	5	14	15	J	1.0	cly		1	G	SRM
133.5	134.4	0.90	100	0.90	100	2	300	100	AND	dark grey	fine grained			AND	0.00	58	210	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									AND					AND	0.90	21	125	0	0	1	0	3	4	15	F	40.0	gg	cly	1	G	SRM
134.4	134.8	0.40	100	0.00	0	Max	5	3	AND				fractured/ gouge	AND	0.00			0	0	1	0	3	4	15	F	400.0	gg	cly	1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
134.8	135.0	0.20	100	0.00	0	Max	5	75	AND	dark grey	fine grained			AND	0.00	6	140	0	4	1	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.12	68	340	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.18	74	50	0	4	1	2	5	14	15	J	1.0	cly		1	F	SRM
135.0	136.0	0.95	100	0.00	0	max	5	5	AND				fractured/gouge	AND	0.00			0	0	1	0	3	4	15	F	950.0	gg	cly	1	None	SRM
136.0	136.5	0.55	100	0.55	100	1	275	50	AND	dark grey	fine grained			AND	0.00	13	110	0	0	1	0	5	6	15	J	30.0	gg	Rub	1	F	SRM
136.5	137.9	1.40	100	0.58	41	9	140	150	AND	dark grey	fine grained			AND	0.16	45	325	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.57	64	220	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.59	60	160	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.73	10	130	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.85	78	330	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.87	42	190	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	1.12	35	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.21	49	160	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.33	7	130	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
137.9	138.0	0.10	100	0.00	0	Max	5	25	AND				rubble	AND	0.00			0	0	1	0	3	4	15	F	100.0	Rub	cly	1	None	SRM
138.0	139.5	1.45	97	1.25	83	6	207	150	AND	dark grey	fine grained			AND	0.00	18	140	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.37	70	120	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.51	56	140	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.30	41	330	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.30	31	170	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.40	55	100	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
139.5	140.4	0.88	100	0.40	45	8	98		AND	dark grey	fine grained			AND	0.08			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.13			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.26			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.29			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.37			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.55			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.78			0	5	1	2	5	13	15	J	0.1	cly		1	None	SRM
									AND					AND	0.87			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
140.4	141.0	0.55	89	0.00	0	Max	5	25	AND				fractured gouge	AND	0.00			0	0	1	0	3	4	15	J	550.0	gg	cly	1	None	JBC
141.0	141.7	0.70	100	0.52	74	7	87	75	AND	dark grey to blue	coarse grained		equigranular	MNZ	0.00			0	4	1	2	5	12	15	J	1.0	cly		7	None	JBC
141.7	142.5	0.65	81	0.00	0	Max	5	25	AND				fault gouge, with angular pieces of MNZ	MNZ	0.00			0	0	1	0	3	4	15	F	650.0	gg	Rub	1	None	JBC
142.5	144.0	1.50	100	0.23	15	10	136	25	AND	dark grey	coarse grained		shear zone breccia with angular pieces of monzonite, highly micro fractured, clayey matrix	MNZ	0.00			0	4	1	2	5	12	15	J	1.0	cly		9	None	JBC
															0.50	35	110	0	0	1	0	3	4	15	F	100.0	Rub	cly	1	F	JBC
144.0	144.3	0.27	100	0.27	100	1	135	100	AND	dark grey	medium to coarse grained		equigranular	MNZ	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	JBC
144.3	145.5	1.23	100	0.00	0	10	112	25	AND	dark grey	medium to coarse grained		highly micro fractured with some 1 cm gougey/rubbly zones	MNZ	0.05	55	240	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					MNZ	0.20	25	40	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.22	46	185	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					MNZ	0.30	45	230	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					MNZ	0.41	51	105	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.54	44	210	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.65	57	80	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.73	51	79	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.79	28	35	0	0	3	0	3	6	15	rub	10.0	cly	Rub	1	F	JBC
									AND					MNZ	0.96	48	58	0	0	3	0	3	6	15	rub	10.0	cly	Rub	1	F	JBC
145.5	146.9	1.25	89	0.14	10	15	78	50	AND	dark grey	medium to coarse grained		highly micro fractured	MNZ	0.00			0	0	1	0	3	4	15	J	10.0	cly	Rub	15	None	JBC
146.0	147.2	0.26	22	0.00	0	15	16	25	AND				rubble, clayey broken zone	MNZ	0.00			0	0	1	0	3	4	15	rub	10.0	cly	Rub	15	None	JBC
147.2	147.5	0.30	100	0.30	100	2	100	100	AND	dark grey	medium to coarse grained		equigranular	MNZ	0.00	40	105	0	4	1	2	5	12	15	J	1.0	cly	Rub	1	F	JBC
									AND					MNZ	0.30	85	275	0	0	0	0	3	3	15	F	10.0	cly	Rub	1	F	JBC
147.6	147.9	0.30	100	0.00	0	12	23	25	AND				rubble, clayey broken shear breccia zone	MNZ	0.30	25	55	0	0	1	0	3	4	15	F	10.0	cly	Rub	10	F	JBC
									AND					MNZ	0.33	32	95	0	0	1	0	5	6	15	F	10.0	cly	Rub	1	F	JBC
									AND					MNZ	0.36	65	280	0	0	1	0	5	6	15	F	10.0	cly	Rub	1	F	JBC
147.9	148.4	0.45	90	0.24	48	4	90	100	AND	dark grey	medium to coarse grained		equigranular	MNZ	0.00	30	90	0	1	1	2	3	7	15	J	5.0	cly	cc	1	F	JBC
									AND					MNZ	0.05	25	85	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									AND					MNZ	0.10	73	220	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					MNZ	0.38	29	260	0	1	5	2	5	13	15	J	5.0	cly		1	F	JBC
148.4	149.2	0.75	100	0.62	83	6	107	75	AND	dark grey	medium to coarse grained		equigranular	MNZ	0.00			0	4	3	2	5	14	15	J	1.0	cly	gg	6	None	JBC
149.2	150.0	0.75	88	0.00	0	Max	5	5	AND				highly fractured, altered fault breccia gouge, with angular monzonite xenoliths	MNZ	0.00			0	0	1	0	3	4	15	F	750.0	cly	Rub	1	None	JBC
150.0	151.6	1.52	95	0.80	50	18	80	50	AND	dark to light grey	medium to coarse grained		slightly fractured with clayey/ gougey seams @.65m and 1.5m	MNZ	0.00			0	0	1	0	5	6	15	J	10.0	gg	cly	2	None	JBC
									AND					MNZ	0.00			0	4	3	2	5	14	15	J	2.0	cly		16	None	JBC
151.6	152.5	0.89	99	0.20	22	5	148	25	AND	dark grey	medium to coarse grained		altered fault breccia gouge	MNZ	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	2	None	JBC
															0.00			0	4	3	2	5	14	15		1.0	cly		3	None	MF
152.5	153.7	1.10	92	0.24	20	10	100	50	AND	dark to light grey	medium to coarse grained		2cm of clayey rubble zones @.60m and 1.10m	MNZ	0.00			0	0	1	0	5	6	15	J	20.0	gg	cly	2	None	JBC
									AND					MNZ	0.00			0	4	1	2	5	12	15	J	1.0	cly		7	None	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
															0.00			0	4	3	2	5	14	15	J	1.0	cly		7	None	MF
153.7	155.2	1.50	100	0.20	13	15	94	25	AND	dark to light grey	medium to coarse grained		moderately fractured with smaller healed micro-fractured	MNZ	0.05	39	140	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									AND					MNZ	0.10	20	175	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.20	23	130	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									AND					MNZ	0.30	34	290	0	4	3	2	5	14	15	J	1.0	cly	cc	1	F	JBC
									AND					MNZ	0.69	21	140	0	1	3	2	5	11	15	J	5.0	chl	cly	1	F	JBC
									AND					MNZ	0.88	25	120	0	1	3	2	5	11	15	J	5.0	chl	cly	1	F	JBC
									AND					MNZ	0.91	28	345	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	1.07	25	30	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	1.14	11	145	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	1.19	43	295	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	1.25	71	60	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	1.30	23	65	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	F	JBC
									AND					MNZ	1.32	36	150	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	JBC
									AND					MNZ	1.45	25	35	0	0	3	0	3	6	15	J	10.0	cly	Rub	1	F	JBC
									AND					MNZ	1.52	7	145	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
155.2	156.0	0.73	91	0.00	0	14	49	50	AND	dark grey	medium to coarse		slightly fractured and brecciated	MNZ	0.40	30	50	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.45	45	65	0	1	3	2	5	11	15	J	5.0	cly	cc	1	F	JBC
									AND					MNZ	0.60	45	300	0	1	3	2	5	11	15	J	5.0	cly	cc	1	F	JBC
									AND					MNZ	0.60	25	70	0	1	3	2	3	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.75	12	80	0	0	3	0	3	6	15	J	20.0	cly	Rub	1	F	JBC
156.0	156.7	0.55	79	0.00	0	15	34	25	AND	dark grey	medium to coarse		clayey gougey seams throughout run	MNZ	0.00			0	0	1	3	5	5	15	J	5.0	cly	Rub	1	None	JBC
156.7	156.9	0.20	100	0.00	0	10	18	25	AND	dark grey	medium to coarse		clayey gouge material	MNZ	0.00			0	0	1	0	5	6	15	J	10.0	Rub	cly	1	None	JBC
156.9	158.2	1.30	100	1.06	82	5	217	100	AND	dark grey	medium to coarse		some micro fractures and healed joints	MNZ	0.25	21	85	0	0	1	0	5	6	15	J	10.0	Rub	cly	1	VG	JBC
									AND					MNZ	0.45	22	70	0	0	1	0	5	6	15	J	10.0	Rub	cly	1	VG	JBC
									AND					MNZ	0.64	18	25	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									AND					MNZ	0.95	16	95	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									AND					MNZ	1.30	21	95	0	1	4	2	5	12	15	J	5.0	cly		1	VG	JBC
158.2	159.8	1.50	94	1.24	77	7	188	100	AND	dark grey	medium to coarse		2cm clayey gouge seams @.40 and 1.10m	MNZ	0.00	23	115	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
									AND					MNZ	0.39	18	110	0	0	1	0	3	4	15	F	25.0	gg	cly	1	VG	JBC
									AND					MNZ	0.71	45	250	0	4	3	4	5	16	15	vn	1.0	py		1	VG	JBC
									AND					MNZ	0.88	18	130	0	4	3	4	5	16	15	J	1.0	py	cly	1	VG	JBC
									AND					MNZ	1.10	66	260	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									AND					MNZ	1.11	12	125	0	0	1	0	5	6	15	rub	10.0	Rub	gg	1	VG	JBC
									AND					MNZ	1.47	60	275	0	1	1	2	5	9	15	J	5.0	cly	py	1	VG	JBC
159.8	161.3	1.50	100	0.94	63	11	125	100	AND	pale grey			dacite/latite porphyry, porphyritic texture with 1 mm white prismatic phenocrysts, slightly altered with some healed joints	MNZ	0.20	37	240	0	1	1	2	5	9	15	J	5.0	cc	cly	1	P	JBC
									AND					MNZ	0.35	70	70	0	1	1	2	5	9	15	J	5.0	cly		1	P	JBC
									AND					MNZ	0.40	10	75	0	1	3	2	5	11	15	J	5.0	cly		1	P	JBC
									AND					MNZ	0.47	27	60	0	1	1	2	5	9	15	J	5.0	cly	cc	1	P	JBC
									AND					MNZ	0.56	69	220	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					MNZ	0.60	39	80	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									AND					MNZ	0.74	66	210	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									AND					MNZ	0.91	42	70	0	4	1	2	5	12	15	J	0.1	cly		1	P	JBC
									AND					MNZ	1.13	35	65	0	1	1	2	5	9	15	J	5.0	cc	cly	1	P	JBC
									AND					MNZ	1.29	64	75	0	1	3	2	5	11	15	J	5.0	cc	cly	1	P	JBC
									AND					MNZ	1.45	48	255	0	1	1	2	5	9	15	J	5.0	ser	cc	1	P	JBC
161.3	162.3	1.00	100	0.32	32	10	91	75	AND	dark grey	medium to coarse grained		clay gouge rubble @.30	MNZ	0.20	68	110	0	1	3	2	5	11	15	J	5.0	cly	cc	1	P	JBC
									AND					MNZ	0.35	27	0	0	0	1	Hard > 5mm	5	9	15	rub	20.0	Rub	cly	1	P	JBC
									AND					MNZ	0.40	72	100	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									AND					MNZ	0.50	78	35	0	4	3	2	5	14	15	J	1.0	cly	py	1	P	JBC
									AND					MNZ	0.56	49	45	0	4	3	2	5	14	15	J	1.0	cly	py	1	P	JBC
									AND					MNZ	0.65	41	240	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									AND					MNZ	0.72	38	230	0	4	1	2	5	12	15	J	1.0	cly	chl	1	P	JBC
									AND					MNZ	0.84	25	35	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									AND					MNZ	0.96	25	30	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									AND					MNZ	1.09	20	50	0	0	1	Hard > 5mm	5	9	15	J	15.0	Rub	cly	1	P	JBC
162.3	163.5	1.20	100	0.45	38	10	109	75	AND	dark grey	medium to coarse		1mm calcite phenocrysts, clay and gouge @.70	MNZ	0.15	36	130	0	1	1	2	5	9	15	J	5.0	cly		2	F	JBC
									AND					MNZ	0.20	32	340	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.60	85	315	0	1	1	2	5	9	15	J	5.0	cly	gg	1	F	JBC
									AND					MNZ	0.71	46	135	0	0	1	0	3	4	15	J	10.0	gg	chl	1	F	JBC
									AND					MNZ	0.79	42	120	0	1	1	2	5	9	15	SH	20.0	cly	Rub	1	F	JBC
									AND					MNZ	0.86	19	270	0	1	1	2	5	9	15	SH	10.0	cly	Rub	1	F	JBC
									AND					MNZ	1.10	32	105	0	4	1	2	5	12	15	J	1.0	cly		2	F	JBC
									AND					MNZ	1.23	38	120	0	4	1	2	5	12	15	J	1.0	cly	gg	1	F	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
163.5	165.0	1.45	97	0.15	10	max	5	25	AND	dark grey	medium to coarse		dacite/latite porphyry but highly fractured lots of clayey gouge infill in joints	MNZ	0.00			0	0	1	0	3	4	15	SH	1450.0	cly	Rub	1	None	JBC
165.0	166.5	1.41	94	0.00	0	max	5	50	AND	light grey to black	medium to coarse		1mm calcite phenocrysts, dacite/latite porphyry, highly fractured	MNZ	0.00			0	4	1	0	3	8	15	Rub	80.0	Rub	cly	1	none	MF
									MNZ					MNZ	0.40	40	30	0	4	1	2	5	12	15	J	1410.0	cly	gg	1	VG	JBC
									AND					MNZ	0.50	25	60	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	0.60	25	80	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	0.69	25	80	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	0.78	10	35	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	0.90	65	100	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	1.06	40	55	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	1.21	35	65	0	4	1	2	5	12	15	J	1.0	cly	gg	1	VG	JBC
									AND					MNZ	1.40	5	10	0	1	3	0	5	9	15	J	10.0	cly	gg	1	VG	JBC
166.5	168.0	1.50	100	0.27	18	13	107	50	AND	dark grey	medium to coarse		dacite/latite porphyry, moderately fractured, white 1mm calcite prismatic phenocrysts, clayey infill lots of micro fractures	MNZ	0.20	35	100	0	1	1	2	5	9	15	J	5.0	cly	py	2	VG	JBC
									AND					MNZ	0.26	30	80	0	1	1	2	5	9	15	J	5.0	cly		4	VG	JBC
									AND					MNZ	0.40	22	100	0	1	1	2	5	9	15	J	5.0	cly	gg	1	VG	JBC
									AND					MNZ	0.61	35	105	0	1	3	2	5	11	15	J	5.0	cly	gg	1	VG	JBC
									AND					MNZ	1.04	32	85	0	1	1	2	5	9	15	J	5.0	cly	gg	1	VG	JBC
									AND					MNZ	1.15	22	90	0	0	3	0	3	6	15	J	10.0	cly	Rub	1	VG	JBC
									AND					MNZ	1.24	15	50	0	1	1	2	5	9	15	J	5.0	cly		1	VG	JBC
									AND					MNZ	1.44	25	70	0	1	1	2	5	9	15	J	5.0	cly		1	VG	JBC
									AND					MNZ	1.52	15	75	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
168.0	169.5	1.46	97	0.21	14	14	97	50	AND	dark grey	medium to coarse		dacite/latite porphyry, clay in joints, slightly weathered	MNZ	0.00			0	1	3	2	5	11	15	J	5.0	cly	Rub	14	None	JBC
169.5	171.0	1.50	100	1.05	70	8	167	75	AND	dark grey	medium to coarse		dacite/latite porphyry, clay in joints, slightly weathered	MNZ	0.30	20	50	0	0	1	0	5	6	15	J	10.0	cly	gg	1	F	JBC
									AND					MNZ	0.54	58	165	0	0	1	0	5	6	15	J	10.0	cly	gg	1	F	JBC
									AND					MNZ	0.56	60	45	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	0.65	60	80	0	0	1	0	5	6	15	J	10.0	cly	gg	1	F	JBC
									AND					MNZ	0.80	69	250	0	1	1	2	5	9	15	J	5.0	cly	gg	1	F	JBC
									AND					MNZ	1.15	65	70	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					MNZ	1.24	60	72	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					MNZ	1.55	35	75	0	4	1	2	5	12	15	J	1.0	cly	gg	1	F	JBC
171.0	172.5	1.50	100	0.80	53	19	75		AND	dark grey	fine grained			AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.09			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
									AND					AND	0.17			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.23			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.24			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.31			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.38	82	0	0	0	3	0	5	8	15	J	40.0	Rub	cly	1	F	SRM
									AND					AND	0.45	82	180	0	4	3	6	6	19	15	J	1.0			1	F	SRM
									AND					AND	0.66	59	250	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.74	30	80	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.87	68	330	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.03	69	80	0	1	1	0	5	7	15	J	5.0	cly	Rub	1	F	SRM
									AND					AND	1.10	45	80	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.27	28	90	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.39	68	60	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
172.5	174.0	1.50	100	0.34	23	10	136		AND	dark grey	fine grained			AND	0.00	33	50	0	4	1	6	6	17	15	J	1.0	cly		1	F	SRM
									AND					AND	0.30	57	80	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.38	75	70	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.46	40	60	0	4	1	6	6	17	15	J	1.0	cly		1	F	SRM
									AND					AND	0.57	77	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.74	30	60	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.88	18	60	0	0	1	0	3	4	15	J	10.0	cly		1	F	SRM
									AND					AND	1.27	33	90	0	0	1	0	3	4	15	J	10.0	cly		1	F	SRM
									AND					AND	1.38	63	120	0	0	1	0	3	4	15	J	10.0	cly		1	F	SRM
									AND					AND	1.46	78	60	0	0	1	0	3	4	15	J	80.0	Rub		1	F	SRM
174.0	175.5	1.50	100	0.00	0	max	5		AND				highly micro fractured gougey zone	AND	0.00			0	0	1	0	3	4	15	F	1500.0	gg	Rub	1	None	SRM
175.5	177.0	1.37	91	0.53	35	8	152	50	AND	dark grey	fine grained		micro fractured from .89 to end with clay infill	AND	0.48	12	30	0	1	1	2	5	9	15	J	5.0	cly		1	F	SRM
									AND					AND	0.50	48	330	0	0	3	0	5	8	15	J	70.0	Rub		1	F	SRM
									AND					AND	0.65			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									AND					AND	0.79			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.89			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.91			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	1.10			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	1.22			0	0	3	0	3	6	15	J	70.0	Rub		1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
177.0	177.2	0.20	100	0.00	0	3	50	50	AND	dark grey	fine grained		micro fractured	AND	0.00			0	1	1	2	5	9	15	J	5.0	Rub	cly	1	None	SRM
									AND					AND	0.08			0	4	1	2	5	12	15	J	1.0	cly	Rub	1	None	SRM
									AND					AND	0.20			0	1	1	2	5	9	15	J	5.0	Rub	cly	1	None	SRM
177.2	177.6	0.40	100	0.00	0	max	5	50	AND				broken zone	AND	0.00			0	0	1	0	3	4	15	F	400.0	Rub	cly	1	None	SRM
177.6	177.8	0.20	100	0.20	100	2	67	50	AND	dark grey	fine grained		micro fractured	AND	0.00			0	0	1	0	5	6	15	J	30.0	gg	Rub	1	None	SRM
									AND					AND	0.20			0	0	1	0	5	6	15	J	30.0	cly		1	None	SRM
177.8	178.5	0.50	71	0.00	0	max	5	5	AND				fault zone	AND	0.00			0	0	1	0	3	4	15	F	500.0	gg	Rub	1	None	SRM
178.5	180.0	1.50	100	0.00	0	max	5	5	AND				fault zone gouge and clay	AND	0.00			0	0	1	0	3	4	15	rub	1500.0	gg	cly	1	None	SRM
180.0	180.4	0.15	37	0.00	0	max	5	5	AND				fault zone gouge and clay	AND	0.00			0	0	1	0	3	4	15	F	150.0	gg	cly	1	None	SRM
180.4	181.3	0.85	100	0.56	66	7	106	50	AND	dark grey	fine grained			AND	0.00			0	1	1	2	5	9	15	J	5.0	cly	py	7	None	SRM
181.3	181.5	0.25	100	0.00	0	max	5	5	AND				rubble	AND	0.00			0	0	1	0	3	4	15	F	250.0	Rub	cly	1	None	SRM
181.5	182.1	0.55	100	0.24	44	5	92	50	AND	dark grey	fine grained			AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.20			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.30			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.46			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.55			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
182.1	182.4	0.30	100	0.00	0	max	5	5	AND				fault zone/gouge	AND	0.00			0	0	1	0	3	4	15	F	300.0	gg	Rub	1	None	SRM
182.4	183.0	0.65	100	0.34	52	5	108	50	AND	dark grey	fine grained		micro fractured with clay infill	AND	0.13			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.15			0	0	1	0	5	6	15	J	15.0	Rub	gg	1	None	SRM
									AND					AND	0.29			0	0	1	0	5	6	15	J	30.0	gg		1	None	SRM
									AND					AND	0.49			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.60			0	0	1	0	5	6	15	J	10.0	gg		1	None	SRM
183.0	184.5	1.40	93	0.60	40	10	127	50	AND	dark grey	fine grained		micro fractured with clay infill	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.12			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.26			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.30			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.37			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.44			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.51			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.68			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.83			0	4	1	2	5	12	15	J	1.0	cly	gg	1	None	SRM
									AND					AND	1.22			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	1.36			0	0	1	0	5	6	15	J	20.0	Rub	cly	1	None	SRM
184.5	186.0	1.50	100	0.98	65	11	125	50	AND					AND	0.08	40	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.22	68	170	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.34	45	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.44	29	100	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.61	53	160	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.75	52	70	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.06	40	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.18	45	120	0	0	1	0	5	6	15	J	30.0	gg		1	F	SRM
									AND					AND	1.26	40	270	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.35	38	110	0	1	1	0	5	7	15	J	5.0	gg		1	F	SRM
									AND					AND	1.39	80	260	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
186.0	187.5	1.34	89	0.60	40	8	149	50	AND					AND	0.00	32	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.30	33	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.39	34	290	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.56	22	30	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.59	43	170	0	0	1	0	3	4	15	J	60.0	gg	Rub	1	F	SRM
									AND					AND	0.86	89	330	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.15	21	20	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.23	78	245	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
187.5	189.0	1.50	100	0.69	46	18	79	50	AND	dark grey to black	fine grained		white 1mm calcite phenocrysts, moderately fractured with clay infill, many brecciated micro fractures with black angular clasts	AND	0.00			0	1	1	2	4	8	15	SH	5.0	cly	gg	10	None	JBC
															0.00			0	4	1	2	5	12	15	J	1.0	cly		8	None	MF
189.0	190.5	1.40	93	0.50	33	12	108	50	AND	dark grey to black	fine grained		white 1mm calcite phenocrysts, moderately fractured with clay infill, many brecciated micro fractures with black angular clasts	AND	0.00			0	1	1	2	3	7	15	J	5.0	cc	gg	8	None	JBC
															0.00			0	4	1	2	5	12	15	J	1.0	cly		4	None	MF
190.5	192.0	1.50	100	0.53	35	10	136	50	AND	dark grey to black	fine grained		white 1mm calcite phenocrysts, moderately fractured with clay infill, many brecciated micro fractures with black angular clasts	AND	0.00			0	1	3	2	5	11	15	J	5.0	cly	cc	10	None	JBC
192.0	193.5	1.50	100	1.22	81	6	214	75	AND	dark grey to black	fine grained		brecciated andesite, xenoliths are black, angular pieces up to 2 cm, slightly fractured	AND	0.05	29	270	0	1	3	2	5	11	15	J	5.0	cly	cc	1	VG	JBC
									AND					AND	0.23	43	125	0	0	5	0	5	10	15	rub	20.0	Rub	cc	1	VG	JBC
									AND					AND	0.36	27	175	0	1	3	2	5	11	15	J	5.0	py	cc	1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.69	29	115	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
									AND					AND	1.06	27	210	0	1	1	3	5	10	15	J	5.0	py	cc	1	VG	JBC
									AND					AND	1.34	18	330	0	4	1	2	5	12	15	J	1.0	cc		3	VG	JBC
193.5	195.0	1.50	100	1.33	89	4	300	75	AND	dark grey to black	fine grained		brecciated andesite, xenoliths are black, angular pieces up to 2 cm, slightly fractured	AND	0.05	28	345	0	0	3	0	5	8	15	J	20.0	Rub	cc	1	VG	JBC
									AND					AND	0.79	56	200	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									AND					AND	1.10	20	130	0	0.1 - 1.0	1	4	5	14	15	J	1.0	py	cly	1	VG	JBC
									AND					AND	1.45	4	315	0	1	3	2	5	11	15	J	5.0			1	VG	JBC
195.0	196.5	1.50	100	0.76	51	9	150	75	AND	dark grey to black	fine grained		brecciated andesite, slightly fractured	AND	0.05	40	190	0	1	3	2	5	11	15	J	2.0	cc	cly	1	F	JBC
									AND					AND	0.35	43	55	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									AND					AND	0.40	54	220	0	4	3	4	5	16	15	J	1.0	py		1	F	JBC
									AND					AND	0.83	44	270	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	JBC
									AND					AND	1.01	32	260	0	4	1	4	5	14	15	J	1.0	py	cc	1	F	JBC
									AND					AND	1.10	33	70	0	0	1	0	3	4	15	F	25.0	gg	Rub	1	F	JBC
									AND					AND	1.25	44	110	0	0	1	0	3	4	15	F	25.0	gg	Rub	1	F	JBC
									AND					AND	1.32	37	100	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					AND	1.38	47	115	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
196.5	198.0	1.49	99	1.22	81	10	135	75	AND	dark grey	fine grained		brecciated andesite, slightly micro fractures with clayey infill, also calcite	AND	0.00			0	1	3	2	5	11	15	J	2.0	cly	cc	10	None	JBC
198.0	199.5	1.50	100	0.24	16	9	150	75	AND	dark grey	fine grained		brecciated andesite, slightly micro fractures with clayey infill, also calcite	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly	gg	9	None	JBC
199.5	201.1	1.55	97	0.30	19	30	50	50	AND	dark grey	fine grained		brecciated and clayey shear gouge, weak and lots of micro fractures	AND	0.20	58	245	0	4	3	0	5	12	15	J	1.0	cly	cc	1	F	JBC
									AND					AND	0.33	53	210	0	0	3	0	3	6	15	rub	10.0	cly	Rub	1	F	JBC
									AND					AND	0.45	22	30	0	0	3	0	3	6	15	rub	10.0	cly	Rub	1	F	JBC
									AND					AND	0.70	30	355	0	4	1	0	5	10	15	F	1.0	cly	gg	9	F	JBC
									AND					AND	1.22	69	70	0	4	3	0	5	12	15	F	1.0	cly	gg	9	F	JBC
									AND					AND	1.43	28	45	0	4	3	0	5	12	15	F	1.0	cly	gg	9	F	JBC
201.1	202.5	1.40	100	0.00	0	15	88	25	AND	dark grey	fine grained		brecciated and micro fractured andesite, very weak with lots of clay	AND	0.00			0	1	1	Hard > 5mm	5	10	15	rub	5.0	cly	gg	15	None	JBC
202.5	204.0	1.33	89	0.00	0	max	5	5	AND	blackish brown			fault breccia gouge, very soft , can be peeled easily with a knife, gouge is grey sand, clay with very angular black xenoliths	AND	0.00			0	0	1	0	3	4	15	F	1330.0	cly	Rub	1	None	JBC
204.0	204.4	0.25	62	0.00	0	22	11	25	AND	dark grey to black	fine grained		brecciated rubble with grey clayey gouge in between	ABX	0.00			0	0	3	Hard > 5mm	5	11	15	rub	10.0	Rub	cly	22	None	JBC
204.4	205.4	0.80	80	0.13	13	13	57	50	AND	dark grey to black	fine grained		moderately fractured	ABX	0.05	21	45	0	0	3	0	3	6	15	J	10.0	cly	gg	1	F	JBC
									AND					ABX	0.10	14	0	0	1	3	2	5	11	15	J	5.0	cly		8	F	JBC
									AND					ABX	0.35	52	300	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					ABX	0.45	52	170	0	0	3	0	5	8	15	J	5.0	cly	Rub	1	F	JBC
									AND					ABX	0.57	45	270	0	1	3	2	5	11	15	J	5.0	cc	qtz	1	F	JBC
									AND					ABX	0.75	24	85	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					ABX	0.79	36	90	0	1	3	2	5	11	15	J	5.0	cc	qtz	1	F	JBC
205.4	206.9	1.49	99	0.90	60	8	166		AND	dark grey to black	fine grained		brecciated andesite with some qtz calcite veins up to .3 cm slightly fractured	ABX	0.20	12	115	0	0	3	0	5	8	15	Rub	20.0	cc	Rub	1	F	JBC
									AND					ABX	0.48	46	95	0	4	3	2	5	14	15	J	1.0	cc	qtz	1	F	JBC
									AND					ABX	0.63	40	100	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					ABX	0.95	40	265	0	0	1	0	5	6	15	vn	10.0	cc	qtz	1	F	JBC
									AND					ABX	1.05	49	95	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					ABX	1.17	18	130	0	0	1	0	5	6	15	vn	30.0	cc	qtz	2	F	JBC
									AND					ABX	1.42	47	22	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
206.9	208.5	1.60	100	0.75	47	15	100	50	AND	dark grey	fine grained		andesite	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.08			0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	0.27			0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.39			0	5	1	2	5	13	15	J	0.1	cly		1	F	SRM
									AND					AND	0.46			0	0	3	0	3	6	15	J	20.0	Rub	gg	1	F	SRM
									AND					AND	0.51	42	90	0	0	1	0	3	4	15	J	10.0	gg	Rub	1	F	SRM
									AND					AND	0.64	39	0	0	4	3	6	6	19	15	J	1.0			1	F	SRM
									AND					AND	0.69	42	270	0	1	1	2	5	9	15	J	5.0	cc	Rub	1	F	SRM
									AND					AND	0.73	42	30	0	1	1	2	5	9	15	J	5.0	cc	Rub	1	F	SRM
									AND					AND	0.86	42	60	0	1	1	2	5	9	15	J	5.0	cc		1	F	SRM
									AND					AND	0.96	62	40	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.01	31	30	0	1	1	2	5	9	15	J	5.0	cc		1	F	SRM
									AND					AND	1.16	51	290	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.22	33	40	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	1.30	79	260	0	4	1	6	6	17	15	J	1.0			1	F	SRM
208.5	208.8	0.30	100	0.30	100	1	150	25	AND	dark grey	fine grained		andesite breccia	AND	0.30	67	60	0	0	1	0	5	6	15	Rub	20.0	Rub		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
208.8	210.1	1.26	97	0.00	0	max	5	25	AND				micro fractured gougey material with clay infill	AND	0.00			0	0	1	0	3	4	15	F	1260.0	Rub	cly	1	None	SRM
210.1	211.5	1.40	100	0.74	53	12	108	50	AND	dark grey to black	fine grained		andesite	AND	0.00			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.13			0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									AND					AND	0.22			0	4	3	2	5	14	15	J	1.0	cc		1	None	SRM
									AND					AND	0.31			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.46			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.48			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.63			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.70			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									AND					AND	0.79			0	4	1	2	5	12	15	J	1.0	cly	py	1	None	SRM
									AND					AND	0.97			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	1.09			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	1.23			0	0	1	0	5	6	15	J	1.0	gg	Rub	1	None	SRM
211.5	213.0	1.50	100	1.32	88	11	125	25	AND	dark grey to black	fine grained		andesite	AND	0.00			0	4	3	6	6	19	15	J	1.0			1	None	SRM
									AND					AND	0.17			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									AND					AND	0.40			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.56			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					AND	0.82			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.95			0	5	1	2	5	13	15	J	0.1	cc		1	None	SRM
									AND					AND	1.10			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	1.25			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	1.40			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	1.43			0	0	1	0	5	6	15	J	20.0	Rub	cc	1	None	SRM
									AND					AND	1.49			0	4	1	2	5	12	15	J	1.0	cc	cly	1	None	SRM
213.0	213.7	0.70	100	0.61	87	3	175	25	AND	dark grey to black	fine grained		calcite veins	AND	0.39			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.45			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.67			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
213.7	214.1	0.40	100	0.00	0	max	5	5	AND				broken gouge zone	AND	0.00			0	0	1	0	3	4	15	F	400.0	gg	Rub	1	None	SRM
214.1	214.5	0.40	100	0.31	77	2	133	25	AND	dark grey to black	fine grained		calcite veins	AND	0.31			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.39			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
214.5	214.7	0.20	100	0.00	0	max	5	5	AND				rubble zone	AND	0.00			0	0	1	0	3	4	15	F	200.0	gg	Rub	1	None	SRM
214.7	216.0	1.30	100	1.21	93	2	433	5	AND	dark grey to black	fine grained		calcite veins	AND	0.70	45	60	0	4	3	4	5	16	15	J	1.0			1	P	SRM
									AND					AND	1.23	43	310	0	4	2	2	5	13	15	J	1.0	cly		1	P	SRM
216.0	217.5	1.50	100	1.17	78	12	115	5	AND	dark grey to black	fine grained		calcite veins	AND	0.44	42	180	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.62	40	210	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.74	24	340	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.81	49	330	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.91	75	180	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.94	46	350	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.10	56	200	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.27	75	190	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.32	35	210	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.34	25	70	0	4	1	2	3	10	15	J	1.0	cc		1	P	SRM
									AND					AND	1.40	48	130	0	0	1	0	3	4	15	J	40.0	cc	Rub	1	P	SRM
									AND					AND	1.47	53	300	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
217.5	218.3	0.75	100	0.75	100	2	250	5	AND	dark grey to black	fine grained		calcite veins	AND	0.20	76	180	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.52	49	170	0	4	3	6	6	19	15	J	1.0			1	G	SRM
218.3	218.4	0.13	100	0.00	0	max	5	5	AND				fault gouge	AND	0.00			0	0	1	0	3	4	15	F	130.0	gg	cly	1	G	SRM
218.4	218.5	0.16	100	0.00	0	1	80	5	AND	dark grey to black	fine grained		calcite veins	AND	0.09	77	90	0	1	1	2	5	9	15	J	5.0	cc		1	G	SRM
218.5	218.7	0.20	100	0.00	0	max	5	5	AND				fault gouge	AND	0.00			0	0	1	0	3	4	15	F	200.0	gg	cly	1	G	SRM
218.7	219.0	0.26	100	0.20	77	2	87	5	AND	dark grey to black	fine grained		calcite veins	AND	0.12	62	240	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.18	59	240	0	0	3	0	5	8	15	J	20.0	Rub	cly	1	G	SRM
219.0	219.7	0.70	100	0.00	0	max	5	5	AND				rubble/broken zone	AND	0.00			0	0	1	0	3	4	15	F	700.0	Rub	cly	1	None	SRM
219.7	220.3	0.56	100	0.46	82	1	280	5	AND	dark grey to black	fine grained		calcite veins	AND	0.30			0	0	3	0	5	8	15	J	50.0	Rub	gg	1	None	SRM
220.3	220.5	0.14	58	0.00	0	max	5	5	AND				rubble/broken zone	AND	0.00			0	0	1	0	3	4	15	F	140.0	Rub	cly	1	None	SRM
220.5	222.0	1.50	100	0.00	0	max	5	5	AND				broken zone with gouge and calcite infill	AND	0.00			0	0	1	0	3	4	15	F	1500.0	gg	chl	1	None	SRM
222.0	223.5	1.45	97	0.00	0	max	5	5	AND	dark grey	fine grained		calcite veins	AND	0.10			0	0	3	0	3	6	15	J	60.0	Rub	cc	1	None	SRM
									AND					AND	0.31			0	0	1	2	5	8	15	J	1.0	cc		1	None	SRM
									AND					AND	0.46			0	0	1	2	3	6	15	J	1.0	cc		1	None	SRM
									AND					AND	0.60			0	0	1	2	3	6	15	J	1.0	cc		1	None	SRM
									AND					AND	0.82			0	1	1	0	5	7	15	J	5.0	cc		1	None	SRM
									AND					AND	1.05			0	1	1	0	5	7	15	J	5.0	cc		1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.30			0	1	1	0	5	7	15	J	5.0	cc		1	None	SRM
									AND					AND	1.35			0	1	1	0	5	7	15	J	5.0	cc		1	None	SRM
223.5	225.0	1.50	100	0.45	30	16	88	5	AND	dark grey	fine grained		calcite veins	AND	0.17	27	170	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.29	64	210	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									AND					AND	0.33	70	50	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.38	62	50	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.44	67	50	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.48	50	10	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.59	60	115	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	0.70	34	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.82	28	90	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	0.91	42	260	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	1.00	74	230	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	1.08	28	0	0	4	1	2	3	10	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	1.21	60	90	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	SRM
									AND					AND	1.30	74	220	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.43			0	0	1	0	3	4	15	J	1.0	Rub	cly	1	F	SRM
225.0	226.5	1.30	87	0.23	15	23	54	50	AND	dark grey to black	fine grained		slightly brecciated and fractured with up to 2mm thick hosting pyrite mineralization	ABX	0.00			0	0	3	0	5	8	15	J	20.0	cc	py	23	None	JBC
226.5	227.0	0.50	100	0.30	60	3	125	50	AND	dark grey to black	fine grained		slightly brecciated and fractured with up to 2mm thick hosting pyrite mineralization	ABX	0.05	37	275	0	0	3	0	5	8	15	J	10.0	cly		1	F	JBC
									AND					ABX	0.38	62	165	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
									AND					ABX	0.40	18	95	0	0	1	0	5	6	15	J	10.0	cc	cly	1	F	JBC
227.0	227.3	0.25	100	0.00	0	max	5	5	AND	grey	fine grained		brecciated , clayey matrix with 1 cm diameter andesite clasts, very weak rock	ABX	0.20	51	120	0	0	1	0	3	4	15	F	250.0	cly	Rub	1	F	JBC
227.3	228.0	0.75	100	0.54	72	6	107	50	AND	dark grey to black	fine grained		slightly fractured , lots of micro fractures and calcite veining up to 1 mm thick	AND	0.02	68	230	0	0	1	0	5	6	15	J	10.0	cc		1	F	JBC
									AND					AND	0.19	30	90	0	0	3	0	5	8	15	J	20.0	cc	cly	1	F	JBC
									AND					AND	0.35	48	70	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					AND	0.45	48	300	0	4	0	0	5	9	15	J	1.0	cc		1	F	JBC
									AND					AND	0.60	58	100	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
									AND					AND	0.70	16	105	0	0	3	0	5	8	15	J	15.0	cc		1	F	JBC
228.0	228.4	0.40	100	0.40	100	2	133	50	AND	dark grey to black	fine grained		slightly fractured , lots of micro fractures and calcite veining up to 1 mm thick	AND	0.15	70	87	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					AND	0.39	24	155	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
228.4	228.7	0.30	100	0.10	33	max	5	25	AND	greyish white	fine grained		hydrothermally altered breccia, matrix is white quartz very hard with some angular up to 1 cm andesite clasts and calcite veining	ABX	0.25	60	25	0	1	3	2	5	11	15	J	300.0	cc	cly	1	F	JBC
									AND					ABX	0.30	66	140	0	4	1	2	5	12	15	J	1.0	cc	cly	25	F	JBC
228.7	229.5	0.65	81	0.50	62	8	72	50	AND	greyish white	fine grained		competent brecciated andesite, quartz matrix larger clasts, up to several cm's in diameter	ABX	0.30	79	28	0	4	1	2	5	12	15	J	1.0	cc		8	F	JBC
									AND					ABX	0.40	32	160	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
229.5	229.8	0.27	90	0.14	47	4	54	50	AND	greyish white	fine grained		calcite veining	ABX	0.05	60	170	0	1	3	2	5	11	15	J	5.0	cc	cly	2	F	JBC
									AND					ABX	0.08	44	205	0	0	3	0	3	6	15	J	10.0	cc	cly	1	F	JBC
									AND					ABX	0.25	24	150	0	0	1	0	3	4	15	rub	10.0	gg	cly	1	F	JBC
229.8	231.0	1.20	100	0.62	52	9	120	50	AND	greyish white	fine grained		calcite veining	ABX	0.08	76	105	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									AND					ABX	0.10	51	120	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	JBC
									AND					ABX	0.15	64	95	0	1	3	0	5	9	15	J	5.0	cly	cc	1	F	JBC
									AND					ABX	0.25	59	170	0	1	3	0	5	9	15	J	5.0	cly		1	F	JBC
									AND					ABX	0.30	61	175	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					ABX	0.45	55	105	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	JBC
									AND					ABX	0.61	22	75	0	0	1	0	5	6	15	J	10.0	cly	gg	1	F	JBC
									AND					ABX	1.19	51	22	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND					ABX	1.25	59	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
231.0	232.5	1.50	100	1.17	78	6	214	50	AND	greyish white	fine grained		stockwork, calcite veins	ABX	0.25	28	280	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	JBC
									AND					ABX	0.46	40	60	0	0	1	0	3	4	15	F	10.0	gg	cly	1	F	JBC
									AND					ABX	0.77	45	190	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									AND					ABX	0.90	65	60	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									AND					ABX	1.00	60	250	0	0	1	0	5	6	15	J	10.0	cly		1	F	JBC
									AND					ABX	1.32	50	235	0	0	1	0	5	6	15	J	10.0	cly	cc	1	F	JBC
232.5	234.0	1.42	95	1.27	85	2	473	75	AND	dark grey to black	fine grained		stockwork, calcite veins	AND	0.30	45	15	0	0	3	0	5	8	15	J	30.0	cc	cly	1	P	JBC
									AND					AND	1.00	40	185	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
234.0	235.5	1.50	100	1.44	96	5	250	75	AND	dark grey to black	fine grained		stockwork, calcite veins	AND	0.15	59	240	0	1	3	2	5	11	15	J	2.0	cc	cly	1	VG	JBC
									AND					AND	0.40	47	280	0	0	5	0	5	10	15	rub	30.0	cc	Rub	1	VG	JBC
									AND					AND	0.59	71	0	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition						Water								
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.94	36	215	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	JBC
									AND					AND	1.24	75	20	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	JBC
235.5	237.0	1.50	100	1.37	91	5	250	75	AND	dark grey to black	fine grained		stockwork, calcite veins	AND	0.50	19	260	0	0	1	2	5	8	15	vn	2.0	cc		1	VG	JBC
									AND					AND	0.75	74	90	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.11	54	0	0	4	1	2	5	12	15	J	1.0	qtz		1	VG	JBC
									AND					AND	1.30	49	335	0	0	1	3	5	9	15	vn	20.0	cc		1	VG	JBC
									AND					AND	1.49	58	0	0	4	1	2	5	12	15	J	1.0	cc	qtz	1	VG	JBC
237.0	238.5	1.43	95	1.30	87	7	179	75	AND	dark grey to black	fine grained		stockwork, calcite veins	AND	0.35	46	345	0	1	1	2	5	9	15	vn	3.0	cc	qtz	1	VG	JBC
									AND					AND	0.48	31	350	0	1	1	2	5	9	15	J	5.0	cc	qtz	1	VG	JBC
									AND					AND	0.54	82	5	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.83	31	325	0	4	1	2	5	12	15	vn	1.0	cc		1	VG	JBC
									AND					AND	0.83	20	110	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.02	42	260	0	4	1	2	5	12	15	vn	1.0	cc	qtz	1	VG	JBC
									AND					AND	1.32	22	265	0	4	1	2	5	12	15	vn	2.0	cc		1	VG	JBC
238.5	240.0	1.50	100	1.50	100	4	300	75	AND	dark grey to black	fine grained		stockwork, calcite veins	AND	0.20	28	350	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					AND	0.75	20	335	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					AND	1.03	18	72	0	0	3	0	5	8	15	vn	20.0	cc	qtz	1	F	JBC
									AND					AND	1.50	55	50	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
240.0	241.5	1.50	100	1.48	99	6	214	100	AND	dark grey to black	fine grained		calcite veining	AND	0.30	50	80	0	1	1	2	5	9	15	vn	5.0	cc		3	VG	JBC
									AND					AND	0.84	52	60	0	1	1	2	5	9	15	vn	5.0	cc		1	VG	JBC
									AND					AND	1.09	20	100	0	1	1	2	5	9	15	vn	5.0	cc		1	VG	JBC
									AND					AND	1.45	32	325	0	0	1	0	5	6	15	J	10.0	cc	qtz	1	VG	JBC
241.5	243.0	1.49	99	1.48	99	4	298	100	AND	dark grey to black	fine grained		calcite veining	AND	0.20	58	20	0	4	1	2	5	12	15	vn	1.0	cc		1	F	JBC
									AND					AND	0.62	25	85	0	4	1	2	5	12	15	vn	1.0	cc		1	F	JBC
									AND					AND	0.70	45	0	0	0	5	0	3	8	15	rub	30.0	cly	Rub	1	F	JBC
									AND					AND	1.12	35	10	0	0	1	0	5	6	15	J	10.0	cc		1	F	JBC
243.0	244.5	1.50	100	1.40	93	2	500	100	AND	dark grey to black	fine grained		calcite veining, localized clay alteration	AND	0.25	15	210	0	1	1	2	5	9	15	vn	5.0	cc		1	P	JBC
									AND					AND	0.86	31	30	0	0	1	0	3	4	15	F	10.0	cc	cly	1	P	JBC
244.5	246.0	1.50	100	1.46	97	8	167	100	AND	dark grey to black	fine grained		calcite veining, blobs	AND	0.02	18	90	0	1	1	2	5	9	15	vn	5.0	cc		1	P	JBC
									AND					AND	0.21	58	40	0	4	1	1	2	8	15	J	1.0	cc		1	P	JBC
									AND					AND	0.35	35	15	0	1	1	2	5	9	15	vn	5.0	cc		1	P	JBC
									AND					AND	0.75	25	65	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	0.96	12	100	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	1.31	50	10	0	0	1	0	5	6	15	J	10.0	cc		1	P	JBC
246.0	247.5	1.41	94	1.41	94	4	282	100	AND	dark grey to black	fine grained		calcite veining	AND	0.93	25	190	0	4	1	2	5	12	15	vn	1.0	cc		1	P	JBC
									AND					AND	1.03	52	105	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	1.20	45	75	0	4	1	2	5	12	15	vn	1.0	cc		1	P	JBC
									AND					AND	1.33	80	270	0	4	1	2	5	12	15	vn	1.0	cc		1	P	JBC
247.5	249.0	1.50	100	1.33	89	5	250	100	AND	dark grey to black	fine grained		calcite veining	AND	0.29	74	280	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	0.75	62	230	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	1.31	41	220	0	1	3	2	5	11	15	J	5.0	cc	cly	1	P	JBC
									AND					AND	1.51	33	335	0	1	3	2	5	11	15	J	5.0	cc		1	P	JBC
249.0	250.5	1.33	89	1.33	89	2	443	100	AND	dark grey to black	fine grained		calcite veining	AND	0.66	64	250	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
									AND					AND	1.05	37	180	0	4	3	2	5	14	15	J	1.0	cc	cly	1	P	JBC
250.5	251.8	0.68	52	0.00	0	max	5	25	AND				fault brecciated gouge material with angular andesite clasts	AND	0.00			0	0	1	0	3	4	15	F	680.0	gg	Rub	1	None	JBC
251.8	252.0	0.16	80	0.12	60	1	80		AND	dark grey	fine grained			AND	0.12			0	4	3	2	5	14	15	J	1.0	cly		1	None	SRM
252.0	253.5	1.50	100	1.46	97	4	300	25	AND	dark grey	fine grained		calcite veining	AND	0.34	64	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.58	60	120	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.19	55	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	1.46	69	190	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	SRM
253.5	255.0	1.49	99	1.49	99	5	248	50	AND	dark grey	fine grained		calcite veining	AND	0.00	54	210	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.12	58	110	0	1	1	2	5	9	15	J	1.0	cly	Rub	1	F	SRM
									AND					AND	0.44	68	130	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.81	61	250	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.30	54	220	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
255.0	256.5	1.50	100	1.47	98	5	250	50	AND	dark grey	fine grained		calcite veining	AND	0.00	52	220	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									AND					AND	0.38	54	160	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.04	60	180	0	4	3	2	5	14	15	J	1.0	cc		1	G	SRM
									AND					AND	1.18	53	165	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.44	37	240	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
256.5	258.0	1.50	100	1.20	80	3	375	100	AND	dark grey	fine grained		calcite veining	AND	0.40	17	0	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.70	67	165	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.45	54	270	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
258.0	259.5	1.50	100	1.50	100	4	300	100	AND	dark grey	fine grained		calcite veining	AND	0.00	54	160	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.43	42	265	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.88	21	150	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	1.39	63	70	0	4	3	6	6	19	15	J	1.0			1	F	SRM
259.5	261.0	1.50	100	1.50	100	4	300	100	AND	dark grey	fine grained		calcite veining	AND	0.00	59	0	0	4	3	6	6	19	15	J	1.0			1	G	SRM
									AND					AND	0.62	70	140	0	4	3	2	5	14	15	J	1.0	cc		1	G	SRM
									AND					AND	1.01	40	120	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.33	52	170	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
261.0	262.5	1.49	99	1.49	99	2	497	150	AND	dark grey	fine grained		calcite veining	AND	0.57	26	340	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									AND					AND	1.08	41	40	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
262.5	264.0	1.50	100	1.50	100	2	500	150	AND	dark grey	fine grained		calcite veining	AND	0.48	18	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	1.16	85	70	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
264.0	265.5	1.50	100	1.50	100	3	375	100	AND	dark grey	fine grained		calcite veining	AND	0.00	38	105	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.76	31	50	0	1	1	2	5	9	15	J	5.0	cly		1	G	SRM
									AND					AND	1.37	40	100	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
265.5	267.0	1.50	100	1.50	100	2	500	100	AND	dark grey	fine grained		calcite veining	AND	0.74	32	70	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									AND					AND	1.29	54	235	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
267.0	268.5	1.45	97	1.45	97	1	725	50	AND	dark grey	fine grained		calcite veining	AND	1.07	75	200	0	4	5	2	5	16	15	J	1.0	cly		1	F	SRM
268.5	269.9	1.40	100	1.31	94	3	350	25	AND	dark grey	fine grained		calcite veining	AND	0.45			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									AND					AND	0.73			0	4	3	6	6	19	15	J	1.0			1	None	SRM
									AND					AND	0.95			0	0	1	0	5	6	15	J	80.0	Rub		1	None	SRM
269.9	270.0	0.10	100	0.00	0	max	5	3	AND				gouge fault material	AND	0.00			0	0	1	0	3	4	15	F	100.0	cly		1	None	SRM
270.0	271.5	1.50	100	0.00	0	max	5	3	AND				gouge fault material	AND	0.00			0	0	1	0	3	4	15	F	1500.0	cly		1	None	SRM
271.5	272.5	1.00	100	0.00	0	max	5	3	AND				gouge fault material	AND	0.00			0	0	1	0	3	4	15	F	100.0	cly		1	None	SRM
272.5	273.0	0.50	100	0.36	72	4	100		AND					AND	0.05			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.20			0	0	1	0	5	6	15	J	30.0	Rub	gg	1	None	SRM
									AND					AND	0.28			0	0	1	0	5	6	15	J	30.0	Rub		1	None	SRM
									AND					AND	0.49			0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
273.0	273.8	0.80	100	0.50	62	4	160	25	AND	dark grey	fine grained		calcite veining, some altered / gougey areas	AND	0.30	60	330	0	0	1	0	5	6	15	J	40.0	gg		1	F	SRM
									AND					AND	0.38	66	0	0	0	1	2	5	8	15	J	10.0	gg		1	F	SRM
									AND					AND	0.69	73	230	0	0	1	2	5	8	15	J	10.0	gg		1	F	SRM
									AND					AND	0.80	20	230	0	0	1	0	5	6	15	J	10.0	gg	cc	1	F	SRM
273.8	274.0	0.20	100	0.00	0	max	5	5	AND				gouge fault material	AND	0.00			0	0	1	0	3	4	15	F	200.0	gg	cly	1	None	SRM
274.0	274.1	0.10	100	0.10	100	1	50	25	AND					AND	0.00			0	0	1	0	5	6	15	J	30.0	gg	cc	1	None	SRM
274.1	274.2	0.10	100	0.00	0	max	5	5	AND					AND	0.00			0	0	1	0	3	4	15	F	100.0	gg	cly	1	None	SRM
274.2	274.5	0.30	100	0.11	37	2	100	25	AND					AND	0.15	41	30	0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					AND	0.28	18	330	0	0	1	0	5	6	15	J	10.0	Rub	cc	1	None	SRM
274.5	276.0	1.50	100	1.50	100	3	375	100	AND	dark grey	fine grained		calcite veining	AND	0.62	70	245	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.99	44	70	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.38	42	350	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
276.0	277.5	1.50	100	1.38	92	4	300	100	AND	dark grey to black	fine grained		calcite and quartz vein, disseminated pyrite mineralization	AND	0.05	36	340	0	4	3	2	6	15	15	J	1.0	cc		2	VG	JBC
									AND					AND	0.46	35	0	0	4	3	2	6	15	15	J	1.0	cc	qtz	1	VG	JBC
									AND					AND	1.20	62	85	0	4	1	2	6	13	15	J	1.0	cc	qtz	1	VG	JBC
277.5	279.0	1.45	97	1.45	97	2	483	100	AND	dark grey to black	fine grained		calcite and quartz vein, disseminated pyrite mineralization	AND	0.71	40	25	0	0	1	0	6	7	15	VN	10.0	cc	qtz	1	VG	JBC
									AND					AND	0.87	50	55	0	0	1	0	6	7	15	J	10.0	cc	qtz	1	VG	JBC
279.0	280.5	1.50	100	1.10	73	7	188	100	AND	dark grey to black	fine grained		calcite and quartz vein, disseminated pyrite mineralization	AND	0.63	44	55	0	1	1	2	6	10	15	VN	5.0	cc		1	VG	JBC
									AND					AND	0.68	57	80	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	JBC
									AND					AND	0.74	42	45	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	JBC
									AND					AND	1.26	38	70	0	4	1	2	6	13	15	VN	1.0	cc		2	VG	JBC
									AND					AND	1.32	35	85	0	4	1	2	6	13	15	VN	1.0	cc		1	VG	JBC
									AND					AND	1.40	39	70	0	4	1	2	6	13	15	J	1.0	cc	qtz	1	VG	JBC
									AND					AND	1.53	44	5	0	4	1	2	6	13	15	J	1.0	cc	qtz	1	VG	JBC
280.5	282.0	1.50	100	1.23	82	7	188	100	AND	dark grey to black	fine grained			AND	0.25	46	35	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.75	30	70	0	0	1	0	6	7	15	VN	4.0	qtz	cc	1	VG	JBC
									AND					AND	1.04	62	30	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.06	25	90	0	0	1	0	5	6	15	J	1.0	cc	cly	1	VG	JBC
									AND					AND	1.10	34	20	0	4	1	2	5	12	15	F	1.0	gg	cly	1	VG	JBC
									AND					AND	1.20	44	15	0	4	1	2	6	13	15	J	1.0	cc	cly	1	VG	JBC
									AND					AND	1.47	40	45	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
282.0	283.5	1.50	100	0.94	63	9	150	100	AND	dark grey to black	fine grained		calcite veins, slightly fractured	AND	0.10	15	235	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.22	58	300	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.67	57	330	0	4	3	2	6	15	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.92	50	335	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.96	59	10	0	4	3	2	6	15	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.12	44	285	0	1	1	2	5	9	15	J	5.0	cc	cly	1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.24	50	30	0	4	1	2	6	13	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	1.28	60	20	0	1	3	2	6	12	15	J	5.0	cc		1	VG	JBC
									AND					AND	1.43	58	315	0	1	1	2	5	9	15	J	5.0	cc	cly	1	VG	JBC
283.5	285.0	1.48	99	1.30	87	7	185	100	AND	dark grey to black	fine grained		calcite veining	AND	0.07	56	20	0	1	1	2	6	10	15	J	5.0	cc		1	VG	JBC
									AND					AND	0.29	56	55	0	1	1	2	6	10	15	J	5.0	cc	cly	1	VG	JBC
									AND					AND	0.49	27	140	0	4	1	2	6	13	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.74	35	65	0	4	1	2	6	13	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.83	47	280	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.95	32	55	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.23	48	355	0	0	1	0	5	6	15	F	20.0	cly	gg	1	VG	JBC
285.0	286.5	1.47	98	1.30	87	8	163	100	AND	dark grey to black	fine grained		calcite veining	AND	0.00	45	35	0	0	1	0	6	7	15	J	10.0	cc	py	1	F	JBC
									AND					AND	0.23	52	160	0	4	1	6	6	17	15	J	1.0	cc	py	1	F	JBC
									AND					AND	0.30	36	210	0	0	3	3	5	11	15	rub	30.0	Rub	cc	1	F	JBC
									AND					AND	0.30	57	340	0	0	3	3	5	11	15	rub	30.0	Rub	cc	1	F	JBC
									AND					AND	0.50	56	30	0	0	3	0	6	9	15	J	20.0	cc	cly	1	F	JBC
									AND					AND	0.86	60	20	0	4	3	2	6	15	15	J	1.0	cc		1	F	JBC
									AND					AND	1.21	72	30	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
286.5	287.7	1.20	100	1.10	92	7	150	100	AND	dark grey to black	fine grained		minor calcite veining, micro fracturing towards end	AND	0.05	36	275	0	4	1	2	6	13	15	J	1.0	cc	py	1	F	JBC
									AND					AND	0.22	78	350	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					AND	0.36	46	60	0	4	3	2	6	15	15	J	1.0	cc	cly	1	F	JBC
									AND					AND	0.55	34	260	0	4	1	2	6	13	15	J	1.0	cc	py	1	F	JBC
									AND					AND	0.95	62	120	0	5	1	6	6	18	15	J	0.1	nil		2	F	JBC
									AND					AND	1.19	56	30	0	4	1	2	6	13	15	J	1.0	cc	cly	1	F	JBC
287.7	288.0	0.30	100	0.00	0	max	5	25	AND				highly micro fractured gougey clay matrix with angular ABX clasts, very weak	AND	0.00			0	0	1	0	5	6	15	F	300.0	Rub	cly	1	None	JBC
288.0	289.5	1.48	99	0.56	37	9	148	50	AND	dark grey to black	fine grained		slightly micro fractured, clay infill	AND	0.05	35	30	0	1	3	2	6	12	15	J	5.0	cly	cc	1	F	JBC
									AND					AND	0.10	28	5	0	4	3	2	6	15	15	J	1.0	cly	cc	1	F	JBC
									AND					AND	0.31	36	235	0	0	1	0	6	7	15	J	15.0	cc	py	1	F	JBC
									AND					AND	0.38	46	0	0	4	1	2	6	13	15	J	1.0	cly	cc	1	F	JBC
									AND					AND	0.59	35	70	0	4	3	2	5	14	15	J	1.0	cly	cc	1	F	JBC
									AND					AND	0.61	42	60	0	4	3	2	5	14	15	J	1.0	cly	cc	3	F	JBC
									AND					AND	1.12	44	120	0	4	3	2	5	14	15	J	1.0	cly	cc	10	F	JBC
289.5	290.9	1.26	90	0.18	13	10	115	50	AND	dark grey to black	fine grained		slightly micro fractured, clay infill	AND	0.00			0	1	1	2	5	9	15	J	5.0	cly	cc	10	None	JBC
290.9	291.2	0.30	100	0.00	0	max	5	25	AND				rubble zone, angular to sub rounded clasts with clayey/calcite infill	AND	0.00			0	0	3	0	5	8	15	rub	300.0	Rub	cly	1	None	JBC
291.2	292.5	1.20	92	0.37	28	7	150	50	AND	dark grey to black	fine grained		moderately micro fractured healed joints infilled with clay and minor calcite	AND	0.00	60	95	0	0	1	0	5	6	15	rub	20.0	rub	cly	1	F	JBC
									AND					AND	0.40	66	240	0	4	1	2	6	13	15	J	1.0	cly		2	F	JBC
									AND					AND	0.63	48	300	0	4	1	2	6	13	15	J	1.0	cly		2	F	JBC
									AND					AND	0.66	45	220	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	JBC
									AND					AND	1.09	58	235	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	JBC
292.5	294.0	1.50	100	0.98	65	10	136	75	AND	dark grey to black	fine grained		clay gouge seam @.60m	AND	0.15	52	345	0	1	3	2	6	12	15	J	1.0	cc	cly	1	F	JBC
									AND					AND	0.36	48	0	0	1	1	2	6	10	15	J	1.0	cly	py	1	F	JBC
									AND					AND	0.49	56	355	0	4	1	2	6	13	15	J	1.0	cly	py	1	F	JBC
									AND					AND	0.60	40	350	0	0	1	0	5	6	15	F	1.0	gg	cly	1	F	JBC
									AND					AND	0.66	60	340	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									AND					AND	0.78	78	120	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									AND					AND	0.80	52	10	0	4	1	2	6	13	15	J	1.0	cc	cly	1	F	JBC
									AND					AND	0.97	78	85	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					AND	1.31	81	10	0	4	1	2	6	13	15	J	1.0	cly	py	1	F	JBC
									AND					AND	1.41	74	55	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
294.0	295.5	1.49	99	1.15	77	9	149	100	AND	dark grey to black	fine grained		brecciated competent andesite, slightly fractured	ABX	0.00	50	200	0	4	1	2	6	13	15	J	1.0	cc	cly	1	F	JBC
									AND					ABX	0.59	65	130	0	4	3	2	6	15	15	J	1.0	cly		1	F	JBC
									AND					ABX	0.85	55	80	0	4	3	2	6	15	15	J	1.0	cly	py	1	F	JBC
									AND					ABX	0.90	25	70	0	4	3	2	6	15	15	J	1.0	cc	cly	1	F	JBC
									AND					ABX	0.96	70	180	0	4	3	4	6	17	15	J	1.0	py	cly	1	F	JBC
									AND					ABX	1.11	65	175	0	4	1	2	6	13	15	J	1.0	cly	py	1	F	JBC
									AND					ABX	1.22	55	340	0	4	3	2	6	15	15	J	1.0	cly	py	1	F	JBC
									AND					ABX	1.40	52	0	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					ABX	1.48	45	225	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
295.5	295.7	0.15	100	0.15	100	0	150	100	AND	dark grey to black	fine grained			AND	0.00			0	0	1	0	3	4	15	F	150.0	Rub	cly	1	None	JBC
295.7	296.9	1.25	100	0.14	11	20	60	25	AND	pale green to light grey	fine grained		pyrite phenocrysts, highly micro fractured and altered, gougey towards the end of the run	FT	0.00			0	0	1	0	3	4	15	F	20.0	cc	gg	20	None	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
296.9	297.4	0.45	90	0.00	0	15	28	25	AND	pale green to light grey	fine grained		highly micro fractured	FT	0.00			0	0	1	0	5	6	15	F	10.0	cc	cly	15	None	JBC
297.4	297.8	0.35	87	0.00	0	max	5	1	AND	pale green to light grey	fine grained		brecciated tuff matrix is gouge light grey/white clayey silt, some sand , xenoliths are felsic tuff angular	FT	0.00			0	0	1	0	3	4	15	F	350.0	gg	Rub	1	None	JBC
297.8	299.5	1.25	74	0.00	0	max	5	1	AND	pale green to light grey	fine grained		brecciated tuff matrix is gouge light grey/white clayey silt, some sand , xenoliths are felsic tuff angular	FT	0.00			0	0	1	0	3	4	15	F	1250.0	gg	Rub	1	None	JBC
299.5	301.1	1.11	69	0.00	0	max	5	5	AND	pale green to light grey	fine grained		brecciated tuff matrix is gouge light grey/white clayey silt, some sand , xenoliths are felsic tuff angular	FT	0.00			0	0	1	0	3	4	15	F	1110.0	gg	Rub	1	None	JBC
301.1	302.6	1.01	67	0.00	0	max	5	5	AND	pale green to light grey	fine grained		brecciated tuff matrix is gouge light grey/white clayey silt, some sand , xenoliths are felsic tuff angular	FT	0.00			0	0	1	0	3	4	15	F	1010.0	gg	Rub	1	None	SRM
302.6	304.5	1.54	81	0.00	0	max	5	1	AND				gougy fault material	FT	0.00			0	0	1	0	3	4	15	F	1540.0	gg	Rub	1	None	SRM
304.5	306.0	1.48	99	0.00	0	max	5	25	AND				highly fractured felsic tuffwith gouge/clay infill, can be broken by hand	FT	0.00			0	0	1	0	3	4	15	F	1480.0	gg	Rub	1	None	SRM
306.0	307.5	0.99	66	0.00	0	max	5	1	AND				gougy fault material	FT	0.00			0	0	1	0	3	4	15	F	990.0	gg	Rub	1	None	SRM
307.5	309.0	0.75	50	0.00	0	max	5	1	AND				gougy fault material	FT	0.00			0	0	1	0	3	4	15	F	750.0	gg	Rub	1	None	SRM
309.0	310.5	0.60	40	0.00	0	max	5	1	AND				gougy fault material	FT	0.00			0	0	1	0	3	4	15	F	600.0	gg	Rub	1	None	SRM
310.5	312.0	0.40	27	0.00	0	max	5	1	AND				gougy fault material	FT	0.00			0	0	1	0	3	4	15	F	400.0	gg	Rub	1	None	SRM
312.0	312.3	0.26	87	0.00	0	max	5	3	AND				rubble and gouge	FT	0.00			0	0	1	0	3	4	15	F	260.0	gg	Rub	1	None	SRM
312.3	313.2	0.90	100	0.37	41	6	129	50	AND				felsic tuffwith some micro fractures	FT	0.00			0	0	1	0	5	6	15	J	40.0	Rub	gg	1	None	SRM
									AND					FT	0.12			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					FT	0.25			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.51			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					FT	0.64			0	0	1	0	3	4	15	J	80.0	gg	Rub	1	None	SRM
									AND					FT	0.90			0	1	1	2	5	9	15	J	5.0	gg		1	None	SRM
313.2	313.5	0.30	100	0.00	0	max	5	1	AND				highly fractured felsic tuffrubble and gouge	FT	0.00			0	0	1	0	3	4	15	F	300.0	gg	Rub	1	None	SRM
313.5	315.0	1.48	99	0.00	0	max	5	1	AND				highly fractured felsic tuffrubble and gouge	FT	0.00			0	0	1	0	3	4	15	F	1480.0	gg	Rub	1	None	SRM
315.0	315.4	0.40	100	0.00	0	max	5	1	AND				highly fractured felsic tuffrubble and gouge	FT	0.00			0	0	1	0	3	4	15	F	400.0	gg	Rub	1	None	SRM
315.4	316.2	0.75	100	0.20	27	9	75	1	AND				felsic tuffmicro fractured, fell apart while handling	FT	0.00			0	0	1	0	5	6	15	J	20.0	gg		1	None	SRM
									AND					FT	0.25			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									AND					FT	0.30			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.34			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.41			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.50			0	4	1	2	3	10	15	J	1.0	gg		1	None	SRM
									AND					FT	0.65			0	0	1	0	3	4	15	J	60.0	Rub	gg	1	None	SRM
									AND					FT	0.70			0	4	1	2	3	10	15	J	1.0	cly		1	None	SRM
									AND					FT	0.75			0	0	3	0	3	6	15	J	40.0	gg	Rub	1	None	SRM
316.2	316.5	0.35	100	0.00	0	max	5	3	AND				highly fractured felsic tuffrubble and gouge	FT	0.00			0	0	1	0	3	4	15	F	350.0	gg	Rub	1	None	SRM
316.5	318.0	1.50	100	0.00	0	max	5	3	AND				highly altered felsic tuff gouge	FT	0.00			0	0	1	0	3	4	15	F	1500.0	gg	Rub	1	None	SRM
318.0	319.5	0.95	63	0.00	0	max	5	3	AND				highly altered felsic tuff gouge	FT	0.00			0	0	1	0	3	4	15	F	950.0	gg	Rub	1	None	SRM
319.5	320.0	0.50	100	0.00	0	max	5	4	AND				gouge/ very soft rock	FT	0.00			0	0	1	0	3	4	15	F	500.0	gg	Rub	1	None	SRM
320.0	321.0	1.00	100	1.00	100	1	500	3	AND	dark grey	fine grained		very soft almost gougey	FT	0.00	70	230	0	0	5	0	3	8	15	J	80.0	Rub		1	F	SRM
321.0	322.5	1.42	95	1.29	86	2	473	3	AND	dark grey	fine grained		very soft almost gougey	FT	0.30	51	270	0	0	3	0	5	8	15	J	50.0	Rub		1	F	SRM
									AND					FT	0.66	50	210	0	0	3	0	5	8	15	J	80.0	gg	Rub	1	F	SRM
322.5	323.9	1.35	100	0.00	0	7	169	3	AND	dark grey	fine grained		very soft almost gougey	FT	0.42			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.50			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.84			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									AND					FT	0.93			0	4	1	2	3	10	15	J	1.0	cly		1	None	SRM
									AND					FT	1.05			0	0	3	0	3	6	15	J	20.0	Rub		1	None	SRM
									AND					FT	1.17			0	4	1	2	3	10	15	J	1.0	cly		1	None	SRM
									AND					FT	1.22			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
323.9	324.0	0.15	100	0.00	0	max	5	4	AND				rubble	FT	0.00			0	0	1	0	3	4	15	F	150.0	cly	Rub	1	None	JBC
324.0	325.5	1.50	100	1.33	89	5	250	100	AND	dark grey to black	fine grained		minor calcite veining, slightly fractured	AND	0.20	43	70	0	4	1	2	3	10	15	J	1.0	cly		1	VG	JBC
									AND					AND	0.22	64	335	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									AND					AND	0.49	35	120	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									AND					AND	0.90	69	55	0	4	1	2	6	13	15	J	1.0	cly	cc	1	VG	JBC
									AND					AND	1.20	46	340	0	4	1	2	6	13	15	J	1.0	cly	cc	1	VG	JBC
325.5	327.0	1.50	100	1.00	67	7	188	100	AND	dark grey to black	fine grained		slightly micro fractured	AND	0.25	23	325	0	1	1	2	6	10	15	J	2.0	cly	cc	10	VG	JBC
									AND					AND	0.50	51	320	0	4	1	2	6	13	15	J	1.0	cly	cc	1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition						Water							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.75	40	55	0	5	3	2	5	15	15	J	0.1	cly	cc	1	VG	JBC
									AND					AND	1.06	83	65	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	JBC
									AND					AND	1.19	28	155	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									AND					AND	1.36	50	100	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									AND					AND	1.42	5	120	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
327.0	328.5	1.50	100	1.09	73	5	250	100	AND	dark grey to black	fine grained		slightly micro fractured, calcite veining throughout	AND	0.28	42	125	0	1	3	2	6	12	15	J	5.0	cc		1	VG	JBC
									AND					AND	0.70	46	125	0	4	1	2	6	13	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.83	40	260	0	1	1	2	6	10	15	J	5.0	cc	py	1	VG	JBC
									AND					AND	1.12	56	355	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									AND					AND	1.43	32	110	0	4	1	2	6	13	15	J	1.0	cc	cly	1	VG	JBC
328.5	330.0	1.48	99	1.14	76	8	164	100	AND	dark grey to black	fine grained		slightly micro fractured, calcite veining throughout	AND	0.12	30	325	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.21	40	300	0	0	1	0	6	7	15	J	20.0	cc	cly	1	VG	JBC
									AND					AND	0.51	37	60	0	4	3	2	6	15	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.72	70	340	0	4	1	2	6	13	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.88	59	310	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.25	52	165	0	4	3	2	6	15	15	J	1.0	cly		1	VG	JBC
									AND					AND	1.42	40	125	0	4	3	2	6	15	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.46	38	90	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
330.0	331.5	1.50	100	1.50	100	3	375	125	AND	dark grey to black	fine grained		minor calcite veining	AND	0.45	32	130	0	4	1	2	6	13	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.74	45	200	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.01	43	305	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
331.5	333.0	1.44	96	1.44	96	2	480	150	AND	dark grey to black	fine grained		minor calcite veining	AND	0.25	45	185	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					AND	1.26	60	345	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
333.0	334.5	1.50	100	1.44	96	3	375	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.32	25	130	0	1	1	2	6	10	15	J	7.0	cc		1	VG	JBC
									AND					AND	1.13	77	0	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.30	64	175	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
334.5	336.0	1.48	99	1.36	91	3	370	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.15	63	20	0	4	1	2	6	13	15	J	1.0	cc	cly	1	F	JBC
									AND					AND	1.06	44	180	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					AND	1.41	49	335	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
336.0	337.5	1.45	97	1.45	97	0	1450	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.00			6	6	6	6	6	30	15		0.0			1	P	JBC
337.5	339.0	1.50	100	1.42	95	4	300	175	AND	dark grey to black	fine grained		minor calcite veining, strong pyrite dissemination throughout rock altered zone @.46m-.51m	AND	0.46	12	155	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									AND					AND	0.51	27	160	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									AND					AND	0.55	49	315	0	4	1	2	6	13	15	J	1.0	cc		1	P	JBC
									AND					AND	1.14	32	305	0	4	1	4	6	15	15	J	1.0	py		1	P	JBC
339.0	340.5	1.48	99	1.48	99	2	493	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.17	55	350	0	4	3	2	6	15	15	J	1.0	cc		1	P	JBC
									AND					AND	1.23	60	190	0	4	1	6	6	17	15	J	1.0	nil		1	P	JBC
340.5	342.0	1.47	98	1.47	98	2	490	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.76	33	55	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					AND	0.95	43	335	0	4	1	2	6	13	15	J	1.0	cc	cly	1	F	JBC
342.0	343.5	1.50	100	1.50	100	1	750	175	AND	dark grey to black	fine grained		minor micro fractures towards the middle of the run, pyrite blebs	AND	1.24	41	320	0	5	1	2	6	14	15	J	0.1	cc		1	VG	JBC
343.5	345.0	1.43	95	1.30	87	3	358	150	AND	dark grey to black	fine grained		minor fractures, pyrite blebs	AND	0.20	43	25	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	VG	JBC
									AND					AND	0.66	31	40	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.85	34	60	0	1	3	2	6	12	15	J	5.0	cc	py	1	VG	JBC
345.0	346.5	1.50	100	1.24	83	4	300	150	AND	dark grey to black	fine grained		minor fractures, pyrite blebs	AND	0.20	33	355	0	5	3	6	6	20	15	J	0.1	nil		1	VG	JBC
									AND					AND	1.27	65	35	0	4	0	2	6	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.34	37	70	0	5	1	2	6	14	15	J	0.1	cc	py	1	VG	JBC
									AND					AND	1.46	55	40	0	4	1	2	6	13	15	J	1.0	CC	cly	1	VG	JBC
346.5	348.0	1.49	99	1.49	99	1	745	150	AND	dark grey to black	fine grained		minor fractures, pyrite blebs	AND	0.29	59	350	0	1	1	2	6	10	15	J	5.0	CC		1	VG	JBC
348.0	349.5	1.50	100	1.50	100	1	750	150	AND	dark grey to black	fine grained		calcite veining	AND	0.91	50	130	0	4	1	6	6	17	15	J	1.0			1	F	SRM
349.5	351.0	1.48	99	1.48	99	1	740	150	AND	dark grey to black	fine grained		calcite veining	AND	0.00	64	110	0	4	1	6	6	17	15	J	1.0			1	P	SRM
351.0	352.5	1.50	100	1.50	100	1	750	150	AND	dark grey to black	fine grained		calcite veining	AND	1.17	61	265	0	4	1	6	6	17	15	J	1.0			1	P	SRM
352.5	354.0	1.50	100	1.50	100	1	750	150	AND	dark grey to black	fine grained		calcite veining	AND	1.23	44	290	0	4	1	6	6	17	15	J	1.0			1	P	SRM
354.0	355.5	1.50	100	1.50	100	4	300	150	AND	dark grey to black	fine grained		calcite veining	AND	0.00	51	0	0	1	3	6	6	16	15	J	5.0			1	P	SRM
									AND					AND	0.77	35	330	0	1	1	2	5	9	15	J	5.0	CC		1	P	SRM
									AND					AND	0.99	50	290	0	4	1	6	6	17	15	J	1.0			1	P	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																	Joint Condition						Water							
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.37	47	250	0	4	1	6	6	17	15	J	1.0			1	P	SRM
355.5	357.0	1.50	100	1.50	100	3	375	150	AND	dark grey to black	fine grained		calcite veining	AND	0.70	38	50	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.93	33	30	0	4	3	2	5	14	15	J	1.0	cly		1	P	SRM
									AND					AND	1.25	39	40	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	SRM
357.0	358.5	1.50	100	1.50	100	1	750	200	AND	dark grey to black	fine grained		calcite veining	AND	1.39	47	0	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
358.5	360.0	1.50	100	1.50	100	1	750	200	AND	dark grey to black	fine grained		calcite veining	AND	0.86	56	50	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
360.0	361.5	1.50	100	1.50	100	1	750	200	AND	dark grey to black	fine grained		calcite veining	AND	0.96	66	300	0	4	1	6	6	17	15	J	1.0			1	P	SRM
361.5	363.0	1.47	98	1.47	98	2	490	200	AND	dark grey to black	fine grained		calcite veining	AND	0.32	52	310	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
									AND					AND	1.29	57	340	0	4	3	6	6	19	15	J	1.0			1	P	SRM
363.0	364.5	1.46	97	1.46	97	3	365	200	AND	dark grey to black	fine grained		calcite veining	AND	0.37	57	340	0	4	1	2	5	12	15	J	1.0			1	P	SRM
									AND					AND	0.71	61	315	0	4	3	6	6	19	15	J	1.0			1	P	SRM
									AND					AND	1.34	69	0	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
364.5	366.0	1.50	100	1.50	100	2	500	200	AND	dark grey to black	fine grained		calcite veining	AND	0.67	54	150	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									AND					AND	1.15	65	100	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
366.0	367.5	1.41	94	1.41	94	0	1410	200	AND	dark grey to black	fine grained		calcite veining	AND	0.00			6	6	6	6	6	30	15		0.0			1	VG	SRM
367.5	369.0	1.50	100	1.50	100	1	750	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.87	40	15	0	4	1	6	6	17	15	J	1.0	nil		1	VG	SRM
									AND					AND	1.38	31	120	0	1	1	2	6	10	15	J	1.0	cc		1	VG	SRM
369.0	370.5	1.50	100	1.41	94	2	500	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.40	49	90	0	4	1	2	6	13	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.30	32	85	0	4	1	2	6	13	15	J	1.0	cly		1	VG	SRM
370.5	372.0	1.50	100	1.41	94	4	300	175	AND	dark grey to black	fine grained		minor calcite veining	AND	0.67	51	300	0	5	1	6	6	18	15	J	0.1	nil		1	VG	SRM
									AND					AND	1.06	60	140	0	5	1	4	6	16	15	J	0.1	py		1	VG	SRM
									AND					AND	1.26	58	310	0	4	1	6	6	17	15	J	1.0	nil		1	VG	SRM
									AND					AND	1.38	60	300	0	4	1	6	6	17	15	J	1.0	nil		1	VG	SRM
372.0	373.5	1.50	100	1.21	81	6	214	175	AND	dark grey to black	fine grained		micro fracturing, strong calcite dissemination	AND	0.79	26	325	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.87	41	330	0	4	1	2	6	13	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.92	47	5	0	4	3	2	6	15	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.15	37	355	0	5	1	2	6	14	15	J	0.1	cc		1	VG	JBC
									AND					AND	1.29	56	0	0	4	3	6	6	19	15	J	1.0	nil		1	VG	JBC
									AND					AND	1.55	60	60	0	4	3	2	6	15	15	J	1.0	cc	cly	1	VG	JBC
373.5	375.0	1.47	98	1.47	98	1	735	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining	AND	0.15	20	120	0	4	3	2	6	15	15	J	1.0	cc	cly	1	VG	JBC
375.0	376.5	1.50	100	1.50	100	1	750	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining	AND	1.11	25	310	0	4	1	2	6	13	15	J	1.0	cc		1	G	JBC
376.5	378.0	1.49	99	1.38	92	2	497	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining, stockwork qtz	AND	1.00	40	0	0	4	3	2	6	15	15	J	1.0	cc		1	G	JBC
									AND						1.41	54	15	0	4	3	2	6	15	15	J	1.0	cc		1	G	JBC
378.0	379.5	1.50	100	1.50	100	2	500	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining	AND	0.61	61	330	0	5	1	2	6	14	15	J	0.1	cc		1	G	JBC
									AND						1.28	52	280	0	5	1	2	6	14	15	J	0.1	cc		1	G	JBC
379.5	381.0	1.49	99	1.49	99	1	745	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining	AND	1.40	45	150	0	4	1	2	6	13	15	J	1.0	cc		1	G	JBC
381.0	382.5	1.50	100	1.50	100	1	750	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining, phenocrysts throughout rock	AND	0.99	70	35	0	4	1	2	6	13	15	J	1.0	cc		1	G	JBC
382.5	384.0	1.49	99	1.45	97	3	373	175	AND	dark grey to black	fine grained		micro fracturing, calcite veining	AND	0.91	46	175	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									AND					AND	1.19	54	190	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									VC					AND	1.46	8	80	0	4	1	2	6	13	15	J	1.0	cc	cly	1	F	JBC
384.0	385.5	1.50	100	1.40	93	2	500	200	VC	light grey	fine grained		porphyritic texture, monzonite, phenocrysts are andesite, plagioclase, and pyrite	MNZ	0.46	41	150	0	4	1	2	6	13	15	J	1.0	cly		1	P	JBC
									VC					MNZ	1.20	75	330	0	4	1	2	6	13	15	J	1.0	cly		1	P	JBC
									VC					MNZ	1.47	45	310	0	4	1	2	6	13	15	J	1.0	cly		1	P	JBC
385.5	387.0	1.49	99	1.11	74	7	186	125	VC	light grey	fine grained		andesite phenocrysts, some pyrite blebs and strings	MNZ	0.07	60	310	0	4	1	2	6	13	15	J	1.0	cly	py	1	F	JBC
									VC					MNZ	0.25	36	140	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									VC					MNZ	0.28	44	355	0	4	3	6	6	19	15	J	1.0	nil		1	F	JBC
									VC					MNZ	0.51	53	285	0	4	3	2	6	15	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.69	66	320	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									VC					MNZ	1.11	56	300	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	F	JBC
									VC					MNZ	1.43	60	280	0	4	3	2	5	14	15	J	1.0	cly	Rub	1	F	JBC
387.0	388.5	1.50	100	0.88	59	14	100	100	VC	light grey	fine grained		angular black andesite xenoliths	MNZ	0.05	65	350	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
									VC					MNZ	0.12	54	70	0	1	3	2	5	11	15	J	5.0	cc	Rub	1	F	JBC
									VC					MNZ	0.20	33	55	0	1	3	2	5	11	15	J	5.0	cc	cly	1	F	JBC
									VC					MNZ	0.30	39	130	0	4	1	2	6	13	15	J	1.0	cly	cc	1	F	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition						Water								
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					MNZ	0.33	37	120	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.43	52	90	0	4	3	2	6	15	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.45	50	60	0	4	3	2	6	15	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.60	64	40	0	4	3	6	6	19	15	J	1.0	nil		1	F	JBC
									VC					MNZ	0.74	35	10	0	4	3	2	6	15	15	J	1.0	cc	cly	1	F	JBC
									VC					MNZ	0.80	56	0	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.85	76	80	0	4	3	6	6	19	15	J	1.0	nil		1	F	JBC
									VC					MNZ	1.08	75	65	0	4	1	6	6	17	15	J	1.0	nil		1	F	JBC
									VC					MNZ	1.24	41	51	0	4	1	2	6	13	15	J	1.0	cc		1	F	JBC
									VC					MNZ	1.46	50	80	0	4	1	6	6	17	15	J	1.0	cly		1	F	JBC
388.5	390.0	1.50	100	0.90	60	11	125	150	VC	light grey	fine grained		breccia xenoliths are angular andesite, pyrite and plagioclase, slightly fractures	MNZ	0.10	53	0	0	1	3	2	6	12	15	J	5.0	cly	Rub	1	F	JBC
									VC					MNZ	0.15	45	310	0	4	1	6	6	17	15	J	1.0	nil		1	F	JBC
									VC					MNZ	0.30	61	330	0	1	1	2	6	10	15	J	5.0	cly		1	F	JBC
									VC					MNZ	0.40	23	295	0	4	3	2	6	15	15	J	1.0	cc		1	F	JBC
									VC					MNZ	0.40	19	45	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.50	64	205	0	4	1	2	6	13	15	J	1.0	cly		1	F	JBC
									VC					MNZ	0.51	60	200	0	0	1	0	5	6	15	J	15.0	Rub	cly	1	F	JBC
									VC					MNZ	0.94	57	175	0	5	1	6	5	17	15	J	0.1	nil		1	F	JBC
									VC					MNZ	1.15	71	290	0	4	1	6	5	16	15	J	1.0	nil		1	F	JBC
									VC					MNZ	1.22	34	120	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					MNZ	1.30	26	300	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
390.0	391.5	1.50	100	0.83	55	9	150		VC	light grey	fine grained		breccia xenoliths are angular andesite, pyrite and plagioclase, slightly fractures	MNZ	0.00	40	30	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	JBC
									VC						0.33	25	30	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC						0.43	81	330	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC						0.51	74	90	0	4	1	6	6	17	15	J	1.0			1	F	JBC
									VC						0.70	33	30	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC						0.77	34	50	0	4	1	2	5	12	15	J	1.0			1	F	JBC
									VC						0.83	65	130	0	0	1	0	3	4	15	J	70.0	gg		1	F	JBC
									AND						1.23	18	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									AND						1.26	26	190	0	0	3	0	3	6	15	J	80.0	Rub		1	F	JBC
391.5	392.4	0.86	100	0.00	0	max	5	5	AND				micro fractured/ gougey felsic tuff		0.00			0	0	1	0	3	4	15	F	860.0	Rub	cly	1	none	SRM
392.4	393.0	0.64	100	0.00	0	6	91	25	AND				felsic tuff		0.07			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
									AND						0.22			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
									AND						0.25			0	0	1	0	3	4	15	J	10.0	Rub		1	none	SRM
									AND						0.36			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
									AND						0.48			0	4	1	2	3	10	15	J	1.0	cly		1	none	SRM
									AND						0.55			0	4	1	2	3	10	15	J	1.0	cly	Rub	1	none	SRM
393.0	394.5	1.20	80	0.00	0	max	5	4	AND				highly fractured, gougey broken zone		0.00			0	0	1	0	3	4	15	F	1200.0	gg	Rub	1	none	SRM
394.5	396.0	1.25	83	0.00	0	max	5	3	AND				highly fractured, gougey broken zone		0.00			0	0	1	0	3	4	15	F	1250.0	gg	Rub	1	none	SRM
396.0	397.5	1.10	73	0.00	0	max	5	3	AND				highly fractured, gougey broken zone		0.00			0	0	1	0	3	4	15	F	1100.0	gg	Rub	1	none	SRM
397.5	398.4	0.90	100	0.00	0	max	5	5	AND				highly fractured, gougey broken zone		0.00			0	0	1	0	3	4	15	F	900.0	gg	Rub	1	none	SRM
398.4	399.0	0.60	100	0.56	93	2	200		AND						0.18	45	160	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND						0.58	60	40	0	1	1	2	5	9	15	J	5.0	cly		1	F	SRM
399.0	400.5	1.50	100	1.19	79	10	136		AND						0.05			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									AND						0.11			0	0	1	0	5	6	15	J	30.0	Rub		1	none	SRM
									AND						0.70			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									AND						0.81			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
									AND						0.90			0	4	1	2	5	12	15	J	5.0	cly		1	none	SRM
									AND						1.02			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									AND						1.16			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									AND						1.32			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									AND						1.40			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									AND						1.48			0	4	1	6	6	17	15	J	1.0			1	none	SRM

EOH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	31MAR'13	ISSUED WITH REPORT	JBC	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-08

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-08_Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	4.7	2.1		0		-		-	OB	-	-	-		OB																	JBC
4.7	6.0	1.30	100	0.00	0	max	5	0.25	VC	light grey	breccia	massive	moderately weathered	VC	0.00			0	0	5	0	3	8	15	J	10.0	cly	ox	50	None	JBC
6.0	7.5	1.26	84	0.00	0	50	25	0.25	VC	light grey	breccia	massive	moderately weathered	VC	0.00			0	0	5	0	3	8	15	J	10.0	cly	ox	50	None	JBC
7.5	9.0	1.20	80	0.34	23	50	24	0.25	VC	orange brown	breccia	massive	moderately weathered	VC	0.00			0	0	5	0	3	8	15	J	10.0	cly	ox	50	None	JBC
9.0	10.5	1.20	80	0.36	24	50	24	0.25	VC	orange brown	breccia	massive	moderately weathered	VC	0.00			0	0	5	0	3	8	15	J	10.0	cly	ox	50	None	JBC
10.5	12.0	1.38	92	0.00	0	50	27	0.25	VC	orange brown	breccia	massive	moderately weathered	VC	0.00			0	0	3	0	3	6	15	J	10.0	cly	ox	50	None	JBC
12.0	13.5	1.50	100	0.74	49	13	107	0.25	VC	orange brown	breccia	massive	moderately weathered	VC	0.00			0	3	3	0	3	9	15	J	10.0	cly	ox	13	None	JBC
13.5	15.0	1.50	100	0.30	20	MAX	5	0.25	VC	orange brown	breccia	massive	moderately weathered	VC	0.00			0	0	1	0	3	4	15	J	10.0	cly	ox	1	None	SRM
15.0	16.5	0.90	60	0.56	37	MAX	5	0.25	VC	orange brown	breccia	massive	moderately weathered	VC	0.00			0	0	1	0	3	4	15	J	10.0	cly	ox	1	None	SRM
16.5	18.0	1.50	100	0.77	51	12	115	25	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.00			0	1	2	2	3	8	15	J	5	cly	ox	12	None	SRM
18.0	19.5	1.50	100	1.35	90	5	250	25	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.00			0	3	2	2	3	10	15	J	5.0	cly	ox	5	None	SRM
19.5	21.0	1.50	100	0.67	45	14	100	25	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.00			0	1	2	2	3	8	15	J	5	cly	ox	14	None	SRM
21.0	22.5	1.37	91	0.92	61	5	228	25	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.00			0	4	2	2	3	11	15	J	1.0	ox		5	None	SRM
22.5	24.0	1.50	100	0.90	60	4	300	50	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.32			0	4	2	4	5	15	15	J	1.0	ox		1	None	SRM
									VC					VC	0.42			0	1	2	2	3	8	15	J	5	cly	ox	1	None	SRM
									VC					VC	0.45			0	1	2	2	3	8	15	J	5	cly	ox	1	None	SRM
									VC					VC	0.86			0	0	2	3	3	8	15	J	10.0	cly	ox	1	None	SRM
24.0	25.5	1.50	100	1.16	77	8	167	100	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.16	55		0	4	3	6	5	18	15	J	1.0	ox		1	None	SRM
									VC					VC	0.30	66		0	4	3	6	5	18	15	J	1.0	ox		1	None	SRM
									VC					VC	0.70	35		0	4	2	6	5	17	15	J	1.0	ox		1	None	SRM
									VC					VC	0.72	30		0	4	2	6	5	17	15	J	1.0	ox		1	None	SRM
									VC					VC	1.00	70		0	4	2	6	5	17	15	J	1.0	ox		1	None	SRM
									VC					VC	1.30	30		0	4	1	4	3	12	15	J	1.0	ox		1	None	SRM
									VC					VC	1.36	15		0	4	1	4	3	12	15	J	1.0	ox		1	None	SRM
									VC					VC	1.46	25		0	1	5	3	3	12	15	J	5	cly	ox	1	None	SRM
25.5	27.0	1.50	100	0.95	63	7	188	25	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.10	20	85	0	4	1	6	5	16	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.45			0	0	0	0	3	3	15	J	10.0	cly	ox	1	None	SRM
									VC					VC	0.68	40	350	0	4	2	4	3	13	15	J	1.0	ox		1	F	SRM
									VC					VC	1.30	68	180	0	4	1	4	3	12	15	J	1.0	ox		1	F	SRM
									VC					VC	1.30	20	320	0	4	1	4	3	12	15	J	1.0	ox		1	F	SRM
									VC					VC	1.47	38	100	0	1	3	4	3	11	15	J	5	cly	ox	1	F	SRM
									VC					VC	1.52	60	160	0	1	3	4	3	11	15	J	5	cly	ox	1	F	SRM
27.0	28.5	1.20	80	0.60	40	11	100	25	VC	orange brown to light grey	breccia	massive	moderately weathered	VC	0.00			0	1	5	3	3	12	15	J	5	cly	ox	1	None	SRM
									VC					VC	0.15			0	4	1	6	3	14	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.33			0	1	3	4	3	11	15	J	5	cly	ox	1	None	SRM
									VC					VC	0.36			0	1	3	4	3	11	15	J	5	ox		1	None	SRM
									VC					VC	0.54			0	4	1	6	3	14	15	J	1.0	ox		1	None	SRM
									VC					VC	0.61			0	4	1	6	3	14	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.65			0	4	1	5	3	13	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.80			0	4	1	6	5	16	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.92			0	1	1	6	3	11	15	J	5	cly	ox	1	None	SRM
									VC					VC	1.03			0	1	1	0	3	5	15	J	5	cly	ox	1	None	SRM
									VC					VC	1.13			0	1	1	0	3	5	15	J	5	cly	ox	1	None	SRM
28.5	30.0	1.50	100	1.07	71	6	214	25	VC	grey	breccia	massive	moderately weathered	VC	0.00	50	10	0	1	5	2	3	11	15	J	5	cly	ox	1	F	SRM
									VC					VC	0.15	55	310	0	4	1	4	5	14	15	J	1.0	ox		1	F	SRM
									VC					VC	0.26	50	170	0	4	1	4	5	14	15	J	1.0	ox		1	F	SRM
									VC					VC	0.83	45	260	0	4	4	4	3	15	15	J	1.0	ox		1	F	SRM
									VC					VC	0.91	55	20	0	4	1	6	3	14	15	J	1.0	ox		1	F	SRM
									VC					VC	1.45	50	140	0	4	3	3	3	13	15	J	1.0	ox		1	F	SRM
30.0	31.5	1.45	97	0.00	0	MAX	5	25	VC	grey	breccia	massive	moderately weathered	VC	0.00			0	0	1	0	3	4	15	J	5.0	cly	ox	1	F	SRM
31.5	33.0	1.50	100	0.35	23	25	58	25	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	4	2	2	5	13	15	J	1.0	cly	ox	25	None	SRM
33.0	34.5	1.20	80	0.36	24	10	109	25	VC	grey	breccia	massive	slightly weathered	VC	0.00	32	350	0	4	1	4	5	14	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.10	82	180	0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.20	30	40	0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.30	35	100	0	4	2	2	5	13	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.40	12	70	0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.60	25	340	0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.80	80	160	0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.90	35	340	0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.96	30	320	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.10	60	10	0	1	1	0	5	7	15	J	5	cly	ox	1	F	SRM
34.5	36.0	1.40	93	0.28	19	MAX	5	25	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	4	1	4	5	14	15	J	1.0	cly	ox	1	F	SRM
36.0	37.5	1.00	67	0.12	8	MAX	5	10	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	1	1	0	5	7	15	J	5	cly	ox	1	None	SRM
37.5	39.0	1.06	71	0.15	10	MAX	5	10	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	1	1	0	3	5	15	J	5	Rub		1	None	SRM
39.0	40.5	1.45	97	0.25	17	30	47	25	AND	grey	breccia	massive	slightly weathered	AND	0.00			0	0	3	0	3	6	15	J	5.0	Rub		30	None	JBC
40.5	42.0	1.50	100	1.23	82	15	94	50	AND	grey	breccia	massive	moderately weathered	AND	0.00			0	1	1	2	5	9	15	J	5	Rub		15	None	JBC
42.0	43.5	1.50	100	0.58	39	MAX	5	25	AND	grey	breccia	massive	moderately weathered	AND	0.00			0	0	1	0	3	4	15	J	5.0	Rub		1	None	JBC
43.5	45.0	1.38	92	0.54	36	Max	5	25	AND	grey	breccia	massive	moderately weathered	AND	0.00			0	0	1	0	3	4	15	J	5.0	Rub		1	None	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
45.0	46.5	1.50	100	0.56	37	10	136	25	AND	grey	breccia	massive	slightly weathered	AND	0.10	25	270	0	4	1	0	5	10	15	J	1.0	Rub		1	None	JBC
									AND					AND	0.20	35	270	0	4	3	0	5	12	15	J	1.0	cc		1	F	JBC
									AND					AND	0.34	55	40	0	4	1	0	5	10	15	J	1.0	cc		1	F	JBC
									AND					AND	0.36	65	50	0	4	1	0	5	10	15	J	1.0	cc		1	F	JBC
									AND					AND	0.47	30	270	0	4	1	0	5	10	15	J	1.0	cc		1	F	JBC
									AND					AND	0.55	20	320	0	4	1	0	5	10	15	J	1.0	cc		1	F	JBC
									AND					AND	0.70	20	300	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.84	40	280	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.96	25	260	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	1.28	35	0	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
46.5	48.0	1.42	95	0.81	54	8	158	25	AND	grey	breccia	massive	slightly weathered	AND	0.10	30	60	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.49	45	250	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.60	40	240	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.65	20	320	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	1.00	20	10	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	1.30	30	15	0	4	1	0	5	10	15	J	1.0	cc		1	F	JBC
									AND					AND	1.35	35	10	0	4	1	0	5	10	15	J	1.0	cc		1	F	JBC
48.0	49.5	1.50	100	0.48	32	13	107	25	AND	grey	breccia	massive	slightly weathered	AND	0.25	20	250	0	1	5	4	5	15	15	J	5	cly	gg	1	F	JBC
									AND					AND	0.38	25	320	0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	JBC
									AND					AND	0.40	25	300	0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	JBC
									AND					AND	0.50	40	320	0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	JBC
									AND					AND	0.55	35	310	0	4	3	4	5	16	15	J	1.0	cly	gg	1	F	JBC
									AND					AND	0.65	40	320	0	4	5	4	5	18	15	J	1.0	cly	gg	1	F	JBC
									AND					AND	0.70	25	300	0	1	5	4	5	15	15	J	5	cly	gg	1	F	JBC
									AND					AND	0.75	10	300	0	1	5	4	5	15	15	J	5	cly	gg	1	F	JBC
									AND					AND	0.85	20	290	0	1	5	4	5	15	15	J	5	cly	gg	1	F	JBC
									AND					AND	0.94	35	230	0	1	3	2	5	11	15	J	5	cly	gg	1	F	JBC
									AND					AND	1.10	40	230	0	1	3	2	5	11	15	J	5	cly	gg	1	F	JBC
									AND					AND	1.55	40	40	0	1	1	2	5	9	15	J	5	cly	gg	1	F	JBC
									AND					AND	1.60	35	26	0	1	1	4	5	11	15	J	5	cly	gg	1	F	JBC
49.5	51.0	1.43	95	0.31	21	17	79	25	AND	grey	breccia	massive	slightly weathered	AND	0.40	60	230	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									AND					AND	0.50	40	140	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND				0	0	1	0	5	6	15	J	5.0	cc		15	F	JBC
51.0	52.5	1.50	100	0.39	26	7	188	25	AND	grey	breccia	massive	slightly weathered	AND	0.55	35	290	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.65	30	260	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	0.77	35	100	0	4	5	2	5	16	15	J	1.0	cc		1	F	JBC
									AND					AND	0.77	35	230	0	4	5	2	5	16	15	J	1.0	cc		1	F	JBC
									AND					AND	1.02	20	290	0	4	5	2	5	16	15	J	1.0	cc		1	F	JBC
									AND					AND	1.05	70	60	0	4	3	2	5	14	15	J	1.0	cc		1	F	JBC
									AND					AND	1.30	5	330	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
52.5	54.0	1.46	97	0.14	9	16	86	25	AND	grey	breccia	massive	slightly weathered	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		16	None	JBC
54.0	55.5	1.44	96	0.46	31	50	28	10	AND	grey	breccia	massive	slightly weathered	AND	0.00			0	4	3	2	5	14	15	J	1.0	cc		50	None	JBC
55.5	57.0	1.42	95	0.32	21	20	68	25	AND	grey	breccia	massive	slightly weathered	AND	0.00			0	4	3	2	5	14	15	J	1.0	cc		20	None	JBC
57.0	58.5	1.39	93	0.24	16	8	154	25	VC	grey	breccia	massive	slightly weathered	VC	0.10	45	260	0	1	1	2	5	9	15	J	5.0	cc		1	F	JBC
									VC					VC	0.40	25	330	0	1	1	2	5	9	15	J	5.0	cc		1	F	JBC
									VC					VC	0.45	30	320	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
									VC					VC	0.50	10	40	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
									VC					VC	0.50	35	80	0	1	1	2	5	9	15	J	5.0	cc		1	F	JBC
									VC					VC	0.60	40	75	0	1	1	2	5	9	15	J	5.0	cc		1	F	JBC
									VC					VC	0.65	35	230	0	1	1	2	5	9	15	J	5.0	cc		1	F	JBC
									VC					VC	0.70	80	80	0	1	3	2	5	11	15	J	5.0	cc		1	F	JBC
58.5	60.0	1.50	100	0.00	0	9	150	25	VC	grey	breccia	massive	slightly weathered	VC	0.42	35	300	0	0	5	4	3	12	15	J	100.0	gg		1	G	JBC
									VC					VC	0.42	40	300	0	1	5	2	5	13	15	J	5.0	cly	gg	1	G	JBC
									VC					VC	0.55	30	270	0	1	5	2	5	13	15	J	5.0	cly	gg	1	G	JBC
									VC					VC	0.70	40	200	0	1	5	2	5	13	15	J	5.0	cly	gg	1	G	JBC
									VC					VC	0.88	30	190	0	1	3	2	5	11	15	J	5.0	cly	gg	1	G	JBC
									VC					VC	1.00	20	0	0	1	3	2	5	11	15	J	5.0	cly	gg	1	G	JBC
									VC					VC	1.20	10	20	0	4	3	2	5	14	15	J	2.0	cc		1	G	JBC
									VC					VC	1.45	40	100	0	1	3	2	5	11	15	J	5.0	cc		1	G	JBC
									VC					VC	1.54	50	10	0	4	3	2	5	14	15	J	2.0	cc		1	G	JBC
60.0	60.7	0.70	100	0.50	71	2	233	10	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	1	3	2	5	11	15	Sh	5	cc		2	None	SRM
60.7	61.5	0.80	100	0.00	0	Max	5	10	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	1	3	2	5	11	15	rub	5	cc		1	None	SRM
61.5	63.0	1.30	87	0.00	0	Max	5	10	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	0	1	0	3	4	15	F	1300.0	Rub	cly	1	None	SRM
63.0	64.5	1.50	100	1.50	100	5	250	100	VC	grey	breccia	massive	slightly weathered	VC	0.20	18	100	0	1	3	6	5	15	15	J	5	cc		1	F	SRM
									VC					VC	0.36	20	100	0	4	3	4	5	16	15	J	1.0	cc		1	F	SRM
									VC					VC	0.86	25	80	0	4	3	2	5	14	15	J	1.0	cc		1	F	SRM
									VC					VC	1.09	58	160	0	4	1	4	5	14	15	J	1.0	cc		1	F	SRM
									VC					VC	1.12	30	350	0	4	3	6	5	18	15	J	1.0	cc		1	F	SRM
64.5	65.3	0.80	100	0.72	90	2	267	100	VC	grey	breccia	massive	slightly weathered	VC	0.27	78	50	0	4	1	4	5	14	15	J	1.0	cc		1	F	SRM
									VC					VC	0.51	15	10	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
65.3	66.0	0.70	100	0.00	0	Max	5	25	VC					VC	0.82	30	40	0	0	0	0	3	3	15	F	700.0	gg	cly	1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
66.0	67.5	1.20	80	0.40	27	Max	5	25	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	1	3	2	3	9	15	F	1200.0	gg	cly	1	None	SRM
67.5	68.5	1.00	100	0.20	20	Max	5	25	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	4	3	2	3	12	15	F	1000.0	gg	cly	1	None	SRM
68.5	69.0	0.50	100	0.00	0	Max	5	10	VC					VC	1.00			0	1	1	0	3	5	15	F	500.0	gg	cly	1	None	SRM
69.0	70.5	1.00	67	0.10	7	Max	5	50	VC	grey	breccia	massive	slightly weathered	VC	0.00			0	1	1	2	3	7	15	F	1000.0	gg	cly	1	None	SRM
									VC					VC	0.36			0	1	1	2	3	7	15	F	500.0	gg	cly	1	None	SRM
									VC					VC	0.60			0	0	1	2	5	8	15	F	5.0	cc		1	None	SRM
70.5	72.0	1.50	100	1.17	78	5	250	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.00			0	0	3	0	5	8	15	J	5.0	cc		1	None	SRM
									VC					VC	0.37			0	1	3	6	5	15	15	J	5	cc		1	None	SRM
									VC					VC	0.40			0	0	3	0	5	8	15	J	5.0	cc		1	None	SRM
									VC					VC	0.93	80	0	0	4	3	2	5	14	15	J	1.0	cc		1	F	SRM
									VC					VC	1.12	50	190	0	4	3	4	5	16	15	J	1.0	cc		1	F	SRM
72.0	73.5	1.50	100	0.96	64	8	167	50	VC	dark grey	breccia	massive	slightly weathered	VC	0.00	70	100	0	0	1	0	5	6	15	J	5.0	cc		1	F	SRM
									VC					VC	0.08	32	90	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
									VC					VC	0.35	25	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.82	28	40	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.92	70	160	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.99	25	70	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.18	18	70	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
									VC					VC	1.36	65	240	0	1	3	2	5	11	15	J	5	cc		1	None	SRM
73.5	73.9	0.40	100	0.10	25	4	80	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.00			0	1	1	0	5	7	15	J	5	cc		4	None	SRM
73.9	75.0	1.10	100	0.00	0	Max	5	25	VC	dark grey	breccia	massive	rubble zone	VC	0.40			0	1	3	0	3	7	15	J	1100.0	gg	cly	1	None	SRM
75.0	75.7	0.70	100	0.00	0	Max	5	10	VC	dark grey	breccia	massive	rubble zone	VC	0.00			0	1	1	0	3	5	15	J	700.0	gg	cly	1	None	SRM
75.7	76.5	0.80	100	0.28	35	8	89	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.76	22	0	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
									VC					VC	0.77	65	340	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.93	50	350	0	1	3	2	5	11	15	J	5	cc		1	F	SRM
									VC					VC	1.00	43	0	0	1	3	2	5	11	15	J	5	cc		1	F	SRM
									VC					VC	1.12	55	320	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.20	30	60	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.24	60	340	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.30	10	50	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
76.5	77.0	0.52	100	0.00	0	8	58	10	VC	dark grey	breccia	massive	slightly weathered	VC	0.00			0	0	1	0	5	6	15	J	5.0	cc		1	None	SRM
77.0	78.0	0.98	100	0.69	70	7	123	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.00	80	0	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
									VC					VC	0.18	45	40	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
									VC					VC	0.27	45	40	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.43	10	60	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.60	40	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.65	53	130	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.83	89	340	0	4	1	4	5	14	15	J	1.0	cc		1	F	SRM
78.0	79.5	1.50	100	1.50	100	3	375	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.27	35	80	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.07	25	330	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									VC					VC	1.32	60	150	0	1	3	2	5	11	15	J	5	cc		1	P	SRM
79.5	81.0	1.50	100	0.71	47	6	214	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.24	40	60	0	1	1	2	5	9	15	J	5	cc		1	P	SRM
									VC					VC	0.44	40	56	0	1	1	2	5	9	15	J	5	cc		1	P	SRM
									VC					VC	0.62	30	60	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									VC					VC	0.86	55	180	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									VC					VC	1.32	20	90	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									VC					VC	1.49	20	60	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
81.0	81.2	0.24	100	0.00	0	Max	5	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.00			0	1	1	2	3	7	15	J	240.0	gg	cly	1	None	SRM
81.2	82.5	1.24	95	0.96	74	8	138	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.24	45	260	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.60	50	290	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.82	85	290	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.89	40	100	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.05	40	90	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.12	28	90	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.20	45	90	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.26	84	130	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
82.5	84.0	1.50	100	1.16	77	5	250	25	VC	dark grey	breccia	massive	slightly weathered	VC	0.00	22	100	0	1	1	0	5	7	15	J	5	cc		1	F	SRM
									VC					VC	0.20	35	100	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.46	30	110	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.72	65	310	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.32	75	80	0	1	1	0	5	7	15	J	5	cc		1	F	SRM
84.0	85.5	1.40	93	0.23	15	Max	5	10	VC	light grey	breccia	massive	highly fractured	VC	0.00			0	1	1	0	3	5	15	J	1400.0	gg	cly	1	None	SRM
85.5	87.0	1.50	100	1.50	100	0	1500	25	VC	light grey	breccia	massive	no fractures	VC	0.00			6	6	6	6	5	29	15	J	1.0	cc		1	None	SRM
87.0	88.5	1.45	97	1.30	87	3	363	50	VC	light grey	breccia	massive	slightly weathered	VC	0.48	22	60	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	0.98	40	150	0	4	3	2	5	14	15	J	1.0	cc		1	F	SRM
									VC					VC	1.38	35	330	0	4	3	2	5	14	15	J	1.0	cc		1	F	SRM
88.5	90.0	1.47	98	0.50	33	7	184	25	VC	light grey	breccia	massive	slightly weathered	VC	0.32	30	160	0	1	1	2	5	9	15	J	5	cc		1	F	SRM
									VC					VC	0.46	30	210	0	1	3	2	5	11	15	J	5	cc		1	F	SRM
									VC					VC	0.71	25	20	0	4	3	2	5	14	15	J	1.0	cc		1	F	SRM
									VC					VC	0.90	30	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.10	20	80	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.22	38	20	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									VC					VC	1.30	33	20	0	1	1	2	5	9	15	J	5	ser		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
90.0	91.5	1.50	100	1.27	85	7	188	25	VC	light grey	breccia	massive	slightly weathered	VC	0.00	48	80	0	0	1	0	5	6	15	J	5.0	ser		1	F	SRM
									VC					VC	0.10	50	170	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.67	30	110	0	1	1	2	5	9	15	J	5	ser		1	F	SRM
									VC					VC	0.81	25	120	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.98	50	0	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	1.15	35	60	0	1	3	2	5	11	15	J	5	ser		1	F	SRM
									VC					VC	1.30	20	80	0	0	1	0	5	6	15	J	5.0	ser		1	F	SRM
91.5	93.0	1.50	100	0.84	56	12	115	50	VC	light grey	breccia	massive	slightly weathered	VC	0.24	30	270	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.36	50	0	0	1	3	2	5	11	15	J	5	ser		1	F	SRM
									VC					VC	0.47	45	0	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.53	55	45	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.57	70	70	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.64	38	0	0	1	1	2	5	9	15	J	5	ser		1	F	SRM
									VC					VC	0.76	40	60	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.76	35	0	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.84	60	180	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.86	63	300	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	1.35	60	0	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	1.55	30	0	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
93.0	94.5	1.50	100	0.25	17	11	125	10	VC	light grey	breccia	massive	slightly weathered	VC	0.14	45	30	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.20	45	50	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.43	40	40	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.53	30	90	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.60	31	10	0	1	3	2	5	11	15	J	5	ser		1	F	SRM
									VC					VC	0.70	30	80	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.76	40	100	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.83	54	0	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	1.00	50	160	0	0	1	0	5	6	15	J	5.0	ser		1	F	SRM
									VC					VC	1.20	86	270	0	1	3	2	5	11	15	J	5	ser		1	F	SRM
									VC					VC	1.40	43	30	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
94.5	96.0	1.30	87	0.96	64	6	186	10	VC	light grey	breccia	massive	very weak, crumbles in hand, highly weathered	VC	0.00			0	4	1	2	5	12	15	J	1.0	ser		6	None	SRM
96.0	97.5	1.50	100	0.00	0	Max	5	10	VC	light grey	breccia	massive	broken zone, highly weathered	VC	0.00			0	1	1	2	3	7	15	J	1500.0	Rub		1	None	SRM
97.5	99.0	1.10	73	0.00	0	Max	5	10	VC	light grey	breccia	massive	broken zone, highly weathered	VC	0.00			0	1	1	2	3	7	15	J	1100.0	Rub		1	None	SRM
99.0	99.8	0.80	100	0.66	83	8	89	50	FLPT	light grey	breccia	massive	highly weathered	FLPT	0.00			0	4	3	2	5	14	15	J	1.0	ser		8	None	SRM
99.8	100.5	0.70	100	0.00	0	max	5	25	FLPT	light grey	breccia	massive	broken zone, highly weathered	FLPT	0.80			0	1	1	0	3	5	15	J	700.0	Rub		1	None	SRM
100.5	102.0	1.50	100	0.88	59	5	250	50	FLPT	light grey	breccia	massive	highly weathered	FLPT	0.06	33	100	0	4	3	2	5	14	15	J	1.0	ser		1	None	SRM
									FLPT					FLPT	0.28	36	230	0	1	1	2	5	9	15	J	5	ser		1	None	SRM
									FLPT					FLPT	1.13	42	300	0	4	3	2	5	14	15	J	1.0	ser		1	None	SRM
									FLPT					FLPT	1.26	57	30	0	1	3	2	5	11	15	J	5	ser		1	None	SRM
									FLPT					FLPT	1.45	48	90	0	1	3	2	5	11	15	J	5	ser		1	None	SRM
102.0	103.5	1.50	100	1.32	88	2	500	25	FLPT	light grey	breccia	massive	slightly weathered	FLPT	0.84	65	150	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									FLPT					FLPT	1.32	37	140	0	1	1	2	5	9	15	J	5	ser		1	F	SRM
103.5	104.5	0.97	100	0.00	0	Max	5	10	FLPT	light grey	breccia	massive	slightly weathered	FLPT	0.00	24	40	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
104.5	105.0	0.50	100	0.50	100	1	250	100	FLPT	light grey	breccia	massive	slightly weathered	FLPT	1.13	25	60	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
105.0	106.5	1.34	89	0.73	49	4	268	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.50	20	40	0	4	3	2	5	14	15	J	1.0	cly	ser	1	F	JBC
									FLPT					FLPT	0.85	20	30	0	4	3	0	5	12	15	J	1.0	cly	ser	1	F	JBC
									FLPT					FLPT	0.90	30	160	0	4	3	0	5	12	15	J	1.0	cly	ser	1	F	JBC
									FLPT					FLPT	1.25	40	10	0	1	1	2	5	9	15	J	5	cly	ser	1	F	JBC
106.5	106.7	0.20	100	0.00	0	Max	5	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.00			0	0	3	2	5	10	15	J	5.0			1	F	JBC
106.7	108.0	1.27	98	0.61	47	5	212	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.30	65	80	0	1	5	3	5	14	15	J	5	cly	ser	1	F	JBC
									FLPT					FLPT	0.32	70	50	0	1	5	3	5	14	15	J	5	cly	ser	1	F	JBC
									FLPT					FLPT	1.20	30	50	0	1	5	0	5	11	15	J	5	cly	ser	1	F	JBC
									FLPT					FLPT	1.30	20	60	0	1	5	0	5	11	15	J	5	cly	ser	1	F	JBC
									FLPT					FLPT	1.35	40	300	0	0	5	2	5	12	15	J	5.0	cly	ser	1	F	JBC
108.0	109.3	1.30	100	0.00	0	Max	5	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.00			0	4	5	0	5	14	15	J	1.0			1	none	JBC
109.3	109.5	0.20	100	0.20	100	2	67	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.00	50	10	0	1	3	2	5	11	15	J	5	cc	ser	2	none	JBC
109.5	111.0	1.43	95	0.30	20	Max	5	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.00			0	1	3	0	5	9	15	J	5			1	none	JBC
111.0	112.5	1.50	100	0.78	52	10	136	25	FLPT	pale to light green, white	tuff	massive	slightly altered, weathered	FLPT	0.08	10	15	0	4	5	2	5	16	15	J	1.0	ser		1	none	JBC
									FLPT					FLPT	0.15	60	300	0	4	5	2	5	16	15	J	1.0	ser		1	F	JBC
									FLPT					FLPT	0.17	55	30	0	4	5	2	5	16	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.50	38	100	0	4	3	3	5	15	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.64	30	110	0	4	1	2	5	12	15	J	1.0	ser		1	F	JBC
									FLPT					FLPT	0.65	35	90	0	4	1	2	5	12	15	J	1.0	ser		1	F	JBC
									FLPT					FLPT	1.00	15	85	0	4	3	2	5	14	15	J	1.0			1	F	JBC
									FLPT					FLPT	1.10	32	140	0	4	3	2	5	14	15	J	1.0	ser		1	F	JBC
									FLPT					FLPT	1.18	35	140	0	1	1	0	5	7	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	1.24	40	170	0	4	3	0	5	12	15	J	1.0	ser	cly	1	F	JBC
112.5	114.0	1.47	98	0.97	65	3	368	25	FLPT	pale to light green, grey	tuff	massive, fine graine	weakly altered	FLPT	0.65	32	30	0	1	3	2	5	11	15	J	5	ser	cly	1	F	JBC
									FLPT					FLPT	0.90	15	35	0	4	5	2	5	16	15	J	1.0	ser		1	F	JBC
									FLPT					FLPT	1.00	42	300	0	4	1	2	5	12	15	J	1.0	ser		1	F	JBC
114.0	115.5	1.50	100	0.12	8	9	150	25	FLPT	pale to light green, grey	tuff	massive, fine graine	weakly altered	FLPT	0.02	15	75	0	4	4	2	5	15	15	J	1.0	ser	cly	1	P	JBC
									FLPT					FLPT	0.35	20	80	0	4	4	2	5	15	15	J	1.0	ser		1	P	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									FLPT					FLPT	0.45	25	30	0	4	4	2	5	15	15	J	10.0	ser	cly	1	P	JBC
									FLPT					FLPT	0.70	30	60	0	4	4	2	5	15	15	J	5.0			1	P	JBC
									FLPT					FLPT	0.80	15	240	0	4	5	2	5	16	15	J	5.0	ser	cly	1	P	JBC
									FLPT					FLPT	0.90	65	220	0	4	5	2	5	16	15	J	2.0	ser	cly	1	P	JBC
									FLPT					FLPT	1.12	45	100	0	4	5	2	5	16	15	J	5.0	ser	cly	1	P	JBC
									FLPT					FLPT	1.30	32	60	0	4	5	2	3	14	15	J	10.0	ser	cly	1	P	JBC
									FLPT					FLPT	1.44	25	250	0	4	5	2	5	16	15	J	10.0	ser	cly	1	P	JBC
115.5	117.0	1.35	90	0.45	30	6	193	25	FLPT	pale to light green, grey	tuff	massive	altered, very broken up	FLPT	0.03	60	350	0	4	4	2	5	15	15	J	5.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.32	45	280	0	4	4	2	5	15	15	J	5.0	ser	chl	1	F	JBC
									FLPT					FLPT	0.54	55	70	0	4	4	2	5	15	15	J	10.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.70	20	80	0	4	4	2	5	15	15	J	5.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.75	42	300	0	4	4	2	5	15	15	J	5.0	ser		1	F	JBC
									FLPT					FLPT	1.00	50	70	0	4	4	2	5	15	15	J	1.0	ser	cly	1	F	JBC
117.0	118.5	1.50	100	0.94	63	6	214	50	FLPT	pale to light green, grey	tuff	massive	altered, less fractured than last	FLPT	0.30	20	25	0	4	3	2	5	14	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.54	28	350	0	4	3	2	5	14	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.76	25	0	0	4	3	2	5	14	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	1.02	55	345	0	1	5	0	5	11	15	J	5	ser	cly	1	F	JBC
									FLPT					FLPT	1.40	60	30	0	1	5	0	5	11	15	J	5	ser	cly	1	F	JBC
									FLPT					FLPT	1.55	44	25	0	4	3	2	5	14	15	J	1.0	ser	cly	1	F	JBC
118.5	120.0	1.50	100	1.27	85	4	300	100	FLPT	pale to light green, grey	tuff	massive	altered	FLPT	0.12	35	0	0	1	1	0	5	7	15	J	5	ser	cly	1	F	JBC
									FLPT					FLPT	0.46	42	310	0	4	3	0	5	12	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	0.57	55	340	0	4	3	2	5	14	15	J	1.0	ser	cly	1	F	JBC
									FLPT					FLPT	1.44	55	110	0	4	3	2	5	14	15	J	1.0	ser	cly	1	F	JBC
120.0	121.5	1.50	100	1.15	77	2	500	25	FLPT	pale to light green, grey	tuff	massive	highly altered	FLPT	0.10	10	80	0	5	5	2	5	17	15	J	0.1	ser	cly/ch	1	G	JBC
									FLPT					FLPT	0.80	15	200	0	1	3	0	5	9	15	J	5	ser	cly/ch	1	G	JBC
121.5	123.0	1.50	100	1.03	69	3	375	10	FLPT	pale to light green, grey	tuff	massive	highly altered	FLPT	0.35	60	300	0	1	5	0	5	11	15	J	5	ser	cly	1	G	JBC
									FLPT					FLPT	0.50	25	10	0	4	3	2	5	14	15	J	1.0	ser	cly	1	G	JBC
									FLPT					FLPT	0.56	28	25	0	1	3	2	5	11	15	J	5	ser	cly	1	G	JBC
123.0	124.5	1.48	99	0.90	60	5	247	50	VC	grey	breccia	massive	weathered to fresh, lith change at 0.80 m to VC-Breccia with mafic angular clasts	VC	0.15	40	300	0	4	3	0	5	12	15	J	1.0	ser	cly	1	G	JBC
									VC					VC	0.45	65	290	0	4	3	0	5	12	15	J	1.0	ser	cly	1	G	JBC
									VC					VC	0.60	15	60	0	1	5	0	5	11	15	J	5	ser	cly	1	G	JBC
									VC					VC	0.85	25	60	0	4	5	2	5	16	15	J	1.0	cc	cly	1	G	JBC
									VC					VC	1.30	15	260	0	1	1	2	5	9	15	J	5	cc		1	G	JBC
124.5	126.0	1.34	89	0.86	57	9	134	100	VC	grey	breccia	massive	weathered to fresh, rubble zones (2 cm thick) at 0.5 m and 1.3 m	VC	1.30			0	0	5	0	5	10	15	J	5.0			9	none	JBC
126.0	127.2	1.20	100	0.00	0	Max	5	50	VC	grey	breccia	massive	highly fractured, brecciated	VC	0.10	10	290	0	4	1	2	5	12	15	J	1.0			1	none	JBC
127.2	127.5	0.30	100	0.15	50	2	100	100	VC	grey	breccia	massive	highly fractured, brecciated	VC	0.28	60	10	0	4	1	2	5	12	15	J	1.0			2	none	JBC
127.5	129.0	1.45	97	0.91	61	5	242	75	VC	grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.00	5	50	0	4	1	2	5	12	15	J	1.0	cc	cly	1	G	JBC
									VC					VC	0.10	20	5	0	0	5	0	5	10	15	J	5.0	cc	cly	1	G	JBC
									VC					VC	0.36	30	55	0	4	1	2	5	12	15	J	1.0	py	cly	1	G	JBC
									VC					VC	0.83	45	20	0	4	1	2	5	12	15	J	1.0	py	cly	1	G	JBC
									VC					VC	0.95	50	0	0	4	1	2	5	12	15	J	1.0	py	cly	1	G	JBC
129.0	130.5	1.50	100	1.41	94	4	300	25	VC	light to pale green	tuff	massive	lithological change at 0 m to FT	VC	0.32	55	60	0	1	5	0	5	11	15	J	5	ser	cly	1	G	JBC
									VC					VC	0.61	70	45	0	4	3	0	5	12	15	J	1.0	ser	cly	1	G	JBC
									VC					VC	0.79	55	70	0	4	3	0	5	12	15	J	1.0	ser	cly	1	G	JBC
									VC					VC	0.82	80	40	0	4	1	2	5	12	15	J	1.0	ser	cly	1	G	JBC
130.5	132.0	1.50	100	1.35	90	4	300	75	VC	grey	breccia	massive	lithological change at 0.4 m to FT	VC	1.10	25	310	0	1	5	0	5	11	15	J	5	cly	ser	1	G	JBC
									VC					VC	1.26	45	0	0	4	3	2	5	14	15	J	1.0	ser	cly	1	G	JBC
									VC					VC	1.30	60	350	0	4	3	2	5	14	15	J	1.0	ser	cly	1	G	JBC
									VC					VC	1.54	60	40	0	4	3	2	5	14	15	J	1.0	ser	cly	1	G	JBC
132.0	133.5	1.50	100	0.86	57	2	500	50	VC	pale to light green, grey	tuff	massive	lithological change to FT at 0 m	VC	0.50	40	350	0	4	1	2	5	12	15	J	1.0	ser	cly	1	F	JBC
									VC					VC	0.66	60	65	0	4	1	2	5	12	15	J	1.0	ser	cly	1	F	JBC
133.5	135.0	1.45	97	0.22	15	6	207	25	VC	pale to light green, grey	tuff	massive	highly fractured altered, 2 cm gouge seam at 1.0 m	VC	0.00			0	1	5	0	5	11	15		5			6	none	JBC
135.0	136.5	1.50	100	1.47	98	1	750	50	VC	pale to light green, grey	tuff	massive	brecciated, lots of pyrite on joints/fractures	VC	0.00			0	4	3	2	5	14	15		1.0			1	none	JBC
136.5	138.0	1.50	100	1.10	73	7	188	25	VC	pale to light green, grey	tuff	massive	brecciated, lots of pyrite on joints/fractures	VC	0.15	70	130	0	4	1	2	5	12	15	J	1.0	ser		1	G	JBC
									VC					VC	0.25	55	340	0	4	1	2	5	12	15	J	1.0	ser		1	G	JBC
									VC					VC	0.36	50	110	0	4	1	2	5	12	15	J	1.0	ser		1	G	JBC
									VC					VC	0.46	65	110	0	1	3	2	5	11	15	J	5	ser		1	G	JBC
									VC					VC	1.10	32	350	0	1	3	2	5	11	15	J	5	ser		1	G	JBC
									VC					VC	1.36	40	330	0	4	1	2	5	12	15	J	1.0	ser		1	G	JBC
138.0	139.5	1.50	100	0.46	31	11	125	25	VC	pale to light green, grey	tuff	massive	brecciated, lots of pyrite on joints/fractures	VC	0.12	59	170	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	0.35	8	300	0	1	1	2	5	9	15	J	5	ser		1	P	SRM
									VC					VC	0.43	45	30	0	1	1	2	5	9	15	J	5	ser		1	P	SRM
									VC					VC	0.52	33	60	0	1	1	2	5	5	15	J	5	ser		1	P	SRM
									VC					VC	0.70	27	50	0	1	1	2	5	9	15	J	5	ser		1	P	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.90	48	20	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	0.95	47	20	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	1.02	85	130	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	1.15	25	80	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	1.23	70	0	0	1	1	2	5	9	15	J	5	ser		1	P	SRM
									VC					VC	1.33	75	20	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
139.5	141.0	1.40	93	1.40	93	4	280	25	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.10	56	90	0	1	1	2	5	9	15	J	5	ser		1	P	SRM
									VC					VC	0.30	29	50	0	1	1	2	5	9	15	J	5	ser		1	VG	SRM
									VC					VC	0.70	30	20	0	1	3	2	5	11	15	J	5	ser		1	VG	SRM
									VC					VC	1.13	36	160	0	1	1	2	5	9	15	J	5	ser		1	VG	SRM
141.0	142.5	1.50	100	1.01	67	5	250	25	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.61	39	15	0	1	1	2	5	9	15	J	5	ser		1	VG	SRM
									VC					VC	0.78	58	130	0	4	1	2	5	12	15	J	1.0	ser		1	VG	SRM
									VC					VC	0.97	25	30	0	1	3	2	5	11	15	J	5	ser		1	VG	SRM
									VC					VC	0.97	32	280	0	1	3	2	5	11	15	J	5	ser		1	VG	SRM
									VC					VC	1.30	13	50	0	1	1	2	5	9	15	J	5	ser		1	VG	SRM
142.5	144.0	1.48	99	1.38	92	4	296	25	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.00			0	1	1	2	5	9	15		5	ser		1	P	SRM
									VC					VC	0.12			0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	0.25			0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	0.74			0	1	3	2	5	11	15	J	5	ser		1	P	SRM
144.0	145.5	1.50	100	1.05	70	6	214	50	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.10	20	240	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.24	81	180	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	0.48	47	30	0	4	3	2	5	14	15	J	1.0	ser		1	F	SRM
									VC					VC	0.49	35	160	0	4	1	2	5	12	15	J	1.0	ser		1	F	SRM
									VC					VC	1.13	40	10	0	1	5	2	5	13	15	J	5	ser		1	F	SRM
									VC					VC	1.49	57	250	0	1	5	2	5	13	15	J	5	ser		1	F	SRM
145.5	147.0	1.50	100	1.24	83	4	300	50	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.09	65	330	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	0.23	57	60	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
									VC					VC	0.59	64	10	0	1	3	2	5	11	15	J	5	ser		1	P	SRM
									VC					VC	1.45	56	290	0	4	1	2	5	12	15	J	1.0	ser		1	P	SRM
147.0	148.5	1.47	98	1.44	96	3	368	50	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.35	32	50	0	1	3	6	5	15	15	J	5	ser		1	P	SRM
									VC					VC	1.04	18	50	0	4	3	6	5	18	15	J	1.0	ser		1	P	SRM
									VC					VC	1.35	62	350	0	0	1	2	5	8	15	J	5.0	ser		1	P	SRM
148.5	150.0	1.50	100	1.12	75	5	250	25	VC	pale to light green, grey	breccia	massive	brecciated, lots of pyrite on joints/fractures	VC	0.30	40	50	0	4	1	4	5	14	15	J	1.0	ser		1	P	SRM
									VC					VC	0.48	57	180	0	4	1	4	5	14	15	J	1.0	ser		1	P	SRM
									VC					VC	0.57	50	0	0	1	3	2	5	11	15	J	5	ser		1	P	SRM
									VC					VC	1.27	30	60	0	1	1	2	5	9	15	J	5	ser		1	P	SRM
									VC					VC	1.42	33	190	0	4	1	4	5	14	15	J	1.0	ser		1	P	SRM
150.0	151.5	1.43	95	0.56	37	7	179	25	VC	pale to light green, grey	breccia	massive	light grey breccia competent	VC	0.10	30	250	0	1	1	6	5	13	15	J	5.0	ser		1	P	SRM
									VC					VC	0.29	13	260	0	1	3	2	5	11	15	J	5	ser		1	P	SRM
									VC					VC	0.38	71	120	0	4	1	6	5	16	15	J	1.0	ser		1	P	SRM
									VC					VC	0.44	65	80	0	4	1	6	5	16	15	J	1.0			1	P	SRM
									VC					VC	0.55	21	250	0	1	1	2	5	9	15	J	5			1	P	SRM
									VC					VC	0.92	24	60	0	1	1	2	5	9	15	J	5			1	P	SRM
									VC					VC	1.12	58	0	0	1	1	2	5	9	15	J	5			1	P	SRM
151.5	153.0	1.50	100	0.92	61	6	214	75	VC	pale to light green, grey	breccia	massive	light grey breccia competent	VC	0.26	44	210	0	0	1	2	5	8	15	J	5.0			1	F	SRM
									VC					VC	0.79	34	10	0	1	1	2	5	9	15	J	5			1	F	SRM
									VC					VC	0.89	44	340	0	4	3	2	5	14	15	J	1.0			1	F	SRM
									VC					VC	1.00	40	340	0	1	1	2	5	9	15	J	5			1	F	SRM
									VC					VC	1.15	25	0	0	1	1	2	5	9	15	J	5			1	F	SRM
									VC					VC	1.24	33	50	0	1	3	4	5	13	15	J	5			1	F	SRM
153.0	154.5	1.48	99	1.13	75	6	211	75	VC	pale to light green, grey	breccia	massive	light grey breccia competent	VC	0.10	43	50	0	1	1	2	5	9	15	J	5			1	P	SRM
									VC					VC	0.15	67	60	0	4	3	6	5	18	15	J	1.0			1	P	SRM
									VC					VC	0.40	44	350	0	1	1	2	5	9	15	J	5			1	P	SRM
									VC					VC	0.46	43	350	0	1	1	2	5	9	15	J	5			1	P	SRM
									VC					VC	0.67	41	210	0	4	1	2	5	12	15	J	1.0			1	P	SRM
									VC					VC	1.22	18	290	0	4	1	6	5	16	15	J	1.0			1	P	SRM
154.5	156.0	1.50	100	0.40	27	7	188	75	VC	pale to light green, grey	breccia	massive	light grey breccia competent	VC	0.11	28	300	0	4	1	2	5	12	15	J	1.0			1	VG	SRM
									VC					VC	0.17	55	310	0	4	1	2	5	12	15	J	1.0			1	VG	SRM
									VC					VC	0.23	62	10	0	4	1	2	5	12	15	J	1.0			1	VG	SRM
									VC					VC	0.31	74	0	0	4	1	2	5	12	15	J	1.0			1	VG	SRM
									VC					VC	0.36	39	160	0	1	1	2	5	9	15	J	5			1	VG	SRM
									VC					VC	0.68	5	90	0	1	1	2	5	9	15	J	5			1	VG	SRM
									VC					VC	1.30	20	30	0	1	1	0	5	7	15	J	5			1	VG	SRM
156.0	157.5	1.50	100	0.35	23	7	188	75	VC	pale to light green, grey	breccia	massive	light grey breccia competent	VC	0.08	30	350	0	4	5	0	5	14	15	J	5.0	cc		1	G	JBC/JS
									VC					VC	0.33	42	130	0	4	5	0	5	14	15	J	5.0	cc		1	G	JBC/JS
									VC					VC	0.38	28	20	0	4	5	0	5	14	15	J	5.0	cc		1	G	JBC/JS
									VC					VC	0.76	15	20	0	0	6	4	5	15	15	J	5.0	gg		1	G	JBC/JS

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.00	22	190	0	0	6	4	5	15	15	J	5.0	gg		1	G	JBC/JS
									VC					VC	1.30	20	210	0	4	5	0	5	14	15	J	2.0	chl		1	G	JBC/JS
									VC					VC	1.30	2	230	0	4	5	0	5	14	15	J	2.0	cly	chl	1	G	JBC/JS
157.5	159.0	1.44	99	0.26	18	3	360	25	VC	pale to light green, grey	breccia	massive	large oblique angles along core has made this run week	VC	0.02	15	120	0	4	6	2	5	17	15	J	5.0	chl	py	1	F	JBC/JS
									VC					VC	1.10	5	260	0	4	6	2	5	17	15	J	10.0	chl	py	1	F	JBC/JS
									VC					VC	1.20	45	70	0	4	6	2	5	17	15	J	10.0	chl	py	1	F	JBC/JS
159.0	160.5	1.50	100	1.50	100	2	500	100	VC	pale to light green, grey	breccia	massive	very competent run	VC	0.10	12	330	0	4	3	2	5	14	15	J	1.0	chl	cly	1	F	JBC
									VC					VC	1.13	45	50	0	4	1	2	5	12	15	J	1.0	ser	chl	1	F	JBC
160.5	162.0	1.46	97	1.35	90	3	365	125	VC	pale to light green, grey	breccia	massive	same as above, 1 cm gouge seam at 0.90 m	VC	0.30	5	100	0	4	3	2	5	14	15	J	1.0	ser		1	P	JBC
									VC					VC	0.90	85	240	0	1	3	0	5	9	15	J	5	ser	cly	1	P	JBC
									VC					VC	0.96	25	210	0	1	3	0	5	9	15	J	5	ser	chl	1	P	JBC
162.0	163.5	1.50	100	1.42	95	5	250	125	VC	pale to light green, grey	breccia	massive	very competent breccia grey, lots of angular mafic clasts	VC	0.00	45	130	0	4	5	2	5	16	15	J	1.0	chl	cly	1	F	JBC
									VC					VC	0.20	60	320	0	4	5	2	5	16	15	J	1.0	cly	chl	1	F	JBC
									VC					VC	0.63	70	200	0	4	3	2	5	14	15	J	1.0	cly	chl	1	F	JBC
									VC					VC	0.70	60	90	0	4	1	2	5	12	15	J	1.0	cly	chl	1	F	JBC
									VC					VC	0.98	60	320	0	4	3	2	5	14	15	J	1.0	cly	chl	1	F	JBC
163.5	165.0	1.50	100	1.21	81	5	250	125	VC	pale to light green, grey	breccia	massive	same as above, lots of chlorite blebs	VC	0.20	50	280	0	4	1	2	5	12	15	J	1.0	chl	py	1	VG	JBC
									VC					VC	0.60	20	30	0	1	3	2	5	11	15	J	5	chl	py	1	VG	JBC
									VC					VC	0.90	25	0	0	1	1	0	5	7	15	J	5	cly	chl	1	VG	JBC
									VC					VC	1.40	35	10	0	4	1	2	5	12	15	J	1.0	chl		1	VG	JBC
									VC					VC	1.55	40	15	0	1	1	2	5	9	15	J	5	chl		1	VG	JBC
165.0	166.5	1.50	100	1.40	93	5	250	150	VC	pale to light green, grey	breccia	massive	a lot bigger clasts than last run up to 30 m	VC	0.23	45	320	0	4	1	2	5	12	15	J	1.0	chl	cly	1	G	JBC
									VC					VC	0.38	55	20	0	4	1	2	5	12	15	J	1.0	chl	py	1	G	JBC
									VC					VC	1.02	28	10	0	4	1	2	5	12	15	J	1.0	chl	py	1	G	JBC
									VC					VC	1.21	55	340	0	4	3	2	5	14	15	J	1.0	chl		1	G	JBC
									VC					VC	1.35	35	0	0	1	5	3	5	14	15	J	5	chl	py	1	G	JBC
166.5	168.0	1.50	100	0.31	21	9	150	50	VC	pale to light green, grey	breccia	massive	highly fractured, altered	VC	0.10	50	245	0	1	3	0	5	9	15	J	5	chl	cly	1	G	JBC
									VC					VC	0.20	70	110	0	1	5	0	5	11	15	J	5	chl	cly	1	G	JBC
									VC					VC	0.26	15	240	0	1	5	0	5	11	15	J	5	chl	cly	1	G	JBC
									VC					VC	0.35	35	230	0	1	3	0	5	9	15	J	5	chl	cly	1	G	JBC
									VC					VC	0.65	25	15	0	1	3	0	5	9	15	J	5	chl	cly	1	G	JBC
									VC					VC	0.74	50	160	0	4	1	0	5	10	15	J	1.0	chl	py	1	G	JBC
									VC					VC	0.90	30	70	0	1	5	2	5	13	15	J	5	chl	cly	1	G	JBC
									VC					VC	1.26	45	130	0	4	3	2	5	14	15	J	1.0	chl	chl	1	G	JBC
									VC					VC	1.42	10	100	0	1	5	2	5	13	15	J	5	chl	chl	1	G	JBC
168.0	169.5	1.46	97	0.53	35	8	162	50	VC	pale to light green, grey	breccia	massive	fractured, weakly altered	VC	0.39	35	170	0	1	5	2	5	13	15	J	5.0	cly	ox	1	G	JBC
									VC					VC	0.40	35	180	0	1	5	2	5	13	15	J	5.0	cly	ox	1	G	JBC
									VC					VC	0.45	30	20	0	4	5	2	5	16	15	J	1.0	cly	ser	1	G	JBC
									VC					VC	0.50	35	30	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
									VC					VC	0.71	50	350	0	4	3	2	5	14	15	J	1.0	cly		1	G	JBC
									VC					VC	0.80	50	60	0	1	5	0	5	11	15	J	5	cly		1	G	JBC
									VC					VC	1.30	5	220	0	1	5	2	5	13	15	J	5	cly		1	G	JBC
									VC					VC	1.39	20	230	0	1	5	2	5	13	15	J	5	cly	ser	1	G	JBC
169.5	171.0	1.50	100	1.10	73	5	250	125	VC	pale to light green, grey	breccia	massive	large 3cm rubble zone at 0.70 m	VC	0.11	20	340	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									VC					VC	0.30	45	240	0	1	5	0	5	11	15	J	5	cly		1	P	JBC
									VC					VC	0.40	15	190	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									VC					VC	0.66	10	200	0	1	5	0	5	11	15	J	5	cly		1	P	JBC
									VC					VC	0.93	40	10	0	1	5	0	5	11	15	J	5	cly		1	P	JBC
171.0	172.5	1.50	100	1.50	100	0	1500	200	VC	pale to light green, grey	breccia	massive	very competent grey breccia, fresh no joints, multicolor angular clasts	VC	0.00			6	6	6	6	5	29	15		0.0			1	F	JBC
172.5	174.0	1.50	100	1.27	85	7	188	200	VC	pale to light green, grey	breccia	massive	same as above, altered	VC	0.20	72	280	0	4	1	2	5	12	15	J	1.0	cly		1	P	JBC
									VC					VC	0.33	38	210	0	1	1	0	5	7	15	J	5	cly		1	P	JBC
									VC					VC	0.39	32	220	0	1	1	0	5	7	15	J	5	cly		1	P	JBC
									VC					VC	0.88	50	310	0	4	1	2	5	12	15	J	1.0	chl	cly	1	P	JBC
									VC					VC	1.04	35	170	0	1	1	2	5	9	15	J	5	chl	cly	1	P	JBC
									VC					VC	1.12	15	210	0	4	3	2	5	14	15	J	1.0	chl	cly	1	P	JBC
									VC					VC	1.20	18	230	0	4	1	2	5	12	15	J	1.0	chl	cly	1	P	JBC
174.0	175.5	1.43	95	0.88	59	4	286	100	VC	pale to light green, grey	breccia	massive	grey breccia, looks altered	VC	0.25	55	332	0	4	3	2	5	14	15	J	1.0	cly	ser	1	G	JBC
									VC					VC	0.50	5	40	0	1	5	0	5	11	15	J	5	cly	ser	1	G	JBC
									VC					VC	1.01	65	110	0	4	1	0	5	10	15	J	1.0	cly	ser	1	G	JBC
									VC					VC	1.12	35	50	0	1	5	0	5	11	15	J	5	cly	ser	1	G	JBC
175.5	177.0	1.50	100	0.55	37	4	300	75	VC	light to pale green	tuff	massive	looks like tuff highly fractured	VC	0.07	50	10	0	1	5	0	5	11	15	J	5	cly	py	1	VG	JBC
									VC					VC	0.58	30	0	0	1	3	0	5	9	15	J	5	ser	py	1	VG	JBC
									VC					VC	0.64	35	350	0	1	3	0	5	9	15	J	5	ser	py	1	VG	JBC
									VC					VC	1.10	5	230	0	1	5	2	5	13	15	J	5	ser	py	1	VG	JBC
177.0	178.5	1.46	97	1.23	82	7	182	100	VC	light to pale green	tuff	massive	lithological change to tuffat 0 m	VC	0.00	65	140	0	4	1	2	5	12	15	J	1.0	chl	ser	1	VG	JBC
									VC					VC	0.56	50	140	0	4	1	2	5	12	15	J	1.0	chl	ser	1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.80	50	280	0	4	1	2	5	12	15	J	1.0	chl	py	1	VG	JBC
									VC					VC	0.87	50	340	0	4	1	0	5	10	15	J	1.0	chl	py	1	VG	JBC
									VC					VC	0.96	60	330	0	4	3	2	5	14	15	J	1.0	chl	py	1	VG	JBC
									VC					VC	1.25	35	280	0	1	3	2	5	11	15	J	5	chl	cly	1	VG	JBC
									VC					VC	1.40	50	290	0	1	5	2	5	13	15	J	5	chl	py	1	VG	JBC
178.5	180.0	1.50	100	1.36	91	2	500	125	VC	light to pale green	tuff	massive	tuff Lots of angular pieces ,very competent rock except for the first 20 cm which is rubble zone	VC	0.09	70	340	0	1	5	0	5	11	15	J	5	chl	cc	1	VG	JBC
									VC					VC	0.25	45	30	0	1	1	2	5	9	15	J	5	chl	cc	1	VG	JBC
180.0	181.5	1.50	100	1.45	97	3	375	125	VC	light to pale green	tuff	massive	lots of angular clasts	VC	0.10	60	275	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	0.40	65	290	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	1.09	80	200	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
181.5	183.0	1.50	100	1.32	88	3	375	100	VC	light to pale green	tuff	massive	looks sericite altered	VC	0.40	20	60	0	4	3	2	5	14	15	J	1.0	chl	py	1	G	JBC
									VC					VC	0.94	50	10	0	4	1	2	5	12	15	J	1.0	chl	py	1	G	JBC
									VC					VC	1.15	15	245	0	1	5	0	5	11	15	J	5	chl	py	1	G	JBC
183.0	184.5	1.46	97	0.55	37	10	133	100	VC	light to pale green	tuff	massive	with mafic angular clasts, rubble zone between 1.30m to 1.40m	VC	0.47	40	55	0	4	3	2	5	14	15	J	1.0	chl	cly	1	G	JBC
									VC					VC	0.51	75	250	0	4	3	2	5	14	15	J	1.0	chl	cly	1	G	JBC
									VC					VC	0.52	80	230	0	4	3	2	5	14	15	J	1.0	chl	py	1	G	JBC
									VC					VC	0.67	55	300	0	4	1	2	5	12	15	J	1.0	chl	py	1	G	JBC
									VC					VC	0.76	75	280	0	4	1	2	5	12	15	J	1.0	chl	py	1	G	JBC
									VC					VC	0.88	65	240	0	4	3	2	5	14	15	J	1.0	chl	py	1	G	JBC
									VC					VC	1.02	15	40	0	1	5	0	5	11	15	Rub	5	chl	py	1	G	JBC
									VC					VC	1.13	38	35	0	1	5	0	5	11	15	Rub	5	chl	py	1	G	JBC
									VC					VC	1.35	50	250	0	4	3	2	5	14	15	J	1.0	chl	py	1	G	JBC
									VC					VC	1.45	32	210	0	4	1	2	5	12	15	J	1.0	chl	py	1	G	JBC
184.5	186.0	1.50	100	0.76	51	6	214	75	VC	light to pale green	tuff	massive	2 cm rubble zone at 0.10 m with quartz grains, altered crystalline texture	VC	0.07	70	310	0	1	1	0	5	7	15	J	5	chl	qtz	1	G	JBC
									VC					VC	0.16	70	230	0	1	3	2	5	11	15	J	5	chl	cly	1	G	JBC
									VC					VC	0.20	55	260	0	4	3	2	5	14	15	J	1.0	chl	ser	1	G	JBC
									VC					VC	0.46	25	280	0	4	3	2	5	14	15	J	1.0	chl	ser	1	G	JBC
									VC					VC	1.10	35	50	0	4	3	2	5	14	15	J	1.0	chl	ser	1	G	JBC
									VC					VC	1.30	40	185	0	1	3	2	5	11	15	J	5	chl	ser	1	G	JBC
186.0	187.5	1.50	100	1.31	87	2	500	175	FLPT	light to pale green	tuff	massive	crystalline textured, weakly altered	FLPT	0.16	60	10	0	4	3	0	5	12	15	J	1.0	chl	ser	1	VG	JBC
									FLPT					FLPT	0.35	20	100	0	4	3	2	5	14	15	J	1.0	chl	ser	1	VG	JBC
187.5	189.0	1.50	100	1.03	69	5	250	125	FLPT	light to pale green	tuff	massive	same as above	FLPT	0.11	25	220	0	1	3	2	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	0.25	10	260	0	1	5	2	5	13	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	0.32	25	235	0	1	5	0	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT				rubble zone at 0.83mto 1.0m	FLPT	0.83	10	240	0	1	5	0	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	1.51	15	265	0	4	3	2	5	14	15	J	1.0	chl	ser	1	VG	JBC
189.0	190.5	1.50	100	0.86	57	6	214	100	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.10	10	190	0	1	3	0	5	9	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	0.49	5	100	0	1	5	0	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	0.57	50	25	0	1	3	0	5	9	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	1.19	20	250	0	4	3	2	5	14	15	J	1.0	chl	ser	1	VG	JBC
									FLPT					FLPT	1.40	75	335	0	1	5	2	5	13	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	1.45	15	270	0	4	3	2	5	14	15	J	1.0	chl	ser	1	VG	JBC
190.5	192.0	1.50	100	1.27	85	3	375	100	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.35	20	320	0	1	5	0	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	1.40	20	270	0	1	3	0	5	9	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	1.49	25	210	0	1	5	0	5	11	15	J	5	chl	ser	1	VG	JBC
192.0	193.5	1.50	100	0.36	24	2	500	25	FLPT	light to pale green	tuff	massive	broken and rubble zone	FLPT	0.43	40	50	0	1	3	6	5	15	15	J	5	chl	ser	1	VG	SRM
									FLPT					FLPT	0.52	21	250	0	0	3	0	5	8	15	J	5.0	chl	ser	1	VG	SRM
193.5	195.0	1.36	91	0.00	0	Max	5	25	FLPT	light to pale green	tuff	massive	broken and rubble zone	FLPT	0.00			0	0	1	0	3	4	15	J	1360.0	Rub	gg	1	P	SRM
195.0	196.5	1.32	88	0.24	16	Max	5	25	FLPT	light to pale green	tuff	massive	fractures close to parallel to core axis, causing large broken zone	FLPT	0.00			0	0	1	0	3	4	15	J	1320.0	Rub	gg	1	P	SRM
196.5	198.0	1.50	100	0.74	49	3	375	50	FLPT	light to pale green	tuff	massive	broken and rubble zone	FLPT	0.46	25	60	0	1	3	6	5	15	15	J	5	chl		1	VG	SRM
									FLPT					FLPT	0.66	89	170	0	1	3	2	5	11	15	J	5	chl		1	VG	SRM
									FLPT					FLPT	1.43	12	270	0	1	1	2	5	9	15	J	5	chl		1	VG	SRM
198.0	199.5	1.50	100	0.50	33	4	300	25	FLPT	light to pale green	tuff	massive	rubble zone at 0.30m to 0.75m	FLPT	0.20			0	1	5	6	5	17	15	J	5	chl		1	VG	SRM
									FLPT					FLPT	0.30			0	0	1	0	3	4	15	J	5-10	Rub		1	VG	SRM
									FLPT					FLPT	1.17	21	90	0	1	1	2	5	9	15	J	5	chl		1	VG	SRM
									FLPT					FLPT	1.30	16	60	0	1	1	2	5	9	15	J	5	chl		1	VG	SRM
199.5	201.0	1.50	100	0.29	19	Max	5	25	FLPT	light to pale green	tuff	massive	rubble and broken zone from 0m to 0.65m	FLPT	0.00			0	0	1	0	3	4	15	J	1500.0	Rub		1	P	SRM
						3		25	FLPT					FLPT	0.70	10	270	0	0	1	2	5	8	15	J	10.0	Rub		1	P	SRM
									FLPT					FLPT	1.00	30	320	0	1	1	2	5	9	15	J	5	chl		1	P	SRM
									FLPT					FLPT	1.35	48	340	0	1	5	2	5	13	15	J	5	chl		1	P	SRM
201.0	202.5	1.50	100	0.52	35	11	125	25	FLPT	light to pale green	tuff	massive	rubble zone from 0 m to 0.25 m	FLPT	0.00			0	0	1	2	5	8	15	J	5.0	Rub		1	F	SRM
									FLPT					FLPT	0.49	12	30	0	1	1	2	5	9	15	J	5	chl		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									FLPT					FLPT	0.55	35	180	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	0.70	45	200	0	4	1	2	5	12	15	J	1.0	chl		1	F	SRM
									FLPT					FLPT	0.77	40	20	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	0.80	50	180	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	0.90	38	140	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	0.97	32	160	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	1.16	28	140	0	4	1	2	5	12	15	J	1.0	chl		1	F	SRM
									FLPT					FLPT	1.31	39	280	0	4	1	2	5	12	15	J	1.0	chl		1	F	SRM
									FLPT					FLPT	1.44	80	160	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
202.5	204.0	1.50	100	1.45	97	2	500	50	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.98	45	30	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	1.02	53	30	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
204.0	205.5	1.50	100	1.50	100	2	500	50	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	1.02	38	40	0	4	1	6	5	16	15	J	1.0	chl		1	F	SRM
									FLPT					FLPT	1.27	65	70	0	1	3	2	5	11	15	J	5	chl		1	F	SRM
205.5	207.0	1.50	100	0.95	63	6	214	75	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.32			0	1	1	2	5	9	15	J	5	chl		1	P	SRM
									FLPT					FLPT	0.74			0	1	1	2	5	9	15	J	5	chl		1	P	SRM
									FLPT					FLPT	0.92			0	4	1	2	5	12	15	J	1.0	chl		1	P	SRM
									FLPT					FLPT	1.09			0	1	1	2	5	9	15	J	5	chl		1	P	SRM
									FLPT					FLPT	1.20			0	4	1	2	5	12	15	J	1.0	chl		1	P	SRM
									FLPT					FLPT	1.27			0	1	1	2	5	9	15	J	5	chl		1	P	SRM
207.0	208.5	1.44	96	1.44	96	2	480	75	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.40	28	40	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
									FLPT					FLPT	1.31	60	320	0	1	1	2	5	9	15	J	5	chl		1	F	SRM
208.5	210.0	1.50	100	1.23	82	7	188	50	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.10	55	80	0	1	1	2	5	9	15	J	5	chl		1	P	SRM
									FLPT					FLPT	0.24	83	120	0	1	3	2	5	11	15	J	5	chl		1	P	SRM
									FLPT					FLPT	0.37	41	0	0	4	3	6	5	18	15	J	1.0	chl		1	P	SRM
									FLPT					FLPT	0.47	68	0	0	4	1	6	5	16	15	J	1.0	chl		1	P	SRM
									FLPT					FLPT	0.91	39	310	0	1	1	2	5	9	15	J	5	chl		1	P	SRM
									FLPT					FLPT	1.15	45	310	0	4	1	2	5	12	15	J	1.0	chl	ser	1	P	SRM
									FLPT					FLPT	1.17	38	310	0	4	1	2	5	12	15	J	1.0	chl	ser	1	P	SRM
210.0	211.5	1.49	99	1.32	88	4	298	50	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.20	19	330	0	1	3	2	5	11	15	J	5	chl	ser	1	F	SRM
									FLPT					FLPT	0.33	77	80	0	0	5	0	5	10	15	J	5.0	chl	ser	1	F	SRM
									FLPT					FLPT	0.82	48	300	0	1	1	6	5	13	15	J	5	chl	ser	1	F	SRM
									FLPT					FLPT	1.32	46	350	0	4	3	2	5	14	15	J	1.0	chl	ser	1	F	SRM
211.5	213.0	1.48	99	1.44	96	4	296	50	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.38	70	290	0	4	3	2	5	14	15	J	1.0	chl	ser	1	F	SRM
									FLPT					FLPT	0.97	10	180	0	1	3	2	5	11	15	J	5	chl	ser	1	F	SRM
									FLPT					FLPT	1.17	55	70	0	1	1	2	3	7	15	J	5	chl	ser	1	F	SRM
									FLPT					FLPT	1.33	37	40	0	1	1	2	5	9	15	J	5	chl	ser	1	F	SRM
213.0	214.5	1.50	100	1.42	95	3	375	75	FLPT	light to pale green	tuff	massive	altered texture, banded tuff wavy texture	FLPT	0.48	65	30	0	4	1	6	5	16	15	J	1.0	chl	ser	1	VG	SRM
									FLPT					FLPT	1.31	36	0	0	1	1	2	5	9	15	J	5	chl	ser	1	VG	SRM
									FLPT					FLPT	1.46	76	0	0	1	1	2	5	9	15	J	5	chl	ser	1	VG	SRM
214.5	216.0	1.50	100	1.35	90	3	375	125	FLPT	light to pale green	tuff	massive	altered texture, 1 cm gouge zone at 0.70m	FLPT	0.60	65	310	0	4	3	2	5	14	15	J	1.0	ser	py	1	VG	JBC
									FLPT					FLPT	0.66	45	25	0	1	5	0	5	11	15	J	5	ser	chl	1	VG	JBC
									FLPT					FLPT	1.00	25	5	0	4	3	2	5	14	15	J	1.0	cly	ser	1	VG	JBC
216.0	217.5	1.50	100	1.06	71	5	250	125	FLPT	light to pale green	tuff	massive	competent rock, lots of pyrite	FLPT	0.23	70	330	0	4	1	2	5	12	15	J	1.0	chl	py	1	VG	JBC
									FLPT					FLPT	0.57	15	40	0	1	3	0	5	9	15	J	5	py	qtz	1	VG	JBC
									FLPT					FLPT	0.80	60	70	0	4	1	2	5	12	15	J	1.0	chl	py	1	VG	JBC
									FLPT					FLPT	1.00	45	35	0	1	3	0	5	9	15	J	5	chl		1	VG	JBC
									FLPT					FLPT	1.16	15	60	0	1	5	0	5	11	15	J	5	chl	py	1	VG	JBC
217.5	219.0	1.50	100	1.05	70	7	188	100	FLPT	light to pale green	tuff	massive	same as above	FLPT	0.13	80	220	0	1	3	2	5	11	15	J	5	ser	py	1	VG	JBC
									FLPT					FLPT	0.33	68	200	0	4	1	2	5	12	15	J	1.0	ser	py	1	VG	JBC
									FLPT					FLPT	0.48	60	205	0	4	1	2	5	12	15	J	1.0	ser	py	1	VG	JBC
									FLPT					FLPT	0.80	15	350	0	1	3	0	5	9	15	J	5	cc	py	1	VG	JBC
									FLPT					FLPT	1.45	30	35	0	1	3	0	5	9	15	J	5	py		1	VG	JBC
									FLPT					FLPT	1.54	65	305	0	1	3	0	5	9	15	J	5	chl	py	1	VG	JBC
									FLPT					FLPT	1.55	62	15	0	1	3	0	5	9	15	J	5	chl	py	1	VG	JBC
219.0	220.5	1.50	100	0.78	52	8	167	125	FLPT	light to pale green	tuff	massive	fractured, rubbly zone at 0.33m to .57m	FLPT	0.10	32	260	0	1	5	0	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	0.30	40	110	0	4	3	2	5	14	15	J	1.0	chl	ser	1	VG	JBC
									FLPT					FLPT	0.33	50	320	0	4	1	0	5	10	15	J	1.0	chl	cly	1	VG	JBC
									FLPT					FLPT	0.34	45	315	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									FLPT					FLPT	0.46	60	330	0	1	3	2	5	11	15	J	5	cly	chl	1	VG	JBC
									FLPT					FLPT	0.57	40	150	0	1	3	2	5	11	15	J	1.0	cly	chl	1	VG	JBC
									FLPT					FLPT	0.62	15	50	0	1	1	2	5	9	15	J	1.0	cly	chl	1	VG	JBC
									FLPT					FLPT	1.02	55	35	0	4	3	2	5	14	15	J	1.0	cly	chl	1	VG	JBC
220.5	222.0	1.50	100	0.47	31	5	250	75	FLPT	light to pale green	tuff	massive	weakly altered from 0.22m to o.60m zone	FLPT	0.13	25	225	0	1	3	2	5	11	15	J	5	ser		1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									FLPT					FLPT	0.22	60	15	0	4	1	0	5	10	15	J	1.0	ser	chl	1	VG	JBC
									FLPT					FLPT	0.49	17	250	0	4	3	0	5	12	15	J	1.0	ser	chl	1	VG	JBC
									FLPT					FLPT	1.31	25	60	0	1	3	0	5	9	15	J	5	ser	chl	1	VG	JBC
									FLPT					FLPT	1.34	5	220	0	4	5	2	5	16	15	J	1.0	ser	chl	1	VG	JBC
222.0	223.5	1.43	95	1.09	73	4	286	50	FLPT	light to pale green	tuff	massive	2 cm rubble zone at 0.52 m	FLPT	0.19	52	45	0	1	5	0	5	11	15	J	5	ser	chl	1	VG	JBC
									FLPT					FLPT	0.52	45	30	0	1	3	0	5	9	15	J	5	ser	chl	1	VG	JBC
									FLPT					FLPT	1.05	42	175	0	1	3	0	5	9	15	J	5	chl		1	VG	JBC
									FLPT					FLPT	1.47	82	220	0	4	1	2	5	12	15	J	1.0	chl	cly	1	VG	JBC
223.5	224.8	1.25	96	1.05	81	5	208	100	FLPT	light to pale green	tuff	massive	some banded texture, altered	FLPT	0.14	80	0	0	4	1	2	5	12	15	J	1.0	chl	py	1	VG	JBC
									FLPT					FLPT	0.30	15	30	0	1	5	0	5	11	15	J	5	chl		1	VG	JBC
									FLPT					FLPT	0.37	70	35	0	4	3	0	5	12	15	J	1.0	chl	ser	1	VG	JBC
									FLPT					FLPT	0.64	10	25	0	1	3	2	5	11	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	1.10	5	50	0	1	3	0	5	9	15	J	5	chl	py	1	VG	JBC
224.8	225.0	0.20	100	0.20	100	0	200	100	FLPT	grey to green	tuff	massive	banded altered texture, drilling difficulty, caused rubble zone 0 m to 0.2m, rest of run is competent core with no joints	FLPT	0.00			6	6	6	6	5	29	15		0.0			1	P	JBC
225.0	226.5	1.48	99	1.20	80	4	296	100	FLPT	pale green to green, grey	tuff	massive	banded altered texture	FLPT	0.08	48	350	0	4	3	2	5	14	15	J	1.0	chl	ser	1	VG	JBC
									FLPT					FLPT	0.23	12	110	0	1	1	2	5	9	15	J	5	chl	ser	1	VG	JBC
									FLPT					FLPT	0.43	25	100	0	1	3	2	5	11	15	J	5	chl	cly	1	VG	JBC
									FLPT					FLPT	1.25	55	20	0	1	5	0	5	11	15	J	5	chl	cly	1	VG	JBC
226.5	228.0	1.50	100	0.75	50	9	150	50	VC	pale green to green, grey	tuff	massive	banded altered texture	VC	0.27	50	10	0	1	3	2	5	11	15	J	5	chl	cly	1	VG	JBC
									VC					VC	0.33	60	20	0	4	3	2	5	14	15	J	1	chl	cly	1	VG	JBC
									VC					VC	0.40	25	90	0	1	1	2	5	9	15	J	5	chl	cly	1	VG	JBC
									VC					VC	0.48	65	75	0	4	1	2	5	12	15	J	1	chl	cly	1	VG	JBC
									VC					VC	0.71	45	80	0	4	1	2	5	12	15	J	1	chl	cly	1	VG	JBC
									VC					VC	0.82	70	100	0	4	1	2	5	12	15	J	1	chl	py	1	VG	JBC
									VC					VC	0.95	35	95	0	1	1	2	5	9	15	J	5	chl	cly	1	VG	JBC
									VC					VC	1.04	60	120	0	4	3	2	5	14	15	J	1	chl	cly	1	VG	JBC
									VC					VC	1.50	10	90	0	1	1	2	5	9	15	J	5	chl	cly	1	VG	JBC
228.0	229.5	1.48	99	1.17	78	4	296	50	VC	pale green to green, grey	tuff	massive	banded altered texture	VC	0.34	5	30	0	0	1	0	5	6	15	J	10.0	cly		1	P	SRM
									VC					VC	0.58	65	10	0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC					VC	1.02	30	160	0	4	1	6	5	16	15	J	1	cly		1	P	SRM
									VC					VC	1.24	47	170	0	4	1	2	5	12	15	J	1	cly		1	P	SRM
229.5	231.0	1.50	100	1.27	85	6	214	50	VC	grey	tuff	massive	banded altered texture	VC	0.29	44	210	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	0.39	69	140	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	0.74	33	280	0	4	1	6	5	16	15	J	1			1	F	SRM
									VC					VC	1.10	48	320	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	1.20	50	60	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	1.44	9	340	0	1	3	2	5	11	15	J	5	cly		1	F	SRM
231.0	232.5	1.48	99	1.33	89	4	296	50	VC	grey	tuff	massive	banded altered texture	VC	0.24	55	20	0	4	3	2	5	14	15	J	1	cly		1	F	SRM
									VC					VC	0.41	55	230	0	1	3	2	5	11	15	J	5	cly		1	F	SRM
									VC					VC	0.73	33	30	0	4	1	6	5	16	15	J	1			1	F	SRM
									VC					VC	1.33	70	70	0	4	3	2	5	14	15	J	1	cly		1	F	SRM
232.5	234.0	1.50	100	1.10	73	7	188	50	VC	grey	tuff	massive	banded altered texture	VC	0.20	40	70	0	4	3	6	5	18	15	J	1			1	F	SRM
									VC					VC	0.38	65	10	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	0.45	76	50	0	4	1	6	5	16	15	J	1			1	F	SRM
									VC					VC	0.76	44	0	0	4	3	2	5	14	15	J	1	cly		1	F	SRM
									VC					VC	0.82	61	320	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	1.17	17	70	0	1	3	2	5	11	15	J	5	cly		1	F	SRM
									VC					VC	1.27	69	350	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
234.0	235.5	1.49	99	1.10	73	8	166	50	VC	grey	tuff	massive	banded altered texture	VC	0.14	75	280	0	4	1	6	5	16	15	J	1			1	F	SRM
									VC					VC	0.64	75	350	0	1	3	2	5	11	15	J	5	cly		1	F	SRM
									VC					VC	0.77	50	290	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	0.91	50	280	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	1.03	36	70	0	4	3	2	5	14	15	J	1	cly		1	F	SRM
									VC					VC	1.09	70	0	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	1.11	66	290	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	1.16	72	330	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
235.5	237.0	1.50	100	0.58	39	8	167	50	VC	grey	tuff	massive	banded altered texture	VC	0.20	55	70	0	4	3	2	5	14	15	J	1	cly		1	P	SRM
									VC					VC	0.43	50	70	0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC					VC	0.53	31	120	0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC					VC	0.62	83	180	0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC				highly weathered/ fell apart while logging	VC	0.98	60	80	0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC				highly weathered/ fell apart while logging	VC	1.26	21	100	0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC				highly weathered/ fell apart while logging	VC	1.44	69	80	0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC				highly weathered/ fell apart while logging	VC	1.49	65	120	0	1	1	2	5	9	15	J	5	cly		1	P	SRM
237.0	238.1	1.10	100	0.68	62	5	183	75	VC	grey	tuff	massive		VC	0.30			0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC					VC	0.32			0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC					VC	0.76			0	4	1	2	5	12	15	J	1	cly		1	P	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.00			0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC					VC	1.10			0	1	1	2	5	9	15	J	5	cly		1	P	SRM
238.1	238.5	0.40	100	0.00	0	Max	5	25	VC	grey	tuff	broken zone	broken rubble zone	VC	0.00			0	0	1	0	3	4	15	BR	400.0	gg	Rub	1	P	SRM
238.5	240.0	1.50	100	1.25	83	10	136	50	VC	grey	tuff	massive	banded altered texture	VC	0.28			0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC					VC	0.47			0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC					VC	0.83			0	4	1	2	5	12	15	J	1	cly		1	P	SRM
									VC					VC	0.88			0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC					VC	1.10			0	4	3	2	5	14	15	J	1	cly		1	P	SRM
									VC					VC	1.32			0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC					VC	1.34			0	1	1	2	5	9	15	J	5	cly		1	P	SRM
									VC					VC	1.38			0	4	3	2	5	14	15	J	1	cly		1	P	SRM
									VC					VC	1.40			0	4	3	2	5	14	15	J	1	cly		1	P	SRM
									VC					VC	1.47			0	1	3	2	5	11	15	J	5	cly		1	P	SRM
240.0	241.5	1.50	100	1.33	89	6	214	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.38	16	180	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	0.55	38	310	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	0.72	68	140	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	0.88	65	40	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	1.09	65	130	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
									VC					VC	1.12	73	170	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
241.5	243.0	1.50	100	1.50	100	4	300	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.38	63	60	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.87	23	60	0	1	3	6	5	15	15	J	5	chl		1	F	SRM
									VC					VC	0.94	82	180	0	4	1	2	5	12	15	J	1	cly		1	F	SRM
									VC					VC	1.11	19	90	0	1	1	2	5	9	15	J	5	cly		1	F	SRM
243.0	244.5	1.50	100	1.39	93	5	250	75	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.14	70	230	0	4	3	6	5	18	15	J	1	chl		1	VG	SRM
									VC					VC	0.85	55	300	0	4	3	6	5	18	15	J	1	chl		1	VG	SRM
									VC					VC	0.89	66	320	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.21	78	190	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.31	58	140	0	1	1	6	5	13	15	J	5	chl		1	VG	SRM
244.5	246.0	1.50	100	1.47	98	6	214	75	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.18	87	230	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	0.34	52	70	0	1	3	4	5	13	15	J	5	chl		1	VG	SRM
									VC					VC	0.53	65	60	0	4	1	4	5	14	15	J	1	chl		1	VG	SRM
									VC					VC	0.95	30	0	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.17	79	70	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.49	61	80	0	4	3	6	5	18	15	J	1	chl		1	VG	SRM
246.0	247.5	1.50	100	1.30	87	5	250	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.22	45	80	0	4	1	4	5	14	15	J	1	chl		1	G	SRM
									VC					VC	0.50	20	40	0	4	3	4	5	16	15	J	1	chl		1	G	SRM
									VC					VC	0.57	65	50	0	1	1	4	5	11	15	J	5	chl		1	G	SRM
									VC					VC	0.98	68	80	0	4	3	4	5	16	15	J	1	chl		1	G	SRM
									VC					VC	1.30	66	100	0	4	1	6	5	16	15	J	1	chl		1	G	SRM
247.5	249.0	1.50	100	0.73	49	7	188	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.29	62	0	0	4	1	4	5	14	15	J	1	chl		1	G	SRM
									VC					VC	0.33	68	80	0	4	1	4	5	14	15	J	1	chl		1	G	SRM
									VC					VC	0.50	77	150	0	4	1	4	5	14	15	J	1	chl		1	G	SRM
									VC					VC	0.50	17	300	0	1	5	4	5	15	15	J	5	chl		1	G	SRM
									VC					VC	0.80	3	130	0	1	1	4	5	11	15	J	5	chl		1	G	SRM
									VC					VC	0.88	60	100	0	4	1	4	5	14	15	J	1	chl		1	G	SRM
									VC					VC	1.14	58	310	0	4	1	4	5	14	15	J	1	chl		1	G	SRM
249.0	249.8	0.80	100	0.74	92	2	267	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.74	85	100	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.80	60	350	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
249.8	250.1	0.28	100	0.00	0	Max	5	25	VC	grey	tuff	broken zone	breccia, slightly altered, weak	VC	0.00			0	0	1	0	3	4	15	F	280.0	gg	Rub	1	P	SRM
250.1	250.5	0.42	100	0.10	24	5	70	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.00	67	0	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.09	54	340	0	4	3	4	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.10	68	140	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.25	60	20	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.32	30	20	0	1	1	4	5	11	15	J	5	chl		1	F	SRM
250.5	252.0	1.50	100	0.76	51	8	167	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.19	47	0	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.22	56	0	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.31	62	320	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.50	36	320	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.64	74	330	0	4	1	2	5	12	15	J	1	cly	chl	1	F	SRM
									VC					VC	0.76	56	20	0	4	1	4	5	14	15	J	1			1	F	SRM
									VC					VC	0.97	66	30	0	4	1	4	5	14	15	J	1			1	F	SRM
									VC					VC	1.35	70	320	0	4	1	4	5	14	15	J	1			1	F	SRM
252.0	253.5	1.50	100	1.15	77	5	250	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.11	72	330	0	4	1	4	5	14	15	J	1			1	P	SRM
									VC					VC	0.25	73	260	0	4	1	4	5	14	15	J	1			1	P	SRM
									VC					VC	0.70	43	140	0	1	3	4	5	13	15	J	5			1	P	SRM
									VC					VC	1.02	27	30	0	1	1	4	5	11	15	J	5			1	P	SRM
									VC					VC	1.41	47	60	0	4	1	4	5	14	15	J	1			1	P	SRM
253.5	255.0	1.50	100	1.40	93	5	250	75	VC	Grey	tuff	massive	breccia, slightly altered, weak	VC	0.57	50	30	0	1	1	4	5	11	15	J	5			1	P	SRM
									VC					VC	0.93	65	30	0	4	1	4	5	14	15	J	1			1	P	SRM
									VC					VC	1.00	52	60	0	4	1	4	5	14	15	J	1			1	P	SRM
									VC					VC	1.24	51	20	0	4	3	4	5	16	15	J	1			1	P	SRM
									VC					VC	1.44	17	80	0	4	3	4	5	16	15	J	1			1	P	SRM
255.0	256.5	1.50	100	1.26	84	4	300	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.57	28	160	0	4	1	4	5	14	15	J	1			1	VG	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.61	24	130	0	4	1	4	5	14	15	J	1			1	VG	SRM
									VC					VC	0.92	46	130	0	4	1	4	5	14	15	J	1			1	VG	SRM
									VC					VC	1.35	68	180	0	1	1	2	5	9	15	J	5	cly		1	VG	SRM
256.5	258.0	1.50	100	1.35	90	7	188	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.21	25	330	0	4	1	4	5	14	15	J	1	py		1	VG	JBC
									VC					VC	0.66	30	80	0	1	3	2	5	11	15	J	5	cly		1	VG	JBC
									VC					VC	0.70	22	15	0	1	3	2	5	11	15	J	5	cly	cc	1	VG	JBC
									VC					VC	0.85	32	30	0	4	3	2	5	14	15	J	1	cly		1	VG	JBC
									VC					VC	0.88	35	15	0	4	1	2	5	12	15	J	1	cly	chl	1	VG	JBC
									VC					VC	1.21	38	165	0	4	1	2	5	12	15	J	1	cly		1	VG	JBC
									VC					VC	1.50	20	0	0	4	1	4	5	14	15	J	1	py		1	VG	JBC
258.0	259.5	1.50	100	1.17	78	4	300	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.10	30	28	0	4	1	4	5	14	15	J	1	ox	py	1	VG	JBC
									VC					VC	0.25	5	60	0	4	5	4	5	18	15	J	1	ox	py	1	VG	JBC
									VC					VC	0.39	32	195	0	4	1	4	5	14	15	J	1	ox	py	1	VG	JBC
									VC					VC	0.70	65	5	0	4	3	4	5	16	15	J	1	ox	py	1	VG	JBC
259.5	261.0	1.50	100	1.02	68	6	214	100	VC	grey	tuff	massive	2cm rubble zone at 1.25m	VC	0.23	60	22	0	5	1	4	5	15	15	J	0.1	chl	py	1	VG	JBC
									VC					VC	0.48	58	42	0	4	1	4	5	14	15	J	1	chl	py	1	VG	JBC
									VC					VC	0.49	82	260	0	1	3	4	5	13	15	J	5	chl	py	1	VG	JBC
									VC					VC	0.80	7	75	0	5	3	4	5	17	15	J	0.1	chl	py	1	VG	JBC
									VC					VC	1.26	60	22	0	0	1	4	5	10	15	J	10.0	chl	py	1	VG	JBC
									VC					VC	1.50	45	37	0	0	1	4	5	10	15	J	10.0	chl	py	1	VG	JBC
261.0	262.5	1.50	100	1.22	81	4	300	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.75	70	342	0	0	0	4	5	9	15	J	10.0	chl	py	1	P	JBC
									VC					VC	0.88	50	130	0	4	0	4	5	13	15	J	1	chl	py	1	P	JBC
									VC					VC	1.04	60	110	0	4	3	4	5	16	15	J	1	chl	py	1	P	JBC
									VC					VC	1.20	15	35	0	1	5	4	5	15	15	J	5	chl	py	1	P	JBC
262.5	264.0	1.50	100	1.28	85	5	250	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.50	42	25	0	4	3	4	5	16	15	J	1	ox	py	1	F	JBC
									VC					VC	0.74	35	10	0	4	1	2	5	12	15	J	1	ox	py	1	F	JBC
									VC					VC	0.96	30	10	0	4	3	4	5	16	15	J	1	ox	py	1	F	JBC
									VC					VC	1.34	52	20	0	1	3	4	5	13	15	J	5	ox	py	1	F	JBC
									VC					VC	1.37	38	25	0	4	3	4	5	16	15	J	1	ox	py	1	F	JBC
264.0	265.5	1.50	100	1.05	70	8	167	125	VC	grey	tuff	massive	2cm rubble zone at 0.4m	VC	0.40	28	40	0	0	1	2	5	8	15	Rub	5.0	mno	cly	1	VG	JBC
									VC					VC	0.68	30	10	0	1	3	4	5	13	15	J	5	mno	py	1	VG	JBC
									VC					VC	1.01	15	335	0	4	3	4	5	16	15	J	1	mno	py	1	VG	JBC
									VC					VC	1.15	45	300	0	4	3	2	5	14	15	J	1	mno	chl	1	VG	JBC
									VC					VC	1.23	32	20	0	4	3	2	5	14	15	J	1	mno	cc	1	VG	JBC
									VC					VC	1.33	45	15	0	4	3	2	5	14	15	J	1	mno	chl	1	VG	JBC
									VC					VC	1.41	30	45	0	4	1	4	5	14	15	J	1	mno	cly	1	VG	JBC
									VC					VC	1.46	75	60	0	1	3	4	5	13	15	J	5	mno	cly	1	VG	JBC
265.5	267.0	1.39	93	1.11	74	5	232	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.00	38	335	0	4	3	2	5	14	15	J	1	mno	chl	1	F	JBC
									VC					VC	0.30	55	110	0	4	1	3	5	13	15	J	1	mno	chl	1	F	JBC
									VC					VC	0.61	15	75	0	4	3	4	5	16	15	J	1	mno	chl	1	F	JBC
									VC					VC	1.06	80	140	0	4	1	4	5	14	15	J	1	mno	chl	1	F	JBC
									VC					VC	1.31	20	50	0	4	1	4	5	14	15	J	1	mno	chl	1	F	JBC
267.0	268.5	1.50	100	0.92	61	8	167	100	VC	Grey	tuff	massive	fractured zone from 0.4 to 0.8 m	VC	0.43	30	330	0	0	5	3	5	13	15	J	10.0	mno	chl	1	G	JBC
									VC					VC	0.66	45	45	0	1	3	2	5	11	15	J	5	mno	chl	1	G	JBC
									VC					VC	0.70	28	40	0	4	3	4	5	16	15	J	1	mno	chl	1	G	JBC
									VC					VC	0.79	40	205	0	4	3	4	5	16	15	J	1	mno	chl	1	G	JBC
									VC					VC	1.28	15	40	0	4	3	4	5	16	15	J	1	mno	chl	1	G	JBC
									VC					VC	1.31	45	25	0	4	3	4	5	16	15	J	1	mno	chl	1	G	JBC
									VC					VC	1.46	32	200	0	1	5	4	5	15	15	J	5	mno	chl	1	G	JBC
									VC					VC	1.50	70	210	0	4	1	4	5	14	15	J	1	mno	chl	1	G	JBC
268.5	270.0	1.50	100	1.09	73	7	188	125	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.10	80	320	0	4	1	2	5	12	15	J	1	chl	mno	1	VG	JBC
									VC					VC	0.46	35	75	0	4	1	2	5	12	15	J	1	chl	mno	1	VG	JBC
									VC					VC	0.73	60	150	0	4	1	2	5	12	15	J	1	chl	mno	1	VG	JBC
									VC					VC	0.93	45	195	0	1	1	4	5	11	15	J	5	chl	cc	1	VG	JBC
									VC					VC	1.00	40	20	0	1	3	2	5	11	15	J	5	chl	cc	1	VG	JBC
									VC					VC	1.31	30	40	0	4	3	4	5	16	15	J	1	chl	mno	1	VG	JBC
									VC					VC	1.47	35	50	0	4	1	4	5	14	15	J	1	chl	mno	1	VG	JBC
270.0	271.5	1.50	100	1.30	87	2	500	150	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.22	20	130	0	1	5	4	5	15	15	J	5	mno	py	1	P	JBC
									VC					VC	1.46	58	100	0	4	1	4	5	14	15	J	1	mno	py	1	P	JBC
271.5	273.0	1.50	100	0.98	65	6	214	100	VC	grey	tuff	massive	lapilli tuff competent rock	VC	0.20	15	100	0	1	0	4	5	10	15	J	5	mno	chl	1	P	JBC
									VC					VC	0.30	28	60	0	1	1	4	5	11	15	J	5	mno	chl	1	P	JBC
									VC					VC	0.42	52	350	0	1	1	2	5	9	15	J	5	epidote ?	chl	1	P	JBC
									VC					VC	1.04	65	170	0	4	0	2	5	11	15	J	1.0	mno	chl	1	P	JBC
									VC					VC	1.31	40	350	0	4	1	4	5	14	15	J	1.0	mno	chl	1	P	JBC
									VC					VC	1.32	45	30	0	4	1	4	5	14	15	J	1.0	mno	chl	1	P	JBC
273.0	274.5	1.50	100	1.50	100	2	500	125	VC	pale light green rock	tuff	massive	pale light green rock	VC	0.49	28	280	0	4	3	4	5	16	15	J	1.0	py	chl	1	G	JBC
									VC					VC	0.98	50	90	0	4	1	4	5	14	15	J	1.0	py	chl	1	G	JBC
274.5	276.0	1.50	100	1.46	97	3	375	125	VC	pale light green rock	tuff	massive	pale light green rock	VC	0.13	90	0	0	4	5	4	5	18	15	J	1.0	mno	chl	1	P	JBC
									VC					VC	0.40	55	280	0	1	3	4	5	13	15	J	5	mno	chl	1	P	JBC
									VC					VC	0.42	80	285	0	4	1	4	5	14	15	J	1.0	mno	chl	1	P	JBC
276.0	277.5	1.46	97	1.35	90	2	487	125	VC	grey	tuff	massive	very competent rock	VC	0.50	70	310	0	4	3	4	5	16	15	J	1.0	mno	py	1	G	JBC
									VC					VC	1.41	25	65	0	0	5	3	5	13	15	J	10.0	mno	py	1	G	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
277.5	279.0	1.50	100	1.16	77	7	188	125	VC	grey	tuff	massive	competent rock	VC	0.00	55	75	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	0.27	68	270	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	0.48	68	120	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	0.73	35	350	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	1.30	60	180	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	1.46	70	10	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	1.52	12	220	0	4	3	0	5	12	15	J	1.0	mno	py	1	G	JBC
279.0	280.5	1.43	95	1.23	82	6	204	125	VC	grey	tuff	massive	competent rock	VC	0.00	62	320	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	0.37	12	35	0	4	3	4	5	16	15	J	1.0	mno	chl	1	G	JBC
									VC					VC	0.60	15	355	0	4	1	4	5	14	15	J	1.0	mno	epidote ?	1	G	JBC
									VC					VC	1.24	58	20	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
									VC					VC	1.35	30	335	0	5	1	4	5	15	15	J	0.1	mno	chl	1	G	JBC
									VC					VC	1.41	45	120	0	4	1	4	5	14	15	J	1.0	mno	py	1	G	JBC
280.5	282.0	1.50	100	0.91	61	5	250	100	VC	grey	tuff	massive	highly fractured and vuggy	VC	0.05	30	15	0	1	5	4	5	15	15	J	5	mno	py	1	G	JBC
									VC					VC	0.24	5	85	0	0	5	3	5	13	15	J	10.0	mno	py	1	G	JBC
									VC					VC	0.64	45	10	0	1	3	4	5	13	15	J	5	mno	py	1	G	JBC
									VC					VC	0.91	18	115	0	4	5	4	5	18	15	J	1.0	mno	py	1	G	JBC
									VC					VC	1.04	32	5	0	1	3	4	5	13	15	J	5	mno	py	1	G	JBC
282.0	283.5	1.50	100	0.49	33	15	94	50	VC	Grey	tuff	massive	very fractured run	VC	0.00	35	355	0	1	5	4	5	15	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	0.11	50	55	0	4	3	4	5	16	15	J	1.0	mno	epidote ?	1	F	JBC
									VC					VC	0.19	35	175	0	1	3	3	5	12	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	0.23	40	20	0	1	3	4	5	13	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	0.32	45	15	0	4	3	3	5	15	15	Rub	1.0	Rub		1	F	JBC
									VC					VC	0.35	50	30	0	4	1	4	5	14	15	Rub	1.0	Rub		1	F	JBC
									VC					VC	0.37	25	10	0	1	3	4	5	13	15	J	5	mno	cly	1	F	JBC
									VC					VC	0.41	45	25	0	1	3	4	5	13	15	J	1.0	mno	cly	1	F	JBC
									VC					VC	0.58	40	10	0	1	3	4	5	13	15	J	1.0	mno	cly	1	F	JBC
									VC					VC	0.64	45	0	0	1	1	2	5	9	15	J	1.0	mno	py	1	F	JBC
									VC					VC	0.80	45	330	0	4	3	4	5	16	15	J	1.0	mno	py	1	F	JBC
									VC					VC	0.93	50	20	0	1	1	3	5	10	15	Rub	5	mno		1	F	JBC
									VC					VC	1.08	30	35	0	1	1	2	5	9	15	Rub	5	mno	epidote ?	1	F	JBC
									VC					VC	1.11	40	50	0	1	3	4	5	13	15	Rub	5	mno	epidote ?	1	F	JBC
									VC					VC	1.50	32	170	0	1	5	4	5	15	15	Rub	5	mno	epidote ?	1	F	JBC
283.5	285.0	1.50	100	0.48	32	7	188	50	VC	grey	tuff	massive	very fractured run, rubble zones at 0.70m to 0.90m	VC	0.90	60	40	0	0	5	4	5	14	15	J	10.0	mno	epidote ?	1	F	JBC
									VC					VC	1.00	50	0	0	1	5	4	5	15	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	1.04	60	10	0	1	5	4	5	15	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	1.08	40	170	0	1	3	4	5	13	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	1.16	60	0	0	1	3	4	5	13	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	1.30	22	0	0	1	3	2	5	11	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	1.47	35	355	0	1	3	4	5	13	15	J	5	mno	epidote ?	1	F	JBC
285.0	286.3	1.32	99	0.78	59	6	189	50	VC	grey	tuff	massive	very fractured run	VC	0.00	20	60	0	4	1	4	5	14	15	J	1.0	mno	py	1	F	JBC
									VC					VC	0.22	45	30	0	4	1	4	5	14	15	J	1.0	mno	epidote ?	1	F	JBC
									VC					VC	0.52	35	35	0	4	3	4	5	16	15	J	1.0	mno	epidote ?	1	F	JBC
									VC					VC	0.92	25	40	0	4	3	4	5	16	15	J	1.0	mno	epidote ?	1	F	JBC
									VC					VC	1.14	25	100	0	1	3	4	5	13	15	J	5	mno	epidote ?	1	F	JBC
									VC					VC	1.30	20	95	0	1	3	4	5	13	15	Rub	5	mno	epidote ?	1	F	JBC
286.3	288.0	1.50	91	0.60	36	5	250	50	VC	grey	tuff	massive	very fractured run	VC	0.00	40	350	0	1	1	4	5	11	15	J	5	mno	py	1	F	JBC
									VC					VC	0.13	38	0	0	1	3	3	5	12	15	J	5	mno	py	1	F	JBC
									VC					VC	0.78	28	90	0	4	3	2	5	14	15	J	1.0	mno	py	1	F	JBC
									VC					VC	0.97	42	85	0	4	3	4	5	16	15	J	1.0	mno	py	1	F	JBC
									VC					VC	1.31	15	30	0	0	3	4	5	12	15	J	10.0	mno	py	1	F	JBC
288.0	289.5	1.50	100	1.14	76	6	214	50	VC	grey	tuff	massive	Broken zone from .61m to .78m	VC	0.61	30	350	0	0	1	4	5	10	15	J	10.0	chl		1	F	SRM
									VC					VC	0.78	28	330	0	1	1	4	5	11	15	J	5	chl		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.86	29	320	0	1	1	4	5	11	15	J	5	chl		1	F	SRM
									VC					VC	1.20	29	70	0	1	1	4	5	11	15	J	5	chl		1	F	SRM
									VC					VC	1.45	27	340	0	1	1	4	5	11	15	J	5	chl		1	F	SRM
									VC					VC	1.47	29	340	0	1	1	4	5	11	15	J	5	chl		1	F	SRM
289.5	291.0	1.50	100	1.36	91	5	250	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.12	35	80	0	0	1	4	5	10	15	J	10.0	chl		1	F	SRM
									VC					VC	0.77	44	95	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	1.17	19	50	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	1.31	41	100	0	1	3	4	5	13	15	J	5	chl		1	F	SRM
291.0	292.5	1.50	100	1.13	75	9	150	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.13	70	190	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.21	40	50	0	1	3	4	5	13	15	J	5	chl		1	F	SRM
									VC					VC	0.37	45	30	0	1	1	4	5	11	15	J	5	chl		1	F	SRM
									VC					VC	0.52	35	50	0	4	3	4	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.56	62	350	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	0.60	76	30	0	1	3	4	5	13	15	J	5	chl		1	F	SRM
									VC					VC	0.70	45	50	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	1.14	52	190	0	4	1	4	5	14	15	J	1	chl		1	F	SRM
									VC					VC	1.40	37	10	0	4	3	4	5	16	15	J	1	chl		1	F	SRM
292.5	294.0	1.50	100	1.50	100	5	250	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.15	47	170	0	4	1	4	5	14	15	J	1	chl		1	VG	SRM
									VC					VC	0.33	38	65	0	4	1	4	5	14	15	J	1	chl		1	VG	SRM
									VC					VC	0.76	40	60	0	4	1	4	5	14	15	J	1	chl		1	VG	SRM
									VC					VC	0.90	70	110	0	4	3	4	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.37	57	60	0	4	3	4	5	16	15	J	1	chl		1	VG	SRM
294.0	295.5	1.45	97	1.20	80	5	242	150	VC	grey	tuff	massive	Broken from 1.35m to 1.40m	VC	0.19	35	50	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	0.24	40	70	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	0.28	53	130	0	4	3	6	5	18	15	J	1	chl		1	VG	SRM
									VC					VC	1.35	33	20	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.40	36	310	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
295.5	297.0	1.48	99	1.27	85	4	296	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.09	34	10	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	0.60	70	220	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	0.84	63	80	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.43	31	20	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
297.0	298.5	1.50	100	1.25	83	7	188	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.18	14	20	0	4	3	6	5	18	15	J	1	chl		1	VG	SRM
									VC					VC	0.41	34	0	0	0	1	4	5	10	15	J	10.0	Rub		1	VG	SRM
									VC					VC	0.64	23	60	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	0.89	78	110	0	4	3	6	5	18	15	J	1	chl		1	VG	SRM
									VC					VC	1.20	72	70	0	1	1	6	5	13	15	J	5	chl		1	VG	SRM
									VC					VC	1.43	65	90	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
									VC					VC	1.48	43	30	0	4	1	6	5	16	15	J	1	chl		1	VG	SRM
298.5	300.0	1.48	99	0.97	65	7	185	100	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.60	9	0	0	4	1	5	5	15	15	J	1	chl		1	VG	SRM
									VC					VC	0.65	58	40	0	1	3	5	5	14	15	J	5	chl		1	VG	SRM
									VC					VC	0.80	55	66	0	4	1	5	5	15	15	J	1	chl		1	VG	SRM
									VC					VC	0.82	53	55	0	4	1	5	5	15	15	J	1	chl		1	VG	SRM
									VC					VC	0.88	38	50	0	4	1	5	5	15	15	J	1	chl		1	VG	SRM
									VC					VC	1.22	44	170	0	4	1	5	5	15	15	J	1	chl		1	VG	SRM
									VC					VC	1.29	15	200	0	4	3	5	5	17	15	J	1	chl		1	VG	SRM
300.0	301.5	1.50	100	1.24	83	6	214	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.34	42	50	0	4	1	5	5	15	15	J	1	chl		1	F	SRM
									VC					VC	0.46	32	60	0	4	1	5	5	15	15	J	1	chl		1	F	SRM
									VC					VC	0.95	59	160	0	4	1	5	5	15	15	J	1	chl		1	F	SRM
									VC					VC	0.98	24	180	0	4	3	5	5	17	15	J	1	chl		1	F	SRM
									VC					VC	1.15	45	20	0	0	1	2	5	8	15	J	10.0	Rub		1	F	SRM
									VC					VC	1.46	21	20	0	1	1	6	5	13	15	J	5	chl		1	F	SRM
301.5	303.0	1.39	93	0.71	47	10	126	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.00	49	0	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.36	87	140	0	0	5	4	5	14	15	J	10.0	Rub		1	F	SRM
									VC					VC	0.68	25	245	0	4	3	4	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.78	43	210	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.81	30	160	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.92	80	60	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	0.97	29	250	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC					VC	1.16	46	90	0	4	1	6	5	16	15	J	1	chl		1	F	SRM
									VC				Blocked at 1.27m	VC	1.27	15	330	0	0	1	2	5	8	15	J	10.0	Rub		1	F	SRM
									VC					VC	1.54	55	0	0	0	1	4	5	10	15	J	10.0	Rub		1	F	SRM
303.0	304.5	1.30	87	0.50	33	6	186	25	VC	grey	tuff	massive	Could not orient, ends weathered and broken, blocked in last 6 inches	VC	0.04			0	0	3	6	5	14	15	J	10.0	chl		1	None	SRM
									VC					VC	0.16			0	4	3	6	5	18	15	J	1	chl		1	None	SRM
									VC					VC	0.37			0	1	1	2	5	9	15	J	5	chl		1	None	SRM
									VC					VC	0.88			0	1	1	2	5	9	15	J	5	chl		1	None	SRM
									VC					VC	1.27			0	1	1	2	5	9	15	J	5	chl		1	None	SRM
									VC					VC	1.50			0	4	3	2	5	14	15	J	1	chl		1	None	SRM
304.5	306.0	1.50	100	0.50	33	7	188	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.12	21	90	0	4	3	6	5	18	15	J	1	chl		1	None	SRM
									VC					VC	0.30	64	80	0	4	1	6	5	16	15	J	1	chl		1	None	SRM
									VC					VC	0.46	43	80	0	1	1	6	5	13	15	J	5	chl		1	None	SRM
									VC					VC	0.62	42	140	0	4	3	6	5	18	15	J	1	chl		1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.80	59	70	0	4	1	6	5	16	15	J	1	chl		1	None	SRM
									VC					VC	1.08	60	50	0	1	1	6	5	13	15	J	5	chl		1	None	SRM
									VC					VC	1.45	36	60	0	4	1	6	5	16	15	J	1	chl		1	None	SRM
306.0	307.5	1.50	100	1.48	99	3	375	50	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.46	54	0	0	4	3	6	5	18	15	J	1	chl		1	P	SRM
									VC					VC	0.52	59	150	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	1.43	23	30	0	4	3	6	5	18	15	J	1	chl		1	P	SRM
307.5	309.0	1.50	100	1.30	87	5	250	25	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.00	17	230	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.35	45	110	0	4	3	6	5	18	15	J	1	chl		1	P	SRM
									VC					VC	0.50	48	170	0	4	3	6	5	18	15	J	1	chl		1	P	SRM
									VC					VC	0.90	9	20	0	4	3	6	5	18	15	J	1	chl		1	P	SRM
									VC					VC	1.08	19	100	0	4	3	6	5	18	15	J	1	chl		1	P	SRM
309.0	310.5	1.50	100	0.92	61	10	136	25	VC	grey	tuff	massive	breccia, slightly altered, weak	VC	0.15	40	50	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.15	71	20	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.25	28	90	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.25	50	70	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.35	57	70	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.63	60	70	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.64	73	70	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.71	62	70	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	0.99	51	150	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
									VC					VC	1.14	43	70	0	4	1	6	5	16	15	J	1	chl		1	P	SRM
310.5	312.0	1.50	100	0.96	64	7	188	50	VC	grey	tuff	massive	lots of pyrite, highly fractured, vuggy	VC	0.34	45	10	0	0	3	3	5	11	15	J	10.0	Rub	py	1	P	JBC
									VC					VC	0.40	40	15	0	1	3	4	5	13	15	J	5	chl		1	P	JBC
									VC					VC	0.50	32	25	0	4	1	4	5	14	15	J	1	chl		1	P	JBC
									VC					VC	0.78	40	20	0	1	3	4	5	13	15	J	5	chl		1	P	JBC
									VC					VC	0.83	55	0	0	4	3	4	5	16	15	J	1	chl		1	P	JBC
									VC					VC	0.93	35	220	0	4	3	4	5	16	15	J	1	chl	py	1	P	JBC
									VC					VC	1.40	60	175	0	1	3	4	5	13	15	J	5	chl	py	1	P	JBC
312.0	313.5	1.50	100	1.33	89	6	214	75	VC	grey	breccia	massive	lots of pyrite, vuggy	VC	0.52	50	40	0	1	3	4	5	13	15	J	5	chl		1	G	JBC
									VC					VC	0.55	40	245	0	4	1	4	5	14	15	J	1	chl	py	1	G	JBC
									VC					VC	0.78	62	140	0	4	1	4	5	14	15	J	1	chl	py	1	G	JBC
									VC					VC	1.14	60	150	0	4	1	4	5	14	15	J	1	chl	py	1	G	JBC
									VC					VC	1.23	65	180	0	4	1	4	5	14	15	J	1	chl	py	1	G	JBC
									VC					VC	1.41	75	130	0	0	3	0	5	8	15	J	10.0	rub	gg	1	G	JBC
313.5	315.0	1.50	100	1.05	70	7	188	75	VC	dark grey	breccia	massive	lots of pyrite blebs	VC	0.12	60	210	0	1	3	4	5	13	15	J	5	chl		1	F	JBC
									VC					VC	0.58	55	195	0	4	1	2	5	12	15	J	1	cly	gg	1	F	JBC
									VC					VC	0.65	62	250	0	4	1	2	5	12	15	J	1	cly	chl	1	F	JBC
									VC					VC	0.82	40	80	0	4	1	2	5	12	15	J	1	cly	cc	1	F	JBC
									VC					VC	1.33	45	120	0	4	3	2	5	14	15	J	1	cly	cc	1	F	JBC
									VC					VC	1.35	25	165	0	4	3	2	5	14	15	J	1	cc	py	1	F	JBC
									VC					VC	1.45	70	50	0	1	3	2	5	11	15	J	5	cc	py	1	F	JBC
315.0	316.5	1.47	98	0.90	60	8	163	75	VC	dark grey	breccia	massive	lots of pyrite blebs, 2 cm gouge seam at 1.05 m	VC	0.00			0	1	1	2	5	9	15	J	5	cly	gg	8	P	JBC
316.5	318.0	1.50	100	1.06	71	6	214	25	VC	dark grey	breccia	massive	4 cm gouge seam at 1.00 m	VC	0.10	50	45	0	0	3	0	5	8	15	J	10.0	cly		1	F	JBC
									VC					VC	0.33	45	125	0	4	3	2	5	14	15	J	1	cly	py	1	F	JBC
									VC					VC	0.74	5	130	0	4	3	4	5	16	15	J	1	chl	py	1	F	JBC
									VC					VC	0.84	60	310	0	1	3	2	5	11	15	J	5	cly		1	F	JBC
									VC					VC	1.00	45	70	0	0	1	0	5	6	15	J	10.0	gg	cly	1	F	JBC
									VC					VC	1.46	65	70	0	4	3	4	5	16	15	J	1	chl	py	1	F	JBC
318.0	319.5	1.50	100	0.24	16	max	5	10	VC	grey	breccia	fault	micro fractured run, fault zone at 0.28 m to end of run, fault material breaks easily, some silt, gravel, sand, grey, chaotic orientation, many healed fractures, can be pealed by a knife	VC	0.28	50	120	0	0	1	0	3	4	15	Fg	10.0	rub	gg	1	P	JBC
319.5	320.1	0.62	100	0.00	0	max	5	10	VC	grey	breccia	fault	micro fractured run, fault zone at 0.28 m to end of run, fault material breaks easily, some silt, gravel, sand, grey, chaotic orientation, many healed fractures, can be pealed by a knife	VC	0.00			0	0	1	0	3	4	15	Fg	10.0	rub	gg	1	P	JBC
320.1	320.6	0.44	100	0.00	0	max	5	10	VC	grey	breccia	fault	alternating layers of good rock and fault material, ~1cm thick	VC	0.00			0	0	1	0	3	4	15	Fg	10.0	rub	gg	1	P	JBC
320.6	321.0	0.44	100	0.20	45	max	5	25	VC	grey	breccia	fault	rock gets more competent, fault material diminishes to <0.10 cm thick to 0 m thickness	VC	0.00			0	1	1	2	3	7	15	J	5	cly	gg	1	P	JBC
321.0	321.5	0.50	100	0.00	0	max	5	10	VC	grey	breccia	fault	alternating layers of good rock and fault material	VC	0.00			0	0	1	0	3	4	15	Fg	10.0	rub	gg	1	P	JBC
321.5	322.0	0.50	100	0.35	70	max	5	50	VC	grey	breccia	fault	good rock, highly fractured	VC	0.00			0	1	1	2	3	7	15	J	5	cly	gg	1	P	JBC
322.0	322.5	0.50	100	0.00	0	max	5	10	VC	grey	breccia	fault	alternating layers of good rock and fault material	VC	0.00			0	0	1	0	3	4	15	Fg	10.0	rub	gg	1	P	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
322.5	324.0	1.50	100	0.00	0	max	5	25	VC	grey	breccia	fault	highly fractured rock, gouge fault material at 0.20 m (1cm thick) an at 0.50 m (5cm thick)	VC	0.00			0	0	1	0	3	4	15	Fg	10.0	rub	cly	1	P	JBC
324.0	325.5	1.50	100	0.80	53	4	300	25	VC	grey	breccia	massive	fractured grey rock, 6cm fault material at 0.40 m and 2cm rubble zone at 0.80 m	VC	0.10	50	25	0	4	1	2	5	12	15	J	1	cly	py	1	F	JBC
									VC					VC	0.40	55	290	0	0	1	0	5	6	15	Fg	10.0	rub	qtz	1	F	JBC
									VC					VC	0.61	50	325	0	4	1	2	5	12	15	J	1	cc	rub	1	F	JBC
									VC					VC	0.80	68	0	0	0	1	0	5	6	15	Fg	10.0	rub	gg	1	F	JBC
325.5	327.0	1.50	100	0.49	33	5	250	25	VC	grey	breccia	massive	fractured grey rock, 1cm gouge seam at 0.39 m	VC	0.39	40	350	0	0	3	0	5	8	15	J	10.0	cc	gg	1	F	JBC
									VC					VC	0.60	60	15	0	4	1	2	5	12	15	J	1	cc	cly	1	F	JBC
									VC					VC	0.73	35	5	0	1	3	2	5	11	15	J	5	cc		1	F	JBC
									VC					VC	1.07			0	4	3	2	5	14	15	J	1	cc		1	F	JBC
									VC					VC	1.42			0	1	1	0	5	7	15	J	5	cc	cly	1	F	JBC
327.0	327.3	0.27	100	0.00	0	max	5	10	VC	great to dark green	breccia	fault	highly fractured fault material, micro fractured	VC	0.20	70	250	0	0	1	0	3	4	15	Fg	10.0	cc	rub	1	F	JBC
327.3	328.5	1.23	100	0.91	74	1	615	50	VC	grey to dark green	breccia	fault	with small (1 cm clasts)	VC	0.70	20	300	0	1	5	2	5	13	15	J	5	cly	cgl	1	F	JBC
328.5	330.0	1.46	97	1.42	95	4	292	75	VC	grey to dark green	breccia	massive	very competent rock	VC	0.41	32	270	0	5	1	2	5	13	15	J	0.1	cc		1	VG	JBC
									AND					AND	0.57	72	255	0	5	1	2	5	13	15	J	0.1	cly		1	VG	JBC
									AND					AND	0.91	40	300	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	JBC
									AND					AND	1.35	35	340	0	5	3	2	5	15	15	J	0.1	cc	cly	1	VG	JBC
330.0	331.5	1.49	99	1.25	83	3	373	100	AND	grey to dark green	breccia	massive	lots of calcite and quartz veins at 0.1 cm thick	AND	0.13	30	235	0	4	3	2	5	14	15	J	1.0	cc	qtz	1	P	JBC
									AND					AND	1.12	42	0	0	4	1	2	5	12	15	J	1.0	cc	qtz	1	P	JBC
									AND					AND	1.31	40	220	0	1	1	2	5	9	15	J	5	cc	py	1	P	JBC
331.5	333.0	1.50	100	1.31	87	7	188	100	AND	dark grey	medium grained	massive	mafic, volcanic or sedimentary?	AND	0.40	62	300	0	4	3	2	5	14	15	J	1.0	cc	py	1	P	JBC
									AND					AND	0.47	25	320	0	0	5	2	5	12	15	J	10.0	cc	cly	1	P	JBC
									AND					AND	0.88	45	0	0	1	3	2	5	11	15	J	5	cc	py	1	P	JBC
									AND					AND	1.10	65	10	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
									AND					AND	1.15	48	5	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
									AND					AND	1.23	45	170	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									AND					AND	1.54	40	260	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
333.0	334.5	1.45	97	1.16	77	6	207	100	AND	dark grey to black	dium to coarse grai	massive	disseminated pyrite with calcite veining	AND	0.32	15	330	0	1	0	0	5	6	15	J	5.0	cc	cly	1	P	JBC
									AND	.				AND	0.61	28	90	0	1	5	0	5	11	15	J	5.0	cc	cly	1	P	JBC
									AND					AND	0.72	20	315	0	4	1	0	5	10	15	J	1.0	cc	py	1	P	JBC
									AND					AND	0.81	45	310	0	4	1	0	5	10	15	J	1.0	cc	cly	1	P	JBC
									AND					AND	0.92	20	330	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	1.13	50	280	0	4	1	0	5	10	15	J	1.0	cc		1	P	JBC
334.5	336.0	1.48	99	1.48	99	4	296	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains, calcite veining 2-3 mm thick	AND	0.00	44	160	0	4	1	6	6	17	15	J	0.1	cc		1	VG	SRM
									AND					AND	0.29	57	150	0	4	1	6	6	17	15	J	0.1	cly		1	VG	SRM
									AND					AND	0.79	35	330	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.00	56	350	0	0	1	0	5	6	15	J	25.0	cc		1	VG	SRM
336.0	337.5	1.50	100	1.44	96	1	750	175	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains, calcite veining 2-3 mm thick	AND	1.27	68	260	0	4	3	6	6	19	15	J	1.0	cc		1	VG	SRM
337.5	339.0	1.50	100	1.50	100	1	750	175	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains, calcite veining 2-3 mm thick	AND	0.00	50	265	0	4	1	0	6	11	15	J	1.0	cc		1	F	SRM
339.0	340.5	1.50	100	1.50	100	0	1500	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.00			6	6	6	6	6	30	15	J	0.0	cc		1	F	SRM
340.5	342.0	1.50	100	1.50	100	1	750	175	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	1.09	40	290	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
342.0	343.5	1.50	100	1.50	100	3	375	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.00	58	170	0	4	1	6	6	17	15	J	1.0	cc		1	F	SRM
									AND				partially filled, unbroken cavity at 0.8m	AND	0.53	63	350	0	0	1	0	5	6	15	J	15.0	cc	gg	1	F	SRM
									AND					AND	1.14	63	350	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
343.5	345.0	1.50	100	1.42	95	4	300	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.72	50	270	0	4	1	6	6	17	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.81	49	330	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.93	53	290	0	1	1	2	5	9	15	J	5.0	cc		1	VG	SRM
									AND					AND	1.15	50	330	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
345.0	346.5	1.50	100	1.38	92	8	167	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.19	51	190	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	0.37	81	310	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	0.66	45	30	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									AND					AND	0.85	71	20	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	1.01	25	55	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.16	25	70	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	1.18	61	280	0	1	3	2	5	11	15	J	5.0	cc	cly	1	VG	SRM
									AND					AND	1.27	68	60	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
346.5	348.0	1.50	100	1.50	100	5	250	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.00	51	90	0	4	3	2	5	14	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.77	30	340	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.87	77	330	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.10	63	270	0	4	1	6	6	17	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.27	53	270	0	4	1	6	6	17	15	J	1.0	cc		1	VG	SRM
348.0	349.5	1.39	93	1.39	93	5	232	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.21	60	290	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.46	75	220	0	4	3	6	6	19	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.56	67	200	0	4	1	6	6	17	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.83	69	260	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	1.27	51	290	0	1	3	2	5	11	15	J	4.0	cc	cly	1	VG	SRM
349.5	351.0	1.50	100	1.29	86	8	167	150	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.00	72	210	0	4	1	6	5	16	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.11	67	300	0	1	1	2	3	7	15	J	3.0	cly		1	VG	SRM
									AND					AND	0.23	60	320	0	4	1	6	6	17	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.86	18	200	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.98	48	160	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	1.14	71	340	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.40	49	260	0	4	1	6	6	17	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.48	58	50	0	0	1	2	3	6	15	J	8.0	cc	cly	1	VG	SRM
351.0	352.5	1.50	100	1.41	94	5	250	25	AND	dark grey to black	fine grained	massive	with white 1-5mm equigranular grains	AND	0.40	58	270	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.64	71	20	0	4	1	6	6	17	15	J	1.0	cc		1	P	SRM
									AND					AND	1.33	63	320	0	4	1	6	6	17	15	J	1.0	cc		1	P	SRM
									AND					AND	1.39	69	200	0	4	1	6	6	17	15	J	1.0	cc		1	P	SRM
									AND					AND	1.44	42	310	0	4	1	6	6	17	15	J	1.0	cc		1	P	SRM
352.5	354.0	1.44	96	1.20	80	5	240	75	AND	dark green to dark grey	fine grained	massive	lots of calcite veins	AND	0.16	45	290	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	0.30	22	100	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
									AND					AND	1.20	55	270	0	1	1	2	5	9	15	J	5.0	cc		1	P	JBC
									AND					AND	1.29	70	25	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC
									AND					AND	1.33	60	15	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
354.0	355.5	1.50	100	1.37	91	5	250	100	AND	dark green to black	fine grained	massive	Lots of 0.1 cm calcite veinlet's	AND	0.41	52	30	0	5	1	2	5	13	15	J	0.1	cc		1	F	JBC
									AND					AND	0.54	70	20	0	5	1	2	5	13	15	J	0.1	cc		1	F	JBC
									AND					AND	1.00	35	300	0	5	1	2	3	11	15	J	0.1	cc		1	F	JBC
									AND					AND	1.10	30	280	0	0	3	0	3	6	15	J	10.0	cc		1	F	JBC
									AND					AND	1.35	65	30	0	1	1	2	3	7	15	J	5	cc		1	F	JBC
355.5	357.0	1.50	100	1.39	93	3	375	125	AND	dark green to black	fine grained	massive	sed? Lots of 0.1 cm calcite veinlet's	AND	1.12	50	280	0	4	5	2	5	16	15	J	1.0	cc		1	F	JBC
									AND					AND	1.30	45	270	0	4	3	2	3	12	15	J	1.0	cc		1	F	JBC
									AND					AND	1.40	45	260	0	1	1	0	3	5	15	J	5	cc		1	F	JBC
357.0	358.5	1.44	96	1.44	96	5	240	125	AND	dark green to black	fine grained	massive	very competent rock. Lots of calcite/ qtz? Veins	AND	0.10	32	250	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
									AND					AND	0.72	70	90	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
									AND					AND	0.80	45	55	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
									AND					AND	0.89	45	90	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
									AND					AND	1.05	45	80	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
358.5	360.0	1.50	100	1.27	85	6	214	125	AND	dark green to black	fine grained	massive	very competent rock. Lots of calcite/ qtz? Veins	AND	0.52	58	40	0	5	1	2	3	11	15	J	0.1	cc		1	VG	JBC
									AND					AND	0.53	60	25	0	4	1	2	3	10	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.70	30	295	0	1	1	2	3	7	15	J	5	cc		1	VG	JBC
									AND					AND	0.77	50	290	0	1	1	2	3	7	15	J	5	cc		1	VG	JBC
									AND					AND	1.04	50	230	0	4	1	2	3	10	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.25	58	300	0	4	1	2	3	10	15	J	1.0	cc		1	VG	JBC
360.0	361.5	1.50	100	1.50	100	5	250	125	AND	black to dark green	fine grained	massive	lots of calcite veins	AND	0.28	30	310	0	1	1	0	5	7	15	J	5	cc		1	VG	JBC
									AND					AND	0.34	50	250	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.19	50	345	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.27	40	300	0	1	1	2	5	9	15	J	5	cc		1	VG	JBC
									AND					AND	1.41	50	350	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
361.5	363.0	1.50	100	1.38	92	7		100	AND	black to dark green	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.25	68	10	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.30	55	0	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.74	48	0	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.83	30	310	0	1	1	0	5	7	15	J	5	cc		1	VG	JBC
									AND					AND	0.95	38	320	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.24	60	300	0	4	3	2	5	14	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.40	40	240	0	4	3	2	5	14	15	J	1.0	cc		1	VG	JBC
363.0	364.5	1.50	100	1.36	91	5	250	125	AND	black to dark green	fine grained	massive	0.40m long (0.5m thick) calcite	AND	0.50	10	300	0	1	1	0	5	7	15	J	5	cc		1	VG	JBC
									AND					AND	1.01	65	20	0	1	1	2	5	9	15	J	5	cc		1	VG	JBC
									AND					AND	1.15	30	230	0	1	1	2	5	9	15	J	5	cc		1	VG	JBC
									AND					AND	1.45	60	200	0	1	1	0	5	7	15	J	5	cc		1	VG	JBC
									AND					AND	1.57	50	270	0	1	1	2	5	9	15	J	5	cc		1	VG	JBC
364.5	366.0	1.46	97	1.36	91	6	209	100	AND	black to dark green	fine grained	massive	very competent rock. Lots of calcite/ qtz? Veins	AND	0.21	45	220	0	4	1	2	5	12	15	J	1.0	cc		1	P	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition						Water								
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.39	40	230	0	1	1	2	5	9	15	J	5	cc		1	P	JBC
									AND					AND	0.73	35	250	0	1	1	2	5	9	15	J	5	cc		1	P	JBC
									AND					AND	0.83	40	260	0	1	1	0	5	7	15	J	5	cc		1	P	JBC
									AND					AND	1.13	80	20	0	4	3	2	3	12	15	J	1.0	cc		1	P	JBC
									AND					AND	1.28	75	60	0	4	3	2	5	14	15	J	1.0	cc		1	P	JBC
366.0	367.5	1.50	100	1.26	84	6	214	100	AND	dark green to black	fine grained	massive	lots of calcite	AND	0.26	50	290	0	1	3	0	3	7	15	J	5	cc		1	VG	JBC
									AND					AND	0.30	60	310	0	0	3	0	3	6	15	J	10.0	gg		1	VG	JBC
									AND					AND	0.60	40	260	0	5	1	2	5	13	15	J	0.1	cc		1	VG	JBC
									AND					AND	0.83	65	270	0	5	1	2	5	13	15	J	0.1	cc	cly	1	VG	JBC
									AND					AND	0.93	70	350	0	4	1	2	5	12	15	J	1.0	cc	gg	1	VG	JBC
									AND					AND	1.46	60	130	0	5	1	2	5	13	15	J	0.1	cc	cly	1	VG	JBC
367.5	369.0	1.50	100	0.67	45	9	150	100	AND	dark green to black	fine grained	massive	lots of cross-cutting veins (~.1cm thick)	AND	0.20	50	300	0	5	1	0	5	11	15	J	0.1	cc	gg	1	VG	JBC
									AND					AND	0.29	55	290	0	1	1	0	5	7	15	J	5	cc	cly	1	VG	JBC
									AND					AND	0.38	60	250	0	1	1	0	5	7	15	J	5	cc	qtz	1	VG	JBC
									AND					AND	0.44	40	230	0	1	1	0	5	7	15	J	5	cc	qtz	1	VG	JBC
									AND					AND	0.44	50	40	0	1	1	0	5	7	15	J	5	cc	qtz	1	VG	JBC
									AND					AND	0.53	60	230	0	1	1	0	5	7	15	J	5	cc	qtz	1	VG	JBC
									AND					AND	0.70	60	270	0	1	1	0	5	7	15	J	5	cc	qtz	1	VG	JBC
									AND					AND	0.98	70	330	0	1	1	0	5	7	15	J	5	cc	qtz	1	VG	JBC
									AND					AND	1.38	50	240	0	4	1	2	3	10	15	J	1.0	cc	qtz	1	VG	JBC
369.0	370.5	1.49	99	0.69	46	8	166	100	AND	dark green to black	fine grained	massive	disseminated pyrite, lots of calcite veins	AND	0.20	40	60	0	4	1	2	5	12	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.26	65	260	0	5	1	2	5	13	15	J	0.1	cc	Rub	1	VG	JBC
									AND					AND	0.41	50	320	0	0	3	0	5	8	15	J	10.0	cc	Rub	1	VG	JBC
									AND					AND	0.77	50	340	0	4	3	0	5	12	15	J	1.0	cc	Rub	1	VG	JBC
									AND					AND	0.89	40	250	0	4	3	0	5	12	15	J	1.0	cc	qtz	1	VG	JBC
									AND					AND	1.10	45	350	0	4	1	0	5	10	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	1.13	80	250	0	5	1	2	5	13	15	J	0.1	cc	py	1	VG	JBC
									AND					AND	1.33	10	160	0	4	1	2	5	12	15	J	1.0	cc	py	1	VG	JBC
370.5	372.0	1.47	98	0.46	31	9	147	75	AND	dark green to black	fine grained	massive	lots of veins makes rock weak	AND	0.10	40	250	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.13	15	90	0	5	1	2	5	13	15	J	0.1	cc		1	VG	JBC
									AND					AND	0.28	15	100	0	5	1	2	5	13	15	J	0.1	cc		1	VG	JBC
									AND					AND	0.42	60	50	0	1	1	0	5	7	15	J	5	cc		1	VG	JBC
									AND					AND	0.45	65	30	0	1	1	0	5	7	15	J	5	cc		1	VG	JBC
									AND					AND	0.70	70	180	0	0	3	0	5	8	15	J	10.0	cc	cly	1	VG	JBC
									AND					AND	1.39	20	130	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.45	50	240	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.47	50	90	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
372.0	373.5	1.47	98	0.52	35	8	163	100	AND	dark green to black	fine grained	massive	lots of cross-cutting veins (~.1cm thick)	AND	0.10	40	350	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.30	50	270	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.31	40	5	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.60	40	20	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.72	40	260	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	0.87	60	10	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.01	60	15	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									AND					AND	1.42	70	130	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
373.5	375.0	1.44	96	1.32	88	5	240	150	AND	dark green to black	fine grained	massive	not as many calcite veins	AND	0.20	15	320	0	4	1	2	5	12	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.51	60	25	0	4	1	2	5	12	15	J	1.0	cc	py	1	VG	JBC
									AND					AND	0.65	65	45	0	5	1	6	6	18	15	J	0.1	cc	Rub	1	VG	JBC
									AND					AND	0.96	65	170	0	5	1	6	6	18	15	J	0.1	cc	py	1	VG	JBC
									AND					AND	1.03	55	50	0	5	1	6	6	18	15	J	0.1	cc	py	1	VG	JBC
375.0	376.5	1.50	100	1.18	79	9	150	150	AND	dark green to black	fine grained	massive	lots of disseminated pyrite, 2cm calcite vein at 1.0m	AND	0.30	35	160	0	5	1	2	5	13	15	J	0.1	cc	py	1	G	JBC
									AND					AND	0.40	70	330	0	5	1	6	5	17	15	J	0.1	cc		1	G	JBC
									AND					AND	0.41	50	335	0	5	1	2	5	13	15	J	0.1	cc		1	G	JBC
									AND					AND	0.42	50	335	0	5	1	2	5	13	15	J	0.1	cc		1	G	JBC
									AND					AND	0.91	25	150	0	0	3	0	5	8	15	J	10.0	cc	cly	1	G	JBC
									AND					AND	1.08	35	240	0	1	1	2	5	9	15	J	5	cc	py	1	G	JBC
									AND					AND	1.10	40	220	0	1	1	2	5	9	15	J	5	cc	qtz	1	G	JBC
									AND					AND	1.27	38	240	0	1	1	2	5	9	15	J	5	cc	py	1	G	JBC
									AND					AND	1.30	15	230	0	4	1	2	5	12	15	J	1.0	cc	py	1	G	JBC
376.5	378.0	1.50	100	1.17	78	5	250	100	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.80	50	310	0	4	1	2	5	12	15	J	1.0	cc	qtz	1	G	JBC
									AND					AND	0.88	40	330	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
									AND					AND	1.10	45	300	0	4	3	2	5	14	15	J	1.0	cc	py	1	G	JBC
									AND					AND	1.20	20	290	0	4	1	2	5	12	15	J	1.0	cc	py	1	G	JBC
									AND					AND	1.33	30	305	0	4	5	2	5	16	15	J	1.0	cc	py	1	G	JBC
378.0	379.5	1.50	100	1.27	85	7	188	125	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.46	50	280	0	4	1	2	5	12	15	J	1.0	cc	qtz	1	P	JBC
									AND					AND	0.51	20	290	0	4	1	2	5	12	15	J	1.0	cc	qtz	1	P	JBC
									AND					AND	0.55	50	180	0	4	1	2	5	12	15	J	1.0	cc	qtz	1	P	JBC
									AND					AND	0.72	25	290	0	1	1	0	3	5	15	J	5	cc	qtz	1	P	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.96	55	270	0	4	3	0	3	10	15	J	1.0	gg	cly	1	P	JBC
									AND					AND	1.45	70	245	0	4	3	2	5	14	15	J	1.0	cc		1	P	JBC
									AND					AND	1.50	25	250	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
379.5	381.0	1.50	100	1.46	97	5	250	125	AND	dark grey	fine grained	massive	calcite veins	AND	0.16	65	240	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.44	63	170	0	4	1	6	6	17	15	J	1.0	cc		1	G	SRM
									AND					AND	0.87	58	255	0	4	1	6	6	17	15	J	1.0	cc		1	G	SRM
									AND					AND	1.28	59	300	0	4	3	2	5	14	15	J	1.0	cc		1	G	SRM
									AND					AND	1.45	60	260	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
381.0	382.5	1.50	100	1.50	100	4	300	150	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.12	73	100	0	4	3	2	5	14	15	J	1.0	cc		1	G	SRM
									AND					AND	0.40	37	280	0	4	1	6	6	17	15	J	1.0	cc		1	G	SRM
									AND					AND	0.40	58	260	0	4	3	2	5	14	15	J	1.0	cc		1	G	SRM
									AND					AND	1.23	71	350	0	4	3	2	5	14	15	J	1.0	cc		1	G	SRM
382.5	384.0	1.50	100	1.50	100	3	375	150	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.00	25	300	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
									AND					AND	0.20	38	200	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
									AND					AND	1.46	70	325	0	4	1	6	5	16	15	J	1.0	cc		1	P	SRM
384.0	385.5	1.50	100	1.40	93	4	300	150	AND				dissolved section @ 0.90	AND	0.17	60	300	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.48	61	240	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.98	76	270	0	4	3	2	5	14	15	J	1.0	cc		1	F	SRM
									AND					AND	1.07	55	240	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
385.5	387.0	1.50	100	1.37	91	9	150	100	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.18	64	60	0	4	1	6	5	16	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.42	27	110	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.45	43	20	0	4	3	6	5	18	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.63	35	310	0	4	3	2	5	14	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.72	59	335	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	0.80	63	0	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.11	34	290	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.28	58	20	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.49	70	10	0	4	3	2	5	14	15	J	1.0	cc		1	VG	SRM
387.0	388.5	1.50	100	1.50	100	5	250	150	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.21	42	270	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.43	60	250	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.75	47	90	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
									AND					AND	0.91	52	270	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.15	70	50	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
388.5	390.0	1.50	100	1.43	95	7	188	100	AND	dark green to black	fine grained	massive	changed slightly more veining and weathering	AND	0.47	85	50	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
									AND					AND	0.58	78	170	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
									AND					AND	0.70	46	270	0	4	1	2	3	10	15	J	1.0	cc		1	P	SRM
									AND					AND	1.17	18	135	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.17	43	320	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.37	75	340	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.43	83	350	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
390.0	391.5	1.50	100	1.50	100	5	250	100	AND	dark green to black	fine grained	massive	calcite veins, from .9 to 1.07 gouge? Possible fault break out	AND	0.60	57	290	0	4	1	2	3	10	15	J	1.0	cc	gg	1	VG	SRM
									AND					AND	0.90	26	310	0	4	1	2	3	10	15	J	1.0	cc	gg	1	VG	SRM
									AND					AND	1.07	58	250	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
391.5	393.0	1.50	100	1.50	100	1	750	100	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.34	80	140	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	0.77	75	100	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
393.0	394.5	1.49	99	1.49	99	1	745	100	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	1.06	46	20	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
394.5	396.0	1.50	100	1.45	97	4	300	100	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.06	60	280	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.71	69	250	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.99	82	180	0	4	3	2	5	14	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.35	61	280	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
396.0	397.5	1.50	100	1.37	91	5	250	75	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.14	42	350	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.33	50	170	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.44	40	0	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.77	82	10	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.26	54	260	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
397.5	399.0	1.50	100	1.32	88	6	214	75	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.49	59	270	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									AND					AND	0.58	72	60	0	4	3	2	5	14	15	J	1.0	cly		1	P	SRM
									AND					AND	0.92	79	10	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.26	52	280	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.36	56	300	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.52	44	340	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
399.0	400.5	1.42	95	1.26	84	4	284	100	AND	dark green to black	fine grained	massive	lots of calcite veins and disseminated pyrite	AND	0.08	60	10	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition					Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)							
									AND					AND	0.10	63	0	0	4	1	6	6	17	15	J	1.0	cc		1	P	SRM
									AND					AND	0.60	86	250	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	0.83	58	40	0	4	3	2	5	14	15	J	1.0	cc		1	P	SRM
EOH																														

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-09

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-09 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	11.0	0.0		0					OB				**OVERBURDEN**	OB															None	
11.0	13.5	0.68	27	0.24	10	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	680.00	gg	cly	1	None	ML
13.5	16.5	2.50	83	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	250.00	gg	cly	1	None	ML
16.5	18.0	0.92	61	0.25	17	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Highly weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	rub	920.00	Rub	cly	1	None	ML
18.0	19.5	1.25	83	0.20	13	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble zone	FLPT	0.00			0	0	0	0	3	3	15	rub	1250.00	Rub	cly	1	None	ML
19.5	21.0	1.50	100	0.72	48	10	136	75	FLPT	Light grey	Fine to coarse grained	Laminated	Light grey/white felsic tuff	FLPT	0.02			0	0	1	0	3	4	15	J	>10	cly		10	None	ML
21.0	21.2	0.20	100	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Blocked run	FLPT	0.00			0	0	0	0	3	3	15	J	200.0	gg	cly	1	None	ML
21.2	22.5	1.30	100	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Nothing in tube, driller says clay	FLPT	0.00			0	0	1	0	3	4	15	J	1300.0	cly		1	None	ML
22.5	24.0	1.10	73	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	F	1100.00	gg	Rub	1	None	MGP
24.0	25.5	1.30	87	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	1300.00	gg	cly	1	None	MGP
25.5	27.0	1.30	87	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	1300.00	gg	cly	1	None	MGP
27.0	28.5	0.50	33	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	500.00	gg	cly	1	None	MGP
28.5	30.0	1.00	67	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	1000.00	gg	cly	1	None	MGP
30.0	31.5	0.80	53	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	800.00	gg	cly	1	None	MGP
31.5	33.0	0.30	20	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Highly to completely weathered felsic tuff	FLPT	0.00			0	0	0	0	3	3	15	J	300.00	gg	cly	1	None	MGP
33.0	34.5	1.50	100	0.25	17	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Slightly less weathered, but some areas are very soft	FLPT	0.00			0	0	0	0	3	3	15	J	1500.00	gg	cly	1	None	MGP
34.5	36.0	1.50	100	0.11	7	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Slightly less weathered, but some areas are very soft	FLPT	0.00			0	0	0	0	3	3	15	J	1500.00	gg	cly	1	None	MGP
36.0	37.5	1.20	80	0.30	20	20	57	100	FLPT	Light grey	Fine to coarse grained	Laminated	No gauge	FLPT	0.00			0	0	1	3	3	7	15	J	10.0	Rub		20	None	MGP
37.5	39.0	0.20	13	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Almost no recovery, gauge and clay	FLPT	0.00			0	0	0	0	3	3	15	F	200.00	gg	cly	1	None	MGP
39.0	40.5	0.10	7	0.00	0	max	5	100	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.00			0	0	0	0	3	3	15	rub	100.00	Rub		1	None	MGP
40.5	42.0	0.60	40	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.00			0	0	0	0	3	3	15	F	600.00	Rub	gg	1	None	MGP
42.0	43.5	0.30	20	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble zone	FLPT	0.00			0	0	0	0	3	3	15	F	300.00	cly	gg	1	None	MGP
43.5	45.0	0.92	61	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble zone	FLPT	0.00			0	0	0	0	3	3	15	F	920.00	cly	gg	1	None	ML
45.0	46.5	0.35	23	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.00			0	0	0	0	3	3	15	F	350.00	Rub	cly	1	None	ML
46.5	48.0	0.70	47	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble zone	FLPT	0.00			0	0	0	0	3	3	15	F	700.00	cly	gg	1	None	ML
48.0	49.5	1.00	67	0.00	0	max	5	3	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.00			0	0	0	0	3	3	15	F	1000.00	Rub	cly	1	None	ML
49.5	51.0	1.50	100	0.10	7	max	5	3	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.00			0	0	0	0	3	3	15	F	1500.00	gg	cly	1	None	ML
51.0	52.5	1.50	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble zone	FLPT	0.00			0	0	0	0	3	3	15	F	1500.00	gg	Rub	1	None	ML
52.5	54.0	0.80	53	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble zone	FLPT	0.00			0	0	0	0	3	3	15	F	800.00	gg	Rub	1	None	ML
54.0	55.5	1.50	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble Zone	FLPT	0.00			0	0	0	0	3	3	15	F	1500.00	Rub	cly	1	None	ML
55.5	57.0	1.20	80	0.40	27	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble zone, start seeing more competent rock at the end	FLPT	0.00			0	0	0	0	3	3	15	F	1200.00	Rub	gg	1	None	ML
57.0	58.5	1.50	100	0.70	47	15	94	100	FLPT	Light grey	Fine to coarse grained	Laminated	Felsic Lapilli tuff Clasts with in	FLPT	0.50			0	1	1	2	3	7	15	J	5.0	cly		1	None	ML
58.5	59.3	0.77	100	0.60	78	1	385	100	FLPT	Light grey	Fine to coarse grained	Laminated	Felsic Lapilli tuff Clasts with in	FLPT	0.60			0	1	1	2	5	9	15	J	5.0	cly		1	None	ML
59.3	60.0	0.73	100	0.00	0	max	5	0.25	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge/rubble Zone	FLPT	0.00			0	0	0	0	3	3	15	F	760.0	gg	cly	1	None	ML
60.0	61.5	1.10	73	0.00	0	14	73	100	FLPT	Light grey	Fine to coarse grained	Laminated	Felsic Lapilli tuff Clasts with in	FLPT	0.00			0	1	0	2	3	6	15	J	5.0	cly	Rub	14	None	ML
61.5	61.7	0.20	100	0.10	50	2	67	100	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.06			0	1	3	2	3	9	15	J	2.0	cly		1	None	ML
									FLPT					FLPT	0.18			0	1	3	2	3	9	15	J	5.0	cly		1	None	ML
61.7	61.9	0.20	100	0.00	0	2	67	25	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble only	FLPT	0.09			0	1	3	2	3	9	15	J	3.0	cly		1	None	ML
									FLPT					FLPT	0.20			0	1	2	2	3	8	15	J	3.0	cly		1	None	ML
61.9	63.0	0.36	33	0.00	0	max	5	25	FLPT	Light grey	Fine to coarse grained	Laminated	Rubble/Gouge Zone	FLPT	0.00			0	0	1	0	3	4	15	F	360.00	gg	cly	1	None	ML
63.0	63.8	0.80	100	0.00	0	max	5	3	FLPT	Light grey	Fine to coarse grained	Laminated	Block run - Rubble/Gouge Zone	FLPT	0.00			0	0	0	0	3	3	15	F	800.00	gg	cly	1	None	ML
63.8	64.5	0.38	54	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge Zone	FLPT	0.00			0	0	0	0	3	3	15	F	380.00	gg	cly	1	None	ML
64.5	65.7	1.20	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Laminated	Gouge Zone	FLPT	0.00			0	0	0	0	3	3	15	F	1200.00	gg	cly	1	None	ML
65.7	66.0	0.20	67	0.13	43	1	100	25	VC	Light grey	Fine to coarse grained	Laminated	Felsic Lapilli tuff Clasts with in	VC	0.13			0	1	2	2	3	8	15	J	5.0	cly		1	None	ML
66.0	66.7	0.70	100	0.54	77	3	175	140	VC	Light grey	Fine to coarse grained	Laminated	Felsic Lapilli tuff Clasts with in	VC	0.08	44	75	0	4	2	6	5	17	15	J	1.0			1	VG	ML
									VC					VC	0.29	48	190	0	4	3	2	5	14	15	J	1.0	cly		1	VG	ML
									VC					VC	0.61	50	345	0	1	3	2	5	11	15	J	2.0	cly		1	VG	ML
66.7	66.8	0.10	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Laminated	Rubble Zone	VC	0.00			0	0	1	0	3	4	15	F	100.0	cly		1	None	ML
66.8	67.5	0.70	100	0.35	50	3	175	100	VC	Light grey	Fine to coarse grained	Laminated	Rubble only	VC	0.10			0	0	1	0	3	4	15	J	700.0	Rub	cly	1	None	ML
									VC					VC	0.67	27	260	0	4	2	2	5	13	15	J	2.0	cly		1	F	ML
67.5	69.0	1.50	100	1.06	71	10	136	150	VC	Light grey	Fine to coarse grained	Laminated	Volcaniclastic, mod - slightly weathered	VC	0.00			0	4	3	2	5	14	15	J	1.0	cly	Rub	10	None	MGP
69.0	70.5	1.50	100	1.13	75	5	250	150	VC	Light grey	Fine to coarse grained	Laminated	Volcaniclastic, Competent, strong	VC	0.15	39	340	0	1	5	2	5	13	15	J	2.0	cly		1	F	MGP
									VC					VC	0.40	85	300	0	0	0	2	3	5	15	J	5.0	cly		1	F	MGP
									VC					VC	0.50	53	35	0	0	3	0	3	6	15	J	10.0	cly	gg	1	F	MGP
									VC					VC	1.00	20	270	0	1	2	6	5	14	15	J	1.0			1	F	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.15	54	180	0	1	2	6	5	14	15	J	3.0			1	F	MGP
70.5	71.1	0.60	100	0.31	52	4	120	75	VC	Light grey	Fine to coarse grained	Laminated	Volcaniclastic, mod weathered	VC	0.00			0	0	1	0	3	4	15	J	400.0	cly	Rub	4	None	MGP
71.1	72.0	0.80	89	0.15	17	8	89	75	VC	Light grey	Fine to coarse grained	Laminated	Volcaniclastic, mod weathered	VC	0.10	65	140	0	1	3	2	5	11	15	J	5.0	cly		1	F	MGP
									VC					VC	0.25	65	160	0	1	3	6	5	15	15	J	3.0			1	F	MGP
									VC					VC	0.30	55	110	0	1	3	2	5	11	15	J	1.0	cly		1	F	MGP
									VC					VC	0.40	15	10	0	0	3	3	3	9	15	J	10.0	Rub		1	F	MGP
									VC					VC	0.45	55	90	0	0	3	0	3	6	15	J	15.0	cly		1	F	MGP
									VC					VC	0.55	70	140	0	0	3	0	3	6	15	J	40.0	gg	cly	1	F	MGP
									VC					VC	0.65	51	330	0	1	3	6	5	15	15	J	1.0			1	F	MGP
									VC					VC	0.75	60	20	0	1	5	6	5	17	15	J	1.0			1	F	MGP
72.0	73.5	1.45	97	0.83	55	6	207	75	VC	Light grey	Fine to coarse grained	Massive	Volcaniclastic, mod weathered	VC	0.10	65	340	0	1	1	6	5	13	15	J	1.0			1	F	MGP
									VC					VC	0.60	27	340	0	0	0	0	3	3	15	J	50.0	gg	cly	1	F	MGP
									VC					VC	0.75	21	10	0	1	3	0	3	7	15	J	10.0	cly		1	F	MGP
									VC					VC	0.90	15	190	0	1	3	0	3	7	15	J	5.0	cly		1	F	MGP
									VC					VC	1.05	18	190	0	1	3	6	3	13	15	J	1.0			1	F	MGP
									VC					VC	1.20	50	120	0	1	3	0	3	7	15	J	5.0	cly		1	F	MGP
73.5	75.0	1.50	100	0.87	58	4	300	100	VC	Light grey	Fine to coarse grained	Massive	Volcaniclastic, mod weathered	VC	0.25	15	310	0	1	3	3	5	12	15	J	2.0	Rub		1	VG	MGP
									VC					VC	0.45	35	80	0	1	3	3	5	12	15	J	5.0	Rub	cly	1	VG	MGP
									VC					VC	0.80	10	70	0	1	3	2	3	9	15	J	1.0	cly		1	VG	MGP
									VC					VC	1.05	25	90	0	1	3	6	3	13	15	J	1.0			1	VG	MGP
75.0	76.5	1.43	95	0.66	44	11	119	1	VC	Light grey	Fine to coarse grained	Massive	Volcaniclastic, Highly to completely weathered	VC	0.00			0	0	3	0	3	6	15	J	>10	cly	gg	11	None	MGP
76.5	77.0	0.50	100	0.00	0	7	63	75	VC	Light grey	Fine to coarse grained	Massive	Volcaniclastic, mod-weathered, med-strong	VC	0.00			0	1	3	2	3	9	15	J	1.0	cly		7	None	MGP
77.0	77.3	0.30	100	0.00	0	max	5	1	VC				Fault/gouge	VC	0.00			0	0	0	0	3	3	15	F	300.0	gg	cly	1	None	MGP
77.3	78.0	0.30	43	0.00	0	4	60	50	VC	Yellowish grey to white	Fine to coarse grained	Massive	Volcaniclastic, mod-weathered, med-strong	VC	0.00			0	1	3	0	3	7	15	J	6.0	cly		4	None	MGP
78.0	79.5	1.50	100	0.64	43	8	167	25	VC	Yellowish grey to white	Fine to coarse grained	Massive	Volcaniclastic, mod - highly weathered	VC	0.05	17	70	0	0	1	0	3	4	15	J	20.0	cly	GG	1	F	MGP
									VC					VC	0.40	40	40	0	1	3	3	3	10	15	J	1.0	Rub		1	F	MGP
									VC					VC	0.45	40	40	0	0	3	3	3	9	15	J	15.0	Rub	cly	1	F	MGP
									VC					VC	0.60	15	80	0	1	3	6	3	13	15	J	1.0			1	F	MGP
									VC					VC	0.70	40	20	0	1	3	6	3	13	15	J	1.0			1	F	MGP
									VC					VC	0.80	45	20	0	0	3	3	3	9	15	J	40.0	gg	Rub	1	F	MGP
									VC					VC	1.30	35	80	0	0	3	3	3	9	15	J	30.0	gg	Rub	1	F	MGP
79.5	81.0	1.50	100	1.03	69	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Appears to be solid, but crumbles when holding up	VC	0.00			0	0	3	2	3	8	15	F	1500.00	gg	Rub	1	None	MGP
81.0	82.5	1.45	97	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Appears to be solid, but crumbles when holding up	VC	0.00			0	0	0	0	3	3	15	F	1450.00	gg	Rub	1	F	MGP
82.5	83.7	1.15	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Appears to be solid, but crumbles when holding up	VC	0.00			0	0	0	0	3	3	15	F	1150.00	gg	Rub	1	None	MGP
83.7	84.0	0.35	100	0.27	77	1	175	75	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.30			0	1	3	6	3	13	15	J	1.0			1	None	MGP
84.0	84.5	0.50	100	0.42	84	2	167	75	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.35			0	1	3	6	3	13	15	J	1.0			2	None	MGP
84.5	85.5	0.95	95	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Fault/Gouge, very soft, crumbles	VC	0.00			0	0	0	0	3	3	15	F	950.0	gg	cly	1	None	MGP
85.5	86.5	1.00	100	0.59	59	4	200	75	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.20			0	1	3	3	3	10	15	J	5.0	Rub	cly	4	None	MGP
86.5	87.0	0.30	60	0.12	24	3	75	75	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.10			0	1	2	6	3	12	15	J	2.0			3	None	MGP
87.0	87.2	0.20	100	0.00	0	4	40	50	VC	Light grey	Fine to coarse grained	Massive	Block run	VC	0.09			0	1	2	2	3	8	15	J	5.0	cly	Rub	4	None	MGP
87.2	88.0	0.80	100	0.50	63	5	133	110	VC	Light grey	Fine to coarse grained	Massive	Felsic Lapilli tuff	VC	0.13			0	1	3	2	5	11	15	J	5.0	cly		5	None	ML
88.0	88.5	0.50	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Gouge zone	VC	0.00			0	0	0	0	3	3	15	F	500.0	gg	cly	1	None	ML
88.5	89.2	0.70	100	0.35	50	6	100	110	VC	Light grey	Fine to coarse grained	Massive	Volcaniclastic	VC	0.05			0	0	0	0	3	3	15	J	30.0			6	None	ML
89.2	89.7	0.45	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Gouge zone	VC	0.00			0	0	0	0	3	3	15	F	450.00	gg	cly	1	None	ML
89.7	90.0	0.35	100	0.13	37	max	5	3	VC	Light grey	Fine to coarse grained	Massive	Rubble zone	VC	0.13			0	0	1	0	3	4	15	F	350.00	cly	Rub	1	None	ML
90.0	90.3	0.30	100	0.13	43	max	5	25	VC	Light grey	Fine to coarse grained	Massive	Rubble zone within	VC	0.13			0	0	1	0	3	4	15	F	300.00	cly	Rub	1	None	ML
90.3	91.5	1.20	100	1.15	96	4	240	125	VC	Light grey	Fine to coarse grained	Massive	Rubble zone	VC	0.55	70	315	0	1	2	2	3	8	15	J	3.0	cly		1	F	ML
									VC					VC	0.87	78	35	0	1	3	2	5	11	15	J	1.0	cly		1	F	ML
									VC					VC	0.97	32	335	0	0	2	2	3	7	15	J	5.0	cly		1	F	ML
									VC					VC	1.03	53	335	0	1	2	2	3	8	15	J	2.0	cly		1	F	ML
91.5	92.0	0.47	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Gouge zone	VC	0.00			0	0	0	0	3	3	15	F	470.0	gg	cly	1	None	ML
92.0	92.6	0.60	100	0.00	0	max	5	3	VC	Light grey	Fine to coarse grained	Massive	Rubble/gouge zone	VC	0.00			0	0	1	0	3	4	15	F	600.0	cly	Rub	1	None	ML
92.6	93.0	0.30	70	0.22	51	1	150	25	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.22			0	1	3	2	3	9	15	J	3.0	cly		1	None	ML
93.0	93.2	0.20	100	0.20	100	0	200	25	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.00			0	6	6	6	6	24	15		0.0			1	None	ML
93.2	94.0	0.76	100	0.00	0	max	5	3	VC	Light grey	Fine to coarse grained	Massive	Stay well in contact, however crumbles when holding up	VC	0.00			0	0	1	0	3	4	15	F	760.0	gg	Rub	1	None	ML
94.0	94.5	0.54	100	0.54	100	2	180	25	VC	Light grey	Fine to coarse grained	Massive	Many weak healed joints within	VC	0.13			0	0	1	0	3	4	15	J	30.0	cly	Rub	1	None	ML
									VC					VC	0.33	63	125	0	0	2	0	3	5	15	J	2.0	cly		1	F	ML
94.5	96.0	1.50	100	1.30	87	4	300	125	VC	Light grey	Fine to coarse grained	Massive	Volcaniclastic?	VC	0.39	70	185	0	4	2	2	5	13	15	J	2.0	cly		1	VG	ML
									VC					VC	0.63	55	100	0	4	3	2	3	12	15	J	1.0	cly		1	VG	ML
									VC					VC	1.31			0	1	2	2	3	8	15	J	1.0	cly		1	None	ML
									VC					VC	1.38			0	1	2	2	5	10	15	J	1.0	cly		1	None	ML
96.0	96.4	0.40	100	0.00	0	max	5	3	VC	Light grey	Fine to coarse grained	Massive	Gouge / rubble zone	VC	0.00			0	0	1	0	3	4	15	F	400.0	gg	Rub	1	None	ML
96.4	97.2	0.82	100	0.00	0	max	5	5	VC	Light grey	Fine to coarse grained	Massive	Stay well in contact, break when holding up	VC	0.00			0	0	1	0	3	4	15	F	820.0	gg	cly	1	None	ML
97.2	97.5	0.20	71	0.10	36	1	100	25	VC	Light grey	Fine to coarse grained	Massive	Healed joints within	VC	0.10			0	1	2	2	5	10	15	J	2.0			1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA					
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
97.5	97.7	0.20	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Rubble zone	VC	0.00			0	0	1	0	3	4	15	F	200.0	Rub	cly	1	None	ML
97.7	98.8	1.10	100	0.66	60	8	122	140	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.10			0	4	3	6	5	18	15	J	1.0			1	None	ML
									VC					VC	0.17			0	0	2	0	5	7	15	J	20.0	cly	Rub	1	None	ML
									VC					VC	0.23			0	1	2	6	5	14	15	J	2.0			1	None	ML
									VC					VC	0.30			0	0	2	0	5	7	15	J	8.0	gg	cly	1	None	ML
									VC					VC	1.00			0	1	2	6	5	14	15	J	2.0			1	None	ML
									VC					VC	1.05			0	0	2	0	5	7	15	J	10.0	gg	cly	1	None	ML
									VC					VC	1.10			0	1	2	2	5	10	15	J	2.0	cly		1	None	ML
									VC					VC	1.13			0	1	2	2	5	10	15	J	2.0	cly		1	None	ML
98.8	99.0	0.16	80	0.10	50	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Gouge / rubble zone	VC	0.00			0	0	1	0	3	4	15	F	160.0	gg	cly	1	None	ML
99.0	99.6	0.62	100	0.55	89	3	155	140	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.05			0	4	3	6	6	19	15	J	1.0			1	None	ML
									VC					VC	0.21			0	1	2	2	5	10	15	J	3.0	cly		1	None	ML
									VC					VC	0.62			0	1	2	2	5	10	15	J	5.0	cly		1	None	ML
99.6	100.2	0.58	100	0.00	0	max	5	25	VC	Light grey	Fine to coarse grained	Massive	Rubble zone	VC	0.00			0	0	1	3	3	7	15	F	580.0	Rub		1	None	ML
100.2	100.5	0.30	100	0.15	50	2	100	50	VC	Light grey	Fine to coarse grained	Massive	Gouge zone	VC	0.15			0	0	0	0	3	3	15	F	50.0	gg	cly	1	None	ML
									VC					VC	0.25	27	295	0	1	2	6	5	14	15	J	3.0			1	F	ML
100.5	100.7	0.22	100	0.13	59	1	110	125	VC	Light grey	Fine to coarse grained	Massive	Healed joint within	VC	0.13	42	95	0	1	2	2	5	10	15	J	2.0	cly		1	VG	ML
100.7	100.8	0.08	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Rubble zone	VC	0.00			0	0	1	0	3	4	15	F	80.0	cly	Rub	1	None	ML
100.8	101.4	0.62	100	0.27	44	5	103	50	VC	Light grey	Fine to coarse grained	Massive	Competent	VC	0.13			0	4	2	6	6	18	15	J	1.0			1	None	ML
									VC					VC	0.18			0	4	2	2	5	13	15	J	1.0	cly		1	None	ML
									VC					VC	0.23			0	5	2	2	5	14	15	J	0.1	cly		1	None	ML
									VC					VC	0.40			0	0	1	0	3	4	15	J	70.0	Rub	cly	1	None	ML
									VC					VC	0.65			0	1	1	2	6	10	15	J	2.0	cly		1	None	ML
101.4	101.8	0.34	100	0.34	100	0	340	50	VC	Light grey	Fine to coarse grained	Massive	Healed joints within	VC	0.00			0	6	6	6	5	23	15	J	0.0			1	None	ML
101.8	102.0	0.24	100	0.00	0	max	5	1	VC	Light grey	Fine to coarse grained	Massive	Gouge zone	VC	0.00			0	0	0	0	3	3	15	F	240.0	gg	cly	1	None	ML
102.0	103.5	1.40	93	1.30	87	2	467	25	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.55	18	255	0	1	1	2	3	7	15	J	3.0	cly		1	F	ML
									FLPT					FLPT	1.30	37	280	0	1	2	2	3	8	15	J	2.0	cly		1	F	ML
103.5	103.8	0.30	100	0.30	100	0	300	25	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.00			0	6	6	6	5	23	15	J	0.0			1	F	ML
103.8	104.2	0.35	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	350.0	gg	cly	1	None	ML
104.2	104.7	0.50	100	0.40	80	1	250	125	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.30			0	1	3	2	5	11	15	J	3.0	cly		1	None	ML
104.7	105.0	0.35	100	0.00	0	max	5	3	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.13			0	0	1	0	3	4	15	F	10.0	gg	cly	1	None	ML
105.0	105.2	0.15	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	1	0	3	4	15	F	150.0	gg	cly	1	None	ML
105.2	106.5	1.32	98	1.05	78	5	220	125	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.08			0	1	2	2	5	10	15	J	2.0	cly		1	None	ML
									FLPT					FLPT	0.22			0	4	2	6	6	18	15	J	1.0			1	None	ML
									FLPT					FLPT	1.08			0	1	2	2	5	10	15	J	3.0	cly		1	None	ML
									FLPT					FLPT	1.15			0	4	2	2	6	14	15	J	1.0	cly		1	None	ML
									FLPT					FLPT	1.22			0	0	2	0	5	7	15	J	15.0	cly		1	None	ML
106.5	106.8	0.30	100	0.23	77	1	150	50	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.23	18	120	0	1	3	2	3	9	15	J	5.0	cly		1	VG	ML
106.8	107.0	0.15	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	150.0	gg	cly	1	None	ML
107.0	107.6	0.65	100	0.39	60	5	108	50	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.08			0	5	3	6	6	20	15	J	0.1			1	None	ML
									FLPT					FLPT	0.15			0	1	2	2	6	11	15	J	3.0	Rub	cly	1	None	ML
									FLPT					FLPT	0.37			0	1	2	2	5	10	15	J	3.0	Rub	cly	1	None	ML
									FLPT					FLPT	0.54			0	0	1	3	3	7	15	J	15.0	Rub		1	None	ML
									FLPT					FLPT	0.60			0	5	3	6	6	20	15	J	0.1			1	None	ML
107.6	107.7	0.10	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	100.0	gg	cly	1	None	ML
107.7	108.0	0.28	93	0.28	93	1	140	110	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.15	50	35	0	4	2	6	6	18	15	J	1.0			1	F	ML
108.0	109.5	1.40	93	1.07	71	6	200	125	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.18			0	1	2	4	5	12	15	J	3.0	chl		1	None	ML
									FLPT					FLPT	0.22			0	1	2	2	3	8	15	J	4.0	cly	chl	1	None	ML
									FLPT					FLPT	0.28			0	4	1	2	3	10	15	J	1.0	cly		1	None	ML
									FLPT					FLPT	0.38			0	4	2	6	5	17	15	J	3.0			1	None	ML
									FLPT					FLPT	0.48			0	0	2	3	3	8	15	J	80.0	Rub		1	None	ML
									FLPT					FLPT	0.65			0	4	3	6	5	18	15	J	1.0			1	None	ML
109.5	111.0	0.70	47	0.00	0	max	5	5	FLPT	Light grey	Fine to coarse grained	Massive	3 block runs/ rubble	FLPT	0.00			0	0	1	3	5	9	15	F	700.0	Rub		1	None	ML
111.0	112.1	1.10	100	0.00	0	max	5	3	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	1100.0	gg	Rub	1	None	ML
112.1	112.5	0.40	100	0.00	0	3	100	50	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.05			0	1	2	2	5	10	15	J	3.0	cly		1	None	ML
									FLPT					FLPT	0.26			0	0	1	3	6	10	15	J	60.0	Rub		1	None	ML
									FLPT					FLPT	0.32			0	1	2	0	6	9	15	J	80.0	cly	Rub	1	None	ML
112.5	113.6	1.10	100	0.45	41	9	110	50	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.30			0	0	1	3	3	7	15	rub	80.0	Rub		1	None	ML
									FLPT					FLPT	0.40			0	1	2	2	5	10	15	J	3.0	cly		1	None	ML
									FLPT					FLPT	0.48			0	1	3	2	5	11	15	J	2.0	cly		1	None	ML
									FLPT					FLPT	0.55			0	1	2	4	5	12	15	J	2.0	Rub		1	None	ML
									FLPT					FLPT	0.57			0	4	2	2	5	13	15	J	1.0	cly		1	None	ML
									FLPT					FLPT	0.63			0	5	2	2	6	15	15	J	0.1	cly		1	None	ML
									FLPT					FLPT	0.70			0	0	2	0	3	5	15	J	80.0	Rub	cly	1	None	ML
									FLPT					FLPT	0.93			0	1	2	4	5	12	15	J	3.0	Rub		1	None	ML
									FLPT					FLPT	1.00			0	4	3	6	6	19	15	J	1.0			1	None	ML
113.6	114.0	0.40	100	0.00	0	max	5	3	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	1	0	3	4	15	F	400.0	Rub	gg	1	None	ML
114.0	114.3	0.25	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.00			0	0	0	0	3	3	15	F	250.0	gg	cly	1	None	ML
114.3	115.3	1.00	100	0.58	58	6	143	110	FLPT	Light grey	Fine to coarse grained	Massive	Felsic lapilli tuff	FLPT	0.08			0	5	3	2	6	16	15	J	0.1	cly		1	None	ML
									FLPT					FLPT	0.22			0	4	2	2	3	11	15	J	1.0	cly	chl	1	None	ML
									FLPT					FLPT	0.30			0	4	2	2	5	13	15	J	1.0	chl		1	None	ML
									FLPT					FLPT	0.35			0	4	2	2	5	13	15	J	1.0	cly		1	None	ML
									FLPT					FLPT	0.78			0	4	3	2	5	14	15	J	1.0			1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									FLPT					FLPT	0.93			0	5	3	6	6	20	15	J	0.1			1	None	ML
115.3	115.5	0.25	100	0.00	0	max	5	5	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	1	3	5	9	15	rub	250.0	Rub		1	None	ML
115.5	117.0	1.48	99	0.68	45	14	99	110	FLPT	Light grey	Fine to coarse grained	Massive	Rubble / gouge zone	FLPT	0.00			0	0	1	3	5	9	15	rub	80.0	Rub		1	None	ML
									FLPT					FLPT	0.20			0	4	3	6	6	19	15	J	1.0			1	None	ML
									FLPT					FLPT	0.33			0	4	2	6	6	18	15	J	1.0			1	None	ML
									FLPT					FLPT	0.38			0	4	2	6	6	18	15	J	1.0			1	None	ML
									FLPT					FLPT	0.48			0	4	1	6	6	17	15	J	1.0	Rub		1	None	ML
									FLPT					FLPT	0.65			0	1	2	4	5	12	15	J	3.0	Rub		1	None	ML
									FLPT					FLPT	0.71			0	0	2	3	5	10	15	J	80.0	Rub		1	None	ML
									FLPT					FLPT	0.85			0	1	2	4	5	12	15	J	4.0	Rub		1	None	ML
									FLPT					FLPT	0.92			0	1	3	3	5	12	15	J	5.0	Rub		1	None	ML
									FLPT					FLPT	1.00			0	4	2	4	5	15	15	J	1.0			1	None	ML
									FLPT					FLPT	1.10			0	1	2	4	5	12	15	J	3.0			1	None	ML
									FLPT					FLPT	1.20			0	5	3	6	6	20	15	J	0.1			1	None	ML
									FLPT					FLPT	1.37			0	4	3	6	6	19	15	J	1.0			1	None	ML
									FLPT					FLPT	1.42			0	4	3	6	6	19	15	J	1.0			1	None	ML
117.0	117.6	0.63	100	0.00	0	max	5	25	FLPT	Light grey	Fine to coarse grained	Massive	Block run/ Rubble zone	FLPT	0.09			0	0	1	3	5	9	15	rub	630.0	Rub		1	None	ML
117.6	118.2	0.55	100	0.00	0	max	5	25	FLPT	Light grey	Fine to coarse grained	Massive	Block run #2/ Rubble zone	FLPT	0.00			0	0	1	2	3	6	15	F	550.00	cly	Rub	1	None	ML
118.2	118.5	0.20	63	0.00	0	max	5	25	FLPT	Light grey	Fine to coarse grained	Massive	Block run #3/ Rubble zone	FLPT	0.00			0	0	1	3	5	9	15	F	200.00	Rub		1	None	ML
118.5	119.3	0.80	100	0.00	0	max	5	25	FLPT	Light grey	Fine to coarse grained	Massive	Block run #1/ Rubble zone	FLPT	0.00			0	0	1	0	3	4	15	F	800.00	Rub	cly	1	None	ML
119.3	119.7	0.35	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Block run #1/ Gouge zone	FLPT	0.00			0	0	0	0	3	3	15	J	350.00	gg	cly	1	None	ML
119.7	120.0	0.26	74	0.11	31	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Block run#2/Gouge zone	FLPT	0.11			0	0	0	0	3	3	15	J	260.00	gg	cly	1	None	ML
120.0	121.2	1.20	100	0.10	8	max	5	3	FLPT	Light grey	Fine to coarse grained	Massive	Block run/ Rubble & gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	1350.00	gg	Rub	1	None	ML
121.2	121.4	0.20	100	0.00	0	max	5	3	FLPT	Light grey	Fine to coarse grained	Massive	Rubble/gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	200.00	gg	Rub	1	None	ML
121.4	121.8	0.40	100	0.13	33	1	200	25	FLPT	Light grey	Fine to coarse grained	Massive	Moderately to highly weathered	FLPT	0.13			0	1	2	2	3	8	15	J	2.0	cly		1	None	ML
121.8	122.8	0.90	90	0.00	0	max	5	5	FLPT	Light grey	Fine to coarse grained	Massive	Rubble zone	FLPT	0.00			0	0	1	2	3	6	15	F	900.00	Rub	gg	1	None	ML
122.8	123.4	0.55	100	0.13	24	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Gouge zone	FLPT	0.13			0	0	0	0	3	3	15	F	550.00	gg	cly	1	None	ML
123.4	124.5	0.78	68	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Gouge zone	FLPT	0.00			0	0	0	0	3	3	15	F	780.00	gg	cly	1	None	MGP
124.5	126.0	1.30	87	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Gouge and rubble, very soft	FLPT	0.00			0	0	0	0	3	3	15	F	1300.00	gg	cly	1	None	MGP
126.0	126.3	0.30	100	0.00	0	max	5	50	FLPT	Light grey	Fine to coarse grained	Massive	Rubble	FLPT	0.00			0	0	3	0	3	6	15	F	300.00	gg	Rub	1	None	MGP
126.3	126.4	0.10	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Gouge/clay	FLPT	0.00			0	6	0	0	3	9	15	F	100.00	gg	cly	1	None	MGP
126.4	127.1	0.70	100	0.28	40	8	78	100	FLPT	Light grey	Fine to coarse grained	Massive	Solid rock, good quality	FLPT	0.20			0	1	3	2	3	9	15	J	1.0	cly		8	None	MGP
127.1	127.5	0.40	100	0.00	0	max	5	1	FLPT	Light grey	Fine to coarse grained	Massive	Gouge/rubble	FLPT	0.00			0	0	3	0	3	6	15	F	400.0	gg	Rub	1	None	MGP
127.5	129.0	1.50	100	0.69	46	15	94	75	FLPT	Light grey	Fine to coarse grained	Massive	Volcaniclastic, some rubble zones	FLPT	0.00			0	1	2	3	3	9	15	F	5.0	Rub	cly	15	None	MGP
129.0	130.5	1.50	100	0.00	0	2	500	25	VC	Light grey	Fine to coarse grained	Massive	Intact, but can break by hand	VC	0.00			0	4	5	0	3	12	15	J	0.1	cly		2	None	MGP
130.5	132.0	1.50	100	0.00	0	2	500	25	AND	Light grey	Fine to coarse grained	Massive	Intact, but can break by hand	AND	0.00			0	4	5	0	3	12	15	J	0.1	cly		2	None	MGP
132.0	133.5	1.45	97	0.00	0	3	363	25	AND	Light grey	Fine to coarse grained	Massive	Highly weathered andesite Intact, but can break by hand.	AND	0.00			0	4	1	0	3	8	15	J	0.1	cly		3	None	MGP
133.5	135.0	1.50	100	0.00	0	5	250	10	VC	Light grey	Fine to coarse grained	Massive	Very soft	VC	0.00			0	4	1	0	3	8	15	J	0.1	cly		5	None	MGP
135.0	136.5	1.36	91	0.00	0	2	453	1	VC	Light grey	Fine to coarse grained	Massive	Extremely weathered	VC	0.00			0	4	1	0	3	8	15	J	0.1	cly		2	None	MGP
136.5	138.0	1.50	100	0.72	48	3	375	10	VC	Light grey	Fine to coarse grained	Massive		VC	0.00			0	4	1	0	3	8	15	J	0.1	cly		3	None	MGP
138.0	139.5	1.40	93	0.59	39	8	156	25	AND	Light grey	Fine to coarse grained	Massive	Highly weathered, can be broken by hand	AND	0.00			0	4	0	0	3	7	15	J	0.1	cly		8	None	MGP
139.5	141.0	1.50	100	1.35	90	5	250	75	AND	dark grey	Fine grained	Massive	Andesite	AND	0.05	70	320	0	4	5	2	3	14	15	J	0.5	cly		1	VG	MGP
									AND					AND	0.55	45	170	0	4	5	2	3	14	15	J	0.5	cly		1	VG	MGP
									AND					AND	1.05	25	60	0	4	5	2	3	14	15	J	0.1	cly		1	VG	MGP
									AND					AND	1.20	80	100	0	4	2	6	3	15	15	J	0.1			1	VG	MGP
									AND					AND	1.35	75	100	0	4	3	6	3	16	15	J	0.1			1	VG	MGP
141.0	142.5	1.42	95	1.33	89	4	284	100	AND	dark grey	Fine grained	Massive	Andesite	AND	0.15	65	70	0	4	2	2	5	13	15	J	0.5			1	VG	MGP
									AND					AND	0.85	25	110	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.05	65	110	0	4	3	6	5	18	15	J	0.5			1	VG	MGP
									AND					AND	1.30	55	210	0	4	2	6	5	17	15	J	1.0			1	VG	MGP
142.5	144.0	1.50	100	1.35	90	7	188	100	AND	dark grey	Fine grained	Massive	Andesite	AND	0.05	32	50	0	1	1	2	3	7	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.20	60	70	0	1	1	2	3	7	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.50	65	70	0	1	1	2	3	7	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.60	50	330	0	1	1	2	3	7	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.80	60	90	0	1	1	2	3	7	15	J	1.0	cly		1	VG	MGP
									AND					AND	1.00	63	130	0	1	1	2	3	7	15	J	1.0	cly	chl	1	VG	MGP
									AND					AND	1.40	61	30	0	1	1	2	3	7	15	J	1.0	cly	chl	1	VG	MGP
144.0	145.5	1.41	94	0.91	61	4	282	75	AND	dark grey	Fine grained	Massive	t porphyry, crumbled/fractured when	AND	0.70	50	80	0	0	2	0	3	5	15	F	10.0	Rub	cly	1	VG	MGP
									AND					AND	0.90	60	190	0	1	3	6	3	13	15	J	1.0			1	VG	MGP
									AND					AND	1.00	58	20	0	1	2	2	5	10	15	J	1.0	cly		1	VG	MGP
									AND					AND	1.20	66	90	0	1	2	2	5	10	15	J	1.0	cly		1	VG	MGP
145.5	147.0	1.40	93	0.30	20	max	5	50	AND	dark grey	Fine grained	Massive	As above, more weathered	AND	0.00			0	1	5	2	3	11	15	F	1400.00	Rub	cly	1	None	MGP
147.0	148.5	1.50	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Crumbles when holding up	AND	0.00			0	1	5	3	3	12	15	F	1500.00	Rub	cly	1	None	MGP
148.5	150.0	1.49	99	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Competent porphyry, but crumbles when holding up	AND	0.00			0	1	5	3	3	12	15	F	1490.00	Rub	cly	1	None	MGP
150.0	151.5	1.33	89	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Competent porphyry, but crumbles when holding up	AND	0.00			0	1	5	3	3	12	15	F	1330.00	Rub	cly	1	None	MGP
151.5	152.2	0.70	100	0.00	0	max	5	5	AND	dark grey	Fine grained	Massive	Block run	AND	0.09			0	1	5	0	3	9	15	F	700.00	gg	Rub	1	None	ML
152.2	153.0	0.80	100	0.56	70	4	160	75	AND	dark grey	Fine grained	Massive	andesite	AND	0.30			0	1	5	2	5	13	15	J	3.0	cly	chl	1	None	ML
									AND					AND	0.48			0	1	5	6	5	17	15	J	2.0			1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.58			0	1	5	2	5	13	15	J	1.0	cly		1	None	ML
153.0	153.1	0.13	100	0.00	0	2	43	75	AND	dark grey	Fine grained	Massive	Sulfuric odour	AND	0.07			0	1	5	2	6	14	15	J	1.0	cly		1	VG	ML
									AND					AND	0.13	50	255	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
153.1	153.7	0.60	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	intact, crumbles when holding up	AND	0.00			0	4	1	2	3	10	15	J	600.0	cly	chl	1	None	ML
153.7	154.1	0.37	100	0.29	78	2	123	75	AND	dark grey	Fine grained	Massive		AND	0.13			0	4	1	2	5	12	15	J	1.0	cly		1	None	ML
									AND					AND	0.30			0	4	1	2	5	12	15	J	1.0	cly		1	None	ML
154.1	154.5	0.40	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Rubble Zone	AND	0.00			0	1	1	0	3	5	15	F	400.0	cly	Rub	1	None	ML
154.5	154.7	0.20	100	0.12	60	2	67	50	AND	dark grey	Fine grained	Massive	Rubble zone	AND	0.00			0	1	1	3	5	10	15	rub	5.0	Rub		1	None	ML
									AND					AND	0.20			0	4	1	4	5	14	15	J	1.0	chl		1	None	ML
154.7	155.4	0.70	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Rubble zone, crumbles when holding up	AND	0.00			0	1	1	2	3	7	15	rub	700.0	cly	Rub	1	None	ML
155.4	155.5	0.10	100	0.10	100	0	100	110	AND	dark grey	Fine grained	Massive	competent	AND	0.00			0	6	6	6	6	24	15	J	0.0			1	None	ML
155.5	156.0	0.50	100	0.00	0	max	5	1	AND	dark grey	Fine grained	Massive	Gouge zone/sulfuric odour	AND	0.00			0	0	0	0	3	3	15	F	500.0	gg	cly	1	None	ML
156.0	156.3	0.25	100	0.10	40	3	63	75	AND	dark grey	Fine grained	Massive		AND	0.05			0	4	2	2	6	14	15	J	1.0	cly		1	None	ML
									AND					AND	0.10			0	4	2	2	6	14	15	J	1.0	cly		1	None	ML
									AND				Could be a mechanical break	AND	0.22			0	6	2	6	6	20	15	J	1.0			1	None	ML
156.3	156.6	0.35	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Moderate to highly weathered. Crumble when holding up	AND	0.04			0	1	1	2	3	7	15	J	350.0	cly	chl	1	None	ML
156.6	156.9	0.28	100	0.12	43	2	93	75	AND	dark grey	Fine grained	Massive		AND	0.03			0	4	2	2	5	13	15	J	1.0	cly		1	None	ML
									AND					AND	0.10			0	1	1	6	5	13	15	J	1.0			1	None	ML
156.9	157.0	0.12	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Rubble zone	AND	0.00			0	1	1	2	3	7	15	rub	120.0	cly	Rub	1	none	ML
157.0	157.5	0.38	76	0.24	48	3	95	110	AND	dark grey	Fine grained	Massive	competent	AND	0.00			0	4	2	6	6	18	15	J	1.0			1	None	ML
									AND					AND	0.05			0	5	2	6	6	19	15	J	0.1			1	None	ML
									AND					AND	0.12			0	4	2	6	6	18	15	J	1.0			1	None	ML
157.5	158.6	1.12	100	0.65	58	10	102	50	AND	dark grey	Fine grained	Massive	competent	AND	0.18	68	300	0	1	2	2	5	10	15	J	2.0	cly		1	VG	ML
									AND					AND	0.30	35	140	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
									AND					AND	0.35			0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
									AND					AND	0.42	52	120	0	1	2	2	5	10	15	J	2.0	cly		1	VG	ML
									AND					AND	0.50	55	350	0	1	1	2	5	9	15	J	2.0	cly		1	VG	ML
									AND					AND	0.59	42	110	0	4	1	2	5	12	15	J	1.0	cly		1	VG	ML
									AND					AND	0.72	38	150	0	5	3	6	5	19	15	J	0.1			1	VG	ML
									AND					AND	0.82	50	155	0	4	1	6	5	16	15	J	1.0			1	VG	ML
									AND					AND	1.02	65	265	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
									AND					AND	1.13	65	20	0	4	1	2	5	12	15	J	1.0	cly		1	VG	ML
158.6	159.0	0.38	100	0.00	0	max	5	1	AND	dark grey	Fine grained	Massive	Rubble zone, crumbles when holding up	AND	0.00			0	1	1	2	3	7	15	rub	380.0	cly	Rub	1	None	ML
159.0	160.3	1.25	100	1.02	82	4	250	110	AND	dark grey	Fine grained	Massive	competent	AND	0.48			0	1	1	2	3	7	15	J	2.0	cly		1	None	ML
									AND					AND	0.71			0	4	1	2	3	10	15	J	1.0	cly		1	None	ML
									AND					AND	0.82			0	4	1	2	5	12	15	J	1.0	cly		1	None	ML
									AND				Could be a mechanical break	AND	0.88			0	5	3	6	6	20	15	J	0.1			1	None	ML
160.3	160.5	0.25	100	0.00	0	max	5	1	AND	dark grey	Fine grained	Massive	Gouge/Rubble zone	AND	0.00			0	0	1	0	3	4	15	J	250.0	gg	cly	1	None	ML
160.5	161.4	0.85	100	0.70	82	4	170	50	AND	dark grey	Fine grained	Massive		AND	0.25			0	4	2	2	5	13	15	J	1.0	cly		1	None	ML
									AND					AND	0.38			0	4	1	6	6	17	15	J	1.0			1	None	ML
									AND					AND	0.59			0	4	1	2	3	10	15	J	1.0	cly		1	None	ML
									AND					AND	0.71			0	4	1	2	5	12	15	J	1.0	cly		1	None	ML
161.4	161.8	0.42	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Rubble zone	AND	0.00			0	0	1	0	3	4	15	rub	420.0	cly	Rub	1	None	ML
161.8	162.0	0.23	100	0.23	100	2	77	140	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.12	35	185	0	4	2	2	5	13	15	J	1.0	cly		1	F	ML
									AND					AND	0.22	65	270	0	4	1	2	5	12	15	J	1.0	cly		1	F	ML
162.0	163.5	1.46	97	1.18	79	10	133	110	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.05	35	335	0	5	2	2	5	14	15	J	0.1	cly		1	VG	ML
									AND					AND	0.18	73	0	0	5	1	6	6	18	15	J	0.1			1	VG	ML
									AND					AND	0.37	53	55	0	5	2	2	3	12	15	J	0.1			1	VG	ML
									AND					AND	0.56			0	5	1	6	6	18	15	J	0.1			1	VG	ML
									AND					AND	0.77	57	235	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
									AND					AND	0.96	68	145	0	4	2	2	3	11	15	J	1.0	cly		1	VG	ML
									AND					AND	1.10			0	5	2	2	5	14	15	J	0.1	cly		1	VG	ML
									AND					AND	1.22	48	180	0	4	1	6	6	17	15	J	1.0			1	VG	ML
									AND					AND	1.31	80	80	0	4	1	6	6	17	15	J	1.0			1	F	ML
									AND					AND	1.40	75	280	0	1	2	2	5	10	15	J	3.0	cly		1	F	ML
163.5	165.0	1.50	100	0.49	33	3	375	125	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.25			0	4	2	4	5	15	15	J	1.0	cc		1	None	ML
									AND					AND	0.62			0	1	3	4	5	13	15	J	2.0	cc		1	None	ML
									AND				Long horizontal joint from 0.72m from the top to the end	AND	1.20			0	1	1	2	3	7	15	J	3.0	cly		1	None	ML
165.0	166.1	1.10	100	0.41	37	3	275	25	AND	dark grey	Fine grained	Massive	Crumbles when holding up, long horizontal joint from beginning to 0.55m from the top	AND	0.00			0	1	2	2	3	8	15	J	2.0	cly		1	None	ML
									AND					AND	0.66			0	4	2	6	5	17	15	J	1.0			1	None	ML
									AND					AND	0.90			0	1	2	2	3	8	15	J	2.0	cly		1	None	ML
166.1	166.5	0.40	100	0.00	0	max	5	1	AND	dark grey	Fine grained	Massive	Rubble/Gouge zone	AND	0.00			0	0	1	0	3	4	15	F	400.0	gg	Rub	1	None	ML
166.5	167.6	1.07	100	0.63	59	7	134	50	AND	dark grey	Fine grained	Massive	Sulfuric odour	AND	0.25			0	1	1	2	5	9	15	J	2.0	cly		7	None	ML
167.6	168.0	0.43	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Rubble zone	AND	0.00			0	1	1	2	3	7	15	rub	430.0	cly	Rub	1	None	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
168.0	169.3	1.30	100	0.94	72	7	163	75	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.15			0	1	1	2	3	7	15	rub	3.0	cly	Rub	1	None	ML
									AND					AND	0.26			0	4	1	6	6	17	15	J	1.0			6	None	ML
169.3	169.5	0.20	100	0.00	0	max	5	5	AND	dark grey	Fine grained	Massive	Rubble zone	AND	0.00			0	1	1	2	3	7	15	rub	200.0	Rub	cly	1	None	ML
169.5	171.0	1.45	97	0.96	64	10	132	110	AND	dark grey	Fine grained	Massive	andesitewith many healed joints at the beginning	AND	0.10			0	1	1	2	3	7	15	J	2.0	cly		2	None	ML
									AND					AND	0.50			0	4	1	4	6	15	15	J	1.0			4	none	ML
									AND					AND	1.21			0	4	2	6	6	18	15	J	1.0			3	None	ML
									AND				Rubble zone	AND	1.45			0	1	1	3	5	10	15	rub	5.0	Rub		1	None	ML
171.0	172.5	1.45	97	1.14	76	6	207	125	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.36			0	5	2	6	6	19	15	J	0.1			1	None	ML
									AND					AND	0.77			0	1	2	2	5	10	15	J	2.0	cly		1	None	ML
									AND					AND	0.83			0	5	2	2	5	14	15	J	0.1	cly		1	None	ML
									AND					AND	1.07			0	5	3	2	5	15	15	J	0.1	cly		1	None	ML
									AND					AND	1.15			0	5	3	6	6	20	15	J	0.1			1	None	ML
									AND					AND	1.30			0	1	3	6	6	16	15	J	2.0			1	None	ML
172.5	172.6	0.14	100	0.14	100	0	140	140	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	None	ML
172.6	173.1	0.46	100	0.00	0	max	5	25	AND	dark grey	Fine grained	Massive	Gouge/rubble zone	AND	0.00			0	1	1	0	3	5	15	F	460.0	gg	Rub	1	None	ML
173.1	173.3	0.20	100	0.20	100	0	200	125	AND	dark grey	Fine grained	Massive	andesitewith healed joints	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	None	ML
173.3	173.7	0.40	100	0.00	0	max	5	5	AND	dark grey	Fine grained	Massive	Rubble zone, crumbles with holding up	AND	0.00			0	1	1	0	3	5	15	F	5.0	gg	Rub	1	None	ML
173.7	174.0	0.20	67	0.20	67	0	200	140	AND	dark grey	Fine grained	Massive	Block	AND	0.00			6	6	6	6	5	29	15	J	0.0			1	F	ML
174.0	174.4	0.36	100	0.36	100	1	180	110	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.36	70	50	0	4	1	2	5	12	15	J	1.0	cly		1	VG	ML
174.4	174.6	0.20	100	0.20	100	1	100	2	AND	dark grey	Fine grained	Massive	Can break by hand	AND	0.20			0	4	1	2	3	10	15	J	1.0	cly		1	VG	ML
174.6	175.5	0.94	100	0.17	18	max	5	1	AND	dark grey	Fine grained	Massive	Intact, break when holding up	AND	0.00			0	4	1	0	3	8	15	J	940.0	cly		1	None	ML
175.5	177.0	1.50	100	0.53	35	20	71	25	AND	dark grey	Fine grained	Massive	Highly fractured, white veins, moderately weathered	AND	0.00			0	4	3	2	3	12	15	J	0.5	cly		20	None	MGP
177.0	178.5	1.50	100	1.37	91	8	167	75	AND	dark grey	Fine grained	Massive	Competent andesite white veins	AND	0.20			0	1	2	2	3	8	15	J	1.0	cly	cc	8	None	MGP
178.5	180.0	1.50	100	1.15	77	9	150	75	AND	dark grey	Fine grained	Massive	Competent andesite white veins	AND	0.15			0	1	2	2	3	8	15	J	1.0	cc	chl	9	None	MGP
180.0	181.5	1.50	100	1.09	73	6	214	100	AND	dark grey	Fine grained	Massive	last 10 cm is more weathered/crumbly	AND	0.05			0	1	1	2	5	9	15	J	1.0	cc	chl	6	None	MGP
181.5	183.0	1.50	100	1.30	87	6	214	100	AND	dark grey	Fine grained	Massive	andesitewith many healed joints, also in a rubble zone	AND	0.05	45	300	0	1	1	6	5	13	15	J	1.0			1	F	MGP
									AND					AND	0.20	60	280	0	1	2	6	5	14	15	J	1.0			1	F	MGP
									AND					AND	0.60	60	260	0	1	2	6	5	14	15	J	1.0			1	F	MGP
									AND					AND	1.00	65	270	0	1	1	6	5	13	15	J	1.0			1	F	MGP
									AND					AND	1.30	50	310	0	0	3	3	5	11	15	F	10.0	Rub		1	F	MGP
									AND					AND	1.40	50	240	0	1	2	2	5	10	15	J	1.0			1	F	MGP
183.0	183.9	0.89	99	0.30	33	12	68	75	AND	dark grey	equigranular	Massive	Blocked run	AND	0.00			0	1	3	6	3	13	15	J	1.0			12	None	MGP
183.9	184.5	0.40	67	0.21	35	2	133	75	AND	dark grey	equigranular	Massive		AND	0.00			0	1	3	2	3	9	15	J	1.0	chl	py	2	None	MGP
184.5	185.3	0.75	94	0.31	39	9	75	50	AND	dark grey	equigranular	Massive	Moderately weathered andesite	AND	0.00			0	1	2	2	3	8	15	J	1.0	chl		9	None	MGP
185.3	186.0	0.40	57	0.00	0	max	5	1	AND	dark grey	equigranular	Massive	Rubble/clay , washed away	AND	0.00			0	0	3	3	3	9	15	F	400.0	Rub	cly	1	None	MGP
186.0	186.2	0.15	100	0.00	0	max	5	1	AND	dark grey	equigranular	Massive	Gouge, clay zone	AND	0.00			0	0	0	0	3	3	15	F	150.0	gg	cly	1	None	MGP
186.2	187.5	0.60	44	0.39	29	10	55	25	AND	dark grey	equigranular	Massive	Highly weathered/fractured andesite	AND	0.00			0	0	3	2	3	8	15	J	10.0	Rub	cly	10	None	MGP
187.5	189.0	1.10	73	0.00	0	max	5	1	AND	dark grey	equigranular	Massive	Gouge/Rubble/Clay	AND	0.00			0	0	0	0	3	3	15	F	1100.00	gg	cly	1	None	MGP
189.0	189.3	0.25	100	0.00	0	max	5	1	AND	dark grey	equigranular	Massive	Gouge/Rubble/Clay	AND	0.00			0	0	0	0	3	3	15	F	250.00	gg	cly	1	None	MGP
189.3	190.5	1.05	84	0.00	0	max	5	25	AND	dark grey	equigranular	Massive	Intact rock, but crumbles when pick up	AND	0.00			0	0	3	2	3	8	15	J	1050.00	Rub	cly	1	None	MGP
190.5	191.1	0.60	100	0.00	0	10	55	15	AND	dark grey	equigranular	Massive	Highly weathered, but somewhat intact	AND	0.00			0	0	3	3	3	9	15	J	10.0	Rub	cly	10	None	MGP
191.1	191.3	0.20	100	0.00	0	max	5	1	AND	dark grey	equigranular	Massive	Completely weathered, rubble	AND	0.00			0	0	0	0	3	3	15	F	200.0	Rub	gg	1	None	MGP
191.3	192.0	0.70	100	0.20	29	4	140	50	AND	dark grey	equigranular	Massive	Less weathered, solid rock (still crumbles)	AND	0.00			0	1	3	2	3	9	15	J	3.0	cly		4	None	MGP
192.0	192.7	0.70	100	0.70	100	2	233	75	AND	dark grey	equigranular	Massive	Very competent	AND	0.00			0	1	3	2	5	11	15	J	2.0			2	None	MGP
192.7	192.9	0.20	100	0.00	0	max	5	1	AND	dark grey	equigranular	Massive	Gouge/ Rubble	AND	0.00			0	0	0	0	3	3	15	F	200.0	gg	cly	1	None	MGP
192.9	193.5	0.60	100	0.24	40	6	86	75	AND	dark grey	equigranular	Massive	Competent rock	AND	0.00			0	1	3	2	5	11	15	J	1.0			6	None	MGP
193.5	195.0	1.50	100	0.65	43	10	136	100	AND	dark grey	equigranular	massive	andesite strong, slightly weathered	AND	0.00			0	1	2	2	5	10	15	J	1.0	cc		10	None	MGP
195.0	196.5	1.40	93	0.50	33	21	64	75	AND	dark grey	equigranular	massive	Intact rock, but crumbles when pick up	AND	0.00			0	4	2	2	4	12	15	J	0.5	cc		21	None	MGP
196.5	198.0	1.48	99	0.54	36	23	62	75	AND	dark grey	equigranular	massive	Very brittle rock	AND	0.00			0	4	3	2	3	12	15	J	0.5	cc		23	None	MGP
198.0	199.5	1.50	100	0.35	23	13	107	75	AND	dark grey	equigranular	massive	Very brittle rock	AND	0.08	42	290	0	1	2	2	5	10	15	J	2.0	cc		1	F	MGP
									AND					AND	0.25	61	300	0	1	3	2	5	11	15	J	1.0	cc		1	F	MGP
									AND					AND	0.35	55	20	0	1	2	2	5	10	15	J	1.0	cc		1	F	MGP
									AND					AND	0.53	41	100	0	1	2	2	5	10	15	J	2.0	cc		1	F	MGP
									AND					AND	0.62	40	30	0	1	2	2	5	10	15	J	1.5	cly		1	F	MGP
									AND					AND	0.77	65	330	0	1	3	2	3	9	15	J	3.0	cc	cly	1	F	MGP
									AND					AND	0.92	55	70	0	1	3	2	3	9	15	J	2.0	cc	cly	1	F	MGP
									AND					AND	1.00	56	240	0	1	2	2	5	10	15	J	1.0	cc		1	F	MGP
									AND					AND	1.03	31	70	0	1	2	2	3	8	15	J	1.0	cc	cly	1	F	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
									AND					AND	1.10	28	80	0	1	1	6	5	13	15	J	1.0			1	F	MGP
									AND					AND	1.17	25	80	0	1	2	2	3	8	15	J	1.0	cc		1	F	MGP
									AND					AND	1.30	30	70	0	1	3	2	3	9	15	J	2.0	cc		1	F	MGP
									AND					AND	1.45	35	70	0	1	2	6	5	14	15	J	1.0			1	F	MGP
199.5	201.0	1.50	100	0.13	9	19	75	50	AND	dark grey	equigranular	massive	Moderately weathered, brittle rock	AND	0.00			0	1	3	2	3	9	15	J	1.0	cc	cly	19	None	MGP
201.0	202.2	1.15	100	1.04	90	3	288	75	AND	dark grey	equigranular	massive	andesite Block run	AND	0.00			0	1	2	2	3	8	15	J	3.0	cc	cly	3	None	MGP
202.2	202.5	0.25	71	0.00	0	1	125	75	AND	dark grey	equigranular	massive	andesite Block run	AND	0.00			0	1	1	2	5	9	15	J	1.0	cly		1	None	MGP
202.5	203.5	1.00	100	0.48	48	8	111	110	AND	dark grey	equigranular	massive	andesite many healed joints	AND	0.05			0	1	2	2	5	10	15	J	2.0	cly	cc	4	None	ML
									AND					AND	0.60			0	1	1	2	3	7	15	J	3.0	cly	cc	1	None	ML
									AND					AND	0.67			0	4	2	4	6	16	15	J	1.0	cc		3	None	ML
203.5	203.6	0.12	100	0.00	0	max	5	1	AND	dark grey	equigranular	massive	Moderately weathered, can be broken by hand	AND	0.00			0	1	1	2	3	7	15	J	120.0	cly		1	None	ML
203.6	204.0	0.38	100	0.00	0	5	63	25	AND	dark grey	equigranular	massive	Moderately weathered, can be broken by hand	AND	0.06			0	5	1	4	6	16	15	J	0.1	cc		2	None	ML
									AND					AND	0.18			0	4	1	2	5	12	15	J	1.0	cly		1	None	ML
									AND					AND	0.21			0	4	3	4	6	17	15	J	1.0	cc		1	None	ML
									AND					AND	0.32			0	1	1	2	5	9	15	J	5.0	cly	Rub	1	None	ML
204.0	205.5	1.45	97	0.45	30	11	121	125	AND	dark grey	equigranular	massive	Gouge zone	AND	0.00			0	0	0	0	3	3	15	J	30.0	gg	cly	1	None	ML
									AND					AND	0.30			0	0	0	0	3	3	15	J	20.0	gg	cly	1	None	ML
									AND				rubble zone	AND	0.40			0	0	1	0	3	4	15	J	40.0	cly	Rub	1	None	ML
									AND					AND	0.68			0	4	1	2	5	12	15	J	1.0	cly		1	None	ML
									AND					AND	0.73			0	1	1	4	5	11	15	J	3.0	cc		3	None	ML
									AND				Rubble zone	AND	0.95			0	0	1	0	3	4	15	J	40.0	cly	Rub	1	None	ML
									AND					AND	1.15			0	5	1	4	6	16	15	J	0.1	cc		1	None	ML
									AND					AND	1.23			0	1	1	2	5	9	15	J	2.0	cly		2	None	ML
205.5	206.8	1.30	100	0.90	69	5	217	110	AND	dark grey	equigranular	massive		AND	0.28			0	4	2	4	6	16	15	J	1.0	cc		2	None	ML
									AND					AND	0.78			0	4	1	2	6	13	15	J	1.0	cc	cly	1	None	ML
									AND				Rubble zone	AND	0.92			0	0	1	0	5	6	15	J	25.0	cly	Rub	1	None	ML
									AND					AND	1.10			0	4	1	2	3	10	15	J	1.0	cly		1	None	ML
206.8	207.0	0.15	75	0.00	0	max	5	3	AND	dark grey	equigranular	massive	Intact, however crumbles when holding up, gouge/rubble zone within	AND	1.30			0	1	0	0	3	4	15	J	150.0	gg	cly	1	None	ML
207.0	208.5	1.45	97	0.00	0	3	363	25	AND	dark grey	equigranular	massive	Intact, however crumbles when holding up	AND	0.33			0	4	1	2	3	10	15	J	1.0	gg	cly	3	None	ML
208.5	209.2	0.70	100	0.22	31	6	100	110	AND	dark grey	equigranular	massive		AND	0.20	52	305	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
									AND					AND	0.30	65	145	0	4	2	6	6	18	15	J	1.0			1	VG	ML
									AND					AND	0.40	58	65	0	5	3	6	6	20	15	J	0.1			1	VG	ML
									AND					AND	0.42	50	195	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	0.55	43	35	0	1	2	2	5	10	15	J	5.0	cly	Rub	1	VG	ML
									AND					AND	0.59	72	240	0	0	1	2	5	8	15	J	6.0	cly	Rub	1	VG	ML
209.2	210.0	0.80	100	0.16	20	max	5	50	AND	dark grey	equigranular	massive	Rubble zone	AND	0.08			0	1	1	2	3	7	15	rub	800.0	cly	Rub	1	None	ML
210.0	210.1	0.06	100	0.00	0	max	5	1	AND	dark grey	equigranular	massive	Gouge	AND	0.00			0	4	0	0	3	7	15	J	60.0	gg	cly	1	None	ML
210.1	210.6	0.50	100	0.33	66	2	167	50	AND	dark grey	equigranular	massive		AND	0.10			0	1	2	4	6	13	15	J	3.0	cc		2	None	ML
210.6	211.1	0.54	100	0.00	0	max	5	25	AND	dark grey	equigranular	massive	Intact, can be broken by hand	AND	0.00			0	4	1	2	3	10	15	J	540.0	cly	cc	1	None	ML
211.1	211.5	0.37	92	0.10	25	5	62	50	AND	dark grey	equigranular	massive		AND	0.10			0	4	1	4	6	15	15	J	1.0	cc		5	None	ML
211.5	212.1	0.57	100	0.00	0	3	142	50	AND	dark grey	equigranular	massive	Horizontal joint cutting through all three joints, with cc infill	AND	0.08	40	90	0	1	2	2	5	10	15	J	3.0	cc	cly	1	None	ML
									AND					AND	0.43	62	70	0	4	2	4	6	16	15	J	1.0	cc		1	None	ML
									AND					AND	0.57			0	4	2	4	6	16	15	J	1.0	cc		1	None	ML
212.1	212.5	0.43	100	0.00	0	max	5	50	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	4	1	4	5	14	15	J	430.0	cc		1	None	ML
212.5	213.0	0.50	100	0.17	34	max	5	50	AND	dark grey	equigranular	massive	Rubble zone	AND	0.17			0	4	1	4	5	14	15	J	500.0	cc		1	None	ML
213.0	214.5	1.48	99	1.45	97	4	296	110	AND	dark grey	equigranular	massive	Sulfuric odour	AND	0.56	80	325	0	4	1	2	3	10	15	J	1.0	cly		1	F	ML
									AND					AND	0.95	45	195	0	5	1	4	6	16	15	J	0.1	cc		1	F	ML
									AND				V-shaped joint	AND	1.21			0	1	2	2	5	10	15	J	2.0	cly		1	F	ML
									AND				Broken end, unable to determine beta	AND	1.43	40		0	5	2	4	6	17	15	J	0.1	cc		1	F	ML
214.5	216.0	1.50	100	1.50	100	3	375	140	AND	dark grey	equigranular	massive		AND	0.38	42	95	0	1	2	4	6	13	15	J	4.0	cc		1	VG	ML
									AND					AND	0.65	47	10	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	0.83	62	145	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
216.0	216.6	0.60	100	0.50	83	2	200	140	AND	dark grey	equigranular	massive		AND	0.10	68	140	0	5	1	4	6	16	15	J	0.1	cc		1	VG	ML
									AND					AND	0.22	71	115	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
216.6	216.8	0.20	100	0.00	0	max	5	1	AND	dark grey	equigranular	massive	Gouge	AND	0.00			0	0	1	0	3	4	15	F	200.0	gg	Rub	1	None	ML
216.8	217.5	0.65	93	0.61	87	3	163	110	AND	dark grey	equigranular	massive		AND	0.08	57	110	0	0	1	0	5	6	15	J	7.0	cly		1	VG	ML
									AND					AND	0.25	28	10	0	5	3	4	6	18	15	J	0.1	cc		1	VG	ML
									AND					AND	0.52	45	235	0	4	2	4	6	16	15	J	1.0			1	VG	ML
217.5	218.3	0.80	100	0.60	75	4	160	140	AND	dark grey	equigranular	massive		AND	0.23	52	65	0	5	2	4	6	17	15	J	0.1	cc		1	VG	ML
									AND					AND	0.28	48	55	0	4	1	6	6	17	15	J	1.0			1	VG	ML
									AND					AND	0.37	55	95	0	1	1	2	5	9	15	J	3.0	cly	cc	1	VG	ML
									AND					AND	0.75	40	130	0	4	1	4	6	15	15	J	1.0	cc		1	VG	ML
218.3	218.4	0.05	63	0.00	0	max	5	1	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	0	1	0	3	4	15	rub	50.0	cly	Rub	1	None	ML
218.4	219.0	0.62	100	0.53	85	2	207	140	AND	dark grey	equigranular	massive		AND	0.17	30	20	0	5	2	4	6	17	15	J	0.1	cc		1	F	ML
									AND					AND	0.29	67	150	0	4	2	2	6	14	15	J	1.0	cly	cc	1	F	ML
219.0	220.5	1.40	93	1.34	89	4	280	140	AND	dark grey	equigranular	massive		AND	0.15			0	4	3	6	6	19	15	J	1.0			1	VG	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.57	53	260	0	5	2	4	6	17	15	J	0.1	cc		1	VG	ML
									AND					AND	1.15	77	110	0	5	2	6	6	19	15	J	0.1			1	VG	ML
									AND					AND	1.20	28	185	0	4	1	6	6	17	15	J	1.0			1	VG	ML
220.5	221.3	0.83	100	0.83	100	3	208	125	AND	dark grey	equigranular	massive	Very strong andesite fresh	AND	0.12	65	95	0	5	1	4	4	14	15	J	0.1	cc		1	VG	ML
									AND					AND	0.22	77	45	0	5	1	4	6	16	15	J	0.1	cc		1	VG	ML
									AND					AND	0.50	68	140	0	4	2	4	6	16	15	J	1.0	cc	py	1	VG	ML
221.3	222.0	0.67	100	0.31	46	6	96	175	AND	dark grey	equigranular	massive	Re-drilled, core was dropped down the hole	AND	0.00			0	4	2	6	6	18	15	J	0.1			6	None	MGP
222.0	223.5	1.50	100	1.35	90	6	214	150	AND	dark grey	equigranular	massive	Very competent, dark andesite	AND	0.25	56	100	0	4	3	6	6	19	15	J	0.1			1	F	MGP
									AND					AND	0.30	70	260	0	1	1	2	6	10	15	J	1.0	cc		1	F	MGP
									AND					AND	0.75	70	340	0	4	3	6	6	19	15	J	0.1			1	F	MGP
									AND					AND	1.05	45	120	0	1	1	2	6	10	15	J	1.0	cc		1	F	MGP
									AND					AND	1.25	81	30	0	1	1	2	6	10	15	J	1.0	cc		1	F	MGP
									AND					AND	1.40	25	250	0	1	1	2	6	10	15	J	1.0	cc		1	F	MGP
223.5	225.0	1.50	100	1.12	75	5	250	100	AND	dark grey	equigranular	massive	As above, slightly weathered	AND	0.00			0	1	3	2	5	11	15	J	1.0	cc		5	None	MGP
225.0	226.5	1.50	100	1.50	100	3	375	150	AND	dark grey	equigranular	massive	Competent Rock	AND	0.65	52	100	0	4	3	2	6	15	15	J	0.5	cc		1	F	MGP
									AND					AND	0.90	20	320	0	1	1	2	5	9	15	J	1.0	cc		1	F	MGP
									AND					AND	1.10	34	350	0	1	2	2	5	10	15	J	1.0	cc		1	F	MGP
226.5	228.0	1.50	100	1.43	95	4	300	175	AND	dark grey	equigranular	massive	Very competent, strong, slightly weathered, andesite	AND	0.25	82	320	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGP
									AND					AND	0.90	68	160	0	4	3	6	5	18	15	J	0.5			1	VG	MGP
									AND					AND	1.45	60	100	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	1.47	60	100	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
228.0	229.5	1.48	99	1.41	94	4	296	175	AND	dark grey	equigranular	massive	Very competent, strong, slightly weathered, andesite	AND	0.55	52	30	0	1	2	6	5	14	15	J	1.0			1	P	MGP
									AND					AND	0.65	60	240	0	1	2	2	5	10	15	J	1.0	cc		1	P	MGP
									AND					AND	1.10	51	110	0	1	1	2	5	9	15	J	1.0	cc		1	P	MGP
									AND					AND	1.35	44	140	0	4	3	6	5	18	15	J	0.1			1	P	MGP
229.5	231.0	1.50	100	1.50	100	2	500	175	AND	dark grey	equigranular	massive	Very competent, strong, slightly weathered, andesite	AND	0.00			0	1	3	2	5	11	15	J	1.0	cc		2	None	MGP
231.0	232.5	1.41	94	1.34	89	4	282	175	AND	dark grey	equigranular	massive	Very competent, strong, slightly weathered, andesite	AND	0.40	32	0	0	1	5	2	5	13	15	J	1.0	cc		1	F	MGP
									AND					AND	0.70	15	20	0	1	5	2	5	13	15	J	1.0	cc		1	F	MGP
									AND					AND	0.90	45	230	0	1	3	2	5	11	15	J	2.0	cc		1	F	MGP
									AND					AND	1.20	65	290	0	1	5	6	5	17	15	J	1.0			1	F	MGP
232.5	234.0	1.50	100	0.37	25	14	100	100	AND	dark grey	equigranular	massive	As above, no fracture	AND	0.00			0	1	5	2	3	11	15	J	1.0	cc		14	None	MGP
234.0	235.5	1.49	99	1.24	83	4	298	125	AND	dark grey	equigranular	massive	As above, no fracture	AND	0.00			0	1	3	6	3	13	15	J	1.0			4	None	MGP
235.5	237.0	1.50	100	0.75	50	11	125	125	AND	dark grey	equigranular	massive		AND	0.08			0	1	3	2	5	11	15	J	5.0	cc		11	None	MGP
									AND					AND	0.25	20	340	0	1	3	2	5	11	15	J	1.0	cc	cly	1	VG	MGP
									AND					AND	0.45	65	240	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
237.0	238.5	1.38	92	1.24	83	2	460	125	AND	dark grey	equigranular	massive	As above	AND	0.50	25	290	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.85	49	160	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
238.5	240.0	1.50	100	1.42	95	2	500	175	AND	dark grey	equigranular	massive	Very competent andesite	AND	1.45	60	230	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.50	50	230	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
240.0	241.5	1.44	96	1.13	75	4	288	175	AND	dark grey	equigranular	massive	Very competent andesite significant calcite infill	AND	0.00			0	0	3	0	3	6	15	J	10.0	cc		4	None	MGP
241.5	243.0	1.50	100	1.28	85	4	300	175	AND	dark grey	equigranular	massive	Very competent andesite significant calcite infill	AND	0.00			0	1	3	2	5	11	15	J	1.0	cc		4	None	MGP
243.0	244.5	1.43	95	1.43	95	2	477	175	AND	dark grey	equigranular	massive	Very competent andesite clay infill	AND	0.75	38	220	0	4	2	2	5	13	15	J	0.5	cly		1	F	MGP
									AND					AND	1.05	55	100	0	4	3	2	5	14	15	J	0.5	cly		1	F	MGP
244.5	246.0	1.50	100	1.50	100	2	500	200	AND	dark grey	equigranular	massive	Fresh andesite some calcite	AND	0.25	58	60	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
									AND				As above, extremely strong	AND	1.20	61	70	0	1	3	2	5	11	15	J	2.0	cc		1	VG	MGP
246.0	247.5	1.38	92	1.33	89	2	460	200	AND	dark grey	equigranular	massive	As above, extremely strong	AND	0.25	51	180	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
									AND					AND	1.05	52	190	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
247.5	249.0	1.50	100	1.50	100	1	750	200	AND	dark grey	equigranular	massive	As above	AND	0.35	25	200	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
249.0	250.5	1.42	95	1.26	84	7	178	200	AND	dark grey	equigranular	massive	As above	AND	0.05	57	25	0	1	2	2	5	10	15	J	2.0	cly		1	VG	MGP
									AND					AND	0.10	65	35	0	1	1	2	5	9	15	J	1.5	cly		1	VG	MGP
									AND					AND	0.35	70	350	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.65	30	40	0	1	5	2	5	13	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.90	41	340	0	4	5	6	5	20	15	J	0.5			1	VG	MGP
									AND					AND	1.30	74	100	0	4	1	6	5	16	15	J	0.5			1	VG	MGP
									AND					AND	1.40	79	60	0	1	1	2	5	9	15	J	1.0	cly		1	VG	MGP
250.5	252.0	1.50	100	1.50	100	2	500	200	AND	dark grey	equigranular	massive	As above	AND	1.10	70	310	0	1	5	2	5	13	15	J	1.0	cc		1	G	MGP
									AND					AND	1.40	71	310	0	1	3	2	3	9	15	J	1.0	cc		1	G	MGP
252.0	253.5	1.48	99	1.48	99	2	493	200	AND	dark grey	equigranular	massive	As above	AND	0.80	90		0	4	5	6	5	20	15	J	0.5			1	VG	MGP
									AND					AND	1.40	85	120	0	4	5	2	5	16	15	J	0.5	cly		1	VG	MGP
253.5	255.0	1.50	100	1.48	99	5	250	200	AND	dark grey	equigranular	massive		AND	0.13			0	0	1	0	3	4	15	J	25.0	cly		1	VG	ML
									AND					AND	0.38			0	4	2	4	5	15	15	J	0.5	chl		3	None	ML
									AND				Gouge/rubble zone	AND	0.83			0	0	1	0	3	4	15	rub	40.0	cly	Rub	1	None	ML
255.0	256.5	1.40	93	1.40	93	4	280	200	AND	dark grey	equigranular	massive		AND	0.25	28	255	0	4	2	6	6	18	15	J	1.0			1	VG	ML
									AND					AND	0.63	39	40	0	5	2	4	5	16	15	J	0.1	cc		1	VG	ML
									AND					AND	1.12	47	30	0	1	2	6	6	15	15	J	2.0			1	VG	ML
									AND					AND	1.32	47	75	0	4	1	2	5	12	15	J	1.0	cly		1	VG	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
256.5	258.0	1.50	100	1.50	100	5	250	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.37	69	245	0	5	1	6	6	18	15	J	0.1			1	F	ML
									AND					AND	0.60	38	350	0	4	3	4	5	16	15	J	1.0	cc		1	F	ML
									AND					AND	0.78	90		0	4	1	4	5	14	15	J	1.0	cc		1	F	ML
									AND					AND	1.23	72	210	0	5	2	4	5	16	15	J	0.1	cc		1	F	ML
									AND					AND	1.37	80	285	0	1	2	4	5	12	15	J	2.0	cc		1	F	ML
258.0	259.5	1.50	100	1.32	88	7	188	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.28	49	95	0	5	3	4	5	17	15	J	0.1	cc		1	G	ML
									AND					AND	0.35	75	280	0	5	1	4	5	15	15	J	0.1	cc		1	G	ML
									AND					AND	0.48	77	215	0	4	2	4	5	15	15	J	1.0	cc		1	G	ML
									AND					AND	0.83	58	80	0	4	2	4	5	15	15	J	1.0	cc		1	G	ML
									AND					AND	1.07	68	55	0	4	3	6	6	19	15	J	1.0			1	G	ML
									AND					AND	1.20	75	240	0	4	1	4	5	14	15	J	1.0	cc		1	G	ML
									AND					AND	1.40	90		0	1	2	2	5	10	15	J	3.0	cly		1	G	ML
259.5	261.0	1.50	100	1.50	100	4	300	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.36	15	340	0	1	3	4	5	13	15	J	2.0	cc		1	G	ML
									AND					AND	0.58	15	10	0	4	2	4	5	15	15	J	1.0	cc		1	G	ML
									AND					AND	0.74	54	105	0	4	2	4	5	15	15	J	1.0	cc		1	G	ML
									AND					AND	1.14	65	350	0	4	2	4	5	15	15	J	1.0	cc		1	G	ML
261.0	262.5	1.45	97	1.45	97	2	483	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.97	57	290	0	4	4	6	6	20	15	J	1.0			1	P	ML
									AND					AND	1.35	31	275	0	5	2	4	5	16	15	J	1.0	cc		1	P	ML
262.5	263.0	0.53	100	0.53	100	1	265	140	AND	dark grey	equigranular	massive	Many healed joints within	AND	0.53	13	330	0	1	2	4	5	12	15	J	5.0	cc		1	VG	ML
263.0	263.2	0.17	100	0.00	0	max	5	25	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	0	1	3	5	9	15	J	170.0	Rub		1	None	ML
263.2	264.0	0.80	100	0.80	100	3	200	200	AND	dark grey	equigranular	massive		AND	0.00	56	295	0	5	2	4	5	16	15	J	0.1	cc		1	F	ML
									AND					AND	0.40	73	80	0	1	2	4	5	12	15	J	3.0	cc		1	F	ML
									AND					AND	0.53	63	350	0	4	3	4	5	16	15	J	1.0	cc		1	F	ML
264.0	265.5	1.43	95	1.43	95	3	358	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.35	30	180	0	5	2	4	5	16	15	J	0.1	chl		1	VG	ML
									AND					AND	0.78	80	240	0	4	1	6	5	16	15	J	1.0			1	VG	ML
									AND					AND	1.02			0	4	3	6	6	19	15	J	1.0			1	VG	ML
265.5	267.0	1.50	100	1.50	100	5	250	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.17			0	5	1	4	5	15	15	J	0.1	chl		1	None	ML
									AND					AND	0.51			0	1	2	4	5	12	15	J	2.0	cc		1	None	ML
									AND					AND	0.91			0	4	3	4	5	16	15	J	1.0	cc		1	None	ML
									AND					AND	1.06			0	1	1	2	5	9	15	J	2.0	cly	chl	1	None	ML
									AND					AND	1.34			0	1	1	4	5	11	15	J	2.0	cc		1	None	ML
267.0	268.5	1.50	100	1.50	100	3	375	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.35	78	205	0	4	1	4	5	14	15	J	0.5	cc		1	P	ML
									AND					AND	0.88	60	10	0	4	2	6	6	18	15	J	1.0			1	P	ML
									AND					AND	1.02	30	140	0	5	2	4	5	16	15	J	0.1	cc		1	P	ML
268.5	270.0	1.50	100	1.50	100	2	500	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.33	61	100	0	4	2	4	5	15	15	J	0.5	cc		1	VG	ML
									AND					AND	1.26	72	255	0	4	1	4	5	14	15	J	1.0	cc		1	VG	ML
270.0	271.5	1.45	97	1.38	92	3	363	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.07	67	135	0	4	1	6	5	16	15	J	0.5			1	VG	ML
									AND					AND	0.30	38	70	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	0.83	43	185	0	5	3	6	6	20	15	J	0.1			1	VG	ML
271.5	272.9	1.39	99	1.33	95	6	199	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.52	75	285	0	5	1	6	5	17	15	J	0.1			1	VG	ML
									AND					AND	0.66	53	15	0	1	2	4	5	12	15	J	2.0	cc		1	VG	ML
									AND					AND	0.87	28	185	0	1	2	6	6	15	15	J	2.0			1	VG	ML
									AND					AND	1.08	77	350	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	1.32	33	85	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	1.37	71	250	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	ML
272.9	273.0	0.10	100	0.00	0	max	5	25	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	0	1	0	3	4	15	rub	100.0	cc	Rub	1	None	ML
273.0	274.5	1.40	93	1.31	87	7	175	200	AND	dark grey	equigranular	massive	Competent andesite	AND	0.45	73	270	0	4	2	6	6	18	15	J	1.0			1	VG	ML
									AND					AND	0.65	77	185	0	5	2	6	6	19	15	J	0.1			1	VG	ML
									AND					AND	0.87	70	295	0	1	2	4	5	12	15	J	5.0	chl		1	VG	ML
									AND					AND	0.93	78	350	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
									AND					AND	0.97	78	290	0	4	1	4	5	14	15	J	0.5	cc		1	VG	ML
									AND					AND	1.15			0	5	2	4	5	16	15	J	0.1	cc		1	VG	ML
									AND					AND	1.23	65	310	0	5	1	4	5	15	15	J	0.1	cc		1	VG	ML
274.5	276.0	1.50	100	1.07	71	7	188	140	AND	dark grey	equigranular	massive	Rubble zone	AND	0.10			0	0	1	3	5	9	15	rub	5.0	Rub		1	None	ML
									AND					AND	0.28			0	4	1	4	5	14	15	J	1.0	cc		2	None	ML
									AND					AND	0.65			0	4	1	2	5	12	15	J	1.0	cly	chl	1	None	ML
									AND					AND	1.18			0	1	1	2	5	9	15	rub	5.0	cly	Rub	1	None	ML
									AND					AND	1.32			0	4	1	4	5	14	15	J	1.0	chl		1	None	ML
									AND					AND	1.40			0	4	2	4	5	15	15	J	1.0	chl		1	None	ML
276.0	277.5	1.48	99	1.48	99	4	296	200	AND	dark grey	equigranular	massive		AND	0.12	65	80	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
									AND					AND	0.38	77	30	0	4	1	4	5	14	15	J	1.0	chl		1	VG	ML
									AND					AND	0.83	51	170	0	4	2	4	6	16	15	J	1.0	chl		1	VG	ML
									AND					AND	1.10	73	165	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
277.5	279.0	1.50	100	1.39	93	3	375	175	AND	dark grey	equigranular	massive	Strong, slightly weathered to fresh andesite	AND	0.40	55	60	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	0.75	57	340	0	1	2	6	6	15	15	J	1.0			1	VG	MGP
									AND					AND	1.20	77	270	0	4	3	2	5	14	15	J	0.5	cly		1	VG	MGP
279.0	280.5	1.50	100	1.42	95	2	500	175	AND	dark grey	equigranular	massive	As before, small amount of pyrite in joints	AND	1.35	65	70	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
									AND					AND	1.45	61	290	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
280.5	282.0	1.50	100	1.26	84	7	188	175	AND	dark grey	equigranular	massive	As above	AND	0.10	48	120	0	1	3	2	5	11	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.25	46	120	0	1	2	2	5	10	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.50	42	130	0	4	3	6	5	18	15	J	0.5			1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.95	64	90	0	1	2	2	5	10	15	J	1.0	cly		1	VG	MGP
									AND					AND	1.05	60	120	0	4	5	6	5	20	15	J	0.5			1	VG	MGP
									AND					AND	1.40	54	110	0	1	2	2	5	10	15	J	1.0	cly		1	VG	MGP
									AND					AND	1.45	52	90	0	1	3	2	5	11	15	J	1.0	cly		1	VG	MGP
282.0	283.5	1.47	98	1.24	83	4	294	175	AND	dark grey	equigranular	massive	First joint is highly weathered/broken	AND	0.20	70		0	0	5	0	3	8	15	J	50.0	cly	Rub	1	None	MGP
									AND				Competent andesite slightly weathered	AND	0.65	35	110	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGP
									AND					AND	0.95	65	40	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGP
									AND					AND	1.40	45	110	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGP
283.5	285.0	1.50	100	1.22	81	9	150	150	AND	dark grey	equigranular	massive	As above	AND	0.20	42	100	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	0.35	49	100	0	4	1	6	6	17	15	J	0.1			1	VG	MGP
									AND					AND	0.49	62	80	0	1	1	2	5	9	15	J	2.0	cc		1	VG	MGP
									AND					AND	0.50	66	280	0	1	3	2	5	11	15	J	2.0	cc	cly	1	VG	MGP
									AND					AND	0.70	41	120	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGP
									AND					AND	0.80	57	90	0	1	1	2	5	9	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.90	37	90	0	1	3	2	5	11	15	J	1.0	cc	Rub	1	VG	MGP
									AND					AND	1.10	50	75	0	1	1	2	6	10	15	J	1.0	cc		1	VG	MGP
									AND					AND	1.20	46	100	0	4	1	2	6	13	15	J	0.5	cc		1	VG	MGP
285.0	286.5	1.50	100	1.50	100	3	375	200	AND	dark grey	equigranular	massive	Slightly weathered, very strong andesite	AND	0.15	56	100	0	1	3	2	6	12	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.72	65	270	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	0.94	49	180	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
286.5	288.0	1.50	100	1.50	100	3	375	225	AND	dark grey	equigranular	massive	As before	AND	0.15	68	270	0	4	1	6	6	17	15	J	0.1			1	VG	MGP
									AND					AND	1.10	53	250	0	4	1	6	6	17	15	J	0.1			1	VG	MGP
									AND					AND	1.40	61	110	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
288.0	289.5	1.49	99	1.38	92	4	298	225	AND	dark grey	equigranular	massive	As before	AND	0.30	27	210	0	4	1	4	6	15	15	J	0.5	py		1	VG	MGP
									AND					AND	0.65	33	210	0	4	1	6	6	17	15	J	0.1			1	VG	MGP
									AND					AND	1.00	36	320	0	4	3	6	6	19	15	J	0.1			1	VG	MGP
									AND					AND	1.40	35	110	0	4	1	2	6	13	15	J	0.5	cc		1	VG	MGP
289.5	291.0	1.45	97	1.38	92	2	483	225	AND	dark grey	equigranular	massive	As above	AND	0.45	61	270	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	0.95	20	310	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGP
291.0	292.5	1.50	100	1.50	100	3	375	225	AND	dark grey	equigranular	massive	As above	AND	0.15	56	80	0	0	3	4	6	13	15	J	5.0	py		1	F	MGP
									AND					AND	0.95	64	250	0	5	1	6	6	18	15	J	0.1			1	F	MGP
									AND					AND	1.15	61	250	0	4	1	4	6	15	15	J	0.1	py		1	F	MGP
292.5	294.0	1.50	100	1.42	95	1	750	250	AND	dark grey	equigranular	massive	Looks like a mechanical break	AND	1.25			0	1	2	2	5	10	15	J	1.0	cc		1	None	MGP
294.0	295.5	1.49	99	1.49	99	2	497	250	AND	dark grey	equigranular	massive	Fresh, very strong andesite	AND	0.60	51	50	0	1	2	4	6	13	15	J	2.0	py		1	F	MGP
									AND					AND	1.40	37	40	0	1	2	4	6	13	15	J	1.5	py		1	F	MGP
295.5	297.0	1.50	100	1.50	100	2	500	250	AND	dark grey	equigranular	massive	As above	AND	0.35	45	10	0	4	3	6	6	19	15	J	0.5			1	P	MGP
									AND					AND	1.35	32	350	0	4	2	6	6	18	15	J	0.5			1	P	MGP
297.0	298.5	1.44	96	1.44	96	1	720	250	AND	dark grey	equigranular	massive	As above	AND	0.50	65	130	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
298.5	300.0	1.48	99	1.48	99	2	493	250	AND	dark grey	equigranular	massive	As above	AND	0.17	83	260	0	4	1	6	6	17	15	J	0.5			1	VG	ML
									AND				Really jaggy joint, could be a mechanical break	AND	1.08			0	4	3	6	6	19	15	J	1.0			1	VG	ML
300.0	301.5	1.42	95	1.42	95	4	284	250	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.33	65	30	0	4	2	4	6	16	15	J	0.5	cc		1	VG	ML
									AND					AND	0.53	74	275	0	1	2	2	5	10	15	J	4.0	cly		1	VG	ML
									AND					AND	0.79	72	245	0	1	2	6	5	14	15	J	3.0			1	VG	ML
									AND					AND	1.15	88		0	4	1	4	6	15	15	J	0.5	cc		1	VG	ML
301.5	303.0	1.50	100	1.50	100	2	500	250	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.33	61	325	0	4	1	6	6	17	15	J	1.0			1	VG	ML
									AND					AND	0.78	55	260	0	1	1	4	6	12	15	J	2.0	cc		1	VG	ML
303.0	304.5	1.45	97	1.45	97	3	363	250	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.50	61	300	0	1	2	4	5	12	15	J	5.0	cc		1	F	ML
									AND					AND	1.00	70	300	0	0	3	0	5	8	15	J	10.0	cc	cly	1	F	ML
									AND					AND	1.33	77	50	0	4	3	4	5	16	15	J	0.5	cc		1	F	ML
304.5	306.0	1.50	100	1.42	95	3	375	250	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.37	68	5	0	1	2	4	5	12	15	J	2.0	cc		1	G	ML
									AND					AND	1.15	47	20	0	5	2	4	6	17	15	J	0.1	cc		1	G	ML
									AND					AND	1.44	35	100	0	4	2	2	3	11	15	J	1.0	cly		1	G	ML
306.0	307.5	1.48	99	1.48	99	2	493	250	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.88	47	30	0	4	2	6	5	17	15	J	0.5			1	VG	ML
									AND					AND	1.23	75	5	0	4	2	4	6	16	15	J	0.5	chl		1	VG	ML
307.5	309.0	1.50	100	1.47	98	4	300	160	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.28	65	5	0	4	2	2	5	13	15	J	0.5	cly		1	VG	ML
									AND					AND	0.31	70	50	0	5	3	4	5	17	15	J	0.1	cc	chl	1	VG	ML
									AND					AND	0.96	57	350	0	4	2	4	6	16	15	J	1.0	chl		1	VG	ML
									AND				Shiny silver infill	AND	1.25	73	335	0	1	1	4	6	12	15	J	2.0			1	VG	ML
309.0	310.5	1.42	95	1.42	95	3	355	250	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.45	64	5	0	4	3	4	6	17	15	J	1.0	cc		1	VG	ML
									AND					AND	0.91	72	315	0	4	2	4	6	16	15	J	1.0	chl		1	VG	ML
									AND					AND	1.22	65	355	0	5	2	4	6	17	15	J	0.1	chl		1	VG	ML
310.5	312.0	1.50	100	1.50	100	3	375	200	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.33	68	355	0	4	2	4	6	16	15	J	0.5	cc		1	P	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.00	60	225	0	4	2	4	6	16	15	J	1.0	cc		1	P	ML
									AND					AND	1.38	64	45	0	4	1	4	6	15	15	J	1.0	cc		1	P	ML
312.0	313.5	1.48	99	1.48	99	5	247	200	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.47	63	245	0	5	1	4	6	16	15	J	0.1	cc		1	G	ML
									AND					AND	0.65	55	260	0	1	2	4	6	13	15	J	3.0	cc		1	G	ML
									AND					AND	0.95	57	15	0	5	2	6	6	19	15	J	0.1			1	G	ML
									AND					AND	1.08	90		0	5	1	6	6	18	15	J	0.1			1	G	ML
									AND					AND	1.38	75	305	0	1	1	2	5	9	15	J	5.0	cly	cc	1	G	ML
313.5	315.0	1.50	100	1.30	87	5	250	140	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.08			0	1	2	4	5	12	15	J	2.0	cc	chl	1	None	ML
									AND					AND	0.21			0	1	2	2	5	10	15	J	3.0	cly		1	None	ML
									AND					AND	0.68			0	5	2	4	6	17	15	J	0.1	cc		1	None	ML
									AND					AND	1.10			0	4	2	2	5	13	15	J	1.0	cly	chl	1	None	ML
									AND					AND	1.43			0	4	1	2	6	13	15	J	1.0	cly	cc	1	None	ML
315.0	316.5	1.45	97	1.20	80	8	161	120	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.02			0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	0.30	67	275	0	4	2	4	6	16	15	J	0.5	cc		1	VG	ML
									AND					AND	0.47			0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	0.56	38	35	0	1	2	4	5	12	15	J	2.0	cc		1	VG	ML
									AND					AND	0.65	55	85	0	5	2	6	6	19	15	J	0.1			1	VG	ML
									AND					AND	0.70	50	35	0	1	2	6	5	14	15	J	2.0			1	VG	ML
									AND					AND	0.97	62	280	0	4	3	4	6	17	15	J	1.0	cc		1	VG	ML
									AND					AND	1.23	67	230	0	4	2	6	6	18	15	J	0.5	cly		1	VG	ML
316.5	318.0	1.50	100	1.41	94	5	250	140	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.08	53	255	0	4	2	2	6	14	15	J	0.5	cly	cc	1	VG	ML
									AND					AND	0.20	60	5	0	1	3	2	5	11	15	J	5.0	cly	cc	1	VG	ML
									AND					AND	0.54	55	0	0	4	1	2	6	13	15	J	0.5	cly		1	VG	ML
									AND					AND	1.03	63	40	0	1	1	2	5	9	15	J	5.0	cc		1	VG	ML
									AND					AND	1.39	75	255	0	4	2	4	6	16	15	J	0.5	cc		1	VG	ML
318.0	318.9	0.85	100	0.62	73	4	170	110	AND	dark grey	equigranular	massive	andesitewith many healed joints & micro fractures	AND	0.34	25	210	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
									AND					AND	0.51			0	4	3	6	6	19	15	J	0.5			1	VG	ML
									AND					AND	0.65	25	300	0	1	2	4	5	12	15	J	5.0	cc		1	VG	ML
									AND					AND	0.85			0	1	2	2	5	10	15	J	5.0	cly		1	None	ML
318.9	319.5	0.65	100	0.43	66	max	5	25	AND	dark grey	equigranular	massive	Rubble zone	AND	0.15			0	1	1	3	5	10	15	F	650.0	Rub		1	None	ML
319.5	321.0	1.50	100	1.16	77	3	375	150	AND	dark grey	equigranular	massive	Competent andesite	AND	0.55	50	10	0	4	1	6	6	17	15	J	0.5			1	F	MGP
									AND					AND	0.90	40	0	0	4	1	2	5	12	15	J	0.5	cc		1	F	MGP
									AND					AND	1.40	5	100	0	1	6	2	5	14	15	J	1.0	cly		1	F	MGP
321.0	322.5	1.47	98	1.47	98	4	294	150	AND	dark grey	equigranular	massive	As above	AND	0.30			0	1	2	2	5	10	15	J	1.0	cc	cly	1	None	MGP
									AND					AND	0.50			0	1	2	2	5	10	15	J	1.0	cc		1	None	MGP
									AND					AND	0.90			0	0	5	0	3	8	15	J	10.0	cly	Rub	1	None	MGP
									AND					AND	1.30	60	100	0	1	1	2	5	9	15	J	1.0	cc		1	F	MGP
322.5	324.0	1.49	99	1.49	99	1	745	175	AND	dark grey	equigranular	massive		AND	1.10	66	0	0	4	2	6	6	18	15	J	0.5			1	P	MGP
324.0	325.5	1.49	99	1.37	91	3	373	175	AND	dark grey	equigranular	massive	Competent andesite	AND	0.45			0	4	2	6	5	17	15	J	0.5			1	None	MGP
									AND					AND	1.00			0	0	5	0	3	8	15	rub	40.0	Rub		1	None	MGP
									AND					AND	1.40	56	220	0	1	3	2	5	11	15	J	1.0	cc		1	F	MGP
325.5	327.0	1.50	100	1.08	72	7	188	175	AND	dark grey	equigranular	massive	As above, more infill	AND	0.15	62	220	0	1	3	2	5	11	15	J	1.0	cc		1	P	MGP
									AND					AND	0.20	80	320	0	1	2	2	5	10	15	J	1.0	cc		1	P	MGP
									AND					AND	0.40	51	250	0	0	1	0	5	6	15	J	5.0	cc		1	P	MGP
									AND					AND	0.50	42	90	0	1	3	2	5	11	15	J	2.0	cc	Rub	1	P	MGP
									AND					AND	0.55	81	250	0	1	3	2	5	11	15	J	1.5	cc		1	P	MGP
									AND					AND	1.40	75	190	0	4	2	6	5	17	15	J	0.5			1	P	MGP
									AND					AND	1.50	75	250	0	4	2	6	5	17	15	J	0.5			1	P	MGP
327.0	328.5	1.45	97	1.29	86	4	290	200	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.20	58	0	0	4	2	6	6	18	15	J	0.5			1	VG	MGP
									AND					AND	0.50	60	230	0	4	2	2	6	14	15	J	0.5	cc		1	VG	MGP
									AND					AND	0.90	52	210	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
									AND					AND	1.40	74	290	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
328.5	330.0	1.50	100	1.15	77	5	250	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.20	22	150	0	0	3	2	3	8	15	J	5.0	cly	gg	1	VG	MGP
									AND					AND	0.80	43	150	0	1	2	2	3	8	15	J	1.0	cly		1	VG	MGP
									AND					AND	1.00	69	270	0	1	2	6	5	14	15	J	1.0			1	VG	MGP
									AND					AND	1.10	41	70	0	1	1	6	5	13	15	J	1.0			1	VG	MGP
									AND					AND	1.40	26	70	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
330.0	331.5	1.47	98	1.33	89	4	294	200	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.05	36	35	0	1	3	2	5	11	15	J	1.0	cly		1	G	MGP
									AND					AND	0.30	54	290	0	4	1	6	6	17	15	J	0.5			1	G	MGP
									AND					AND	0.45	34	280	0	4	2	2	6	14	15	J	0.5	cc		1	G	MGP
									AND					AND	1.05	69	20	0	4	1	2	5	12	15	J	0.5	cc		1	G	MGP
331.5	333.0	1.50	100	1.50	100	2	500	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.30	71	30	0	4	1	6	5	16	15	J	0.5			1	P	MGP
									AND					AND	0.60	17	0	0	1	3	2	3	9	15	J	2.0	cc		1	P	MGP
333.0	334.5	1.41	94	1.35	90	5	235	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.30	49	330	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.60	70	280	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
									AND					AND	1.00	68	320	0	4	2	6	6	18	15	J	0.5			1	VG	MGP
									AND					AND	1.20	64	320	0	1	2	2	5	10	15	J	2.0	cc		1	VG	MGP
									AND					AND	1.40	65	10	0	1	3	6	5	15	15	J	1.0			1	VG	MGP
334.5	336.0	1.50	100	1.50	100	3	375	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.10	60	230	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	1.05	56	230	0	1	2	6	6	15	15	J	1.0			1	VG	MGP
									AND					AND	1.30	79	280	0	1	2	2	5	10	15	J	1.0	cly		1	VG	MGP
336.0	337.5	1.46	97	1.38	92	2	487	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.90	36	70	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.95	70	300	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
337.5	339.0	1.50	100	1.32	88	6	214	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.05	50	330	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	0.60	21	100	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	1.10	78	30	0	4	2	6	6	18	15	J	0.5			1	VG	MGP
									AND					AND	1.30	82	320	0	4	3	6	6	19	15	J	0.5			1	VG	MGP
									AND					AND	1.40	75	100	0	4	3	6	6	19	15	J	0.5			1	VG	ML
									AND					AND	1.45	74	270	0	4	5	6	6	21	15	J	0.5			1	VG	ML
339.0	340.5	1.42	95	1.42	95	2	473	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.45	78	260	0	1	1	2	5	9	15	J	1.0	cly		1	VG	ML
									AND					AND	1.10	31	130	0	1	3	6	6	16	15	J	1.0			1	VG	ML
340.5	342.0	1.50	100	1.50	100	3	375	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.30	70	0	0	0	3	0	1	4	15	J	12.0	cly		1	VG	ML
									AND					AND	0.75	60	50	0	1	3	6	6	16	15	J	1.0			1	VG	ML
									AND					AND	1.45	32	110	0	1	2	2	5	10	15	J	1.0	cc		1	VG	ML
342.0	343.5	1.49	99	1.49	99	3	373	175	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.10	52	330	0	1	1	2	5	9	15	J	1.0	cc		1	VG	ML
									AND					AND	0.90	22	90	0	1	3	6	5	15	15	J	1.0			1	VG	ML
									AND					AND	1.10	18	30	0	1	5	6	5	17	15	J	1.0			1	VG	ML
343.5	345.0	1.50	100	1.17	78	10	136	160	AND	dark grey	equigranular	massive	As above, slightly weathered Andesite	AND	0.44	80	5	0	4	2	4	6	16	15	J	0.5	cc		1	VG	ML
									AND					AND	0.70	87	110	0	4	2	4	6	16	15	J	1.0	cc		1	VG	ML
									AND					AND	0.95	68	275	0	4	1	6	6	17	15	J	1.0			1	VG	ML
									AND					AND	1.00	62	130	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	ML
									AND					AND	1.15			0	4	1	4	5	14	15	J	0.5	cc		1	VG	ML
									AND					AND	1.15	35	345	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
									AND					AND	1.26	82	100	0	4	2	4	6	16	15	J	0.5	cc		1	VG	ML
									AND					AND	1.32	58	305	0	4	1	4	5	14	15	J	1.0	cc		1	VG	ML
									AND					AND	1.39	24	90	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
									AND					AND	1.52	86	110	0	5	2	6	5	18	15	J	0.1	cc		1	VG	ML
345.0	346.5	1.36	91	1.28	85	4	272	160	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.36			0	4	2	4	5	15	15	J	1.0	cc		3	None	ML
									AND					AND	0.92			0	1	1	4	5	11	15	rub	5.0	cc	Rub	1	None	ML
346.5	348.0	1.50	100	1.30	87	4	300	160	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.15	55	120	0	5	2	4	5	16	15	J	0.1	cc		1	G	ML
									AND					AND	0.34	62	60	0	4	1	2	5	12	15	J	1.0	cly		1	G	ML
									AND					AND	0.42	73	230	0	1	1	2	5	9	15	J	3.0	cly		1	G	ML
									AND					AND	1.45	68	10	0	4	3	6	6	19	15	J	1.0			1	G	ML
348.0	348.9	0.85	100	0.85	100	1	425	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.27	58	55	0	5	2	4	5	16	15	J	0.1	cc		1	VG	ML
348.9	349.0	0.15	100	0.00	0	max	5	25	AND	dark grey	equigranular	massive	intact, but can be broken by hands	AND	0.00			0	4	1	2	3	10	15	J	150.0	cly	Rub	1	None	ML
349.0	349.5	0.48	96	0.48	96	1	240	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.31	61	95	0	4	2	4	5	15	15	J	0.5	cc		1	F	ML
349.5	350.3	0.84	100	0.84	100	1	420	110	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.48	42	325	0	1	2	2	5	10	15	J	5.0	cly	cc	1	VG	ML
350.3	350.6	0.24	100	0.00	0	max	5	50	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	1	1	2	5	9	15	J	240.0	cc	Rub	1	None	ML
350.6	351.0	0.38	100	0.24	63	4	76	75	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.13			0	4	2	2	5	13	15	J	1.0	cly		4	None	ML
351.0	351.0	0.04	100	0.00	0	max	5	50	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	1	1	2	3	7	15	J	40.0	Rub	cly	1	None	ML
351.0	352.5	1.42	95	1.24	83	6	203	160	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.51			0	4	2	4	5	15	15	J	1.0	cc		6	None	ML
352.5	354.0	1.50	100	1.40	93	6	214	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.21	49	250	0	4	2	4	5	15	15	J	0.5	chl		1	VG	ML
									AND					AND	0.54	46	155	0	1	2	3	3	9	15	J	15.0	Rub		1	VG	ML
									AND					AND	0.67	54	115	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
									AND					AND	1.22	28	40	0	1	2	2	5	10	15	J	2.0	cly		1	VG	ML
									AND					AND	1.29	65	110	0	4	2	6	5	17	15	J	1.0			1	VG	ML
									AND					AND	1.39	58	110	0	4	1	2	5	12	15	J	1.0	cly		1	VG	ML
354.0	355.5	1.40	93	1.34	89	4	280	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.06	73	70	0	4	3	6	6	19	15	J	1.0			1	VG	ML
									AND					AND	0.50	86	115	0	4	2	4	5	15	15	J	1.0	chl		1	VG	ML
									AND					AND	1.05	73	140	0	4	3	4	5	16	15	J	0.5	cc		1	VG	ML
									AND					AND	1.27	53	10	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
355.5	357.0	1.50	100	1.47	98	5	250	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.43	18	80	0	4	3	6	6	19	15	J	0.5			1	G	ML
									AND					AND	0.82	21	70	0	4	3	6	5	18	15	J	1.0			1	G	ML
									AND					AND	1.01	58	40	0	5	2	2	5	14	15	J	0.1	cly		1	G	ML
									AND					AND	1.06	73	300	0	4	2	6	6	18	15	J	0.5			1	G	ML
									AND					AND	1.38	70	110	0	4	1	2	5	12	15	J	0.5	cly		1	G	ML
357.0	358.1	1.13	100	1.06	94	2	377	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.07	60	105	0	4	2	6	5	17	15	J	1.0			1	VG	ML
									AND					AND	0.97	53	45	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
358.1	358.5	0.35	95	0.35	95	2	117	200	AND				Part of the core is hallow with crystal infill	AND	0.00			0	0	3	4	5	12	15	J	>10			1	F	ML
358.5	359.7	1.18	100	1.09	92	5	197	160	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.17	48	330	0	4	3	4	5	16	15	J	1.0	cc		1	F	ML
									AND					AND	0.25	46	195	0	5	2	4	5	16	15	J	0.1	chl		1	VG	ML
									AND					AND	0.54	69	145	0	4	2	2	5	13	15	J	1.0	cly	cc	1	VG	ML
									AND					AND	0.84	42	340	0	4	2	2	5	13	15	J	0.5	cly	cc	1	VG	ML
									AND					AND	0.91	35	290	0	4	2	4	5	15	15	J	0.5	cc		1	VG	ML
									AND					AND	1.18	53	280	0	4	2	2	5	13	15	J	1.0	cly		1	VG	ML
359.7	360.0	0.32	100	0.20	63	max	5	50	AND	dark grey	equigranular	massive	Rubble zone	AND	0.00			0	1	1	3	5	10	15	J	5.0	Rub		1	F	ML
360.0	361.5	1.48	99	1.48	99	3	370	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.31			0	4	1	2	5	12	15	J	0.5	cly		1	F	ML
									AND					AND	1.10			0	4	2	2	6	14	15	J	1.0	cly		1	F	ML
									AND					AND	1.35			0	5	3	6	6	20	15	J	0.1			1	F	ML
361.5	363.0	1.50	100	1.50	100	1	750	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	1.12	27	180	0	4	3	6	6	19	15	J	1.0			1	P	ML
363.0	364.5	1.48	99	1.48	99	3	370	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.50	40	115	0	5	3	6	6	20	15	J	0.1			1	VG	ML
									AND					AND	0.97	60	315	0	4	2	6	6	18	15	J	0.5			1	VG	ML
									AND					AND	1.11	46	200	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
364.5	366.0	1.50	100	1.47	98	5	250	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.13	60	265	0	4	2	4	5	15	15	J	0.5	cc		1	G	ML
									AND					AND	0.63	79	20	0	4	2	6	6	18	15	J	0.5			1	G	ML
									AND					AND	1.00	68	245	0	4	2	6	6	18	15	J	1.0			1	G	ML
									AND					AND	1.23	50	325	0	4	1	4	5	14	15	J	1.0	cc		1	G	ML
									AND					AND	1.47	50	235	0	4	2	4	5	15	15	J	0.5	cc		1	G	ML
366.0	367.5	1.40	93	1.40	93	3	350	200	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.35	54	355	0	4	1	6	6	17	15	J	0.5			1	VG	ML
									AND					AND	0.70	67	95	0	4	1	2	5	12	15	J	0.5	cly		1	VG	ML
									AND					AND	1.27	73	10	0	4	2	4	5	15	15	J	1.0	cc		1	VG	ML
367.5	369.0	1.50	100	1.50	100	4	300	200	AND	dark grey	equigranular	massive	Slightly weathered andesite	AND	0.30	21	220	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.50	55	110	0	1	3	2	5	11	15	J	1.0	cly		1	VG	MGP
									AND					AND	0.70	10	190	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.80	36	190	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
369.0	370.5	1.49	99	1.38	92	4	298	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.40	37	250	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.50	30	80	0	1	5	2	5	13	15	J	1.0	cc		1	VG	MGP
									AND					AND	1.20	64	230	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.40	63	310	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGP
370.5	372.0	1.50	100	1.28	85	6	214	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.30	62	320	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.40	61	310	0	1	3	2	5	11	15	J	2.0	cc		1	VG	MGP
									AND					AND	0.70	81	90	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
									AND					AND	1.10	70	90	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.30	48	90	0	1	2	2	5	10	15	J	1.5	cc		1	VG	MGP
									AND					AND	1.50	35	80	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
372.0	373.5	1.45	97	1.45	97	2	483	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.60	71	240	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
									AND					AND	1.10	31	110	0	4	3	2	5	14	15	J	0.5	cly		1	VG	MGP
373.5	375.0	1.50	100	0.96	64	6	214	150	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.40	20	80	0	1	3	2	5	11	15	J	1.0	cc		1	VG	MGP
									AND					AND	0.85	41	90	0	1	2	2	5	10	15	J	1.0	cc	cly	1	VG	MGP
									AND					AND	1.10	54	90	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.25	20	100	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.35	38	110	0	1	2	2	5	10	15	J	2.0	cc		1	VG	MGP
									AND					AND	1.45	55	110	0	1	2	2	5	10	15	J	1.0	cc		1	VG	MGP
375.0	376.5	1.43	95	1.43	95	2	477	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.40	40	120	0	4	2	2	5	13	15	J	0.5	cly		1	VG	MGP
									AND					AND	1.10	78	340	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
376.5	378.0	1.50	100	1.50	100	3	375	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	0.50	27	320	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGP
									AND					AND	0.80	20	110	0	4	2	6	6	18	15	J	0.5			1	VG	MGP
									AND					AND	1.40	53	70	0	4	2	6	6	18	15	J	0.5			1	VG	MGP
378.0	379.5	1.46	97	1.46	97	1	730	175	AND	dark grey	equigranular	massive	Competent andesite slightly weathered	AND	1.20	75	50	0	1	3	2	5	11	15	J	1.0	cly	cc	1	VG	MGP
379.5	381.0	1.50	100	1.50	100	2	500	175	AND	dark grey	equigranular	massive	As above, gold/pyrite specks	AND	0.55	50	150	0	4	3	6	6	19	15	J	0.5			1	P	MGP

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.05	62	290	0	1	2	6	6	15	15	J	1.0			1	P	MGP
381.0	382.5	1.49	99	1.01	67	5	248	150	AND	light grey	equigranular	massive	As above, some lighter rock, more weathered, calcite veined	AND	0.90	40	260	0	4	3	6	6	19	15	J	0.5			1	P	MGP
									AND					AND	1.00	45	260	0	4	3	6	6	19	15	J	0.5			1	P	MGP
									AND					AND	1.10	35	280	0	4	3	6	6	19	15	J	0.5			1	P	MGP
									AND					AND	1.30	50	110	0	1	3	6	6	16	15	J	1.0			1	P	MGP
									AND					AND	1.40	65	220	0	1	2	6	5	14	15	J	1.0	cc		1	P	MGP
382.5	384.0	1.50	100	1.29	86	2	500	175	AND	light grey	equigranular	massive	As above, some lighter rock, more weathered, calcite veined	AND	1.20	80	170	0	4	2	6	5	17	15	J	0.5			1	P	MGP
									AND					AND	1.40	52	230	0	1	2	2	5	10	15	J	1.0	cc		1	P	MGP
384.0	385.5	1.40	93	1.38	92	2	467	175	AND	light grey	equigranular	massive	As above, some lighter rock, more weathered, calcite veined	AND	0.90	54	70	0	4	3	6	5	18	15	J	0.5			1	P	MGP
									AND					AND	1.15	30	140	0	1	3	2	5	11	15	J	1.0	cc		1	P	MGP
385.5	387.0	1.50	100	1.41	94	3	375	175	AND	light grey	equigranular	massive	As above, some lighter rock, more weathered, calcite veined	AND	0.35	60	150	0	0	3	0	3	6	15	J	5.0	cly		1	VG	MGP
									AND					AND	1.30	48	110	0	4	2	6	5	17	15	J	0.5			1	VG	MGP
									AND					AND	1.40	51	290	0	4	1	6	5	16	15	J	0.5			1	VG	MGP
387.0	388.5	1.46	97	1.46	97	1	730	175	AND	light grey	equigranular	massive	As above, some lighter rock, more weathered, calcite veined	AND	0.50	45	330	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGP
388.5	390.0	1.50	100	1.44	96	2	500	175	AND	light grey	equigranular	massive	As above, some lighter rock, more weathered, calcite veined	AND	0.10	64	270	0	4	1	6	6	17	15	J	0.1			1	VG	MGP
									AND					AND	1.40	48	110	0	4	1	6	6	17	15	J	0.5			1	VG	MGP
390.0	391.5	1.41	94	1.41	94	2	470	200	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.90	37	210	0	4	3	6	6	19	15	J	0.1			1	VG	MGP
									AND					AND	1.30	38	100	0	4	3	6	6	19	15	J	0.1			1	VG	MGP
391.5	393.0	1.50	100	1.45	97	6	214	200	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.05	30	10	0	4	2	2	5	13	15	J	1.0	cly	cc	1	G	ML
									AND					AND	0.25	80	330	0	4	2	6	6	18	15	J	0.5			1	G	ML
									AND					AND	0.58	80	345	0	5	2	6	6	19	15	J	0.1			1	G	ML
									AND					AND	0.87	51	100	0	4	3	4	5	16	15	J	1.0	chl		1	G	ML
									AND					AND	1.10	72	80	0	4	1	6	6	17	15	J	1.0			1	G	ML
									AND					AND	1.38	55	105	0	5	2	2	5	14	15	J	0.1	cly	cc	1	G	ML
393.0	394.5	1.45	97	1.27	85	4	290	200	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.65	37	67	0	4	2	4	5	15	15	J	0.5	cc		1	F	ML
									AND					AND	0.75	86	135	0	4	3	6	6	19	15	J	0.5			1	F	ML
									AND					AND	1.23	63	90	0	5	2	6	6	19	15	J	0.1			1	F	ML
									AND					AND	1.32	62	345	0	4	3	6	6	19	15	J	0.5			1	F	ML
394.5	396.0	1.50	100	1.50	100	3	375	200	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.73	35	45	0	4	2	4	5	15	15	J	1.0	cc		1	F	ML
									AND					AND	1.08	25	20	0	1	1	2	5	9	15	J	3.0	cly		1	F	ML
									AND					AND	1.29	29	25	0	4	1	2	5	12	15	J	1.0	cly		1	F	ML
396.0	397.5	1.46	97	1.46	97	3	365	160	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.46	52	110	0	4	2	6	6	18	15	J	0.5			1	G	ML
									AND					AND	1.24	45	115	0	0	0	0	3	3	15	J	10.0	cly		1	G	ML
									AND					AND	1.35	18	45	0	4	3	4	5	16	15	J	1.0	cc		1	G	ML
397.5	399.0	1.50	100	1.41	94	4	300	200	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.33	38	120	0	4	2	2	5	13	15	J	1.0	cly	cc	1	F	ML
									AND					AND	0.60	51	50	0	4	3	6	6	19	15	J	0.5			1	F	ML
									AND					AND	0.95	51	120	0	5	2	6	6	19	15	J	0.1			1	F	ML
									AND					AND	1.47	73	95	0	1	2	6	6	15	15	J	2.0			1	F	ML
399.0	400.0	0.92	92	0.92	92	2	307	200	AND	light grey	equigranular	massive	As above, fresh andesite	AND	0.30	66	85	0	4	3	6	6	19	15	J	0.5			1	VG	ML
									AND					AND	0.78	59	70	0	4	2	6	6	18	15	J	0.5			1	VG	ML
EOH																														

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-10

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-10 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	3.0	0.0		0					OB				**OVERBURDEN**	OB																	
3.0	4.5	1.38	92	0.23	15	max	5	25	OB	orange / grey	fine grained	breccia	rubble	OB	0.00									15		1380.0			1	None	SRM
4.5	6.0	1.50	100	0.47	31	max	5	25	VC	orange / grey	fine grained	breccia	rubble with 0.6 metre competent zone at 0.7 metres	VC	0.00			0	0	1	0	3	4	15		1500.0	Rub	cly	1	None	SRM
6.0	7.5	1.50	100	0.61	41	13	107	100	VC	orange / grey	fine grained	breccia	with angular clasts	VC	0.00			0	1	1	2	3	7	15	J	5	cly	ox	13	None	SRM
7.5	9.0	1.50	100	0.58	39	13	107	100	VC	orange / grey	fine grained	breccia	with angular clasts	VC	0.00			0	1	1	2	3	7	15	J	5	cly	ox	13	None	SRM
9.0	10.5	1.50	100	1.39	93	9	150	100	VC	orange / grey	fine grained	breccia	with angular clasts	VC	0.09	50	30	0	4	3	2	3	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.26	54	45	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.33	48	70	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.38	61	230	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.43	56	350	0	0	1	0	3	4	15	J	40.0	cly	ox	1	F	SRM
									VC					VC	0.90	27	325	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.12	73	280	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.58	31	10	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.68	69	120	0	4	5	6	5	20	15	J	1.0		ox	1	F	SRM
10.5	12.0	1.50	100	0.00	0	max	5	5	VC	orange / grey	fine grained	breccia	with angular clasts, multiple fractures with clay infill, can be broken apart by hand from 0.74 m to end	VC	0.00			0	0	1	0	3	4	15	J	1500.0	Rub	ox	1	None	SRM
12.0	12.3	0.30	100	0.00	0	max	5	5	VC	orange / grey	fine grained	breccia	with angular clasts, multiple fractures with clay infill, can be broken apart by hand	VC	0.00			0	0	1	0	3	4	15	J	300.0	Rub	ox	1	None	SRM
12.3	13.5	1.20	100	1.20	100	5	200	50	VC	orange / grey	fine grained	breccia	with angular clasts, yellow/brown clay infill	VC	0.00	30	310	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.11	18	260	0	4	3	2	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.30	56	70	0	1	1	2	5	9	15	J	4.0	cly	ox	1	F	SRM
									VC					VC	0.73	20	60	0	1	1	2	5	9	15	J	3.0	cly	ox	1	F	SRM
									VC					VC	0.97	45	40	0	4	3	2	5	14	15	J	1.0	cly	ox	1	F	SRM
13.5	15.0	1.50	100	1.06	71	12	115	100	VC	orange / grey	fine grained	breccia	with angular clasts, yellow/brown clay infill	VC	0.09	41	10	0	1	1	2	3	7	15	J	3.0	cly	ox	1	P	SRM
									VC					VC	0.10	49	250	0	1	1	2	3	7	15	J	4.0	cly	ox	1	P	SRM
									VC					VC	0.35	21	340	0	1	1	2	3	7	15	J	3.0	cly	ox	1	P	SRM
									VC					VC	0.42	53	130	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.49	27	260	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.55	29	250	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.78	38	285	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.83	39	130	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.96	21	340	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.96	39	250	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	1.20	41	275	0	1	1	2	5	9	15	J	3.0	cly	ox	1	P	SRM
									VC					VC	1.41	46	135	0	4	1	2	5	12	15	J	1.0	cly	ox	1	P	SRM
15.0	16.5	1.50	100	0.99	66	7	188	100	VC	orange / grey	fine grained	breccia	with angular clasts, yellow/brown clay infill	VC	0.10	37	310	0	1	1	2	3	7	15	J	5.0	cly	ox	1	P	SRM
									VC					VC	0.28	59	340	0	4	1	2	3	10	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	0.75	55	160	0	1	1	2	3	7	15	J	3.0	cly	ox	1	P	SRM
									VC					VC	1.14	21	70	0	4	1	2	3	10	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	1.19	35	30	0	4	1	2	3	10	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	1.25	35	325	0	4	1	2	3	10	15	J	1.0	cly	ox	1	P	SRM
									VC					VC	1.37	44	60	0	1	1	2	3	7	15	J	4.0	cly	ox	1	P	SRM
16.5	18.0	1.50	100	1.07	71	9	150	100	VC	orange / grey	fine grained	breccia	with angular clasts, yellow/brown clay infill	VC	0.17	34	180	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.38	40	315	0	1	5	2	5	13	15	J	5.0	cly	ox	1	F	SRM
									VC					VC	0.47	15	0	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.56	60	310	0	4	3	2	5	14	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.74	53	130	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.96	30	320	0	1	1	2	5	9	15	J	4.0	cly	ox	1	F	SRM
									VC					VC	1.13	24	55	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.30	47	330	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.46	50	10	0	4	5	2	5	16	15	J	1.0	cly	ox	1	F	SRM
18.0	19.5	1.50	100	0.43	29	13	107	100	VC	orange / grey	fine grained	breccia	grey, fine grained, with angular clasts, yellow/brown clay infill, highly fractured with multiple healed joints, fell apart while handling,	VC	0.07			0	0	1	0	3	4	15	J	10.0	cly	ox	1	F	SRM
									VC					VC	0.07			0	4	1	2	5	12	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.17			0	0	1	0	3	4	15	J	50.0	cly	ox	1	None	SRM
									VC					VC	0.28			0	4	1	2	5	12	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.54			0	0	1	0	3	4	15	J	60.0	cly	ox	1	None	SRM
									VC					VC	0.68			0	4	1	2	5	12	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.78			0	4	1	2	5	12	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.82			0	4	1	2	5	12	15	J	1.0	cly	ox	1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.82			0	4	1	2	3	10	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	0.99			0	4	1	2	5	12	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	1.08			0	4	1	2	3	10	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	1.14			0	4	1	2	3	10	15	J	1.0	cly	ox	1	None	SRM
									VC					VC	1.14			0	4	1	2	3	10	15	J	1.0	cly	ox	1	None	SRM
19.5	21.0	1.50	100	1.12	75	6	214	25	VC	orange / grey	fine grained	breccia	grey, fine grained, with angular clasts, yellow/brown clay infill	VC	0.15	55	10	0	1	1	2	5	9	15	J	3.0	cly	ox	1	F	SRM
									VC					VC	0.48	44	30	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.60	25	300	0	1	1	2	3	7	15	J	3.0	cly	ox	1	F	SRM
									VC					VC	0.69	50	240	0	1	1	2	3	7	15	J	3.0	cly	ox	1	F	SRM
									VC					VC	1.10	35	350	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.48	57	180	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
21.0	22.5	1.44	96	0.91	61	7	180	25	VC	grey	fine grained	breccia	grey, fine grained, with angular clasts, yellow/brown clay infill	VC	0.23	48	150	0	0	1	0	3	4	15	J	15.0	cly	ox	1	F	SRM
									VC					VC	0.41	55	30	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.57	73	300	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.68	35	280	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.90	24	310	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.12	40	180	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.24	9	30	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
22.5	24.0	1.50	100	1.08	72	7	188	25	VC	grey	fine grained	breccia	grey, fine grained, with angular clasts, yellow/brown clay infill	VC	0.39	50	160	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.59	63	250	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	0.72	35	30	0	1	1	2	5	9	15	J	4.0	cly	ox	1	F	SRM
									VC					VC	1.09	23	300	0	1	1	2	3	7	15	J	3.0	cly	ox	1	F	SRM
									VC					VC	1.16	50	170	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.24	60	15	0	4	1	2	5	12	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.42	50	340	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
									VC					VC	1.47	53	230	0	4	1	2	3	10	15	J	1.0	cly	ox	1	F	SRM
24.0	25.5	1.45	97	1.35	90	max	5	25	VC	pale/cream white	fine grained	breccia	very highly weathered, oxidized	VC	0.80	20	280	0	4	1	0	3	8	15	J	1.0	cly	FeO	1	VG	JBC
									VC					VC	1.00	45	80	0	4	1	2	3	10	15	J	1.0	cly	FeO	1	VG	JBC
									VC					VC	1.30	40	310	0	4	3	2	3	12	15	J	1.0	cly	FeO	1	VG	JBC
25.5	26.5	1.00	100	0.30	30	4	200	25	VC	pale/cream white	fine grained	breccia	very highly weathered, oxidized	VC	0.10	20	200	0	4	1	0	3	8	15	J	1.0	cly	FeO	1	VG	JBC
									VC					VC	0.15	48	110	0	4	1	2	3	10	15	J	1.0	cly	FeO	1	VG	JBC
									VC					VC	0.30	40	300	0	1	3	0	3	7	15	J	5.0	cly	FeO	1	VG	JBC
									VC					VC	0.35	45	100	0	1	1	0	3	5	15	J	5.0	cly	FeO	1	VG	JBC
26.5	27.0	0.50	100	0.00	0	max	5	5	VC	pale/cream white	fine grained	rubble	rubble zone, very highly oxidized, rubble joint at 0m, approx. 1cm thick with clay and rock fragments	VC	0.00	20	160	0	0	1	0	3	4	15	J	10.0	cly	FeO	1	VG	JBC
27.0	28.0	1.00	100	0.00	0	max	5	5	VC	pale/cream white	fine grained	rubble	rubble zone, very highly oxidized, large 2cm gougy/rubble at 0.40m	VC	0.10	60	90	0	1	3	0	3	7	15	J	5.0	cly	FeO	1	VG	JBC
									VC					VC	0.20	30	140	0	4	5	0	3	12	15	J	1.0	cly	FeO	1	VG	JBC
									VC					VC	0.30	25	130	0	0	1	0	3	4	15	J	10.0	cly	FeO	1	VG	JBC
28.0	28.5	0.50	100	0.45	90	3	125	50	VC	grey	fine to medium grained	breccia	grey, intermediate rock, andesite?, not as weathered	VC	0.20	30	320	0	4	1	2	3	10	15	J	1.0	FeO	cc	1	VG	JBC
									VC					VC	0.31	35	170	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	JBC
									VC					VC	0.38	45	180	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	JBC
									VC					VC	0.50	35	180	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	JBC
28.5	30.0	1.50	100	0.85	57	6	214	50	VC	grey	fine to medium grained	breccia	grey, fine to medium grained, weathered and oxidized	VC	0.60	70	140	0	4	1	2	3	10	15	J	1.0	cc	cly	1	VG	JBC
									VC					VC	0.83	65	185	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	JBC
									VC		.			VC	1.06	25	25	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	1.16	15	0	0	1	5	0	3	9	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	1.40	50	130	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	1.41	50	120	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	VG	JBC
30.0	31.5	1.50	100	0.80	53	6	214	50	VC	grey	fine to medium grained	breccia	grey, fine to medium grained, weathered and oxidized, 0.05 m sandy silt/jelly like seam at 30m (drillers cement?)	VC	0.53	50	0	0	4	1	2	3	10	15	J	1.0	FeO		1	F	JBC
									VC					VC	0.62	70	125	0	1	3	0	3	7	15	J	5.0	FeO		1	F	JBC
									VC					VC	0.80	5	230	0	1	5	0	3	9	15	J	5.0	FeO		1	F	JBC
									VC					VC	1.01	40	70	0	0	3	0	3	6	15	J	10.0	FeO		1	F	JBC
									VC					VC	1.29	15	250	0	0	5	0	3	8	15	J	10.0	FeO		1	F	JBC
									VC					VC	1.50	50	180	0	4	1	2	3	10	15	J	5.0	FeO		1	F	JBC
31.5	33.0	1.50	100	1.20	80	3	375	50	VC	grey	fine to medium grained	andesite	grey, fine to medium grained, andesite, weathered	VC	0.00			0	4	1	2	3	10	15	J	1.0	FeO		1	None	JBC
33.0	34.5	1.50	100	0.56	37	6	214	50	VC	dark grey to grey	fine to medium grained	breccia	very highly altered/fractured rock, brecciated	VC	0.20	40	20	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	F	JBC
									VC					VC	0.48	45	200	0	1	3	0	3	7	15	J	5.0	FeO	cly	1	F	JBC
									VC					VC	0.74	60	270	0	1	3	0	3	7	15	J	5.0	FeO	gg	1	F	JBC
									VC					VC	0.76	5	30	0	1	3	0	3	7	15	J	5.0	FeO	Rub	1	F	JBC
									VC					VC	0.91	35	320	0	1	3	0	3	7	15	J	5.0	FeO	Rub	1	F	JBC
									VC					VC	1.19	65	70	0	1	3	0	3	7	15	J	5.0	FeO	cly	1	F	JBC
34.5	36.0	1.50	100	0.73	49	12	115	25	VC	dark grey to grey	fine to medium grained	breccia	highly altered and weathered, weak rock	VC	0.15	40	15	0	1	3	0	5	9	15	J	5.0	FeO		1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.25	45	60	0	1	3	0	5	9	15	J	5.0	FeO		1	VG	JBC
									VC					VC	0.35	55	10	0	1	3	0	5	9	15	J	5.0	cc	Rub	1	VG	JBC
									VC					VC	0.45	30	200	0	1	3	0	5	9	15	J	5.0	cc	Rub	1	VG	JBC
									VC					VC	0.60	30	80	0	1	3	0	5	9	15	J	5.0	FeO		1	VG	JBC
									VC					VC	0.75	35	0	0	0	3	0	5	8	15	J	10.0	cc	Rub	1	VG	JBC
									VC					VC	0.90	30	10	0	0	3	0	5	8	15	J	10.0	FeO		1	VG	JBC
									VC					VC	0.96	32	15	0	0	5	0	5	10	15	J	10.0	FeO		1	VG	JBC
									VC					VC	0.99	45	200	0	1	3	0	5	9	15	J	5.0	FeO		1	VG	JBC
									VC					VC	1.01	60	180	0	0	3	0	5	8	15	J	10.0	FeO		1	VG	JBC
									VC					VC	1.05	35	5	0	0	5	0	5	10	15	J	10.0	FeO		1	VG	JBC
									VC					VC	1.52	40	25	0	0	3	0	5	8	15	J	10.0	FeO		1	VG	JBC
36.0	37.5	1.50	100	0.82	55	4	300	10	VC	dark grey to grey	fine to medium grained	breccia	highly altered and weathered, very weak rock, vuggy texture, 3cm clayey seam at 0.10m	VC	0.10	45	50	0	0	1	0	3	4	15	J	10.0	cc	cly	1	VG	JBC
									VC					VC	0.40	50	270	0	0	1	0	3	4	15	J	10.0	cc	cly	1	VG	JBC
									VC					VC	1.04	40	280	0	0	1	0	3	4	15	J	10.0	FeO	cc	1	VG	JBC
									VC					VC	1.30	70	290	0	0	1	0	3	4	15	J	10.0	cc	cly	1	VG	JBC
37.5	39.0	1.50	100	1.30	87	1	750	25	VC	dark grey to grey	fine to medium grained	breccia	dark grey to grey, highly altered and fractured, vuggy texture	VC	0.35	30	180	0	0	4	0	3	7	15	J	10.0	cc	cly	1	VG	JBC
39.0	40.5	1.50	100	1.20	80	4	300	50	VC	dark grey to grey	fine to medium grained	breccia	highly weathered breccia	VC	0.20	60	35	0	1	3	0	3	7	15	J	5.0	FeO		1	VG	JBC
									VC					VC	0.50	90	0	0	4	3	2	3	12	15	J	1.0	FeO		1	VG	JBC
									VC					VC	0.56	65	350	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	VG	JBC
									VC					VC	0.74	55	340	0	4	5	2	3	14	15	J	1.0	FeO	cly	1	VG	JBC
40.5	42.0	1.50	100	0.00	0	max	5	10	VC	dark grey to grey	fine to medium grained	breccia	very easily broken, highly altered and weathered rock, very soft	VC	0.00			0	0	1	0	3	4	15	F	10.0	FeO	Rub	1	F	JBC
42.0	43.5	1.35	90	0.00	0	max	5	5	VC	dark grey to grey	fine to medium grained	breccia	very soft, easily broken, highly altered and weathered rock, can be indented by finger	VC	0.00			0	0	1	0	3	4	15	J	10.0	FeO	Rub	1	F	JBC
43.5	45.0	1.45	97	0.20	13	15	91	5	VC	dark grey to grey	fine to medium grained	breccia	very soft, easily broken, highly altered and weathered rock, can be indented by finger, vuggy texture	VC	0.10	60	140	0	1	3	2	3	9	15	J	5.0	FeO	ox	1	P	JBC
									VC					VC	0.30	55	35	0	0	5	0	3	8	15	J	10.0	FeO	Rub	1	P	JBC
									VC				~2cm rubble zone at 0.45m	VC	0.45	50	250	0	0	3	0	3	6	15	Rub	10.0	FeO	Rub	1	P	JBC
									VC					VC	0.75	50	270	0	0	5	0	3	8	15	J	10.0	FeO	ox	1	P	JBC
									VC					VC	0.97	55	0	0	4	1	2	3	10	15	J	1.0	FeO	ox	1	P	JBC
									VC					VC	0.99	50	30	0	4	1	2	3	10	15	J	1.0	FeO		1	P	JBC
									VC					VC	1.00	55	25	0	4	1	2	3	10	15	J	1.0	FeO		1	P	JBC
									VC				~6cm rubble/gouge zone starts at 1.3m	VC	1.30	45	140	0	0	3	0	3	6	15	Rub	10.0	FeO	Rub	1	P	JBC
									VC					VC	1.40	40	135	0	1	3	0	3	7	15	J	5.0	FeO		1	P	JBC
45.0	46.5	1.43	95	1.00	67	6	204	25	VC	dark grey to grey	fine to medium grained	breccia	very soft, easily broken, highly altered and weathered rock, can be dented by finger, vuggy texture	VC	0.05	50	0	0	4	3	0	3	10	15	J	1.0	FeO	cc	1	G	JBC
									VC					VC	0.30	15	350	0	4	3	0	3	10	15	J	1.0	FeO	cc	1	G	JBC
									VC					VC	0.70	35	10	0	4	3	0	3	10	15	J	1.0	FeO		1	G	JBC
									VC					VC	1.15	60	15	0	1	1	0	3	5	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	1.17	65	20	0	0	1	0	3	4	15	J	10.0	FeO	cly	1	VG	JBC
									VC					VC	1.44	30	40	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	VG	JBC
46.5	48.0	1.50	100	1.29	86	5	250	50	VC	dark grey to grey	fine to medium grained	breccia	highly weathered and fractured, vuggy texture, altered	VC	0.10	10	150	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	0.25	50	145	0	1	3	0	3	7	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	0.60	15	355	0	4	3	2	3	12	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	1.37	45	20	0	4	3	2	3	12	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	1.48	15	0	0	4	5	2	3	14	15	J	1.0	FeO	cly	1	VG	JBC
48.0	49.5	1.50	100	1.29	86	4	300	50	VC	dark grey to grey	fine to medium grained	breccia	highly weathered and fractured, vuggy texture, altered	VC	0.25	45	310	0	1	3	2	3	9	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	0.49	55	250	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	0.95	20	140	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	1.35	50	350	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	VG	JBC
									VC					VC	1.45	50	340	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	VG	JBC
49.5	51.0	1.50	100	0.85	57	max	5	25	VC	dark grey to grey	fine to medium grained	breccia	highly weathered and fractured, vuggy texture, altered, 1 cm gouge seam at 0.40m	VC	0.00			0	0	1	0	3	4	15	J	10.0	FeO	cly	1	F	JBC
51.0	52.5	1.50	100	0.77	51	6	214	50	VC	dark grey to grey	fine to medium grained	breccia	highly weathered and fractured, vuggy texture, altered	VC	0.25	40	170	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	F	JBC
									VC					VC	0.42	40	220	0	1	3	2	3	9	15	J	5.0	FeO		1	F	JBC
									VC					VC	0.82	15	340	0	1	1	0	3	5	15	J	5.0	FeO		1	F	JBC
									VC					VC	1.00	20	330	0	1	3	0	3	7	15	J	5.0	FeO		1	F	JBC
									VC					VC	1.30	30	50	0	0	3	0	3	6	15	J	10.0	FeO	cc	1	F	JBC
									VC					VC	1.47	45	60	0	1	1	0	3	5	15	J	5.0	FeO	cc	1	F	JBC
52.5	54.0	1.50	100	0.65	43	max	5	25	VC	dark grey to grey	fine to medium grained	breccia	highly weathered and fractured, rubble zone at .10m to 0.40m and then 1.30m to 1.40m	VC	0.00			0	0	3	0	3	6	15	J	10.0	FeO	cc	1	None	JBC
54.0	55.5	1.48	99	0.27	18	max	5	15	VC	dark grey to grey	fine to medium grained	breccia	highly weathered and fractured, vuggy texture, altered weakly	VC	0.35	45	270	0	0	1	0	3	4	15	F	10.0	cc	cly	1	F	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
									VC					VC	0.92	15	330	0	0	1	0	3	4	15	J	10.0	cc	cly	1	F	JBC
									VC					VC	1.15	65	220	0	0	1	0	3	4	15	J	10.0	cc	cly	1	F	JBC
55.5	57.0	1.50	100	1.20	80	7	188	75	VC	grey to pale white	fine to medium grained	breccia	brecciated, highly weathered at joints	VC	0.15	60	230	0	4	1	2	3	10	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.30	15	245	0	4	3	2	3	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.49	65	220	0	4	3	2	3	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.61	35	330	0	4	3	0	3	10	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.82	15	20	0	4	3	0	3	10	15	J	1.0	FeO	Rub	1	F	JBC
									VC					VC	1.07	20	355	0	4	1	2	3	10	15	J	1.0	FeO	Rub	1	F	JBC
									VC					VC	1.50	30	275	0	4	3	2	3	12	15	J	1.0	cc	cly	1	F	JBC
57.0	58.5	1.45	97	1.10	73	5	242	75	VC	grey to pale white	fine to medium grained	breccia	brecciated, highly weathered at joints, more weathered than previous run	VC	0.10	15	190	0	4	3	2	3	12	15	J	1.0	cc		1	F	JBC
									VC					VC	0.30	35	330	0	0	5	0	3	8	15	J	1.0	FeO	cly	1	F	JBC
									VC					VC	0.45	65	80	0	0	5	0	3	8	15	J	10.0	FeO	cly	1	F	JBC
									VC					VC	0.70	25	0	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	F	JBC
									VC					VC	1.00	50	110	0	4	3	0	3	10	15	J	10.0	FeO	cly	1	F	JBC
									VC					VC	1.44	25	345	0	1	3	0	3	7	15	J	1.0	FeO	cly	1	F	JBC
58.5	59.6	1.10	100	0.00	0	max	5	25	VC	grey to pale white	fine to medium grained	breccia	brecciated, highly weathered at joints, very broken, almost all pieces are rubble	VC	0.00			0	0	0	0	3	3	15	Rub	1100.0	FeO	Rub	1	None	JBC
59.6	60.0	0.38	95	0.12	30	2	127	50	VC	grey to pale white	fine to medium grained	breccia	brecciated, highly weathered at joints	VC	0.04	35	330	0	4	1	2	3	10	15	J	1.0	FeO		1	F	JBC
									VC					VC	0.29	45	270	0	1	5	0	3	9	15	J	5.0	FeO	cly	1	F	JBC
60.0	61.5	1.50	100	1.30	87	5	250	75	VC	grey to pale white	fine to medium grained	breccia	brecciated, laminated, competent, slightly weathered	VC	0.20	45	180	0	1	3	2	3	9	15	J	5.0	FeO	cly	1	F	JBC
									VC					VC	0.25	65	270	0	1	3	2	3	9	15	J	5.0	FeO	cly	1	F	JBC
									VC					VC	0.35	55	0	0	1	1	2	3	7	15	J	5.0	FeO		1	F	JBC
									VC					VC	0.40	60	355	0	4	1	2	3	10	15	J	10.0	FeO		1	F	JBC
									VC					VC	1.35	15	340	0	1	5	2	3	11	15	J	1.0	FeO	cly	1	F	JBC
61.5	63.0	1.50	100	0.70	47	max	5	25	VC	grey to pale white	fine to medium grained	breccia	highly weathered	VC	0.00			0	0	1	0	3	4	15	J	10.0	FeO	cly	1	None	JBC
63.0	64.5	1.50	100	1.40	93	2	500	50	VC	grey to pale white	fine to medium grained	breccia	highly weathered	VC	0.50	70	300	0	4	1	0	3	8	15	J	1.0	FeO	Rub	1	G	JBC
									VC					VC	0.60	45	70	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	G	JBC
64.5	66.0	1.44	96	1.14	76	max	5	25	VC	grey to pale white	fine to medium grained	breccia	many micro fractured, vuggy textured	VC	0.50	65	340	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	G	JBC
									VC					VC	0.65	75	50	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	G	JBC
									VC					VC	0.72	45	320	0	1	5	0	3	9	15	J	5.0	FeO	cly	1	G	JBC
									VC					VC	1.40	15	315	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	G	JBC
66.0	67.5	1.50	100	0.87	58	6	214	25	VC	grey to pale white	fine to medium grained	breccia	lots of laminated clasts breccia, moderately weathered, 0.05 m gouge seam at 0.85m	VC	0.20	50	180	0	0	3	0	3	6	15	J	10.0	FeO	cly	1	VG	JBC
									VC					VC	0.60	15	220	0	4	1	0	3	8	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	0.72	5	230	0	4	3	0	3	10	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	0.85	45	110	0	1	1	0	3	5	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	1.40	40	95	0	1	1	0	3	5	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	1.41	35	170	0	1	1	0	3	5	15	J	5.0	FeO	cly	1	VG	JBC
67.5	69.0	1.50	100	1.32	88	2	500	75	VC	grey to pale white	fine to medium grained	breccia	felsic breccia, rubble zone at 1.25m (10 cm thick), moderately weathered rock	VC	1.30	15	150	0	0	5	0	3	8	15	F	10.0	Rub	gg	1	VG	JBC
									VC					VC	1.40	50	195	0	4	3	2	3	12	15	J	1.0	FeO	ox	1	VG	JBC
69.0	69.4	0.40	100	0.00	0	max	5	25	VC	light grey	fine grained	breccia	broken zone	VC	0.00			0	4	3	2	3	12	15	J	400.0			1	None	SRM
69.4	70.2	0.50	63	0.00	0	max	5	15	VC	light grey	fine grained	breccia	rubble zone with clay infill	VC	0.00			0	4	3	2	3	12	15	J	500.0			1	None	SRM
70.2	70.5	0.30	100	0.23	77	1	150	75	VC	light grey	fine grained	clastic		VC	0.23			0	4	1	2	5	12	15	J	1.0			1	None	SRM
70.5	72.0	1.50	100	1.29	86	5	250	100	VC	light grey	fine grained	breccia	with some orange staining	VC	0.28			0	4	1	6	5	16	15	J	1.0	cc		1	None	SRM
									VC					VC	0.56			0	4	1	6	5	16	15	J	1.0			1	None	SRM
									VC					VC	0.65			0	4	1	6	5	16	15	J	1.0			1	None	SRM
									VC					VC	1.05			0	4	1	2	5	12	15	J	1.0	FeO	cly	1	None	SRM
									VC					VC	1.36			0	4	1	2	3	10	15	J	1.0	FeO	cly	1	None	SRM
72.0	73.5	1.50	100	0.80	53	11	125	50	VC	light grey	fine grained	breccia	with some orange staining	VC	0.09			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.16			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					VC	0.74			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					VC	0.82			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					VC	0.89			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.08			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.14			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.24			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					VC	1.35			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	1.40			0	4	1	2	5	12	15	J	1.0	cc		1	None	SRM
									VC					VC	1.40			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
									VC					VC	1.46			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
73.5	75.0	1.50	100	1.32	88	8	167	100	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.02	49	190	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	SRM
									VC					VC	0.05	50	85	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	0.31	43	20	0	4	3	2	5	14	15	J	1.0	cc		1	VG	SRM
									VC					VC	0.60	29	150	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	SRM
									VC					VC	0.92	40	90	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	1.11	60	295	0	0	1	0	3	4	15	F	40.0	gg	Rub	1	VG	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.19	64	310	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	1.32	41	250	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	SRM
75.0	76.5	1.44	96	1.19	79	7	180	100	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.45	25	0	0	1	1	2	3	7	15	J	3.0	FeO		1	VG	SRM
									VC					VC	0.45	51	20	0	1	1	2	3	7	15	J	3.0	FeO		1	VG	SRM
									VC					VC	0.50	38	320	0	1	1	2	3	7	15	J	3.0	FeO	cly	1	VG	SRM
									VC					VC	0.53	38	185	0	1	1	2	3	7	15	F	4.0	FeO	cly	1	VG	SRM
									VC					VC	0.70	46	330	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	1.03	34	50	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	1.03	50	265	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	1.19	39	30	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
76.5	78.0	1.47	98	1.47	98	5	245	100	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.00	33	290	0	4	1	2	3	10	15	J	1.0	FeO		1	P	SRM
									VC					VC	0.68	35	300	0	4	1	2	3	10	15	J	1.0	FeO		1	P	SRM
									VC					VC	0.68	56	55	0	4	1	2	3	10	15	J	1.0	FeO		1	P	SRM
									VC					VC	1.05	23	340	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	P	SRM
									VC					VC	1.16	75	200	0	4	1	2	3	10	15	J	1.0	FeO		1	P	SRM
78.0	79.5	1.49	99	1.41	94	3	373	100	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.33	54	10	0	1	1	2	3	7	15	J	4.0	FeO	cly	1	P	SRM
									VC					VC	0.35	32	120	0	1	1	2	3	7	15	J	3.0	FeO		1	P	SRM
									VC					VC	1.26	27	30	0	4	1	2	3	10	15	J	1.0	FeO		1	P	SRM
79.5	81.0	1.48	99	1.48	99	6	211	100	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.00			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.33			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.46			0	4	1	2	3	10	15	J	1.0	FeO	cly	1	None	SRM
									VC					VC	0.60			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	1.25			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	1.42			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
81.0	82.5	1.47	98	1.10	73	11	123	100	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.00			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.16			0	4	1	2	3	10	15	J	1.0			1	None	SRM
									VC					VC	0.30			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.63			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
									VC					VC	0.63			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
									VC					VC	0.63			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
									VC					VC	0.69			0	4	1	2	3	10	15	J	1.0	cc		1	None	SRM
									VC					VC	0.80			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.95			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	1.02			0	1	1	2	3	7	15	J	3.0	cly	Feo	1	None	SRM
									VC					VC	1.25			0	4	3	2	3	12	15	J	1.0			1	None	SRM
									VC					VC	1.41			0	1	1	2	3	7	15	J	3.0			1	None	SRM
82.5	84.0	1.50	100	1.39	93	7	188	50	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.04			0	0	1	2	3	6	15	J	8.0	FeO		1	None	SRM
									VC					VC	0.14			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	0.38			0	4	1	6	3	14	15	J	1.0			1	None	SRM
									VC					VC	0.75			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	1.17			0	4	1	2	5	12	15	J	1.0	FeO	cly	1	None	SRM
									VC					VC	1.25			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	1.43			0	0	1	0	3	4	15	J	10.0	cly	Rub	1	None	SRM
84.0	85.5	1.49	99	1.13	75	5	248	50	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	0.39	26	60	0	1	1	2	5	9	15	J	3.0	cly		1	F	SRM
									VC					VC	0.63	20	200	0	1	1	0	5	7	15	J	3.0	cly	gg	1	F	SRM
									VC					VC	0.87	43	50	0	0	1	2	3	6	15	J	50.0	cly		1	F	SRM
									VC					VC	1.11	51	310	0	4	1	0	5	10	15	J	1.0	cly	gg	1	F	SRM
									VC					VC	1.35	38	340	0	0	1	0	3	4	15	J	20.0	cly	Rub	1	F	SRM
									VC					VC	1.59	60	240	0	0	1	2	3	6	15	J	60.0	cly		1	F	SRM
85.5	87.0	1.50	100	0.94	63	8	167	125	VC	light grey	fine grained	breccia	with some orange staining on competent rock	VC	1.83	30	0	0	4	3	2	5	14	15	J	1.0	FeO		1	F	SRM
									VC					VC	2.07	50	0	0	0	1	0	3	4	15	J	80.0	gg	Rub	1	F	SRM
									VC					VC	2.31	54	120	0	4	1	2	5	12	15	J	1.0	FeO		1	F	SRM
									VC					VC	2.55	65	210	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	F	SRM
									VC					VC	2.79	53	50	0	4	1	2	5	12	15	J	1.0	FeO		1	F	SRM
									VC					VC	3.03	27	320	0	4	1	2	5	12	15	J	1.0	FeO	cly	1	F	SRM
									VC					VC	3.27	28	20	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	F	SRM
									VC				End fell apart while handling could not get alpha and beta	VC	3.51			0	4	1	2	3	10	15	J	1.0	FeO	cly	1	F	SRM
87.0	88.5	1.47	98	1.14	76	5	245	25	VC	light grey	fine grained	breccia	with some yellow staining on competent rock	VC	3.75	24	330	0	4	1	2	3	10	15	J	4.0	cly		1	VG	SRM
									VC					VC	3.99	50	300	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	4.23	52	300	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	4.47	24	250	0	4	1	2	3	10	15	J	1.0	cly		1	VG	SRM
									VC					VC	4.71	52	280	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
88.5	90.0	1.50	100	1.35	90	8	167	75	VC	light grey	fine grained	breccia	with some yellow staining on competent rock	VC	4.95	50	100	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	5.19	47	190	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	SRM
									VC					VC	5.43	58	90	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	5.67	35	180	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	5.91	55	320	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	6.15	40	130	0	4	1	2	5	12	15	J	1.0	FeO		1	VG	SRM
									VC					VC	6.39	25	260	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	6.63	57	210	0	1	3	2	3	9	15	J	4.0	FeO		1	VG	SRM
90.0	91.3	1.27	100	0.71	56	8	141	75	VC	light grey	fine grained	breccia	with some yellow staining on competent rock	VC	6.87			0	4	1	2	5	12	15	J	1.0	FeO		1	None	SRM
									VC					VC	7.11			0	0	1	2	3	6	15	J	10.0	Rub	Feo	1	None	SRM
									VC					VC	7.35			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	7.59			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	7.83			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	8.07			0	4	1	2	3	10	15	J	1.0	FeO		1	None	SRM
									VC					VC	8.31			0	0	1	0	3	4	15	J	15.0	cly	gg	1	None	SRM
									VC					VC	8.55			0	4	1	2	3	10	15	J	1.0	gg		1	None	SRM
91.3	91.5	0.23	100	0.00	0	max	5	25	VC	light grey	fine grained	breccia	Rubble	VC	0.00			0	0	1	0	3	4	15	J	230.0	Rub	cly	1	None	SRM
91.5	93.0	1.50	100	1.36	91	7	188	50	VC	light grey	fine grained	breccia	with some yellow staining on competent rock	VC	0.39	55	70	0	4	3	6	3	16	15	J	1.0	FeO		1	F	SRM
									VC					VC	1.39	54	70	0	4	1	2	5	12	15	J	1.0	FeO		1	F	SRM
									VC					VC	2.39	30	180	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	F	SRM
									VC					VC	3.39	44	0	0	4	1	2	3	10	15	J	1.0	FeO		1	F	SRM
									VC					VC	4.39	44	330	0	4	1	2	5	12	15	J	1.0	FeO		1	F	SRM
									VC					VC	5.39	62	220	0	4	1	2	3	10	15	J	1.0	FeO	cly	1	F	SRM
									VC					VC	6.39	43	25	0	4	1	2	3	10	15	J	1.0	FeO		1	F	SRM
93.0	94.5	1.50	100	1.42	95	8	167	50	VC	light grey	fine grained	breccia	with some yellow staining on competent rock	VC	7.39	70	50	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	8.39	70	270	0	4	1	2	3	10	15	J	1.0	FeO		1	VG	SRM
									VC					VC	9.39	30	140	0	1	1	2	5	9	15	J	4.0	FeO	cly	1	VG	SRM
									VC					VC	10.39	69	100	0	4	1	2	3	10	15	J	4.0	FeO		1	VG	SRM
									VC					VC	11.39	35	190	0	4	1	2	3	10	15	J	4.0	FeO		1	VG	SRM
									VC					VC	12.39	30	65	0	4	1	2	3	10	15	J	4.0	FeO		1	VG	SRM
									VC					VC	13.39	73	310	0	4	1	6	5	16	15	J	4.0	FeO		1	VG	SRM
									VC					VC	14.39	20	65	0	0	1	0	3	4	15	J	60.0	Rub	cly	1	VG	SRM
94.5	96.0	1.06	71	0.00	0	max	5	15	VC	light grey / orange	fine grained	breccia	Rubble/fault Blocked run	VC	15.39			0	0	1	0	3	4	15	J	1060.0	Rub	cly	1	None	SRM
96.0	97.5	1.10	73	0.00	0	max	5	15	VC	light grey / orange	fine grained	breccia	Rubble/fault Blocked run	VC	16.39			0	0	1	0	3	4	15	J	1100.0	Rub	cly	1	None	SRM
97.5	99.0	1.20	80	0.00	0	max	5	15	VC	light grey / orange	fine grained	breccia	Rubble/fault Blocked run	VC	17.39			0	0	5	0	3	8	15	F	1200.0	Rub	cly	1	None	JBC
99.0	100.5	1.07	71	0.00	0	max	5	15	VC	light grey / orange	fine grained	breccia	Rubble/fault Blocked run	VC	18.39			0	0	5	0	3	8	15	F	1070.0	Rub	cly	1	None	JBC
100.5	102.0	1.50	100	0.50	33	max	5	15	VC	light grey / orange	fine grained	breccia	Highly weathered zone	VC	19.39	45	90	0	4	1	2	3	10	15	J	1.0	cly	Feo	1	F	JBC
									VC					VC	20.39	50	255	0	1	1	2	3	7	15	J	5.0	cly	Feo	1	F	JBC
									VC					VC	21.39	60	80	0	1	3	0	3	7	15	J	5.0	cly	Feo	1	F	JBC
									VC					VC	22.39	15	0	0	1	3	0	3	7	15	J	5.0	cly	Feo	1	F	JBC
									VC					VC	23.39	55	270	0	0	3	0	3	6	15	J	5.0	cly	Feo	1	F	JBC
									VC					VC	24.39	65	195	0	4	3	2	3	12	15	J	10.0	cly	Feo	1	F	JBC
									VC					VC	25.39	20	220	0	4	3	2	3	12	15	J	1.0	cly	Feo	1	F	JBC
102.0	103.5	0.45	30	0.00	0	max	5	15	VC	light grey	fine grained	breccia	low recovery, lots of micro fractures	VC	26.39			0	0	1	0	3	4	15	F	10.0	cly	Feo	1	F	JBC
103.5	104.5	1.00	100	0.00	0	max	5	5	VC	light grey	fine grained	breccia	highly weathered, very soft, easily indented by finger, Blocked run	VC	27.39			0	0	1	0	3	4	15	F	10.0	gg	Feo	1	None	JBC
104.5	105.0	0.27	54	0.20	40	1	135	75	VC	light grey	fine grained	breccia	more competent run	VC	28.39	20	240	0	0	1	2	3	6	15	J	1.0	cc		1	VG	JBC
105.0	106.5	1.50	100	1.32	88	3	375	125	VC	light grey	fine grained	breccia	more competent run	VC	29.39	60	290	0	4	3	2	5	14	15	J	1.0	cc		1	VG	JBC
									VC					VC	30.39	10	150	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	31.39	70	140	0	4	1	2	5	12	15	J	0.1	cly		1	VG	JBC
106.5	108.0	1.50	100	1.30	87	4	300	125	VC	light grey	fine grained	breccia	with green clasts	VC	32.39	52	100	0	6	1	2	5	14	15	J	1.0	chl	cly	1	VG	JBC
									VC					VC	33.39	70	160	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	34.39	5	210	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	35.39	5	200	0	4	3	2	5	14	15	J	1.0	cly	ser	1	VG	JBC
108.0	109.5	1.50	100	0.79	53	6	214	100	VC	light grey	fine grained	breccia	with green clasts	VC	36.39	30	300	0	4	1	2	5	12	15	J	5.0	cc	ser	1	VG	JBC
									VC					VC	37.39	45	40	0	1	3	2	5	11	15	J	5.0	cc	ser	1	VG	JBC
									VC					VC	38.39	20	340	0	1	3	2	5	11	15	J	5.0	FeO	cly	1	VG	JBC
									VC					VC	39.39	10	130	0	1	3	2	5	11	15	J	1.0	FeO	cly	1	VG	JBC
									VC					VC	40.39	15	220	0	4	1	2	5	12	15	J	1.0	cly	ser	1	VG	JBC
									VC					VC	41.39	40	160	0	4	1	2	5	12	15	J	5.0	cly	ser	1	VG	JBC
109.5	111.0	1.50	100	0.63	42	4	300	75	VC	light grey	fine grained	breccia	altered sericite, 1 cm gouge at 1.00m	VC	42.39	60	0	0	1	3	2	5	11	15	J	1.0	cc	cly	1	G	JBC
									VC					VC	43.39	5	170	0	4	3	2	5	14	15	J	10.0	cc	cly	1	G	JBC
									VC					VC	44.39	40	10	0	0	3	0	5	8	15	J	1.0	gg	cly	1	G	JBC
									VC					VC	45.39	60	140	0	4	1	2	5	12	15	J	1.0	graph	py	1	G	JBC
111.0	112.5	1.45	97	1.43	95	3	363	75	VC	pale green to grey	fine grained	breccia	very competent, laminated, grey matrix with lots of green clasts	VC	46.39	55	40	0	4	1	2	5	12	15	J	1.0	ser		1	VG	JBC
									VC					VC	47.39	55	225	0	4	1	2	5	12	15	J	1.0	ser		1	VG	JBC
									VC					VC	48.39	65	45	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
112.5	114.0	1.50	100	1.50	100	2	500	125	VC	pale green to grey	fine grained	breccia	very competent, laminated, grey matrix with lots of green clasts	VC	49.39	65	20	0	4	1	2	5	12	15	J	1.0	ser		1	VG	JBC
									VC					VC	50.39	38	15	0	4	1	2	5	12	15	J	1.0	nil		1	VG	JBC
114.0	115.5	1.50	100	1.50	100	0	1500	125	VC	pale green to grey	fine grained	breccia	very competent, laminated, grey matrix with lots of green clasts	VC	51.39			6	6	6	6	6	30	15		0.0			1	VG	JBC
115.5	117.0	1.50	100	1.39	93	3	375	125	VC	pale green to grey	fine grained	breccia	very competent, laminated, grey matrix with lots of green clasts	VC	52.39	45	350	0	4	1	2	5	12	15	J	1.0	ser		1	G	JBC
									VC					VC	53.39	40	10	0	4	1	2	5	12	15	J	1.0	ser	cly	1	G	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	54.39	42	20	0	4	1	2	5	12	15	J	1.0	ser	cly	1	G	JBC
117.0	118.5	1.43	95	1.43	95	1	715	125	VC	pale green to grey	fine grained	breccia	Strongly altered -> silicified and sericitized with angular mafic clasts.	VC	55.39	65	70	0	6	1	6	5	18	15	J	0.1	nil	nil	1	VG	JBC
118.5	120.0	1.50	100	1.37	91	2	500	125	VC	pale green to grey	fine grained	breccia	Very competent, first 1.5 cm is rubble.	VC	56.39	30	140	0	4	1	2	5	12	15	J	1.0	cc		1	VG	JBC
									VC					VC	57.39	30	20	0	4	1	2	5	12	15	J	1.0	nil		1	VG	JBC
120.0	121.5	1.50	100	1.50	100	0	1500	150	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some semi-angular clasts.	VC	0.00			6	6	6	6	6	30	15	J	0.0			1	P	JBC
121.5	123.0	1.50	100	1.50	100	1	750	150	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some semi-angular clasts.	VC	0.40	70	300	0	4	1	6	5	16	15	J	1.0	nil		1	G	JBC
123.0	124.5	1.50	100	1.50	100	0	1500	150	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some semi-angular clasts.	VC	0.00			6	6	6	6	6	30	15	J	0.0			1	F	JBC
124.5	126.0	1.45	97	1.45	97	2	483	175	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some semi-angular clasts.	VC	0.27	50	350	0	4	1	2	5	12	15	J	1.0	cly	ser	1	VG	JBC
									VC					VC	1.01	10	325	0	1	3	0	5	9	15	J	5	ser		1	VG	JBC
126.0	127.5	1.50	100	1.27	85	3	375	175	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some 1cm angular clasts.	VC	1.11	45	350	0	1	3	0	5	9	15	J	5	cly	ser	1	VG	JBC
									VC					VC	1.25	42	345	0	4	1	2	5	12	15	J	1.0	sul	ser	1	VG	JBC
									VC					VC	1.30	48	350	0	1	1	2	5	9	15	J	5	sul	ser	1	VG	JBC
127.5	129.0	1.50	100	1.50	100	2	500	175	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some 1cm angular clasts.	VC	0.35	40	100	0	4	3	2	5	14	15	J	1.0	ser		1	P	JBC
									VC					VC	1.01	68	40	0	1	1	2	5	9	15	J	1.0	cc		1	P	JBC
129.0	130.5	1.50	100	1.50	100	3	375	175	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some 1cm angular clasts.	VC	0.20	40	80	0	4	1	2	5	12	15	J	1.0	sul		1	P	JBC
									VC					VC	0.82	60	15	0	4	1	6	5	16	15	J	1.0	nil		1	P	JBC
									VC					VC	0.98	50	45	0	4	1	6	5	16	15	J	1.0	nil		1	P	JBC
130.5	132.0	1.45	97	1.45	97	1	725	175	VC	pale to light green	fine grained	breccia	Strongly altered silicified and sericitized with some 1cm angular clasts.	VC	0.05	55	75	0	4	1	6	5	16	15	J	0.1	sul		1	G	JBC
132.0	133.5	1.50	100	1.07	71	5	250	175	VC	pale to light green	fine grained	breccia	Felsic tuff	VC	0.40	70	270	0	4	3	0	5	12	15	J	1.0	cly		1	G	JBC
									VC					VC	0.45	45	110	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
									VC					VC	1.00	52	10	0	4	1	2	5	12	15	J	1.0	cly	py	1	G	JBC
									VC					VC	1.10	10	30	0	4	1	2	5	12	15	J	1.0	cly	py	1	G	JBC
									VC					VC	1.33	55	50	0	4	1	1	5	11	15	J	1.0	cly	py	1	G	JBC
133.5	135.0	1.50	100	1.05	70	3	375	150	VC	pale to light green	fine grained	breccia	Felsic tuff	VC	1.30	10	60	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.40	15	140	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.52	10	70	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
135.0	136.5	1.50	100	0.48	32	6	214	125	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized, altered/slightly weathered at joints	VC	0.10	10	25	0	6	3	2	5	16	15	J	0.1	cly	py	1	F	JBC
									VC					VC	0.25	5	30	0	6	3	2	5	16	15	J	0.1	cly	py	1	F	JBC
									VC					VC	0.60	5	30	0	6	3	2	5	16	15	J	0.1	cly	py	1	F	JBC
									VC					VC	0.93	28	110	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	JBC
									VC					VC	1.00	20	15	0	4	3	2	5	14	15	J	1.0	cly	py	1	F	JBC
									VC					VC	1.07	55	60	0	4	1	2	5	12	15	J	1.0	py	sul	1	F	JBC
136.5	138.0	1.50	100	1.50	100	0	1500	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.00			6	6	6	6	6	30	15		0.0			1	F	JBC
138.0	138.7	0.74	100	0.74	100	1	370	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.74	30	210	0	4	1	6	6	17	15	J	1.0			1	F	JBC
138.7	139.5	0.76	100	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken Zone	VC	0.00			0	0	1	0	3	4	15	F	760.0			1	None	JBC
139.5	139.9	0.44	100	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken Zone	VC	0.00			0	0	1	0	3	4	15	F	440.0	cly		1	None	JBC
139.9	140.2	0.30	100	0.30	100	1	150	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.30			0	4	1	2	5	12	15	J	0.1	cly		1	None	JBC
140.2	140.6	0.40	100	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken Zone, some clay infill	VC	0.00			0	0	1	0	3	4	15	F	400.0	cly		1	None	JBC
140.6	141.0	0.36	100	0.00	0	5	60	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.04			0	4	1	6	6	17	15	J	1.0			1	None	JBC
									VC					VC	0.13			0	4	1	6	6	17	15	J	1.0			1	None	JBC
									VC					VC	0.20			0	4	1	6	6	17	15	J	1.0			1	None	JBC
									VC					VC	0.20			0	4	1	6	6	17	15	J	1.0			1	None	JBC
									VC					VC	0.32			0	4	1	6	6	17	15	J	1.0			1	None	JBC
141.0	141.5	0.50	100	0.50	100	3	125	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.00	47	30	0	4	1	2	5	12	15	J	0.1	cly		1	None	SRM
									VC					VC	0.14	46	330	0	0	1	2	5	8	15	J	20.0	Rub		1	None	SRM
									VC					VC	0.50	33	310	0	0	1	2	5	8	15	J	300.0	Rub	cly	1	None	SRM
141.5	141.9	0.36	100	0.00	0	Max	5	100	VC	pale to light green	fine grained	breccia	Broken/ Rubble zone	VC	0.00			0	0	1	0	3	4	15	F	360.0	Rub		1	None	SRM
141.9	142.5	0.64	100	0.28	44	4	128	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.00	27	0	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.34	32	300	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.49	35	330	0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					VC	0.57	33	60	0	4	1	6	6	17	15	J	1.0			1	None	SRM
142.5	144.0	1.50	100	1.50	100	3	375	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.00	41	330	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	0.20	58	125	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	0.40	72	230	0	4	1	6	6	17	15	J	1.0			1	G	SRM
144.0	145.5	1.50	100	1.07	71	6	214	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.17	53	220	0	4	1	6	6	17	15	J	1.0			1	P	SRM
									VC					VC	0.56	70	280	0	4	1	6	6	17	15	J	1.0			1	P	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.91	62	320	0	4	1	6	6	17	15	J	1.0			1	P	SRM
									VC					VC	1.07	17	190	0	0	3	2	5	10	15	J	8.0	Rub		1	P	SRM
									VC					VC	1.15	30	180	0	4	1	2	5	12	15	J	1.0	Rub		1	P	SRM
									VC					VC	1.41	73	210	0	1	3	2	5	11	15	J	3.0	Rub		1	P	SRM
145.5	147.0	1.49	99	1.42	95	3	373	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.43	8	40	0	0	1	2	5	8	15	J	10.0	Rub		1	None	SRM
									VC					VC	0.77	51	315	0	1	1	2	5	9	15	J	4.0	Rub		1	None	SRM
									VC					VC	1.16	48	350	0	1	1	6	6	14	15	J	3.0			1	None	SRM
147.0	148.5	1.50	100	1.50	100	6	214	125	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.17	43	70	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									VC					VC	0.35	70	250	0	4	3	6	6	19	15	J	1.0			1	G	SRM
									VC					VC	0.60	47	335	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	0.85	45	345	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	1.18	42	345	0	4	1	4	5	14	15	J	1.0	py		1	G	SRM
									VC					VC	1.34	57	180	0	4	3	6	6	19	15	J	1.0			1	G	SRM
148.5	150.0	1.50	100	1.43	95	5	250	150	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.65	40	350	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.67	76	230	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.93	54	330	0	4	3	6	6	19	15	J	1.0			1	F	SRM
									VC					VC	1.15	50	315	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	1.40	46	125	0	4	1	4	5	14	15	J	1.0	py		1	F	SRM
150.0	151.1	1.05	100	0.76	72	5	175	100	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.00	76	250	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.06	53	90	0	4	1	4	5	14	15	J	1.0	qtz		1	F	SRM
									VC					VC	0.30	25	130	0	0	3	2	5	10	15	J	20.0	Rub	cly	1	F	SRM
									VC					VC	0.87	53	340	0	4	1	6	5	16	15	J	1.0			1	F	SRM
									VC					VC	1.04	30	150	0	0	1	0	3	4	15	J	250.0	Rub	gg	1	F	SRM
151.1	151.5	0.45	100	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken/ Rubble zone, some clay infill	VC	0.00			0	0	1	0	3	4	15	F	450.0	Rub	cly	1	None	SRM
151.5	151.8	0.30	100	0.14	47	3	75	50	VC	pale to light green	fine grained	breccia		VC	0.00			0	4	1	2	5	12	15	J	1.0	cly		3	None	SRM
151.8	153.0	1.00	83	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken/ Rubble zone, some clay/gouge infill	VC	0.00			0	0	1	0	3	4	15	F	1000.0	Rub	gg	1	None	SRM
153.0	153.6	0.40	67	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Rubble zone	VC	0.00			0	0	1	0	3	4	15	F	400.0	Rub	gg	1	None	SRM
153.6	154.0	0.40	100	0.35	87	1	200	50	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized	VC	0.00			0	1	1	2	5	9	15	J	3.0	cc		1	None	SRM
154.0	154.5	0.40	80	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken zone, some clay infill	VC	0.00			0	0	1	0	3	4	15	F	400.0	Rub	cly	1	None	SRM
154.5	155.2	0.70	100	0.34	49	5	117	50	VC	pale to light green	fine grained	breccia	Tuff silicified and sericitized, highly fractured	VC	0.00			0	4	1	2	5	12	15	J	1.0	cly		5	None	SRM
155.2	156.0	0.80	100	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken/ Rubble zone, some clay infill	VC	0.00			0	0	1	0	3	4	15	F	800.0	Rub	cly	1	None	SRM
156.0	156.3	0.20	67	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Rubble zone	VC	0.00			0	0	1	0	3	4	15	F	200.0	Rub		1	None	SRM
156.3	156.8	0.30	65	0.00	0	Max	5	50	VC	pale to light green	fine grained	breccia	Broken Zone	VC	0.00			0	0	1	0	3	4	15	F	300.0	Rub		1	None	SRM
156.8	157.5	0.74	100	0.45	61	Max	5	50	VC	pale to light green	fine grained	breccia	Highly fractured, multiple healed joints/micro fractures	VC	0.30	26	330	0	1	1	2	5	9	15	J	5.0	cly		1	None	SRM
									VC					VC	0.46	40	0	0	1	1	2	5	9	15	J	4.0	cly		1	None	SRM
									VC					VC	0.59	51	0	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.69	40	10	0	1	1	2	3	7	15	J	5.0	cly		1	None	SRM
157.5	159.0	1.49	99	0.35	23	Max	5	50	VC	pale to light green	fine grained	breccia	Highly fractured/Broken zone with clay infill	VC	0.00			0	0	1	2	3	6	15	F	1490.0	Rub	cly	1	None	SRM
159.0	160.5	1.49	99	0.45	30	8	166	50	VC	pale green to grey	fine grained	breccia	Fractured tuff, slightly weathered at joint	VC	0.20	45	35	0	1	1	3	5	10	15	J	5	py		1	F	JBC
									VC					VC	0.48	70	355	0	0	3	0	5	8	15	F	5.0	Rub		1	F	JBC
									VC					VC	0.53	65	80	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	0.61	45	0	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	0.71	55	0	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	0.95	40	325	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	JBC
									VC					VC	1.20	45	70	0	1	3	2	5	11	15	J	5	cly		1	F	JBC
									VC					VC	1.29	35	60	0	1	3	0	5	9	15	J	5	cly		1	F	JBC
160.5	161.9	1.30	93	0.00	0	6	186	25	VC	pale green to grey	fine grained	breccia	Tuff, lots of micro fractures	VC	0.10	25	330	0	4	3	6	5	18	15	J	1.0	nil		1	F	JBC
									VC					VC	0.53	40	210	0	0	1	0	5	6	15	F	7.0	cly	Rub	1	None	JBC
									VC					VC	0.65	25	210	0	0	1	0	5	6	15	F	7.0	cly	Rub	1	None	JBC
									VC					VC	0.90	40	180	0	0	1	0	5	6	15	F	7.0	cly	Rub	1	None	JBC
									VC					VC	1.05	20	170	0	0	1	0	5	6	15	F	7.0	cly	Rub	1	None	JBC
									VC					VC	1.10	20	180	0	0	1	0	5	6	15	F	7.0	cly	Rub	1	None	JBC
161.9	162.9	0.95	95	0.00	0	Max	5	5	VC	pale green to grey	fine grained	breccia	Highly broken and fractured	VC	0.00			0	0	1	0	5	6	15	F	7.0	cly	Rub	1	None	JBC
162.9	163.5	0.59	98	0.28	47	Max	5	25	VC	pale green to grey	fine grained	breccia	A little more intact than above	VC	0.00	45	100	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.04	60	150	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.11			0	1	3	0	3	7	15	F	480.0	cly	Rub	1	F	JBC
163.5	165.0	1.50	100	0.69	46	5	250	50	VC	pale green to grey	fine grained	breccia	Tuff, slightly fractured, altered, silicified and sericitized. More competent than previous. Lots of disseminated pyrite in the rock.	VC	0.10	55	150	0	0	1	0	5	6	15	J	7.0	chl	Rub	1	P	JBC
									VC					VC	0.52	22	40	0	4	1	2	5	12	15	J	1.0	cc	chl	1	P	JBC
									VC					VC	1.10	15	310	0	4	3	4	5	16	15	J	1.0	py		1	P	JBC
									VC					VC	1.20	30	295	0	1	1	3	5	10	15	J	5	py		1	P	JBC
									VC					VC	1.40	35	60	0	4	3	4	5	16	15	J	1.0	py		1	P	JBC
165.0	166.4	1.08	80	0.00	0	Max	5	5	VC	pale green to grey	fine grained	fault zone	Highly fractured, lots of micro fractures	VC	0.00			0	0	1	0	3	4	15	F	7.0	cly	gg	1	None	JBC
166.4	167.9	0.83	54	0.00	0	Max	5	5	VC	pale green to grey	fine grained	fault zone	Highly fractured, lots of micro fractures	VC	0.00			0	0	1	0	3	4	15	F	7.0	cly	gg	1	None	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
167.9	169.5	0.50	31	0.00	0	Max	5	5	VC	pale green to grey	fine grained	fault zone	Highly fractured, lots of micro fractures	VC	0.00			0	0	1	0	3	4	15	F	7.0	cly	gg	1	None	JBC
169.5	171.0	0.90	60	0.00	0	Max	5	5	VC	Light grey	fine grained	fault zone	Very soft gouge fault material, matrix is clayey, high plastic material with rubble subangular clasts up to 0.5cm	VC	0.00			0	0	1	0	3	4	15	F	7.0	cly	gg	1	None	JBC
171.0	172.5	0.40	27	0.00	0	Max	5	5	VC	Light grey to green	fine grained	fault zone	Very soft gouge rock, clayey to sandy matrix, med plasticity with rubbly angular clasts	VC	0.00			0	0	1	0	3	4	15	F	7.0	cly	gg	1	None	JBC
172.5	174.0	1.07	71	0.00	0	Max	5	25	VC	Light grey to green	fine grained	fault zone	Competent tock at around 173.86m	VC	0.00			0	0	1	0	3	4	15	F	7.0	cly	gg	1	None	JBC
174.0	175.5	1.50	100	1.03	69	7	188	125	VC	pale to light green	fine grained	breccia	Competent tuff, some mafic angular clasts	VC	0.12	20	230	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	JBC
									VC					VC	0.35	40	60	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									VC					VC	0.50	35	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.80	42	15	0	1	1	6	5	13	15	J	5	nil		1	F	JBC
									VC					VC	1.00	28	140	0	4	3	4	5	16	15	J	1.0	py	chl	1	F	JBC
									VC					VC	1.05	52	140	0	4	3	4	5	16	15	J	1.0	py	chl	1	F	JBC
									VC					VC	1.52	30	0	0	4	1	2	5	12	15	J	1.0	py	chl	1	F	JBC
175.5	177.0	1.50	100	0.94	63	5	250	125	VC	pale to light green	fine grained	breccia	Competent tuff, some mafic angular clasts	VC	0.30	80	300	0	4	1	2	5	12	15	J	1.0	chl	ser	1	F	JBC
									VC					VC	0.33	40	360	0	1	3	2	5	11	15	J	5	cly	ser	1	F	JBC
									VC					VC	0.58	45	340	0	1	3	2	5	11	15	J	5	cly	ser	1	F	JBC
									VC					VC	0.71	28	170	0	4	3	2	5	14	15	J	1.0	ser	chl	1	F	JBC
									VC					VC	0.90	48	220	0	4	1	2	5	12	15	J	1.0	ser	chl	1	F	JBC
177.0	178.5	1.46	97	0.94	63	7	183	100	VC	pale grey	fine grained	breccia	Same as above, rock grains are a little coarser and equiangular	VC	0.20	50	180	0	4	1	2	5	12	15	J	1.0	ser	chl	1	VG	JBC
									VC					VC	0.42	60	250	0	4	1	2	5	12	15	J	1.0	ser	chl	1	VG	JBC
									VC					VC	0.53	30	345	0	4	1	2	5	12	15	J	1.0	ser	chl	1	VG	JBC
									VC					VC	0.71	50	190	0	1	1	2	5	9	15	J	5	ser	chl	1	VG	JBC
									VC					VC	1.00	50	190	0	4	1	2	5	12	15	J	1.0	ser	chl	1	VG	JBC
									VC					VC	1.23	50	0	0	1	1	2	5	9	15	J	5	ser	chl	1	VG	JBC
									VC					VC	1.32	55	180	0	1	1	2	5	9	15	J	5	ser	chl	1	VG	JBC
178.5	180.0	1.50	100	0.81	54	10	136	125	VC	pale green	aphanatic to coarse grained texture	breccia	Silicified and sericitized, competent hard to scratch rock	VC	0.20	50	350	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
									VC					VC	0.30	30	355	0	4	1	4	5	14	15	J	1.0	cly	Rub	1	VG	JBC
									VC					VC	0.45	55	120	0	1	3	4	5	13	15	J	5	Rub	cly	1	VG	JBC
									VC					VC	0.71	55	240	0	6	1	2	5	14	15	J	0.1	sul	ser	1	VG	JBC
									VC					VC	0.72	45	250	0	6	1	2	5	14	15	J	0.1	sul	ser	1	VG	JBC
									VC					VC	0.83	45	220	0	6	1	2	5	14	15	J	0.1	sul	ser	1	VG	JBC
									VC					VC	1.00	20	0	0	1	3	3	5	12	15	J	5	Rub	cly	1	VG	JBC
									VC					VC	1.10	40	280	0	4	1	2	5	12	15	J	1.0	cly	ser	1	VG	JBC
									VC					VC	1.40	35	145	0	1	1	2	5	9	15	J	5	cly	ser	1	VG	JBC
									VC					VC	1.41	10	330	0	6	1	2	5	14	15	J	0.1	cly	ser	1	VG	JBC
180.0	181.5	1.50	100	0.32	21	12	115	100	VC	pale green	aphanatic to course grained texture	breccia	Same as above, but more fractured	VC	0.15	10	350	0	4	3	2	5	14	15	J	1.0	cly	ser	1	VG	JBC
									VC					VC	0.27	25	310	0	1	1	0	3	5	15	J	5	cly	ser	1	VG	JBC
									VC					VC	0.30	20	300	0	4	1	0	3	8	15	J	1.0	cly	Rub	1	VG	JBC
									VC					VC	0.40	35	350	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	0.49	35	310	0	4	3	2	5	14	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	0.58	35	180	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	0.66	40	340	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	0.78	50	345	0	4	1	2	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	1.00	30	280	0	1	3	0	5	9	15	J	5	cly	Rub	1	VG	JBC
									VC					VC	1.15	40	30	0	4	3	0	5	12	15	J	1.0	cly	Rub	1	VG	JBC
									VC					VC	1.30	20	0	0	4	3	0	5	12	15	J	1.0	cly	chl	1	VG	JBC
									VC					VC	1.48	30	335	0	4	1	0	5	10	15	J	1.0	cly	chl	1	VG	JBC
181.5	183.0	1.50	100	0.80	53	11	125	100	VC	pale to light green	coarse grained	breccia	Slightly fractured	VC	0.00	40	310	0	6	1	6	5	18	15	J	0.1	nil		1	P	JBC
									VC					VC	0.22	40	290	0	4	3	2	5	14	15	J	1.0	chl	ser	1	P	JBC
									VC					VC	0.35	35	260	0	4	3	2	5	14	15	J	1.0	chl	py	1	P	JBC
									VC					VC	0.40	40	310	0	4	1	2	5	12	15	J	1.0	chl	py	1	P	JBC
									VC					VC	0.50	35	290	0	4	1	2	5	12	15	J	1.0	chl	py	1	P	JBC
									VC					VC	0.80	30	180	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
									VC					VC	0.83	28	300	0	4	1	2	5	12	15	J	1.0	chl	cc	1	P	JBC
									VC					VC	0.91	30	320	0	1	3	0	5	9	15	J	5	cly	cc	1	P	JBC
									VC					VC	1.01	32	200	0	4	3	2	5	14	15	J	1.0	cc	ser	1	P	JBC
									VC					VC	1.05	60	220	0	4	3	6	5	18	15	J	1.0	nil		1	P	JBC
									VC					VC	1.30	20	360	0	4	1	2	5	12	15	J	1.0	cly	ser	1	P	JBC
183.0	184.5	1.50	100	0.75	50	8	167	100	VC	pale to light green	coarse grained	breccia	Slightly fractured	VC	0.05	35	0	0	1	3	0	5	9	15	J	5	Rub		1	F	JBC
									VC					VC	0.15	60	190	0	1	3	2	5	11	15	J	1.0	cc		1	F	JBC
									VC					VC	0.55	30	310	0	4	1	2	5	12	15	J	1.0	cc	ser	1	F	JBC
									VC					VC	0.80	30	320	0	4	1	2	5	12	15	J	1.0	cc	ser	1	F	JBC
									VC					VC	0.86	28	295	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.95	48	310	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	1.20	30	305	0	4	1	2	5	12	15	J	1.0	cly	ser	1	F	JBC
									VC					VC	1.49	50	110	0	4	1	4	5	14	15	J	1.0	nil		1	F	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
184.5	186.0	1.50	100	1.30	87	6	214	125	VC	pale green	Fine grained	breccia	Laminated, sericitized and silica altered, very competent, lots of pale white blocks (0.01m) and disseminated pyrite	VC	0.20	60	130	0	4	1	2	5	12	15	J	1.0	cc	cly	1	P	JBC
									VC					VC	0.25	55	150	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									VC					VC	0.53	42	300	0	4	1	6	5	16	15	J	1.0	nil		1	P	JBC
									VC					VC	0.83	18	295	0	4	3	2	5	14	15	J	1.0	cc	chl	1	P	JBC
									VC					VC	1.15	30	320	0	4	3	2	5	14	15	J	1.0	cc	chl	1	P	JBC
									VC					VC	1.31	55	290	0	4	3	6	5	18	15	J	1.0	nil		1	P	JBC
186.0	187.5	1.50	100	0.44	29	10	136	125	VC	pale green	Fine grained	breccia	Laminated, sericitized and silica altered, very competent, lots of pale white blocks (0.01m) and disseminated pyrite	VC	0.15	20	190	0	4	1	2	5	12	15	J	1.0	cc	ser	1	F	JBC
									VC					VC	0.25	28	340	0	4	1	2	5	12	15	J	1.0	cc	ser	1	F	JBC
									VC					VC	0.32	24	350	0	4	1	2	5	12	15	J	1.0	cc	ser	1	F	JBC
									VC					VC	0.53	18	330	0	4	1	0	5	10	15	J	1.0	cc	chl	1	F	JBC
									VC					VC	0.74	20	0	0	4	1	0	5	10	15	J	1.0	cc	chl	1	F	JBC
									VC					VC	0.90	22	290	0	4	1	2	5	12	15	J	1.0	cc	ser	1	F	JBC
									VC					VC	1.19	12	340	0	1	3	2	5	11	15	J	5	cc	ser	1	F	JBC
									VC					VC	1.30	22	345	0	4	1	2	5	12	15	J	1.0	cly	ser	1	F	JBC
									VC					VC	1.40	28	180	0	4	1	2	5	12	15	J	1.0	cly	chl	1	F	JBC
187.5	189.0	1.50	100	1.16	77	6	214	125	VC	pale green	Fine grained	breccia	Laminated, sericitized and silica altered, very competent, lots of pale white blocks (0.01m) and disseminated pyrite	VC	0.15	40	230	0	1	1	4	5	11	15	J	5	chl	py	1	P	JBC
									VC					VC	0.40	20	30	0	4	1	2	5	12	15	J	1.0	cc	ser	1	P	JBC
									VC					VC	0.44	30	0	0	4	1	2	5	12	15	J	1.0	cc	ser	1	P	JBC
									VC					VC	0.61	25	40	0	4	3	0	5	12	15	J	1.0	cc	Rub	1	P	JBC
									VC					VC	0.69	45	340	0	4	3	0	5	12	15	J	1.0	cc	ser	1	P	JBC
									VC					VC	0.90	35	25	0	4	3	0	5	12	15	J	1.0	cc	ser	1	P	JBC
189.0	190.5	1.50	100	1.26	84	2	500	175	VC	pale to light green	Tuff, fine grained matrix	breccia	Very competent, black clasts (0.5cm), some angular, darker green clasts up to 3 cm.	VC	0.70	70	10	0	4	1	2	5	12	15	J	1.0	cc	ser	1	G	JBC
									VC					VC	0.80	70	355	0	1	3	0	5	9	15	J	5	cc	gg	1	G	JBC
190.5	192.0	1.44	96	0.85	57	8	160	175	VC	pale to light green	Tuff, fine grained matrix	breccia	Very competent, black clasts (0.5cm), some angular, darker green clasts up to 3 cm.	VC	0.05	30	340	0	4	1	2	5	12	15	J	1.0	cc	chl	1	F	JBC
									VC					VC	0.42	40	320	0	1	1	2	5	9	15	J	5	cc	chl	1	F	JBC
									VC					VC	0.60	20	180	0	4	1	2	5	12	15	J	1.0	cc	py	1	F	JBC
									VC					VC	0.62	35	310	0	1	1	2	5	9	15	J	5	cc	py	1	F	JBC
									VC					VC	0.90	25	320	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	1.07	28	330	0	4	3	4	5	16	15	J	1.0	py	cly	1	F	JBC
									VC					VC	1.32	34	125	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	1.42	38	330	0	4	1	2	5	12	15	J	1.0	cc	chl	1	F	JBC
192.0	193.5	1.50	100	1.22	81	3	375	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.21	35	300	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									VC					VC	0.30	30	290	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
									VC					VC	0.77	40	300	0	4	3	4	5	16	15	J	1.0	py		1	F	JBC
193.5	195.0	1.50	100	1.50	100	3	375	100	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.83	71	340	0	1	3	2	5	11	15	J	4.0	Rub		1	P	SRM
									VC					VC	1.07	45	10	0	4	3	2	5	14	15	J	1.0	Rub		1	P	SRM
									VC					VC	1.25	31	10	0	1	3	2	5	11	15	J	4.0	Rub		1	P	SRM
195.0	196.5	1.49	99	1.49	99	1	745	200	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	1.07			0	1	2	2	5	10	15	J	4.0	cly	Rub	1	P	SRM
196.5	198.0	1.50	100	1.35	90	4	300	100	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.28	37	300	0	0	1	0	5	6	15	J	15.0	cly	Rub	1	P	SRM
									VC					VC	0.40	10	340	0	0	1	0	5	6	15	J	15.0	cly	Rub	1	P	SRM
									VC					VC	0.99	45	330	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	P	SRM
									VC					VC	1.25	25	320	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	P	SRM
198.0	199.5	1.46	97	1.20	80	5	243	200	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.40	70	110	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.50	34	30	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.81	15	0	0	4	1	2	5	12	15	J	1.0	cly	Rub	1	None	SRM
									VC					VC	0.81	37	130	0	4	1	2	5	12	15	J	1.0	Rub		1	None	SRM
									VC					VC	1.22	40	130	0	4	1	4	6	15	15	J	1.0			1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
199.5	201.0	1.50	100	1.43	95	4	300	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.50	66	320	0	4	3	4	6	17	15	J	1.0	chl		1	F	SRM
									VC					VC	0.81	36	320	0	4	3	4	6	17	15	J	1.0	chl		1	F	SRM
									VC					VC	1.23	61	20	0	4	3	4	6	17	15	J	1.0	chl		1	F	SRM
									VC					VC	1.48	73	240	0	4	3	4	6	17	15	J	1.0	chl		1	F	SRM
201.0	202.5	1.48	99	1.45	97	2	493	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.85	52	85	0	1	1	4	6	12	15	J	4.0	chl		1	F	SRM
									VC					VC	0.87	79	180	0	1	3	4	6	14	15	J	4.0	chl		1	F	SRM
202.5	204.0	1.50	100	1.39	93	5	250	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.21	50	330	0	4	1	4	6	15	15	J	0.1	chl		1	F	SRM
									VC					VC	0.80	15	0	0	1	1	2	5	9	15	J	5.0	cc		1	F	SRM
									VC					VC	0.90	48	95	0	1	1	2	5	9	15	J	3.0	cc		1	F	SRM
									VC					VC	1.17	45	210	0	1	1	2	5	9	15	J	3.0	cly	Rub	1	F	SRM
									VC					VC	1.46	43	0	0	4	1	4	6	15	15	J	1.0			1	F	SRM
204.0	205.5	1.47	98	1.47	98	2	490	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.58	28	145	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	1.35	26	280	0	4	1	6	6	17	15	J	1.0			1	F	SRM
205.5	207.0	1.50	100	1.50	100	0	1500	200	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.00			0	6	6	6	6	24	15		0.0			1	F	SRM
207.0	208.5	1.41	94	1.05	70	6	201	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.07	36	0	0	0	1	0	5	6	15	J	50.0	cly	Rub	1	F	SRM
									VC					VC	0.16	38	40	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.25	42	45	0	1	1	2	5	9	15	J	4.0	cly		1	F	SRM
									VC					VC	0.34	26	30	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.37	35	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	1.12	38	125	0	4	1	6	5	16	15	J	1.0	cly		1	F	SRM
208.5	210.0	1.50	100	1.27	85	5	250	175	VC	pale green to grey	fine grained	breccia	Lots of different colour and size clasts, pyrite disseminated throughout,, silicified/sericitized alteration	VC	0.10	40	130	0	4	1	6	5	16	15	J	1.0			1	G	SRM
									VC					VC	0.16	15	340	0	4	1	6	5	16	15	J	1.0			1	G	SRM
									VC					VC	0.17	56	10	0	1	1	2	5	9	15	J	4.0	Rub		1	G	SRM
									VC					VC	1.17	25	0	0	0	1	2	5	8	15	J	10.0	cly		1	G	SRM
									VC					VC	1.36	46	0	0	0	3	6	6	15	15	J	15.0			1	G	SRM
210.0	211.5	1.50	100	1.41	94	7	188	200	VC	pale green to grey	fine grained	breccia	Same as above. Change at 0.65m to fine grained laminated dark grey	VC	0.00	45	120	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	0.18	57	30	0	1	3	6	6	16	15	J	3.0			1	G	SRM
									VC					VC	0.41	60	80	0	1	3	6	6	16	15	J	3.0			1	G	SRM
									VC					VC	0.82	54	50	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	1.03	50	120	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	1.14	61	20	0	0	3	2	5	10	15	J	8.0			1	G	SRM
									VC					VC	1.45	70	20	0	0	1	6	6	13	15	J	6.0			1	G	SRM
211.5	213.0	1.50	100	1.24	83	11	125	100	VC	dark grey	fine grained	breccia	Laminated	VC	0.00	69	20	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.20	43	145	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.56	31	250	0	4	1	2	5	12	15	J	1.0	Rub		1	F	SRM
									VC					VC	0.67	5	320	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.83	38	250	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	1.04	50	270	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	1.16	40	280	0	4	3	6	6	19	15	J	1.0			1	F	SRM
									VC					VC	1.25	20	250	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	SRM
									VC					VC	1.32	26	260	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	SRM
									VC					VC	1.35	35	260	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	SRM
									VC					VC	1.39	40	260	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	SRM
213.0	214.5	1.50	100	0.63	42	13	107	50	VC	dark grey	fine grained	breccia	Same as above, highly fractured healed joints, crumbles while handling	VC	0.24	63	280	0	1	1	6	6	14	15	J	5.0			1	F	SRM
									VC					VC	0.28	50	290	0	1	1	2	5	9	15	J	5.0	Rub		1	F	SRM
									VC					VC	0.48	27	100	0	1	1	2	5	9	15	J	5.0	Rub	cly	1	F	SRM
									VC					VC	0.58	18	100	0	1	1	2	5	9	15	J	5.0	Rub	cly	1	F	SRM
									VC					VC	0.68	17	80	0	0	1	0	5	6	15	J	30.0	Rub	cly	1	F	SRM
									VC					VC	0.78	24	140	0	1	1	2	5	9	15	J	5.0	Rub	cly	1	F	SRM
									VC					VC	0.97	15	40	0	1	1	2	5	9	15	J	5.0	Rub	cly	1	F	SRM
									VC					VC	1.14	55	15	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	1.26	40	160	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)								
									VC					VC	1.35	75	180	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	1.38	85	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	1.42	84	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	1.50	10	0	0	0	1	0	5	6	15	J	10.0	Rub	cly	1	F	SRM
214.5	216.0	1.49	99	0.89	59	6	213	75	VC	dark grey	fine grained	breccia	Same as above, become more competent after 0.4 m	VC	0.38	20	320	0	1	1	2	3	7	15	J	5.0	Rub	cly	1	None	SRM
									VC					VC	0.81	48	0	0	4	3	2	5	14	15	J	1.0			1	None	SRM
									VC					VC	0.87	80	140	0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					VC	0.93	53	0	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.27	40	300	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.45	27	335	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
216.0	217.5	1.39	93	0.48	32	4	278	75	VC	pale to light green	fine grained	breccia	Rubbly clay seen at 0.50m	VC	0.50	50	190	0	0	3	0	5	8	15	J	9.0	cly	gg	1	VG	JBC
									VC					VC	0.95	5	0	0	1	3	0	5	9	15	J	5	cly	gg	1	VG	JBC
									VC					VC	1.40	7	0	0	1	3	0	5	9	15	J	5	cly	gg	1	VG	JBC
									VC					VC	1.42	70	355	0	4	3	0	5	12	15	J	1.0	cly	gg	1	VG	JBC
217.5	219.0	1.50	100	0.69	46	5	250	75	VC	pale to light green	fine grained	breccia	Rubbly clay seen at 0.50m	VC	0.40	5	170	0	0	3	0	5	8	15	J	10.0	cly	gg	1	VG	JBC
									VC					VC	0.65	40	100	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	0.96	65	40	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.30	2	340	0	0	3	0	5	8	15	J	10.0	gg	Rub	1	VG	JBC
									VC					VC	1.38	80	350	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
219.0	220.5	1.47	98	0.00	0	6	210	75	VC	pale to light green	fine grained	breccia	More highly jointed joints	VC	0.15	80	355	0	4	1	6	5	16	15	J	1.0	nil		1	F	JBC
									VC					VC	0.30	5	10	0	0	3	0	5	8	15	F	20.0	Rub	cly	1	F	JBC
									VC					VC	0.47	48	80	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									VC					VC	0.91	20	270	0	4	1	2	5	12	15	J	1.0	cly	Rub	1	F	JBC
									VC					VC	1.20	48	120	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	1.35	10	0	0	4	1	4	5	14	15	J	1.0	cly	Rub	1	F	JBC
220.5	222.0	1.48	99	0.80	53	2	493	100	VC	pale to light green	fine grained	breccia	More competent	VC	0.41	15	140	0	0	5	0	5	10	15	F	10.0	Rub	cly	1	G	JBC
									VC					VC	1.44	25	180	0	4	3	2	5	14	15	J	1.0	cly		1	G	JBC
222.0	223.5	1.50	100	0.65	43	9	150	100	VC	pale to light green	fine grained	breccia	More competent	VC	0.05	30	170	0	4	3	2	5	14	15	J	1.0	cc		1	G	JBC
									VC					VC	0.40	28	285	0	1	3	2	5	11	15	F	5	Rub	cly	1	G	JBC
									VC					VC	0.48	10	0	0	4	1	2	5	12	15	F	1.0	Rub	cly	1	G	JBC
									VC					VC	0.61	40	120	0	4	3	2	5	14	15	J	1.0	cly		1	G	JBC
									VC					VC	0.74	68	325	0	4	3	2	5	14	15	J	1.0	cly		1	G	JBC
									VC					VC	0.85	70	25	0	6	3	2	5	16	15	J	0.1	cly		1	G	JBC
									VC					VC	0.95	20	200	0	6	3	2	5	16	15	J	0.1	cly		1	G	JBC
									VC					VC	1.20	48	350	0	0	3	0	5	8	15	F	40.0	Rub		1	G	JBC
									VC					VC	1.31	40	330	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
223.5	225.0	1.50	100	0.76	51	8	167	125	VC	pale to light green	fine grained	breccia	Very hard to scratch-competent rock,, with black spots <5% altered	VC	0.08	40	290	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.25	35	300	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.50	70	340	0	0	5	3	5	13	15	F	20.0	Rub	cly	1	VG	JBC
									VC					VC	0.65	40	310	0	1	5	3	5	14	15	F	5.0	Rub	cly	1	VG	JBC
									VC					VC	0.79	50	0	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
									VC					VC	0.94	70	330	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.31	5	160	0	1	1	3	5	10	15	F	10.0	Rub	cly	1	VG	JBC
									VC					VC	1.50	40	150	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
225.0	226.5	1.50	100	0.76	51	6	214	100	VC	pale to light green	fine grained	breccia	Very hard to scratch-competent rock,, with black spots <5% altered	VC	0.20	5	140	0	1	3	0	5	9	15	J	5.0	Rub		1	G	JBC
									VC					VC	0.30	90		0	4	3	3	5	15	15	J	1.0	cc	cly	1	G	JBC
									VC					VC	0.35	25	330	0	0	1	0	5	6	15	J	15.0	Rub		1	G	JBC
									VC					VC	0.49	22	360	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
									VC					VC	0.78	60	40	0	4	1	2	5	12	15	J	1.0	cc		1	G	JBC
									VC					VC	0.90	60	50	0	4	1	2	5	12	15	J	1.0	cc	ser	1	G	JBC
226.5	228.0	1.50	100	1.50	100	3	375	150	VC	pale to light green to grey	fine grained	breccia	Varying wavy lamination altered, hard to scratch	VC	0.33	52	145	0	4	1	2	5	12	15	J	1.0	cc	py	1	G	JBC
									VC					VC	0.78	45	170	0	4	1	2	5	12	15	J	1.0	cly	py	1	G	JBC
									VC					VC	1.00	50	180	0	4	1	6	5	16	15	J	1.0	nil		1	G	JBC
228.0	229.5	1.43	95	1.43	95	4	286	175	VC	pale grey to green	fine grained	Laminated, altered	Hard to scratch, very competent, fresh rock, different textural changes as a result of alteration and lamination	VC	0.20	50	0	0	4	1	4	6	15	15	J	0.1	py		1	G	JBC
									VC					VC	0.85	38	105	0	4	1	2	6	13	15	J	0.1	ser		1	G	JBC
									VC					VC	1.16	52	120	0	4	1	6	6	17	15	J	0.1	nil		1	G	JBC
									VC					VC	1.31	55	15	0	4	1	2	5	12	15	J	0.1	cc	ser	1	G	JBC
229.5	231.0	1.50	100	0.78	52	6	214	175	VC				Same as above	VC	0.45	38	70	0	1	1	2	5	9	15	J	5.0	cly		1	P	JBC
									VC					VC	0.73	40	140	0	0	3	3	5	11	15	F	10.0	Rub	cly	1	P	JBC
									VC					VC	0.90	15	345	0	0	3	3	5	11	15	F	20.0	Rub	cly	1	P	JBC
									VC					VC	1.20	20	180	0	1	3	2	5	11	15	J	5.0	cly		1	P	JBC
									VC					VC	1.32	38	280	0	4	3	6	5	18	15	J	1.0	cly		1	P	JBC
									VC					VC	1.55	35	135	0	4	1	2	5	12	15	J	1.0	cly	ser	1	P	JBC
231.0	232.5	1.50	100	0.60	40	3	375	150	VC	pale to light green	fine grained	Laminated, altered	Hard to scratch, large rubble zone (1cm)	VC	0.30	50	310	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									VC					VC	0.68	5	200	0	0	5	3	5	13	15	F	10.0	Rub		1	F	JBC
									VC					VC	1.39	60	330	0	4	3	6	5	18	15	J	1.0	nil		1	F	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
232.5	233.8	1.25	100	1.25	100	1	625	150	VC	pale to light green	fine grained	Laminated, altered	Same as above	VC	1.25	50	170	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
233.8	234.0	0.25	100	0.00	0	6	36	50	VC	pale to light green	fine grained	Laminated, altered	Highly jointed/fractured core, rubbly	VC	0.10	32	190	0	0	1	0	5	6	15	F	10.0	Rub		1	VG	JBC
									VC					VC	0.11	10	350	0	0	1	0	5	6	15	F	10.0	Rub		1	VG	JBC
									VC					VC	0.14	55	90	0	0	1	0	5	6	15	J	10.0	cly	py	1	VG	JBC
									VC					VC	0.15	60	75	0	0	1	0	5	6	15	J	10.0	cly	py	1	VG	JBC
									VC					VC	0.20	5	0	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	VG	JBC
									VC					VC	0.22	70	85	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	VG	JBC
234.0	234.2	0.20	100	0.00	0	8	22	50	VC	light green	fine grained	Laminated, altered	Highly jointed/fractured, rubbly	VC	0.00			0	0	1	0	5	6	15	F	10.0	Rub	cly	8	None	JBC
234.2	235.5	1.14	88	0.91	70	3	285	100	VC	light green	fine grained	Laminated, altered	Very competent	VC	0.00			0	4	1	2	5	12	15	J	1.0	Rub	cly	3	None	JBC
235.5	237.0	1.49	99	0.16	11	7	186	75	VC	light green	fine grained	Laminated, altered	Highly fractured	VC	0.10	60	10	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									VC					VC	0.20	50	355	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
									VC					VC	0.37	52	340	0	0	3	2	5	10	15	J	10.0	cly		1	F	JBC
									VC					VC	0.45	12	175	0	0	3	0	5	8	15	F	10.0	cly	Rub	1	F	JBC
									VC					VC	0.75	5	180	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									VC					VC	1.15	20	250	0	0	3	2	5	10	15	J	9.0	cly		1	F	JBC
									VC					VC	1.20	5	165	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
237.0	238.5	1.50	100	0.98	65	3	375	125	VC	Light to pale green	fine grained	Tuff	Competent, fresh, hard to scratch	VC	0.12	5	335	0	0	3	0	5	8	15	F	10.0	Rub	cly	1	F	JBC
									VC					VC	0.72	38	100	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.91	30	0	0	1	1	2	5	9	15	J	5.0	cly		1	F	JBC
238.5	240.0	1.48	99	1.40	93	2	493	150	VC	pale to light green	fine grained	Tuff	Strongly altered rock, very competent	VC	0.60	60	350	0	5	1	2	5	13	15	J	0.1	cly	py	1	F	JBC
									VC					VC	1.41	32	210	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
240.0	241.0	1.00	100	0.00	0	12	77	50	VC	pale to light green	fine grained	Tuff	Highly fractured/jointed run	VC	0.00			0	0	1	0	5	6	15	F	20.0	Rub	cly	12	None	JBC
241.0	241.5	0.50	100	0.48	96	2	167	75	VC	pale to light green	fine grained	Tuff	Same as above	VC	0.25	24	170	0	1	1	6	5	13	15	J	5.0	nil		1	F	JBC
									VC					VC	0.40	2	150	0	1	3	0	5	9	15	J	1.0	cly		1	F	JBC
241.5	243.0	1.44	96	1.42	95	5	240	125	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.10	18	0	0	1	1	2	5	9	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.62	35	110	0	4	3	2	5	14	15	J	0.2	cly	py	1	VG	JBC
									VC					VC	1.11	42	180	0	4	1	2	5	12	15	J	0.1	cly	py	1	VG	JBC
									VC					VC	1.36	25	200	0	5	3	2	5	15	15	J	0.1	cly		1	VG	JBC
									VC					VC	1.42	20	180	0	4	5	2	5	16	15	J	0.2	cly	py	1	VG	JBC
243.0	244.5	1.49	99	1.32	88	2	497	100	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	1.20	10	35	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.33	18	25	0	0	3	2	5	10	15	J	10.0	cly		1	VG	JBC
244.5	246.0	1.42	95	1.42	95	4	284	100	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.15	32	230	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	0.17	50	160	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									VC					VC	0.54	43	225	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									VC					VC	1.30	15	0	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
246.0	247.5	1.50	100	1.30	87	4	300	100	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.77	12	250	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	None	SRM
									VC					VC	0.87	24	240	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	None	SRM
									VC					VC	0.97	40	250	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.45	74	180	0	4	2	6	6	18	15	J	1.0			1	None	SRM
247.5	249.0	1.50	100	1.50	100	4	300	100	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.34			0	1	3	2	5	11	15	J	5.0	cly		1	None	SRM
									VC					VC	0.68			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.05			0	4	3	6	6	19	15	J	1.0			1	None	SRM
									VC					VC	1.39			0	4	3	6	6	19	15	J	1.0			1	None	SRM
249.0	250.5	1.50	100	1.50	100	2	500	175	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.33	77	230	0	4	3	6	6	19	15	J	1.0			1	None	SRM
									VC					VC	0.96	60	320	0	4	1	6	6	17	15	J	1.0			1	None	SRM
250.5	252.0	1.50	100	1.50	100	0	1500	175	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.00			6	6	6	6	6	30	15		0.0			1	None	SRM
252.0	253.5	1.46	97	1.42	95	4	292	225	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.00	48	340	0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					VC	0.68	60	340	0	4	3	6	6	19	15	J	1.0			1	None	SRM
									VC					VC	1.20	66	280	0	4	3	6	6	19	15	J	1.0			1	None	SRM
									VC					VC	1.42	80	140	0	4	3	6	6	19	15	J	1.0			1	None	SRM
253.5	255.0	1.50	100	1.04	69	5	250	200	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.09	42	100	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.30	8	190	0	0	1	2	5	8	15	J	10.0	cly	Rub	1	G	SRM
									VC					VC	0.45	30	340	0	1	3	2	5	11	15	J	5.0	cly		1	G	SRM
									VC					VC	0.63	54	190	0	1	1	2	5	9	15	J	5.0	cly		1	G	SRM
									VC					VC	0.75	59	180	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	G	SRM
255.0	256.5	1.48	99	1.48	99	2	493	225	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.55	14	30	0	1	1	2	5	9	15	J	4.0	Rub	cly	1	G	SRM
									VC					VC	1.15	18	240	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
256.5	258.0	1.50	100	1.50	100	4	300	175	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.00	30	310	0	4	1	6	5	16	15	J	1.0	cly		1	F	SRM
									VC					VC	0.76	20	50	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									VC					VC	0.84	60	185	0	4	1	6	6	17	15	J	1.0			1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.08	46	285	0	4	3	6	6	19	15	J	1.0			1	F	SRM
258.0	259.5	1.42	95	1.01	67	8	158	150	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.21	66	100	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	0.27	25	60	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	0.58	20	30	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	0.63	66	110	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	0.67	70	100	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	0.75	67	140	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	0.92	65	110	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
									VC					VC	1.01	35	65	0	4	1	2	5	12	15	J	1.0	cly		1	P	SRM
259.5	261.0	1.50	100	1.50	100	2	500	225	VC	pale green to grey	fine grained	Tuff	Laminated, competent run, altered-hard to scratch	VC	0.46	14	200	0	1	1	2	5	9	15	J	3.0	cly	Rub	1	P	SRM
									VC					VC	0.96	23	210	0	1	1	2	5	9	15	J	3.0	cly	Rub	1	P	SRM
261.0	262.5	1.41	94	1.41	94	2	470	200	VC	pale green to grey	fine grained	Tuff	highly fractured, matrix with lots of angular darker clasts	VC	0.40	60	340	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.70	35	230	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
262.5	264.0	1.50	100	1.50	100	2	500	200	VC	pale green to grey	fine grained	Tuff	highly fractured, matrix with lots of angular darker clasts	VC	0.80	20	170	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.45	60	310	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
264.0	265.5	1.50	100	1.50	100	1	750	225	VC	pale green to grey	fine grained	Tuff	highly fractured, matrix with lots of angular darker clasts	VC	1.10	30	200	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
265.5	267.0	1.50	100	1.50	100	0	1500	200	VC	pale green to grey	fine grained	Tuff	Competent run, matrix with lots of angular darker clasts	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	JBC
267.0	268.5	1.48	99	1.18	79	4	296	200	VC	pale green to grey	fine grained	Tuff	Angular clasts up to 2cm	VC	0.10	18	55	0	4	1	2	5	12	15	J	1.0	cly	py	1	VG	JBC
									VC					VC	0.30	10	60	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	1.19	32	200	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.19	24	55	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
268.5	270.0	1.49	99	1.16	77	3	373	200	VC	pale green to grey	fine grained	Tuff	Angular clasts up to 2cm	VC	0.44	15	280	0	4	1	2	5	12	15	J	0.5	cc	cly	1	G	JBC
									VC					VC	1.10	10	80	0	4	3	4	5	16	15	J	1.0	py	cly	1	G	JBC
									VC					VC	1.32	10	80	0	4	3	2	5	14	15	J	1.0	cly		1	G	JBC
270.0	271.5	1.48	99	1.10	73	5	247	200	VC	pale green to grey	fine grained	Tuff	1cm rubble/gouge at 0.83m	VC	0.60	25	0	0	4	3	4	5	16	15	J	1.0	py	cly	1	VG	JBC
									VC					VC	0.72	20	290	0	1	3	2	5	11	15	J	3.0	cly		1	VG	JBC
									VC					VC	0.83	70	350	0	1	1	0	5	7	15	F	2.0	Rub	cly	1	VG	JBC
									VC					VC	1.31	45	20	0	1	1	2	5	9	15	J	2.0	chl		1	VG	JBC
									VC					VC	1.41	15	70	0	1	1	4	5	11	15	J	2.0	py		1	VG	JBC
271.5	273.0	1.50	100	0.78	52	7	188	150	VC	pale to light green	fine grained	Tuff	Weak altered zone at 0.40m to 0.60 m	VC	0.30	10	250	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	JBC
									VC					VC	0.40	55	200	0	0	1	0	5	6	15	J	10.0	Rub	gg	1	F	JBC
									VC					VC	0.70	38	175	0	4	1	6	5	16	15	J	1.0	nil		1	F	JBC
									VC					VC	0.77	55	100	0	4	3	6	5	18	15	J	1.0	nil		1	F	JBC
									VC					VC	1.07	32	315	0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	JBC
									VC					VC	1.30	30	270	0	4	1	2	5	12	15	J	1.0	ser		1	F	JBC
									VC					VC	1.54	50	200	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	JBC
273.0	274.5	1.46	97	1.40	93	2	487	200	VC	pale to light green	fine grained	Tuff	Weak altered zone at 0.40m to 0.60 m	VC	1.06	40	120	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	1.40	48	130	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
274.5	276.0	1.50	100	1.50	100	2	500	225	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	0.23	48	155	0	6	1	4	5	16	15	J	0.1	py	cc	1	VG	JBC
									VC					VC	0.96	52	110	0	6	1	2	5	14	15	J	0.1	cly	cc	1	VG	JBC
276.0	277.5	1.48	99	1.48	99	2	493	225	VC	pale to light green	fine grained	Tuff	Lots of pyrite spots	VC	0.17	32	120	0	6	1	4	5	16	15	J	0.1	py		1	VG	JBC
									VC					VC	0.45	45	110	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
277.5	279.0	1.50	100	1.29	86	2	500	225	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	1.30	45	120	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	1.42	32	175	0	1	1	4	5	11	15	J	0.1	py		1	VG	JBC
279.0	280.5	1.50	100	1.12	75	6	214	200	VC	pale to light green	fine grained	Tuff	1cm rubble zone at 1.30m	VC	0.20	30	90	0	1	1	2	5	9	15	J	0.1	cly		1	VG	JBC
									VC					VC	0.74	35	150	0	4	1	4	5	14	15	J	1.0	py	qtz	1	VG	JBC
									VC					VC	1.00	20	110	0	4	3	4	5	16	15	J	1.0	py		1	VG	JBC
									VC					VC	1.10	30	160	0	1	1	2	5	9	15	J	2.0	cly		1	VG	JBC
									VC					VC	1.30	25	165	0	0	3	0	5	8	15	F	5.0	Rub	gg	1	VG	JBC
									VC					VC	1.40	75	45	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
280.5	282.0	1.50	100	1.32	88	5	250	200	VC	pale to light green	fine grained	Tuff	5cm rubble zone at 0.20m	VC	0.10	50	35	0	1	3	4	5	13	15	J	5.0	py	ser	1	VG	JBC
									VC					VC	0.20	15	275	0	0	1	0	5	6	15	F	50.0	Rub	cly	1	VG	JBC
									VC					VC	0.73	50	280	0	6	1	6	5	18	15	J	0.1	nil		1	VG	JBC
									VC					VC	1.21	45	180	0	0	1	0	5	6	15	F	20.0	Rub		1	VG	JBC
									VC					VC	1.36	60	0	0	6	3	6	5	20	15	J	0.1	nil		1	VG	JBC
282.0	283.5	1.48	99	1.48	99	0	1480	225	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	JBC
283.5	285.0	1.50	100	1.50	100	1	750	225	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	1.30	25	160	0	4	3	4	5	16	15	J	1.0	py		1	VG	JBC
285.0	286.2	1.15	100	0.64	56	7	144	200	VC	pale to light green	fine grained	Tuff	Lots of disseminated pyrite	VC	0.40	15	180	0	1	3	4	5	13	15	J	2.0	py		1	VG	JBC
									VC					VC	0.62	50	335	0	1	3	2	5	11	15	J	4.0	cc	py	1	VG	JBC
									VC					VC	0.66	45	300	0	0	3	0	5	8	15	F	20.0	Rub	py	1	VG	JBC
									VC					VC	0.91	50	10	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	0.96	52	65	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	1.04	40	170	0	4	1	2	5	12	15	J	1.0	chl	cly	1	VG	JBC
									VC					VC	1.15	10	350	0	0	3	4	5	12	15	F	10.0	Rub	py	1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
286.2	286.5	0.35	100	0.00	0	20	17	25	VC	pale to light green	fine grained	Tuff	Very rubbly zone with gouge, clayey matrix, can be peeled with knife, most joints are immeasurable, # of fractures estimated at best.	VC	0.15	5	310	0	0	1	0	5	6	15	F	30.0	gg	Rub	1	VG	JBC
									VC					VC	0.32	40	160	0	0	1	0	5	6	15	F	40.0	gg	Rub	1	VG	JBC
									VC					VC	0.32			0	0	1	0	5	6	15	J	5.0	Rub		18	VG	JBC
286.5	288.0	1.50	100	0.96	64	5	250	175	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	0.00	10	0	0	0	1	0	5	6	15	J	5.0	Rub	cly	1	None	SRM
									VC					VC	0.18	20	280	0	1	1	2	5	9	15	J	1.0	cly		1	None	SRM
									VC					VC	0.60	39	200	0	4	1	2	5	12	15	J	1.0			1	None	SRM
									VC					VC	0.93	35	100	0	4	1	2	5	12	15	J	1.0	cly	Rub	1	None	SRM
									VC					VC	1.18	43	100	0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
288.0	289.5	1.50	100	1.16	77	6	214	150	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	0.10	68	280	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					VC	0.18	84	140	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					VC	0.28	32	330	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					VC	0.30	45	180	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	0.76	74	320	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					VC	0.94	7	325	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	VG	SRM
289.5	290.3	0.80	100	0.70	87	4	160	200	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	0.45	29	80	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									VC					VC	0.62	15	350	0	4	3	6	6	19	15	J	1.0			1	VG	SRM
									VC					VC	0.72	14	350	0	0	1	0	5	6	15	F	30.0	Rub	gg	1	VG	SRM
									VC					VC	0.79	32	110	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
290.3	290.6	0.25	100	0.00	0	Max	5	25	VC	pale to light green	fine grained	Tuff	Broken zone with clay and gouge	VC	0.00			0	0	1	0	5	6	15	F	250.0	gg	cly	1	None	SRM
290.6	291.0	0.45	100	0.10	22	4	90	200	VC	pale to light green	fine grained	Tuff	Angular dark green and black clasts	VC	0.00			0	0	1	0	5	6	15	F	5.0	Rub	cly	1	None	SRM
									VC					VC	0.15			0	0	1	2	5	8	15	J	10.0	cly	Rub	1	None	SRM
									VC					VC	0.27			0	4	1	6	6	17	15	J	1.0			1	None	SRM
									VC					VC	0.40			0	0	1	0	5	6	15	F	40.0	gg		1	None	SRM
291.0	292.1	0.95	87	0.00	0	Max	5	25	VC	pale to light green	fine grained	breccia	Broken zone with clay and gouge	VC	0.00			0	0	1	0	5	6	15	F	950.0	gg	cly	1	None	SRM
292.1	292.5	0.41	100	0.35	85	3	103	150	VC	pale to light green	fine grained	breccia	competent	VC	0.00	54	220	0	1	1	2	5	9	15	F	5.0			1	None	SRM
									VC					VC	0.10	12	190	0	1	1	2	5	9	15	F	5.0			1	None	SRM
									VC					VC	0.15	18	170	0	4	1	2	5	12	15	J	1.0			1	None	SRM
292.5	292.7	0.16	100	0.12	75	2	53	150	VC	pale to light green	fine grained	breccia	competent	VC	0.00	59	80	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.12	26	225	0	0	3	0	5	8	15	F	10.0	Rub		1	F	SRM
292.7	293.2	0.46	94	0.00	0	Max	5	25	VC	pale to light green	fine grained	breccia	Broken zone with clay and gouge	VC	0.00			0	0	1	0	5	6	15	F	460.0	gg	cly	1	None	SRM
293.2	294.0	0.85	100	0.70	82	2	283	200	VC	pale to light green	fine grained	breccia	First 0.12m is micro fractured	VC	0.00	58	350	0	0	1	0	5	6	15	F	40.0	gg	Rub	1	G	SRM
									VC					VC	0.12	58	330	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
294.0	295.5	1.50	100	1.50	100	0	1500	200	VC	pale to light green	fine grained	breccia	competent	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	SRM
295.5	297.0	1.50	100	1.50	100	1	750	150	VC	pale to light green	fine grained	breccia	With multiple micro fractures	VC	0.90	43	110	0	1	1	2	5	9	15	J	3.0	cly	gg	1	G	SRM
297.0	298.3	1.30	100	1.30	100	4	260	150	VC	pale to light green	fine grained	breccia	competent	VC	0.25	44	80	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.62	23	290	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.74	22	270	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	SRM
									VC					VC	1.30	33	290	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	SRM
298.3	298.5	0.14	70	0.00	0	Max	5	25	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.00			0	0	1	0	5	6	15		140.0	Rub		1	None	SRM
298.5	300.0	1.50	100	1.50	100	1	750	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.74	47	280	0	4	1	6	6	17	15	J	1.0			1	F	SRM
300.0	301.5	1.50	100	1.50	100	1	750	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.00	70	270	0	4	1	6	6	17	15	J	1.0			1	G	SRM
301.5	303.0	1.50	100	1.40	93	4	300	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.34	14	265	0	1	1	2	5	9	15	J	5.0	cly		1	G	SRM
									VC					VC	0.86	56	140	0	4	1	4	5	14	15	J	1.0	py		1	G	SRM
									VC					VC	1.25	80	290	0	4	3	6	6	19	15	J	1.0			1	G	SRM
									VC					VC	1.44	70	310	0	4	3	6	6	19	15	J	1.0			1	G	SRM
303.0	304.5	1.50	100	1.50	100	0	1500	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	SRM
304.5	306.0	1.50	100	1.50	100	1	750	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	1.07	53	280	0	4	1	6	6	17	15	J	1.0			1	P	SRM
306.0	307.5	1.50	100	1.50	100	3	375	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.97	40	250	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	1.24	34	330	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									VC					VC	1.40	30	300	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
307.5	309.0	1.49	99	1.32	88	7	186	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.07	32	280	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	SRM
									VC					VC	0.10	46	335	0	4	1	2	5	12	15	J	1.0	cly	py	1	F	SRM
									VC					VC	0.14	63	320	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									VC					VC	0.17	28	310	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									VC					VC	1.10	36	310	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									VC					VC	1.21	42	350	0	4	1	2	5	12	15	J	1.0			1	F	SRM
									VC					VC	1.40	37	340	0	4	1	2	5	12	15	J	1.0			1	F	SRM
309.0	310.5	1.36	91	1.21	81	5	227	200	VC	pale to light green	fine grained	breccia	Rubble Zone	VC	0.00	58	180	0	4	1	6	6	17	15	J	1.0			1	P	SRM
									VC					VC	0.13	28	305	0	4	1	2	5	12	15	J	1.0	Rub	cly	1	P	SRM
									VC					VC	0.48	40	320	0	4	3	6	6	19	15	J	1.0			1	P	SRM
									VC					VC	0.81	77	190	0	4	1	6	6	17	15	J	1.0			1	P	SRM
									VC					VC	1.10	34	250	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	P	SRM
310.5	312.0	1.50	100	1.50	100	1	750	200	VC	pale to light green	fine grained	breccia	Dark spots and lots of pyrite	VC	0.27	28	270	0	4	3	2	5	14	15	J	1.0	cly		1	F	JBC
312.0	313.5	1.50	100	1.27	85	3	375	200	VC	pale to light green	fine grained	breccia	Dark spots and lots of pyrite	VC	1.33	40	350	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.42	65	10	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.56	5	290	0	4	2	2	5	13	15	J	1.0	cly		1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
313.5	315.0	1.50	100	0.68	45	3	375	200	VC	pale to light green	fine grained	breccia	Dark spots and lots of pyrite, large oblique joint at 0.40m	VC	0.10	38	350	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.40	10	80	0	1	3	2	5	11	15	J	2.0	cly		1	VG	JBC
									VC					VC	1.30	55	0	0	4	3	4	5	16	15	J	1.0	py		1	VG	JBC
315.0	316.5	1.40	93	1.40	93	1	700	200	VC	pale green to grey	fine grained	breccia	Angular 1cm clasts	VC	1.05	75	310	0	4	3	4	5	16	15	J	1.0	py		1	VG	JBC
316.5	318.0	1.50	100	1.22	81	5	250	200	VC	pale green to grey	fine grained	breccia	Angular 1cm clasts	VC	0.25	5	240	0	1	3	4	5	13	15	J	2.0	py	cly	1	G	JBC
									VC					VC	0.77	70	355	0	4	3	2	5	14	15	J	1.0	cc	py	1	G	JBC
									VC					VC	1.05	40	270	0	4	3	2	5	14	15	J	1.0	cc		1	G	JBC
									VC					VC	1.34	65	240	0	6	1	2	5	14	15	J	0.1	cc		1	G	JBC
									VC					VC	1.45	30	345	0	4	3	4	5	16	15	J	1.0	py		1	G	JBC
318.0	319.5	1.43	95	0.99	66	4	286	225	VC	green to dark grey	fine grained	breccia	String pyrite and blebs <5% of the rock	VC	0.77	20	260	0	0	3	0	5	8	15	F	10.0	Rub	cly	1	G	JBC
									VC					VC	1.04	50	285	0	1	5	0	5	11	15	F	5.0	Rub	cly	1	G	JBC
									VC					VC	1.10	30	0	0	6	1	6	6	19	15	J	0.1	nil		1	G	JBC
									VC					VC	1.40	35	10	0	4	3	4	6	17	15	J	1.0	py		1	G	JBC
319.5	321.0	1.50	100	1.20	80	5	250	225	VC	green to dark grey	fine grained	breccia	String pyrite and blebs <5% of the rock, rubbly zone at 1.0 m	VC	0.86	25	340	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.01	20	350	0	0	3	0	5	8	15	F	20.0	Rub	cly	1	VG	JBC
									VC					VC	1.23	62	130	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
									VC					VC	1.38	20	280	0	4	1	2	5	12	15	J	1.0	cly	py	1	VG	JBC
									VC					VC	1.39	55	100	0	4	1	2	5	12	15	J	1.0	cly	py	1	VG	JBC
321.0	322.5	1.50	100	0.98	65	5	250	175	VC	green to dark grey	fine grained	breccia	String pyrite and blebs <5% of the rock, rubbly zone at 0.33 m	VC	0.33	72	355	0	0	1	0	5	6	15	F	30.0	Rub	cly	1	G	JBC
									VC					VC	0.40	85	110	0	0	1	0	5	6	15	F	30.0	Rub	cly	1	G	JBC
									VC					VC	0.50	40	290	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
									VC					VC	0.83	30	350	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
									VC					VC	0.94	25	360	0	4	1	2	5	12	15	J	1.0	cly		1	G	JBC
322.5	324.0	1.46	97	1.46	97	1	730	225	VC	pale to light green/grey	fine grained	breccia	Lots of pyrite blebs	VC	1.25	18	340	0	4	1	4	5	14	15	J	1.0	py		1	VG	JBC
324.0	325.5	1.50	100	1.30	87	3	375	200	VC	pale to light green/grey	fine grained	breccia	Lots of pyrite blebs	VC	0.38	15	220	0	4	1	4	6	15	15	J	1.0	py		1	VG	JBC
									VC					VC	1.02	30	115	0	6	1	4	5	16	15	J	0.1	py		1	VG	JBC
									VC					VC	1.53	10	150	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
325.5	327.0	1.50	100	1.12	75	3	375	200	VC	pale to light green/grey	fine grained	breccia	Pyrite as blebs	VC	0.35	5	310	0	1	3	0	6	10	15	J	10.0	cly	Rub	1	VG	JBC
									VC					VC	1.02	40	80	0	6	1	2	6	15	15	J	0.1	cly		1	VG	JBC
									VC					VC	1.43	40	220	0	4	3	2	6	15	15	J	1.0	cly		1	VG	JBC
327.0	328.5	1.36	91	1.36	91	0	1360	200	VC	pale to light green/grey	fine grained	breccia	Altered, hard to scratch	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	JBC
328.5	330.0	1.50	100	1.50	100	1	750	225	VC	pale to light green/grey	fine grained	breccia	Some banding (laminations)	VC	0.30	35	180	0	4	1	4	6	15	15	J	1.0	py		1	VG	JBC
330.0	331.5	1.50	100	1.22	81	2	500	225	VC	pale to light green/grey	fine grained	breccia	Some banding (laminations)	VC	1.43	25	350	0	1	3	0	5	9	15	J	2.0	Rub	cly	1	VG	JBC
331.5	333.0	1.50	100	1.22	81	2	500	200	VC	pale to light green/grey	fine grained	breccia	Some banding (laminations)	VC	0.15	10	80	0	4	3	4	5	16	15	J	1.0	py		1	VG	JBC
									VC					VC	0.72	60	290	0	0	1	0	5	6	15	F	3.0	Rub	cly	1	VG	JBC
333.0	334.5	1.50	100	1.50	100	2	500	200	VC	pale to light green/grey	fine grained	breccia	Some banding (laminations)	VC	0.05	55	185	0	1	3	4	5	13	15	J	2.0	py		1	G	JBC
									VC					VC	0.35	35	345	0	1	1	4	5	11	15	J	1.0	cly	py	1	G	JBC
334.5	336.0	1.50	100	1.50	100	0	1500	200	VC	pale to light green/grey	fine grained	breccia	Some banding (laminations)	VC	0.00			6	6	6	6	6	30	15		0.0			1	G	JBC
336.0	337.0	1.00	100	0.89	89	3	250	200	VC	pale to light green	fine grained	breccia	Lots of pyrite as blebs	VC	0.45	50	330	0	4	1	6	5	16	15	J	1.0	nil		1	G	JBC
									VC					VC	0.52	42	345	0	4	3	4	5	16	15	J	1.0	cly	py	1	G	JBC
									VC					VC	0.95	58	0	0	4	3	6	5	18	15	J	1.0	nil		1	G	JBC
337.0	337.5	0.40	80	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Highly fractured/altered zone, very soft (can be peeled easily by hand), lots of micro fracture	VC	0.00			0	0	1	0	3	4	15	F	400.0	gg	Rub	1	None	JBC
337.5	338.1	0.60	100	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble zone with clay and gouge	VC	0.00			0	0	1	0	3	4	15	F	600.0	gg	Rub	1	None	JBC
338.1	339.0	0.90	100	0.42	47	10	82	100	VC	pale to light green	fine grained	breccia	Highly fractured with some healed joints	VC	0.00	39	20	0	0	1	0	3	4	15	F	40.0	gg	cly	1	F	JBC
									VC					VC	0.06	30	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.10	41	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.15	31	35	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.38	25	25	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.50	47	60	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.50	18	200	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
									VC					VC	0.64	62	290	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	F	JBC
									VC					VC	0.74	35	350	0	0	1	0	5	6	15	J	25.0	Rub	cly	1	F	JBC
									VC					VC	0.86	14	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	JBC
339.0	339.7	0.70	100	0.28	40	6	100	100	VC	pale to light green	fine grained	breccia	Highly fractured with some healed joints	VC	0.10			0	4	3	4	5	16	15	J	1.0	py		1	None	JBC
									VC					VC	0.27			0	4	3	6	6	19	15	J	0.1			1	None	JBC
									VC					VC	0.46			0	0	1	0	5	6	15	J	40.0	Rub		1	None	JBC
									VC					VC	0.62			0	4	1	2	5	12	15	J	0.1	cly		1	None	JBC
									VC					VC	0.66			0	4	1	2	5	12	15	J	80.0	cly		1	None	JBC
									VC					VC	0.66			0	0	1	0	5	6	15	F	80.0	gg	Rub	1	None	JBC
339.7	339.9	0.20	100	0.00	0	Max	5	25	VC	pale to light green	fine grained	breccia	Rubble/ broken, lots of gouge, some clay	VC	0.00			0	0	1	0	5	6	15	F	200.0	gg	cly	1	None	JBC
339.9	340.5	0.60	100	0.00	0	10	55	25	VC	pale to light green	fine grained	breccia	Same as above, highly micro fractured, crumbles when handling	VC	0.00			0	1	1	2	5	9	15	J	5.0	gg	cly	10	None	JBC
340.5	340.7	0.20	100	0.13	65	4	40	100	VC	pale to light green	fine grained	breccia		VC	0.00			0	4	1	6	6	17	15	J	1.0			4	None	SRM
340.7	341.0	0.30	100	0.00	0	Max	5	25	VC				Rubble/ broken, with gouge and clay	VC	0.00			0	0	1	0	3	4	15	F	300.0	gg	cly	1	None	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
341.0	341.5	0.50	100	0.15	30	9	50	100	VC	pale to light green	fine grained	breccia	Rubble/ broken, with gouge and clay	VC	0.00			0	4	1	2	5	12	15	J	1.0	cly		9	None	SRM
341.5	341.6	0.10	100	0.00	0	Max	5	25	VC	pale to light green	fine grained	breccia	Rubble/ broken, mostly gouge	VC	0.00			0	0	1	0	3	4	15	F	100.0	gg	cly	1	None	SRM
341.6	342.0	0.40	100	0.31	78	1	200	100	VC	pale to light green	fine grained	breccia	Rubble/ broken, with gouge and clay	VC	0.00			0	1	1	2	5	9	15	J	5.0	cly	gg	1	None	SRM
342.0	343.5	1.48	99	0.30	20	12	114	100	VC	pale to light green	fine grained	breccia	Highly Fractured	VC	0.05	25	195	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.12	27	325	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.24	10	330	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.30	16	330	0	1	1	2	5	9	15	J	5.0	cly	Rub	1	G	SRM
									VC					VC	0.42	45	320	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.53	35	340	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.58	16	210	0	0	1	0	5	6	15	J	50.0	Rub	cly	1	G	SRM
									VC					VC	0.78	16	180	0	0	3	0	5	8	15	J	30.0	Rub	cly	1	G	SRM
									VC					VC	0.94	35	180	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	1.10	38	100	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	1.19	40	105	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									VC					VC	1.34	35	190	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
343.5	345.0	1.50	100	1.45	97	4	300	150	VC	pale to light green	fine grained	breccia	competent	VC	0.00	40	355	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									VC					VC	0.23	37	350	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.28	32	0	0	4	1	2	5	12	15	J	1.0	cly		1	G	SRM
									VC					VC	0.59	34	95	0	4	1	2	5	12	15	J	1.0	py		1	G	SRM
345.0	346.5	1.45	97	1.20	80	4	290	200	VC	pale to light green	fine grained	breccia	competent	VC	0.14	15	330	0	1	1	2	5	9	15	J	5.0	Rub		1	F	SRM
									VC					VC	0.48	9	320	0	1	1	2	5	9	15	J	5.0	Rub		1	F	SRM
									VC					VC	0.79	40	120	0	4	1	6	5	16	15	J	1.0			1	F	SRM
									VC					VC	1.30	26	340	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
346.5	347.8	1.25	100	0.69	55	6	179	150	VC	pale to light green	fine grained	breccia	competent	VC	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.53			0	4	1	6	5	16	15	J	1.0			1	None	SRM
									VC					VC	0.70			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	0.94			0	4	3	6	5	18	15	J	1.0			1	None	SRM
									VC					VC	1.00			0	4	1	2	5	12	15	J	1.0	cly		1	None	SRM
									VC					VC	1.25			0	0	5	0	5	10	15	F	30.0	gg	Rub	1	None	SRM
347.8	348.0	0.10	40	0.00	0	Max	5	100	VC	pale to light green	fine grained	breccia	Rubble/ Broken	VC	0.00			0	0	1	0	5	6	15	F	100.0	Rub		1	None	SRM
348.0	349.5	1.17	78	1.17	78	2	390	100	VC	pale to light green	fine grained	breccia	Rubble/ Broken	VC	0.00	4	160	0	0	1	0	3	4	15	F	10.0	gg	Rub	1	None	SRM
									VC					VC	0.69	65	240	0	4	3	6	6	19	15	J	1.0			1	None	SRM
349.5	351.0	1.50	100	1.14	76	2	500	100	VC	pale to light green	fine grained	breccia	Rubble/ Broken	VC	0.29	20	95	0	0	3	0	5	8	15	J	80.0	Rub	gg	1	VG	SRM
									VC					VC	1.30	10	0	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
351.0	352.5	1.45	97	0.20	13	13	104	100	VC	pale green to grey	fine grained	breccia	Highly fractured, rubble zone at 0.50m	VC	0.12	5	50	0	4	3	2	5	14	15	J	1.0	cly	Rub	1	VG	JBC
									VC					VC	0.15	50	280	0	1	1	2	5	9	15	J	3.0	cly	py	1	VG	JBC
									VC					VC	0.20	25	210	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.30	22	100	0	4	3	4	5	16	15	J	1.0	nil		1	VG	JBC
									VC					VC	0.33	75	300	0	1	3	4	5	13	15	J	4.0	cly	py	1	VG	JBC
									VC					VC	0.40	38	310	0	0	3	0	5	8	15	F	10.0	Rub	cly	1	VG	JBC
									VC					VC	0.50	24	150	0	0	3	0	5	8	15	F	20.0	Rub	cly	1	VG	JBC
									VC					VC	0.63	35	260	0	1	3	2	5	11	15	J	2.0	cly	cc	1	VG	JBC
									VC					VC	0.87	75	330	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.93	25	110	0	4	5	2	5	16	15	J	1.0	cly	py	1	VG	JBC
									VC					VC	1.04	15	295	0	4	5	2	5	16	15	J	1.0	cly	py	1	VG	JBC
									VC					VC	1.32	55	15	0	1	3	2	5	11	15	J	2.0	cly	Rub	1	VG	JBC
									VC					VC	1.41	32	125	0	4	3	4	5	16	15	J	1.0	py	cly	1	VG	JBC
352.5	354.0	1.33	89	0.00	0	20	63	75	VC	pale to light green	fine grained	breccia	Very rubbly run, large oblique joint through entire core, lots of disseminated sulphide blebs	VC	0.00			0	0	3	0	5	8	15	J	5.0	sul		20	None	JBC
354.0	355.0	0.95	95	0.00	0	17	53	75	VC	pale to light green	fine grained	breccia	Same as above	VC	0.00			0	0	3	0	5	8	15	J	10.0	cly	py	17	None	JBC
355.0	356.6	1.53	96	0.33	21	10	139	75	VC	pale to light green	fine grained	breccia	Rubbly zone at 1.10m to 1.16m	VC	0.37	52	115	0	4	1	4	5	14	15	J	1.0	py		1	P	JBC
									VC					VC	0.51	40	42	0	1	3	4	5	13	15	J	2.0	py	chl	1	P	JBC
									VC					VC	0.52	32	180	0	1	3	2	5	11	15	J	2.0	chl		1	P	JBC
									VC					VC	0.74	15	25	0	1	3	4	5	13	15	J	2.0	py	chl	1	P	JBC
									VC					VC	1.10	15	30	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									VC					VC	1.16	65	30	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									VC					VC	1.19	20	45	0	4	1	2	5	12	15	J	1.0	cc	py	1	P	JBC
									VC					VC	1.26	22	25	0	1	3	2	5	11	15	J	4.0	cly	chl	1	P	JBC
									VC					VC	1.37	28	345	0	4	3	2	5	14	15	J	1.0	py	cc	1	P	JBC
									VC					VC	1.46	40	340	0	4	3	4	5	16	15	J	1.0	py	chl	1	P	JBC
356.6	358.2	1.52	95	0.80	50	9	152	100	VC	pale to light green/grey	fine grained	breccia	Pyrite dissemination and mafic blebs through the core	VC	0.12	15	100	0	1	3	0	5	9	15	J	3.0	cly	py	1	P	JBC
									VC					VC	0.30	60	220	0	4	3	2	5	14	15	J	1.0	cly	chl	1	P	JBC
									VC					VC	0.40	40	120	0	4	3	0	5	12	15	J	1.0	cly	Rub	1	P	JBC
									VC					VC	0.49	32	110	0	4	3	0	5	12	15	J	1.0	cly	chl	1	P	JBC
									VC					VC	0.59	48	150	0	4	5	6	5	20	15	J	1.0	nil	py	1	P	JBC
									VC					VC	0.88	40	220	0	4	3	4	5	16	15	J	1.0	py		1	P	JBC
									VC					VC	1.15	40	140	0	4	3	4	5	16	15	J	1.0	py		1	P	JBC
									VC					VC	1.21	60	180	0	4	1	2	5	12	15	J	1.0	cly	chl	1	P	JBC
									VC					VC	1.48	32	70	0	4	3	2	5	14	15	J	1.0	cly	chl	1	P	JBC
358.2	359.8	1.55	97	0.76	47	10	141	75	VC	pale to light green/grey	fine grained	breccia	Highly fractured	VC	0.10	35	100	0	1	3	2	5	11	15	J	3.0	chl	py	1	P	JBC
									VC					VC	0.15	15	10	0	1	3	2	5	11	15	J	4.0	cly	chl	1	P	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.20	35	5	0	4	3	2	5	14	15	J	1.0	cly		1	P	JBC
									VC					VC	0.38	30	10	0	1	3	2	5	11	15	J	2.0	cly		1	P	JBC
									VC					VC	0.44	24	20	0	0	1	2	5	8	15	J	10.0	cly		1	P	JBC
									VC					VC	0.58	30	15	0	1	3	2	5	11	15	J	3.0	cly		1	P	JBC
									VC					VC	0.66	40	10	0	1	3	2	5	11	15	J	1.0	cly		1	P	JBC
									VC					VC	0.70	50	100	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	P	JBC
									VC					VC	1.10	50	210	0	0	3	0	5	8	15	J	25.0	cly	Rub	1	P	JBC
									VC					VC	1.46	10	150	0	1	3	4	5	13	15	J	2.0	py	chl	1	P	JBC
359.8	361.2	1.30	93	0.64	46	18	68	50	VC	pale to light grey to green	fine grained	breccia	Pyrite throughout, very weak zone from 1.10m to 1.30m	VC	0.00			0	0	1	0	3	4	15	J	20.0	gg	Rub	18	None	JBC
361.2	363.2	1.61	81	0.29	15	25	62	50	VC	pale to light grey to green	fine grained	breccia	Highly fractured, gouge rubble zone at 1.4m, can be peeled by hand	VC	0.00			0	0	1	0	3	4	15	J	20.0	gg	Rub	25	None	JBC
363.2	363.7	0.28	56	0.00	0	max	5	50	VC	pale to light green/grey	fine grained	breccia	Block Run	VC	0.00			0	0	1	0	5	6	15	J	20.0	gg	Rub	1	None	JBC
363.7	364.4	0.17	24	0.00	0	max	5	50	VC	pale to light green/grey	fine grained	breccia	Block Run	VC	0.00			0	0	1	0	5	6	15	J	20.0	gg	Rub	1	None	JBC
364.4	366.0	1.54	96	0.66	41	9	154	100	VC	pale to light green/grey	fine grained	breccia	Rubble at 0m to 0.21m	VC	0.21	20	170	0	0	1	0	3	4	15	F	10.0	Rub	cly	1	F	JBC
									VC					VC	0.35	40	140	0	0	1	2	5	8	15	J	10.0	cly	chl	1	F	JBC
									VC					VC	0.50	40	330	0	1	3	4	5	13	15	J	5.0	py	chl	1	F	JBC
									VC					VC	0.91	10	200	0	4	3	6	5	18	15	J	1.0	nil		1	F	JBC
									VC					VC	1.07	55	260	0	4	1	2	5	12	15	J	1.0	chl	py	1	F	JBC
									VC					VC	1.21	10	0	0	4	3	4	5	16	15	J	1.0	chl	py	1	F	JBC
									VC					VC	1.33	20	75	0	0	3	2	5	10	15	F	20.0	cly		1	F	JBC
									VC					VC	1.40	30	350	0	0	3	2	5	10	15	J	20.0	Rub	cly	1	F	JBC
									VC					VC	1.52	10	160	0	0	3	2	5	10	15	J	20.0	py	chl	1	F	JBC
366.0	366.3	0.30	100	0.00	0	1	150	75	VC	pale to light green/grey	fine grained	breccia	Highly fractured and rubbly zone	VC	0.30	10	0	0	1	3	6	5	15	15	J	3.0	nil		1	F	JBC
366.3	367.5	0.73	61	0.14	12	15	46	50	VC					VC	0.00			0	0	1	0	5	6	15	F	50.0	Rub	cly	15	None	JBC
367.5	367.9	0.40	100	0.00	0	14	27	75	VC	pale to light green/grey	fine grained	breccia	Very rubbly, weak rock, clay infill	VC	0.00			0	1	1	0	5	7	15	F	5.0	cly	Rub	14	None	JBC
367.9	369.3	1.40	100	0.13	9	8	156	50	VC				Same as above	VC	0.15	60	110	0	4	1	4	5	14	15	J	1.0	py		1	F	JBC
									VC					VC	0.20	50	15	0	1	3	2	5	11	15	J	2.0	cly	Rub	1	F	JBC
									VC					VC	0.30	40	110	0	1	3	2	5	11	15	J	4.0	cly	cc	1	F	JBC
									VC					VC	0.35	5	25	0	0	3	0	5	8	15	J	5.0	cly	Rub	1	F	JBC
									VC					VC	0.45	25	180	0	0	3	0	5	8	15	F	5.0	Rub	cly	1	F	JBC
									VC					VC	0.90	20	0	0	1	3	2	5	11	15	J	2.0	cly	chl	1	F	JBC
									VC					VC	1.10	25	10	0	1	3	2	5	11	15	J	2.0	cly	chl	1	F	JBC
									VC					VC	1.20	20	180	0	1	3	2	5	11	15	J	3.0	cly	py	1	F	JBC
369.3	369.9	0.56	93	0.00	0	20	27	50	VC	pale to light green/grey	fine grained	breccia	Same as above, highly rubbly and fractured	VC	0.00			0	0	1	0	5	6	15	J	30.0	cly	Rub	20	None	JBC
369.9	371.5	1.46	91	0.70	44	15	91	75	VC	pale to light green/grey	fine grained	breccia	Same as above, highly rubbly and fractured	VC	0.00			0	0	1	0	5	6	15	J	20.0	cly	Rub	15	None	JBC
371.5	372.0	0.50	100	0.00	0	Max	5	50	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone	VC	0.00			0	0	1	0	3	4	15	F	500.0	Rub		1	None	SRM
372.0	373.5	1.20	80	0.12	8	Max	5	50	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone, zone with gouge and rubble in infill	VC	0.00			0	0	1	0	3	4	15	F	1200.0	Rub	gg	1	None	SRM
373.5	374.5	1.03	100	0.00	0	Max	5	50	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone	VC	0.00			0	0	1	0	3	4	15	F	1030.0	Rub	gg	1	None	SRM
374.5	374.8	0.27	100	0.12	44	4	54	50	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone	VC	0.00	43	170	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.15	25	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.27	37	80	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.27	50	210	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
374.8	375.0	0.17	85	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone	VC	0.00			0	0	1	0	5	6	15	F	170.0	Rub	gg	1	None	SRM
375.0	376.5	1.50	100	0.53	35	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Highly fractured with micro fractures and gouge	VC	0.00			0	1	1	2	3	7	15	F	5.0	cly	gg	1	None	SRM
376.5	378.0	1.50	100	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone, zone with gouge	VC	0.00			0	0	1	0	3	4	15	F	1500.0	Rub	gg	1	None	SRM
378.0	379.5	0.70	47	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone, zone with gouge	VC	0.00			0	0	1	0	3	4	15	F	700.0	Rub	gg	1	None	SRM
379.5	381.0	1.50	100	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone, zone with gouge	VC	0.00			0	0	1	0	3	4	15	F	1500.0	Rub	gg	1	None	SRM
381.0	382.5	0.70	47	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone, zone with gouge	VC	0.00			0	0	1	0	3	4	15	F	700.0	Rub	gg	1	None	SRM
382.5	384.0	0.38	25	0.00	0	Max	5	25	VC	pale to light green/grey	fine grained	breccia	Rubble/ broken zone, zone with gouge	VC	0.00			0	0	1	0	3	4	15	F	380.0	Rub	gg	1	None	SRM
384.0	385.5	1.20	80	0.00	0	30	39	75	VC	pale to light green/grey	fine grained	breccia	Highly fractured and rubbly zone	VC	0.00			0	0	5	0	3	8	15	F	20.0	Rub	cc	30	None	SRM
385.5	386.0	0.41	82	0.00	0	Max	5	15	VC	pale to light green/grey	fine grained	breccia	Highly rubbly/fractured weak rock can be crumbled by hammer with one blow. Sandy grey rubbly matrix with 3cm angular clasts	VC	0.41	35	170	0	0	1	0	3	4	15	F	400.0	Rub	gg	1	F	SRM
386.0	387.0	1.00	100	0.10	10	9	100	50	VC	pale to light green/grey	fine grained	breccia	Highly rubbly/fractured weak	VC	0.10	18	170	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	F	SRM
									VC					VC	0.45	60	180	0	1	3	2	5	11	15	J	5.0	cc	cly	1	F	SRM
									VC					VC	0.46	65	160	0	1	1	2	5	9	15	J	5.0	cc	cly	1	F	SRM
									VC					VC	0.62	45	340	0	1	3	2	5	11	15	J	5.0	cc	cly	1	F	SRM
									VC					VC	0.74	30	150	0	4	3	4	5	16	15	J	1.0	nil		1	F	SRM
									VC					VC	0.75	42	175	0	4	3	2	5	14	15	J	1.0	chl	cc	1	F	SRM
									VC					VC	0.85	70	350	0	4	3	2	5	14	15	J	1.0	cc	cly	1	F	SRM
									VC					VC	0.90	45	85	0	4	3	2	5	14	15	J	1.0	cc	cly	1	F	SRM
									VC					VC	0.92	30	330	0	4	3	2	5	14	15	J	1.0	cc	cly	1	F	SRM
387.0	388.5	1.50	100	0.53	35	8	167	25	VC	pale green to grey	fine grained	breccia	Lots of micro fractures, highly altered	VC	0.10	65	350	0	1	3	2	5	11	15	J	3.0	cly	py	1	F	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.20	40	0	0	1	1	2	5	9	15	J	5.0	cly	py	1	F	JBC
									VC					VC	0.39	52	325	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									VC					VC	0.50	20	200	0	1	3	2	5	11	15	J	5.0	cly	cc	1	F	JBC
									VC					VC	0.95	10	155	0	0	1	0	5	6	15	J	20.0	cly	gg	1	F	JBC
									VC					VC	1.05	40	70	0	0	3	0	5	8	15	J	10.0	cly	gg	1	F	JBC
									VC					VC	1.40	14	350	0	0	3	0	5	8	15	J	10.0	cly	gg	1	F	JBC
									VC					VC	1.51	20	190	0	0	1	0	5	6	15	J	10.0	cly	gg	1	F	JBC
388.5	390.0	1.21	81	0.00	0	Max	5	15	VC	pale green to grey	fine grained	breccia	Fault, Breccia/gouge matrix is white silty sand, trace clay, and with angular clasts ranging from 1 mm to 3 cm diameter. Run is very weak, can be peeled with a knife.	VC	0.00			0	0	1	0	3	4	15	F	1000.0	gg	cly	1	None	JBC
390.0	391.5	0.66	44	0.00	0	Max	5	15	VC	pale green to grey	fine grained	breccia	Same as above	VC	0.00			0	0	1	0	3	4	15	F	500.0	gg	cly	1	None	JBC
391.5	392.8	1.16	89	0.00	0	30	37	20	VC	pale green to grey	fine grained	breccia	Same as above	VC	0.00			0	0	1	0	3	4	15	F	200.0	gg	cly	30	None	JBC
392.8	394.4	1.54	96	0.62	39	18	81	25	VC	pale to light green/grey	fine grained	breccia	Lots of micro fractures, lots of disseminated sulphide, pyrite blebs	VC	0.00			0	0	1	0	3	4	15	J	100.0	gg	cc	18	None	JBC
394.4	396.0	1.47	92	0.71	44	15	92	75	VC	pale to light green/grey	fine grained	breccia	Lots of pyrite "strings" and "blebs"	VC	0.00			0	0	3	0	3	6	15	J	20.0	cly	Rub	15	None	JBC
396.0	397.1	0.85	77	0.00	0	Max	5	20	VC	pale to light green/grey	fine grained	breccia	Highly fractured and broken, very soft	VC	0.00			0	0	1	0	3	4	15	F	100.0	cly	gg	1	None	JBC
397.1	398.6	1.49	99	0.00	0	35	41	50	VC	pale to light green/grey	fine grained	breccia	Highly fractured, rubbly	VC	0.00			0	0	1	0	3	4	15	J	20.0	Rub	gg	35	None	JBC
398.6	400.0	0.89	64	0.00	0	Max	5	15	VC	pale to light green/greyish white	fine grained	breccia	Fault gouge- very soft, greyish white, silty sand, trace clay matrix with alternating solid core around 20cm and angular clasts up to 2 cm. Can be indented by finger	VC	0.00			0	0	1	0	3	4	15	F	500.0	gg	Rub	1	None	JBC
EOH																														

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-11

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-11 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	37.5	0.0		0					OB				**OVERBURDEN**	OB																
37.5	39.0	1.50	100	1.23	82	150	10	150	VC	grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface.	FLPT	0.00			0	4	3	2	3	12	15	J	0.1	cly	ox	23	none	EA
39.0	40.5	1.50	100	0.95	63	21	68	150	VC	grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface.	FLPT	0.00			0	4	3	2	3	12	15	J	0.1	cly	ox	21	none	EA
40.5	42.0	1.50	100	0.95	63	22	65	100	VC	grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface.	FLPT	0.10			0	4	3	4	3	14	15	J	0.1	Ox		9	none	EA
									VC					FLPT	0.20			0	0	1	2	3	6	15	rub	90.0	cly	ox	1	none	EA
									VC					FLPT	0.25			0	4	3	2	3	12	15	J	0.1	cly	ox	2	none	EA
42.0	43.5	1.50	100	0.78	52	16	88	250	VC	grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface.	FLPT	0.05			0	4	3	4	3	14	15	J	0.1	Ox		16	none	EA
									VC					FLPT	0.12			0	4	3	4	3	14	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.33			0	4	3	4	3	14	15	J	0.1	Ox		3	none	EA
									VC					FLPT	0.47			0	4	3	2	3	12	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	0.62			0	4	1	2	3	10	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	0.75			0	4	3	4	3	14	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.82			0	4	3	4	3	14	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.90			0	4	3	2	3	12	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	0.94			0	4	3	4	3	14	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.07			0	4	3	2	3	12	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.20			0	4	1	2	3	10	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.28			0	4	3	2	3	12	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.35			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.49			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
43.5	45.0	1.50	100	0.94	63	15	94	50	VC	dark grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface.	FLPT	0.05			0	4	3	2	5	14	15	J	0.1	cly		1	none	EA
									VC					FLPT	0.22			0	1	3	4	5	13	15	J	3.0	Ox		1	none	EA
									VC					FLPT	0.35			0	4	3	4	6	17	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.47			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.52			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.55			0	4	3	4	6	17	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.64			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.73			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.91			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.98			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.04			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.13			0	4	3	4	6	17	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.23			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.37			0	1	3	2	5	11	15	J	5.0	cly	ox	1	none	EA
									VC					FLPT	1.56			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
45.0	46.5	1.50	100	1.23	82	10	136	50	VC	grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining in joints.	FLPT	0.45			0	4	5	4	5	18	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.66			0	4	1	2	5	12	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	0.71			0	4	3	2	5	14	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.05			0	4	3	2	5	14	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.08			0	4	3	2	5	14	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.12			0	4	3	2	5	14	15	J	0.1	cly	ox	1	none	EA
									VC					FLPT	1.18			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.37			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.46			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.49			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
46.5	48.0	1.50	100	1.28	85	9	150	50	VC	grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface. Driller dropped core.	FLPT	0.09			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.31	37	105	0	4	3	4	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.43	90		0	4	3	4	6	17	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.64			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.70			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.00			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.13			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.26			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	1.35			0	1	3	2	5	11	15	J	0.1	Ox		1	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
48.0	49.5	1.50	100	1.29	86	10	136	50	VC	dark grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface. Driller dropped core.	FLPT	0.00	78	150	0	4	3	4	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.06	74	310	0	4	3	4	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.21	35	195	0	4	3	4	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.36	62	160	0	4	3	4	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.54	45	180	0	0	1	2	5	8	15	J	5.0	cly	Rub	1	F	EA
									VC					FLPT	0.59	22	160	0	4	3	2	5	14	15	J	0.1	cly	ox	1	F	EA
									VC					FLPT	0.66	53	320	0	4	3	2	5	14	15	J	0.1	cly	ox	1	F	EA
									VC					FLPT	0.69	46	20	0	4	3	2	5	14	15	J	0.1	cly	ox	1	F	EA
									VC					FLPT	0.78	20	20	0	4	3	2	5	14	15	J	0.1	cly	ox	1	F	EA
									VC					FLPT	1.03	25	185	0	4	5	4	5	18	15	J	0.1	Ox		1	F	EA
49.5	51.0	1.39	93	0.59	39	4	278	50	VC	dark grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface. Driller dropped core. Rubble between 0.91-1.04. Rubble and clay between 1.11-1.21	FLPT	0.00			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.25			0	4	3	4	5	16	15	J	0.1	Ox		1	none	EA
									VC					FLPT	0.60			0	1	3	4	5	13	15	J	2.0	Ox		1	none	EA
									VC					FLPT	0.76			0	4	3	4	5	16	15	J	1.0	Ox		1	none	EA
51.0	52.5	1.44	96	1.44	96	4	288	50	VC	dark grey	fine grained	massive	2-3mm clasts, moderately weathered, red-brown staining on joints and surface. Driller dropped core. Vuggy zone from 0-0.2	FLPT	0.24	18	180	0	4	3	2	5	14	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.48	46	175	0	4	3	4	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	0.69	60	250	0	4	5	2	5	16	15	J	0.1	Ox		1	F	EA
									VC					FLPT	1.32	40	160	0	4	3	2	5	14	15	J	0.1	Ox		1	F	EA
52.5	54.0	1.50	100	1.50	100	3	375	150	VC	dark grey	fine grained	massive	clasts 2-5mm, black metallic mineral on surface of rock	FLPT	0.18	60	120	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					FLPT	0.65	62	80	0	4	3	2	5	14	15	J	0.1	cly		1	G	EA
									VC					FLPT	1.49	41	105	0	4	1	2	5	12	15	J	0.1	CLY		1	G	EA
54.0	55.5	1.34	89	1.08	72	3	335	150	VC	dark grey	fine grained	massive	clasts 2-5mm, black metallic mineral on surface of rock , rubble between 0.00-0.08, 0.85-0.93	FLPT	0.25			0	4	3	6	5	18	15	J	0.1			1	none	EA
									VC					FLPT	0.65			0	4	1	2	5	12	15	J	0.1	cly		1	none	EA
									VC					FLPT	1.06			0	4	3	6	5	18	15	J	0.1			1	none	EA
55.5	57.0	1.50	100	1.45	97	3	375	150	VC	dark grey	fine grained	massive	weathering	FLPT	0.00			0	1	3	4	5	13	15	J	30.0	ox		1	none	EA
57.0	58.5	1.50	100	1.15	77	4	300	150	VC	dark grey	fine grained	massive	weathering	FLPT	1.03	37	100	0	4	1	4	5	14	15	J	0.3	ox		1	F	EA
									VC					FLPT	1.24	62	330	0	4	1	4	5	14	15	J	0.3	ox		1	F	EA
									VC					FLPT	1.34	60	200	0	4	1	4	5	14	15	J	0.3	ox		1	F	EA
									VC					FLPT	1.38	55	210	0	4	3	4	5	16	15	J	0.3	ox		1	F	EA
58.5	60.0	1.50	100	1.43	95	2	500	150	VC	dark grey	fine grained	massive	unable to orientate-back oriented	FLPT	0.94	70	160	0	5	3	4	5	17	15	J	0.1	ox		1	F	EA
									VC					FLPT	0.97	68	70	0	4	3	4	5	16	15	J	0.3	ox		1	F	EA
60.0	61.5	1.50	100	1.36	91	4	300	150	VC	dark grey	fine grained	massive	unable to orientate- back oriented	FLPT	0.10	90	360	0	5	3	4	5	17	15	J	0.1	ox		1	F	EA
									VC					FLPT	0.68	21	160	0	4	3	4	5	16	15	J	0.3	ox		1	F	EA
									VC					FLPT	0.90	20	160	0	4	3	4	5	16	15	J	0.3	ox		1	F	EA
									VC					FLPT	1.24	90	360	0	0	1	4	5	10	15	J	30.0	rub	ox	1	F	EA
61.5	63.0	1.50	100	0.85	57	20	71	100	VC	dark grey	fine grained	massive	unable to orientate	FLPT	0.00			0	4	3	4	5	16	15	J	0.3	ox		9	none	EA
									VC					FLPT	0.84			0	0	1	0	3	4	15	rub	70.0	ox	Rub	1	none	EA
									VC					FLPT	0.95			0	4	3	4	5	16	15	J	0.3	ox		4	none	EA
63.0	64.5	1.50	100	1.12	75	3	375	100	VC	dark grey	fine grained	massive	spun mechanical break	FLPT	0.18			0	4	1	4	5	14	15	J	0.3	ox		1	none	EA
									VC					FLPT	0.34			0	4	1	4	5	14	15	J	0.3	ox		1	none	EA
									VC					FLPT	0.76			0	0	1	0	3	4	15	rub	15.0	cly	ox	1	none	EA
64.5	66.0	1.50	100	1.04	69	10	136	100	VC	dark grey	fine grained	massive	unable to orientate	FLPT	0.00			0	4	1	4	5	14	15	J	0.3	ox		10	none	EA
66.0	67.5	1.48	99	1.03	69	9	148	100	VC	dark grey	fine grained	massive		FLPT	0.73	30	250	0	4	3	4	5	16	15	J	0.3	ox		1	G	EA
									VC					FLPT	1.05	25	180	0	4	1	2	5	12	15	J	0.3	cly	ox	1	G	EA
									VC					FLPT	1.13	55	300	0	4	1	4	5	14	15	J	0.3	ox		1	G	EA
									VC					FLPT	1.27	31	230	0	0	1	0	5	6	15	rub	60.0	rub	cly	1	G	EA
67.5	69.0	1.50	100	1.04	69	7	188	100	VC	dark grey	fine grained	massive		FLPT	0.11	24	360	0	4	3	4	5	16	15	J	0.3	ox		1	VG	EA
									VC					FLPT	0.36	24	180	0	1	1	4	5	11	15	J	0.3	ox		1	VG	EA
									VC					FLPT	0.81	58	200	0	4	1	4	5	14	15	J	0.3	ox		1	VG	EA
									VC					FLPT	1.34	21	130	0	1	1	4	5	11	15	J	0.3	ox		1	VG	EA
									VC					FLPT	1.43	35	180	0	1	3	4	5	13	15	J	0.3	ox		1	VG	EA
									VC					FLPT	1.48	23	160	0	4	3	4	5	16	15	J	0.3	ox		1	VG	EA
									VC					FLPT	1.50	23	130	0	4	3	4	5	16	15	J	0.3	ox		1	VG	EA
69.0	70.5	1.50	100	1.35	90	6	214	100	VC	dark grey	fine grained	massive	unable to orientate	FLPT	0.00			0	4	3	4	5	16	15	J	0.8	ox		1	none	EA
									VC					FLPT	1.16			0	0	1	0	3	4	15	rub	45.0	ox	Rub	1	none	EA
70.5	72.0	1.50	100	1.50	100	2	500	100	VC	dark grey	fine grained	massive	trace healed fractures and pyrite	FLPT	1.05	45	180	0	1	1	4	5	11	15	J	0.4	ox		1	G	EA
									VC					FLPT	1.37	65	220	0	4	3	4	5	16	15	J	0.4	ox		1	G	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
72.0	73.5	1.50	100	1.28	85	8	167	100	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures	FLPT	0.29	54	30	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					FLPT	0.59	20	340	0	1	1	4	5	11	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.65			0	4	3	6	6	19	15	J	0.1			1	none	EA
									VC					FLPT	0.86			0	1	3	2	5	11	15	J	0.1	cly		1	none	EA
									VC					FLPT	1.00	41	10	0	1	1	4	5	11	15	J	0.1	ox		1	P	EA
									VC					FLPT	1.03	22	105	0	4	3	4	5	16	15	J	0.1	ox		1	P	EA
									VC					FLPT	1.19	90		0	4	3	6	6	19	15	J	0.1			1	P	EA
									VC					FLPT	1.50	54	20	0	4	1	4	5	14	15	J	0.1	ox		1	P	EA
73.5	75.0	1.50	100	1.49	99	8	167	50	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures	FLPT	0.19	67	260	0	4	3	2	5	14	15	J	0.1	cly	ox	1	P	EA
									VC					FLPT	0.42	44	210	0	1	5	4	5	15	15	J	0.1	ox		1	P	EA
									VC					FLPT	0.58	23	60	0	1	3	4	5	13	15	J	0.1	ox		1	P	EA
									VC					FLPT	0.89	57	180	0	1	1	4	5	11	15	J	0.1	ox		1	P	EA
									VC					FLPT	0.94	37	25	0	1	3	4	5	13	15	J	0.1	ox		1	P	EA
									VC					FLPT	0.96	35	200	0	1	3	4	5	13	15	J	0.1	ox		1	P	EA
									VC					FLPT	1.10	56	220	0	1	5	2	5	13	15	J	0.1	cly	ox	1	P	EA
									VC					FLPT	1.21	35	20	0	1	5	6	5	17	15	J	0.1	ox		1	P	EA
75.0	76.5	1.41	94	1.41	94	4	282	50	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures vuggy throughout	FLPT	0.51			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.75	21	40	0	1	3	4	3	11	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.86	36	80	0	1	3	4	5	13	15	J	0.1	ox		1	G	EA
									VC					FLPT	1.29	22	300	0	1	3	4	5	13	15	J	0.1	ox		1	G	EA
76.5	78.0	1.50	100	1.22	81	6	214	50	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures vuggy throughout	FLPT	0.13	21	350	0	1	3	4	5	13	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.71	90		0	1	3	6	5	15	15	J	0.1			1	G	EA
									VC					FLPT	1.00	22	190	0	1	3	2	5	11	15	J	0.1	cly	ox	1	G	EA
									VC					FLPT	1.21				1	3	2	5	11	15	J	0.1			1	G	EA
									VC					FLPT	1.28	22	170	0	1	5	3	5	14	15	J	5.0	ox		1	G	EA
									VC					FLPT	1.35	60	160	0	1	5	3	5	14	15	J	5.0	ox		1	G	EA
78.0	79.5	1.50	100	1.31	87	9	150	50	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures vuggy throughout	FLPT	0.12			0	1	3	6	5	15	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.17	45	30	0	1	3	4	5	13	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.33	75	290	0	1	3	4	5	13	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.55	58	190	0	1	3	6	5	15	15	J	0.1	ox		1	G	EA
									VC					FLPT	0.60	65	17	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					FLPT	0.64	73	90	0	1	3	2	5	11	15	J	0.1	cly	ox	1	G	EA
									VC					FLPT	0.66	90		0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					FLPT	0.95	9	40	0	1	3	2	5	11	15	J	0.1	cly	ox	1	G	EA
									VC					FLPT	1.40	10	150	0	1	3	2	5	11	15	J	0.1	cly	ox	1	G	EA
79.5	81.0	1.50	100	1.22	81	8	167	50	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures	FLPT	0.56			0	1	3	4	5	13	15	J	0.1	ox		1	None	EA
									VC					FLPT	1.04			0	1	3	4	5	13	15	J	0.1	ox		4	None	EA
									VC					FLPT	1.42			0	0	3	4	6	13	15	J	5.0			3	None	EA
81.0	82.5	1.50	100	0.77	51	16	88	100	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures	FLPT	0.21			0	4	3	2	5	14	15	J	0.1	ox	cly	10	None	EA
									VC					FLPT	0.26			0	1	3	4	5	13	15	J	0.5	ox		6	None	EA
82.5	84.0	1.50	100	0.54	36	14	100	100	VC	dark grey	fine grained	massive	clasts, red-brown staining in joints , chaotic micro fractures. Rubble zone from 0.31-0.52 filled with clay.	FLPT	0.20			0	1	3	4	5	13	15	J	0.5	ox		14	None	EA
84.0	85.5	1.10	73	0.00	0	max	5	100	VC	dark grey	fine grained	massive	very broken rubble. Clay infilling in gravel sized rubble. Red brown clay and staining in joints.	FLPT	0.00			0	0	1	0	3	4	15	J	0.1	ox		30	None	EA
85.5	87.0	0.80	53	0.00	0	max	5	100	VC	dark grey	fine grained	massive	very broken rubble. Clay infilling in gravel sized rubble. Red brown clay and staining in joints.	FLPT	0.00			0	0	1	0	3	4	15	J	0.1	cly	ox	20	None	EA
87.0	88.5	1.35	90	0.00	0	max	5	100	VC	dark grey	fine grained	massive	very broken rubble. Clay infilling in gravel sized rubble. Red brown clay and staining in joints.	FLPT	0.00			0	0	1	0	3	4	15	J	0.5	ox	cly	23	None	EA
88.5	90.0	1.50	100	1.43	95	7	188	150	VC	dark grey	fine grained	massive	red-brown staining	FLPT	0.00	32	160	0	1	1	4	5	11	15	J	0.5	ox		1	F	EA
									VC					FLPT	0.15	71	130	0	1	1	4	5	11	15	J	0.5	ox		1	F	EA
									VC					FLPT	0.31	54	235	0	1	3	4	5	13	15	J	0.1	ox		1	F	EA
									VC					FLPT	0.80	28	60	0	1	1	4	5	11	15	J	0.1	ox		1	F	EA
									VC					FLPT	0.88	34	80	0	1	1	4	5	11	15	J	0.1	ox		1	F	EA
									VC					FLPT	1.07	62	100	0	1	1	2	5	9	15	J	0.5	ox	cly	1	F	EA
									VC					FLPT	1.14	80	26	0	1	1	4	5	11	15	J	0.1	ox		1	F	EA
90.0	91.5	1.49	99	1.00	67	17	83	200	VC	dark grey	fine grained	massive	red-brown staining	FLPT	0.00	28	15	0	1	1	4	5	11	15	J	0.1	ox		1	F	EA
									VC					FLPT	0.26	15	10	0	1	3	4	5	13	15	J	0.1	ox		1	F	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					FLPT	0.39	35	120	0	1	1	4	5	11	15	J	0.1	ox		1	F	EA
									VC					FLPT	1.00			0	1	3	4	5	13	15	J	0.1	ox		14	F	EA
91.5	93.0	1.48	99	1.11	74	13	106	50	VC	dark grey	fine grained	massive	red-brown staining, micro fractures and half open joints are evident. Ruble zone from 1.12-1.18.	FLPT	0.29			0	1	3	4	5	13	15	J	1.0	ox		7	none	EA
									VC					FLPT	0.74			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.89			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.98			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.27			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.43			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.48			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
93.0	94.5	1.50	100	0.98	65	10	136	100	VC	dark grey	fine grained	massive	red-brown staining, chaotic micro fractures and some localised folding	FLPT	0.16			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.34			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.50			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.75			0	1	3	2	5	11	15	J	0.1	ox	cly	1	none	EA
									VC					FLPT	0.83			0	4	3	2	5	14	15	J	0.1	ox	cly	1	none	EA
									VC					FLPT	0.88			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.11			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.23			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.30			0	4	1	4	5	14	15	J	0.1	ox		5	none	EA
									VC					FLPT	1.44			0	1	3	4	5	13	15	J	0.1			1	none	EA
94.5	96.0	1.48	99	0.92	61	12	114	25	VC	dark grey	fine grained	massive	red-brown staining, chaotic micro fractures, very shallow breaks. Fell apart when picked up	FLPT	0.36			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.60			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.66			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.86			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.88			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	0.97			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.08			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.19			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.21			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.28			0	1	3	4	5	13	15	J	0.1	ox		1	none	EA
									VC					FLPT	1.48			0	4	3	4	5	16	15	J	0.1	ox		1	none	EA
96.0	96.9	0.84	99	0.84	99	2	280	25	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.71	33	200	0	1	3	4	5	13	15	J	2.0	ox		1	F	BOC
									VC					FLPT	0.85	27	210	0	1	3	4	5	13	15	J	2.0	ox		1	F	BOC
96.9	97.5	0.65	100	0.00	0	max	5	25	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.00			0	0	3	3	5	11	15	rub	650.0	ox	Rub	1	None	BOC
97.5	99.0	1.50	100	0.87	58	9	150	25	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		9	None	BOC
99.0	100.5	1.50	100	0.74	49	8	167	50	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.47	26	10	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.65	47	30	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.73	21	20	0	4	1	4	5	14	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.90	11	10	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.00	19	180	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.17	35	350	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.27	27	110	0	4	1	4	5	14	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.40	32	350	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
100.5	102.0	1.50	100	1.41	94	4	300	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.40	36	20	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.77	85	20	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.11	28	20	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.30	46	360	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
102.0	103.5	1.50	100	0.56	37	12	115	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		12	F	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
103.5	105.0	1.50	100	1.30	87	5	250	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.13	11	20	0	1	3	4	5	13	15	J	0.5	ox	Rub	4	F	BOC
									VC					FLPT	1.04	19	35	0	1	3	2	5	11	15	J	0.1	ox	cc	1	F	BOC
105.0	106.5	1.50	100	1.04	69	8	167	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		8	F	BOC
106.5	108.0	1.50	100	0.63	42	10	136	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		10	F	BOC
108.0	109.5	1.50	100	1.39	93	5	250	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		4	F	BOC
									VC					FLPT	1.37			0	1	1	2	5	9	15	J	0.1	cly	ox	1	F	BOC
109.5	111.0	1.50	100	0.87	58	10	136	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.08	31	10	0	1	1	0	5	7	15	J	0.1	ox	Rub	1	F	BOC
									VC					FLPT	0.42	29	20	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.70	21	350	0	1	3	2	5	11	15	J	0.1	cly	ox	3	F	BOC
									VC					FLPT	0.81	17	350	0	1	3	2	5	11	15	J	0.1	cly	ox	4	F	BOC
									VC					FLPT	1.22	27	360	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
111.0	112.5	1.50	100	0.71	47	7	188	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.19	44	60	0	1	1	4	5	11	15	J	0.1	ox		1	P	BOC
									VC					FLPT	0.25	61	50	0	4	3	4	5	16	15	J	0.1	ox		1	P	BOC
									VC					FLPT	0.62	29	30	0	1	3	4	5	13	15	J	0.7	Rub	ox	3	P	BOC
									VC					FLPT	0.86	30	360	0	1	3	4	5	13	15	J	0.1	ox		1	P	BOC
									VC					FLPT	1.17	27	90	0	1	3	4	5	13	15	J	0.1	ox		1	P	BOC
112.5	114.0	1.50	100	0.82	55	6	214	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.00	0	0	0	1	3	4	5	13	15	J	0.1	ox		6	F	BOC
114.0	115.5	1.50	100	0.97	65	4	300	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.27	40	150	0	5	1	4	5	15	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.76	59	100	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.10	23	40	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.10	30	80	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
115.5	117.0	1.50	100	0.93	62	6	214	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.22	67	250	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.71	27	210	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.96	21	50	0	5	1	4	5	15	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.11	50	160	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.24	44	360	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.39	22	330	0	4	3	4	5	16	15	J	0.1	ox		1	F	BOC
117.0	118.5	1.50	100	1.50	100	4	300	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining.	FLPT	0.28	90		0	5	1	6	5	17	15	J	0.1			1	None	BOC
									VC					FLPT	0.44	30		0	5	1	4	5	15	15	J	0.1	ox		1	None	BOC
									VC					FLPT	0.96	30		0	5	1	4	5	15	15	J	0.1	cc		1	None	BOC
									VC					FLPT	1.17	35		0	5	1	4	5	15	15	J	0.1	cc		1	None	BOC
									VC					FLPT	1.33	50		0	5	1	4	5	15	15	J	0.1	ox		1	None	BOC
118.5	120.0	1.50	100	1.50	100	16	88	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		16	None	BOC
120.0	121.5	1.50	100	1.50	100	12	115	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		12	None	BOC
121.5	123.0	1.50	100	1.15	77	7	188	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	1	4	5	11	15	J	0.1	ox		17	None	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
123.0	124.5	1.50	100	0.19	13	16	88	100	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	3	4	5	13	15	J	0.1	ox		16	None	BOC
124.5	126.0	1.50	100	0.85	57	12	115	150	VC	grey	fine grained	massive	grey fine grained FLPT with chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00	19	30	0	0	1	1	5	7	15	rub	90.0	Rub	ox	1	F	BOC
									VC					FLPT	0.63	69	360	0	1	3	3	5	12	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.74	33	360	0	1	3	3	5	12	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.78	38	20	0	4	3	3	5	15	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.83	16	50	0	1	1	1	5	8	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.10	20	20	0	4	1	1	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.33	30	20	0	1	1	1	5	8	15	J	0.1	ox		1	F	BOC
126.0	127.5	1.50	100	0.72	48	9	150	150	VC	grey	fine grained	massive	chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.00			0	1	1	1	5	8	15	J	0.1	ox		9	None	BOC
127.5	129.0	1.50	100	0.59	39	10	136	150	VC	grey	fine grained	massive	chaotic micro fractures and many healed joints. Iron staining. Unable to orientate	FLPT	0.23	23	20	0	1	1	1	5	8	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.38	28	20	0	4	3	4	5	16	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.59	40	350	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.67	71	350	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.74	17	30	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.86	22	360	0	4	3	4	5	16	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.90	46	360	0	1	1	4	5	11	15	J	0.1	ox		1	F	BOC
									VC					FLPT	0.91	35	360	0	4	1	4	5	14	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.13	45	30	0	1	3	4	5	13	15	J	0.1	ox		1	F	BOC
									VC					FLPT	1.36	26	30	0	4	1	4	5	14	15	J	0.1	ox		1	F	BOC
129.0	130.5	1.50	100	1.50	100	4	300	150	VC	grey	fine grained	massive		FLPT	0.45	32	10	0	5	1	6	6	18	15	J	0.1			1	F	BOC
									VC					FLPT	0.75	35	140	0	5	1	6	6	18	15	J	0.1			1	F	BDC
									VC					FLPT	0.99	50	110	0	5	1	6	6	18	15	J	0.1			1	F	BOC
									VC					FLPT	1.12	48	130	0	5	1	0	6	12	15	J	0.1			1	F	BOC
130.5	132.0	1.50	100	1.50	100	0	1500	150	VC	grey	fine grained	massive		FLPT	0.00			6	6	6	6	6	30	15		0.0			1	F	BOC
132.0	133.5	1.50	100	0.74	49	19	75	150	VC	grey	fine grained	massive		FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl	cc	19	F	BOC
133.5	133.8	0.30	100	0.00	0	max	5	150	VC	grey	fine grained	massive		FLPT	0.00			0	0	1	2	5	8	15	J	300.0	chl	Rub	1	None	BOC
133.8	135.0	1.20	100	1.20	100	4	240	150	VC	grey	fine grained	massive		FLPT	0.23			0	0	1	0	5	6	15	rub	30.0	Rub	chl	1	None	BOC
									VC					FLPT	0.49	53	80	0	4	1	4	5	14	15	J	0.1	chl		1	F	BOC
									VC					FLPT	0.59	43	330	0	4	1	4	5	14	15	J	0.1	chl		1	F	BOC
									VC					FLPT	0.92	20	50	0	4	1	4	5	14	15	J	0.1	chl		1	F	BOC
135.0	136.5	1.47	98	1.38	92	2	490	150	VC	grey	fine grained	massive		FLPT	1.18	55	340	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					FLPT	1.36			0	4	3	6	6	19	15	J	0.1			1	VG	EA
136.5	138.0	1.50	100	1.29	86	4	300	250	VC	grey	fine grained	massive	pyrite in joints	FLPT	0.46	37	340	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					FLPT	0.54	40	360	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					FLPT	0.59	31	320	0	4	1	6	6	17	15	J	0.1			1	VG	EA
									VC					FLPT	0.68	32	45	0	4	1	6	6	17	15	J	0.1			1	VG	EA
138.0	139.5	1.50	100	1.39	93	5	250	250	VC	grey	fine grained	massive	pyrite in joints	FLPT	0.18	49	10	0	4	1	2	5	12	15	J	0.1	cly		1	VG	EA
									VC					FLPT	0.29	41	200	0	4	3	2	5	14	15	J	0.1	cly		1	VG	EA
									VC					FLPT	0.52	32	40	0	4	3	2	6	15	15	J	0.1	cly		1	VG	EA
									VC					FLPT	0.61	45	180	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					FLPT	1.03	44	20	0	1	3	2	5	11	15	J	2.0	cly		1	VG	EA
139.5	141.0	1.43	95	1.34	89	6	204	250	VC	grey	fine grained	massive	pyrite joints	FLPT	0.41	33	20	0	4	3	2	6	15	15	J	0.1			1	VG	EA
									VC					FLPT	0.52	30	20	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					FLPT	0.61	45	280	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					FLPT	0.76	18	55	0	1	3	2	5	11	15	J	1.0	cly		1	VG	EA
									VC					FLPT	1.16	38	25	0	1	1	2	5	9	15	J	1.0	cly		1	VG	EA
									VC					FLPT	1.40	41	160	0	4	1	6	5	16	15	J	0.1	cly		1	VG	EA
141.0	142.5	1.50	100	1.15	77	22	65	150	VC	dark grey	fine grained	massive		FLPT	0.19			0	4	1	6	6	17	15	J	0.1			7	none	EA
									VC					FLPT	0.57			0	4	3	6	6	19	15	J	0.1			10	none	EA
									VC					FLPT	0.58			0	4	3	2	5	14	15	J	0.1	cly		5	none	EA
142.5	143.6	1.14	100	1.14	100	6	163	100	VC	dark grey	fine grained	massive		FLPT	0.24			0	4	1	6	6	17	15	J	0.1			5	none	EA
									VC					FLPT	0.75			0	4	3	6	6	19	15	J	0.1			1	none	EA
143.6	144.0	0.36	100	0.00	0	7	45	0.25	VC	light grey	fine grained	massive	really weak broken light grey with clay, shear zone	FLPT	0.00			0	0	1	0	3	4	15	J	0.1			4	none	EA
									VC					FLPT	0.20			0	4	3	2	5	14	15	J	0.1	cly		3	none	EA
144.0	145.5	0.53	35	0.13	9	max	5	0.25	VC	dark grey	fine grained	massive	very broken clay and rubble	FLPT	0.13			0	0	1	0	5	6	15	rub	530.0	cly		1	none	EA
145.5	145.8	0.32	100	0.32	100	0	320		VC	dark grey	fine grained	massive		FLPT	0.00			6	6	6	6	6	30	15		0.0			1	none	EA
145.8	147.0	0.58	48	0.00	0	max	5	0.5	VC	dark grey	fine grained	massive	rubble	FLPT	0.32			0	0	1	0	5	6	15	rub	580.0			1	none	EA
147.0	148.5	1.36	91	1.28	85	2	453	150	VC	dark grey	fine grained	massive		FLPT	0.19	25	340	0	4	1	6	6	17	15	J	0.1			1	F	EA
									VC					FLPT	0.27	28	350	0	4	1	6	6	17	15	J	0.1			1	F	EA
148.5	150.0	1.48	99	0.78	52	24	59	150	VC	dark grey	fine grained	massive	dropped core down barrel	FLPT	0.15			0	4	3	6	6	19	15	J	0.1			24	none	EA
150.0	151.5	1.50	100	0.93	62	6	214	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	3	6	6	19	15	J	0.1			6	none	BOC
151.5	153.0	1.50	100	0.44	29	7	188	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	3	6	6	19	15	J	0.1			7	none	BOC
153.0	154.5	1.50	100	0.65	43	10	136	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	3	6	6	19	15	J	0.1			10	none	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
154.5	156.0	0.95	63	0.38	25	25	37	150	VC	dark grey	fine grained	massive	blocked	FLPT	0.00			0	0	1	0	3	4	15	rub	10.0			1	none	BOC
156.0	157.5	1.50	100	0.29	19	17	83	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	3	6	6	19	15	J	0.1			17	none	BOC
157.5	159.0	1.50	100	0.00	0	max	5	150	VC	dark grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	3	4	15	rub	1500.0	chl		1	none	BOC
159.0	160.5	1.30	87	0.00	0	max	5	150	VC	dark grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	3	4	15	rub	1300.0	cly	chl	1	none	BOC
160.5	161.1	0.60	100	0.00	0	max	5	150	VC	dark grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	3	4	15	rub	600.0	chl	Rub	1	none	BOC
161.1	162.0	0.90	100	0.00	0	10	82	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	3	6	6	19	15	J	0.1			10	none	BOC
162.0	163.5	1.48	99	0.67	45	7	185	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	3	6	6	19	15	J	0.1			1	None	BOC
									VC					FLPT	0.71	34	76	0	4	1	6	6	17	15	J	0.1			1	F	BOC
									VC					FLPT	0.85	68	360	0	4	1	6	6	17	15	J	0.1			1	F	BOC
									VC					FLPT	0.95	63	360	0	4	1	6	6	17	15	J	0.1			1	F	BOC
163.5	165.0	1.49	99	0.68	45	12	115	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	1	6	6	17	15	J	0.1			12	None	BOC
165.0	166.5	1.46	97	0.77	51	6	209	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	1	6	6	17	15	J	0.1			6	None	BOC
166.5	168.0	1.50	100	0.69	46	8	167	150	VC	dark grey	fine grained	massive		FLPT	0.00			0	4	1	6	6	17	15	J	0.1			8	None	BOC
168.0	169.5	1.50	100	0.92	61	6	214	150	VC	grey green	fine grained	massive	pyrite/gold on fractures	FLPT	0.00			0	4	1	4	5	14	15	J	0.1	py		6	None	BOC
169.5	171.0	1.50	100	0.98	65	17	83	100	VC	grey	fine grained	massive	clasts 2-15mm wide, VC, pyrite in joints	VC	0.37			0	4	3	6	6	19	15	J	0.1			1	None	EA
									VC					VC	0.46			0	4	3	5	5	17	15	J	0.1	py		1	None	EA
									VC					VC	0.62			0	4	3	5	5	17	15	J	0.1	py		1	None	EA
									VC					VC	0.70			0	4	5	2	6	17	15	J	0.1	cly	py	1	None	EA
									VC					VC	0.73			0	4	3	2	5	14	15	J	0.1	cly	py	1	None	EA
									VC					VC	1.06			0	1	3	2	5	11	15	J	1.0	cly		1	None	EA
									VC					VC	1.32			0	1	3	2	5	11	15	J	1.0	cly		1	None	EA
									VC					VC	1.42			0	0	0	1	5	6	15	J	80.0	cly	Rub	1	None	EA
171.0	172.5	0.91	61	0.00	0	max	5	0.5	VC	grey green	fine grained	massive	rubble, clay	VC	0.00			0	0	1	0	3	4	15	rub	910.0	cly		1	none	EA
172.5	173.4	0.64	71	0.00	0	max	5	0.5	VC	grey green	fine grained	massive	rubble, clay, pyrite in joints	VC	0.00			0	0	1	0	3	4	15	rub	640.0	cly		1	none	EA
173.4	174.0	0.60	100	0.41	68	6	86	0.5	VC	grey green	fine grained	massive	pyrite in joints	VC	0.00			0	4	3	6	5	18	15	J	0.1			6	None	EA
174.0	175.5	1.50	100	0.24	16	29	50	0.5	VC	grey	fine grained	massive	clay, pyrite, very broken, broke apart even more when picked up	FLPT	0.00			0	1	3	2	5	11	15	J	0.1	cly		16	none	EA
									VC					FLPT	0.00			0	4	3	6	6	19	15	J	0.1			18	none	EA
175.5	177.0	1.34	89	0.27	18	max	5	0.5	VC	grey	fine grained	massive	clay, pyrite, very broken	FLPT	0.00			0	0	1	0	3	4	15	rub	270.0	Rub		1	None	EA
177.0	178.2	0.96	81	0.00	0	max	5	0.5	VC	grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	3	4	15	rub	960.0	Rub	cly	1	none	EA
178.2	178.5	0.31	100	0.31	100	1	155	100	VC	grey	fine grained	massive	clay, pyrite, very broken	FLPT	0.00			0	4	3	6	6	19	15	J	1.0			1	none	EA
178.5	180.0	1.50	100	1.50	100	5	250	250	VC	grey	fine grained	massive	clasts 2-15mm wide, green staining in joints and pyrite	FLPT	0.19			0	4	3	2	5	14	15	J	0.1	chl		1	none	EA
									VC					FLPT	0.73			0	4	3	6	6	19	15	J	0.1			1	none	EA
									VC					FLPT	0.92			0	4	5	6	6	21	15	J	0.1			1	none	EA
180.0	181.5	1.35	90	1.26	84	4	270	100	VC	grey	fine grained	massive	blue green staining on joints	FLPT	0.30	60	70	0	1	1	2	5	9	15	J	1.0	chl		1	F	EA
									VC					FLPT	0.70	44	105	0	1	1	2	5	9	15	J	2.0	chl	py	1	F	EA
									VC					FLPT	0.79	68	95	0	1	1	2	5	9	15	J	1.0	chl	py	1	F	EA
									VC					FLPT	1.00	35	105	0	1	1	2	5	9	15	J	1.0	chl	py	1	F	EA
181.5	183.0	1.50	100	1.50	100	2	500	100	VC	grey	fine grained	massive	pyrite on surface, spun joints stopped the orientation line	FLPT	0.56	18	350	0	4	1	2	5	12	15	J	0.1	chl	py	1	F	EA
									VC					FLPT	1.26	30	360	0	1	3	2	5	11	15	J	0.1	chl	py	1	F	EA
183.0	184.5	1.40	93	0.52	35	1	700		VC	grey	fine grained	massive	very shallow joint with rubble on one end and another side hard rock	FLPT	0.52	8		0	0	1	0	3	4	15	rub	10.0	cly	chl	1	none	EA
184.5	186.0	1.50	100	0.97	65	7	188	100	VC	grey	fine grained	massive	chlorite in joints, pyrite on surface	FLPT	0.31	15	60	0	4	3	2	5	14	15	J	0.1	chl	py	1	F	EA
									VC					FLPT	0.36	14	160	0	4	3	2	5	14	15	J	0.1	chl	py	1	F	EA
									VC					FLPT	0.45	67	205	0	4	1	2	6	13	15	J	0.1	chl		1	F	EA
									VC					FLPT	0.63			0	4	3	6	6	19	15	J	0.1			1	F	EA
									VC					FLPT	0.70	35	40	0	4	3	6	6	19	15	J	0.1			1	F	EA
									VC					FLPT	0.85	44	110	0	4	3	6	6	19	15	J	0.1			1	F	EA
									VC					FLPT	1.15	30	80	0	4	1	2	5	12	15	J	0.1	chl		1	F	EA
186.0	187.5	1.50	100	1.29	86	8	167	100	VC	grey	fine grained	massive	chlorite in joints, pyrite on surface	FLPT	0.51			0	4	1	5	5	15	15	J	0.1	chl		1	none	EA
									VC					FLPT	0.79			0	4	5	6	6	21	15	J	0.1			1	none	EA
									VC					FLPT	0.96			0	4	1	5	5	15	15	J	0.1	chl	py	1	none	EA
									VC					FLPT	1.10			0	4	3	5	5	17	15	J	0.1	chl		1	none	EA
									VC					FLPT	1.25			0	4	1	5	5	15	15	J	0.1	chl	py	1	none	EA
									VC					FLPT	1.36			0	4	3	6	6	19	15	J	0.1			1	none	EA
									VC					FLPT	1.39			0	4	3	2	5	14	15	J	0.1	cly		1	none	EA
									VC					FLPT	1.42			0	4	3	2	5	14	15	J	0.1	cly		1	none	EA
187.5	188.3	0.77	100	0.72	94	5	128	150	VC	grey	fine grained	massive	parallel joint on side is clay the other is hard rock, between .26-.77m	FLPT	0.05			0	4	3	5	6	18	15	J	0.1			1	none	EA
									VC					FLPT	0.10			0	4	3	2	6	15	15	J	0.1			1	none	EA
									VC					FLPT	0.21			0	4	1	2	6	13	15	J	0.1			1	none	EA
									VC					FLPT	0.26			0	4	1	2	6	13	15	J	0.1			1	none	EA
									VC					FLPT	0.55			0	4	3	6	6	19	15	J	0.1			1	none	EA
									VC					FLPT	0.70			0	0	3	2	5	10	15	RUB	90.0	cly		1	none	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
188.3	188.7	0.46	100	0.00	0	max	5	150	VC	grey	fine grained	massive	rubble	FLPT	0.00			0	4	3	2	5	14	15	rub	530.0	cly	Rub	1	None	EA
188.7	189.0	0.27	100	0.00	0	10	25	150	VC	grey	fine grained	massive	broken	FLPT	0.00			0	4	3	2	5	14	15	rub	270.0	cly		1	None	EA
189.0	189.8	0.75	100	0.75	100	max	5	150	VC	grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	5	6	15	rub	750.0	cly	Rub	1	None	EA
189.8	192.0	1.54	70	1.16	53	11	128	150	VC	grey	fine grained	massive	grey fine grained	FLPT	0.09			0	4	3	6	6	19	15	J	0.1			1	None	EA
									VC					FLPT	0.25			0	4	3	6	6	19	15	J	0.1			1	None	EA
									VC					FLPT	0.48	14	10	0	4	1	2	5	12	15	J	0.1	cly		1	F	EA
									VC					FLPT	0.63			0	4	1	2	5	12	15	J	0.1	cly		1	None	EA
									VC					FLPT	0.83	53	130	0	4	1	2	5	12	15	J	0.1	cly	chl	1	F	EA
									VC					FLPT	0.95	55	30	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					FLPT	1.11	78	40	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					FLPT	1.21	70	45	0	4	3	6	6	19	15	J	0.1			1	F	EA
192.0	193.5	1.50	100	0.74	49	12	115	200	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl		12	None	EA
193.5	195.0	1.50	100	0.56	37	10	136	200	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl		10	None	EA
195.0	196.6	1.50	94	0.57	36	17	83	200	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl		17	None	EA
196.5	198.0	1.50	100	1.21	81	5	250	200	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl		5	None	EA
198.0	199.5	1.40	93	0.42	28	9	140	200	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.09	23	350	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	0.20	27	350	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	0.34	60	50	0	4	0	6	6	16	15	J	0.1			1	VG	EA
									VC					FLPT	0.59	51	350	0	5	1	2	5	13	15	J	0.1	chl		1	VG	EA
									VC					FLPT	0.66	30	260	0	5	1	2	5	13	15	J	0.1	chl		1	VG	EA
									VC					FLPT	0.87	44	310	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					FLPT	0.94	15	100	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					FLPT	1.05	79	360	0	4	1	2	5	12	15	J	0.1	chl		1	VG	EA
									VC					FLPT	1.23	75	310	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
199.5	201.0	1.50	100	0.44	29	9	150	200	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.20	39	20	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	0.70	50	60	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	0.74	32	300	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	0.81	59	40	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	0.92	78	50	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	1.02	40	300	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	1.11	16	160	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	1.27	52	100	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					FLPT	1.44	40	80	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
201.0	202.2	1.20	100	0.21	18	16	71	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl	pyrr	16	none	EA
202.2	202.5	0.30	100	0.00	0	max	5	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	300.0	chl		1	none	EA
202.5	202.7	0.20	100	0.00	0	2	67	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	3	2	6	15	15	J	0.1	chl	pyrr	2	none	EA
202.7	203.0	0.25	100	0.00	0	max	5	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	250.0			1	none	EA
203.0	204.0	1.05	100	0.23	22	7	131	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	3	2	5	14	15	J	0.1	chl	pyrr	7	none	EA
204.0	205.5	1.50	100	0.29	19	17	83	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	4	3	2	5	14	15	J	0.1	chl		17	none	EA
205.5	206.0	0.25	56	0.00	0	Max	5	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	250.0	chl		1	none	EA
206.0	207.0	1.05	100	0.44	42	7	131	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00	45	20	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	0.07	20	300	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	0.38	18	360	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	0.54	52	80	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	0.67	49	60	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	0.77	61	20	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	0.88	63	360	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	1.12	27	10	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	F	EA
207.0	208.5	1.00	67	0.00	0	max	5	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	1000.0	chl		1	none	EA
208.5	210.0	1.50	100	0.15	10	max	5	150	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	1500.0	chl		1	none	EA
210.0	211.5	1.50	100	0.00	0	max	5	25	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	150.0	chl	Rub	1	none	EA
211.5	213.0	1.50	100	0.00	0	max	5	5	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	1500.0	chl	Rub	1	none	EA
213.0	214.5	1.50	100	0.00	0	max	5	25	VC	grey	fine grained	massive	chlorite alteration on fractures	FLPT	0.00			0	0	1	0	5	6	15	Rub	1500.0	chl	Rub	1	none	EA
214.5	216.0	1.04	69	0.00	0	max	5	5	VC	dark grey	fine grained	massive	weak, crumbles when grabbed, fault zone gouge material	FLPT	0.00			0	0	1	0	3	4	15	rub	1400.0	cly		1	none	EA
216.0	217.5	0.44	29	0.00	0	max	5	5	VC	dark grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	3	4	15	rub	440.0			1	none	EA
217.5	219.0	0.88	59	0.00	0	max	5	5	VC	dark grey	fine grained	massive	soft clay and gravel. Fault gouge can be indented by thumb	FLPT	0.00			0	0	1	0	3	4	15	rub	880.0	cly		1	none	EA
219.0	220.0	0.96	100	0.00	0	max	5	150	VC	dark grey	fine grained	massive	rubble	FLPT	0.00			0	0	1	0	5	6	15	rub	960.0			1	G	EA
220.0	220.5	0.54	100	0.40	74	1	270	150	VC	dark grey	fine grained	massive	green staining in joints	FLPT	0.17	24	10	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	G	EA
220.5	222.0	1.50	100	1.50	100	4	300	150	VC	dark grey	fine grained	massive	green staining in joints	FLPT	0.61	21	15	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	G	EA
									VC					FLPT	0.74	24	30	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	G	EA
									VC					FLPT	1.16	13	55	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	G	EA
									VC					FLPT	1.31	63	210	0	4	3	6	6	19	15	J	0.1			1	G	EA
222.0	223.5	1.50	100	1.36	91	8	167	150	VC	dark grey	fine grained	massive	green staining in joints	FLPT	0.24	46	320	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					FLPT	0.25			0	4	3	6	6	19	15	J	0.1			5	F	EA
									VC					FLPT	0.69	18	34	0	4	5	2	5	16	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	1.26	25	120	0	4	5	2	5	16	15	J	0.1	chl	pyrr	1	F	EA
223.5	225.0	1.17	78	1.17	78	1	585	250	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.95	33	220	0	4	3	6	6	19	15	J	0.1			1	F	EA
225.0	226.5	1.50	100	1.20	80	8	167	150	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.17			0	4	3	2	5	14	15	J	0.1	chl	pyrr	5	None	EA
									VC					FLPT	1.32	36	100	0	4	3	4	5	16	15	J	0.1	pyrr		1	F	EA

DRILL RUN DATA									GEOLOGY - COMMENTS					DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																	Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					FLPT	1.42	43	70	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
									VC					FLPT	1.52	39	75	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
226.5	228.0	1.50	100	1.50	100	2	500	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.73	40	150	0	4	1	2	5	12	15	J	0.1	chl		1	F	EA
									VC					FLPT	1.15	25	360	0	4	1	2	5	12	15	J	0.1	chl		1	F	EA
228.0	229.5	1.50	100	1.37	91	5	250	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl		1	None	EA
229.5	231.0	1.50	100	1.35	90	4	300	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.16	35	110	0	4	1	2	5	12	15	J	0.1	chl		1	G	EA
									VC					FLPT	0.23	40	200	0	4	3	2	5	14	15	J	0.1	chl		1	G	EA
									VC					FLPT	0.29	63	120	0	4	3	2	5	14	15	J	0.1	chl		1	G	EA
									VC					FLPT	0.36	19	60	0	4	3	2	5	14	15	J	0.1	chl		1	G	EA
									VC					FLPT	0.78	50	140	0	4	1	2	5	12	15	J	0.1	chl		1	G	EA
									VC					FLPT	1.15	72	210	0	4	1	2	5	12	15	J	0.1	chl		1	G	EA
231.0	232.5	1.50	100	0.82	55	6	214	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.47	24	360	0	4	3	4	5	16	15	J	0.1	chl		3	F	EA
									VC					FLPT	0.72	17	190	0	1	3	4	5	13	15	J	0.1	Rub		2	F	EA
									VC					FLPT	0.83	50	190	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					FLPT	1.07	42	190	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
232.5	234.0	1.50	100	1.50	100	3	375	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.11	64	150	0	4	1	6	6	17	15	J	0.1			1	VG	BOC
									VC					FLPT	0.67	48	100	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
									VC					FLPT	0.87	55	70	0	4	1	6	6	17	15	J	0.1			1	VG	BOC
234.0	235.5	1.50	100	1.40	93	2	500	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.30	65	150	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.63	27	170	0	0	1	2	5	8	15	J	20.0	Rub		1	VG	BOC
235.5	237.0	1.50	100	1.50	100	6	214	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.12	34	20	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.65	22	20	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.86	40	190	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.36	36	180	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
237.0	238.5	1.50	100	0.82	55	8	167	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.00			0	4	3	2	5	14	15	J	0.1	chl	pyrr	8	None	BOC
238.5	240.0	1.50	100	1.24	83	5	250	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.04	60	190	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.20	16	10	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.46	40	210	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.94	55	210	0	5	1	2	5	13	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.17	30	10	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
240.0	241.5	1.50	100	0.95	63	7	188	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.10	50	160	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.34	55	200	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.66	50	180	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.90	34	350	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.92	37	180	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.26	28	20	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.30	40	150	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
241.5	243.0	1.50	100	1.27	85	7	188	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl	pyrr	7	None	BOC
243.0	244.5	1.50	100	1.05	70	4	300	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.00			0	4	1	2	5	12	15	J	0.1	chl	pyrr	4	None	BOC
244.5	246.0	1.50	100	1.45	97	3	375	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.69	25		0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.94	24		0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.45	31		0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
246.0	247.5	1.50	100	1.50	100	3	375	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.40	70		0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.09	24		0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	1.25	41		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
247.5	249.0	1.50	100	0.64	43	10	136	200	VC	dark grey	fine grained	massive	green staining in joints. Pyrite on surface of joints	FLPT	0.15	17		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.26	61		0	5	1	2	5	13	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.43	25		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.70	41		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.76	10		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.87	40		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					FLPT	0.95	51		0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
249.0	250.5	1.46	97	1.46	97	3	365	250	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.84	40		0	4	3	4	5	16	15	J	0.1	pyrr	ox	1	VG	BOC
									VC					VC	1.02	56		0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					VC	1.24	30		0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	BOC
250.5	252.0	1.50	100	1.46	97	4	300	100	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.00	33	350	0	4	3	2	5	14	15	J	0.1	cly	chl	1	VG	EA
									VC					VC	0.07	29	340	0	4	1	2	5	12	15	J	0.1	cly	chl	1	VG	EA
									VC					VC	0.95	30	350	0	1	3	2	5	11	15	J	5.0	cly	chl	1	VG	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.07	69	340	0	4	3	6	6	19	15	J	0.1			1	VG	EA
252.0	253.5	1.44	96	1.44	96	3	360	100	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.00	26	360	0	4	3	2	5	14	15	J	0.1	cly		1	VG	EA
									VC					VC	0.12	24	10	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					VC	0.67	38	155	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
253.5	255.0	1.50	100	1.50	100	2	500	200	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.85	34	15	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					VC	1.35	28	140	0	4	1	2	6	13	15	J	0.1	pyrr		1	VG	EA
255.0	256.5	1.50	100	1.50	100	0	1500	200	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
256.5	258.0	1.50	100	1.50	100	0	1500	200	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
258.0	259.5	1.50	100	1.44	96	2	500	250	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	1.19	28	180	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					VC	1.25	30	335	0	4	3	6	6	19	15	J	0.1			1	G	EA
259.5	261.0	1.50	100	1.50	100	3	375	250	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.30	12	345	0	4	3	4	6	17	15	J	0.1	pyrr		1	VG	EA
									VC					VC	1.02	55	130	0	4	1	6	6	17	15	J	0.1			1	VG	EA
									VC					VC	1.30	76	290	0	4	1	4	5	14	15	J	0.1	pyrr	chl	1	VG	EA
261.0	262.5	1.46	97	1.46	97	1	730	200	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.88	45	160	0	4	1	4	5	14	15	J	0.1	pyrr		1	VG	EA
262.5	264.0	1.50	100	1.50	100	2	500	200	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.32	45	155	0	4	1	4	5	14	15	J	0.1	pyrr		1	VG	EA
									VC					VC	1.33	63	170	0	4	1	4	5	14	15	J	0.1	pyrr		1	VG	EA
264.0	265.5	1.47	98	1.45	97	3	368	250	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.54	24	350	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
									VC					VC	0.67	26	350	0	1	5	2	5	13	15	J	1.0	cc		1	VG	EA
									VC					VC	0.69	22	180	0	4	1	4	5	14	15	J	0.1	pyrr		1	VG	EA
265.5	267.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
267.0	268.5	1.45	97	1.45	97	2	483	200	VC	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.14	24	340	0	4	1	6	6	17	15	J	0.1			1	P	EA
									VC					VC	1.11	12	330	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	P	EA
268.5	270.0	1.50	100	1.50	100	3	375	150	AND	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.60	35	330	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	P	EA
									AND					VC	0.72	15	350	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	P	EA
									AND					VC	1.24	50	90	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	P	EA
270.0	271.5	1.50	100	1.42	95	3	375	200	AND	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite.	VC	0.57	26	70	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	P	EA
									AND					VC	0.65	41	360	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	P	EA
									VC					VC	0.88	49	80	0	4	1	2	5	12	15	J	0.5	cc		1	P	EA
271.5	273.0	1.48	99	1.48	99	2	493	250	AND	dark grey	fine grained	massive	2-20mm clasts, green staining in joints. Some pyrite. Run ends in very dark grey/ black very fine grained	VC	1.14	45	110	0	4	3	2	5	14	15	J	0.1	chl		1	P	EA
									AND					VC	1.36	42	200	0	4	5	2	5	16	15	J	0.1	cc	chl	1	P	EA
273.0	274.5	1.49	99	1.49	99	2	497	250	AND	dark grey	fine grained	massive		ABX	0.15	49	155	0	4	1	5	5	15	15	J	0.1	chl	pyrr	1	P	EA
									AND					ABX	0.78	28	45	0	4	1	5	5	15	15	J	0.1	chl	pyrr	1	P	EA
274.5	276.0	1.50	100	1.10	73	8	167	250	AND	dark grey	fine grained	massive		ABX	0.38	31	120	0	5	0	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									AND					ABX	0.58	28	180	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									AND					ABX	0.68	52	180	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									AND					ABX	0.78	72	170	0	5	1	2	5	13	15	J	0.1	chl	pyrr	1	VG	BOC
									AND					ABX	0.99	28	160	0	5	1	2	5	13	15	J	0.1	chl	pyrr	1	VG	BOC
									AND					ABX	1.14	57	140	0	5	1	2	5	13	15	J	0.1	chl	pyrr	3	VG	BOC
276.0	277.5	1.50	100	1.50	100	4	300	250	AND	dark grey	fine grained	massive		ABX	0.59	41	176	0	5	0	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					ABX	0.89	52	340	0	5	3	2	5	15	15	J	0.1	chl		1	VG	BOC
									VC					ABX	1.09	50	170	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					ABX	1.30	50	200	0	5	1	6	6	18	15	J	0.1			1	VG	BOC
277.5	279.0	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive		ABX	0.55	30	150	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
279.0	280.5	1.50	100	1.20	80	7	188	250	VC	dark grey	fine grained	massive		ABX	0.17	60	180	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					ABX	0.41	20	20	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					ABX	0.61	17	350	0	4	1	6	6	17	15	J	0.1			1	VG	BOC
									VC					ABX	0.69	59	220	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					ABX	0.70	35	220	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					ABX	1.19	52	210	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
									VC					ABX	1.24	30	90	0	4	1	2	5	12	15	J	0.1	chl		1	VG	BOC
280.5	282.0	1.50	100	1.42	95	3	375	250	VC	dark grey	fine grained	massive		ABX	0.20	30	250	0	4	3	2	5	14	15	J	0.1	chl	cly	1	VG	BOC
									VC					ABX	0.29	40	250	0	4	3	2	5	14	15	J	0.1	chl	cly	1	VG	BOC
									VC					ABX	0.41	18	250	0	4	3	2	5	14	15	J	0.1	chl	cly	1	VG	BOC
282.0	283.5	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive		ABX	0.73	10	150	0	4	5	2	5	16	15	J	0.1	chl	pyrr	1	VG	BOC
283.5	285.0	1.50	100	1.25	83	5	250	250	VC	dark grey	fine grained	massive	unable to orient	ABX	0.00			0	4	1	2	5	12	15	J	0.1	chl		5	none	BOC
285.0	286.5	1.50	100		0		1500		VC	dark grey	fine grained	massive		ABX	1.11	30	120	0	4	1	2	6	13	15	J	0.1	chl		1	F	BOC
									VC					ABX	1.38	21	180	0	4	1	2	6	13	15	J	0.1	chl		1	F	BOC
286.5	288.0	1.50	100	1.35	90	3	375	250	VC	dark grey	fine grained	massive		ABX	1.00	20	350	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
									VC					ABX	1.10	21	340	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
									VC					ABX	1.20	23	180	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
288.0	289.5	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive		ABX	0.49	40	190	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	BOC
289.5	291.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30			0.0			1	VG	BOC
291.0	292.5	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	BOC
292.5	294.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	BOC
294.0	295.5	1.50	100	1.32	88	6	214	250	VC	dark grey	fine grained	massive		ABX	0.20			0	1	3	2	5	11	15	J	3.0	chl	cly	1	none	BOC
									VC					ABX	0.38			0	1	3	2	5	11	15	J	4.0	chl	cly	1	none	BOC
									VC					ABX	0.47			0	1	3	2	5	11	15	J	2.0	chl		1	none	BOC
									VC					ABX	0.73	74	60	0	4	3	2	5	14	15	J	0.1	chl		1	none	BOC
									VC					ABX	1.17	59	70	0	4	1	2	5	12	15	J	0.1	chl		1	F	BOC
									VC					ABX	1.34	60	180	0	4	3	2	5	14	15	J	0.1	chl		1	F	BOC
									VC					ABX	1.49	16	330	0	4	3	2	5	14	15	J	0.1	chl		1	F	BOC
295.5	297.0	1.50	100	0.93	62	9	150	250	VC	dark grey	fine grained	massive		ABX	0.00			0	4	3	2	5	14	15	J	0.1	chl		1	none	BOC
297.0	298.5	1.48	99	1.48	99	2	493	150	VC	dark grey	fine grained	massive	clasts 2mm-20mm	VC	0.63	64	140	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
									VC					VC	0.74	23	110	0	0	3	2	5	10	15	J	10.0	cly	chl	1	F	EA
									VC					VC	1.31	31	155	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
298.5	300.0	1.50	100	1.21	81	9	150	200	VC	dark grey	fine grained	massive	clasts 2mm-20mm	VC	0.07	28	360	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	0.15	31	345	0	4	1	2	5	12	15	J	0.1	chl		1	F	EA
									VC					VC	0.23	44	220	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	0.30	72	210	0	4	1	2	5	12	15	J	0.1	chl		1	F	EA
									VC					VC	0.51	50	50	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	0.82	18	200	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	F	EA
									VC					VC	1.06	64	270	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	1.30			0	4	3	2	5	14	15	J	0.1	cly	chl	1	none	EA
									VC					VC	1.37			0	4	3	2	5	14	15	J	0.1	cly	chl	1	none	EA
300.0	301.5	1.35	90	0.33	22	24	54	50	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.00			0	4	3	2	5	14	15	J	0.1	chl		16	none	EA
									VC					VC	0.00			0	4	3	2	5	14	15	J	0.1	cly	chl	8	none	EA
301.5	303.0	1.50	100	1.25	83	11	125	100	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.07			0	4	3	2	5	14	15	J	0.1	cly	chl	1	none	EA
									VC					VC	0.13			0	4	3	6	6	19	15	J	0.1			1	none	EA
									VC					VC	0.38	44	255	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	0.60	48	205	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	0.93	71	350	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	1.12			0	4	3	2	5	14	15	J	0.1	cly	chl	6	None	EA
303.0	304.5	1.50	100	1.20	80	8	167	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.09	19	140	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	0.18	68	10	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	0.41	62	35	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	0.74	59	205	0	4	1	2	5	12	15	J	0.1	cly		1	F	EA
									VC					VC	0.81	90		0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	1.10	45	60	0	4	3	2	5	14	15	J	5.0	cly	chl	1	F	EA
									VC					VC	1.16	44	45	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	1.33	50	245	0	4	6	2	5	17	15	J	0.1	cc	chl	1	F	EA
304.5	306.0	1.50	100	1.42	95	6	214	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.37	59	30	0	4	3	2	5	14	15	J	0.1	cc	chl	1	VG	EA
									VC					VC	0.55	61	340	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					VC	0.74	56	90	0	4	1	2	5	12	15	J	0.1	chl		1	VG	EA
									VC					VC	0.80	72	50	0	4	1	2	5	12	15	J	0.1	chl		1	VG	EA
									VC					VC	1.20	50	40	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					VC	1.24	50	10	0	4	3	2	5	14	15	J	0.1	cly	chl	1	VG	EA
306.0	307.5	1.48	99	1.29	86	9	148	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.20	60	10	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					VC	0.39	41	190	0	4	1	2	5	12	15	J	0.1	chl		1	VG	EA
									VC					VC	0.46	49	10	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					VC	0.71	55	175	0	4	1	2	5	12	15	J	0.1	cly	chl	1	VG	EA
									VC					VC	0.96	79	360	0	4	3	2	5	14	15	J	0.1	cly	chl	1	VG	EA
									VC					VC	1.01	70	30	0	1	3	2	5	11	15	J	5.0	chl		1	VG	EA
									VC					VC	1.07	58	70	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					VC	1.16	50	75	0	4	1	2	5	12	15	J	0.1	chl	pyrr	1	VG	EA
									VC					VC	1.41	20	260	0	4	3	2	5	14	15	J	0.1	chl	pyrr	1	VG	EA
307.5	309.0	1.50	100	1.33	89	7	188	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.26	60	10	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									VC					VC	0.50	22	190	0	4	3	2	5	14	15	J	0.1	cly	chl	1	VG	EA
									VC					VC	0.59	16	325	0	4	3	2	5	14	15	J	0.1	cly	chl	1	VG	EA
									VC					VC	0.84	32	30	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					VC	1.00	10	350	0	4	3	2	5	14	15	J	0.1	chl		1	VG	EA
									VC					VC	1.34	21	345	0	1	3	2	5	11	15	J	5.0	cly	chl	1	VG	EA
									VC					VC	1.39	42	25	0	1	3	2	5	11	15	J	4.0	cly	chl	1	VG	EA
309.0	310.5	1.50	100	1.50	100	2	500	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.08	29	80	0	1	3	2	5	11	15	J	2.0	cly	chl	1	VG	EA
									VC					VC	0.44	61	5	0	4	3	2	5	14	15	J	0.5	cly	chl	1	VG	EA
310.5	312.0	1.50	100	1.20	80	13	107	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.10	31	10	0	4	1	2	5	12	15	J	0.5	chl		1	G	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.20	37	10	0	4	1	2	5	12	15	J	0.5	chl		1	G	EA
									VC					VC	0.40	90		0	4	3	2	5	14	15	J	0.1	chl		1	G	EA
									VC					VC	0.81			0	1	3	2	5	11	15	J	5.0	cly	chl	7	G	EA
									VC					VC	1.08	42	360	0	1	3	2	5	11	15	J	1.0	cly	chl	1	G	EA
									VC					VC	1.19	56	300	0	0	3	2	5	10	15	J	10.0	cly	chl	1	G	EA
									VC					VC	1.43	35	240	0	4	3	2	5	14	15	J	0.5	cly	chl	1	G	EA
312.0	313.5	1.37	91	0.76	51	24	55	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.52			0	1	3	2	5	11	15	J	0.1	cly	chl	13	none	EA
									VC					VC	0.96			0	4	3	2	5	14	15	J	0.1	cly	chl	11	none	EA
									VC					VC	1.07			0	4	3	6	6	19	15	J	0.1			1	none	EA
313.5	315.0	1.15	77	0.18	12	26	43	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.00			0	1	3	2	5	11	15	J	0.1	cly	chl	5	none	EA
									VC					VC	0.00			0	1	3	6	6	16	15	J	0.1			21	none	EA
315.0	316.5	1.50	100	1.17	78	16	88	250	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.00			0	1	3	4	5	13	15	J	0.1	Rub		6	none	EA
									VC					VC	0.22	44	245	0	4	3	2	5	14	15	J	0.1	chl	cly	1	F	EA
									VC					VC	0.30	30	210	0	4	3	6	6	19	15	J	0.1			1	F	EA
									VC					VC	0.47	49	310	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	0.71	24	320	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	0.79	36	320	0	4	3	2	5	14	15	J	0.1	cly	chl	1	F	EA
									VC					VC	0.93			0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	0.99			0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	1.28	20	220	0	4	3	2	5	14	15	J	0.1	chl		1	F	EA
									VC					VC	1.46	37	340	0	1	3	2	5	11	15	J	0.4	cly	chl	1	F	EA
									VC					VC	1.48	28	360	0	1	3	2	5	11	15	J	3.0	cly	chl	1	F	EA
316.5	318.0	1.50	100	0.99	66	18	79	100	VC	dark grey	fine grained	massive	clasts 2mm-20mm, many micro fractures, clay in joints	VC	0.21	55	80	0	4	3	6	6	19	15	J	0.1			1	F	EA
									VC					VC	0.33	18	260	0	4	3	6	6	19	15	J	0.1			1	F	EA
									VC					VC	0.40			0	1	3	2	5	11	15	J	0.2	cly	chl	9	none	EA
									VC					VC	0.59			0	4	3	6	6	19	15	J	0.1			5	none	EA
									VC					VC	1.02	16	320	0	0	3	2	5	10	15	J	10.0	cly	chl	1	F	EA
									VC					VC	1.27	66	80	0	1	3	2	5	11	15	J	2.0	cly	chl	1	F	EA
318.0	319.5	1.50	100	1.10	73	10	136	150	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints	VC	0.30	66	350	0	0	3	2	5	10	15	J	20.0	Rub	chl	1	F	MGW
									VC					VC	0.35	82	160	0	4	3	2	5	14	15	J	0.5	chl		1	F	MGW
									VC					VC	0.39			0	2	3	2	5	12	15	J	2.0	chl	cly	1	none	MGW
									VC					VC	0.53			0	4	4	2	5	15	15	J	0.5	chl		1	none	MGW
									VC					VC	0.56			0	4	2	2	5	13	15	J	0.5	chl		1	none	MGW
									VC					VC	0.67			0	3	2	2	5	12	15	J	1.0	chl	cly	1	none	MGW
									VC					VC	0.81			0	4	1	2	5	12	15	J	0.5	chl		1	none	MGW
									VC					VC	0.90			0	4	3	2	5	14	15	J	0.5	chl	cly	1	none	MGW
									VC					VC	0.91			0	4	3	2	5	14	15	J	0.5	chl	cly	1	none	MGW
									VC					VC	1.20			0	0	3	2	5	10	15	J	40.0	Rub	chl	1	none	MGW
319.5	321.0	1.50	100	1.20	80	6	214	150	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints	VC	0.13	45	120	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
									VC					VC	0.16	52	80	0	0	1	2	5	8	15	J	0.5	chl		1	G	MGW
									VC					VC	0.80	60	225	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
									VC					VC	0.91	55	280	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
									VC					VC	1.11	78	300	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
									VC					VC	1.36	62	90	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
321.0	322.5	1.50	100	1.02	68	3	375	150	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints	VC	0.26	43	95	0	4	1	2	5	12	15	J	0.5	chl		1	G	MGW
									VC					VC	0.48	14	330	0	4	3	2	5	14	15	J	0.5	chl		1	G	MGW
									VC					VC	0.60	62	225	0	4	1	6	6	17	15	J	0.5			1	G	MGW
322.5	322.7	0.20	100	0.20	100	0	199	10	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints	VC	0.00			6	6	6	6	6	30	15	J	0.0			1	None	MGW
322.7	323.1	0.42	100	0.42	100	max	5	10	VC	dark grey	fine grained	massive	highly rubbly with clay and chlorite infill	VC	0.00			0	0	1	0	3	4	15	Rub	420.0	cly	chl	1	None	MGW
323.1	323.6	0.48	100	0.48	100	7	60	10	VC	dark grey	fine grained	massive	highly altered intact rock	VC	0.10			0	0	2	0	3	5	15	J	8.0	cly	chl	1	None	MGW
									VC					VC	0.13			0	0	2	0	3	5	15	J	8.0	cly	chl	1	None	MGW
									VC					VC	0.18			0	0	2	0	3	5	15	J	8.0	cly	chl	1	None	MGW
									VC					VC	0.21			0	0	2	0	3	5	15	J	8.0	cly	chl	1	None	MGW
									VC					VC	0.35			0	0	2	0	3	5	15	J	8.0	cly	chl	1	None	MGW
									VC					VC	0.48			0	0	2	0	3	5	15	J	8.0	cly	chl	1	None	MGW
323.6	324.0	0.40	100	0.40	100	0	399	150	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints	VC	0.00			6	6	6	2	5	25	15	J	8.0	cly	chl	1	None	MGW
324.0	325.5	1.50	100	0.32	21	6	214	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. Pyrite is visible in some joints.	VC	0.11			0	2	2	2	5	11	15	J	2.0	cly	chl	9	None	MGW
									VC					VC	0.42	18	245	0	0	2	0	5	7	15	J	10.0	cly	chl	1	F	MGW
									VC					VC	0.71	58	230	0	4	1	2	5	12	15	J	0.5	cly	chl	1	F	MGW
									VC					VC	0.89	58	320	0	4	1	2	5	12	15	J	0.5	cly	chl	1	F	MGW
									VC					VC	1.12			0	4	1	2	5	12	15	J	0.5	cly	chl	1	none	MGW
									VC					VC	1.16	85		0	0	2	0	5	7	15	J	12.0	cly	chl	1	F	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	1.25	52	310	0	4	1	2	5	12	15	J	0.5	cly	chl	1	F	MGW
325.5	327.0	1.50	100	0.32	21	15	94	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. Pyrite is visible in some joints.	VC	0.28			0	4	3	6	6	19	15	J	0.5			1	none	MGW
									VC					VC	0.33			0	4	2	6	6	18	15	J	0.5			1	none	MGW
									VC					VC	0.91			0	4	4	2	6	16	15	J	0.5	chl		1	none	MGW
									VC					VC	0.98			0	0	3	0	5	8	15	J	20.0	Rub	cly	1	none	MGW
									VC					VC	1.06			0	0	1	0	5	6	15	J	20.0	Rub	cly	1	none	MGW
									VC					VC	1.12			0	4	2	2	5	13	15	J	0.5	chl		1	none	MGW
327.0	328.5	1.50	100	1.12	75	6	214	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. Pyrite is visible in some joints. Oriented from previous run.	VC	0.91	60	75	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
328.5	330.0	1.50	100	1.15	77	5	250	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. Pyrite is visible in some joints.	VC	0.22	60	325	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
									VC					VC	0.26	57	325	0	0	2	0	5	7	15	J	10.0	Rub	chl	1	G	MGW
									VC					VC	0.32			0	4	2	2	5	13	15	J	0.5	chl		1	none	MGW
									VC					VC	0.66			0	4	4	6	5	19	15	J	0.5			1	none	MGW
									VC					VC	1.18	62	290	0	0	3	0	5	8	15	J	10.0	chl	Rub	1	VG	MGW
330.0	331.5	1.50	100	1.50	100	1	750	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. Pyrite is visible in some joints.	VC	0.40	62	65	0	3	3	2	5	13	15	J	1.0	chl		1	VG	MGW
331.5	333.0	1.50	100	1.12	75	5	250	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. Pyrite is visible in some joints. Oriented from previous run.	VC	0.17	50	170	0	4	3	2	5	14	15	J	0.5	chl		1	F	MGW
									VC					VC	0.62	40	95	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									VC					VC	0.64	35	95	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									VC					VC	0.94	50	330	0	4	3	2	5	14	15	J	0.5	chl		1	F	MGW
									VC					VC	1.05	77	170	0	4	3	6	6	19	15	J	0.5			1	F	MGW
333.0	334.5	1.50	100	1.35	90	1	750	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. 1-8 cm angular to sub angular poorly graded clasts . Pyrite is visible in some joints.	VC	1.19	45	260	0	0	1	0	3	4	15	J	50.0	cly	Rub	1	F	MGW
334.5	336.0	1.50	100	1.01	67	5	250	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. 1-8 cm angular to sub angular poorly graded clasts . Pyrite is visible in some joints.	VC	0.00			0	0	1	0	3	4	15	J	50.0	Rub		1	F	MGW
									VC					VC	0.08	32	320	0	0	3	0	5	8	15	J	10.0	cly	Rub	1	F	MGW
									VC					VC	0.40	22	70	0	1	1	2	5	9	15	J	3.0	chl	cly	1	F	MGW
									VC					VC	0.60	20	320	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
									VC					VC	0.89	33	65	0	4	4	6	6	20	15	J	0.5			1	F	MGW
									VC					VC	1.17	50	340	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
336.0	337.5	1.50	100	0.95	63	9	150	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. 1-8 cm angular to sub angular poorly graded clasts . Pyrite is visible in some joints.	VC	0.36			0	4	2	2	5	13	15	J	0.5	cly		1	None	MGW
									VC					VC	0.43			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
									VC					VC	0.60			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
									VC					VC	0.68			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
									VC					VC	0.74			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
									VC					VC	0.92			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
									VC					VC	0.99			0	4	4	2	5	15	15	J	0.5	chl		1	None	MGW
									VC					VC	1.13			0	4	3	2	5	14	15	J	0.5	cly	chl	1	None	MGW
									VC					VC	1.19			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
									VC					VC	1.28			0	4	3	2	5	14	15	J	0.5	chl		1	None	MGW
337.5	339.0	1.50	100	0.36	24	3	375	200	VC	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints. 1-8 cm angular to sub angular poorly graded clasts . Pyrite is visible in some joints. Blocked	VC	0.09	33	45	0	4	2	2	5	13	15	J	0.5	chl	cly	1	F	MGW
									VC					VC	0.43			0	0	2	0	5	7	15	J	20.0	Rub	cly	1	None	MGW
									VC					VC	0.59			0	2	3	2	5	12	15	J	2.0	chl		1	None	MGW
									VC					VC	0.66			0	4	3	2	5	14	15	J	0.1	chl		1	None	MGW
									VC					VC	0.73			0	4	1	2	5	12	15	J	0.1	chl		1	None	MGW
									VC					VC	0.81			0	4	1	2	5	12	15	J	0.1	chl		1	None	MGW
									VC					VC	1.20			0	4	3	2	5	14	15	J	0.1	chl		1	None	MGW
									VC					VC	1.40			0	4	3	2	5	14	15	J	0.1	cly	chl	4	None	MGW
339.0	340.5	1.50	100	1.13	75	16	88	250	AND	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints.	ABX	0.03			0	4	1	2	5	12	15	J	0.1	chl		1	None	EA
									AND					ABX	0.08			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					ABX	0.22			0	4	3	2	5	14	15	J	0.1	cly	chl	1	None	EA
									AND					ABX	0.34			0	4	1	6	6	17	15	J	0.1			1	None	EA
									AND					ABX	0.56			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
									AND					ABX	0.72			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
									AND					ABX	0.86			0	4	1	2	5	12	15	J	0.1	chl		8	None	EA
									AND					ABX	1.43			0	4	3	2	5	14	15	J	0.1	chl		2	None	EA
340.5	341.1	0.56	100	0.34	61	8	62	200	AND	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints.	ABX	0.09			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
									AND					ABX	0.18			0	4	3	2	5	14	15	J	0.1	chl	cly	1	None	EA
									AND					ABX	0.42			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
									AND					ABX	0.52			0	4	3	2	5	14	15	J	0.1	cly	chl	1	None	EA
341.1	341.3	0.24	100	0.00	0		240	200	AND	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints.	ABX	0.00			0	0	3	0	5	8	15	J	280.0	chl	cly	1	None	EA
341.3	342.0	0.70	100	0.66	94		699	200	AND	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints.	ABX	0.20			0	4	3	6	6	19	15	J	0.1			1	None	EA
									AND					ABX	0.66			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
									AND					ABX	0.73			0	4	1	2	5	12	15	J	0.1	chl		1	None	EA
									AND					ABX	0.76			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
342.0	343.5	1.50	100	1.44	96	7	188	200	AND	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints.	ABX	0.04			0	4	3	2	5	14	15	J	0.1	chl	cly	1	None	EA
									AND					ABX	0.07			0	4	3	2	5	14	15	J	0.1	chl	cly	1	None	EA
									AND					ABX	0.31			0	4	3	2	5	14	15	J	0.1	chl		1	None	EA
									AND					ABX	0.51			0	4	3	2	5	14	15	J	0.1	cc	chl	1	None	EA
									AND					ABX	0.72			0	4	1	2	5	12	15	J	0.1	cc	chl	1	None	EA
									AND					ABX	1.46			0	4	3	2	5	14	15	J	0.1	cly		1	None	EA
									AND					ABX	1.57			0	4	3	2	5	14	15	J	0.1	cc	chl	1	None	EA
343.5	344.0	0.47	100	0.47	100	1	235	250	AND	dark grey	fine grained	massive	chlorite alteration in joints. Some clay in joints.	ABX	0.27			0	0	3	2	5	10	15	J	0.1	chl		1	None	EA
344.0	345.0	1.03	100	0.00	0	max	5	250	AND	dark grey	fine grained	massive	Very broken rubble with clay and chlorite staining	ABX	0.00			0	0	1	0	3	4	15	J	0.1	cly	chl	1	None	EA
345.0	345.3	0.30	100	0.00	0	max	5	200	AND	dark grey	fine grained	massive	Very broken rubble with chlorite staining	AND	0.00			0	4	2	0	5	11	15	Rub	0.1	chl		1	None	MGW
345.3	346.5	1.20	100	0.85	71	4	240	200	AND	dark grey	fine grained	massive	chlorite staining in joints	AND	0.18			0	4	1	2	5	12	15	J	0.1	chl		1	None	MGW
									AND					AND	0.25			0	4	1	2	5	12	15	J	0.1	chl		1	None	MGW
									AND					AND	0.62	40	230	0	4	2	6	6	18	15	J	0.1			1	None	MGW
									AND					AND	0.97	37	245	0	4	3	6	6	19	15	J	0.1			1	None	MGW
346.5	348.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter	AND	0.28	42	240	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					AND	0.99	62	175	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
348.0	349.5	1.50	100	0.92	61	9	150	200	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, oriented from previous run	AND	0.60	54	70	0	4	1	6	6	17	15	J	0.5			1	VG	MGW
									AND					AND	0.98	60	225	0	4	2	2	5	13	15	J	0.5	chl		1	VG	MGW
									AND					AND	1.16			0	4	2	2	5	13	15	J	0.5	chl	cc	7	none	MGW
349.5	351.0	1.50	100	1.27	85	4	300	200	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, some healed joints	AND	0.43	45	130	0	4	1	2	5	12	15	J	0.5	chl		1	F	MGW
									AND					AND	0.90	60	170	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
									AND					AND	0.98	64	200	0	4	3	2	5	14	15	J	0.5	chl		1	F	MGW
									AND					AND	1.40	58	200	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
351.0	352.1	1.10	100	0.64	58	15	69	150	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter	AND	0.14			0	4	1	2	5	12	15	J	0.5	chl		1	none	MGW
									AND					AND	0.40			0	4	1	2	5	12	15	J	0.5	chl	cly	1	none	MGW
									AND					AND	0.68			0	2	1	2	5	10	15	J	2.0	chl	cly	1	none	MGW
									AND					AND	0.74			0	0	2	0	5	7	15	J	40.0	Rub	cly	1	none	MGW
									AND					AND	0.77			0	4	2	2	5	13	15	J	0.5	chl		11	none	MGW
352.1	352.3	0.20	100	0.00	0	max	5	150	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter	AND	0.00			0	0	2	0	5	7	15	J	200.0	chl		1	none	MGW
352.3	352.5	0.20	100	0.10	50	1	100	150	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter	AND	0.14	15	340	0	4	2	2	5	13	15	J	0.5	chl		1	F	MGW
352.5	353.7	1.20	100	1.20	100	2	400	150	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, oriented from previous run	AND	0.33	35	160	0	4	1	6	6	17	15	J	0.1			1	F	MGW
									AND					AND	0.78	35	115	0	4	1	6	6	17	15	J	0.1			1	F	MGW
353.7	354.0	0.30	100	0.00	0	max	5	5	AND	dark grey	fine grained	massive	highly fractured and altered rock, mostly clay	ABX	0.00				0	1	0	3	4	15	J	300.0	cly	chl	1	none	MGW
354.0	355.5	1.50	100	1.38	92	1	750	200	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.06				4	2	2	5	13	15	J	0.5	chl		1	none	MGW
355.5	357.0	1.50	100	1.50	100	1	750	200	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.64	60	110	0	4	3	6	6	19	15	J	0.5			1	P	MGW
357.0	358.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.23	30	340	0	0	3	0	5	8	15	J	20.0	cc		1	VG	MGW
									AND					ABX	1.21	18	330	0	0	4	3	5	12	15	J	7.0	qtz		1	VG	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
358.5	360.0	1.50	100	1.47	98	0	1500	200	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	EA
360.0	361.5	1.50	100	1.50	100	0	1500	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	G	EA
361.5	363.0	1.50	100	1.48	99	0	1500	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	P	EA
363.0	364.5	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, chlorite infilling in joints	ABX	0.16	34	330	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC						1.07	19	60	0	1	3	2	5	11	15	J	5.0	cc		1	G	EA
364.5	366.0	1.50	100	1.50	100	4	300	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter	ABX	0.59	17	345	0	1	3	2	5	11	15	J	6.0	cc		1	G	EA
									VC					ABX	0.82	18	95	0	4	3	2	5	14	15	J	0.8	cc		1	G	EA
									VC					ABX	1.13	61	140	0	4	3	2	5	14	15	J	0.5	cc		1	G	EA
									VC					ABX	1.36	48	270	0	4	3	2	5	14	15	J	0.5	cc		1	G	EA
366.0	367.5	1.50	100	1.50	100	4	300	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, calcite veining	ABX	0.15	80	160	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
									VC					ABX	0.37	38	350	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
									VC					ABX	0.47	78	55	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
									VC					ABX	0.57			0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
367.5	369.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-2 cm in diameter, calcite veining	ABX	0.00			6	6	6	6	6	30	15		0.0			1	G	EA
369.0	370.5	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 2-10 mm in diameter, calcite veining, very silicified	ABX	1.06	51	205	0	4	3	6	6	19	15	J	0.1			1	G	EA
370.5	372.0	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 2-10 mm in diameter, calcite veining, very silicified	ABX	1.34	58	195	0	4	3	6	6	19	15	J	0.1			1	G	EA
372.0	373.5	1.50	100	1.50	100	3	375	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, calcite veining, very silicified	ABX	0.27	51	165	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					ABX	0.76	42	220	0	4	3	6	6	19	15	J	0.1			1	G	EA
									VC					ABX	1.16	51	10	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
373.5	375.0	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, calcite veining, very silicified	ABX	0.85	35	160	0	4	2	6	6	18	15	J	0.1			1	G	MGW
375.0	376.5	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, calcite veining, very silicified	ABX	1.23	43	355	0	4	3	2	5	14	15	J	0.5	cc		1	G	MGW
376.5	378.0	1.50	100	1.50	100	2	500	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, calcite veining, very silicified	ABX	0.81	62	330	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									VC					ABX	0.86	26	160	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
378.0	379.5	1.50	100	1.35	90	3	375	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.52			0	0	3	3	6	12	15	J	30.0			1	None	MGW
									VC					ABX	0.62			0	4	2	6	6	18	15	J	0.5			1	none	MGW
									VC					ABX	0.68			0	4	2	6	6	18	15	J	0.5			1	none	MGW
379.5	381.0	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.48	43	0	0	4	3	4	5	16	15	J	0.5	qtz		1	VG	MGW
381.0	382.5	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	MGW
382.5	384.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.00			6	6	6	6	6	30	15		0.0			1	none	MGW
384.0	385.5	1.50	100	1.50	100	0	1500	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	MGW
385.5	387.0	1.50	100	1.50	100	0	1500	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	MGW
387.0	388.5	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.44	62	110	0	4	3	4	5	16	15	J	0.1	pyrr		1	VG	MGW
									AND					ABX	0.47			0	4	2	4	5	15	15	J	0.1	pyrr		1	VG	MGW
388.5	390.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.65	64	130	0	4	3	4	5	16	15	J	0.1	pyrr		1	VG	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)								
390.0	391.5	1.41	94	1.41	94	2	470	250	AND	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.46	24	15	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
									AND					ABX	1.27	33	10	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
391.5	393.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	sparse angular to sub angular clasts, 1-4 cm in diameter, pyrite in some joints	ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
393.0	394.5	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	sparse angular to sub rounded clasts, 5-30 mm in diameter	EC	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
394.5	396.0	1.50	100	1.50	100	0	1500	250	VC	dark grey	fine grained	massive	sparse angular to sub rounded clasts, 5-30 mm in diameter	EC	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
396.0	397.5	1.47	98	1.47	98	2	490	250	VC	dark grey	fine grained	massive	sparse angular to sub rounded clasts, 5-30 mm in diameter	EC	0.88	19	355	0	0	3	2	5	10	15	J	10.0	cc		1	F	EA
									VC						1.38	32	350	0	4	3	2	5	14	15	J	0.5	cc		1	F	EA
397.5	399.0	1.50	100	1.50	100	1	750	250	VC	dark grey	fine grained	massive	sparse angular to sub rounded clasts, 5-30 mm in diameter	EC	1.40	25	350	0	4	3	6	6	19	15	J	0.1			1	F	EA
399.0	400.5	1.50	100	1.50	100	4	300	250	VC	dark grey	fine grained	massive	sparse angular to sub rounded clasts, 5-30 mm in diameter	EC	0.76	26	340	0	1	5	2	5	13	15	J	0.3	cc		1	F	EA
									VC					EC	0.94	36	10	0	4	3	2	5	14	15	J	0.5	cc		1	F	EA
									VC					EC	0.95	36	10	0	0	3	2	5	10	15	J	10.0	cc		1	F	EA
									VC					EC	1.15	26	360	0	4	3	2	6	15	15	J	0.5	cc		1	F	EA
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-12

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-12 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	19.5	0.0		0					OB				**OVERBURDEN**																		
19.5	21.0	1.50	100	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand. Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1500.00	Rub	Cly	1	NONE	MGW
21.0	22.5	1.50	100	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand. Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1500.00	Rub	Cly	1	NONE	MGW
22.5	24.0	1.22	81	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand. Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1220.00	Rub	Cly	1	NONE	MGW
24.0	25.5	1.10	73	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand. Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1110.00	Rub	Cly	1	NONE	MGW
25.5	27.0	1.08	72	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand. Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1080.00	Rub	Cly	1	NONE	MGW
27.0	28.1	0.36	33	0.00	0	max	5	5	VC	light grey	course grained	massive	Rubble and lots of clay wash away	FLPT	0.00			0	0	2	0	3	5	15	J	360.00	Rub	Cly	1	NONE	MGW
28.1	28.5	0.40	100	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	400.00	Rub	Cly	1	NONE	MGW
28.5	30.0	0.28	19	0.00	0	max	5	1	VC	light grey	course grained	massive	Rubble and lots of clay wash away	FLPT	0.00			0	0	2	0	3	5	15	J	280.00	Rub	Cly	1	NONE	MGW
30.0	31.5	1.25	83	0.00	0	max	5	0.1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1250.00	Rub	Cly	1	NONE	MGW
31.5	33.0	1.50	100	0.00	0	max	5	0.1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1500.00	Rub	Cly	1	NONE	MGW
33.0	34.5	1.10	73	0.00	0	max	5	0.1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	1100.00	Rub	Cly	1	NONE	MGW
34.5	36.0	0.95	63	0.00	0	max	5	0.1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	2	0	3	5	15	J	950.00	Rub	Cly	1	NONE	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
36.0	37.5	1.34	89	0.00	0	max	5	0.1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1340.00	Rub	Cly	1	NONE	MGW
37.5	39.0	1.37	91	0.00	0	max	5	0.25	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1370.00	Rub	Cly	1	NONE	MGW
39.0	40.5	0.28	19	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	280.00	Rub	Cly	1	NONE	EA
40.5	42.0	0.75	50	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	750.0	Rub	Cly	1	NONE	EA
42.0	43.5	0.64	43	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	640.00	Rub	Cly	1	NONE	EA
43.5	45.0	1.50	100	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1500.00	Rub	Cly	1	NONE	EA
45.0	46.5	0.44	29	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	440.00	Rub	Cly	1	NONE	EA
46.5	48.0	0.35	23	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	350.00	Rub	Cly	1	NONE	EA
48.0	49.5	0.20	13	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	200.00	Rub	Cly	1	NONE	EA
49.5	50.5	0.19	19	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	190.00	Rub	Cly	1	NONE	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition						Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
																		Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)							
50.5	52.0	0.14	9	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	140.00	Rub	Cly	1	NONE	EA
52.0	54.0	0.54	27	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	540.00	Rub	Cly	1	NONE	EA
54.0	55.5	0.52	35	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	520.00	Rub	Cly	1	NONE	EA
55.5	57.0	0.57	38	0.00	0	max	5	0.5	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	570.00	Rub	Cly	1	NONE	EA
57.0	58.5	0.25	17	0.00	0	max	5	1	VC	light grey	course grained	massive	Highly weathered intact rock that can be easily indented with a finger and easily broken by hand (often comes out of splits with no joints). Contains some 0.5-3 cm poorly graded sub-angular to rounded clasts	FLPT	0.00			0	0	1	0	3	4	15	J	250.00	Rub	Cly	1	NONE	EA
58.5	60.0	0.52	35	0.00	0	max	5	0.5	VC	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	520.00	Rub	Cly	1	NONE	EA
60.0	61.5	0.41	27	0.00	0	max	5	0.5	VC	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	410.00	Rub	Cly	1	NONE	EA
61.5	63.0	1.34	89	0.00	0	max	5	0.5	VC	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1340.00	Rub	Cly	1	NONE	EA
63.0	64.5	1.50	100	0.00	0	max	5	0.75	VC	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1500.00	Rub	Cly	1	NONE	EA
64.5	66.0	1.50	100	0.00	0	max	5	0.75	VC	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1500.00	Rub	Cly	1	NONE	EA
66.0	67.5	1.50	100	0.00	0	max	5	1	VC	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	1500.00	Rub	Cly	1	NONE	EA
67.5	69.0	0.74	49	0.00	0	max	5	1	AND	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	740.00	Rub	Cly	1	NONE	EA
69.0	70.5	0.65	43	0.00	0	max	5	1	AND	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	650.00	Rub	Cly	1	NONE	EA
70.5	72.0	0.47	31	0.00	0	max	5	0.5	AND	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	470.00	Rub	Cly	1	NONE	EA
72.0	73.5	0.26	17	0.00	0	max	5	0.5	AND	dark grey	course grained	massive	dark grey clay gouge with clasts	FLPT	0.00			0	0	1	0	3	4	15	J	260.00	Rub	Cly	1	NONE	EA
73.0	73.5	0.50	100	0.15	30	19	25	50	AND	dark grey	fine grained	massive	very broken andesite	AND	0.00			0	4	3	2	6	15	15	J	100.0	cc		19	NONE	EA
73.5	74.0	0.46	100	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	460.0	Rub	cly	1	NONE	EA
74.0	74.3	0.37	100	0.16	43	5	62	100	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	4	3	6	6	19	15	J	0.1			5	NONE	EA
74.3	75.0	0.35	52	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	350.00	Rub	cly	1	NONE	EA
75.0	76.5	0.23	15	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	230.00	Rub	cly	1	NONE	EA
76.5	78.0	1.07	71	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	1070.00	Rub	cly	1	NONE	EA
78.0	79.5	1.05	70	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	1050.00	Rub	cly	1	NONE	EA
79.5	81.0	0.62	41	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	620.00	Rub	cly	1	NONE	EA
81.0	82.5	0.35	23	0.00	0	max	5	1	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	350.00	Rub	cly	1	NONE	EA
82.4	84.0	1.20	75	0.00	0	max	5	1	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	1200.00	Rub	cly	1	NONE	EA
84.0	85.3	0.40	31	0.00	0	max	5	1	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	400.00	Rub	cly	1	NONE	EA
85.3	85.5	0.20	100	0.00	0	6	29	25	AND	dark grey	fine grained	massive	dark grey fine grained andesite	AND	0.00			0	4	3	2	6	15	15	J	0.5	cc		6	NONE	EA
85.5	87.0	0.10	7	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	100.00	Rub	cly	1	NONE	MGW
87.0	88.5	0.20	13	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	1	0	3	4	15	J	200.00	Rub	cly	1	NONE	MGW
88.5	90.0	0.70	47	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	clay with gravel sized clasts, fault gouge	AND	0.00			0	0	2	0	3	5	15	J	700.00	Rub	cly	1	NONE	MGW
90.0	91.5	1.50	100	0.00	0	max	5	1	AND	dark grey	fine grained	massive	many micro fractures and healed joints, weathered to clay in areas	AND	0.00			0	0	2	0	3	5	15	J	1500.00	Rub	cly	1	NONE	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
91.5	93.0	1.04	69	0.00	0	max	5	1	AND	dark grey	fine grained	massive	many micro fractures and healed joints, weathered to clay in areas	AND	0.00			0	0	2	0	3	5	15	J	1040.00	Rub	cly	1	NONE	MGW
93.0	94.5	0.95	63	0.00	0	max	5	1	AND	dark grey	fine grained	massive	many micro fractures and healed joints, weathered to clay in areas	AND	0.00			0	0	2	0	3	5	15	J	950.00	Rub	cly	1	NONE	MGW
94.5	96.0	1.03	69	0.00	0	max	5	1	AND	dark grey	fine grained	massive	many micro fractures and healed joints, weathered to clay in areas	AND	0.00			0	0	2	0	3	5	15	J	1030.00	Rub	cly	1	NONE	MGW
96.0	97.5	0.62	41	0.00	0	max	5	1	AND	dark grey	fine grained	massive	many micro fractures and healed joints, weathered to clay in areas	AND	0.00			0	0	2	0	3	5	15	J	620.00	Rub	cly	1	NONE	MGW
97.5	99.0	1.38	92	0.00	0	max	5	1	AND	dark grey	fine grained	massive	many micro fractures and healed joints, weathered to clay in areas	AND	0.00			0	0	1	0	3	4	15	J	1380.00	Rub	cly	1	NONE	MGW
99.0	100.5	1.50	100	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	1500.00	Rub	cly	1	NONE	MGW
100.5	102.0	1.12	75	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	1120.00	Rub	cly	1	NONE	MGW
102.0	103.5	1.50	100	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	1500.00	Rub	cly	1	NONE	MGW
103.5	105.0	0.81	54	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	810.00	Rub	cly	1	NONE	EA
105.0	106.5	0.19	13	0.00	0	max	5	0.1	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	190.00	Rub	cly	1	NONE	EA
106.5	108.0	0.21	14	0.00	0	max	5	1	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	210.00	Rub		1	NONE	EA
108.0	109.5	0.33	22	0.00	0	max	5	1	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	330.00	Rub	cly	1	NONE	EA
109.5	111.0	0.26	17	0.00	0	max	5	0.25	AND	dark grey	fine grained	massive	soft and clay like, calcite throughout run	AND	0.00			0	0	1	0	3	4	15	J	260.00	Rub	cly	1	NONE	EA
111.0	112.5	1.50	100	1.08	72	13	107	1	AND	dark grey	fine grained	massive	very weak rock that is cemented by clay	AND	0.00			0	4	3	0	3	10	15	J	100.0	cly		13	NONE	EA
112.5	114.0	1.00	67	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay and rubble	AND	0.00			0	0	1	0	3	4	15	J	1000.0	Rub	cly	1	NONE	EA
114.0	115.5	0.38	25	0.00	0	max	5	0.1	AND	dark grey	fine grained	massive	clay and rubble	AND	0.00			0	0	1	0	3	4	15	J	380.0	Rub	cly	1	NONE	EA
115.5	117.0	1.50	100	0.00	0	9	150	0.5	AND	dark grey	fine grained	massive	clay and rubble	AND	0.00			0	4	3	0	3	10	15	J	0.1	cly		9	NONE	EA
117.0	118.5	1.50	100	1.50	100	9	150	1	AND	dark grey	fine grained	massive	very weak rock that is cemented by clay	AND	0.00			0	4	3	2	5	14	15	J	0.1	cly		5	NONE	EA
118.5	120.0	1.50	100	1.45	97	11	125	25	AND	dark grey	fine grained	massive	competent rock with some clayey zones, breaks under one blow from hammer	AND	0.00			0	4	3	0	3	10	15	J	0.1	cly		6	NONE	EA
120.0	120.7	0.72	100	0.00	0	max	5	0.5	AND	dark grey	fine grained	massive	clay and gravel	AND	0.00			0	0	1	0	3	4	15	J	720.0	cly		1	NONE	EA
120.7	121.5	0.78	100	0.65	83	8	87	5	AND	dark grey	fine grained	massive	grey weak rock	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		5	NONE	EA
									AND	dark grey	fine grained	massive			0.00			0	4	3	0	5	12	15	J	0.1	cly		3	NONE	EA
121.5	123.0	1.42	95	1.33	89	7	178	5	AND	dark grey	fine grained	massive	Weak rock. Clay cemented	AND	0.00			0	4	3	0	5	12	15	J	0.1	cly		7	NONE	EA
123.0	124.5	1.50	100	0.20	13	max	5	1	AND	dark grey	fine grained	massive	Weak rock. Clay cemented	AND	0.00			0	0	1	0	3	4	15	J	1500.0	Rub	Cly	1	NONE	EA
124.5	126.0	0.18	12	0.00	0	max	5	1	AND	dark grey	fine grained	massive	Weak rock. Clay cemented	AND	0.00			0	0	1	0	3	4	15	J	180.0	Rub	Cly	1	NONE	EA
126.0	127.5	1.22	81	0.00	0	max	5	1	AND	dark grey	fine grained	massive	Weak rock. Clay cemented	AND	0.00			0	0	1	0	3	4	15	J	1220.0	Rub	Cly	1	NONE	EA
127.5	129.0	1.50	100	1.42	95	7	188	5	AND	dark grey	fine grained	massive	Weak rock. Clay cemented	AND	0.00			0	4	3	2	5	14	15	J	0.1	cly		7	NONE	EA
129.0	129.4	0.42	100	0.42	100	2	140	5	AND	dark grey	fine grained	massive	Weak rock. Clay cemented	AND	0.00			0	4	3	2	3	12	15	J	0.1	cc		2	NONE	EA
129.4	130.5	1.08	100	0.88	81	5	180	50	AND	dark grey	fine grained	massive	weak rock	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		5	NONE	EA
130.5	132.0	1.47	98	0.60	40	11	123	100	AND	dark grey	fine grained	massive	weak rock with calcite in joints	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		11	NONE	EA
132.0	133.5	1.50	100	0.94	63	10	136	100	AND	dark grey	fine grained	massive	weak rock with calcite in joints	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		10	NONE	EA
133.5	135.0	1.50	100	1.49	99	7	188	200	AND	dark grey	fine grained	massive	weak rock with calcite in joints	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		2	NONE	EA
135.0	136.6	1.50	94	1.50	94	4	300	200	AND	dark grey	fine grained	massive		AND	0.00			0	4	1	2	5	12	15	J	0.1	cc		2	NONE	EA
									AND	dark grey	fine grained	massive	weak rock with calcite in joints	AND	0.45			0	4	1	6	6	17	15	J	0.1			1	NONE	EA
136.5	138.0	1.50	100	1.30	87	4	300	200	AND	dark grey	fine grained	massive		AND	0.81			0	4	1	6	6	17	15	J	0.1			1	NONE	MGW
									AND	dark grey	fine grained	massive		AND	0.92			0	4	1	6	6	17	15	J	0.1			1	NONE	MGW
									AND	dark grey	fine grained	massive		AND	0.97			0	4	1	4	6	15	15	J	0.1			1	NONE	MGW
138.0	139.5	1.50	100	1.02	68	10	136	150	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.36			0	0	1	0	3	4	15	J	60.0	Rub		1	NONE	MGW
									AND					AND	0.79			0	4	4	6	6	20	15	J	0.3			1	NONE	MGW
									AND					AND	1.08			0	4	2	6	6	18	15	J	0.3			1	NONE	MGW
									AND					AND	1.25			0	4	2	6	6	18	15	J	0.3			1	NONE	MGW
139.5	141.0	1.50	100	0.89	59	9	150	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.00			0	4	2	4	6	16	15	J	0.3			9	NONE	MGW
141.0	142.5	1.50	100	0.80	53	11	125	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.00			0	4	3	4	6	17	15	J	0.3			6	NONE	MGW
									AND					AND	0.00			0	4	3	2	5	14	15	J	0.3	cc		3	NONE	MGW
									AND					AND	0.93	18	100	0	4	3	2	5	14	15	J	0.3	cc		1	G	MGW
									AND					AND	1.24	45	40	0	4	3	6	6	19	15	J	0.3			1	G	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Joint Condition: Apert- A	Joint Condition: Rough R	Joint Condition: Infill I	Joint Condition: Weath W	Joint Condition: TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
142.5	144.0	1.50	100	0.89	59	5	250	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.39	43	260	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	0.47	59	50	0	4	4	6	6	20	15	J	0.5			1	G	MGW
									AND					AND	0.58	46	260	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
									AND					AND	0.77	67	20	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
									AND					AND	1.32	50	240	0	4	2	6	6	18	15	J	0.5			1	G	MGW
144.0	145.5	1.50	100	0.85	57	6	214	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.11	55	45	0	4	3	2	6	15	15	J	0.3	cc		1	G	MGW
									AND					AND	0.24	62	100	0	4	4	6	6	20	15	J	0.5			1	G	MGW
									AND					AND	0.55	62	100	0	4	4	6	6	20	15	J	0.5			1	G	MGW
									AND					AND	0.60	18	120	0	4	3	2	5	14	15	J	0.5	cc	chl	1	G	MGW
									AND					AND	0.91	22	125	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
									AND					AND	0.98	45	110	0	4	1	2	5	12	15	J	0.5	cc	chl	1	G	MGW
									AND					AND	1.29	54	50	0	4	1	2	5	12	15	J	0.5	cly		1	G	MGW
145.0	147.0	1.50	75	0.98	49	10	136	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.03			0	4	3	4	6	17	15	J	0.3	qtz		1	NONE	MGW
									AND					AND	0.13			0	4	4	6	6	20	15	J	0.3			1	NONE	MGW
									AND					AND	0.32			0	4	3	2	6	15	15	J	0.3	cc		34	NONE	MGW
									AND					AND	0.42			0	4	3	2	6	15	15	J	0.3	chl		1	NONE	MGW
									AND					AND	0.53	13	310	0	4	1	2	6	13	15	J	0.3	chl		1	F	MGW
									AND					AND	1.01	47	200	0	4	3	2	6	15	15	J	0.3	chl		1	F	MGW
									AND					AND	1.31	38	45	0	4	3	6	6	19	15	J	0.3			1	F	MGW
									AND					AND	1.47	46	60	0	2	1	1	6	10	15	J	1.5	cly		1	F	MGW
147.0	148.5	1.50	100	0.84	56	13	107	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints	AND	0.03			0	4	1	2	6	13	15	J	0.5	cly		1	NONE	MGW
									AND					AND	0.24			0	4	2	4	6	16	15	J	1.0	Rub		10	NONE	MGW
									AND					AND	0.60	52	340	0	4	3	4	6	17	15	J	1.0	Rub		1	VG	MGW
									AND					AND	1.02	34	70	0	4	3	4	6	17	15	J	1.0	Rub		1	VG	MGW
148.5	150.0	1.50	100	1.09	73	7	188	100	AND	dark grey	fine grained	massive	calcite and quartz veins throughout (.1-1 cm), many healed joints. Vuggy rock with pyrite visible in some joints	AND	0.25	58	30	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					AND	0.42	32	325	0	4	3	4	5	16	15	J	0.5	Rub	cly	1	VG	MGW
									AND					AND	0.64	65	230	0	0	2	0	5	7	15	J	40.0	Rub	cly	1	VG	MGW
									AND					AND	0.79	50	130	0	0	2	0	6	8	15	J	20.0			1	VG	MGW
									AND					AND	0.91	67	165	0	4	1	4	5	14	15	J	0.1	qtz	pyrr	1	VG	MGW
									AND					AND	1.19	32	15	0	4	2	4	6	16	15	J	0.8			1	VG	MGW
									AND					AND	1.34	35	65	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
150.0	151.5	1.50	100	1.07	71	6	214	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.05	22	280	0	4	5	4	6	19	15	J	0.5			1	VG	MGW
									AND					AND	0.17	42	315	0	4	2	4	5	15	15	J	0.5	pyrr		1	VG	MGW
									AND					AND	0.28	81	340	0	4	3	2	5	14	15	J	0.5	slk		1	VG	MGW
									AND					AND	0.52	33	300	0	4	3	4	6	17	15	J	0.5			1	VG	MGW
									AND					AND	0.60	40	70	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
									AND					AND	0.97	60	260	0	4	3	6	6	19	15	J	0.1			1	G	MGW
151.5	153.0	1.50	100	0.97	65	10	136	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.04	23	0	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	0.24	72	310	0	4	4	6	6	20	15	J	0.5			1	G	MGW
									AND					AND	0.40	11	125	0	4	2	2	5	13	15	J	0.5	chl		1	G	MGW
									AND					AND	0.50	23	335	0	4	2	6	6	18	15	J	0.5			1	G	MGW
									AND					AND	0.82	15	355	0	4	3	6	5	18	15	J	0.5			1	G	MGW
									AND					AND	0.87	25	350	0	4	3	6	5	18	15	J	0.5			1	G	MGW
									AND					AND	1.11	20	340	0	4	4	6	6	20	15	J	0.5			1	G	MGW
									AND					AND	1.21	15	5	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	1.39	50	300	0	4	3	4	5	16	15	J	0.5	qtz		1	G	MGW
									AND					AND	1.45	46	290	0	4	3	2	5	14	15	J	0.5	chl		1	G	MGW
153.0	154.5	1.50	100	1.32	88	4	300	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.23	76	210	0	4	1	6	6	17	15	J	0.5			1	P	MGW
									AND					AND	0.39	50	340	0	4	2	2	5	13	15	J	0.5	chl	slk	1	P	MGW
									AND					AND	0.45	50	80	0	4	3	4	5	16	15	J	0.5	pyrr		1	P	MGW
									AND					AND	1.22	38	140	0	4	3	6	5	18	15	J	0.5			1	P	MGW
154.5	156.0	1.43	95	1.32	88	9	143	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.00			0	4	3	4	5	16	15	J	0.5			6	NONE	MGW
									AND					AND	0.00			0	4	2	2	6	14	15	J	0.5	cc		3	NONE	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
156.0	157.5	1.50	100	1.18	79	12	115	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.00			0	4	2	2	6	14	15	J	0.5	cc		4	NONE	MGW
									AND					AND	0.00			0	4	3	6	6	19	15	J	0.5			8	NONE	MGW
157.5	159.0	1.50	100	0.66	44	13	107	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.00			0	4	1	2	5	12	15	J	0.5	cc		5	NONE	MGW
									AND					AND	0.00			0	4	2	6	6	18	15	J	0.5			8	NONE	MGW
159.0	160.5	1.50	100	0.68	45	10	136	100	AND	dark grey	fine grained	massive	.1-1 cm calcite and quartz veining throughout core. Pyrite in some joints	AND	0.05	36	30	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									AND					AND	0.18	32	30	0	4	3	6	6	19	15	J	0.5			1	F	MGW
									AND					AND	0.31	34	255	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									AND					AND	0.34	63	290	0	4	3	6	6	19	15	J	0.5			1	F	MGW
									AND					AND	0.44	36	15	0	3	2	4	5	14	15	J	1.0	qtz		1	F	MGW
									AND					AND	0.60	55	15	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									AND					AND	0.67	32	270	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									AND					AND	0.91	39	10	0	4	2	6	6	18	15	J	0.5			1	F	MGW
									AND					AND	0.99	20	110	0	4	2	4	5	15	15	J	0.5	qtz		1	F	MGW
									AND					AND	1.30	20	205	0	4	2	4	5	15	15	J	0.5	pyrr		1	F	MGW
160.5	162.0	1.48	99	1.15	77	9	148	100	AND	dark grey	fine grained	massive	calcite in some joints	AND	0.22	66	330	0	4	1	6	6	17	15	J	0.1			1	F	EA
									AND					AND	0.47	17	330	0	4	3	2	5	14	15	J	0.1	cc		1	F	EA
									AND					AND	0.52	54	200	0	4	3	6	6	19	15	J	0.1			1	F	EA
									AND					AND	0.79	53	200	0	4	3	6	6	19	15	J	0.1			1	F	EA
									AND					AND	0.88	46	40	0	4	1	2	5	12	15	J	0.1	cc		1	F	EA
									AND					AND	0.92	36	20	0	4	3	2	5	14	15	J	0.1	cc		1	F	EA
									AND					AND	1.08			0	1	3	2	5	11	15	J	2.0	cc		1	F	EA
									AND					AND	1.14			0	1	3	2	5	11	15	J	2.0	cc		1	F	EA
									AND					AND	1.21			0	1	3	2	5	11	15	J	2.0	cc		1	F	EA
									AND					AND	1.34	55	5	0	4	3	2	5	14	15	J	2.0	cc		1	F	EA
162.0	163.5	1.50	100	1.33	89	9	150	100	AND	dark grey	fine grained	massive	calcite in some joints	AND	0.64	39	320	0	4	3	2	5	14	15	J	0.1	cc		1	F	EA
									AND					AND	0.88	46	355	0	4	3	6	6	19	15	J	0.1			1	F	EA
									AND					AND	1.05	65	360	0	4	1	2	5	12	15	J	0.1	cc		1	F	EA
									AND					AND	1.30	45	45	0	4	1	2	5	12	15	J	0.1	cc		1	F	EA
									AND					AND	1.39			0	4	3	2	5	14	15	J	0.1	cc		5	F	EA
163.5	165.0	1.50	100	1.47	98	5	250	100	AND	dark grey	fine grained	massive	calcite in some joints. Chaotic micro fractures throughout run	AND	0.27	42	40	0	4	1	2	5	12	15	J	0.1	cc		1	G	EA
									AND					AND	0.51	39	45	0	4	1	2	5	12	15	J	0.1	cc		1	G	EA
									AND					AND	0.54	54	250	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
									AND					AND	0.93	35	275	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
									AND					AND	1.21	47	230	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
165.0	166.5	1.50	100	1.50	100	5	250	100	AND	dark grey	fine grained	massive	calcite in some joints	AND	0.45	30	30	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
									AND					AND	0.66	62	140	0	4	5	2	5	16	15	J	0.1	cc		1	G	EA
									AND					AND	1.02	40	50	0	4	1	2	5	12	15	J	0.1	cc		1	G	EA
									AND					AND	1.20	31	25	0	1	4	2	5	12	15	J	5.0	cc		1	G	EA
									AND					AND	1.35	43	40	0	1	3	2	5	11	15	J	2.0	cc		1	G	EA
166.5	168.0	1.50	100	1.50	100	4	300	150	AND	dark grey	fine grained	massive	calcite in some joints	AND	0.10	39	230	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					AND	0.33	31	75	0	4	1	2	5	12	15	J	0.1	cc		1	G	EA
									AND					AND	0.33	50	220	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					AND	1.31	38	20	0	4	3	2	6	15	15	J	0.1	cc		1	G	EA
168.0	169.5	1.50	100	1.44	96	6	214	100	AND	dark grey	fine grained	massive	calcite with a blue hue in some joints	AND	0.20	23	170	0	4	3	2	6	15	15	J	0.3	cc		1	G	EA
									AND					AND	0.40	58	240	0	4	3	2	6	15	15	J	0.3	cc		1	G	EA
									AND					AND	0.79	69	30	0	4	1	6	6	17	15	J	0.1			1	G	EA
									AND					AND	1.18	35	230	0	4	3	2	6	15	15	J	0.1	cc	pyrr	1	G	EA
									AND					AND	1.32			0	4	3	2	6	15	15	J	0.1	cc		3	NONE	EA
169.5	171.0	1.50	100	1.50	100	4	300	150	AND	dark grey	fine grained	massive	calcite with a blue hue in some joints	AND	0.12			0	4	5	6	6	21	15	J	0.1			1	NONE	EA
									AND					AND	0.53			0	4	3	2	5	14	15	J	0.1	cc		1	NONE	EA
									AND					AND	1.06			0	0	3	2	5	10	15	J	50.0	cc	rub	1	NONE	EA
									AND					AND	1.39	59	150	0	4	3	2	5	14	15	J	0.1	cc	pyrr	1	P	EA
171.0	172.5	1.50	100	1.50	100	4	300	250	AND	dark grey	fine grained	massive	calcite with a blue hue in some joints. Clear yellow mineral in some joints (qtz crystals?)	AND	0.26	24	330	0	4	5	5	5	19	15	J	0.1	pyrr	qtz	1	P	EA
									AND					AND	0.56	24	160	0	4	5	5	5	19	15	J	0.1	pyrr	qtz	1	P	EA
									AND					AND	1.14	22	340	0	1	1	2	6	10	15	J	2.0	cc		1	P	EA
									AND					AND	1.28	31	340	0	1	3	2	6	12	15	J	3.0	cc		1	P	EA
172.5	174.0	1.50	100	1.50	100	12	115	250	AND	dark grey	fine grained	massive	driller dropped core down hole. Core has vugs with quartz infilling	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		5	NONE	EA
									AND					AND	0.00			0	4	5	5	5	19	15	J	0.1	qtz	pyrr	5	NONE	EA
									AND					AND	0.00			0	4	3	2	5	14	15	J	0.1	cc	pyrr	2	NONE	EA
174.0	175.5	1.50	100	1.04	69	12	115	200	AND	dark grey	fine grained	massive	calcite veining throughout run	AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		4	NONE	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.00			0	1	3	0	5	9	15	J	5.0	cc		3	NONE	EA
									AND					AND	0.00			0	4	0	6	6	16	15	J	0.1			1	NONE	EA
175.5	177.0	1.50	100	1.00	67	12	115	100	AND	dark grey	fine grained	massive	calcite veining throughout run	AND	0.00			0	4	1	2	5	12	15	J	0.1	cc		1	NONE	EA
									AND					AND	0.00			0	4	1	6	6	17	15	J	0.1			1	NONE	EA
									AND					AND	0.00			0	4	3	2	5	14	15	J	0.1	cc		2	NONE	EA
									AND					AND	0.00			0	4	3	6	6	19	15	J	0.3			9	NONE	EA
177.0	178.5	1.47	98	1.28	85	8	163	150	AND	dark grey	fine grained	massive	calcite veining throughout run	AND	0.00			0	1	3	2	5	11	15	J	1.0	cc		5	NONE	EA
									AND					AND	0.00			0	4	1	2	5	12	15	J	0.1	cc		1	NONE	EA
									AND					AND	0.00			0	4	3	6	6	19	15	J	0.1			2	NONE	EA
178.5	180.0	1.50	100	1.50	100	6	214	150	AND	dark grey	fine grained	massive	calcite veining throughout run	AND	0.34	68	250	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					AND	0.56	61	115	0	4	3	6	6	19	15	J	2.0			1	G	EA
									AND					AND	0.71	32	230	0	1	3	2	5	11	15	J	0.1	cc		1	G	EA
									AND					AND	0.89	45	20	0	4	3	6	6	19	15	J	0.5			1	G	EA
									AND					AND	1.18	33	5	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
									AND					AND	1.39	44	170	0	4	3	6	6	19	15	J	0.5			1	G	EA
180.0	181.5	1.50	100	1.37	91	5	250	200	AND	dark grey	fine grained	massive	calcite veining throughout run	AND	0.24	60	210	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	0.56	44	105	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	0.73	45	120	0	4	2	2	6	14	15	J	2.0			1	G	MGW
									AND					AND	0.94	27	0	0	2	4	4	5	15	15	J	2.0	qtz		1	G	MGW
									AND					AND	1.35	30	60	0	2	1	2	5	10	15	J	0.1	cly		1	G	MGW
181.5	183.0	1.50	100	1.21	81	6	214	200	AND	dark grey	fine grained	massive	calcite veining throughout run. Oriented from previous run	AND	0.20	75	90	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	0.48	40	30	0	4	3	6	6	19	15	J	0.5			1	G	MGW
									AND					AND	0.98	45	30	0	4	2	6	6	18	15	J	0.5			1	G	MGW
									AND					AND	1.02	43	30	0	4	2	6	6	18	15	J	0.5			1	G	MGW
									AND					AND	1.17	27	135	0	4	2	6	6	18	15	J	0.5			1	G	MGW
									AND					AND	1.38	34	190	0	4	2	6	6	18	15	J	0.5			1	G	MGW
183.0	184.5	1.50	100	1.50	100	4	300	200	AND	dark grey	fine grained	massive	.1-1 cm quartz and calcite veins throughout run	AND	0.22	70	210	0	4	4	2	5	15	15	J	0.5	cc		1	VG	MGW
									AND					AND	0.56	54	10	0	0	3	0	5	8	15	J	5.0	cc		1	VG	MGW
									AND					AND	0.86	76	270	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					AND	1.08	35	250	0	4	3	2	5	14	15	J	0.8	cc		1	VG	MGW
184.5	186.0	1.50	100	0.96	64	6	214	150	AND	dark grey	fine grained	massive	.1-1 cm quartz and calcite veins throughout run. Oriented from previous run	AND	0.48	40	220	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					AND	0.63	58	100	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					AND	0.95	25	350	0	2	2	2	5	11	15	J	5.0	qtz		1	VG	MGW
									AND					AND	1.10	40	105	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
									AND					AND	1.23	43	85	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					AND	1.32	76	320	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
186.0	187.5	1.50	100	1.36	91	5	250	150	AND	dark grey	fine grained	massive	.1-1 cm quartz and calcite veins throughout run	AND	0.37	57	85	0	4	2	2	5	13	15	J	0.5	cly		1	VG	MGW
									AND					AND	0.60	69	130	0	4	1	6	6	17	15	J	0.5			1	VG	MGW
									AND					AND	0.96	50	15	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					AND	1.06	52	40	0	4	2	2	5	13	15	J	0.1	cc		1	VG	MGW
									AND					AND	1.37	68	55	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
187.5	189.0	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	.1-1 cm quartz and calcite veins throughout run	PPY	0.55	35	0	0	4	2	6	6	18	15	J	0.5			1	P	MGW
189.0	190.5	1.40	93	0.82	55	3	350	150	AND	dark grey	fine grained	massive	strong rock with few joints	PPY	0.62	25	145	0	4	2	6	6	18	15	J	0.3			1	P	MGW
									AND					PPY	0.86	16	150	0	4	2	6	6	18	15	J	0.3			1	P	MGW
									AND					PPY	1.17	42	40	0	4	2	6	6	18	15	J	0.3			1	P	MGW
190.5	192.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified. Oriented from previous run	PPY	1.05	35	65	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					PPY	1.43	25	70	0	4	3	6	6	19	15	J	0.1			1	P	EA
192.0	193.5	1.50	100	1.50	100	3	375	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.70	52	75	0	4	3	4	5	16	15	J	0.1	pyrr		1	P	EA
									AND					PPY	1.22	63	30	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					PPY	1.28	32	10	0	4	3	2	5	14	15	J	0.1	cc		1	P	EA
193.5	195.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.95	26	15	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					PPY	1.11	30	210	0	4	3	5	5	17	15	J	0.3	qtz		1	P	EA
195.0	196.5	1.50	100	1.50	100	2		250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.94	43	115	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					PPY	1.30	50	220	0	4	3	6	6	19	15	J	0.1			1	VG	EA
196.5	198.0	1.47	98	1.47	98	3	368	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.44	49	120	0	4	1	2	5	12	15	J	0.3	cc		1	VG	EA
									AND					PPY	1.18	54	110	0	4	1	2	5	12	15	J	0.1	cc		1	VG	EA
									AND					PPY	1.36	43	45	0	4	1	2	5	12	15	J	0.1	cc		1	VG	EA
198.0	199.5	1.50	100	1.50	100	9	150	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified. Oriented from previous run	PPY	0.86	40	40	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					PPY	0.98	58	30	0	4	3	6	6	19	15	J	0.1			1	VG	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					PPY	1.20	55	75	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
									AND					PPY	1.23	25	240	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					PPY	1.34	16	130	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
									AND					PPY	1.40			0	4	3	2	5	14	15	J	0.1	cc		4	NONE	EA
199.5	201.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified. Oriented from previous run	PPY	0.24	34	150	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
									AND					PPY	0.48	82	90	0	4	3	6	5	18	15	J	0.1	cc		1	VG	EA
201.0	202.5	1.50	100	1.50	100	0	1500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.14	41	50	0	4	1	2	6	13	15	J	0.1			1	VG	EA
202.5	204.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	1.31	53	100	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
204.0	205.5	1.50	100	1.47	98	2	500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.58	61	100	0	4	1	6	5	16	15	J	0.1	cc		1	VG	EA
									AND					PPY	0.67	67	110	0	4	3	2	6	15	15	J	0.1			1	VG	EA
205.5	207.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.84	57	105	0	4	3	6	5	18	15	J	0.1	cc		1	VG	EA
									AND					PPY	1.35	24	20	0	4	3	2	6	15	15	J	0.1			1	VG	EA
207.0	208.5	1.50	100	1.50	100	6	214	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.22	49	120	0	4	1	6	5	16	15	J	0.1	cc		1	VG	EA
									AND					PPY	0.44	40	280	0	1	3	2	6	12	15	J	3.0			1	VG	EA
									AND					PPY	0.57	48	285	0	1	3	2	5	11	15	J	2.0	cc		1	VG	EA
									AND					PPY	0.82	52	40	0	4	3	6	5	18	15	J	0.1	cc		1	VG	EA
									AND					PPY	1.21	49	40	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					PPY	1.37	65	60	0	4	3	6	6	19	15	J	0.1			1	VG	EA
208.5	210.0	1.50	100	1.50	100	5	250	250	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.13			0	4	3	6	5	18	15	J	0.1	cc		5	NONE	EA
210.0	211.5	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.32	37	360	0	4	1	2	6	13	15	J	0.1			1	F	EA
									AND					PPY	0.49	69	70	0	4	3	6	6	19	15	J	0.1			1	F	EA
									AND					PPY	1.37	41	65	0	4	3	6	6	19	15	J	0.1			1	F	EA
211.5	213.0	1.47	98	1.47	98	2	490	200	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.72			0	4	3	6	6	19	15	J	0.1			1	NONE	EA
									AND					PPY	1.34	31	65	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
213.0	214.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	PPY	0.51	31	360	0	4	3	2	5	14	15	J	4.0	cc		1	G	EA
									AND					PPY	1.03	61	20	0	4	1	2	5	12	15	J	0.1	cc		1	G	EA
214.5	216.0	1.50	100	1.50	100	4	300	200	AND	dark grey	fine grained	massive	strong rock with few joints. Silicified.	ABX	0.00	40	40	0	4	0	6	6	16	15	J	0.1			1	G	EA
									AND					ABX	0.69	31	45	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					ABX	0.84	40	20	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					ABX	1.12	67	100	0	4	1	6	6	17	15	J	0.1			1	G	EA
216.0	217.5	1.50	100	1.42	95	4	300	200	AND	dark grey	fine grained	massive	strong rock with few joints. Oriented from previous run	ABX	0.23	40	100	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					ABX	0.81	34	50	0	4	1	2	5	12	15	J	0.1	cc		1	G	EA
									AND					ABX	0.86	47	40	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					ABX	1.37	35	300	0	4	3	5	5	17	15	J	0.1	qtz		1	G	EA
217.5	219.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	strong rock with few joints.	ABX	1.21	32	20	0	4	3	2	5	14	15	J	0.1	qtz		1	G	EA
									AND					ABX	1.40	36	30	0	4	3	2	5	14	15	J	0.1	qtz		1	G	EA
219.0	220.5	1.44	96	1.44	96	3	360	200	AND	dark grey	fine grained	massive	strong rock with few joints.	ABX	1.02	73	110	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
									AND					ABX	1.34	78	270	0	4	3	6	6	19	15	J	1.0			1	G	EA
									AND					ABX	1.39	80	220	0	4	3	6	6	19	15	J	0.1			1	G	EA
220.5	222.0	1.40	93	1.40	93	3	350	200	AND	dark grey	fine grained	massive	strong rock with few joints.	ABX	0.66	45	5	0	4	3	2	5	14	15	J	0.3	cc		1	P	EA
									AND					ABX	0.74	64	190	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					ABX	1.02	65	40	0	1	3	2	5	11	15	J	2.0	cc		1	P	EA
222.0	223.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	strong rock with few joints.	ABX	0.57	19	150	0	1	1	2	5	9	15	J	3.0	cc		1	P	EA
									AND					ABX	1.33			0	4	3	2	5	14	15	J	0.5	cc		1	P	EA
223.5	225.0	1.50	100	1.41	94	3	375	200	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run	ABX	0.68	31	110	0	4	4	2	5	15	15	J	0.5	cc		1	P	MGW
									AND					ABX	1.03	34	140	0	4	3	6	5	18	15	J	0.5			1	P	MGW
									AND					ABX	1.35	32	150	0	4	3	2	5	14	15	J	0.5	cc		1	P	MGW
225.0	226.5	1.50	100	1.23	82	4	300	200	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run. Oriented from previous run.	ABX	0.52	36	250	0	2	3	2	5	12	15	J	2.0	cc		1	P	MGW
									AND					ABX	1.09	24	210	0	4	3	2	5	14	15	J	0.5	cc		1	P	MGW
									AND					ABX	1.18	46	90	0	4	3	2	5	14	15	J	0.5	cc		1	P	MGW
									AND					ABX	1.32	57	51	0	4	3	6	6	19	15	J	0.5			1	P	MGW
226.5	228.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	F	MGW
228.0	229.5	1.50	100	1.50	100	6	214	200	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run. Problem when breaking-no orientation	ABX	0.00			0	2	2	2	5	11	15	J	2.0	cc		2	NONE	MGW
									AND					ABX	0.00			0	4	2	6	6	18	15	J	0.5			4	NONE	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
229.5	231.0	1.50	100	1.42	95	5	250	150	AND	dark grey	fine grained	massive	.1-2 cm calcite veins throughout run.	ABX	0.60	80	220	0	0	3	0	5	8	15	J	30.0	cc		1	VG	MGW
									AND					ABX	0.63	73	160	0	4	1	2	5	12	15	J	0.1	cc		1	VG	MGW
									AND					ABX	0.92	57	105	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.01	35	55	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.20	55	120	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
231.0	232.5	1.50	100	1.50	100	3	375	150	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run	ABX	0.33	65	175	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					ABX	0.92	44	105	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					ABX	1.15	53	115	0	1	2	2	5	10	15	J	3.0	cc		1	VG	MGW
232.5	234.0	1.50	100	1.50	100	2	500	150	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run	ABX	0.61	65	85	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.24	20	330	0	1	2	2	5	10	15	J	3.0	cc		1	VG	MGW
234.0	235.5	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run	ABX	0.13	50	320	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
									AND					ABX	0.74	60	240	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.47	48	105	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
235.5	237.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	strong rock with few joints. .1-2 cm calcite veins throughout run	ABX	0.42	52	90	0	4	4	2	5	15	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.81	74	350	0	4	4	2	5	15	15	J	0.5	cc		1	VG	MGW
237.0	238.5	1.50	100	1.37	91	5	250	200	AND	dark grey	fine grained	massive	strong rock with few joints. 0.1-2 cm calcite veins throughout run. Oriented from previous run	ABX	0.22	75	190	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
									AND					ABX	0.52	73	80	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
									AND					ABX	0.84	40	135	0	2	2	2	5	11	15	J	2.0	cc		1	VG	MGW
									AND					ABX	1.09	38	160	0	2	3	2	5	12	15	J	1.0	cc		1	VG	MGW
									AND					ABX	1.20	52	130	0	0	3	0	5	8	15	J	6.0	cc		1	VG	MGW
238.5	240.0	1.50	100	1.16	77	4	300	150	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run	ABX	0.20	24	160	0	0	2	0	5	7	15	J	30.0	cc		1	VG	MGW
									AND					ABX	0.24	25	160	0	0	2	0	5	7	15	J	40.0	rub	cly	1	VG	MGW
									AND					ABX	0.38	25	140	0	2	3	2	5	12	15	J	1.0	cly		1	VG	MGW
									AND					ABX	0.92	55	10	0	4	3	2	5	14	15	J	0.5	cly		1	VG	MGW
240.0	241.5	1.50	100	0.91	61	3	375	150	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints.	ABX	0.76	45	290	0	1	3	2	6	12	15	J	0.8	cc		1	P	MGW
									AND					ABX	0.95	63	140	0	1	3	2	5	11	15	J	0.5	cly	slk	1	P	MGW
									AND					ABX	1.37	69	220	0	4	4	6	6	20	15	J	0.1			1	P	MGW
241.5	243.0	1.50	100	0.75	50	15	94	150	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints.	ABX	0.15	79	140	0	4	1	2	5	12	15	J	0.5	cc	slk	1	G	MGW
									AND					ABX	0.29	30	70	0	1	2	2	5	10	15	J	1.0	cly	slk	1	G	MGW
									AND					ABX	0.40	30	20	0	1	2	2	5	10	15	J	0.5	cc	slk	1	G	MGW
									AND					ABX	0.51	25	330	0	1	2	2	5	10	15	J	0.5	cly	slk	5	G	MGW
									AND					ABX	0.52	54	325	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
									AND					ABX	0.56	38	30	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
									AND					ABX	0.60			0	4	2	2	5	13	15	J	0.5	cc		5	NONE	MGW
243.0	244.5	1.50	100	1.42	95	4	300	150	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints.	ABX	0.08	23	40	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.30	35	125	0	4	3	2	5	14	15	J	0.5	cly		1	VG	MGW
									AND					ABX	0.82	45	130	0	2	2	2	5	11	15	J	2.0	cc		1	VG	MGW
									AND					ABX	1.11	63	18	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
244.5	246.0	1.50	100	1.50	100	2	500	150	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints.	ABX	0.60	26	290	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.99	27	280	0	4	3	2	5	14	15	J	0.5	cly		1	VG	MGW
246.0	247.5	1.50	100	1.50	100	2	500	150	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints. Oriented from previous.	ABX	0.19	22	340	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.77	20	35	0	1	2	2	5	10	15	J	3.0	cc		1	VG	MGW
247.5	249.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints.	ABX	0.50	50	155	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.84	22	345	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
249.0	250.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	0.1-2 cm calcite veins throughout run. Many fractures and healed joints.	ABX	0.46	46	30	0	2	3	2	5	12	15	J	2.0	cc		1	VG	MGW
									AND					ABX	0.63	45	35	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
250.5	252.0	1.50	100	1.48	99	6	214	250	AND	dark grey	fine grained	massive	calcite veining and chaotic micro-fractures, vuggy around joints	MNZ	0.45	32	30	0	0	1	0	5	6	15	J	10.0	cly		1	VG	EA
									AND					MNZ	0.96	39	65	0	4	1	2	6	13	15	J	0.8	cc		1	VG	EA
									AND					MNZ	1.00			0	4	3	2	6	15	15	J	0.3	cc		3	NONE	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					MNZ	1.29			0	4	3	2	6	15	15	J	0.1	cc		1	NONE	EA
252.0	253.5	1.44	96	1.44	96	0	1440	100	AND	dark grey	fine grained	massive	soft clay zone, gouge like material between .14-.21	MNZ	0.00			6	6	6	6	6	30	15		0.0			1	P	EA
253.5	255.0	1.50	100	1.50	100	0	1500	250	AND	dark grey/tan	fine grained	massive	equigranular vugs with quartz crystals	MNZ	0.00			6	6	6	6	6	30	15		0.0			1	G	EA
255.0	255.9	0.86	100	0.86	100	0	860	200	AND	dark grey/tan	fine grained	massive		MNZ	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
255.9	256.5	0.64	100	0.00	0	MAX	5	1	AND	grey/brown	fine grained	massive	soft clay gouge with MNZ sections	FT	0.00			0	0	1	0	3	4	15	Rub	660.0			1	VG	EA
256.5	258.0	1.45	97	1.45	97	3	363	200	AND	dark grey	fine grained	massive		PPY	0.58	45	30	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					PPY	0.98	52	55	0	4	0	6	6	16	15	J	0.1			1	VG	EA
									AND					PPY	1.32	24	50	0	4	5	2	5	16	15	J	0.1	cc		1	VG	EA
258.0	259.5	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	1.04	52	360	0	4	1	2	5	12	15	J	0.1	cc		1	VG	EA
259.5	261.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	EA
261.0	262.5	1.46	97	1.46	97	1	730	250	AND	dark grey	fine grained	massive		ABX	1.39	39	55	0	4	1	2	5	12	15	J	0.1	cc		1	VG	EA
262.5	264.0	1.50	100	1.50	100	2	500	100	AND	dark grey	fine grained	massive		ABX	1.00	74	140	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					ABX	1.32	49	290	0	4	1	2	5	12	15	J	0.3	cc		1	VG	EA
264.0	265.5	1.45	97	1.45	97	1	725	100	AND	dark grey	fine grained	massive		ABX	1.35	55	320	0	4	5	2	5	16	15	J	0.5	cc		1	VG	EA
265.5	267.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	G	EA
267.0	268.5	1.49	99	1.49	99	3	373	200	AND	dark grey	fine grained	massive		ABX	0.46	90		0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					ABX	0.81	17	30	0	1	3	4	5	13	15	J	2.0	qtz		1	P	EA
									AND					ABX	1.06	68	310	0	4	3	6	6	19	15	J	0.1			1	P	EA
268.5	270.0	1.45	97	1.45	97	3	363	250	AND	dark grey	fine grained	massive		ABX	0.37	54	320	0	4	1	2	5	12	15	J	0.1	cc		1	VG	EA
									AND					ABX	1.16	67	310	0	4	3	2	5	14	15	J	0.2	cc		1	VG	EA
270.0	271.5	1.48	99	1.48	99	1	740	200	AND	dark grey	fine grained	massive		ABX	1.11	34	345	0	1	3	4	5	13	15	J	3.0	qtz		1	VG	EA
271.5	273.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive		ABX	0.41	59	270	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
									AND					ABX	1.33	44	55	0	4	3	4	5	16	15	J	0.1	pyrr		1	VG	EA
273.0	274.5	1.46	97	1.46	97	3	365	200	AND	dark grey	fine grained	massive		ABX	0.51	59	155	0	4	3	2	5	14	15	J	0.1	cc		1	P	EA
									AND					ABX	1.01	75	80	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					ABX	1.30	47	135	0	4	3	2	5	14	15	J	0.8	cc		1	P	EA
274.5	276.0	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive		ABX	0.46	57	160	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					ABX	0.84	42	130	0	4	3	2	5	14	15	J	0.1	cly	cc	1	VG	EA
									AND					ABX	1.47	47	80	0	1	3	6	5	15	15	J	2.0	cc		1	VG	EA
276.0	277.5	1.48	99	1.48	99	2	493	250	AND	dark grey	fine grained	massive		ABX	0.36	15	135	0	0	3	5	5	13	15	J	10.0	qtz		1	VG	EA
									AND					ABX	0.91	16	280	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
277.5	279.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive		ABX	0.16	78	275	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					ABX	1.19	53	120	0	4	3	5	5	17	15	J	0.1	pyrr		1	VG	EA
279.0	280.5	1.46	97	1.46	97	3	365	250	AND	dark grey	fine grained	massive		ABX	0.10	70	170	0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					ABX	0.72			0	4	3	6	6	19	15	J	0.1			1	G	EA
									AND					ABX	1.26	23	30	0	4	3	2	5	14	15	J	0.1	cc		1	G	EA
280.5	282.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	1.24	53	25	0	4	3	2	5	14	15	J	0.1	cc		1	P	MGW
282.0	283.5	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive	0.1-2 cm calcite and quartz veining throughout run. Some vugs with quartz infilling	ABX	0.22	77	130	0	4	2	6	6	18	15	J	0.1			1	P	MGW
									AND					ABX	0.50	15	315	0	2	3	4	5	14	15	J	2.0	qtz		1	P	MGW
283.5	285.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	0.1-2 cm calcite and quartz veining throughout run. Some vugs with quartz infilling	ABX	0.43	45	300	0	0	3	3	5	11	15	J	7.0	qtz		1	VG	MGW
									AND					ABX	0.72	80	320	0	1	3	4	5	13	15	J	3.0	qtz		1	VG	MGW
									AND					ABX	0.83	40	250	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					ABX	1.24	57	95	0	4	4	2	5	15	15	J	0.5	cc		1	VG	MGW
285.0	286.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	0.1-2 cm calcite and quartz veining throughout run. Some vugs with quartz infilling	ABX	0.82	48	50	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
									AND					ABX	1.01	36	115	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
286.5	288.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	1.03	30	20	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.25	40	10	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
288.0	289.5	1.50	100	1.43	95	2	500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.46	38	65	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.71	42	80	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.22	64	285	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
289.5	291.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.65	50	60	0	4	2	6	6	18	15	J	0.1			1	G	MGW
									AND					ABX	0.82	39	10	0	4	2	2	5	13	15	J	0.1	cc		1	G	MGW
291.0	292.5	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.70	52	70	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
									AND					ABX	1.10	33	60	0	4	2	4	5	15	15	J	0.1	pyrr		1	VG	MGW
									AND					ABX	1.32	62	130	0	4	2	6	6	18	15	J	0.1			1	VG	MGW
292.5	294.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.90	44	90	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.30	62	75	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
294.0	295.5	1.50	100	1.38	92	2	500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.43	34	0	0	4	1	6	6	17	15	J	0.5			1	VG	MGW
									AND					ABX	0.50	20	280	0	4	2	2	5	13	15	J	0.5	cc	slk	1	VG	MGW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
295.5	297.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.97	30	65	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					ABX	1.30	43	60	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
297.0	298.5	1.50	100	1.50	100	4	300	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.27	18	290	0	0	3	3	5	11	15	J	15.0	qtz		1	VG	MGW
									AND					ABX	0.60	65	120	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
									AND					ABX	1.26	65	65	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.40	48	50	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
298.5	300.0	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.16	62	105	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
									AND					ABX	0.47	33	310	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.84	58	0	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
300.0	301.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MGW
301.5	303.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	Sparse 0.1-2 cm calcite and quartz veining throughout run.	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MGW
303.0	304.5	1.48	99	1.48	99	1	740	200	AND	dark grey	fine grained	massive		ABX	1.00	24	300	0	4	3	2	5	14	15	J	0.8	cc		1	P	EA
304.5	306.0	1.45	97	1.45	97	1	725	250	AND	dark grey	fine grained	massive		ABX	0.98	57	160	0	4	3	2	5	14	15	J	0.1	cc		1	P	EA
306.0	307.5	1.48	99	1.48	99	2	493	200	AND	dark grey	fine grained	massive		ABX	0.56	62	70	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					ABX	1.18	37	25	0	1	3	5	5	14	15	J	3.0	qtz		1	P	EA
307.5	309.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	1.12	64	70	0	4	3	2	5	14	15	J	0.1	cc		1	P	EA
309.0	310.5	1.50	100	1.50	100	3	375	250	AND	dark grey	fine grained	massive		ABX	0.61	54	110	0	4	3	2	5	14	15	J	0.7	cc		1	P	EA
									AND					ABX	0.80	50	40	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					ABX	0.98	54	30	0	4	3	2	5	14	15	J	0.3	cc		1	P	EA
310.5	312.0	1.45	97	1.45	97	0	1450	250	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	P	EA
312.0	313.5	1.46	97	1.46	97	1	730	150	AND	dark grey	fine grained	massive		ABX	0.76	54	125	0	4	1	6	6	17	15	J	0.1			1	P	EA
313.5	315.0	1.50	100	1.47	98	3	375	200	AND	dark grey	fine grained	massive		ABX	0.98	77	140	0	4	3	6	6	19	15	J	0.1			1	P	EA
									AND					ABX	1.11	74	240	0	4	3	2	5	14	15	J	0.6	cc		1	P	EA
									AND					ABX	1.14	43	165	0	4	1	2	5	12	15	J	0.3	cc		1	P	EA
315.0	316.5	1.42	95	1.42	95	0	1420	250	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	P	EA
316.5	318.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	0.61	35	35	0	1	3	2	5	11	15	J	3.0	cc		1	VG	EA
318.0	319.5	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	0.52	48	60	0	4	3	6	6	19	15	J	0.1			1	VG	EA
319.5	321.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	1.16	49	290	0	4	3	2	5	14	15	J	0.8	cc		1	P	EA
321.0	322.5	1.43	95	1.43	95	1	715	200	AND	dark grey	fine grained	massive		ABX	0.93	52	20	0	4	3	6	6	19	15	J	0.1			1	P	EA
322.5	324.0	1.50	100	1.50	100	3	375	150	AND	grey	fine grained	massive	sharp contact between changing rock ABX to PPY@.32 to FT @.59	FT	0.74	44	5	0	1	3	2	5	11	15	J	3.0	cc		1	P	EA
									AND					FT	0.89	62	30	0	4	1	2	5	12	15	J	0.8	cc		1	P	EA
									AND					FT	1.27	42	350	0	4	3	6	6	19	15	J	0.1			1	P	EA
324.0	325.5	1.43	95	1.34	89	2	477	250	AND	grey/tan	fine grained	massive	equigranular	MNZ	0.44	49	70	0	1	3	2	5	11	15	J	1.0	cc		1	P	EA
									AND					MNZ	0.53	36	50	0	0	3	2	5	10	15	J	25.0	cc		1	P	EA
325.5	327.0	1.50	100	1.50	100	0	1500	250	AND	light grey	fine grained	massive	silver metallic mineral on surface of core	FLPT	0.00			6	6	6	6	6	30	15	J	0.0			1	P	EA
327.0	328.5	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	silver metallic mineral on surface of core	PPY	1.25	49	295	0	1	3	2	5	11	15	J	2.0	cc		1	P	EA
328.5	330.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	G	MGW
330.0	331.5	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.30	15	40	0	1	2	4	5	12	15	J	4.0	qtz		1	G	MGW
331.5	333.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
333.0	334.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
334.5	336.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
336.0	337.5	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.36	20	55	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					ABX	0.78	18	175	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.25	30	60	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
337.5	339.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
339.0	340.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock, pyrite in fresh breaks	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
340.5	342.0	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.10	30	65	0	2	2	3	5	12	15	J	2.0	cc		1	VG	MGW
									AND					ABX	0.68	27	65	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
									AND					ABX	0.81	17	85	0	4	3	2	5	14	15	J	0.5	cc		1	VG	MGW
343.5	345.0	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.83	40	20	0	4	2	4	5	15	15	J	0.5	qtz		1	VG	MGW
345.0	346.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
346.5	348.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	strong rock	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
348.0	349.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
349.5	351.0	1.48	99	1.48	99	2	493	200	AND	dark grey	fine grained	massive		ABX	0.23	39	55	0	4	5	6	6	21	15	J	0.1			1	VG	EA
									AND					ABX	1.07	43	145	0	4	1	2	5	12	15	J	0.3	cc		1	VG	EA
351.0	352.5	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive		ABX	0.40	32	170	0	4	3	6	6	19	15	J	0.1			1	VG	EA
352.5	354.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	1.27	71	180	0	4	3	2	5	14	15	J	0.1	cc		1	VG	EA
354.0	355.5	1.41	94	1.41	94	0	1410	200	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
355.5	357.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive		ABX	0.62	73	170	0	4	3	6	6	19	15	J	0.1			1	VG	EA
									AND					ABX	1.20	34	170	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
357.0	358.5	1.49	99	1.49	99	1	745	150	AND	dark grey	fine grained	massive		ABX	0.99	30	345	0	4	3	2	5	14	15	J	0.5	cc		1	VG	EA
358.5	360.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15		0.0			1	VG	EA
360.0	361.5	1.46	97	1.46	97	1	730	200	AND	dark grey	fine grained	massive		ABX	0.25	35	35	0	4	3	2	5	14	15	J	0.1	CC		1	VG	EA

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition													
Depth From (m)	Depth To (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	Average Fracture Spac. (mm)	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
361.5	363.0	1.49	99	1.49	99	1	745	250	AND	dark grey	fine grained	massive		ABX	1.16	37	50	0	4	1	2	5	12	15	J	0.3	cc		1	VG	EA
363.0	364.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive		ABX	0.00	40	35	0	4	3	2	5	14	15	J	0.8	cc		1	VG	EA
									AND					ABX	0.66	55	110	0	4	1	2	5	12	15	J	0.6	cc		1	VG	EA
364.5	366.0	1.50	100	1.50	100	1	750	250	AND	dark grey	fine grained	massive		ABX	1.38	65	200	0	4	3	6	6	19	15	J	0.1			1	VG	EA
366.0	367.5	1.44	96	1.44	96	2	480	150	AND	dark grey	fine grained	massive		ABX	0.00			0	1	3	5	5	14	15	J	2.0	qtz		1	NONE	EA
									AND					ABX	0.00			0	4	3	2	5	14	15	J	0.5	cc		1	NONE	EA
367.5	369.0	1.50	100	1.50	100	0	1500	250	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15		0.0			1	G	EA
369.0	370.5	1.48	99	1.48	99	1	740	250	AND	dark grey	fine grained	massive		ABX	0.59	64	200	0	4	5	6	6	21	15	J	0.1			1	G	EA
370.5	372.0	1.50	100	1.50	100	2	500	250	AND	dark grey	fine grained	massive		ABX	0.57	51	310	0	4	3	5	6	18	15	J	0.3	qtz		1	G	EA
									AND					ABX	1.38	37	330	0	1	3	2	5	11	15	J	2.0	cc		1	G	EA
372.0	373.5	1.50	100	1.50	100	0	1500	250	AND	dark grey	fine grained	massive		ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	EA
373.5	375.0	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive		ABX	0.03	72	150	0	1	3	2	5	11	15	J	4.0	chl	cc	1	VG	EA
375.0	376.5	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.81	62	45	0	0	3	0	5	8	15	J	7.0	cc		1	VG	MGW
									AND					ABX	1.16	38	350	0	0	3	3	5	11	15	J	10.0	qtz		1	VG	MGW
									AND					ABX	1.34	75	50	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
376.5	378.0	1.50	100	1.50	100	5	250	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.00			0	4	2	2	5	13	15	J	0.5	cc		1	NONE	MGW
									AND					ABX	0.00			0	4	2	6	5	17	15	J	0.5			1	NONE	MGW
378.0	379.5	1.50	100	1.34	89	4	300	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.00			0	0	2	0	5	7	15	J	70.0	rub	cc	1	VG	MGW
									AND					ABX	0.34	28	350	0	4	3	4	5	16	15	J	0.5	Qtz		1	VG	MGW
									AND					ABX	0.44	65	240	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.20	67	130	0	2	1	2	5	10	15	J	2.0	cc		1	VG	MGW
379.5	381.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.34	80	190	0	4	2	6	6	18	15	J	0.5			1	VG	MGW
									AND					ABX	0.94	78	190	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
381.0	382.5	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.60	15	295	0	0	1	0	5	6	15	J	20.0	cly		1	VG	MGW
382.5	384.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.70	65	305	0	4	4	6	6	20	15	J	0.5			1	VG	MGW
									AND					ABX	1.38	30	45	0	4	2	2	5	13	15	J	0.5	cly		1	VG	MGW
384.0	385.5	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.08	52	190	0	0	3	0	3	6	15	J	20.0	Rub	cc	1	VG	MGW
									AND					ABX	0.94	75	80	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
385.5	387.0	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	1.10	60	190	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
387.0	388.5	1.50	100	1.50	100	3	375	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.72	47	30	0	4	3	4	5	16	15	J	0.5	qtz		1	VG	MGW
									AND					ABX	1.10	34	20	0	4	2	2	5	13	15	J	0.5	cly		1	VG	MGW
									AND					ABX	1.26	28	20	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
388.5	390.0	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.60	46	120	0	2	2	2	5	11	15	J	0.0	cc		1	VG	MGW
									AND					ABX	0.78	64	120	0	4	2	2	5	13	15	J	0.5	cc		1	VG	MGW
									AND					ABX	1.02	62	100	0	4	1	2	5	12	15	J	0.5	cc		1	VG	MGW
390.0	391.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MGW
391.5	393.0	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.34	48	110	0	4	2	4	5	15	15	J	0.5	pyrr		1	VG	MGW
393.0	394.5	1.50	100	1.50	100	0	1500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	G	MGW
394.5	396.0	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	1.13	58	170	0	4	3	6	6	19	15	J	0.5			1	VG	MGW
396.0	397.5	1.50	100	1.50	100	1	750	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.15	22	305	0	1	2	3	5	11	15	J	3.0	qtz		1	VG	MGW
397.5	399.0	1.50	100	1.50	100	2	500	200	AND	dark grey	fine grained	massive	Strong rock with sparse quartz and calcite veining throughout	ABX	0.03	45	175	0	4	2	2	5	13	15	J	0.5	cc		1	G	MGW
									AND					ABX	0.96	50	210	0	4	2	6	6	18	15	J	0.5			1	G	MGW
399.0	400.5	1.49	99	1.49	99	1	745	250	AND	dark grey	fine grained	massive		ABX	0.51	45	50	0	4	3	6	6	19	15	J	0.1			1	F	EA
EOH																															

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

GEOTECHNICAL DRILLHOLE LOGGING DATA SHEET
ROCK MASS CLASSIFICATION - RMR 1989
BORE HOLE I.D. GM12-13

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix A - Drillhole Logs\A2 - Logging Data Sheets\mod_log_sheets\[GM12-13 Logging Sheet.xlsm]Data - Logging Sheet

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
0.0	7.5								OB				OVERBURDEN	OB																SRM
7.5	9.0	1.50	1.65	100	0.65	43	10	25	VC	brown	fine grained	breccia	dacite/latite porphyry	VC	0.00			0	0	3	0	3	6	15	J	10.0	cly	Rub	10	none	SRM
9.0	10.5	1.50	1.60	100	0.85	57	10	50	VC	grey	fine grained	breccia	dacite/latite porphyry	VC	0.00			0	0	3	0	3	6	15	J	10.0	cly	Rub	10	none	SRM
10.5	12.0	1.50	1.55	100	0.24	16	16	100	VC	grey	fine grained	breccia	dacite/latite porphyry	VC	0.00			0	1	1	2	3	7	15	J	5.0	cly	Rub	16	none	SRM
12.0	12.4	0.40	0.46	100	0.25	62	5	125	VC	grey	fine grained	breccia	dacite/latite porphyry	VC	0.00	49	300	0	1	1	2	3	7	15	J	5.0	ox		1	F	SRM
									VC					VC	0.14	74	0	0	1	3	2	5	11	15	J	5.0	ox	Rub	1	F	SRM
									VC					VC	0.16	14	70	0	1	1	2	3	7	15	J	5.0	ox	Rub	1	F	SRM
									VC					VC	0.26	33	180	0	1	1	2	5	9	15	J	5.0	ox	cly	1	F	SRM
									VC					VC	0.40	41	260	0	0	1	0	3	4	15	J	10.0	ox	Rub	1	F	SRM
12.4	13.4	1.00	0.30	30	0.00	0	15	25	VC	grey to light grey	fine grained	breccia	rubble, clay infill	VC	0.00			0	1	3	2	3	9	15	J	5.0	Rub	cly	15	none	SRM
13.4	13.5	0.10	0.10	100	0.00	0	3	25	VC	grey to light grey	fine grained	breccia	felsic lapilli tuff	VC	0.00	33	60	0	1	1	2	3	7	15	J	5.0	cly		1	F	SRM
									VC					VC	0.10	39	60	0	1	1	2	3	7	15	J	5.0	cly		1	F	SRM
									VC					VC	0.10	58	220	0	1	1	2	3	7	15	J	5.0	cly		1	F	SRM
13.5	13.7	0.20	0.20	100	0.00	0	Max	20	VC	light grey to blue	fine grained	breccia	rubble	VC	0.00			0	0	1	0	3	4	15	Rub	20.0	Rub		1	none	SRM
13.7	13.9	0.15	0.15	100	0.00	0	2	25	VC	light grey to blue	fine grained	breccia	felsic lapilli tuff	VC	0.00			0	0	3	0	3	6	15	J	10.0	Rub	cly	1	none	SRM
									VC					VC	0.10			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
13.9	14.0	0.15	0.15	100	0.00	0	Max	25	VC	light grey to blue	fine grained	breccia	gouge	VC	0.00			0	0	1	0	3	4	15	J	50.0	Rub	cly	1	none	SRM
14.0	14.4	0.35	0.35	100	0.00	0	5	25	VC	light grey to blue	fine grained	breccia	felsic lapilli tuff	VC	0.00			0	0	1	0	3	4	15	J	30.0	gg	cly	1	none	SRM
									VC					VC	0.10			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.15			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.30			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.35			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
14.4	14.7	0.30	0.30	100	0.00	0	Max	25	VC	light grey to blue	fine grained	breccia	rubble	VC	0.00			0	0	1	0	3	4	15	Rub	50.0	Rub	cly	1	none	SRM
14.7	15.0	0.30	0.35	100	0.35	100	2	25	VC	light grey to blue	fine grained	breccia	andesite/breccia	VC	0.00	30	250	0	0	1	0	3	4	15	J	30.0	Rub	cly	1	F	SRM
									VC					VC	0.17	45	35	0	1	1	2	3	7	15	J	5.0	cly		1	F	SRM
15.0	15.4	0.40	0.40	100	0.00	0	6	25	VC	light grey to blue	fine grained	breccia	andesite/breccia	VC	0.00			0	0	3	0	3	6	15	J	80.0	Rub	cly	1	none	SRM
									VC					VC	0.10			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.13			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.26			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.30			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.40			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
15.4	15.7	0.25	0.25	100	0.00	0	Max	10	VC	light grey to blue	fine grained	breccia	gouge	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	1	none	SRM
15.7	15.9	0.22	0.22	100	0.10	45	3	20	VC	light grey to blue	fine grained	breccia	andesite breccia	VC	0.00			0	0	1	0	3	4	15	J	80.0	gg	cly	1	none	SRM
									VC					VC	0.10			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
									VC					VC	0.22			0	1	1	2	3	7	15	J	5.0	cly		1	none	SRM
15.9	16.1	0.18	0.18	100	0.00	0	Max	20	VC	light grey to blue	fine grained	breccia	rubble	VC	0.00			0	0	1	0	3	4	15	Rub	50.0	Rub	cly	1	none	SRM
16.1	16.5	0.45	0.45	100	0.00	0	7	25	VC	light grey to blue	fine grained	breccia	andesite breccia	VC	0.00			0	0	1	0	3	4	15	J	30.0	Rub		1	none	SRM
									VC					VC	0.02			0	4	1	6	6	17	15	J	1.0			1	none	SRM
									VC					VC	0.13			0	1	1	2	3	7	15	J	5.0	ox	cly	1	none	SRM
									VC					VC	0.19			0	1	1	2	3	7	15	J	5.0	ox	cly	1	none	SRM
									VC					VC	0.25			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
									VC					VC	0.32			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
									VC					VC	0.40			0	0	1	0	3	4	15	J	50.0	Rub	cly	1	none	SRM
16.5	18.0	1.50	1.51	100	0.00	0	40	25	VC	light grey	fine grained	massive	moderately fractured breccia, lots of clay	VC	0.00			0	0	1	0	3	4	15	F	10.0	cly	cc	40	none	JBC
18.0	19.5	1.50	0.40	27	0.40	27	0	100	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, strong	VC	0.00			6	6	6	6	6	30	15		0.0			1	VG	JBC
19.5	21.0	1.50	1.48	99	1.35	90	3	125	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, strong	VC	0.07	53	80	0	4	1	6	5	16	15	J	1.0	nil		1	VG	JBC
									VC					VC	0.49	41	175	0	4	3	2	5	14	15	J	1.0	CC		1	VG	JBC
									VC					VC	1.43	54	105	0	1	1	2	6	10	15	J	5.0			1	VG	JBC
21.0	22.5	1.50	1.55	100	1.11	74	5	125	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, rubble zone @1.30-1.35, calcite and pyrite blebs found throughout breccia, strong rock, xenoliths range from 5mm to 3cm, clast supported	VC	0.08	16	300	0	4	3	6	6	19	15	J	1.0	nil		1	VG	JBC
									VC					VC	0.61	76	355	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.18	29	350	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.30	80	0	0	0	1	0	3	4	15	Rub	20.0	cly	Rub	1	VG	JBC
									VC					VC	1.40	21	310	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
22.5	24.0	1.50	1.51	100	0.91	61	4	100	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, joints have more clay and rubble	VC	0.52	19	60	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	VG	JBC
									VC					VC	0.95	15	65	0	1	3	2	5	11	15	J	2.0	cly	Rub	1	VG	JBC
									VC					VC	1.31	10	60	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	VG	JBC
									VC					VC	1.42	46	330	0	1	5	2	5	13	15	J	5.0	cly	Rub	1	VG	JBC
24.0	24.8	0.80	0.80	100	0.60	75	1	100	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, joints have more clay and rubble	VC	0.35	25	15	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
24.8	25.5	0.70	0.46	66	0.26	37	3	100	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, joints have more clay and rubble	VC	0.00	40	0	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									VC					VC	0.05	20	60	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
									VC					VC	0.35	10	50	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
25.5	26.5	1.00	0.90	90	0.00	0	12	50	VC	light grey to pale white	fine grained	massive	breccia, angular polylithic xenoliths, joints have more clay and rubble, highly fractured, clayey gougey infill	VC	0.00			0	0	1	0	3	4	15	F	10.0	cly	Rub	12	none	JBC
26.5	27.7	1.20	1.20	100	0.40	33	15	25	VC	light grey to pale green	fine grained	massive	tuff? Highly fractured and altered makes run weak rubble and gouges	VC	0.00			0	0	1	0	3	4	15	F	20.0	gg	Rub	15	none	JBC
27.7	28.5	0.80	0.80	100	0.64	80	4	75	VC	light grey to pale white	fine grained	massive	slightly fractured 2cm clayey gougey seam @0.30m	VC	0.10	36	325	0	4	1	2	5	12	15	J	1.0	cc		1	F	JBC
									VC					VC	0.30	45	320	0	0	3	0	3	6	15	Rub	25.0	gg	Rub	1	F	JBC
									VC					VC	0.46	35	80	0	4	5	6	5	20	15	J	1.0	nil		1	F	JBC
									VC					VC	0.67	48	0	0	1	3	2	5	11	15	J	5.0	cly		1	F	JBC
28.5	30.0	1.50	1.45	97	1.27	85	5	100	VC	light grey to pale white	fine grained	massive	xenoliths or clasts are subrounded to angular up to .5cm in diameter with different colour, white to grey	VC	0.10	10	270	0	0	1	0	3	4	15	Rub	30.0	cly	Rub	1	VG	JBC
									VC					VC	0.40	45	340	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	VG	JBC
									VC					VC	0.65	35	300	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.00	18	70	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.32	40	70	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
30.0	31.5	1.50	1.50	100	1.20	80	3	100	VC	light grey to pale white	fine grained	massive	xenoliths or clasts are subrounded to angular up to .5cm in diameter with different colour, white to grey	VC	0.46	45	150	0	0	1	0	5	6	15	Rub	20.0	cly	gg	1	VG	JBC
									VC					VC	0.50	55	0	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.92	80	100	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
31.5	32.6	1.10	1.10	100	0.51	46	3	100	VC	light grey to pale white	fine grained	massive	xenoliths or clasts are subrounded to angular up to .5cm in diameter with different colour, white to grey	VC	0.50	40	0	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					VC	0.66	25	245	0	0	3	0	5	8	15	Rub	10.0	cly	Rub	1	VG	JBC
									VC					VC	1.00	5	250	0	0	3	0	5	8	15	Rub	10.0	cly	Rub	1	VG	JBC
32.6	33.0	0.40	0.43	100	0.00	0	3	75	VC	light grey to pale white	fine grained	massive	xenoliths or clasts are subrounded to angular up to .5cm in diameter with different colour, white to grey, highly fractured with gougey clay infill	VC	0.20	2	180	0	0	3	0	5	8	15	J	10.0	cly	gg	1	VG	JBC
									VC					VC	0.20	5	60	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					VC	0.30	55	180	0	1	3	2	5	11	15	J	5.0	gg		1	VG	JBC
33.0	34.3	1.26	1.50	100	0.63	50	9	75	VC	light grey to white	fine grained	massive	mod fractured, clayey gougey infill	VC	0.10	5	140	0	1	3	2	5	11	15	Rub	5.0	cly	Rub	1	VG	JBC
									VC					VC	0.25	15	130	0	1	3	2	5	11	15	Rub	5.0	cly	Rub	1	VG	JBC
									VC					VC	0.30	10	165	0	1	3	2	5	11	15	Rub	2.0	cly		1	VG	JBC
									VC					VC	0.66	70	210	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.02	39	210	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.04	50	30	0	4	3	6	6	19	15	J	1.0	nil		1	VG	JBC
									VC					VC	1.09	45	40	0	4	3	2	6	15	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.15	60	45	0	4	3	2	6	15	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.26	42	100	0	0	1	0	3	4	15	F	50.0	gg	Rub	1	VG	JBC
34.3	34.5	0.24	0.20	83	0.00	0	Max	0.25	VC	light grey to white	fine grained	massive	fault gouge breccia gouge is grey silty, sand, moist, subrounded to sub angular with clasts ranging .5cm to 1 cm very weak and soft, easily indented by hand	VC	0.00			0	0	1	0	3	4	15	F	240.0	gg	Rub	50	VG	JBC
34.5	36.0	1.50	1.56	100	1.00	67	8	75	VC	light grey to white	fine grained	massive	alternating FLT competent rock and fault gouge breccia as above, gouge up to 10cm thick @ 0.6mto 0.7m and at 0.75 to 0.85m and then at 1.40m to 1.50m	VC	0.20	26	255	0	4	1	2	6	13	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.35	50	200	0	0	3	3	5	11	15	Rub	10.0	Rub	cly	1	VG	JBC
									VC					VC	0.40	42	0	0	0	3	3	5	11	15	Rub	10.0	Rub	cly	1	VG	JBC
									VC					VC	0.50	57	190	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					VC	0.65	56	15	0	0	3	0	3	6	15	F	10.0	gg	Rub	1	VG	JBC
									VC					VC	0.85	41	0	0	0	1	0	3	4	15	F	10.0	gg	Rub	1	VG	JBC
									VC					VC	1.04	39	5	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.45	16	355	0	0	3	0	3	6	15	F	10.0	gg	Rub	1	VG	JBC
36.0	36.7	0.70	0.70	100	0.16	23	15	50	VC	light green to pale	fine grained	massive	slightly fractured, end of run is gougey, soft, run was blocked	VC	0.00			0	0	1	0	3	4	15	J	10.0	gg	Rub	15	none	JBC
36.7	37.5	0.80	1.31	100	0.00	0	19	50	VC	light green to pale	fine grained	massive	gougey infill in joints soft weak rock	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	Rub	19	none	JBC

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
37.5	39.0	1.50	0.98	65	0.00	0	15	50	VC	pale green	fine grained	massive	with black andesite and white calcite, phenoclasts 1mm diameter, moderately fractured, rubble and some gougey parts towards end of run	VC	0.00			0	0	1	3	3	7	15	Rub	20.0	Rub	gg	15	none	JBC
39.0	40.5	1.50	0.94	63	0.00	0	12	50	VC	pale green	fine grained	massive		VC	0.00			0	0	1	3	3	7	15	Rub	40.0	Rub	gg	12	none	JBC
40.5	42.0	1.50	1.54	100	0.51	34	10	50	VC	pale green	fine grained	massive		VC	0.10	20	280	0	0	1	3	5	9	15	Rub	30.0	Rub	cly	1	F	JBC
									VC					VC	0.16	50	80	0	0	3	0	5	8	15	F	20.0	gg		1	F	JBC
									VC					VC	0.26	50	70	0	0	1	0	5	6	15	F	10.0	gg		1	F	JBC
									VC					VC	0.42	62	30	0	1	1	2	5	9	15	F	30.0	gg		1	F	JBC
									VC					VC	0.60	50	45	0	0	1	0	5	6	15	F	30.0	gg		1	F	JBC
									VC					VC	0.80	58	105	0	0	1	0	5	6	15	F	20.0	gg		1	F	JBC
									VC					VC	1.01	78	120	0	0	3	0	5	8	15	F	20.0	gg		1	F	JBC
									VC					VC	1.32	32	90	0	4	1	2	5	12	15	J	1.0	cly	gg	1	F	JBC
									VC					VC	1.39	38	350	0	4	1	2	5	12	15	J	1.0	cly	cc	1	F	JBC
									VC					VC	1.43	50	60	0	4	2	2	5	13	15	J	1.0	cly	cc	1	F	JBC
42.0	42.2	0.20	0.20	100	0.20	100	1	100	VC	pale green to light grey	fine grained	massive	fresh	VC	0.10	5	100	0	1	3	2	5	11	15	J	5.0	cly	Rub	1	F	JBC
42.2	42.5	0.30	0.30	100	0.00	0	20	20	VC	pale green	fine grained	massive	highly fractured fault gouge breccia, pale green matrix with FT angular clasts up to 1 cm in diameter	VC	0.00			0	0	1	0	3	4	15	F	300.0	gg	Rub	20	none	JBC
42.5	43.3	0.80	0.83	100	0.20	25	6	75	VC	pale green to light grey	fine grained	massive	fresh	VC	0.00	58	0	0	0	1	0	3	4	15	F	10.0	gg	Rub	1	F	JBC
									VC					VC	0.05	5	185	0	1	3	2	5	11	15	J	5.0	cly	cc	1	F	JBC
									VC					VC	0.15	62	355	0	4	3	2	5	14	15	J	1.0	cly	cc	1	F	JBC
									VC					VC	0.28	30	175	0	1	1	2	5	9	15	J	5.0	cly	cc	1	F	JBC
									VC					VC	0.55	5	120	0	1	5	2	5	13	15	J	5.0	cly	cc	1	F	JBC
									VC					VC	0.70	10	160	0	0	1	0	3	4	15	J	10.0	gg	Rub	1	F	JBC
43.3	44.9	1.60	1.56	97	1.31	82	18	75	VC	pale green to light grey	fine grained	massive	some fractured and rubble zones	VC	0.00			0	0	1	0	3	4	15	J	10.0	Rub	cly	18	none	JBC
44.9	46.4	1.50	1.61	100	0.74	49	12	150	VC	pale green to light grey	fine grained	massive	some fractured and rubble zones	VC	0.00			0	1	1	2	5	9	15	J	5.0	cly		12	none	JBC
46.4	47.9	1.50	1.50	100	1.16	77	5	125	VC	pale green to light grey	fine grained	massive	slightly weathered	VC	0.00			0	4	3	2	5	14	15	J	1.0	cly		5	none	JBC
47.9	49.5	1.60	1.56	97	0.38	24	20	50	VC	pale green to light grey	fine grained	massive	some gougey/rubble parts, slightly fractured, some joints were measure because of spun run/ run was blocked 3 times	VC	0.30	53	100	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.43	75	290	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.50	42	60	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.62	70	355	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.66	35	75	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					VC	0.96			0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					VC	1.22	10	180	0	0	3	3	5	11	15	Rub	10.0	Rub		1	VG	JBC
									VC					VC	1.30	40	260	0	0	3	3	5	11	15	Rub	10.0	Rub	cly	1	VG	JBC
									VC					VC	1.39	45	310	0	0	3	3	5	11	15	Rub	30.0	Rub	cly	1	VG	JBC
49.5	50.7	1.20	1.32	100	0.44	37	7	75	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.10	20	90	0	1	3	2	5	11	15	J	5.0	Rub	cly	1	VG	JBC
									VC					VC	0.47	35	350	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	0.60	20	150	0	1	3	2	5	11	15	J	5.0	cly		1	VG	JBC
									VC					VC	0.83	45	310	0	4	1	2	5	12	15	J	1.0	cly		1	VG	JBC
									VC					VC	1.00	50	300	0	1	1	2	5	9	15	J	5.0	cly		1	VG	JBC
									VC					VC	1.15	35	280	0	1	1	2	5	9	15	J	5.0	cly		1	VG	JBC
									VC					VC	1.21	15	350	0	4	3	2	5	14	15	J	1.0	cly		1	VG	JBC
50.7	51.3	0.55	0.55	100	0.14	25	5	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	0	1	0	5	6	15	J	30.0	Rub	cly	5	none	SRM
51.3	51.5	0.20	0.20	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	broken rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	30.0	Rub	cly	1	none	SRM
51.5	52.5	1.00	0.18	18	0.18	18	1	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00	25	340	0	0	1	0	5	6	15	J	30.0	Rub	cly	1	F	SRM
52.5	53.0	0.52	0.52	100	0.52	100	2	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.40	55	340	0	4	1	6	5	16	15	J	1.0			1	F	SRM
									VC				slightly fractured	VC	0.52	43	340	0	0	1	0	5	6	15	J	60.0	Rub	cly	1	F	SRM
53.0	54.0	0.98	0.98	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	30.0	Rub		1	None	SRM
54.0	54.4	0.35	0.35	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	30.0	Rub		1	none	SRM
54.4	54.8	0.40	0.40	100	0.38	95	4	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	0	1	0	5	6	15	J	30.0	Rub	cly	2	none	SRM
									VC				slightly fractured	VC	0.00			0	4	1	2	5	12	15	J	1.0	cly		2	none	SRM
54.8	55.0	0.20	0.20	100	0.00	0	Max	50	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	3	0	3	6	15	Rub	50.0	Rub		1	none	SRM
55.0	55.2	0.20	0.20	100	0.00	0	5	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	1	1	2	5	9	15	J	5.0	cly		2	none	SRM
									VC					VC	0.00			0	0	1	0	5	6	15	J	20.0	cly	Rub	3	none	SRM
55.2	55.5	0.35	0.25	71	0.00	0	Max	50	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	3	2	3	8	15	Rub	50.0	Rub		1	none	SRM
55.5	56.0	0.45	0.15	33	0.00	0	Max	50	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	3	2	3	8	15	Rub	50.0	Rub		1	none	SRM
56.0	56.3	0.35	0.35	100	0.13	37	6	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	0	1	0	5	6	15	J	10.0	cly	Rub	6	none	SRM
56.3	56.6	0.30	0.30	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	50.0	Rub		1	none	SRM
56.6	57.0	0.40	0.40	100	0.20	50	2	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	0	1	0	5	6	15	J	80.0	Rub		2	none	SRM
57.0	57.2	0.20	0.20	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	50.0	Rub	cly	1	none	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
57.2	57.8	0.55	0.55	100	0.00	0	8	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	0	1	0	3	4	15	J	70.0	Rub	gg	4	none	SRM
									VC					VC	0.00			0	1	1	2	5	9	15	J	5.0	cly		4	none	SRM
57.8	58.5	0.75	0.50	67	0.00	0	Max	20	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	50.0	Rub	gg	1	none	SRM
58.5	59.2	0.70	0.50	71	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	Rub	50.0	Rub	gg	1	none	SRM
59.2	59.6	0.40	0.40	100	0.32	80	5	50	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	1	1	2	5	9	15	J	5.0	cly		5	none	SRM
59.6	60.0	0.40	0.40	100	0.00	0	Max	25	VC	grey to dark grey	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	3	0	5	8	15	J	50.0	Rub		1	none	SRM
60.0	61.5	1.50	0.70	47	0.00	0	Max	10	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	Rub	1	none	SRM
61.5	63.0	1.50	0.70	47	0.00	0	Max	50	VC	pale white to cream	fine grained	massive	broken/rubble with gouge clay infill	VC	0.00			0	0	3	0	3	6	15	J	20.0	Rub	cly	1	none	SRM
63.0	63.9	0.90	0.65	72	0.00	0	Max	20	VC	pale white to cream	fine grained	massive	rubble with clay infill	VC	0.00			0	0	3	0	3	6	15	Rub	50.0	Rub	cly	1	none	SRM
63.9	64.3	0.35	0.35	100	0.00	0	4	25	VC	pale white to cream	fine grained	massive	highly micro fractured	VC	0.00			0	0	1	0	5	6	15	J	10.0	cly	Rub	4	none	SRM
64.3	64.5	0.25	0.25	100	0.00	0	Max	10	VC	pale white to cream	fine grained	massive	gouge	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	1	none	SRM
64.5	66.0	1.50	1.10	73	0.00	0	Max	15	VC	pale white to cream	fine grained	massive	highly altered/micro fractured with gouge and clay infill	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	1	none	SRM
66.0	67.0	1.00	1.00	100	0.00	0	Max	10	VC	pale white to cream	fine grained	massive	highly altered/micro fractured with gouge and clay infill	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	1	none	SRM
67.0	67.5	0.50	0.50	100	0.25	50	3	25	VC	pale white to cream	fine grained	massive	highly fractured felsic tuff, fell apart while handling	VC	0.00	19	20	0	0	1	0	3	4	15	J	40.0	Rub	gg	1	F	SRM
									VC					VC	0.30	57	30	0	0	1	0	5	6	15	J	10.0	Rub	cly	1	F	SRM
									VC					VC	0.40	15	240	0	1	1	2	3	7	15	J	5.0	cly	Rub	1	F	SRM
67.5	67.7	0.15	0.15	100	0.00	0	Max	25	VC	grey to light grey	fine grained	massive	rubble	VC	0.00			0	0	3	0	3	6	15	J	20.0	Rub	cly	1	none	SRM
67.7	69.0	1.35	1.25	93	0.10	7	8	25	VC	grey to light grey	fine grained	massive	highly fractured felsic tuff, fell apart while handling	VC	0.00			0	1	1	2	5	9	15	J	5.0	cly	Rub	8	none	SRM
69.0	69.5	0.46	0.46	100	0.46	100	1	50	VC	grey to light grey	fine grained	massive	felsic tuff	VC	0.46	17	60	0	0	1	0	5	6	15	J	10.0	gg		1	none	SRM
69.5	69.7	0.27	0.27	100	0.00	0	30	25	VC	pale white to cream	fine grained	massive	gouge/rubble	VC	0.00			0	1	3	2	5	11	15	J	5.0	cly	gg	1	none	SRM
69.7	70.5	0.77	0.76	99	0.38	49	6	100	VC	pale white to cream	fine grained	massive	felsic tuff	VC	0.00	32	105	0	0	1	0	5	6	15	J	10.0	gg		1	F	SRM
									VC					VC	0.30	18	50	0	0	1	0	5	6	15	J	10.0	gg		1	F	SRM
									VC					VC	0.37	63	0	0	1	1	2	5	9	15	J	5.0	gg		1	F	SRM
									VC					VC	0.45	75	140	0	1	1	2	5	9	15	J	5.0	gg		1	F	SRM
									VC					VC	0.63	72	300	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									VC					VC	0.70	24	70	0	0	1	0	5	6	15	J	10.0	gg		1	F	SRM
70.5	72.0	1.50	1.20	80	0.00	0	Max	15	VC	pale white to cream	fine grained	massive	highly fractured/broken felsic tuff with gouge and clay infill	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	1	none	SRM
72.0	73.2	1.15	1.15	100	0.88	77	7	100	VC	pale white to cream	fine grained	massive	slightly fractured	VC	0.00			0	1	1	2	5	9	15	J	5.0	cly	Rub	7	none	SRM
73.2	73.5	0.35	0.35	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	rubble/broken zone	VC	0.00			0	0	3	0	3	6	15	Rub	50.0	Rub		1	none	SRM
73.5	73.9	0.40	0.40	100	0.00	0	Max	5	VC	pale white to cream	fine grained	massive	highly fractured/broken/ gouge	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	1	none	SRM
73.9	74.3	0.40	0.40	100	0.18	45	4	50	VC	pale white to cream	fine grained	massive		VC	0.00			0	1	1	2	5	9	15	J	5.0	gg		4	none	SRM
74.3	74.4	0.10	0.10	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	rubble	VC	0.00			0	0	3	2	3	8	15	Rub	50.0	Rub	cly	1	none	SRM
74.4	75.0	0.60	0.60	100	0.29	48	4	50	VC	pale white to cream	fine grained	massive		VC	0.00	25	10	0	1	1	2	5	9	15	J	5.0	cly		1	F	SRM
									VC					VC	0.05	25	180	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									VC					VC	0.15	43	340	0	0	1	0	5	6	15	J	90.0	gg		1	F	SRM
									VC					VC	0.46	37	335	0	4	1	6	6	17	15	J	1.0			1	F	SRM
75.0	75.5	0.50	0.50	100	0.18	36	4	50	VC	pale white to cream	fine grained	massive		VC	0.00			0	4	1	2	5	12	15	J	1.0	cly		4	none	SRM
75.5	76.5	1.00	0.85	85	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	gouge/ fault material	VC	0.00			0	0	1	0	3	4	15	J	10.0	cly	gg	1	none	SRM
76.5	76.9	0.40	0.40	100	0.19	47	4	50	VC	pale white to cream	fine grained	massive		VC	0.00			0	0	1	0	5	6	15	J	20.0	gg	cly	4	none	SRM
76.9	78.0	1.10	0.80	73	0.00	0	Max	20	VC	pale white to cream	fine grained	massive	micro fractured/fault material/gouge	VC	0.00			0	1	1	2	3	7	15	F	5.0	gg	cly	1	none	SRM
78.0	79.5	1.50	1.50	100	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	gouge/ fault material/ micro fractured rock	VC	0.00			0	1	1	2	3	7	15	F	5.0	gg	cly	1	none	SRM
79.5	81.0	1.50	0.90	60	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	gouge/ fault material/ micro fractured rock	VC	0.00			0	1	1	2	3	7	15	F	5.0	gg	cly	1	none	SRM
81.0	82.5	1.50	0.90	60	0.00	0	Max	25	VC	pale white to cream	fine grained	massive	gouge/ fault material/ micro fractured rock	VC	0.00			0	0	3	0	3	6	15	J	10.0	gg	cly	1	none	SRM
82.5	84.0	1.50	1.14	76	0.00	0	Max	25	VC	white to grey	fine grained	massive	fault rubble zone	VC	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	50	none	MW
84.0	84.8	0.75	0.69	92	0.00	0	Max	25	VC	white to grey	fine grained	massive	fault/rubble with clay/gouge	VC	0.00			0	0	1	0	3	4	15	F	10.0	gg	cly	50	none	MW
84.8	85.5	0.75	0.75	100	0.10	13	Max	50	VC	pale white to cream	fine grained	massive	felsic lapilli tuff	VC	0.00			0	1	3	2	5	11	15	J	5.0	cly	gg	7	none	MW
85.5	87.0	1.50	1.49	99	0.80	53	10	50	VC	pale white to cream	fine grained	massive	felsic lapilli tuff	VC	0.09			0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	MW
									VC					VC	0.12	35	10	0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	MW
									VC					VC	0.23	42	15	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
									VC					VC	0.32	30	40	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
									VC					VC	0.33	35	335	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
									VC					VC	0.42	28	10	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
									VC					VC	0.72	55	20	0	1	1	2	3	7	15	J	4.0	cly	gg	1	F	MW
									VC					VC	0.77	61	103	0	0	1	0	3	4	15	J	10.0	cly	gg	1	F	MW
									VC					VC	0.98	36	5	0	4	3	2	5	14	15	J	1.0	cly	gg	1	F	MW
									VC					VC	1.09	38	30	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
87.0	88.5	1.50	1.50	100	1.22	81	12	50	VC	pale white to cream	fine grained	massive	felsic lapilli tuff	VC	0.17	38	70	0	4	5	6	5	20	15	J	1.0			1	F	MW
									VC					VC	0.47	41	340	0	4	5	6	5	20	15	J	1.0			1	F	MW
									VC					VC	0.77	33	95	0	4	3	2	5	14	15	J	3.0	gg	cly	7	F	MW
									VC					VC	1.08	25	150	0	4	3	2	5	14	15	J	1.0			1	F	MW
									VC					VC	1.22	75	30	0	4	5	6	5	20	15	J	1.0			1	F	MW
									VC					VC	1.49	31	80	0	4	3	6	5	18	15	J	1.0			1	F	MW
88.5	90.0	1.50	1.50	100	0.33	22	6	25	VC	pale white to cream	fine grained	massive	felsic lapilli tuff	VC	0.00			0	0	1	0	3	4	15	J	20.0	gg	cly	1	none	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									VC					VC	0.00			0	1	3	2	5	11	15	J	5.0	gg	cly	1	none	MW
									VC					VC	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	none	MW
									VC					VC	0.00			0	4	5	2	5	16	15	J	1.0	cly		1	none	MW
									VC					VC	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	none	MW
									VC					VC	0.00			0	4	3	2	5	14	15	J	1.0	cly		1	none	MW
90.0	91.5	1.50	1.45	97	1.10	73	4	50	AND	grey to dark grey	fine grained	massive	andesite?	AND	0.00			0	4	3	2	5	14	15	J	1.0	cly	chl	4	none	MW
91.5	93.0	1.50	1.38	92	0.36	24	22	50	AND	grey to dark grey	fine grained	massive	andesite?	AND	0.00			0	1	3	2	3	9	15	J	2.0	cly	gg	22	none	MW
93.0	93.4	0.38	0.38	100	0.00	0	5	25	AND	grey to dark grey	fine grained	massive	andesite?/broken zone , clay, gouge	AND	0.00			0	1	1	0	3	5	15	Rub	5.0	cly		5	none	MW
93.4	94.5	1.12	1.12	100	0.95	85	4	50	AND	grey to dark grey	fine grained	massive	andesite?	AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		4	none	MW
94.5	96.0	1.50	1.50	100	0.00	0	Max	10	AND	grey to dark grey	fine grained	massive	andesite?/broken zone , clay, gouge	AND	0.00			0	0	1	0	3	4	15	F	10.0	cly	gg	50	none	MW
96.0	97.5	1.50	1.50	100	0.00	0	Max	10	AND	grey to dark grey	fine grained	massive	andesite?/broken zone , clay, gouge	AND	0.00			0	0	1	0	3	4	15	F	10.0	cly	gg	50	none	MW
97.5	98.1	0.64	0.64	100	0.00	0	Max	50	AND	dark grey	fine grained	massive	andesite broken zone, much less infill and weathering	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly		50	none	MW
98.1	99.0	0.86	0.75	87	0.00	0	Max	50	AND	dark grey	fine grained	massive	increase of clay infill	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly		50	none	MW
99.0	99.9	0.90	0.90	100	0.63	70	7	50	AND	dark grey	fine grained	massive	clay infill	AND	0.00			0	1	3	2	5	11	15	J	1.0	cly		7	none	MW
99.9	100.5	0.60	0.52	87	0.00	0	Max	50	AND	dark grey	fine grained	massive	clay infill	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly		50	none	MW
100.5	102.0	1.50	1.44	96	0.14	9	25	50	AND	dark grey	fine grained	massive	clay infill	AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		25	none	MW
102.0	103.5	1.50	1.50	100	0.75	50	8	50	AND	dark grey	fine grained	massive	clay infill	AND	0.00			0	4	1	2	5	12	15	J	0.1	cly		8	none	MW
103.5	104.5	1.02	1.02	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	broken zone, andesite, clay and some gouge and rubble	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	gg	50	none	MW
104.5	105.0	0.48	0.48	100	0.40	83	7	50	AND	dark grey	fine grained	massive	andesite breccia, clay infill	AND	0.03	59	30	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.07	61	10	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.10	51	5	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.18	49	5	0	4	3	2	5	14	15	J	1.0	cly	gg	1	VG	MW
									AND					AND	0.21	58	5	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.35	22	15	0	4	5	2	5	16	15	J	1.0	cly		1	VG	MW
									AND					AND	0.42	41	35	0	4	5	2	5	16	15	J	1.0	cly	gg	1	VG	MW
105.0	106.5	1.50	1.50	100	0.91	61	11	50	AND	grey to light grey	fine grained	massive	andesite breccia, clay infill	AND	0.07	61	30	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.27	60	20	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.29	59	300	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	0.47	59	290	0	5	1	2	5	13	15	J	1.0	cly		1	VG	MW
									AND					AND	0.62	39	290	0	5	1	2	5	13	15	J	1.0	cly		1	VG	MW
									AND					AND	0.71	75	200	0	4	3	2	5	14	15	J	1.0	cly	gg	1	VG	MW
									AND					AND	0.86	42	270	0	5	1	2	5	13	15	J	1.0	cly		1	VG	MW
									AND					AND	0.97	75	45	0	5	1	2	5	13	15	J	1.0	cly		1	VG	MW
									AND					AND	1.24	58	30	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	1.30	14	270	0	4	4	2	5	15	15	J	1.0	cly		1	VG	MW
									AND					AND	1.40	50	45	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
106.5	108.0	1.50	1.43	95	1.10	73	10	50	AND	dark grey	fine grained	massive	andesite breccia, clay infill	AND	0.06	61	330	0	4	1	2	5	12	15	J	1.0	chl		1	VG	MW
									AND					AND	0.22	36	315	0	4	5	6	5	20	15	J	1.0			1	VG	MW
									AND					AND	0.46	15	205	0	4	5	6	5	20	15	J	1.0			1	VG	MW
									AND					AND	0.60	53	300	0	4	3	6	5	18	15	J	1.0			1	VG	MW
									AND					AND	0.67	48	345	0	5	2	6	5	18	15	J	0.1			1	VG	MW
									AND					AND	0.85	13	225	0	5	1	2	5	13	15	J	0.1	chl		1	VG	MW
									AND					AND	1.16	16	50	0	4	3	6	5	18	15	J	1.0			1	VG	MW
									AND					AND	1.36	37	90	0	4	3	6	5	18	15	J	1.0			1	VG	MW
108.0	109.5	1.50	1.50	100	1.00	67	10	50	AND	dark grey	fine grained	massive	andesite breccia, clay infill	AND	0.58	61	50	0	4	1	4	5	14	15	J	0.1	chl		1	VG	MW
									AND					AND	0.91	63	40	0	4	2	2	5	13	15	J	1.0	chl		1	VG	MW
									AND					AND	0.99	58	20	0	4	2	2	5	13	15	J	1.0	chl		1	VG	MW
									AND					AND	1.09	32	260	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	1.18	60	35	0	4	2	2	5	13	15	J	1.0	cly		1	VG	MW
									AND					AND	1.24	39	65	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	1.26	75	70	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	1.30	21	265	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	1.45	19	355	0	4	3	2	5	14	15	J	1.0	cly		1	VG	MW
									AND					AND	1.45	49	83	0	4	2	2	5	13	15	J	1.0	cly		1	VG	MW
109.5	111.0	1.50	1.50	100	1.18	79	8	50	AND	dark grey	fine grained	massive	andesite breccia, clay infill	AND	0.25	46	45	0	4	2	6	6	18	15	J	1.0			1	P	MW
									AND					AND	0.49	24	300	0	4	3	2	5	14	15	J	0.1	cly	chl	1	P	MW
									AND					AND	0.66	14	340	0	5	2	2	5	14	15	J	0.1	cly		1	P	MW
									AND					AND	0.80	54	335	0	4	5	2	3	14	15	J	1.0	cly		1	P	MW
									AND					AND	0.89	28	330	0	1	2	2	3	8	15	J	5.0	cly		1	P	MW
									AND					AND	1.03	30	315	0	4	2	6	5	17	15	J	1.0			1	P	MW
									AND					AND	1.32	22	20	0	1	3	6	5	15	15	J	3.0			1	P	MW
									AND					AND	1.33	74	270	0	4	2	6	5	17	15	J	1.0			1	P	MW
111.0	112.5	1.50	1.50	100	1.10	73	8	50	AND	dark grey	fine grained	massive	highly fractured	AND	0.28	55	310	0	1	1	2	5	9	15	J	5.0	cly		1	F	SRM
									AND					AND	0.34	52	330	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.34	69	170	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.04	76	150	0	4	3	6	6	19	15	J	1.0			1	F	SRM
									AND					AND	1.31	17	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.31	30	340	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.33	77	30	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.39	13	270	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
112.5	112.9	0.37	0.37	100	0.37	100	2	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.14	63	330	0	1	1	2	5	9	15	J	5.0	cly		1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.37	78	100	0	1	1	2	5	9	15	J	5.0	cly		1	F	SRM
112.9	114.0	1.13	1.13	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	highly altered andesite breccia/clay	AND	0.00			0	0	1	0	3	4	15	J	5.0	Rub	cly	1	none	SRM
114.0	115.5	1.50	1.56	100	1.22	81	9	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	0	1	0	5	6	15	J	10.0	cly	Rub	5	none	SRM
									AND					AND	0.00			0	0	1	0	5	6	15	J	50.0	cly	gg	1	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		3	none	SRM
115.5	117.0	1.50	1.45	97	0.67	45	11	25	AND	dark grey	fine grained	massive	andesite breccia, fell apart while handling	AND	0.00			0	0	1	0	5	6	15	J	50.0	cly	gg	3	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		7	none	SRM
									AND					AND	0.00			0	0	1	0	5	6	15	J	90.0	Rub	gg	1	none	SRM
117.0	117.2	0.15	0.15	100	0.00	0	Max	5	AND	dark grey	fine grained	massive	gouge/clay	AND	0.00			0	0	1	0	3	4	15	F	5.0	gg	cly	1	none	SRM
117.2	118.2	1.00	1.37	100	1.20	100	9	25	AND	dark grey	fine grained	massive	andesite	AND	0.00	36	10	0	0	1	0	5	6	15	J	100.0	gg	cly	1	F	SRM
									AND					AND	0.18	54	110	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.59	54	80	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.72	70	100	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.88	74	150	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.03	76	170	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.20	42	20	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.30	58	140	0	4	3	2	5	14	15	J	5.0	cly		1	F	SRM
									AND					AND	1.34	27	80	0	4	1	2	5	12	15	J	5.0	cly		1	F	SRM
118.5	120.0	1.50	1.42	95	1.20	80	13	25	AND	dark grey	fine grained	massive	andesite	AND	0.07	63	170	0	0	1	0	5	6	15	J	20.0	cly		1	F	SRM
									AND					AND	0.20	44	50	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.38	50	70	0	0	1	0	5	6	15	J	15.0	cly		1	F	SRM
									AND					AND	0.45	45	40	0	0	1	0	5	6	15	J	130.0	cly	gg	1	F	SRM
									AND					AND	0.52	54	150	0	5	1	2	3	11	15	J	0.1	cly		1	F	SRM
									AND					AND	0.54	72	110	0	5	1	2	3	11	15	J	0.1	cly		1	F	SRM
									AND					AND	0.62	40	20	0	0	1	0	5	6	15	J	30.0	cly	gg	1	F	SRM
									AND					AND	0.91	35	140	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.06	65	70	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.08	42	210	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.20	28	290	0	0	1	0	3	4	15	J	60.0	Rub	gg	1	F	SRM
									AND					AND	1.26	45	220	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.35	60	90	0	0	1	0	5	6	15	J	10.0	Rub	cly	1	F	SRM
120.0	120.3	0.25	0.25	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	1	2	0	5	8	15		5.0	cly	gg	1	none	SRM
120.3	121.3	1.00	1.00	100	0.43	43	10	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	0	1	0	5	6	15	J	40.0	gg	cly	4	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		6	none	SRM
121.3	121.5	0.25	0.20	80	0.00	0	Max	20	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	1	3	0	3	7	15	Rub	5.0	Rub	gg	1	none	SRM
121.5	123.0	1.50	1.50	100	0.60	40	14	25	AND	dark grey	fine grained	massive	andesite	AND	0.00			0	0	1	0	3	4	15	J	100.0	Rub		1	none	SRM
									AND					AND	0.20			0	4	1	2	3	10	15	J	1.0			1	none	SRM
									AND					AND	0.20			0	4	1	2	3	10	15	J	1.0			1	none	SRM
									AND					AND	0.26			0	4	1	2	3	10	15	J	1.0	cly		1	none	SRM
									AND					AND	0.47			0	4	1	2	3	10	15	J	1.0	cly		1	none	SRM
									AND					AND	0.47			0	4	1	2	3	10	15	J	1.0	cly		1	none	SRM
									AND					AND	0.51			0	4	1	2	3	10	15	J	1.0	cc	cly	1	none	SRM
									AND					AND	0.65			0	0	1	0	3	4	15	J	10.0	Rub		1	none	SRM
									AND					AND	0.86	53	40	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.01	40	30	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.17	63	20	0	0	1	0	5	6	15	J	10.0	cly	Rub	1	F	SRM
									AND					AND	1.30	50	300	0	4	1	2	3	10	15	J	1.0	cly		1	F	SRM
									AND					AND	1.37	40	200	0	1	1	2	3	7	15	J	5.0	cly	Rub	1	F	SRM
									AND					AND	1.45	17	10	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
123.0	124.5	1.50	1.46	97	0.14	9	19	25	AND	dark grey	fine grained	massive	andesite	AND	0.00			0	0	1	0	3	4	15	J	50.0	gg	Rub	6	none	SRM
									AND					AND	0.00			0	4	1	2	3	10	15	J	1.0	cly		13	none	SRM
124.5	126.0	1.50	1.50	100	0.74	49	11	25	AND	dark grey	fine grained	massive	andesite	AND	0.00			0	0	1	0	3	4	15	J	70.0	gg	Rub	2	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly	cc	9	none	SRM
126.0	127.5	1.50	1.54	100	0.40	27	19	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	0	1	0	3	4	15	J	30.0	gg	Rub	10	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		9	none	SRM
127.5	129.0	1.50	1.53	100	0.38	25	20	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	0	1	0	5	6	15	J	30.0	gg	Rub	4	none	SRM
									AND					AND	0.00			0	1	1	2	5	9	15	J	5.0	cly		3	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		13	none	SRM
129.0	130.5	1.50	1.51	100	0.44	29	16	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	0	1	0	5	6	15	J	30.0	gg	Rub	3	none	SRM
									AND					AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		13	none	SRM
130.5	131.0	0.46	0.46	100	0.00	0	6	150	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	0	1	0	5	6	15	J	30.0	Rub	gg	1	none	SRM
									AND					AND	0.00			0	1	1	2	5	9	15	J	5.0	cly		5	none	SRM
131.0	131.2	0.28	0.28	100	0.00	0	Max	15	AND	light grey	fine grained	massive	gouge/clay	AND	0.00			0	1	1	0	3	5	15	F	5.0	gg	cly	1	none	SRM
131.2	131.6	0.35	0.35	100	0.00	0	7	25	AND	dark grey	fine grained	massive	andesite, highly fractured	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		7	none	SRM
131.6	132.0	0.41	0.15	37	0.00	0	Max	25	AND	light grey	fine grained	massive	rubble	AND	0.00			0	0	3	0	3	6	15	Rub	10.0	Rub	cly	1	none	SRM
132.0	133.2	1.15	1.15	100	0.87	76	7	50	AND	dark grey	fine grained	massive	andesite	AND	0.00			0	0	1	0	5	6	15	J	50.0	Rub		1	none	SRM
133.2	133.4	0.20	0.20	100	0.00	0	Max	50	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	0	3	0	5	8	15	J	10.0	Rub	cly	1	none	SRM
133.4	133.5	0.15	0.15	100	0.10	67	2	50	AND	dark grey	fine grained	massive	andesite	AND	0.00	31	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.10	56	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
133.5	134.8	1.32	1.32	100	0.55	42	17	25	AND	dark grey	fine grained	massive	andesite	AND	0.00	70	70	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.13	62	310	0	1	1	2	5	9	15	J	5.0	Rub		1	F	SRM
									AND					AND	0.31	41	220	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.31	43	30	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.41	40	30	0	4	1	6	6	17	15	J	1.0			1	F	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.41	88	300	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.50			0	1	1	2	5	9	15	J	5.0	Rub	cc	4	none	SRM
									AND					AND	0.55			0	4	1	6	6	17	15	J	1.0			7	none	SRM
134.8	135.0	0.18	0.10	56	0.00	0	Max	25	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	0	3	0	3	6	15	J	10.0	Rub	cly	1	none	SRM
135.0	136.5	1.50	1.59	100	0.18	12	11	25	AND	dark grey	fine grained	massive	andesite with calcite veining	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		10	none	SRM
									AND					AND	0.10			0	0	1	0	3	4	15	J	70.0	Rub		1	none	SRM
136.5	138.0	1.50	1.60	100	0.45	30	17	25	AND	dark grey	fine grained	massive	andesite with calcite veining	AND	0.00			0	0	1	0	5	6	15	J	90.0	gg	Rub	4	none	SRM
									AND					AND	0.10			0	4	1	2	5	12	15	J	1.0	cly		10	none	SRM
									AND					AND	0.20			0	4	1	2	5	12	15	J	1.0	cc		3	none	SRM
138.0	139.5	1.50	1.25	83	0.00	0	Max	25	AND	dark grey	fine grained	massive	highly micro fractures andesite/ broken zone with clay/gouge infill	AND	0.00			0	0	1	0	3	4	15	J	10.0	cly	gg	1	none	SRM
139.5	141.0	1.50	1.20	80	0.00	0	Max	25	AND	dark grey	fine grained	massive	broken zone, andesite breccia, clay and rubble infill	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	50	none	MW
141.0	141.6	0.61	0.61	100	0.14	23	8	50	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	4	2	6	6	18	15	J	1.0			8	none	MW
141.6	141.8	0.22	0.22	100	0.00	0	Max	25	AND				FLT, Clay, Gouge	AND	0.00			0	0	1	0	3	4	15	F	10.0			50	none	MW
141.8	142.5	0.67	0.45	67	0.00	0	10	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	4	2	2	5	13	15	J	1.0	cly	Rub	10	none	MW
142.5	144.0	1.50	1.49	99	0.48	32	10	50	AND	dark grey	fine grained	massive	andesite	AND	0.00			0	4	3	2	5	14	15	J	1.0	cly		10	none	MW
									AND					AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly		2	none	MW
144.0	144.2	0.17	0.17	100	0.17	100	0	50	AND	dark grey	fine grained	massive	andesite	AND	0.10			6	6	6	6	6	30	15	J	0.0			1	none	MW
144.2	144.7	0.50	0.67	100	0.00	0	Max	50	ABX	dark grey	fine grained	massive	broken zone clay and rubble	ABX	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	50	none	MW
144.7	145.5	0.83	0.83	100	0.62	75	7	50	ABX	dark grey	fine grained	massive	andesite breccia	ABX	0.05	49	290	0	4	2	2	5	13	15	J	1.0	cc		1	F	MW
									ABX					ABX	0.18	33	270	0	4	2	6	6	18	15	J	0.1			1	F	MW
									ABX					ABX	0.33		355	0	4	6	6	6	22	15	Rub	1.0			1	F	MW
									ABX					ABX	0.57	53	35	0	4	6	6	6	22	15	Rub	1.0			1	F	MW
									ABX					ABX	0.61	90		0	4	1	6	6	17	15	Rub	1.0			1	F	MW
									ABX					ABX	0.83	40	45	0	4	2	2	5	13	15	J	0.1	cc		1	F	MW
145.5	145.7	0.17	0.17	100	0.17	99	1	50	ABX	dark grey	fine grained	massive	andesite breccia	ABX	0.17			0	4	0	2	5	11	15	J	1.0	cly		1	none	MW
145.7	147.0	1.33	1.25	94	0.00	0	Max	0.25	AND	grey	fine grained	massive	grey silt and clay, very fragile slick and slides throughout, residual fractures	AND	0.00			0	0	1	0	3	4	15	F	10.0	cly	gg	1	none	MW
147.0	148.2	1.23	1.23	100	0.00	0	Max	0.25	AND	grey	fine grained	massive	grey silt and clay, very fragile slick and slides throughout, residual fractures	AND	0.00			0	0	1	0	3	4	15	F	10.0	cly	gg	50	none	MW
148.2	148.5	0.27	0.27	100	0.00	0	6	25	AND	dark grey	fine grained	massive	andesite breccia, clay	AND	0.00	18	5	0	4	2	2	5	13	15	J	1.0	cc	cly	1	F	MW
									AND					AND	0.02	31	225	0	4	2	2	5	13	15	J	1.0			1	F	MW
									AND					AND	0.27	14	5	0	4	3	2	5	14	15	J	1.0			1	F	MW
									AND					AND	0.30			0	1	2	2	5	10	15	J	2.0			3	none	MW
148.5	150.0	1.50	1.43	95	0.74	49	8	50	AND	dark grey	fine grained	massive	andesite breccia, clay infill in joints	AND	0.00			0	4	3	2	3	12	15	J	1.0	cly	cc	8	none	MW
150.0	150.7	0.70	0.70	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	andesite breccia, rubble, clay broken zone	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	50	none	MW
150.7	151.5	0.80	0.80	100	0.33	41	6	25	AND	dark grey	fine grained	massive	andesite breccia, joints have slick and slides	AND	0.00			0	4	0	2	5	11	15	J	1.0	cly		6	none	MW
151.5	152.6	1.10	1.10	100	0.00	0	16	25	AND	dark grey	fine grained	massive	andesite breccia, joints have slick and slides	AND	0.00			0	4	0	2	5	11	15	J	1.0	cly		16	none	MW
152.6	152.8	0.20	0.20	100	0.00	0	4	25	AND	dark grey	fine grained	massive	andesite breccia, residual joints have slicks, clay, faulted	AND	0.00			0	0	0	0	3	3	15	F	10.0	cly		4	none	MW
152.8	153.0	0.20	0.20	100	0.15	75	2	25	AND	dark grey	fine grained	massive	andesite breccia, joints have slick, clay infill	AND	0.00			0	4	0	2	3	9	15	J	1.0	cly		2	none	MW
153.0	154.5	1.50	1.43	95	1.15	77	10	50	AND	dark grey	fine grained	massive	andesite breccia, some slicks, clay infill	AND	0.10	44	290	0	5	0	2	5	12	15	J	0.1	cly		1	F	MW
									AND					AND	0.33	54	295	0	5	2	5	5	17	15	J	0.1			1	F	MW
									AND					AND	0.50	48	295	0	1	0	2	5	8	15	J	5.0	cly		1	F	MW
									AND					AND	0.58	70	330	0	4	5	6	6	21	15	J	1.0			1	F	MW
									AND					AND	0.69	62	35	0	5	0	2	5	12	15	J	0.1	cly		1	F	MW
									AND					AND	0.74	57	80	0	5	0	2	5	12	15	J	0.1	cly		1	F	MW
									AND					AND	0.97	46	270	0	5	0	2	5	12	15	J	0.1	cly		1	F	MW
									AND					AND	1.01	46	170	0	4	3	6	6	19	15	J	1.0			1	F	MW
									AND					AND	1.18	41	40	0	4	3	6	6	19	15	J	1.0			1	F	MW
									AND					AND	1.33	46	25	0	4	3	6	6	19	15	J	1.0			1	F	MW
154.5	155.0	0.46	0.46	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	andesite breccia, broken zone	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	Rub		50	none	MW
155.0	155.3	0.34	0.34	100	0.12	35	5	25	AND	dark grey	fine grained	massive	andesite breccia	AND	0.00			0	4	2	2	5	13	15	J	1.0	cc		5	none	MW
155.3	156.0	0.70	0.70	100	0.70	100	0	75	AND	dark grey	fine grained	massive	andesite or dacite	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	none	MW
156.0	157.5	1.50	1.48	99	1.20	80	8	25	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.12	61	210	0	4	2	2	5	13	15	J	1.0	cly		1	G	MW
									AND					AND	0.42	90	20	0	4	0	2	5	11	15	J	1.0	cly		1	G	MW
									AND					AND	0.54	56	25	0	5	0	2	5	12	15	J	0.1	cly		1	G	MW
									AND					AND	0.63	43	125	0	5	0	2	5	12	15	J	0.1	cly		1	G	MW
									AND					AND	0.88	74	30	0	4	0	2	5	11	15	J	1.0	cly		1	G	MW
									AND					AND	1.02	73	100	0	4	0	2	5	11	15	J	1.0	cly	cc	1	G	MW
									AND					AND	1.20	51	115	0	4	2	2	5	13	15	J	1.0	cly		1	G	MW
									AND					AND	1.30	46	115	0	5	2	2	5	14	15	J	0.1	cly	cc	1	G	MW
157.5	159.0	1.50	1.50	100	1.41	94	4	75	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.00			0	4	2	2	5	13	15	J	1.0	cly	cc	4	none	MW
159.0	159.9	0.90	0.90	100	0.58	64	5	50	AND	dark grey	fine grained	massive	dacite porphyry, broken zones are mechanical	AND	0.00			0	4	2	0	5	11	15	J	1.0			5	none	MW
159.9	160.5	0.60	0.60	100	0.41	68	5	50	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.23	31	350	0	4	5	6	6	21	15	J	1.0			1	F	MW
									AND					AND	0.41	52	45	0	5	0	2	5	12	15	J	0.1	cly	cc	1	F	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
																		Joint Condition												
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.47			0	5	4	2	6	17	15	J	1.0	cly		1	none	MW
									AND					AND	0.50			0	4	0	2	5	11	15	J	1.0	cly		2	none	MW
160.5	162.0	1.50	1.42	95	1.13	75	7	75	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.14	74	345	0	4	2	2	5	13	15	J	1.0	cly		1	VG	MW
									AND					AND	0.17			0	4	2	6	5	17	15	J	1.0			1	VG	MW
									AND					AND	0.29	52	30	0	4	5	2	5	16	15	J	1.0	cly		1	VG	MW
									AND					AND	0.84	44	360	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	1.16	67	145	0	5	2	6	6	19	15	J	1.0			1	VG	MW
									AND					AND	1.25	14	295	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	1.31	48	10	0	4	3	2	5	14	15	J	1.0	cc		1	VG	MW
162.0	163.5	1.50	1.50	100	1.49	99	5	75	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.18	62	5	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	0.64	77	120	0	5	0	6	6	17	15	J	0.1			1	VG	MW
									AND					AND	0.65	77	190	0	5	1	2	5	13	15	J	0.1	cly		1	VG	MW
									AND					AND	1.20	42	75	0	5	5	2	5	17	15	J	0.1	cc		1	VG	MW
									AND					AND	1.36	26	5	0	5	3	2	5	15	15	J	0.1	cly		1	VG	MW
163.5	165.0	1.50	1.45	97	1.35	90	7	75	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.30	74	340	0	4	0	6	6	16	15	J	1.0			1	G	MW
									AND					AND	0.58	46	340	0	5	2	6	6	19	15	J	0.1			1	G	MW
									AND					AND	0.62	39	85	0	4	1	2	5	12	15	J	1.0	cly		1	G	MW
									AND					AND	1.05	74	350	0	4	1	2	5	12	15	J	1.0	cly		1	G	MW
									AND					AND	1.09	72	345	0	4	1	2	5	12	15	J	1.0	cly		1	G	MW
									AND					AND	1.25	53	345	0	4	0	2	5	11	15	J	1.0	cly		1	G	MW
165.0	165.7	0.71	0.71	100	0.71	100	1	75	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.00			0	4	3	6	6	19	15	J	1.0			1	none	MW
165.7	165.9	0.16	0.16	100	0.00	0	Max	0.5	AND	dark grey	fine grained	massive	clay fault/broken zone	AND	0.00			0	0	1	0	3	4	15	Rub	1.0	cly		1	none	MW
165.9	166.5	0.63	0.63	100	0.63	100	0	75	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.00			0	6	6	6	6	24	15		0.0			1	none	MW
166.5	168.0	1.50	1.43	95	0.14	9	14	50	AND	dark grey	fine grained	massive	dacite porphyry	AND	0.00			0	4	3	2	5	14	15	J	1.0	cc	cly	14	none	MW
168.0	168.9	0.88	0.88	100	0.88	100	1	75	AND	grey	fine grained	massive	dacite porphyry	AND	0.00			0	5	1	2	5	13	15	J	0.1	cly		2	none	MW
168.9	169.0	0.10	0.10	100	0.00	0	Max	25	AND	grey	fine grained	massive	broken zone	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	Rub		1	none	MW
169.0	169.5	0.52	0.52	100	0.48	92	1	50	AND	grey	fine grained	massive	andesite	AND	0.00			0	1	1	2	5	9	15	J	1.0	cly		1	none	MW
169.5	171.0	1.50	1.44	96	0.93	62	10	25	AND	grey	fine grained	massive	andesite	AND	0.00			0	4	0	2	5	11	15	J	1.0	cly	cc	10	none	MW
171.0	172.5	1.50	1.44	96	0.64	43	Max	10	AND	grey	fine grained	massive	broken zone, clay, rubble	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	10	none	MW
172.5	173.3	0.75	0.75	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	broken/rubble with gouge and clay infill	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	Rub	cly	1	none	SRM
173.3	173.8	0.55	0.55	100	0.15	27	9	25	AND	dark grey	fine grained	massive	andesite	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		6	none	SRM
									AND					AND	0.10			0	4	1	2	5	12	15	J	1.0	cly		3	none	SRM
173.8	174.0	0.20	0.20	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	broken rubble	AND	0.00			0	1	3	2	5	11	15	J	5.0	cly		1	none	SRM
174.0	174.5	0.50	0.50	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	broken/ rubble with gouge, clay, calcite infill	AND	0.10			0	1	3	2	5	11	15	J	5.0	cc		1	none	SRM
174.5	175.5	1.00	1.00	100	0.55	55	9	50	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00	53	180	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.18	40	100	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.21	52	110	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.32	30	20	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.35	75	70	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.47	40	85	0	0	1	2	3	6	15	J	15.0	cc		1	F	SRM
									AND					AND	0.57	39	70	0	1	1	2	5	9	15	J	5.0	cc		1	F	SRM
									AND					AND	0.86	88	110	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.86	12	290	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
175.5	175.7	0.20	0.20	100	0.00	0	5	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		5	none	SRM
175.7	175.9	0.20	0.20	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	1	3	2	5	11	15	J	5.0	cc		1	none	SRM
175.9	176.1	0.15	0.15	100	0.00	0	5	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		5	none	SRM
176.1	176.2	0.10	0.10	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	1	3	2	5	11	15	J	5.0	cc		1	none	SRM
176.2	176.9	0.75	0.75	100	0.30	40	11	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		11	none	SRM
176.9	177.0	0.10	0.10	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc		1	none	SRM
177.0	177.4	0.35	0.35	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	severely broken andesite with calcite veins	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc		1	none	SRM
177.4	178.0	0.60	0.60	100	0.24	40	6	25	AND	dark grey	fine grained	massive		AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		1	none	SRM
178.0	178.1	0.10	0.10	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	andesite and calcite rubble	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc		1	none	SRM
178.1	178.5	0.45	0.45	100	0.37	82	3	50	AND	dark grey	fine grained	massive	andesite	AND	0.26	35	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.39	46	40	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.40	62	75	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
178.5	180.0	1.50	1.46	97	0.40	27	20	50	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	3	10	15	J	1.0	cc		10	none	SRM
									AND					AND	0.10			0	4	1	2	5	12	15	J	1.0	cc		10	none	SRM
180.0	180.2	0.15	0.15	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	broken zone with clay infill	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc		1	none	SRM
180.2	181.5	1.35	1.35	100	0.45	33	11	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	0	1	0	5	6	15	J	20.0	gg	Rub	4	none	SRM
									AND					AND	0.10			0	4	1	2	5	12	15	J	1.0	cly	cc	7	none	SRM
181.5	181.9	0.35	0.35	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	broken zone with gouge and clay infill	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc		1	none	SRM
181.9	182.2	0.30	0.30	100	0.00	0	4	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		4	none	SRM
182.2	182.3	0.10	0.10	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	broken zone with gouge and clay infill	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc		1	none	SRM
182.3	182.8	0.50	0.60	100	0.00	0	9	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly	cc	9	none	SRM
182.8	182.9	0.10	0.10	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	rubble	AND	0.00			0	0	3	0	5	8	15	J	10.0	cc	cly	1	none	SRM
182.9	183.0	0.15	0.15	100	0.00	0	2	25	AND	dark grey	fine grained	massive	andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cly		2	none	SRM
183.0	184.5	1.50	1.53	100	0.25	17	22	50	AND	dark grey	fine grained	massive	andesite with micro fractures and calcite veins	AND	0.00			0	0	1	0	5	6	15	J	30.0	gg	cly	5	none	SRM
									AND					AND	0.10			0	4	1	2	5	12	15	J	1.0	cc		6	none	SRM
									AND					AND	0.20			0	4	1	2	5	12	15	J	1.0	cly		11	none	SRM
184.5	184.8	0.25	0.25	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	gouge	AND	0.30			0	0	3	0	5	8	15	J	10.0	Rub	cc	1	none	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS											ADDITIONAL DISCONTUITY DATA						
																		Joint Condition														
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
184.8	186.0	1.25	1.17	94	0.36	29	9	150	AND	dark grey	fine grained	massive	andesite	AND	0.00	32	10	0	0	1	0	5	6	15	J	10.0	cc		1	F	SRM
									AND					AND	0.15	60	320	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.22	62	60	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.39	29	10	0	4	3	2	3	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.51	50	270	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	0.58	83	330	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.71	70	300	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.78	41	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	0.81	55	160	0	4	1	2	5	12	15	J	1.0	cc	cly	1	F	SRM
									AND					AND	0.94	45	340	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
186.0	187.1	1.10	1.10	100	0.89	81	7	175	AND	dark grey	fine grained	massive	andesite	AND	0.10			0	0	1	0	5	6	15	J	10.0	Rub		2	none	SRM
									AND					AND	0.20			0	0	1	0	5	6	15	F	400.0	gg	Rub	1	none	SRM
									AND					AND	0.30			0	4	1	6	6	17	15	J	1.0			4	none	SRM
187.1	187.5	0.40	0.40	100	0.00	0	Max	20	AND	dark grey	fine grained	massive	fault gouge/fractured rock	AND	0.10			0	0	3	0	5	8	15	J	10.0	Rub	cc	1	none	SRM
187.5	189.0	1.50	1.54	100	1.10	73	11	175	AND	dark grey	fine grained	massive	andesite	AND	0.15	65	310	0	0	1	0	5	6	15	J	10.0	cly		1	VG	SRM
									AND					AND	0.26	37	240	0	4	3	2	5	14	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.49	39	10	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.71	62	80	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.97	18	180	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	1.17	65	250	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	1.23	82	180	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.31	43	310	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.32	34	180	0	4	1	2	5	12	15	J	1.0	cly	cc	1	VG	SRM
									AND					AND	1.37	12	180	0	4	1	2	3	10	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.51	66	80	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
189.0	190.5	1.50	1.46	97	0.79	53	8	175	AND	dark grey	fine grained	massive	andesite	AND	0.38	47	60	0	0	3	0	3	6	15	J	10.0	cc	gg	1	VG	SRM
									AND					AND	0.62	51	330	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.69	75	350	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.78	70	240	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	0.88	67	290	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.97	64	200	0	4	3	2	3	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.04	57	110	0	4	1	2	5	12	15	J	1.0	cly		1	VG	SRM
									AND					AND	1.21	63	95	0	0	1	0	5	6	15	J	20.0	cc	cly	1	VG	SRM
190.5	192.0	1.50	1.55	100	0.70	47	12	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	4	1	6	6	17	15	J	1.0			4	none	SRM
									AND					AND	0.10			0	4	1	2	5	12	15	J	1.0	cc		7	none	SRM
									AND					AND	0.20			0	0	1	0	5	6	15	J	40.0	Rub		1	none	SRM
192.0	193.5	1.50	1.46	97	1.33	89	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.08	61	0	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	0.48	31	25	0	4	3	2	5	14	15	J	1.0	cly		1	F	SRM
									AND					AND	0.76	62	220	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.24	62	250	0	4	1	6	6	17	15	J	1.0			1	F	SRM
									AND					AND	1.40	60	260	0	4	1	6	6	17	15	J	1.0			1	F	SRM
193.5	195.0	1.50	1.56	100	1.56	100	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00	57	240	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.37	66	320	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.75	33	20	0	1	1	2	5	9	15	J	5.0	cc		1	G	SRM
									AND					AND	1.30	78	70	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.46	36	20	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
195.0	196.5	1.50	1.46	97	1.40	93	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.26	45	10	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.32	44	345	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	0.75	62	30	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.03	45	45	0	4	1	6	6	17	15	J	1.0			1	G	SRM
									AND					AND	1.18	36	170	0	4	1	6	6	17	15	J	1.0			1	G	SRM
196.5	198.0	1.50	1.50	100	1.44	96	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.24	61	255	0	4	3	6	6	19	15	J	1.0			1	G	SRM
									AND					AND	0.49	37	35	0	4	3	6	6	19	15	J	1.0			1	G	SRM
									AND					AND	0.62	51	130	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.13	58	350	0	4	3	6	6	19	15	J	1.0			1	G	SRM
									AND					AND	1.44	76	180	0	4	1	6	6	17	15	J	1.0			1	G	SRM
198.0	199.5	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.24	31	125	0	4	2	6	6	18	15	J	1.0			1	VG	MW
									AND					AND	0.64	45	205	0	5	2	2	6	15	15	J	0.1	cc		1	VG	MW
									AND					AND	0.81	57	240	0	5	2	2	5	14	15	J	0.1	cc		1	VG	MW
199.5	201.0	1.50	1.50	100	1.50	100	3	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.35	45	155	0	4	2	6	5	17	15	J	1.0			1	VG	MW
									AND					AND	0.60	67	255	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	0.72	71	260	0	4	2	6	6	18	15	J	1.0			1	VG	MW
201.0	202.5	1.50	1.47	98	1.30	87	5	75	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.20	47	175	0	4	2	6	6	18	15	J	1.0			1	VG	MW
									AND					AND	0.28	56	135	0	4	2	6	6	18	15	J	1.0			1	VG	MW
									AND					AND	0.57	21	230	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	1.10	43	335	0	4	3	6	6	19	15	J	1.0			1	VG	MW
202.5	204.0	1.50	1.50	100	1.45	97	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.43	62	115	0	5	3	6	6	20	15	J	0.1			1	F	MW
									AND					AND	0.47	51	110	0	5	1	2	5	13	15	J	0.1	cc		1	F	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.95	56	20	0	5	2	6	6	19	15	J	0.1			1	F	MW
									AND					AND	1.31	50	50	0	4	2	6	6	18	15	J	1.0			1	F	MW
									AND					AND	1.47	54	10	0	4	1	2	5	12	15	J	1.0	cc		1	F	MW
204.0	205.5	1.50	1.50	100	1.50	100	3	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	5	1	2	5	13	15	J	0.1	ox	cc	3	none	MW
205.5	207.0	1.50	1.50	100	1.50	100	1	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.06	36	45	0	1	2	2	5	10	15	J	3.0	cc		1	F	MW
207.0	208.5	1.50	1.48	99	1.32	88	8	75	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.12	64	320	0	4	1	2	5	12	15	J	1.0	cc		1	VG	MW
									AND					AND	0.32	32	330	0	4	3	2	5	14	15	J	1.0	cc		1	VG	MW
									AND					AND	0.44	15	140	0	1	2	2	5	10	15	J	3.0	cc		1	VG	MW
									AND					AND	0.61	50	45	0	1	1	2	5	9	15	J	4.0	cc		1	VG	MW
									AND					AND	0.70	55	30	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	0.77	50	35	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	0.93	41	55	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	1.17	45	10	0	1	2	2	5	10	15	J	2.0	cc		1	VG	MW
208.5	209.3	0.79	0.79	100	0.42	53	3	75	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		3	none	MW
209.3	210.0	0.71	0.71	100	0.62	87	2	75	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	0	1	0	5	6	15	F	30.0	cly	gg	1	F	MW
									AND					AND	0.25	34	155	0	1	1	2	5	9	15	J	3.0	cc		1	F	MW
210.0	211.5	1.50	1.50	100	1.50	100	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.15	57	315	0	5	2	2	5	14	15	J	4.0	cc		1	F	MW
									AND					AND	0.31	30	355	0	4	5	2	5	16	15	J	1.0	cc		1	F	MW
									AND					AND	0.71	46	110	0	1	2	2	5	10	15	J	2.0	cly	cc	1	F	MW
									AND					AND	0.92	58	145	0	5	2	2	5	14	15	J	0.1	cc		1	F	MW
									AND					AND	1.07	14	130	0	4	2	2	5	13	15	J	1.0	cc		1	F	MW
211.5	213.0	1.50	1.50	100	1.41	94	3	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.25	46	360	0	4	1	6	6	17	15	J	1.0			1	VG	MW
									AND					AND	0.39	38	145	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	0.48	57	160	0	4	1	2	5	12	15	J	1.0	cc		1	VG	MW
213.0	214.5	1.50	1.50	100	1.50	100	3	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.23	30	350	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
									AND					AND	0.46	59	270	0	5	2	2	5	14	15	J	0.1	cc		1	VG	MW
									AND					AND	1.23	54	245	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
214.5	216.0	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.01	47	320	0	4	3	2	5	14	15	J	1.0	cc		1	VG	MW
216.0	217.5	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.30	50	30	0	4	1	2	5	12	15	J	1.0	cc		1	G	MW
217.5	219.0	1.50	1.50	100	1.50	100	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.92	64	150	0	5	1	2	5	13	15	J	0.1	cc		1	VG	MW
									AND					AND	1.31	46	20	0	5	1	6	6	18	15	J	0.1			1	VG	MW
219.0	220.5	1.50	1.52	100	1.52	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00	57	320	0	0	1	0	5	6	15	VN	15.0	cc		1	VG	SRM
									AND					AND	0.63	75	120	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.99	48	30	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
220.5	222.0	1.50	1.49	99	1.49	99	1	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.74	45	40	0	5	1	2	5	13	15	J	0.1	cc		1	VG	SRM
222.0	223.5	1.50	1.50	100	1.50	100	2	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.34	68	0	0	5	1	2	5	13	15	J	0.1	cc		1	F	SRM
									AND					AND	1.13	59	335	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
223.5	225.0	1.50	1.50	100	1.41	94	4	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.48	62	75	0	4	1	6	6	17	15	J	1.0			1	P	SRM
									AND					AND	0.65	47	115	0	4	1	2	3	10	15	J	1.0	cly		1	P	SRM
									AND					AND	1.05	30	295	0	4	1	2	5	12	15	J	1.0	cc		1	P	SRM
									AND					AND	1.43	33	45	0	4	1	6	6	17	15	J	1.0			1	P	SRM
225.0	226.5	1.50	1.55	100	1.55	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.57	50	295	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.25	24	30	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.42	52	285	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
226.5	228.0	1.50	1.54	100	1.46	97	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.46	55	300	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
228.0	229.5	1.50	1.47	98	1.47	98	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.72	53	295	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
									AND					AND	1.04	64		0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
229.5	231.0	1.50	1.58	100	1.58	100	4	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.24	18	50	0	0	1	0	5	6	15	J	15.0	cc		1	G	SRM
									AND					AND	0.40	42	335	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.12	46	60	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
									AND					AND	1.37	48	0	0	4	1	2	5	12	15	J	1.0	cc		1	G	SRM
231.0	232.5	1.50	1.43	95	1.43	95	5	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.12	48	245	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.50	21	350	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	1.10	25	60	0	4	3	2	5	14	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.27	32	50	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.28	34	50	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
232.5	234.0	1.50	1.50	100	1.06	71	9	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.24	39	80	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis- P	Apert- A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	0.43	36	70	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.50	51	300	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.77	34	80	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.99	35	70	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	1.02	30	60	0	4	1	2	5	12	15	J	1.0	cc	cly	1	VG	SRM
									AND					AND	1.10	31	70	0	0	1	0	3	4	15	J	1.0	Rub	cly	1	VG	SRM
									AND					AND	1.35			0	4	1	2	5	12	15	J	1.0	cc		1	none	SRM
									AND					AND	1.43			0	0	1	0	3	4	15	J	1.0	cc		1	none	SRM
234.0	235.5	1.50	1.60	100	1.45	97	5	100	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.10	44	0	0	1	3	2	3	9	15	J	5.0	cly		1	F	SRM
									AND					AND	0.10	31	60	0	1	3	2	3	9	15	J	5.0	cly		1	F	SRM
									AND					AND	0.69	32	0	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.22	27	350	0	4	1	2	5	12	15	J	1.0	cly		1	F	SRM
									AND					AND	1.50	19	0	0	4	1	2	5	12	15	J	1.0	cc		1	F	SRM
235.5	237.0	1.50	1.54	100	1.08	72	8	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		5	none	SRM
									AND					AND	0.10			0	4	1	6	6	17	15	J	1.0			3	none	SRM
237.0	238.5	1.50	1.50	100	0.95	63	10	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	4	1	2	5	12	15	J	1.0	cc		7	none	SRM
									AND					AND	0.10			0	4	1	6	6	17	15	J	1.0			3	none	SRM
238.5	240.0	1.50	1.51	100	1.20	80	6	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.23	62	320	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	0.60	54	260	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									AND					AND	0.67	18	250	0	4	3	2	5	14	15	J	5.0	Rub		1	VG	SRM
									AND					AND	0.82	58	300	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.20	63	295	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.46	41	20	0	1	1	2	5	9	15	J	5.0	Rub		1	VG	SRM
240.0	241.5	1.50	1.45	97	1.40	93	3	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.53	40	20	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
									AND					AND	1.18	54	180	0	4	1	6	6	17	15	J	1.0			1	VG	SRM
									AND					AND	1.42	15	120	0	4	1	2	5	12	15	J	1.0	cc		1	VG	SRM
241.5	243.0	1.50	1.50	100	1.50	100	2	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.57	34	150	0	4	2	6	6	18	15	J	1.0			1	F	MW
									AND					AND	1.29	21	30	0	4	2	6	6	18	15	J	1.0			1	F	MW
243.0	244.5	1.50	1.47	98	1.47	98	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.35	46	330	0	4	1	6	6	17	15	J	1.0			1	F	MW
244.5	246.0	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.90	30	25	0	1	3	2	6	12	15	J	3.0	cc		1	G	MW
246.0	247.5	1.50	1.50	100	1.50	100	0	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	G	MW
247.5	249.0	1.50	1.48	99	1.45	97	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.75	12	45	0	0	6	0	5	11	15	J	20.0	cc		1	VG	MW
249.0	250.5	1.50	1.50	100	1.48	99	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.40	52	335	0	5	1	2	5	13	15	J	0.1	cc		1	P	MW
									AND					AND	0.43	15	165	0	1	2	2	5	10	15	J	4.0	cc		1	P	MW
250.5	252.0	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.48	19	130	0	1	3	2	5	11	15	J	2.0	cc		1	VG	MW
									AND					AND	0.74	18	35	0	4	2	6	6	18	15	J	1.0			1	VG	MW
									AND					AND	1.00	24	70	0	0	2	2	5	9	15	J	8.0	cc		1	VG	MW
252.0	253.5	1.50	1.49	99	1.49	99	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.43	19	140	0	4	3	2	5	14	15	J	1.0	cc		1	F	MW
253.5	255.0	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.31	63	345	0	5	1	2	5	13	15	J	0.1	cc		1	F	MW
255.0	256.5	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.32	52	305	0	4	1	6	6	17	15	BR	1.0			1	F	MW
256.5	258.0	1.50	1.50	100	1.44	96	4	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.20	48	300	0	5	1	6	6	18	15	J	0.1			1	VG	MW
									AND					AND	0.86	52	5	0	4	3	6	6	19	15	J	1.0			1	VG	MW
									AND					AND	1.26	54	345	0	4	3	6	6	19	15	J	1.0			1	VG	MW
									AND					AND	1.32	54	5	0	5	1	2	5	13	15	J	0.1	cc		1	VG	MW
258.0	259.5	1.50	1.43	95	1.43	95	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.28	46	360	0	5	1	6	6	18	15	BR	0.1			1	VG	MW
259.5	261.0	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.26	65	5	0	4	2	6	6	18	15	J	1.0			1	P	MW
261.0	262.5	1.50	1.48	99	1.48	99	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.34	50	5	0	5	1	2	5	13	15	J	0.1	cc		1	P	MW
262.5	264.0	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.84	54	355	0	4	2	2	5	13	15	J	1.0	cc		1	VG	MW
264.0	265.5	1.50	1.50	100	1.50	100	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.33	50	210	0	4	2	6	6	18	15	J	0.1			1	G	MW
									AND					AND	0.72	37	280	0	4	3	2	5	14	15	J	0.1	cc		1	G	MW
265.5	267.0	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.37	46	325	0	4	3	6	6	19	15	J	0.1			1	P	MW
									AND					AND	0.86	51	17	0	1	5	2	5	13	15	J	5.0	cc		1	P	MW
									AND					AND	1.41	69	220	0	4	3	6	6	19	15	BR	0.1			1	P	MW
267.0	268.5	1.50	1.45	97	1.45	97	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.47	45	354	0	4	3	6	6	19	15	J	0.1			1	F	MW
									AND					AND	1.40	41	42	0	4	5	2	5	16	15	BR	1.0	cc		1	F	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS									ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
268.5	270.0	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.74	50	200	0	4	2	6	6	18	15	BR	1.0			1	F	MW
270.0	271.5	1.50	1.50	100	1.50	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.35	24	152	0	4	3	2	5	14	15	J	1.0	cc		1	F	MW
271.5	273.0	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.33	74	245	0	4	2	6	6	18	15	BR	0.1			1	F	MW
									AND					AND	0.75	72	235	0	4	1	6	6	17	15	BR	0.1			1	F	MW
									AND					AND	1.33	62	242	0	5	1	6	6	18	15	BR	0.1			1	F	MW
273.0	274.5	1.50	1.50	100	1.50	100	0	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	F	MW
274.5	276.0	1.50	1.59	100	1.59	100	4	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.21	64	200	0	4	1	6	6	17	15	BR	0.1			1	VG	MW
									AND					AND	0.64	79	249	0	4	1	6	6	17	15	BR	0.1			1	VG	MW
									AND					AND	1.39	44	195	0	4	6	6	6	22	15	J	1.0			1	VG	MW
									AND					AND	1.50	73	291	0	4	5	6	6	21	15	BR	0.1			1	G	MW
276.0	277.5	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.64	70	40	0	4	1	6	6	17	15	J	0.1			1	P	MW
									AND					AND	0.87	65	17	0	4	1	6	5	16	15	J	0.1			1	P	MW
									AND					AND	1.28	56	7	0	1	3	2	3	9	15	J	2.0			1	P	MW
277.5	279.0	1.50	1.52	100	1.52	100	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.03	48	145	0	1	4	2	5	12	15	J	2.0	cc		1	G	MW
									AND					AND	0.85	75	153	0	4	1	2	5	12	15	BR	0.1	cc		1	G	MW
279.0	280.5	1.50	1.43	95	1.43	95	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.34	79	193	0	4	3	2	5	14	15	J	0.1	cc		1	G	MW
									AND					AND	0.70	66	232	0	4	3	6	6	19	15	BR	0.1			1	G	MW
									AND					AND	1.04	27	121	0	4	2	2	5	13	15	J	0.1	cc		1	G	MW
280.5	282.0	1.50	1.53	100	1.53	100	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.97	34	195	0	4	2	6	5	17	15	J	0.1			1	VG	MW
									AND					AND	1.22	46	222	0	4	3	6	6	19	15	J	0.1			1	VG	MW
282.0	283.5	1.50	1.45	97	1.45	97	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.18	14	120	0	4	3	2	5	14	15	J	0.1	cly		1	VG	MW
283.5	285.0	1.50	1.47	98	1.47	98	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.51	58	20	0	4	3	6	6	19	15	J	0.1			1	none	MW
									AND					AND	0.96	41	203	0	4	5	2	3	14	15	J	0.1	cly		1	none	MW
									AND					AND	1.13	70	223	0	4	3	2	5	14	15	J	0.1	cc		1	none	MW
285.0	286.0	1.04	1.04	100	1.04	100	1	150	AND	light grey to grey	fine grained	massive	competent andesite with calcite veins	AND	0.08	65	240	0	4	1	6	6	17	15	J	1.0			1	VG	MW
286.0	286.2	0.20	0.20	100	0.00	0	0	25	AND	light grey to grey	fine grained	massive	soft zone, slightly weathered	AND	0.00			6	6	6	6	6	30	15	J	0.0	cly		1	VG	MW
286.2	286.5	0.26	0.26	100	0.26	100	0	175	AND	light grey to grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MW
286.5	288.0	1.50	1.47	98	1.47	98	2	150	AND	light grey to grey	fine grained	massive	competent andesite with calcite veins	AND	0.54	15	130	0	1	1	2	5	9	15	J	4.0	cc		1	G	MW
									AND					AND	0.67	28	145	0	4	1	2	5	12	15	J	1.0			1	G	MW
288.0	289.5	1.50	1.50	100	1.47	98	4	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.38	61	205	0	5	1	6	5	17	15	J	0.1	cc		1	G	MW
									AND					AND	0.96	26	325	0	5	1	2	5	13	15	J	0.1	cc		1	G	MW
									AND					AND	0.99	27	320	0	5	1	2	5	13	15	J	0.1	cc		1	G	MW
									AND					AND	1.26	46	215	0	5	1	2	5	13	15	J	0.1	cc		1	G	MW
289.5	291.0	1.50	1.46	97	1.46	97	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.22	45	175	0	5	1	2	5	13	15	J	0.1	cc		1	G	MW
									AND					AND	0.41	19	120	0	1	2	2	5	10	15	J	2.0	cc		1	G	MW
									AND					AND	1.23	25	340	0	4	5	2	5	16	15	J	1.0	cc		1	G	MW
291.0	292.5	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.36	24	120	0	5	2	2	5	14	15	J	0.1	cc		1	G	MW
									AND					AND	0.80	37	345	0	4	3	2	5	14	15	J	1.0	cc		1	G	MW
									AND					AND	1.25	71	300	0	5	3	6	6	20	15	BR	0.1			1	G	MW
292.5	293.6	1.12	1.12	100	1.12	100	2	175	AND	light grey to grey	fine grained	massive	competent andesite with calcite veins	AND	0.51	36	210	0	1	3	2	5	11	15	J	3.0	cc		1	G	MW
									AND					AND	0.77	14	205	0	0	6	0	5	11	15	J	8.0	cc		1	G	MW
293.6	294.2	0.61	0.47	77	0.00	0	Max	50	AND	light grey to grey	fine grained	massive	broken zone/andesite	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	cc	1	none	MW
294.2	295.5	1.27	1.27	100	1.27	100	1	150	AND	light grey to grey	fine grained	massive	competent andesite with calcite veins	AND	0.00	41	100	0	1	1	2	5	9	15	J	3.0	cly	cc	1	P	MW
295.5	297.0	1.50	1.50	100	1.50	100	2	150	AND	light grey to grey	fine grained	massive	competent andesite with calcite veins	AND	0.43	44	125	0	4	2	2	5	13	15	J	1.0	cc		1	P	MW
									AND					AND	0.98	57	180	0	4	3	6	6	19	15	BR	1.0			1	P	MW
297.0	298.5	1.50	1.42	95	1.42	95	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.02	11	140	0	4	3	6	6	19	15	BR	1.0			1	P	MW
									AND					AND	0.56	56	275	0	1	2	2	5	10	15	J	2.0	cc		1	P	MW
									AND					AND	0.90	6	150	0	4	3	6	6	19	15	J	1.0			1	P	MW
298.5	299.6	1.05	1.05	100	0.97	92	3	75	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			0	4	3	2	5	14	15	J	1.0	cc		3	none	MW
299.6	299.7	0.10	0.10	99	0.00	0	Max	25	AND	dark grey	fine grained	massive	andesite broken zone	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cc	cly	1	none	MW
299.7	300.0	0.35	0.35	100	0.35	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.34	57	335	0	5	4	6	6	21	15	J	0.1			1	F	MW
300.0	301.5	1.50	1.46	97	1.41	94	4	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.29	36	70	0	0	1	0	3	4	15	F	10.0	cly	cc	1	VG	MW
									AND					AND	0.34	49	275	0	4	1	2	5	12	15	J	1.0	cc		1	VG	MW
									AND					AND	1.12	28	25	0	4	3	2	5	14	15	J	1.0	cc		1	VG	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
									AND					AND	1.40	43	25	0	4	2	2	5	13	15	J	1.0	cly		1	VG	MW
301.5	302.3	0.79	0.79	100	0.79	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.68	28	45	0	1	4	2	5	12	15	J	4.0	cc		1	VG	MW
302.3	302.5	0.17	0.10	59	0.00	0	Max	50	AND	dark grey	fine grained	massive	broken zone	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	1	none	MW
302.5	303.0	0.54	0.54	100	0.54	100	2	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.31	23	45	0	0	1	0	3	4	15	F	10.0	cly	Rub	1	F	MW
									AND					AND	0.55	54	300	0	1	1	2	5	9	15	J	4.0	cc		1	F	MW
303.0	303.7	0.71	0.71	100	0.62	87	3	175	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.18	26	40	0	5	3	6	6	20	15	J	0.1			1	F	MW
									AND					AND	0.42	24	105	0	4	2	2	5	13	15	J	1.0	cc		1	F	MW
									AND					AND	0.62	37	15	0	5	3	2	5	15	15	J	0.1	cc		1	F	MW
303.7	303.8	0.09	0.09	100	0.00	0	Max	50	AND	dark grey	fine grained	massive	broken zone andesite	AND	0.00			0	0	1	0	3	4	15	F	10.0	cly	Rub	1	none	MW
303.8	304.5	0.70	0.70	100	0.70	100	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.25	54	5	0	4	4	2	6	16	15	J	1.0	cc		1	F	MW
									AND					AND	0.60	35	35	0	5	2	6	6	19	15	J	0.1			1	F	MW
304.5	306.0	1.50	1.50	100	1.50	100	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.18	51	20	0	4	3	6	6	19	15	J	1.0			1	F	MW
									AND					AND	0.83	26	30	0	5	2	2	6	15	15	J	0.1	cc		1	F	MW
									AND					AND	0.96	27	40	0	4	2	2	5	13	15	J	1.0	cc		1	F	MW
306.0	306.8	0.75	0.75	100	0.66	88	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.10			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	1	none	MW
306.8	307.5	0.74	0.87	100	0.00	0	Max	25	AND	dark grey	fine grained	massive	broken zone, longitudinal joints and many breaks, lost return at 307.5	AND	0.00			0	0	1	0	3	4	15	F	10.0	cly	Rub	1	none	MW
307.5	309.0	1.50	1.47	98	1.40	93	4	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.05			0	0	3	2	5	10	15	J	10.0	cc	cly	1	none	MW
									AND					AND	0.58			0	4	1	6	5	16	15	J	0.1			1	none	MW
									AND					AND	1.01			0	1	3	2	5	11	15	J	3.0	cc	cly	1	none	MW
									AND					AND	1.17			0	4	2	2	5	13	15	BR	0.1	cc		1	none	MW
309.0	310.5	1.50	1.44	96	1.44	96	0	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	none	MW
310.5	312.0	1.50	1.53	100	1.53	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.85	49	33	0	4	3	2	5	14	15	J	0.1	cc		1	F	MW
312.0	313.5	1.50	1.47	98	1.43	95	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.68	36	40	0	4	2	6	6	18	15	J	0.1			1	F	MW
									AND					AND	1.15	39	19	0	4	2	6	6	18	15	J	0.1			1	F	MW
									AND					AND	1.19	46	19	0	4	2	6	6	18	15	J	0.1			1	F	MW
313.5	315.0	1.50	1.59	100	1.59	100	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.51	22	42	0	4	2	6	6	18	15	J	0.1			1	F	MW
315.0	316.5	1.50	1.47	98	1.47	98	1	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	1.36	30	8	0	4	1	2	5	12	15	BR	0.1	cc		1	F	MW
316.5	318.0	1.50	1.50	100	1.50	100	2	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.44	31	20	0	4	1	2	5	12	15	J	0.1	cc		1	F	MW
									AND					AND	0.72	36	33	0	4	1	2	5	12	15	J	0.1	cc		1	F	MW
318.0	319.5	1.50	1.56	100	1.49	99	3	150	AND	dark grey	fine grained	massive	competent andesite with calcite veins	AND	0.56			0	4	1	6	5	16	15	BR	0.1			1	none	MW
									AND					AND	1.32			0	4	5	2	5	16	15	J	0.1			1	none	MW
									AND					AND	1.44			0	0	1	0	3	4	15	J	10.0			1	none	MW
319.5	321.0	1.50	1.47	98	0.00	0	1	25	AND	light grey	fine grained	massive	decomposed andesite	AND	0.00			0	0	1	0	3	4	15	BR	10.0			1	none	MW
321.0	322.1	1.14	1.14	100	0.30	26	1	25	AND	light grey	fine grained	massive	decomposed andesite	AND	0.00			0	0	1	0	3	4	15	BR	10.0			1	none	MW
322.1	322.5	0.36	0.41	100	0.41	100	0	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0	cc		1	none	MW
322.5	324.0	1.50	1.55	100	1.55	100	2	125	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	0.38	44	260	0	4	3	2	5	14	15	J	0.1	cc		1	P	MW
									AND					AND	0.82			0	4	1	6	5	16	15	J	0.1			1	P	MW
324.0	325.5	1.50	1.48	99	1.48	99	0	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0	cc		1	F	MW
325.5	327.0	1.50	1.55	100	1.55	100	2	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.32	19	120	0	4	1	6	6	17	15	J	0.1			1	G	MW
									AND					AND	0.79	16	340	0	4	2	2	5	13	15	J	0.1	cly		1	G	MW
327.0	328.5	1.50	1.43	95	1.43	95	2	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.23	21	110	0	4	1	2	5	12	15	J	1.0	cc		1	P	MW
									AND					AND	0.91	57	355	0	5	3	6	6	20	15	J	0.1			1	P	MW
328.5	330.0	1.50	1.50	100	1.50	100	0	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	F	MW
330.0	331.5	1.50	1.47	98	1.47	98	2	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.78	66	300	0	4	2	6	6	18	15	J	1.0			1	VG	MW
									AND					AND	1.28	17	340	0	1	5	6	5	17	15	J	2.0			1	VG	MW
331.5	333.0	1.50	1.47	98	1.47	98	2	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.50	37	130	0	5	2	6	6	19	15	J	0.1			1	G	MW
									AND					AND	1.14	47	65	0	5	3	6	6	20	15	J	0.1			1	G	MW
333.0	334.5	1.50	1.50	100	1.43	95	2	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	1.11	48	20	0	4	5	6	6	21	15	J	1.0			1	G	MW
									AND					AND	1.18	32	355	0	5	3	6	6	20	15	J	0.1			1	G	MW
334.5	336.0	1.50	1.50	100	1.50	100	0	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	G	MW
336.0	337.5	1.50	1.48	99	1.48	99	1	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	0.49	29	140	0	5	2	6	6	19	15	J	0.1			1	F	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
337.5	339.0	1.50	1.50	100	1.50	100	0	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MW
339.0	340.5	1.50	1.50	100	1.50	100	0	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MW
340.5	342.0	1.50	1.50	100	1.50	100	0	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MW
342.0	343.5	1.50	1.48	99	1.48	99	0	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MW
343.5	345.0	1.50	1.50	100	1.50	100	2	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.20	70	120	0	5	1	6	6	18	15	J	0.1			1	F	MW
									AND					AND	0.94	65	245	0	5	1	6	6	18	15	J	0.1			1	F	MW
345.0	346.5	1.50	1.50	100	1.50	100	0	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MW
346.5	348.0	1.50	1.50	100	1.50	100	0	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	P	MW
348.0	349.5	1.50	1.47	98	1.47	98	1	150	AND	light grey	fine grained	massive	competent andesite with calcite veins	AND	1.35	64	225	0	4	1	6	5	16	15	BR	0.1	ox		1	VG	MW
349.5	351.0	1.50	1.53	100	1.53	100	1	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.90	25	130	0	4	1	2	5	12	15	BR	0.1	cc		1	G	MW
351.0	352.5	1.50	1.47	98	1.44	96	2	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	0.03	28	130	0	4	2	2	5	13	15	J	0.1	cc		1	F	MW
									AND					AND	0.61	60	278	0	4	2	6	6	18	15	BR	0.1			1	F	MW
352.5	354.0	1.50	1.52	100	1.52	100	1	150	AND	grey	fine grained	massive	competent andesite with calcite veins	AND	1.41	45	50	0	1	2	2	5	10	15	J	3.0	cc		1	G	MW
354.0	355.5	1.50	1.50	100	1.50	100	1	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	1.40	59	122	0	4	1	6	6	17	15	J	0.1			1	F	MW
355.5	357.0	1.50	1.54	100	1.54	100	0	150	ABX	light grey	fine grained	massive	competent andesite with calcite veins	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	G	MW
357.0	358.5	1.50	1.47	98	1.47	98	1	150	ABX	light grey	fine grained	massive	competent andesite with calcite veins	ABX	0.37			0	1	3	2	5	11	15	J	0.1	cly		1	none	MW
358.5	360.0	1.50	1.53	100	1.53	100	1	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	1.03	46	345	0	4	1	2	5	12	15	J	0.1	cc		1	none	MW
360.0	360.6	0.64	0.64	100	0.00	0	1	25	ABX	grey	fine grained	massive	decomposed andesite	ABX	0.00			0	0	1	0	3	4	15	Rub	10.0			1	none	MW
360.6	361.5	0.86	0.86	100	0.86	100	2	125	ABX	grey	fine grained	massive	andesite, decomposed veins	ABX	0.38	49	45	0	4	2	2	3	11	15	J	0.1	cly		1	none	MW
									ABX					ABX	0.57	30	315	0	4	2	6	5	17	15	J	0.1			1	none	MW
361.5	363.0	1.50	1.52	100	1.09	73	7	100	ABX	grey	fine grained	massive	andesite weathered	ABX	0.00			0	0	1	0	3	4	15	Rub	10.0			1	none	MW
									ABX					ABX	0.28			0	4	1	2	5	12	15	J	0.1	cc		1	none	MW
									ABX					ABX	0.53			0	4	1	2	5	12	15	J	0.1	cc		1	none	MW
									ABX					ABX	0.70			0	0	1	0	3	4	15	Rub	10.0			1	none	MW
									ABX					ABX	0.88			0	4	1	6	5	16	15	J	0.1			1	none	MW
									ABX					ABX	1.08			0	4	1	2	5	12	15	J	0.1			1	none	MW
									ABX					ABX	1.30			0	0	1	0	3	4	15	Rub	10.0			1	none	MW
363.0	364.5	1.50	1.56	100	1.56	100	3	150	ABX	light grey	fine grained	massive	competent andesite with calcite veins	ABX	0.41	35		0	4	2	6	5	17	15	BR	0.1			1	none	MW
									ABX					ABX	0.61	36		0	4	2	6	5	17	15	J	0.1			1	none	MW
									ABX					ABX	1.06	34		0	4	2	6	5	17	15	J	0.1	cc		1	none	MW
364.5	366.0	1.50	1.55	100	1.55	100	1	150	ABX	light grey	fine grained	massive	competent andesite with calcite veins	ABX	1.40	50	250	0	4	1	6	6	17	15	J	0.1			1	F	MW
366.0	367.5	1.50	1.46	97	1.46	97	1	150	ABX	light grey	fine grained	massive	competent andesite with calcite veins	ABX	0.26	17	30	0	4	1	6	6	17	15	J	0.1			1	VG	MW
367.5	369.0	1.50	1.55	100	1.49	99	2	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.63	90		0	4	2	6	6	18	15	J	1.0			1	VG	MW
									ABX					ABX	1.47	46	14	0	4	5	2	5	16	15	BR	0.1	cc		1	VG	MW
369.0	370.5	1.50	1.55	100	1.55	100	0	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	VG	MW
370.5	372.0	1.50	1.50	100	1.50	100	1	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.87	33	330	0	1	2	2	5	10	15	J	3.0	cc		1	F	MW
372.0	373.5	1.50	1.44	96	1.44	96	3	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.62	56	305	0	4	3	2	5	14	15	J	1.0	cc		1	VG	MW
									ABX					ABX	0.74	42	10	0	4	5	2	5	16	15	J	1.0	cc		1	VG	MW
									ABX					ABX	0.95	42	340	0	4	3	2	5	14	15	J	1.0	cc		1	VG	MW
373.5	375.0	1.50	1.50	100	1.50	100	4	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.15	16	350	0	4	4	6	6	20	15	J	1.0			1	F	MW
									ABX					ABX	0.79	29	10	0	4	2	2	5	13	15	J	1.0	cc		1	F	MW
									ABX					ABX	1.12	55	0	0	4	3	6	6	19	15	BR	1.0			1	F	MW
									ABX					ABX	1.31	54	10	0	4	5	6	6	21	15	BR	1.0			1	F	MW
375.0	376.5	1.50	1.50	100	1.50	100	2	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.24	43	15	0	5	3	6	6	20	15	J	0.1			1	G	MW
									ABX					ABX	0.90	29	355	0	1	2	2	5	10	15	J	3.0	cc		1	G	MW
376.5	378.0	1.50	1.49	99	1.49	99	0	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	F	MW
378.0	379.5	1.50	1.46	97	1.39	93	3	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.80	30	285	0	5	2	6	6	19	15	J	0.1			1	VG	MW
									ABX					ABX	1.03	23	20	0	5	2	2	5	14	15	J	0.1	cc		1	VG	MW
									ABX					ABX	1.10	24	200	0	0	6	0	5	11	15	J	10.0	cc	cly	1	VG	MW
379.5	381.0	1.50	1.50	100	1.50	100	3	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.32	11	35	0	0	6	0	5	11	15	J	10.0	cc	cly	1	F	MW
									ABX					ABX	0.97	56	285	0	4	2	2	5	13	15	J	1.0	cc		1	F	MW
									ABX					ABX	1.50	20	5	0	1	2	2	5	10	15	J	4.0	cc		1	F	MW

DRILL RUN DATA									GEOLOGY - COMMENTS						DISCONTINUITY DATA - RATING SYSTEMS										ADDITIONAL DISCONTUITY DATA						
Depth From (m)	Depth To (m)	Run Length (m)	Recov. Length (m)	Recov. (%)	RQD Length (m)	RQD (%)	# of Fractures	UCS (Est.) (MPa)	Lithology (Client)	Rock Colour	Rock Grain Size / Texture	Structure	Other Notes	Field Rock Interpretation	Depth From top of run (m)	Alpha (deg.)	Beta (deg.)	Joint Condition: Persis-P	Apert-A	Rough R	Infill I	Weath W	TOTAL (RMR)	Water Rating	Disc. Type	Aper. (mm)	Fill. Type 1 (see Leg)	Fill. Type 2 (see Leg)	QTY	Orientation Quality	Logger
381.0	382.5	1.50	1.47	98	1.33	89	8	175	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.00	32	275	0	5	5	2	5	17	15	J	0.1	cly		1	F	MW
									ABX					ABX	0.15	42	285	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
									ABX					ABX	0.30	33	25	0	1	4	2	5	12	15	J	3.0	cly	Rub	1	F	MW
									ABX					ABX	0.45	27	270	0	4	3	2	5	14	15	J	1.0	cly		1	F	MW
									ABX					ABX	0.52	14	50	0	0	3	2	5	10	15	J	10.0	cly	Rub	1	F	MW
									ABX					ABX	0.64	24	50	0	1	3	2	5	11	15	J	4.0	cly	Rub	1	F	MW
									ABX					ABX	0.81	20	20	0	0	4	2	5	11	15	J	6.0	cly	Rub	1	F	MW
									ABX					ABX	1.18	49	5	0	4	4	6	6	20	15	J	1.0	cly		1	F	MW
382.5	384.0	1.50	1.50	100	1.50	100	1	120	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.57	15	35	0	4	2	6	6	18	15	J	1.0			1	G	MW
384.0	385.5	1.50	1.48	99	1.48	99	2	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.31	47	345	0	5	2	2	6	15	15	J	0.1	cc		1	VG	MW
									ABX					ABX	1.22	48	360	0	1	2	4	6	13	15	J	2.0			1	VG	MW
385.5	386.6	1.09	1.09	100	1.09	100	0	150	ABX	grey	fine grained	massive	competent andesite with calcite veins	ABX	0.00			6	6	6	6	6	30	15	J	0.0			1	none	MW
386.6	387.0	0.41	0.41	100	0.00	0	0	25	AND	grey	fine grained	massive	fault	AND	0.00			6	0	1	0	3	10	15	F	30.0	cly	cc	1	none	MW
387.0	387.7	0.70	0.70	100	0.00	0	Max	25	AND	pale white to cream, light grey	fine grained	massive	broken zone	AND	0.00			0	0	1	0	3	4	15	RUB	10.0	cly	Rub	1	none	MW
387.7	388.5	0.80	0.80	100	0.72	90	3	75	AND	pale white to cream, light grey	fine grained	massive	competent andesite with calcite veins	AND	0.23	54	10	0	4	2	6	5	17	15	J	1.0			1	F	MW
									AND					AND	0.55	44	50	0	4	3	6	6	19	15	J	1.0			1	F	MW
									AND					AND	0.63	19	115	0	1	5	6	5	17	15	J	2.0			1	F	MW
388.5	390.0	1.50	1.47	98	1.01	67	3	75	AND	pale white to cream, light grey	fine grained	massive	competent andesite with calcite veins	AND	0.52			0	0	2	0	3	5	15	J	8.0	cly		1	none	MW
									AND					AND	0.92			0	0	1	0	3	4	15	J	80.0	cly	Rub	1	none	MW
									AND					AND	1.20			0	0	3	0	3	6	15	F	8.0	cly	Rub	1	none	MW
390.0	390.5	0.45	0.45	100	0.00	0	Max	75	AND	pale white to cream, light grey	fine grained	massive	fault	AND	0.00			0	0	1	0	3	4	15	Rub	10.0			1	none	MW
390.5	390.8	0.35	0.35	100	0.35	100	0	75	AND	pale white to cream, light grey	fine grained	massive	fault	AND	0.00			6	6	6	6	6	30	15	J	0.0			1	none	MW
390.8	391.3	0.50	0.50	100	0.31	62	Max	25	AND	pale white to cream, light grey	fine grained	massive	fault	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	Rub		1	none	MW
391.3	391.5	0.20	0.25	100	0.00	0	Max	75	AND	pale white to cream, light grey	fine grained	massive	fault	AND	0.00			0	0	1	0	3	4	15	Rub	10.0			1	none	MW
391.5	393.0	1.50	1.55	100	0.17	11	Max	25	AND	pale white to cream, light grey	fine grained	massive	conglomerate, easily broken by hand, weathered	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	Rub	1	none	MW
393.0	394.5	1.50	1.42	95	0.39	26	Max	75	AND	pale white to cream, light grey	fine grained	massive	felsic tuff, weathered and fractured breakable by hand	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	Rub	cly	1	none	MW
394.5	396.0	1.50	1.50	100	0.20	13	Max	25	AND	pale white to cream, light grey	fine grained	massive	felsic tuff to conglomerate, highly altered easily broken by hand	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly	cc	1	none	MW
396.0	396.8	0.75	0.75	100	0.57	76	2	75	AND	pale white to cream, light grey	fine grained	massive	felsic tuff somewhat breakable by hand, altered	AND	0.10	55	79	0	1	1	2	3	7	15	J	3.0			1	F	MW
									AND					AND	0.56	35	72	0	4	3	2	3	12	15	J	0.1			1	F	MW
396.8	397.1	0.35	0.35	100	0.00	0	Max	25	AND	pale white to cream, light grey	fine grained	massive	felsic tuff, broken rubble	AND	0.00			0	0	1	0	3	4	15	Rub	10.0	cly		1	none	MW
397.1	397.5	0.40	0.40	100	0.40	100	1	75	AND	pale white to cream, light grey	fine grained	massive	felsic tuff, somewhat weathered	AND	0.30	48	345	0	4	3	6	5	18	15	J	0.1	cc		1	F	MW
397.5	399.0	1.50	1.50	100	1.45	97	5	75	AND	pale white to cream, light grey	fine grained	massive	competent andesite with calcite veins	AND	0.30	22		0	4	3	2	5	14	15	J	0.1	chl		1	none	MW
									AND					AND	0.76	72		0	4	3	2	5	14	15	J	0.1	cc		1	none	MW
									AND					AND	0.92	46		0	4	2	2	5	13	15	J	0.1	chl		1	none	MW
									AND					AND	0.97	32		0	4	2	6	5	17	15	BR	0.1			1	none	MW
									AND					AND	1.19	36		0	4	2	2	5	13	15	J	0.1	chl		1	none	MW
399.0	400.5	1.50	1.45	97	1.28	85	4	125	AND	pale white to cream, light grey	fine grained	massive	competent andesite with calcite veins	AND	0.09	59		0	4	1	6	5	16	15	J	0.1			1	none	MW
									AND					AND	0.87	52		0	4	1	2	5	12	15	J	0.1	cc		1	none	MW
									AND					AND	0.98	45		0	4	1	2	5	12	15	J	0.1			1	none	MW
									AND					AND	1.36	65		0	4	2	2	3	11	15	J	0.1			1	none	MW

EOH

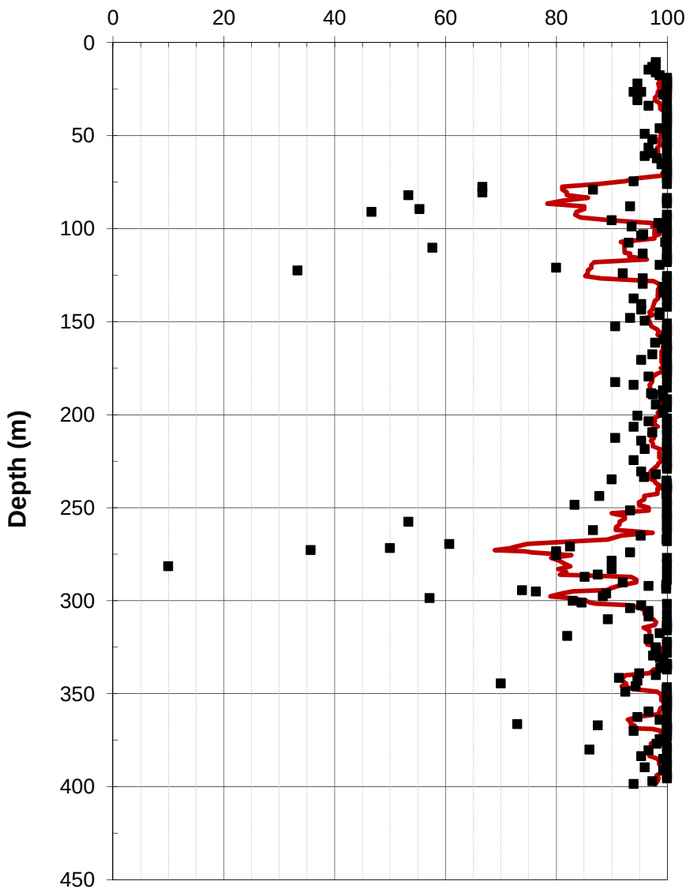
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	29APR13	ISSUED WITH REPORT	EA	DAY	KJB

APPENDIX A3

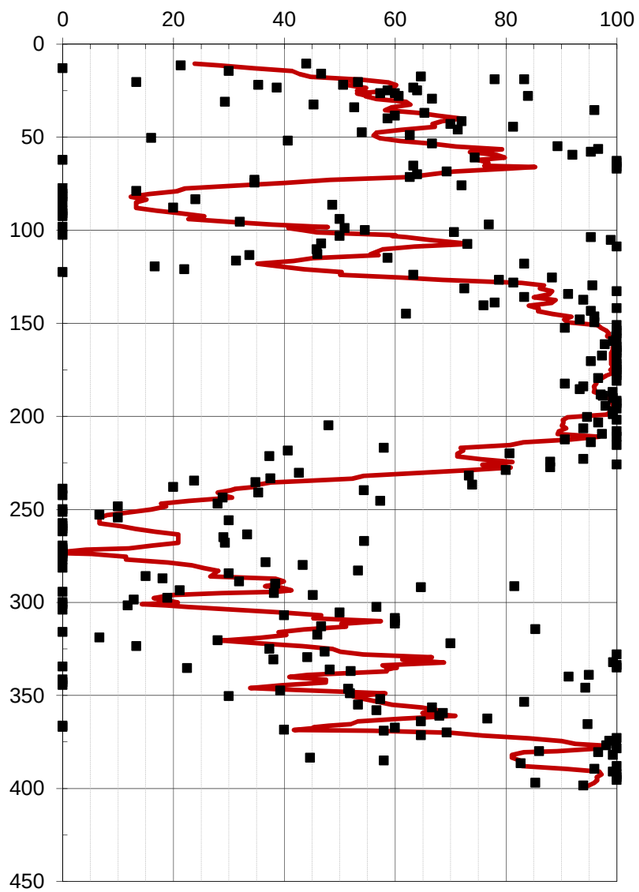
DRILLHOLE DEPTH PLOTS FOR UCS, RMR AND RQD

(Pages A3-1 to A3-16)

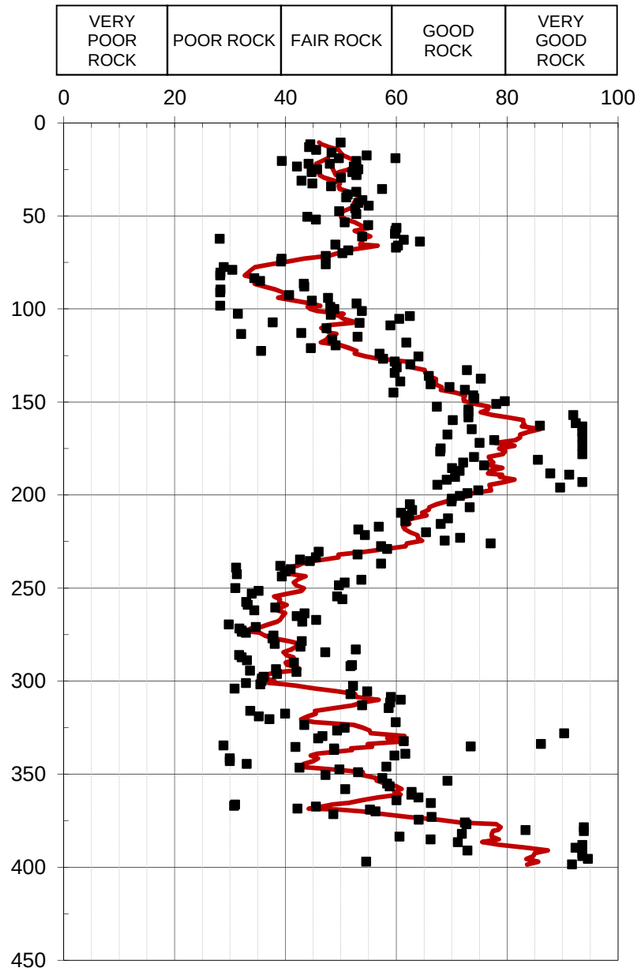
RECOVERY (%)



RQD (%)



RMR_{89}



LEGEND:
- Data Point
- Moving Average (~10 m average)

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	JBC	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-01 DOWNHOLE PLOTS

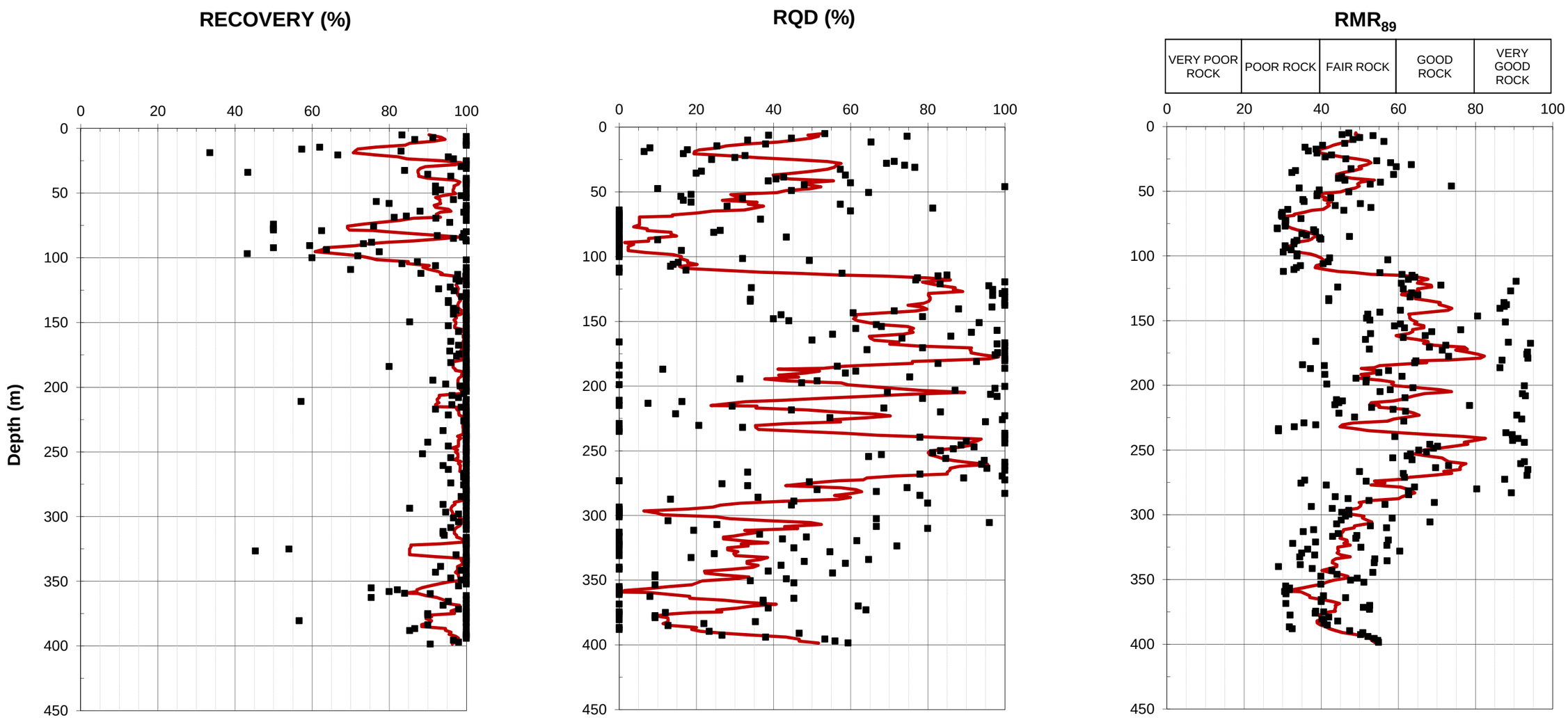
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.1

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	JBC	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-02 DOWNHOLE PLOTS

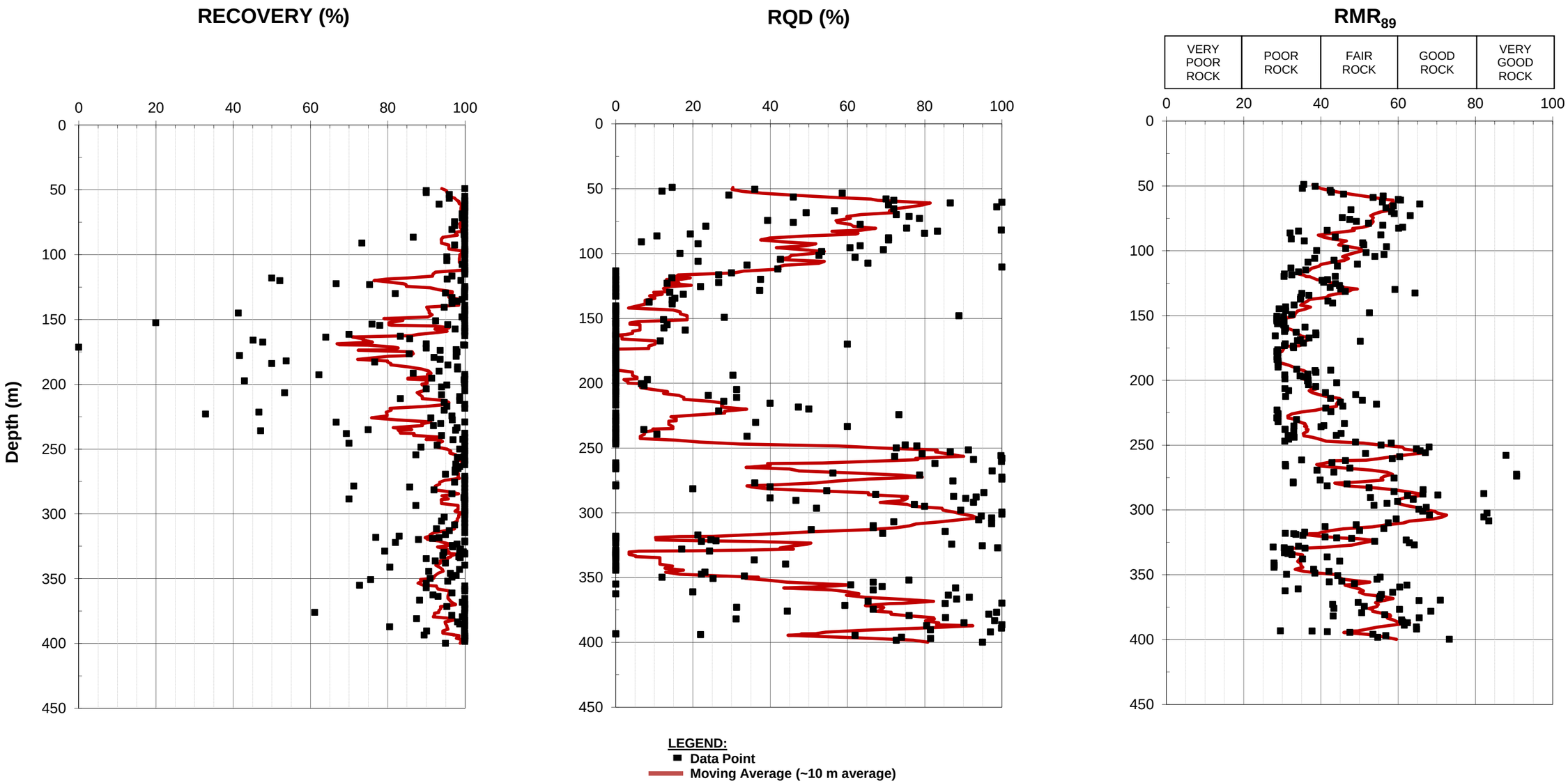
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.2

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	JBC	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-03 DOWNHOLE PLOTS

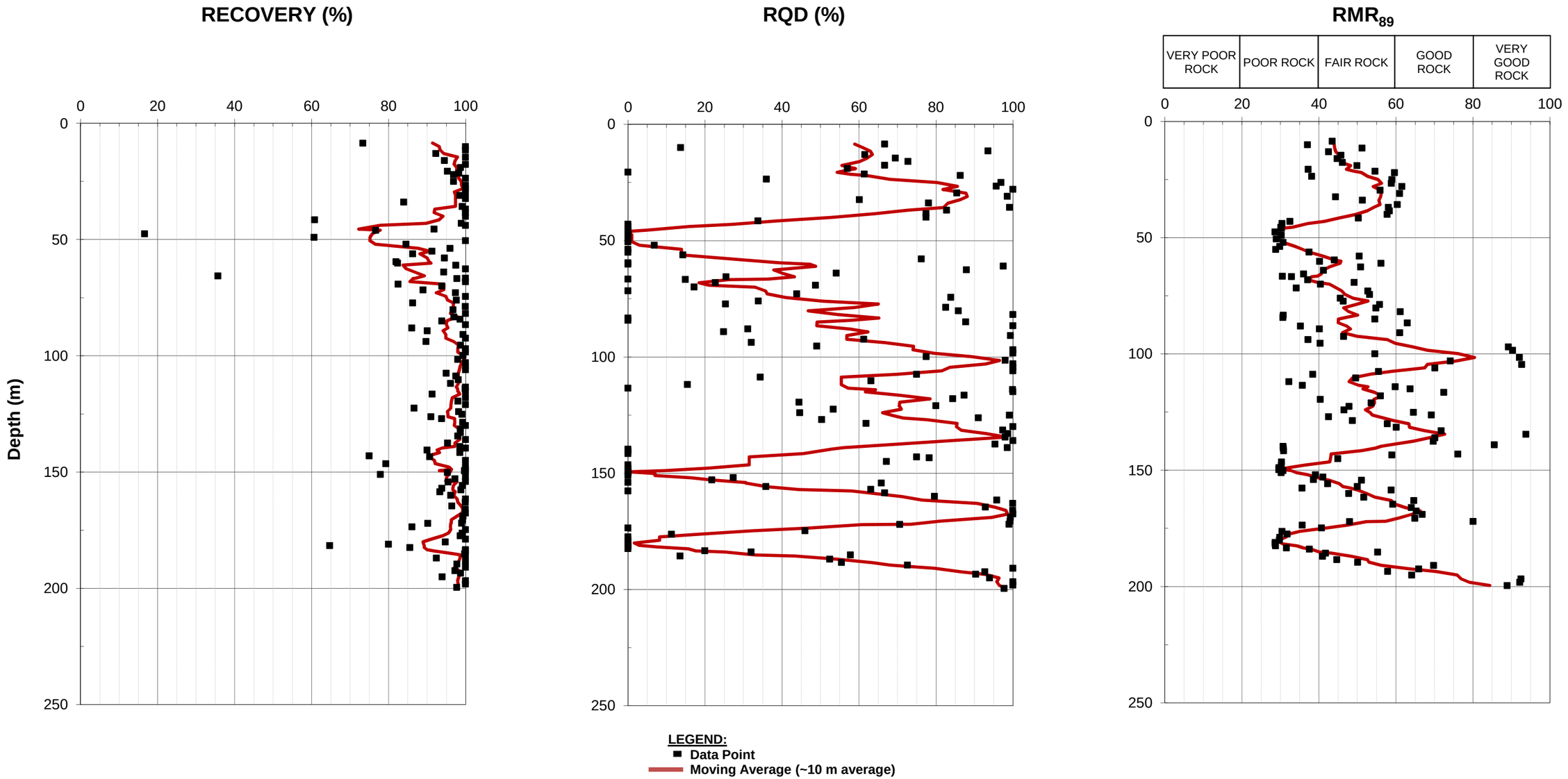
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.3

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	JBC	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-04 DOWNHOLE PLOTS

Knight Piésold CONSULTING

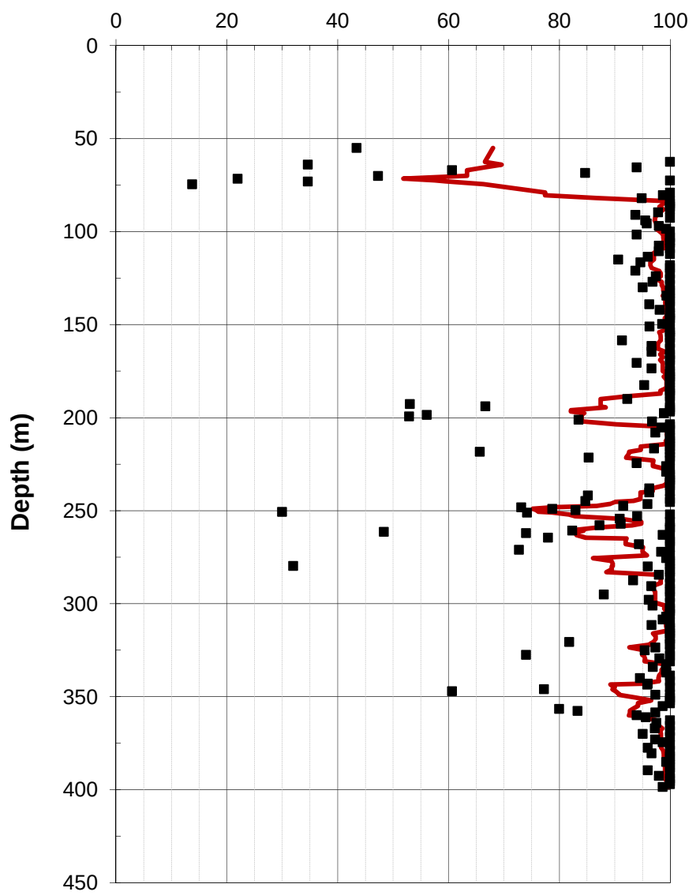
P/A NO. VA101-457/6

REF. NO. 2

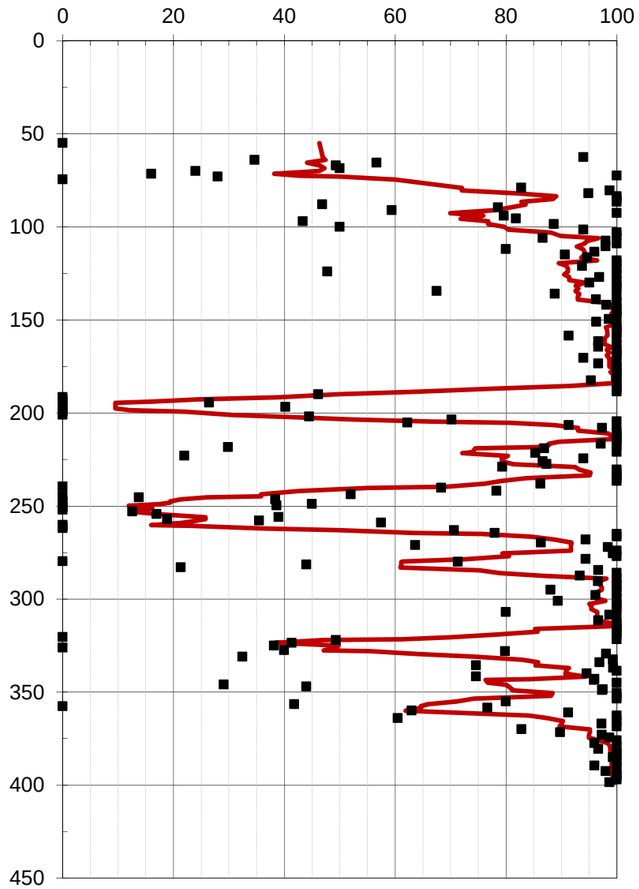
FIGURE A3.4

REV 0

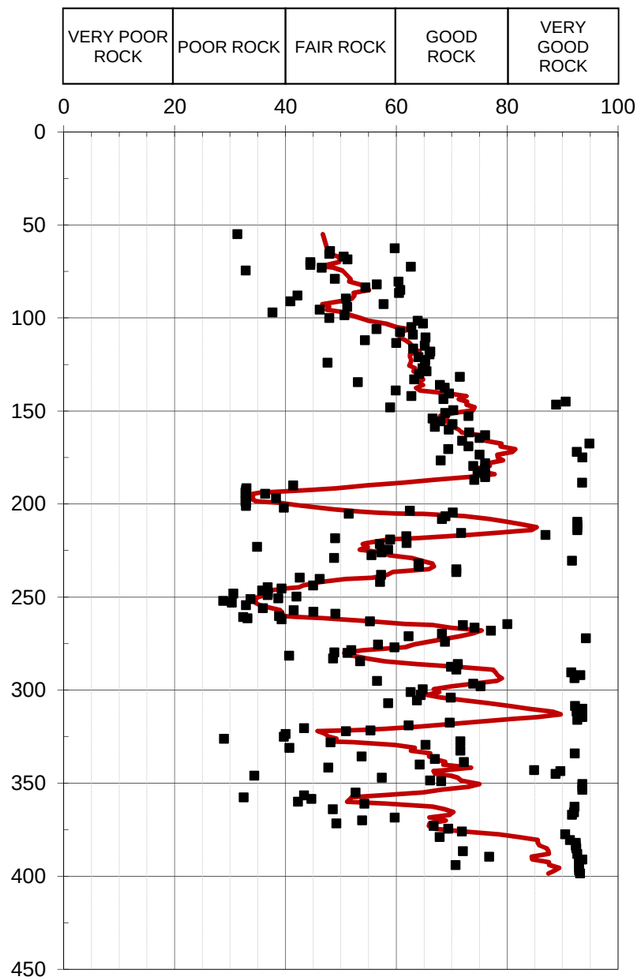
RECOVERY (%)



RQD (%)



RMR_{89}



LEGEND:
- **Data Point**
- **Moving Average (~10m average)**

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	JBC	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-05 DOWNHOLE PLOTS

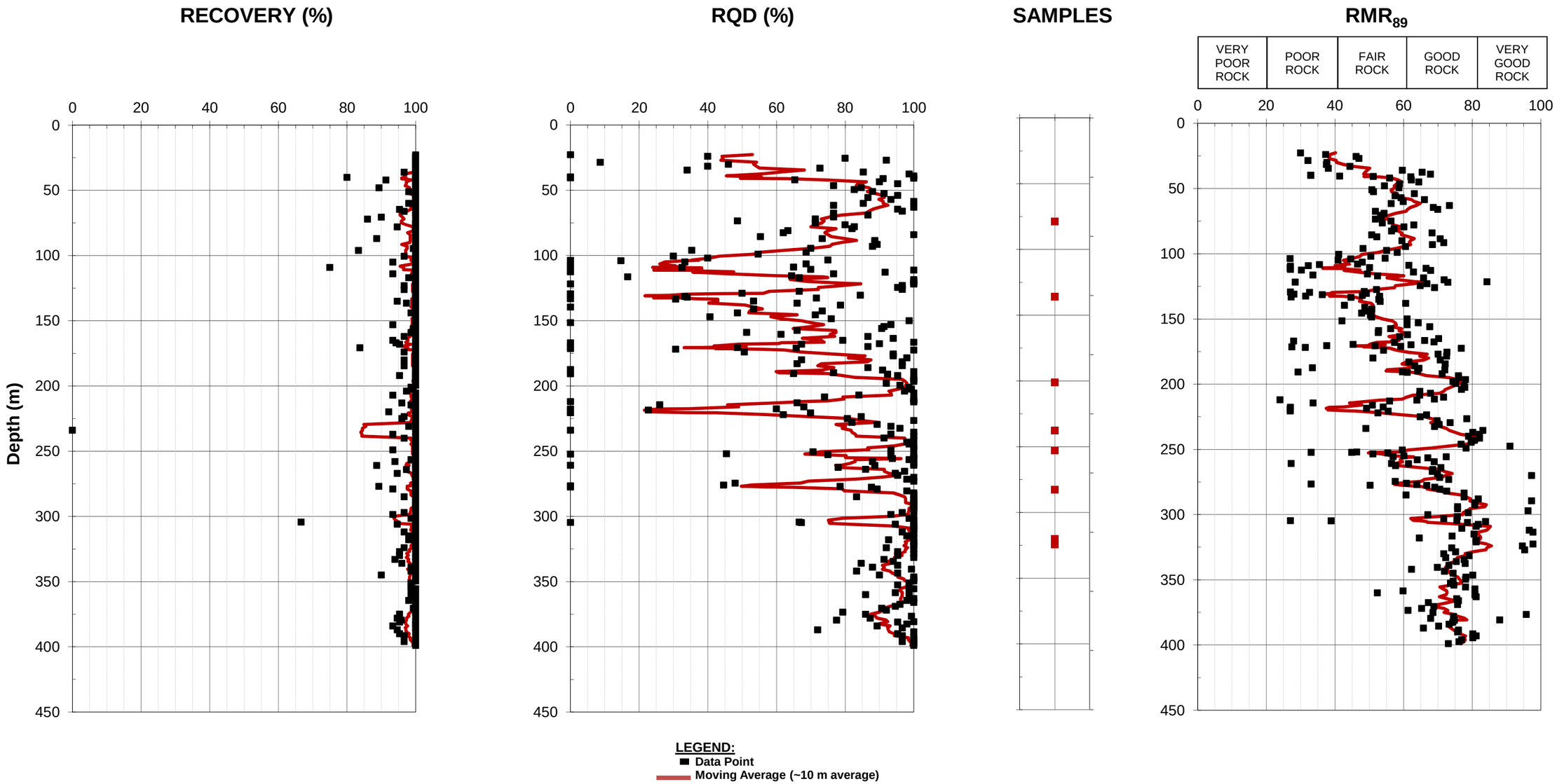
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.5

REV 0



LEGEND:
- Data Point
- Moving Average (~10 m average)

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-06 DOWNHOLE PLOTS

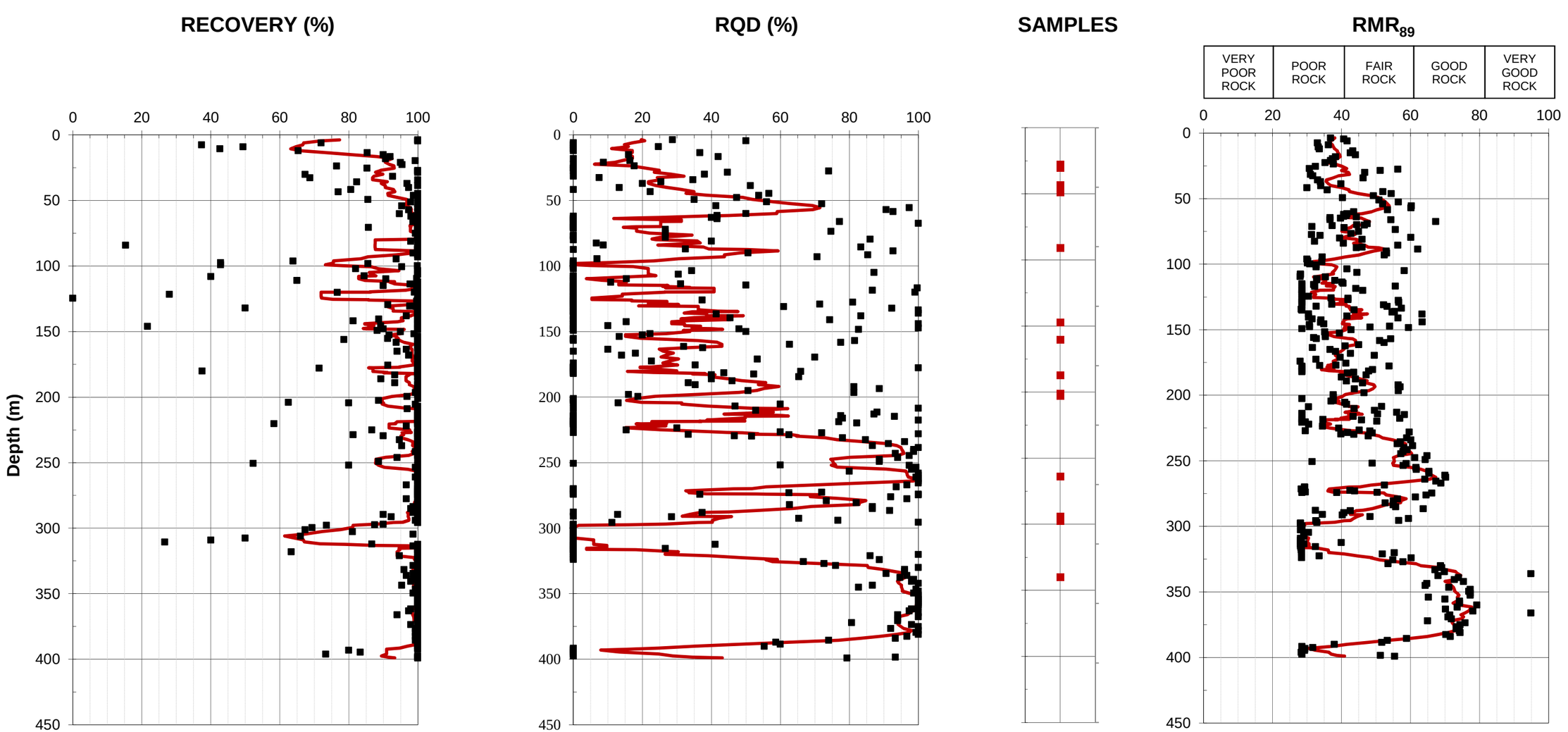
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.6

REV 0



LEGEND:
- **Data Point**
- **Moving Average (~10 m average)**

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-07 DOWNHOLE PLOTS

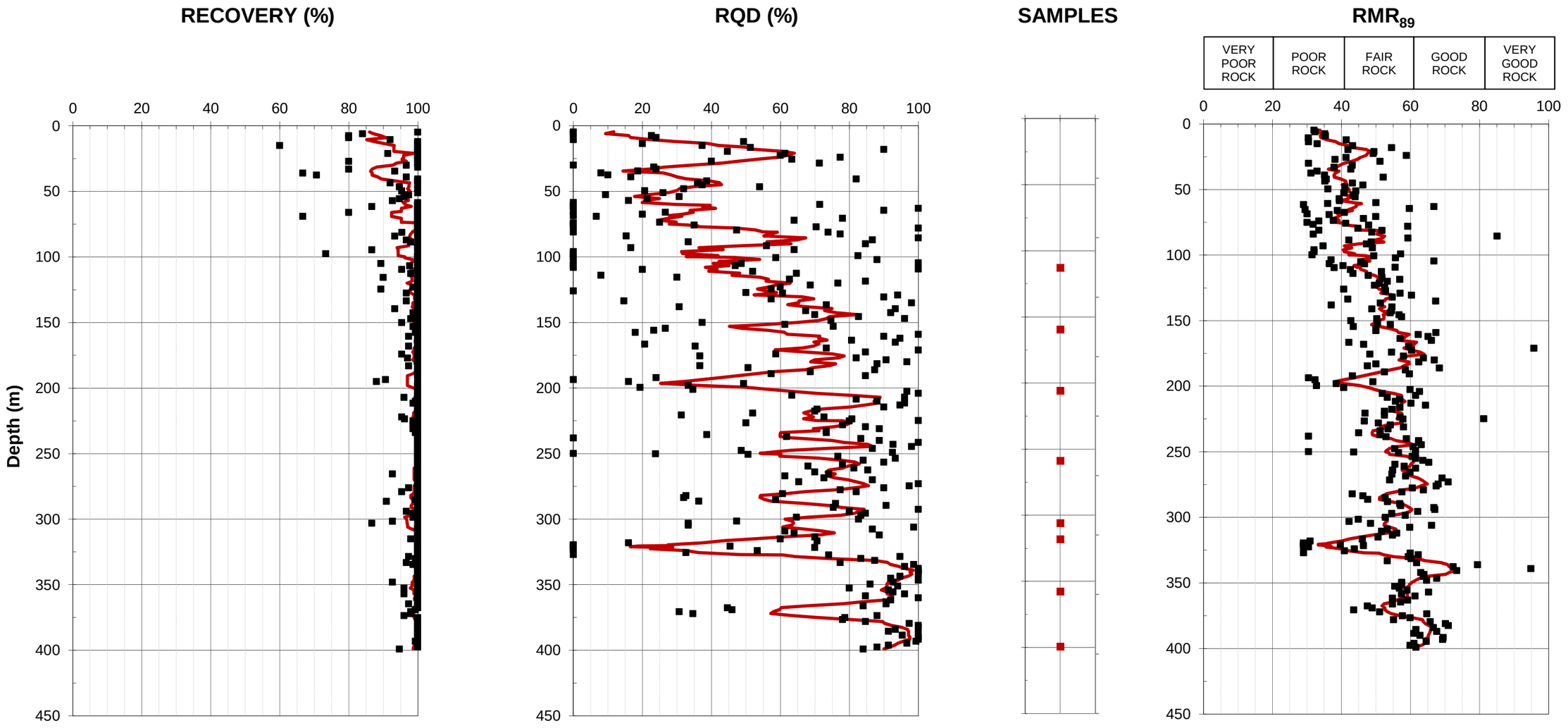
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.7

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-08 DOWNHOLE PLOTS

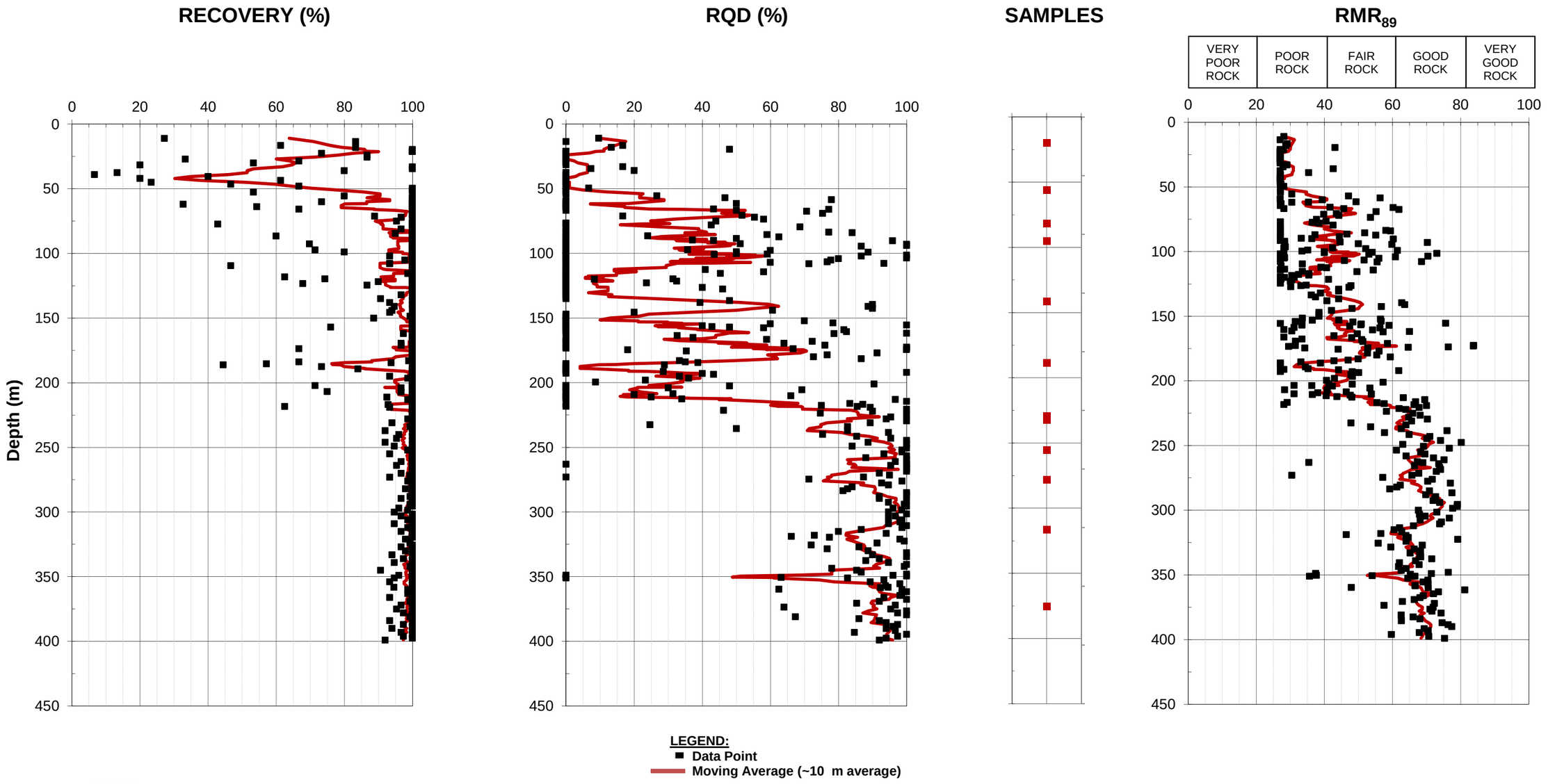
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.8

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-09 DOWNHOLE PLOTS

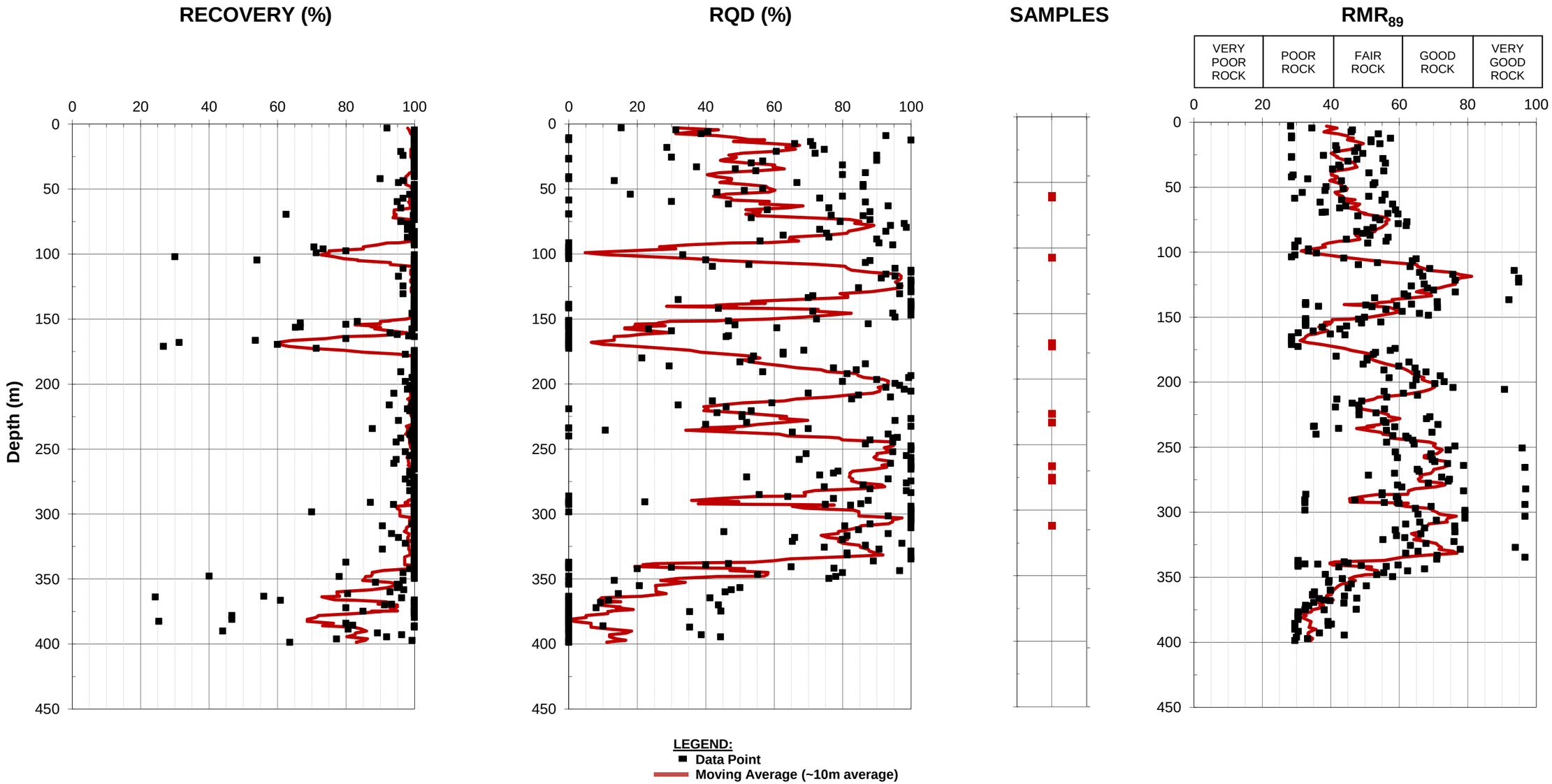
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.9

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-10 DOWNHOLE PLOTS

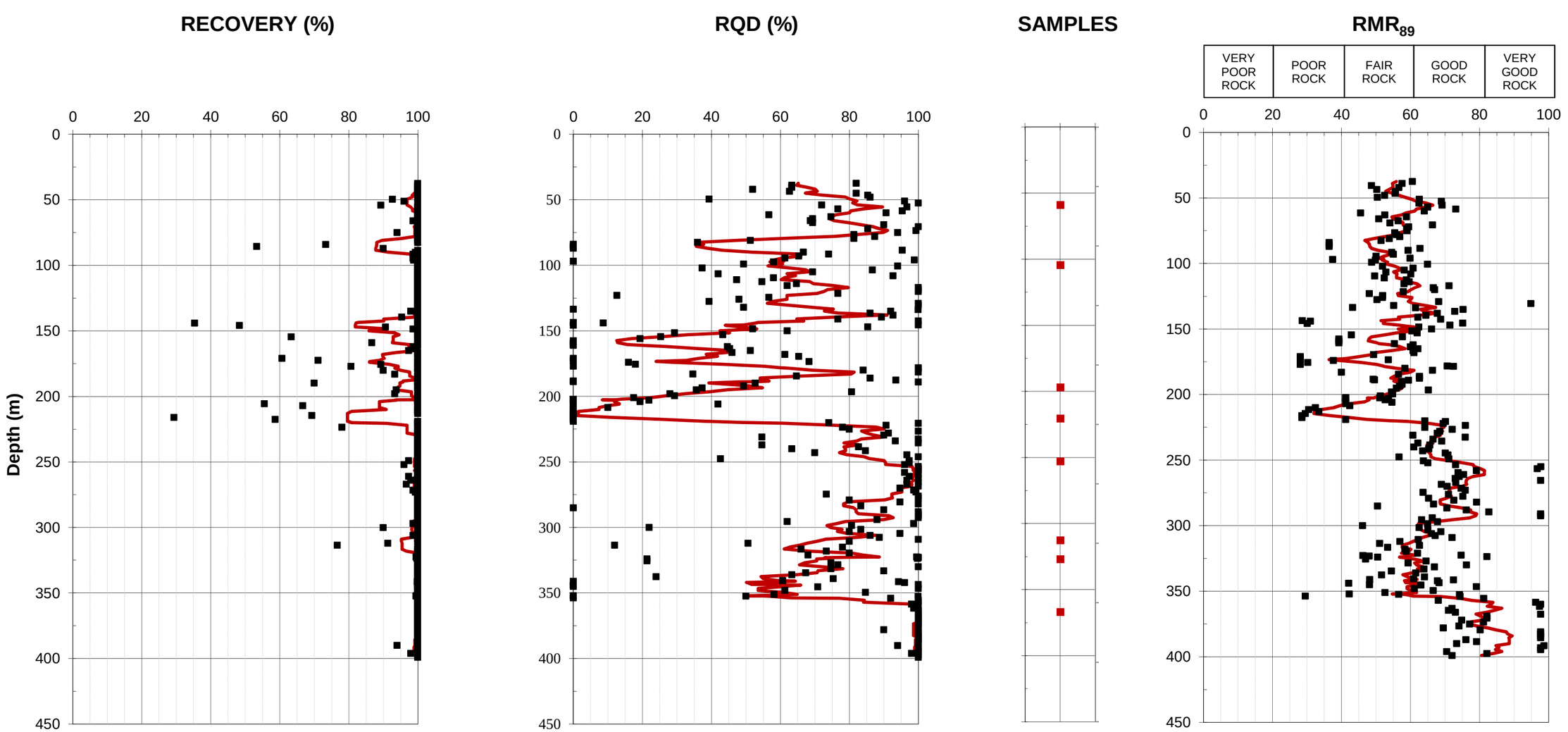
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.10

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-11 DOWNHOLE PLOTS

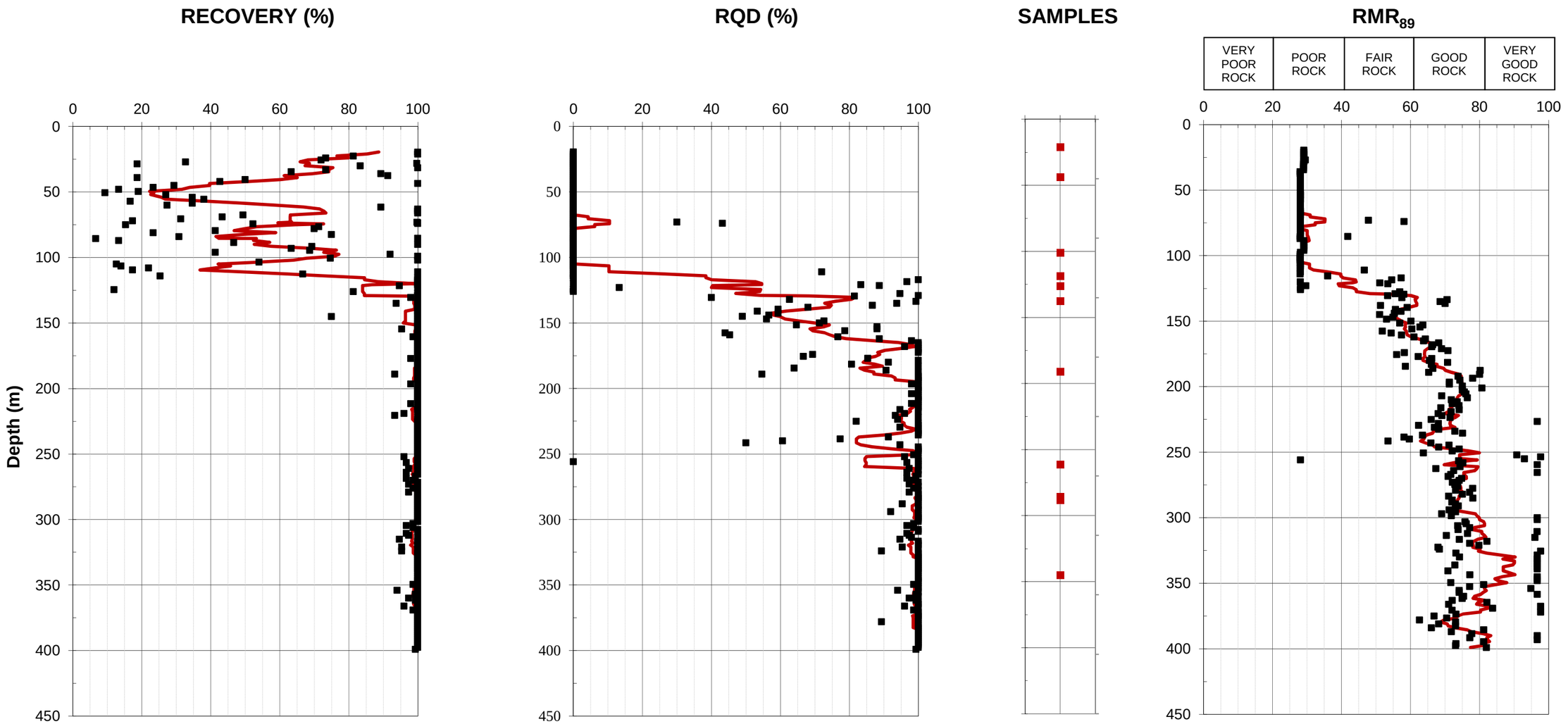
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.11

REV 0



LEGEND:
- **Data Point**
- **Moving Average (~10 m average)**

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-12 DOWNHOLE PLOTS

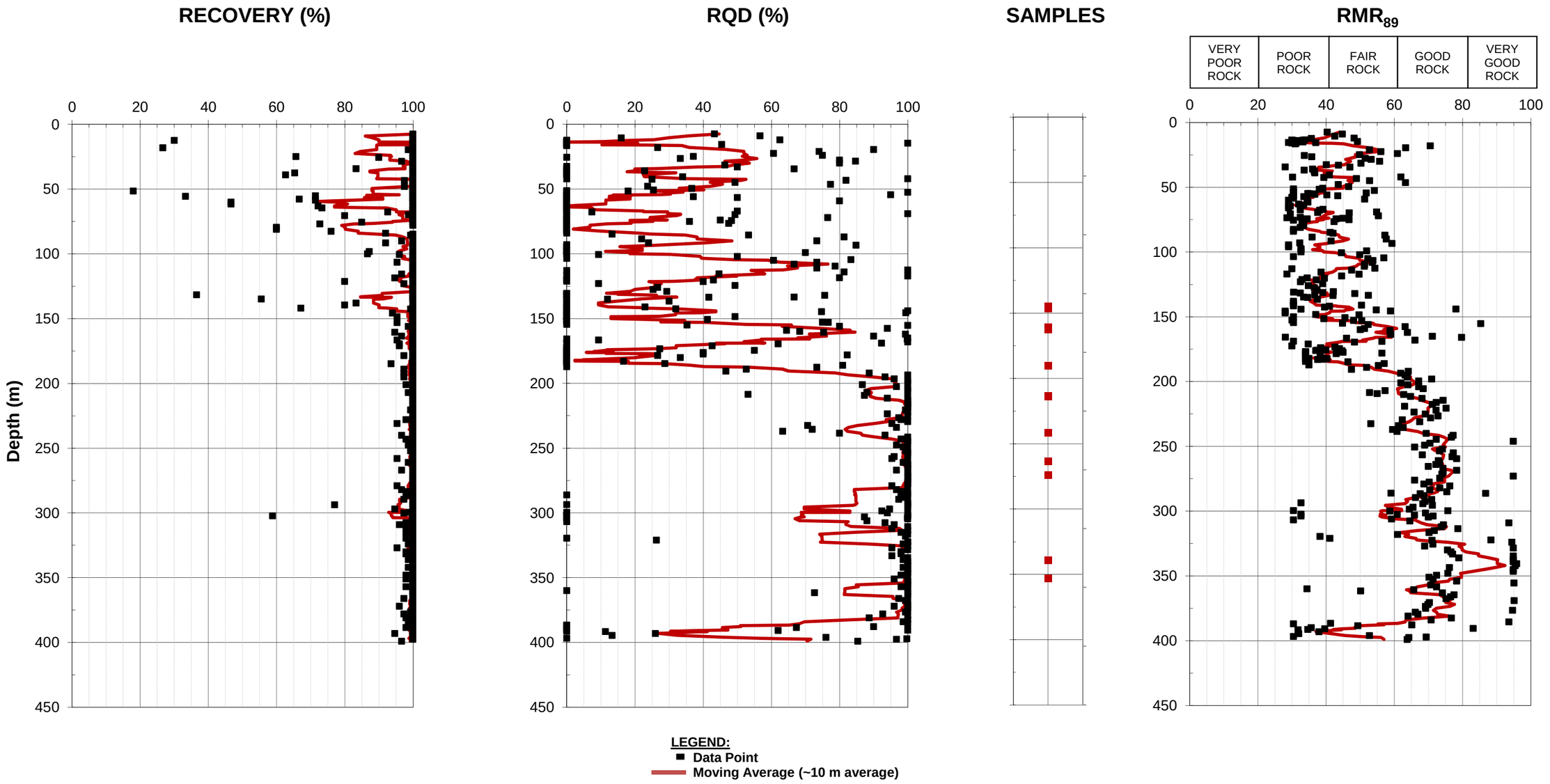
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.12

REV 0



LEGEND:
- Data Point
- Moving Average (~10 m average)

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE GM12-13 DOWNHOLE PLOTS

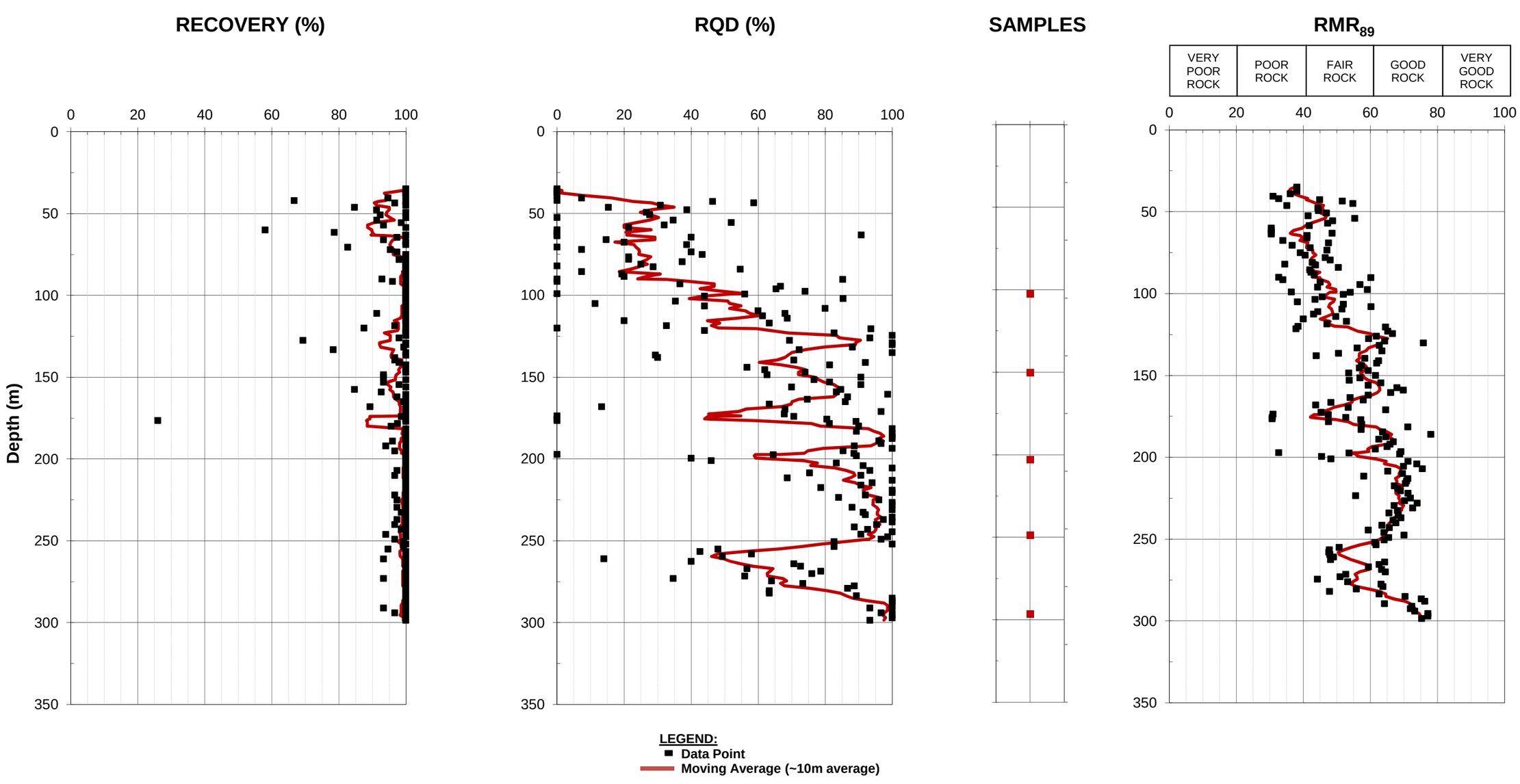
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.13

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE BWWR-12 DOWNHOLE PLOTS

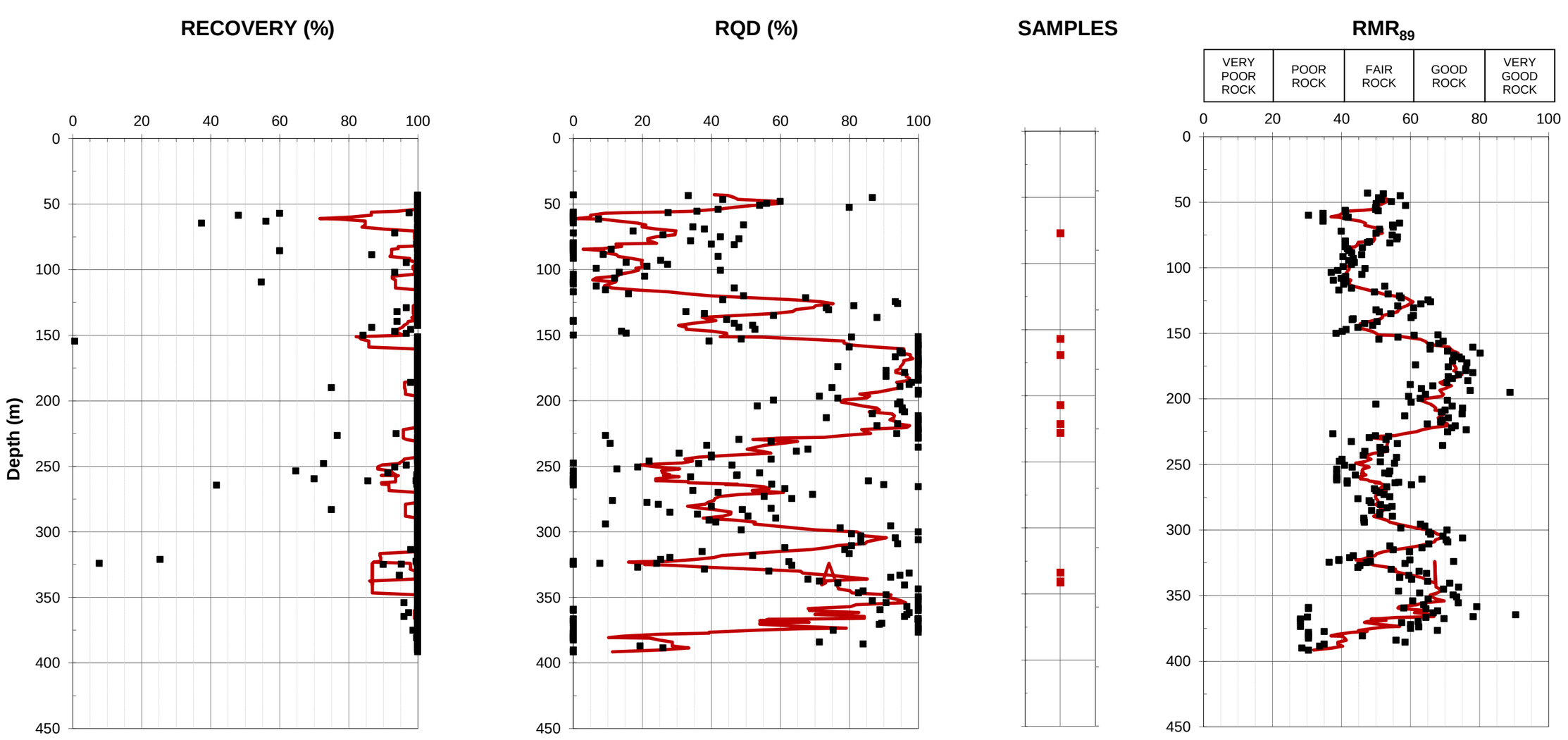
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.14

REV 0



NOTES:

1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE BWWR-13 DOWNHOLE PLOTS

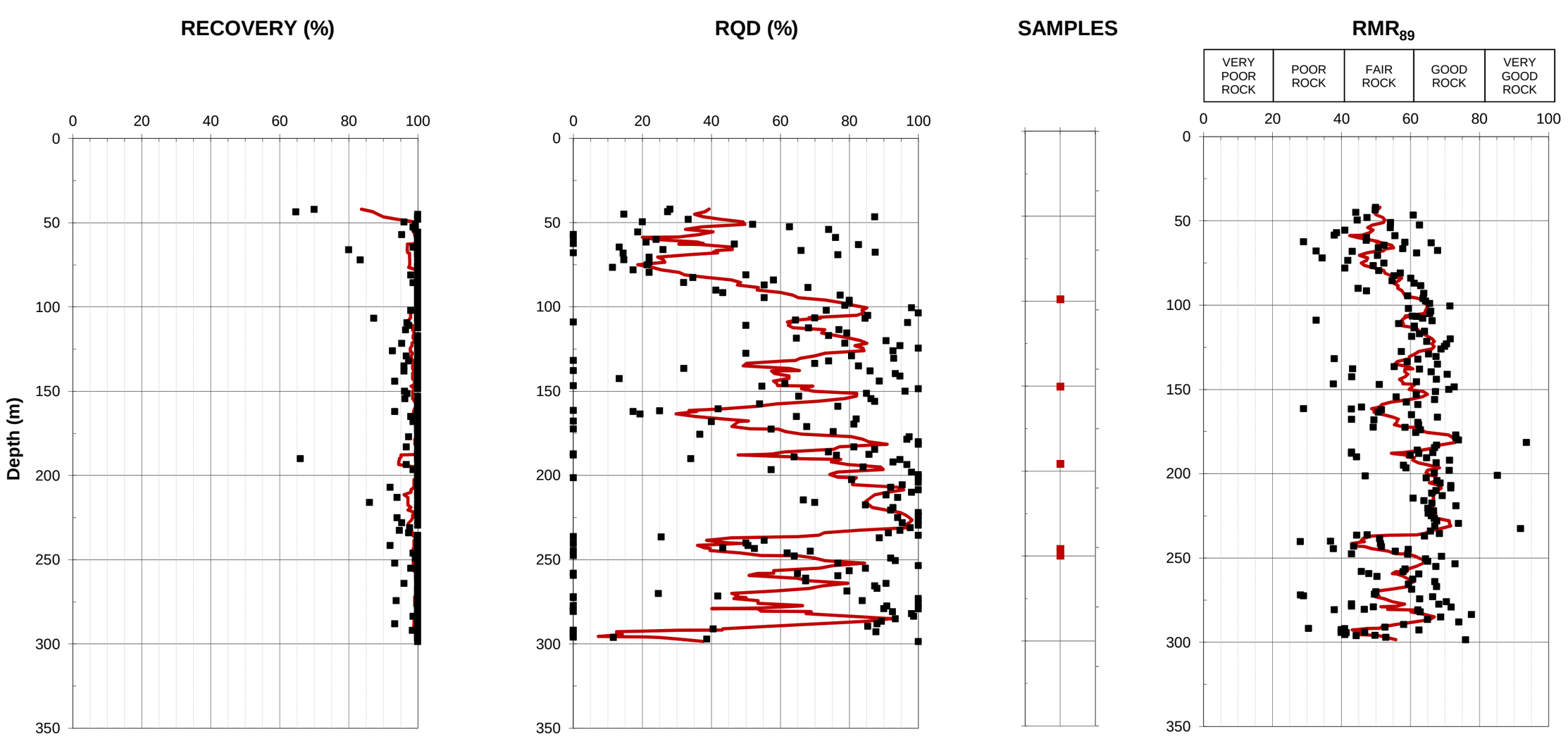
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.15

REV 0



LEGEND:
- **Data Point**
- **Moving Average (~10 m average)**

NOTES:
1. RMR VALUES DISPLAYED ARE THE MINIMUM RMR OF EACH RUN.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	EA	DAY	KJB

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRILLHOLE BWWR-14 DOWNHOLE PLOTS

Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

FIGURE A3.16

REV 0

APPENDIX B

HYDRAULIC CONDUCTIVITY TESTING SHEETS

(Pages B-1 to B-187)

APPENDIX TABLE B.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
SUMMARY OF HYDRAULIC CONDUCTIVITY TESTING

Drillhole #	Collar Elevation (m)	Depth (mbgl)	Elevation (m)	Test Type	Hydraulic Conductivity (cm/s)	Geotechnical Unit
GM12-01	1613.0	128.3	1484.8	Lugon Test	3.0E-05	Andersite
		198.8	1414.3	Lugon Test	2.0E-05	Andersite
		243.3	1369.8	Lugon Test	4.0E-06	Andersite
		260.3	1352.8	Lugon Test	5.0E-06	Andersite
		284.3	1328.8	Lugon Test	6.0E-06	Andersite
		292.8	1320.3	Lugon Test	3.0E-06	Andersite
		39.3	1573.8	Lugon Test	3.0E-05	Fragmentals
		62.2	1550.8	Lugon Test	2.0E-06	Fragmentals
		74.8	1538.3	Lugon Test	5.0E-06	Fragmentals
		143.5	1469.5	Lugon Test	6.0E-05	Fragmentals
		321.0	1292.0	Lugon Test	2.0E-05	Fragmentals
		337.5	1275.5	Lugon Test	1.0E-07	Fragmentals
		356.5	1256.6	Lugon Test	9.0E-07	Fragmentals
		370.5	1242.5	Lugon Test	2.0E-06	Fragmentals
		388.8	1224.3	Lugon Test	2.0E-07	Fragmentals
		92.3	1520.8	Lugon Test	2.0E-04	Andersite
		105.0	1508.1	Lugon Test	2.0E-06	Andersite
		119.5	1493.5	Lugon Test	6.0E-06	Andersite
GM12-02	1621.0	361.8	1259.3	Lugon Test	4.0E-04	Andersite
		387.8	1233.3	Lugon Test	6.0E-06	Andersite
		136.0	1485.0	Lugon Test	3.0E-05	Fragmentals
		172.8	1448.3	Lugon Test	3.0E-05	Fragmentals
		196.8	1424.3	Lugon Test	3.0E-05	Fragmentals
		214.8	1406.3	Lugon Test	8.0E-05	Fragmentals
		248.5	1372.5	Lugon Test	5.0E-05	Fragmentals
		267.3	1353.8	Lugon Test	2.0E-05	Fragmentals
		289.8	1331.3	Lugon Test	1.0E-04	Fragmentals
		310.8	1310.3	Lugon Test	5.0E-05	Fragmentals
		336.3	1284.8	Lugon Test	3.0E-08	Fragmentals
		23.5	1597.5	Lugon Test	8.0E-05	Fragmentals
		38.0	1583.0	Lugon Test	9.0E-07	Fragmentals
		150.8	1470.3	Lugon Test	1.0E-07	Fragmentals
		87.0	1534.0	Lugon Test	5.0E-05	Fragmentals
		104.8	1516.3	Lugon Test	2.0E-04	Fragmentals
		53.0	1568.0	Lugon Test	2.0E-06	Fragmentals
		69.3	1551.8	Lugon Test	2.0E-06	Fragmentals
GM12-03	1597.0	67.8	1529.3	Lugon Test	1.0E-05	Fragmentals
		100.6	1496.4	Lugon Test	1.0E-05	Fragmentals
		211.6	1385.4	Lugon Test	5.0E-06	Broken Zone
		244.6	1352.4	Lugon Test	2.0E-05	Broken Zone
		344.8	1252.3	Lugon Test	8.0E-06	Broken Zone
		364.7	1232.4	Lugon Test	2.0E-06	Sedimentary
		266.9	1330.1	Lugon Test	3.0E-06	Andersite
		291.2	1305.9	Lugon Test	2.0E-05	Andersite
		316.7	1280.4	Lugon Test	6.0E-06	Andersite
GM12-04	1617.0	132.2	1484.9	Lugon Test	5.0E-05	Fragmentals
		27.3	1589.8	Lugon Test	2.0E-05	Andersite
		45.2	1571.9	Lugon Test	3.0E-06	Andersite
		70.7	1546.4	Lugon Test	6.0E-05	Andersite
		92.3	1524.8	Lugon Test	3.0E-05	Andersite
		107.5	1509.5	Lugon Test	4.0E-05	Andersite
		185.3	1431.8	Lugon Test	5.0E-05	Andersite

APPENDIX TABLE B.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
SUMMARY OF HYDRAULIC CONDUCTIVITY TESTING

Drillhole #	Collar Elevation (m)	Depth (mbgl)	Elevation (m)	Test Type	Hydraulic Conductivity (cm/s)	Geotechnical Unit
GM12-05	1592.0	98.4	1493.6	Lugon Test	9.0E-05	Laminated Volcanics
		120.3	1471.8	Lugon Test	1.0E-05	Laminated Volcanics
		142.7	1449.4	Lugon Test	6.0E-07	Laminated Volcanics
		173.5	1418.5	Lugon Test	5.0E-07	Laminated Volcanics
		201.2	1390.9	Lugon Test	3.0E-05	Laminated Volcanics
		225.3	1366.8	Lugon Test	8.0E-05	Laminated Volcanics
		250.8	1341.3	Lugon Test	5.0E-05	Andersite
		275.5	1316.5	Lugon Test	5.0E-05	Andersite
		307.7	1284.4	Lugon Test	8.0E-06	Andersite
		337.7	1254.4	Lugon Test	3.0E-06	Andersite
		361.7	1230.4	Lugon Test	9.0E-07	Andersite
		387.2	1204.9	Lugon Test	4.0E-05	Andersite
GM12-06	1545.3	44.9	1500.4	Hvorslev Method	1.5E-07	Fragmentals
		62.9	1482.4	Hvorslev Method	9.6E-08	Fragmentals
		87.7	1457.6	Hvorslev Method	3.0E-07	Laminated Volcanics
		113.2	1432.1	Hvorslev Method	4.1E-06	Andersite
		141.7	1403.6	Hvorslev Method	2.7E-06	Andersite
		168.7	1376.6	Hvorslev Method	3.2E-06	Andersite
		188.2	1357.1	Hvorslev Method	2.6E-06	Andersite
		208.4	1336.9	Hvorslev Method	1.4E-06	Andersite
		228.7	1316.6	Hvorslev Method	2.2E-06	Andersite
		250.4	1294.9	Hvorslev Method	1.7E-06	Andersite
		272.2	1273.1	Hvorslev Method	2.2E-06	Andersite
		292.4	1252.9	Hvorslev Method	1.4E-06	Andersite
		313.4	1231.9	Hvorslev Method	2.0E-06	Andersite
		334.4	1210.9	Hvorslev Method	1.3E-06	Andersite
		355.7	1189.6	Hvorslev Method	1.4E-06	Andersite
		376.4	1168.9	Hvorslev Method	4.2E-07	Andersite
GM12-07	1546.6	40.4	1506.2	Hvorslev Method	1.1E-06	Fragmentals
		61.4	1485.2	Hvorslev Method	1.5E-06	Fragmentals
		82.4	1464.2	Hvorslev Method	7.6E-07	Fragmentals
		103.7	1442.9	Hvorslev Method	3.7E-07	Fragmentals
		124.4	1422.2	Hvorslev Method	1.3E-07	Andersite
		143.9	1402.7	Hvorslev Method	2.3E-07	Andersite
		166.4	1380.2	Hvorslev Method	2.4E-07	Andersite
		190.4	1356.2	Hvorslev Method	4.0E-08	Andersite
		214.4	1332.2	Hvorslev Method	1.7E-06	Andersite
		238.4	1308.2	Hvorslev Method	1.8E-06	Andersite
		262.4	1284.2	Hvorslev Method	4.1E-06	Andersite
		283.4	1263.2	Hvorslev Method	3.8E-06	Andersite
		307.4	1239.2	Hvorslev Method	2.7E-06	Andersite
		328.4	1218.2	Hvorslev Method	2.5E-06	Andersite
		349.4	1197.2	Hvorslev Method	3.9E-06	Andersite
		370.4	1176.2	Hvorslev Method	3.2E-07	Andersite
		390.7	1155.9	Hvorslev Method	3.9E-06	Andersite
GM12-08	1545.1	149.2	1395.9	Hvorslev Method	2.5E-06	Fragmentals
		171.4	1373.6	Hvorslev Method	5.7E-07	Fragmentals
		194.2	1350.9	Hvorslev Method	6.0E-06	Fragmentals
		215.2	1329.9	Hvorslev Method	8.0E-07	Fragmentals
		237.7	1307.4	Hvorslev Method	2.1E-07	Fragmentals
		257.2	1287.9	Hvorslev Method	1.3E-06	Fragmentals
		277.4	1267.6	Hvorslev Method	2.3E-06	Fragmentals

APPENDIX TABLE B.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
SUMMARY OF HYDRAULIC CONDUCTIVITY TESTING

Drillhole #	Collar Elevation (m)	Depth (mbgl)	Elevation (m)	Test Type	Hydraulic Conductivity (cm/s)	Geotechnical Unit
GM12-08	1545.1	300.7	1244.4	Hvorslev Method	1.2E-06	Fragmentals
		321.7	1223.4	Hvorslev Method	9.1E-08	Fragmentals
		366.7	1178.4	Hvorslev Method	8.6E-08	Andersite
GM12-09	1509.5	100.9	1408.6	Hvorslev Method	9.0E-06	Fragmentals
		119.2	1390.4	Hvorslev Method	2.3E-06	Fragmentals
		141.7	1367.9	Hvorslev Method	9.2E-07	Andersite
		158.2	1351.4	Hvorslev Method	2.1E-06	Andersite
		182.2	1327.4	Hvorslev Method	8.1E-07	Andersite
		204.7	1304.9	Hvorslev Method	7.5E-07	Andersite
		225.7	1283.9	Hvorslev Method	3.8E-06	Andersite
		246.7	1262.9	Hvorslev Method	1.1E-06	Andersite
		266.2	1243.4	Hvorslev Method	5.2E-07	Andersite
		287.2	1222.4	Hvorslev Method	6.5E-07	Andersite
		308.2	1201.4	Hvorslev Method	2.9E-06	Andersite
		332.2	1177.4	Hvorslev Method	2.5E-06	Andersite
		354.7	1154.9	Hvorslev Method	1.2E-06	Andersite
		378.7	1130.9	Hvorslev Method	1.1E-06	Andersite
		393.2	1116.4	Hvorslev Method	6.0E-07	Andersite
GM12-10	1546.4	24.7	1521.7	Hvorslev Method	6.2E-08	Fragmentals
		45.7	1500.7	Hvorslev Method	3.7E-07	Fragmentals
		66.7	1479.7	Hvorslev Method	1.6E-06	Fragmentals
		87.7	1458.7	Hvorslev Method	1.4E-06	Fragmentals
		105.7	1440.7	Hvorslev Method	4.1E-07	Fragmentals
		128.2	1418.2	Hvorslev Method	5.6E-07	Fragmentals
		148.4	1398.0	Hvorslev Method	1.2E-06	Fragmentals
		164.9	1381.5	Hvorslev Method	3.2E-07	Fragmentals
		190.4	1356.0	Hvorslev Method	9.1E-06	Fragmentals
		212.2	1334.2	Hvorslev Method	5.7E-06	Fragmentals
		212.2	1334.2	Hvorslev Method	6.3E-06	Fragmentals
		234.7	1311.7	Hvorslev Method	5.3E-05	Fragmentals
		255.7	1290.7	Hvorslev Method	1.5E-05	Fragmentals
		276.7	1269.7	Hvorslev Method	5.9E-05	Fragmentals
		296.9	1249.5	Hvorslev Method	1.5E-05	Fragmentals
		319.7	1226.7	Hvorslev Method	1.4E-06	Fragmentals
		340.4	1206.0	Hvorslev Method	5.3E-06	Fragmentals
		361.4	1185.0	Hvorslev Method	6.0E-06	Fragmentals
		385.7	1160.7	Hvorslev Method	1.1E-07	Fragmentals
GM12-11	1586.8	58.7	1528.1	Hvorslev Method	2.6E-07	Fragmentals
		81.7	1505.1	Hvorslev Method	5.1E-06	Fragmentals
		105.7	1481.1	Hvorslev Method	3.0E-07	Fragmentals
		137.2	1449.6	Hvorslev Method	1.6E-07	Fragmentals
		161.2	1425.6	Hvorslev Method	7.7E-08	Fragmentals
		182.2	1404.6	Hvorslev Method	1.6E-06	Fragmentals
		203.2	1383.6	Hvorslev Method	9.1E-08	Fragmentals
		225.7	1361.1	Hvorslev Method	5.6E-08	Fragmentals
		245.2	1341.6	Hvorslev Method	5.7E-08	Fragmentals
		267.7	1319.1	Hvorslev Method	3.0E-07	Fragmentals
		288.7	1298.1	Hvorslev Method	4.9E-08	Fragmentals
		308.2	1278.6	Hvorslev Method	4.7E-07	Fragmentals
		329.9	1256.9	Hvorslev Method	1.6E-06	Fragmentals
		350.2	1236.6	Hvorslev Method	1.1E-06	Andersite
		372.7	1214.1	Hvorslev Method	1.5E-06	Fragmentals
		389.2	1197.6	Hvorslev Method	1.0E-06	Fragmentals
GM12-13	1515.5	31.4	1484.1	Hvorslev Method	7.0E-07	Fragmentals
		52.4	1463.1	Hvorslev Method	1.2E-06	Fragmentals
		73.4	1442.1	Hvorslev Method	5.6E-07	Fragmentals

APPENDIX TABLE B.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
SUMMARY OF HYDRAULIC CONDUCTIVITY TESTING

Drillhole #	Collar Elevation (m)	Depth (mbgl)	Elevation (m)	Test Type	Hydraulic Conductivity (cm/s)	Geotechnical Unit
GM12-13	1515.5	98.9	1416.6	Hvorslev Method	2.8E-06	Andersite
		124.4	1391.1	Hvorslev Method	1.7E-06	Andersite
		143.9	1371.6	Hvorslev Method	1.6E-06	Andersite
		166.4	1349.1	Hvorslev Method	1.8E-06	Andersite
		187.4	1328.1	Hvorslev Method	2.6E-06	Andersite
		208.4	1307.1	Hvorslev Method	1.3E-06	Andersite
		229.4	1286.1	Hvorslev Method	2.9E-06	Andersite
		251.9	1263.6	Hvorslev Method	1.5E-06	Andersite
		274.4	1241.1	Hvorslev Method	3.3E-06	Andersite
		295.4	1220.1	Hvorslev Method	3.9E-06	Andersite
		316.4	1199.1	Hvorslev Method	3.8E-06	Andersite
		337.4	1178.1	Hvorslev Method	2.0E-06	Andersite
		358.4	1157.1	Hvorslev Method	1.6E-06	Andersite
		379.4	1136.1	Hvorslev Method	2.0E-06	Andersite

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
A	9 MAY'13	ISSUED FOR INFORMATION	JS	DAY	KJB

SHEET 1 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

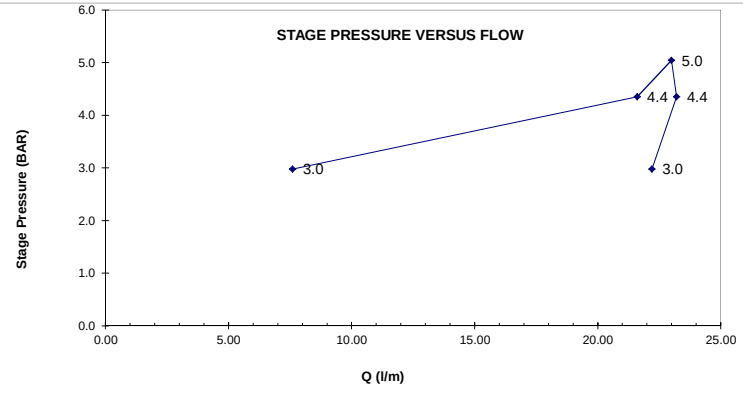
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

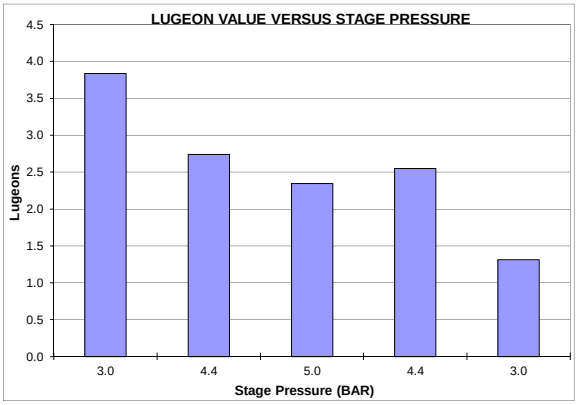
AREA: South Wall of Open Pit | TEST NO: 1

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.0 m (bgs) | TOP OF TEST INTERVAL: 96.78 ft (DOWN HOLE) / 29.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 160.76 ft (DOWN HOLE) / 49.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	16600.0	16622.0	16645.0	16677.0	16689.0	16711.0				
		Take	litres		22.00	23.00	32.00	12.00	22.00				
2.07	2.97	Average Take	l/m		22.00	23.00	32.00	12.00	22.00			22.20	3.84
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	16745.0	16768.0	16792.0	16815.0	16838.0	16861.0				
		Take	litres		23.00	24.00	23.00	23.00	23.00				
3.45	4.35	Average Take	l/m		23.00	24.00	23.00	23.00	23.00			23.20	2.74
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	16900.0	16915.0	16939.0	16964.0	16990.0	17015.0				
		Take	litres		15.00	24.00	25.00	26.00	25.00				
4.14	5.04	Average Take	l/m		15.00	24.00	25.00	26.00	25.00			23.00	2.34
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17038.0	17060.0	17081.0	17104.0	17125.0	17146.0				
		Take	litres		22.00	21.00	23.00	21.00	21.00				
3.45	4.35	Average Take	l/m		22.00	21.00	23.00	21.00	21.00			21.60	2.55
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17154.0	17155.0	17159.0	17170.0	17181.0	17192.0				
		Take	litres		1.00	4.00	11.00	11.00	11.00				
2.07	2.97	Average Take	l/m		1.00	4.00	11.00	11.00	11.00			7.60	1.31





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 2.557 | k (cm/s) = 2.6E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: JS / AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]1

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 2 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

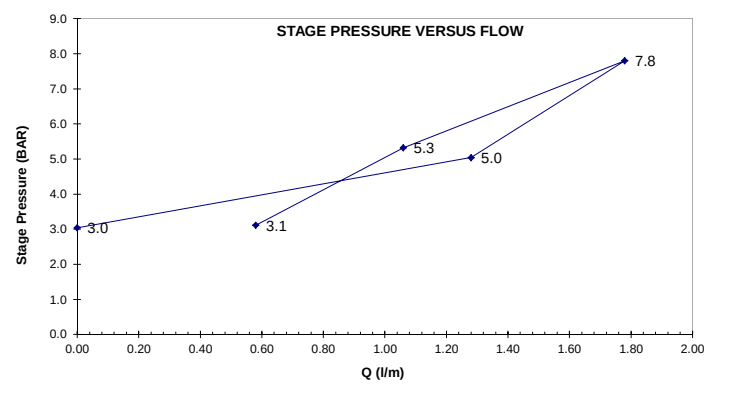
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

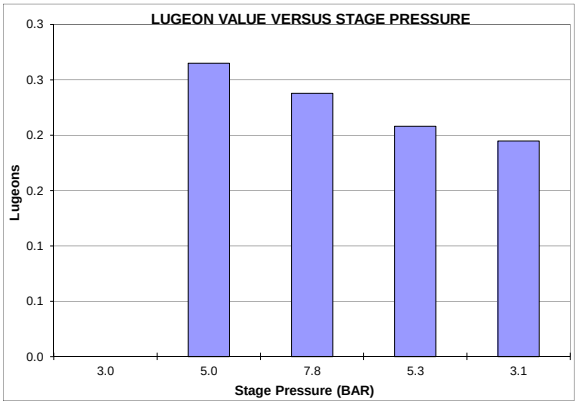
AREA: South Wall of Open Pit | TEST NO: 2

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.0 m (bgs) | TOP OF TEST INTERVAL: 188.32 ft (DOWN HOLE) / 57.40 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 219.82 ft (DOWN HOLE) / 67.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	17215.0	17215.0	17215.0	17215.0	17215.0	17215.0				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
2.14	3.04	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17217.6	17218.4	17220.0	17221.2	17222.9	17224.0				
		Take	litres		0.80	1.60	1.20	1.70	1.10				
4.14	5.04	Average Take	l/m		0.80	1.60	1.20	1.70	1.10			1.28	0.26
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17226.0	17228.1	17230.0	17231.6	17233.2	17234.9				
		Take	litres		2.10	1.90	1.60	1.60	1.70				
6.89	7.80	Average Take	l/m		2.10	1.90	1.60	1.60	1.70			1.78	0.24
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17235.1	17236.1	17237.2	17238.3	17239.3	17240.4				
		Take	litres		1.00	1.10	1.10	1.00	1.10				
4.41	5.32	Average Take	l/m		1.00	1.10	1.10	1.00	1.10			1.06	0.21
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17240.6	17240.8	17241.1	17241.9	17242.8	17243.5				
		Take	litres		0.20	0.30	0.80	0.90	0.70				
2.21	3.11	Average Take	l/m		0.20	0.30	0.80	0.90	0.70			0.58	0.19





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.181 | k (cm/s) = 1.8E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]2

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 3 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

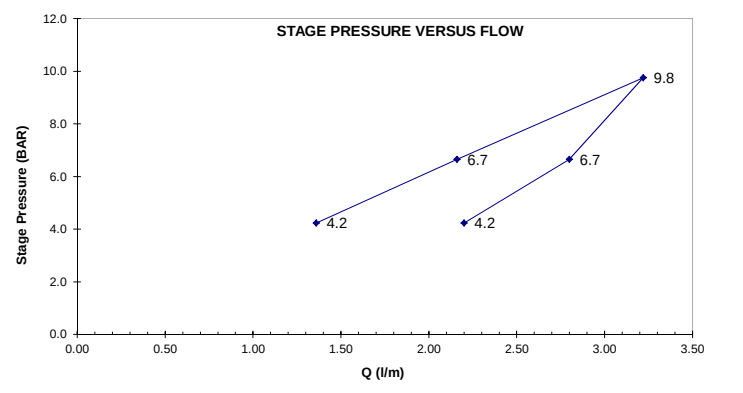
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

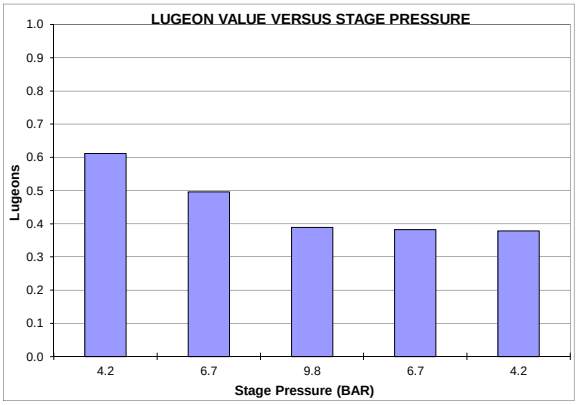
AREA: South Wall of Open Pit | TEST NO: 3

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 11.6 m (bgs) | TOP OF TEST INTERVAL: 231.30 ft (DOWN HOLE) / 70.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 259.19 ft (DOWN HOLE) / 79.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	17291.9	17294.1	17296.2	17298.8	17300.7	17302.9				
		Take	litres		2.20	2.10	2.60	1.90	2.20				
3.10	4.24	Average Take	l/m		2.20	2.10	2.60	1.90	2.20			2.20	0.61
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17309.0	17311.9	17314.8	17317.3	17320.2	17323.0				
		Take	litres		2.90	2.90	2.50	2.90	2.80				
5.52	6.65	Average Take	l/m		2.90	2.90	2.50	2.90	2.80			2.80	0.50
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17328.0	17331.4	17334.6	17337.8	17341.0	17344.1				
		Take	litres		3.40	3.20	3.20	3.20	3.10				
8.62	9.76	Average Take	l/m		3.40	3.20	3.20	3.20	3.10			3.22	0.39
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17346.5	17349.1	17351.0	17353.2	17335.1	17357.3				
		Take	litres		2.60	1.90	2.20	-18.10	22.20				
5.52	6.65	Average Take	l/m		2.60	1.90	2.20	-18.10	22.20			2.16	0.38
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17358.2	17360.0	17361.1	17362.2	17363.9	17365.0				
		Take	litres		1.80	1.10	1.10	1.70	1.10				
3.10	4.24	Average Take	l/m		1.80	1.10	1.10	1.70	1.10			1.36	0.38





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.451 | k (cm/s) = 4.5E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Unsure if shear pin blew, so a couple of minutes at 300 psi before test.

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]3

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 4 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

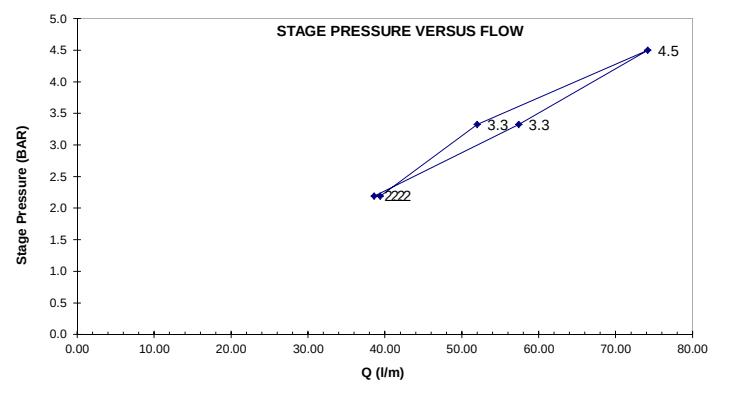
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

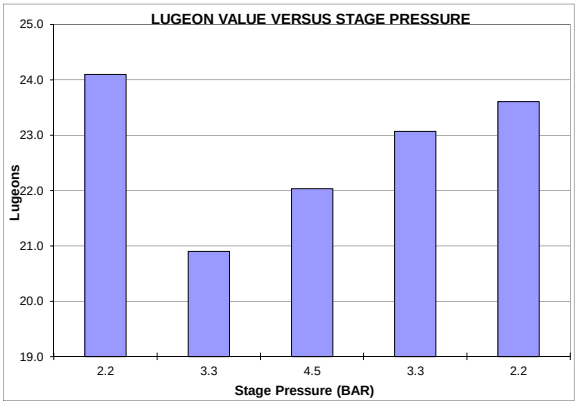
AREA: South Wall of Open Pit | TEST NO: 4

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.6 m (bgs) | TOP OF TEST INTERVAL: 290.35 ft (DOWN HOLE) / 88.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 314.96 ft (DOWN HOLE) / 96.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	17395.0	17438.0	17476.0	17513.0	17554.0	17592.0				
		Take	litres		43.00	38.00	37.00	41.00	38.00				
1.14	2.19	Average Take	l/m		43.00	38.00	37.00	41.00	38.00			39.40	24.10
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17645.0	17706.0	17767.0	17832.0	17891.0	17905.0				
		Take	litres		61.00	61.00	65.00	59.00	14.00				
2.28	3.33	Average Take	l/m		61.00	61.00	65.00	59.00	14.00			52.00	20.90
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	18030.0	18107.0	18180.0	18250.0	18327.0	18401.0				
		Take	litres		77.00	73.00	70.00	77.00	74.00				
3.45	4.50	Average Take	l/m		77.00	73.00	70.00	77.00	74.00			74.20	22.04
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	18453.0	18511.0	18570.0	18627.0	18685.0	18740.0				
		Take	litres		58.00	59.00	57.00	58.00	55.00				
2.28	3.33	Average Take	l/m		58.00	59.00	57.00	58.00	55.00			57.40	23.07
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	18762.0	18801.0	18840.0	18879.0	18916.0	18955.0				
		Take	litres		39.00	39.00	39.00	37.00	39.00				
1.14	2.19	Average Take	l/m		39.00	39.00	39.00	37.00	39.00			38.60	23.61





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: 10.6

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 22.743 | k (cm/s) = 2.3E-04

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Unsure if shear pin blew, so a couple of minutes at 300 psi before test.

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 5 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

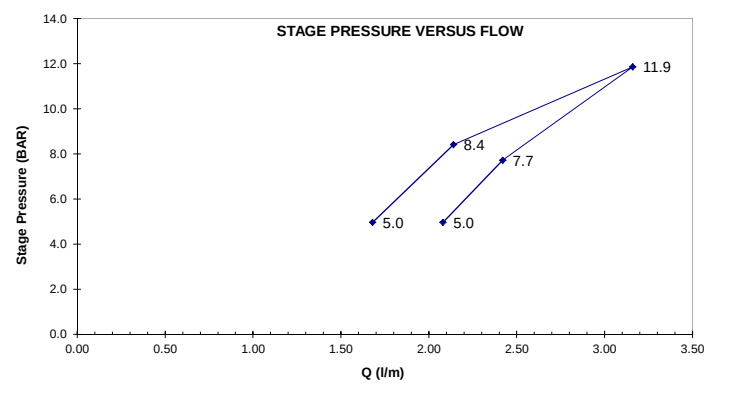
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

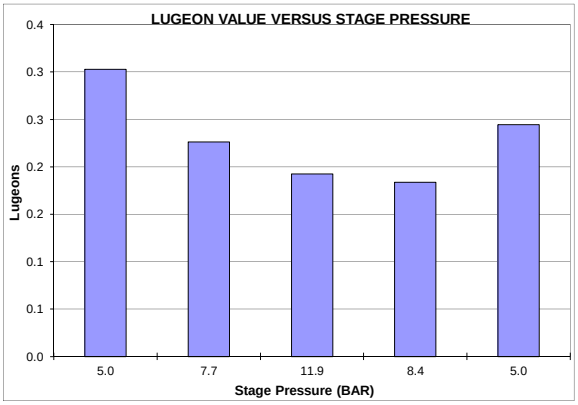
AREA: South Wall of Open Pit | TEST NO: 5

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 8.2 m (bgs) | TOP OF TEST INTERVAL: 321.52 ft (DOWN HOLE) / 98.00 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 366.96 ft (DOWN HOLE) / 111.85 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	18987.1	18987.4	18989.5	18991.8	18994.1	18997.5					
		Take	litres		0.30	2.10	2.30	2.30	3.40					
4.14	4.97	Average Take	l/m		0.30	2.10	2.30	2.30	3.40				2.08	0.30
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	18999.8	19002.7	19005.0	19007.3	19010.1	19011.9					
		Take	litres		2.90	2.30	2.30	2.80	1.80					
6.89	7.73	Average Take	l/m		2.90	2.30	2.30	2.80	1.80				2.42	0.23
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	19017.6	19020.5	19024.0	19027.0	19030.3	19033.4					
		Take	litres		2.90	3.50	3.00	3.30	3.10					
11.03	11.86	Average Take	l/m		2.90	3.50	3.00	3.30	3.10				3.16	0.19
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	19035.8	19038.0	19040.1	19042.2	19044.6	19046.5					
		Take	litres		2.20	2.10	2.10	2.40	1.90					
7.58	8.42	Average Take	l/m		2.20	2.10	2.10	2.40	1.90				2.14	0.18
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	19048.2	19049.9	19051.7	19053.3	19054.9	19056.6					
		Take	litres		1.70	1.80	1.60	1.60	1.70					
4.14	4.97	Average Take	l/m		1.70	1.80	1.60	1.60	1.70				1.68	0.24





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.192 | k (cm/s) = 1.9E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Unsure if shear pin blew, so a couple of minutes at 300 psi before test.

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]5

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 6 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

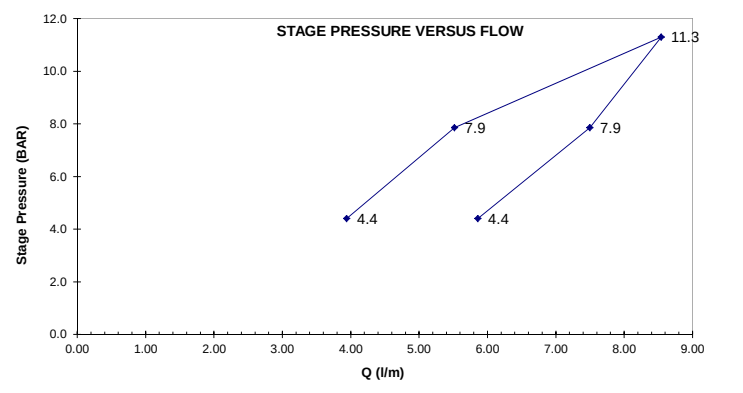
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

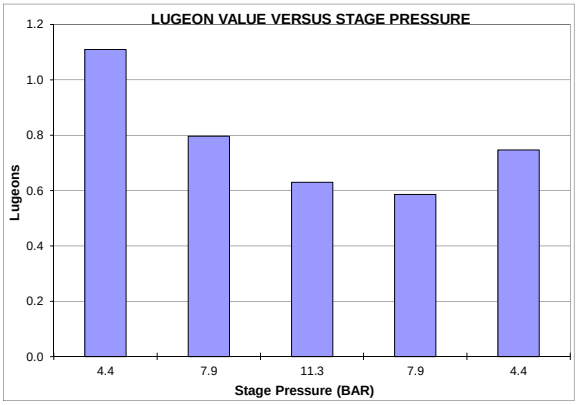
AREA: South Wall of Open Pit | TEST NO: 6

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.6 m (bgs) | TOP OF TEST INTERVAL: 372.38 ft (DOWN HOLE) / 113.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 411.75 ft (DOWN HOLE) / 125.50 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	19257.7	19263.9	19269.2	19275.1	19281.3	19287.0				
		Take	litres		6.20	5.30	5.90	6.20	5.70				
3.45	4.41	Average Take	l/m		6.20	5.30	5.90	6.20	5.70			5.86	1.11
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19300.0	19306.8	19314.9	19322.3	19330.0	19337.5				
		Take	litres		6.80	8.10	7.40	7.70	7.50				
6.89	7.85	Average Take	l/m		6.80	8.10	7.40	7.70	7.50			7.50	0.80
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19352.5	19363.0	19371.2	19379.7	19386.2	19395.2				
		Take	litres		10.50	8.20	8.50	6.50	9.00				
10.34	11.30	Average Take	l/m		10.50	8.20	8.50	6.50	9.00			8.54	0.63
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19404.4	19410.7	19415.3	19420.8	19426.4	19432.0				
		Take	litres		6.30	4.60	5.50	5.60	5.60				
6.89	7.85	Average Take	l/m		6.30	4.60	5.50	5.60	5.60			5.52	0.59
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19435.0	19439.7	19443.3	19447.2	19451.8	19454.7				
		Take	litres		4.70	3.60	3.90	4.60	2.90				
3.45	4.41	Average Take	l/m		4.70	3.60	3.90	4.60	2.90			3.94	0.75





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.630 | k (cm/s) = 6.3E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
flowmeter casing leaking

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]6

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 7 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

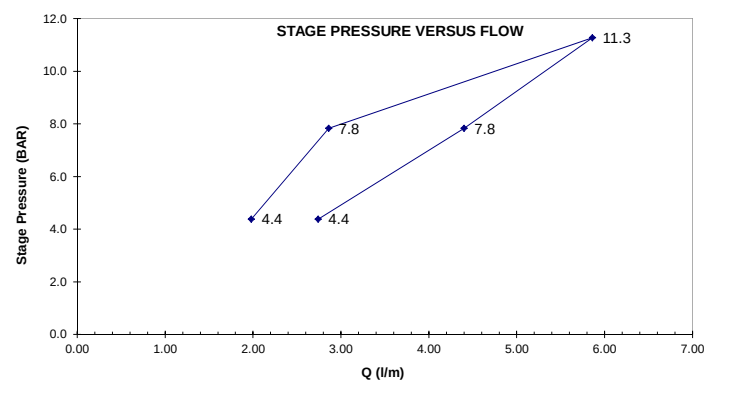
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

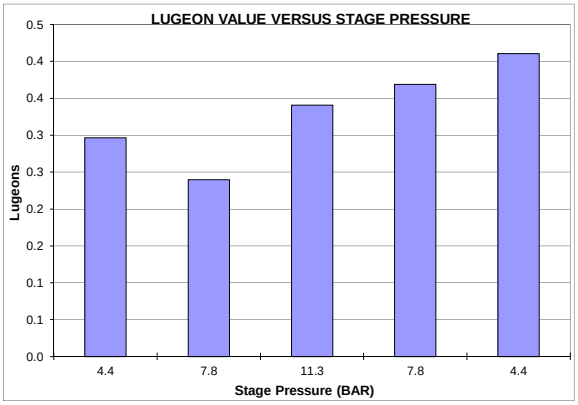
AREA: South Wall of Open Pit | TEST NO: 7

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.3 m (bgs) | TOP OF TEST INTERVAL: 396.16 ft (DOWN HOLE) / 120.75 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 446.19 ft (DOWN HOLE) / 136.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	19482.3	19484.4	19486.5	19488.8	19490.6	19492.2				
		Take	litres		2.10	2.10	2.30	1.80	1.60				
3.45	4.38	Average Take	l/m		2.10	2.10	2.30	1.80	1.60			1.98	0.30
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19495.9	19498.8	19501.7	19504.6	19507.4	19510.2				
		Take	litres		2.90	2.90	2.90	2.80	2.80				
6.89	7.83	Average Take	l/m		2.90	2.90	2.90	2.80	2.80			2.86	0.24
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19515.4	19521.2	19527.1	19533.5	19538.7	19544.7				
		Take	litres		5.80	5.90	6.40	5.20	6.00				
10.34	11.28	Average Take	l/m		5.80	5.90	6.40	5.20	6.00			5.86	0.34
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19549.0	19553.2	19557.8	19562.0	19566.4	19571.0				
		Take	litres		4.20	4.60	4.20	4.40	4.60				
6.89	7.83	Average Take	l/m		4.20	4.60	4.20	4.40	4.60			4.40	0.37
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19573.3	19576.1	19579.0	19581.9	19584.5	19587.0				
		Take	litres		2.80	2.90	2.90	2.60	2.50				
3.45	4.38	Average Take	l/m		2.80	2.90	2.90	2.60	2.50			2.74	0.41





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.411 | k (cm/s) = 4.1E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]7

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH	JS	DAY	KJB

SHEET 8 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

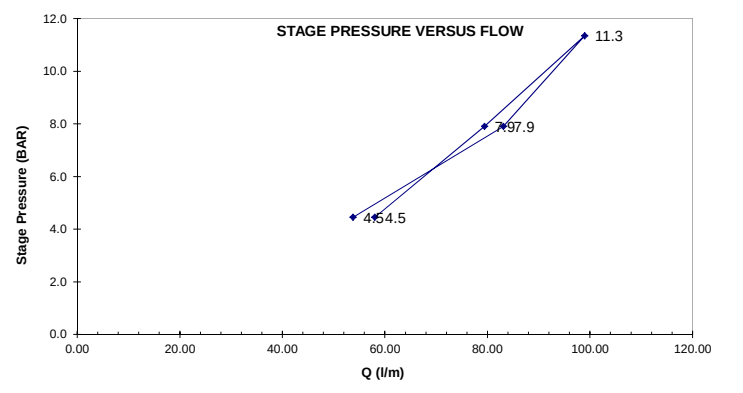
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

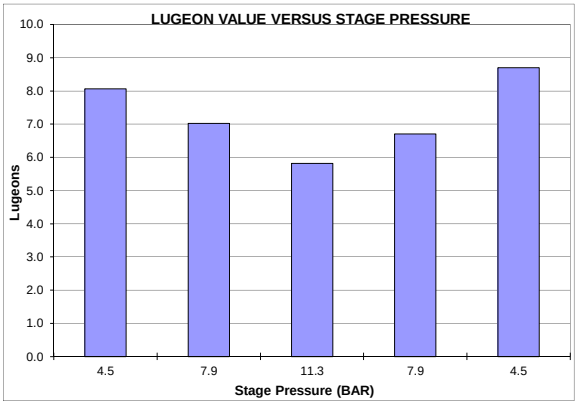
AREA: South Wall of Open Pit | TEST NO: 8

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.1 m (bgs) | TOP OF TEST INTERVAL: 446.19 ft (DOWN HOLE) / 136.00 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 495.41 ft (DOWN HOLE) / 151.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	20300.0	20356.9	20410.5	20465.2	20520.7	20568.9				
		Take	litres		56.90	53.60	54.70	55.50	48.20				
3.45	4.45	Average Take	l/m		56.90	53.60	54.70	55.50	48.20			53.78	8.06
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	20640.5	20722.0	20806.5	20890.0	20971.8	21056.2				
		Take	litres		81.50	84.50	83.50	81.80	84.40				
6.89	7.90	Average Take	l/m		81.50	84.50	83.50	81.80	84.40			83.14	7.02
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	21150.3	21249.1	21348.7	21446.2	21546.0	21645.3				
		Take	litres		98.80	99.60	97.50	99.80	99.30				
10.34	11.35	Average Take	l/m		98.80	99.60	97.50	99.80	99.30			99.00	5.82
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	21700.0	21784.8	21864.2	21940.5	22017.4	22097.1				
		Take	litres		84.80	79.40	76.30	76.90	79.70				
6.89	7.90	Average Take	l/m		84.80	79.40	76.30	76.90	79.70			79.42	6.71
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	22150.0	22216.8	22265.5	22323.9	22384.1	22440.2				
		Take	litres		66.80	48.70	58.40	60.20	56.10				
3.45	4.45	Average Take	l/m		66.80	48.70	58.40	60.20	56.10			58.04	8.70





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 5.820 | k (cm/s) = 5.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]8

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 9 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

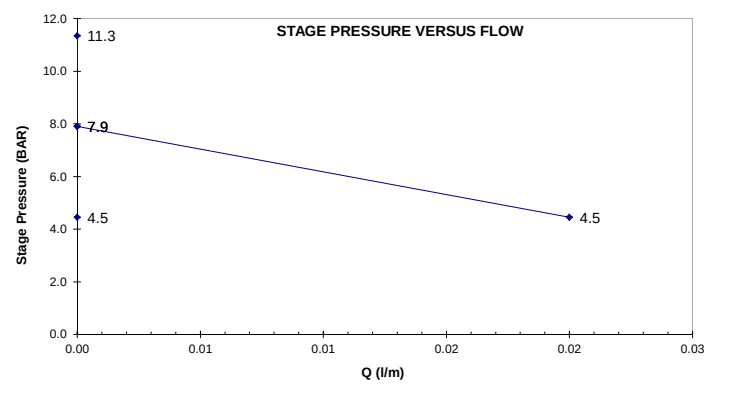
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

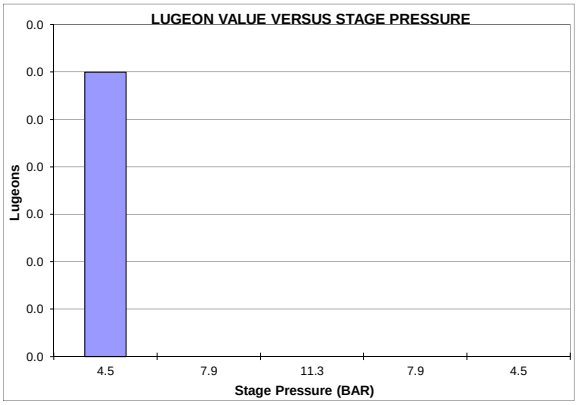
AREA: South Wall of Open Pit | TEST NO: 9

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.1 m (bgs) | TOP OF TEST INTERVAL: 495.41 ft (DOWN HOLE) / 151.00 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 544.62 ft (DOWN HOLE) / 166.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	22482.6	22482.6	22482.6	22482.6	22482.6	22482.7					
		Take	litres		0.00	0.00	0.00	0.00	0.10					
3.45	4.45	Average Take	l/m		0.00	0.00	0.00	0.00	0.10				0.02	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22482.7	22482.7	22482.7	22482.7	22482.7	22482.7					
		Take	litres		0.00	0.00	0.00	0.00	0.00					
6.89	7.90	Average Take	l/m		0.00	0.00	0.00	0.00	0.00				0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22482.7	22482.7	22482.7	22482.7	22482.7	22482.7					
		Take	litres		0.00	0.00	0.00	0.00	0.00					
10.34	11.35	Average Take	l/m		0.00	0.00	0.00	0.00	0.00				0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22482.6	22482.6	22482.6	22482.6	22482.6	22482.6					
		Take	litres		0.00	0.00	0.00	0.00	0.00					
6.89	7.90	Average Take	l/m		0.00	0.00	0.00	0.00	0.00				0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22482.6	22482.6	22482.6	22482.6	22482.6	22482.6					
		Take	litres		0.00	0.00	0.00	0.00	0.00					
3.45	4.45	Average Take	l/m		0.00	0.00	0.00	0.00	0.00				0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.000 | k (cm/s) = 0.0E+00

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	YES

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 10 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

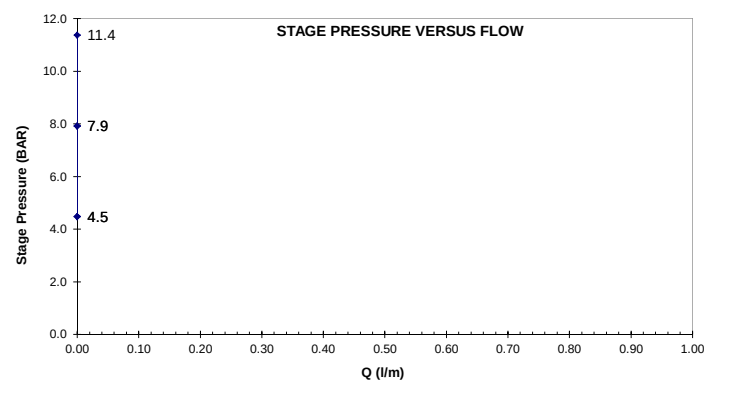
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

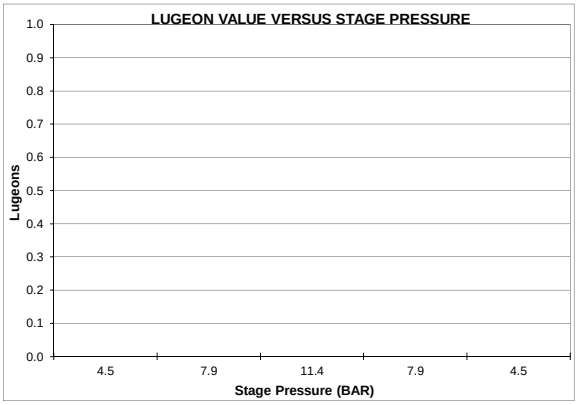
AREA: South Wall of Open Pit | TEST NO: 10

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.3 m (bgs) | TOP OF TEST INTERVAL: 621.72 ft (DOWN HOLE) / 189.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 682.41 ft (DOWN HOLE) / 208.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	121.8	121.8	121.8	121.8	121.8	121.8				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
3.45	4.47	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	121.8	121.8	121.8	121.8	121.8	121.8				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
6.89	7.92	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	121.8	121.8	121.8	121.8	121.8	121.8				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
10.34	11.37	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	121.8	121.8	121.8	121.8	121.8	121.8				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
6.89	7.92	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	121.8	121.8	121.8	121.8	121.8	121.8				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
3.45	4.47	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY:

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.000 | k (cm/s) = 0.0E+00

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	YES

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Shear pin went a little after 600 psi

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]10

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JJUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 11 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

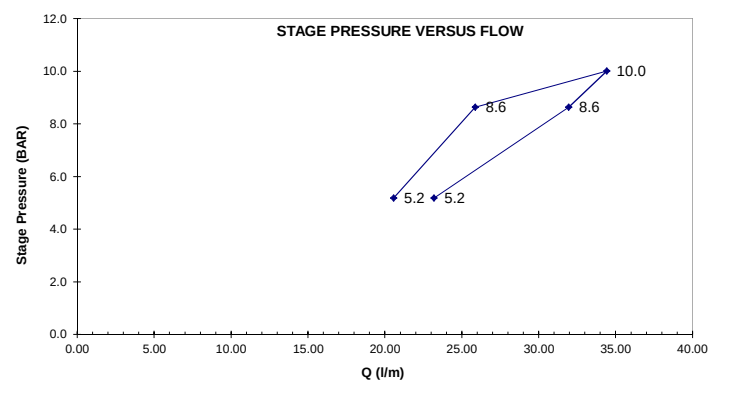
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

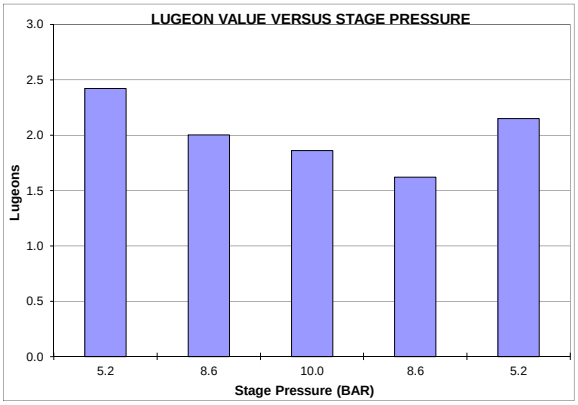
AREA: South Wall of Open Pit | TEST NO: 11

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 18.2 m (bgs) | TOP OF TEST INTERVAL: 621.72 ft (DOWN HOLE) / 189.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 682.41 ft (DOWN HOLE) / 208.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	289.0	312.2	335.4	358.6	381.8					
		Take	litres		23.20	23.20	23.20	23.20					
3.45	5.18	Average Take	l/m		23.20	23.20	23.20	23.20				23.20	2.42
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	412.3	445.4	478.0	507.5	540.7	572.1				
		Take	litres		33.10	32.60	29.50	33.20	31.40				
6.89	8.63	Average Take	l/m		33.10	32.60	29.50	33.20	31.40			31.96	2.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	606.5	640.8	675.4	709.0	744.0	778.6				
		Take	litres		34.30	34.60	33.60	35.00	34.60				
8.27	10.01	Average Take	l/m		34.30	34.60	33.60	35.00	34.60			34.42	1.86
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	804.0	829.8	855.8	882.0	907.5					
		Take	litres		25.80	26.00	26.20	25.50					
6.89	8.63	Average Take	l/m		25.80	26.00	26.20	25.50				25.88	1.62
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	926.9	946.9	968.2	989.2	1009.5	1029.8				
		Take	litres		20.00	21.30	21.00	20.30	20.30				
3.45	5.18	Average Take	l/m		20.00	21.30	21.00	20.30	20.30			20.58	2.15





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: after test

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 2.012 | k (cm/s) = 2.0E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	YES
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Shear pin went a little after 600 psi

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 12 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

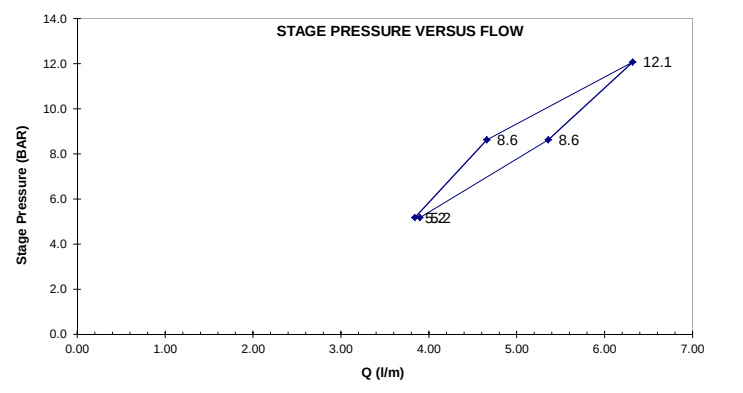
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

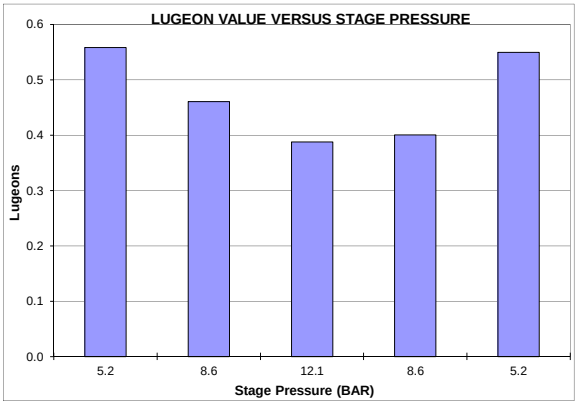
AREA: South Wall of Open Pit | TEST NO: 12

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 18.1 m (bgs) | TOP OF TEST INTERVAL: 775.92 ft (DOWN HOLE) / 236.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 820.21 ft (DOWN HOLE) / 250.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	1057.0	1061.3	1065.2	1069.1	1072.9	1076.5				
		Take	litres		4.30	3.90	3.90	3.80	3.60				
3.45	5.18	Average Take	l/m		4.30	3.90	3.90	3.80	3.60			3.90	0.56
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1085.0	1090.7	1096.1	1101.6	1106.8	1111.8				
		Take	litres		5.70	5.40	5.50	5.20	5.00				
6.89	8.63	Average Take	l/m		5.70	5.40	5.50	5.20	5.00			5.36	0.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1117.0	1123.4	1129.8	1135.8	1142.4	1148.6				
		Take	litres		6.40	6.40	6.00	6.60	6.20				
10.34	12.08	Average Take	l/m		6.40	6.40	6.00	6.60	6.20			6.32	0.39
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1151.6	1155.8	1161.2	1165.7	1170.4	1174.9				
		Take	litres		4.20	5.40	4.50	4.70	4.50				
6.89	8.63	Average Take	l/m		4.20	5.40	4.50	4.70	4.50			4.66	0.40
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1176.0	1179.9	1183.9	1187.9	1191.5	1195.2				
		Take	litres		3.90	4.00	4.00	3.60	3.70				
3.45	5.18	Average Take	l/m		3.90	4.00	4.00	3.60	3.70			3.84	0.55





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY:

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.388 | k (cm/s) = 3.9E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

New gauge, good test j

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]12

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 13 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

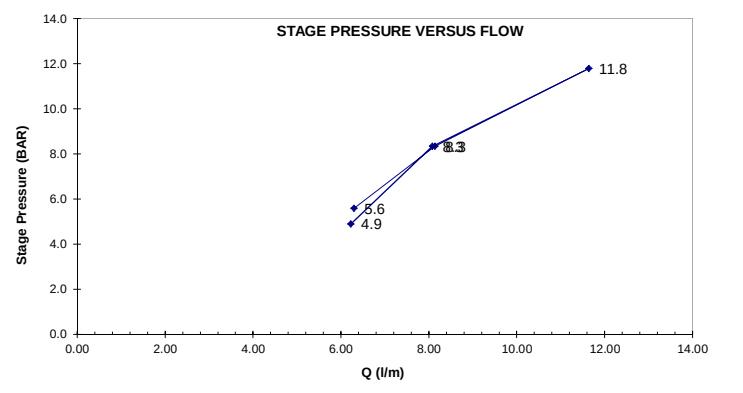
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

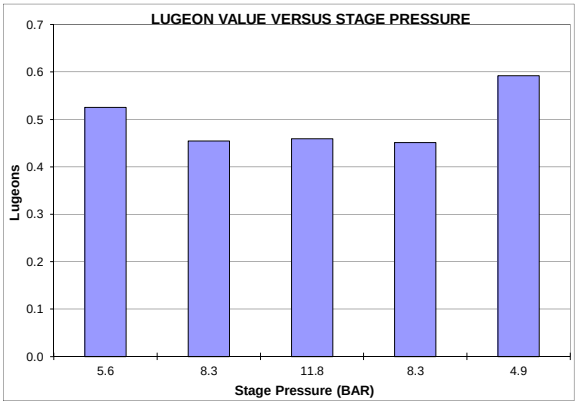
AREA: South Wall of Open Pit | TEST NO: 13

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 15.0 m (bgs) | TOP OF TEST INTERVAL: 818.57 ft (DOWN HOLE) / 249.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 889.11 ft (DOWN HOLE) / 271.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	1207.0	1213.3	1219.7	1226.0	1232.2	0.0					
		Take	litres		6.30	6.40	6.30	6.20						
4.14	5.59	Average Take	l/m		6.30	6.40	6.30	6.20					6.30	0.53
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1240.9	1249.1	1257.4	1265.3	1273.7	1281.6					
		Take	litres		8.20	8.30	7.90	8.40	7.90					
6.89	8.34	Average Take	l/m		8.20	8.30	7.90	8.40	7.90				8.14	0.45
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1293.6	1305.2	1316.9	1328.3	1340.2	1351.8					
		Take	litres		11.60	11.70	11.40	11.90	11.60					
10.34	11.79	Average Take	l/m		11.60	11.70	11.40	11.90	11.60				11.64	0.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1359.4	1367.8	1375.9	1384.1	1392.0	1399.8					
		Take	litres		8.40	8.10	8.20	7.90	7.80					
6.89	8.34	Average Take	l/m		8.40	8.10	8.20	7.90	7.80				8.08	0.45
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1405.8	1412.0	1418.3	1424.5	1430.7	0.0					
		Take	litres		6.20	6.30	6.20	6.20						
3.45	4.90	Average Take	l/m		6.20	6.30	6.20	6.20					6.23	0.59





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.459 | k (cm/s) = 4.6E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]13

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 14 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

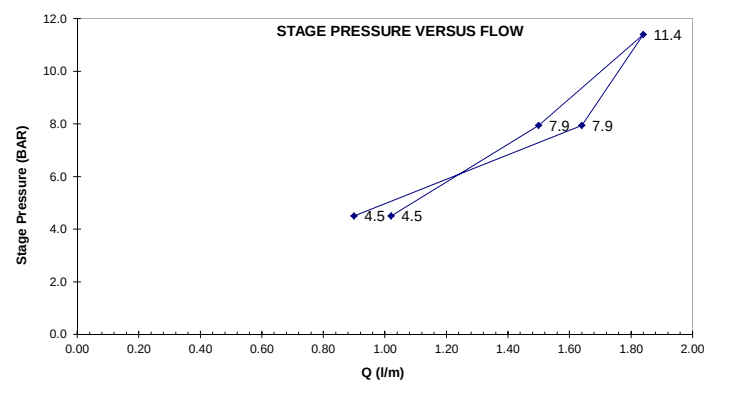
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

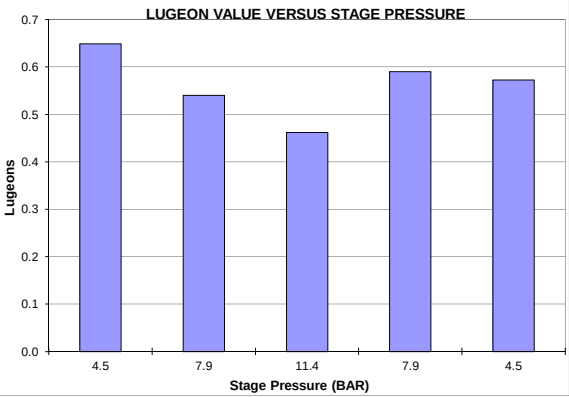
AREA: South Wall of Open Pit | TEST NO: 14

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.6 m (bgs) | TOP OF TEST INTERVAL: 926.84 ft (DOWN HOLE) / 282.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 938.32 ft (DOWN HOLE) / 286.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	1443.8	1444.3	1445.7	1446.7	1447.8	1448.9				
		Take	litres		0.50	1.40	1.00	1.10	1.10				
3.45	4.50	Average Take	l/m		0.50	1.40	1.00	1.10	1.10			1.02	0.65
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1450.0	1451.8	1453.3	1454.7	1455.0	1457.5				
		Take	litres		1.80	1.50	1.40	0.30	2.50				
6.89	7.95	Average Take	l/m		1.80	1.50	1.40	0.30	2.50			1.50	0.54
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1460.8	1461.9	1463.9	1465.8	1467.9	1470.0				
		Take	litres		1.10	2.00	1.90	2.10	2.10				
10.34	11.39	Average Take	l/m		1.10	2.00	1.90	2.10	2.10			1.84	0.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1471.0	1472.2	1473.6	1475.0	1476.7	1479.2				
		Take	litres		1.20	1.40	1.40	1.70	2.50				
6.89	7.95	Average Take	l/m		1.20	1.40	1.40	1.70	2.50			1.64	0.59
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1479.5	1479.8	1480.8	1482.0	1483.0	1484.0				
		Take	litres		0.30	1.00	1.20	1.00	1.00				
3.45	4.50	Average Take	l/m		0.30	1.00	1.20	1.00	1.00			0.90	0.57





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.563 | k (cm/s) = 5.6E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 15 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

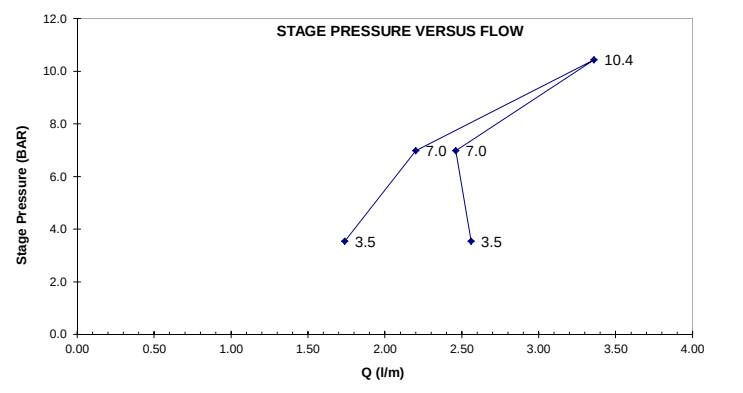
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

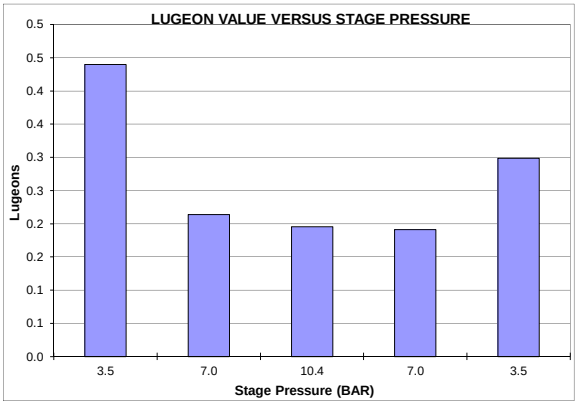
AREA: South Wall of Open Pit | TEST NO: 15

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: m (bgs) | TOP OF TEST INTERVAL: 933.40 ft (DOWN HOLE) / 284.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 987.53 ft (DOWN HOLE) / 301.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	1496.0	1498.8	1501.3	1504.0	1506.1	1508.8					
		Take	litres		2.80	2.50	2.70	2.10	2.70					
3.45	3.54	Average Take	l/m		2.80	2.50	2.70	2.10	2.70				2.56	0.44
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1511.6	1514.9	1516.3	1519.0	1521.4	1523.9					
		Take	litres		3.30	1.40	2.70	2.40	2.50					
6.89	6.98	Average Take	l/m		3.30	1.40	2.70	2.40	2.50				2.46	0.21
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1527.7	1531.2	1534.8	1538.0	1541.3	1544.5					
		Take	litres		3.50	3.60	3.20	3.30	3.20					
10.34	10.43	Average Take	l/m		3.50	3.60	3.20	3.30	3.20				3.36	0.20
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1545.9	1548.0	1550.2	1552.3	1554.6	1556.9					
		Take	litres		2.10	2.20	2.10	2.30	2.30					
6.89	6.98	Average Take	l/m		2.10	2.20	2.10	2.30	2.30				2.20	0.19
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1558.3	1560.0	1561.9	1563.5	1565.2	1567.0					
		Take	litres		1.70	1.90	1.60	1.70	1.80					
3.45	3.54	Average Take	l/m		1.70	1.90	1.60	1.70	1.80				1.74	0.30





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: None, 5-10 minutes. Last 9 m was drilled with water.

Lu= 0.268 | k (cm/s) = 2.7E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]15

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 16 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

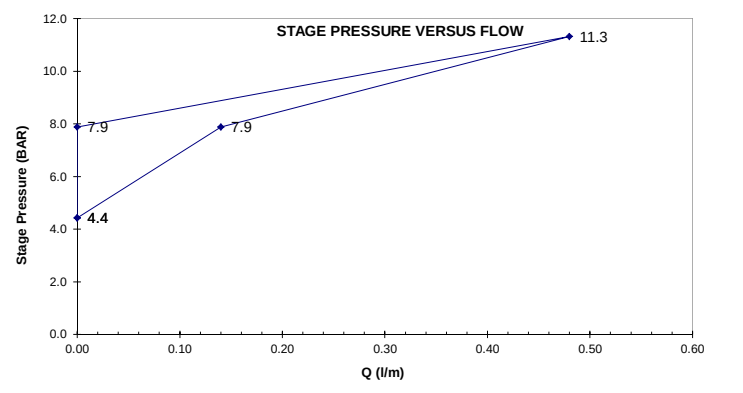
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

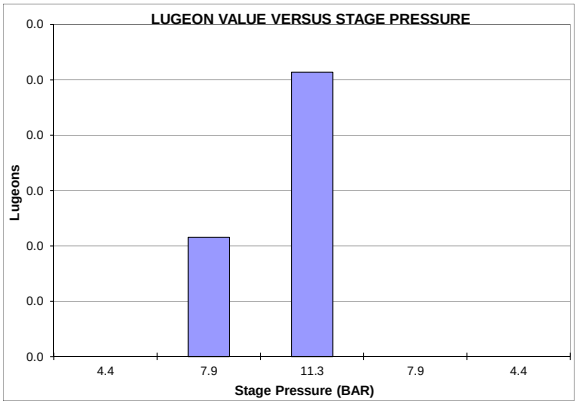
AREA: South Wall of Open Pit | TEST NO: 16

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.9 m (bgs) | TOP OF TEST INTERVAL: 982.61 ft (DOWN HOLE) / 299.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1036.75 ft (DOWN HOLE) / 316.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	1569.3	1569.3	1569.3	1569.3	1569.3	1569.3				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
3.45	4.43	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1569.3	1569.5	1569.7	1569.8	1569.9	1570.0				
		Take	litres		0.20	0.20	0.10	0.10	0.10				
6.89	7.88	Average Take	l/m		0.20	0.20	0.10	0.10	0.10			0.14	0.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1570.9	1571.2	1571.4	1572.0	1573.2	1573.3				
		Take	litres		0.30	0.20	0.60	1.20	0.10				
10.34	11.33	Average Take	l/m		0.30	0.20	0.60	1.20	0.10			0.48	0.03
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1573.3	1573.3	1573.3	1573.3	1573.3	1573.3				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
6.89	7.88	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1573.4	1573.4	1573.4	1573.4	1573.4	1573.4				
		Take	litres		0.00	0.00	0.00	0.00	0.00				
3.45	4.43	Average Take	l/m		0.00	0.00	0.00	0.00	0.00			0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.003 | k (cm/s) = 2.7E-08

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	YES
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: DAY | REVIEWED BY: KJB

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]16

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 17 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

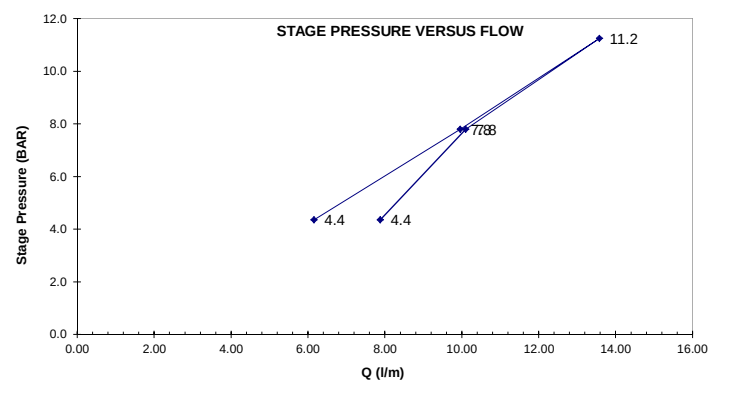
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

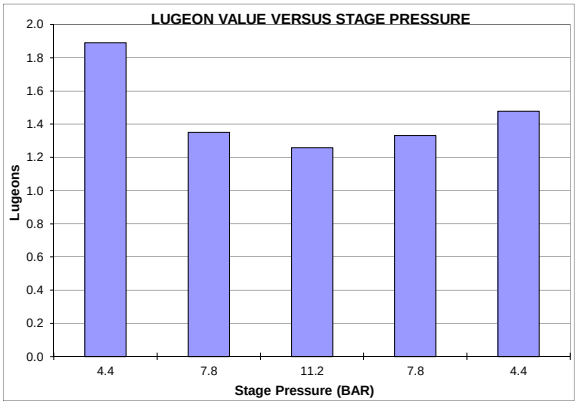
AREA: South Wall of Open Pit | TEST NO: 17

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.0 m (bgs) | TOP OF TEST INTERVAL: 188.32 ft (DOWN HOLE) / 57.40 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 219.82 ft (DOWN HOLE) / 67.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	1595.0	1603.2	1611.3	1619.0	1626.5	1634.4				
		Take	litres		8.20	8.10	7.70	7.50	7.90				
3.45	4.35	Average Take	l/m		8.20	8.10	7.70	7.50	7.90			7.88	1.89
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1644.4	1654.9	1665.4	1675.3	1685.2	1694.9				
		Take	litres		10.50	10.50	9.90	9.90	9.70				
6.89	7.80	Average Take	l/m		10.50	10.50	9.90	9.90	9.70			10.10	1.35
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1706.8	1720.2	1733.9	1748.0	1761.0	1774.7				
		Take	litres		13.40	13.70	14.10	13.00	13.70				
10.34	11.25	Average Take	l/m		13.40	13.70	14.10	13.00	13.70			13.58	1.26
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1785.9	1796.0	1806.0	1815.9	1825.8	1835.7				
		Take	litres		10.10	10.00	9.90	9.90	9.90				
6.89	7.80	Average Take	l/m		10.10	10.00	9.90	9.90	9.90			9.96	1.33
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1842.3	1848.7	1854.8	1861.0	1867.0	1873.1				
		Take	litres		6.40	6.10	6.20	6.00	6.10				
3.45	4.35	Average Take	l/m		6.40	6.10	6.20	6.00	6.10			6.16	1.48





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 1.462 | k (cm/s) = 1.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]17

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT	JS	DAY	KJB

SHEET 18 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

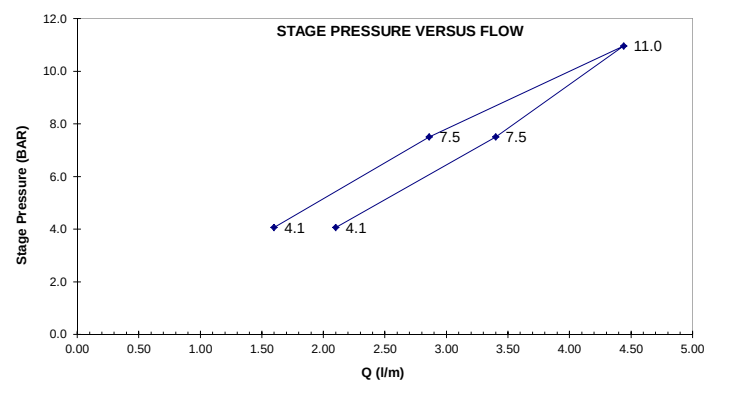
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

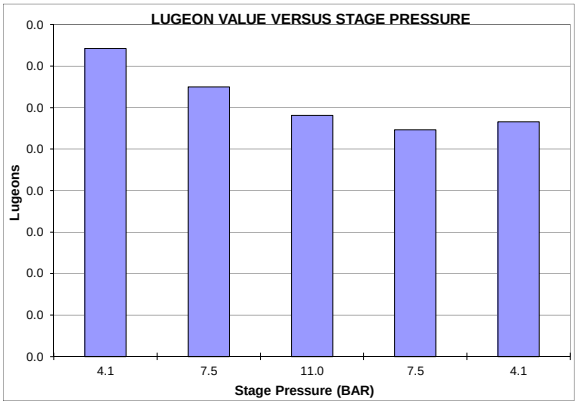
AREA: South Wall of Open Pit | TEST NO: 18

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 5.8 m (bgs) | TOP OF TEST INTERVAL: 0.00 ft (DOWN HOLE) | m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1144.69 ft (DOWN HOLE) | 348.90 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	1878.5	1880.8	1883.0	1885.0	1887.0	1889.0				
		Take	litres		2.30	2.20	2.00	2.00	2.00				
3.45	4.06	Average Take	l/m		2.30	2.20	2.00	2.00	2.00			2.10	0.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1893.0	1896.5	1900.2	1903.4	1906.7	1910.0				
		Take	litres		3.50	3.70	3.20	3.30	3.30				
6.89	7.51	Average Take	l/m		3.50	3.70	3.20	3.30	3.30			3.40	0.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1914.7	1919.0	1923.6	1928.0	1932.4	1936.9				
		Take	litres		4.30	4.60	4.40	4.40	4.50				
10.34	10.96	Average Take	l/m		4.30	4.60	4.40	4.40	4.50			4.44	0.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1939.5	1942.1	1945.2	1947.9	1951.0	1953.8				
		Take	litres		2.60	3.10	2.70	3.10	2.80				
6.89	7.51	Average Take	l/m		2.60	3.10	2.70	3.10	2.80			2.86	0.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	1955.0	1957.8	1958.3	1960.1	1961.8	1963.0				
		Take	litres		2.80	0.50	1.80	1.70	1.20				
3.45	4.06	Average Take	l/m		2.80	0.50	1.80	1.70	1.20			1.60	0.01





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.012 | k (cm/s) = 1.2E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 19 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

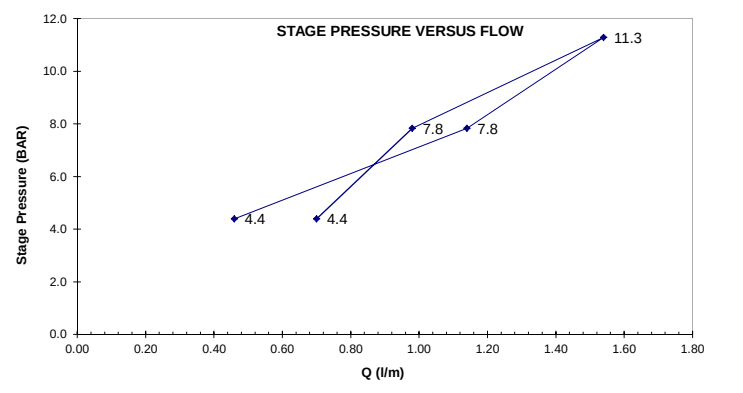
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

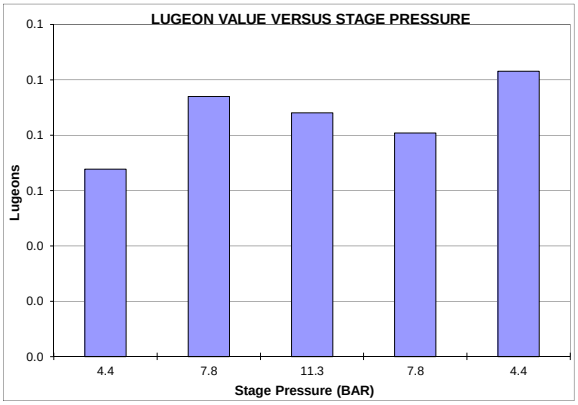
AREA: South Wall of Open Pit | TEST NO: 19

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.4 m (bgs) | TOP OF TEST INTERVAL: 1143.37 ft (DOWN HOLE) / 348.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1194.23 ft (DOWN HOLE) / 364.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	1968.2	1968.5	1968.7	1968.9	1969.9	1970.5					
		Take	litres		0.30	0.20	0.20	1.00	0.60					
3.45	4.39	Average Take	l/m		0.30	0.20	0.20	1.00	0.60				0.46	0.07
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1971.8	1972.8	1974.2	1975.2	1976.3	1977.5					
		Take	litres		1.00	1.40	1.00	1.10	1.20					
6.89	7.84	Average Take	l/m		1.00	1.40	1.00	1.10	1.20				1.14	0.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1979.7	1981.2	1982.9	1984.3	1986.1	1987.4					
		Take	litres		1.50	1.70	1.40	1.80	1.30					
10.34	11.28	Average Take	l/m		1.50	1.70	1.40	1.80	1.30				1.54	0.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1988.3	1989.0	1990.3	1991.5	1992.3	1993.2					
		Take	litres		0.70	1.30	1.20	0.80	0.90					
6.89	7.84	Average Take	l/m		0.70	1.30	1.20	0.80	0.90				0.98	0.08
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	1993.5	1994.2	1995.0	1995.8	1996.3	1997.0					
		Take	litres		0.70	0.80	0.80	0.50	0.70					
3.45	4.39	Average Take	l/m		0.70	0.80	0.80	0.50	0.70				0.70	0.10





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL after test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.087 | k (cm/s) = 8.7E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]19

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 20 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

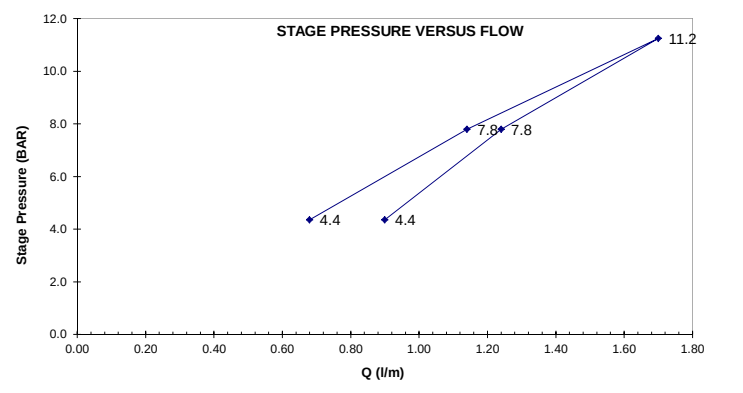
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

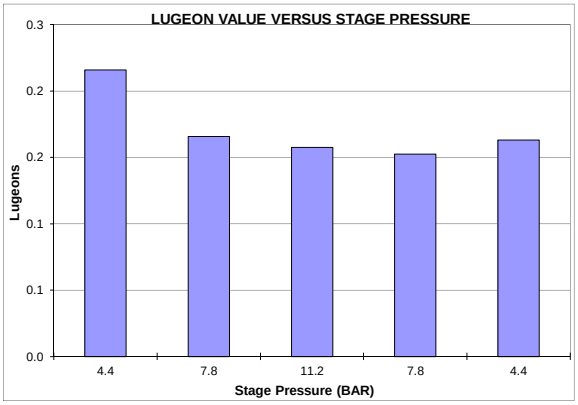
AREA: South Wall of Open Pit | TEST NO: 20

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.0 m (bgs) | TOP OF TEST INTERVAL: 188.32 ft (DOWN HOLE) / 57.40 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 219.82 ft (DOWN HOLE) / 67.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	2002.5	2003.4	2004.3	2005.2	2006.1	2007.0					
		Take	litres		0.90	0.90	0.90	0.90	0.90					
3.45	4.35	Average Take	l/m		0.90	0.90	0.90	0.90	0.90				0.90	0.22
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	2008.8	2010.0	2011.3	2012.6	2013.8	2015.0					
		Take	litres		1.20	1.30	1.25	1.25	1.20					
6.89	7.80	Average Take	l/m		1.20	1.30	1.25	1.25	1.20				1.24	0.17
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	2017.2	2019.2	2020.9	2022.3	2024.0	2025.7					
		Take	litres		2.00	1.70	1.40	1.70	1.70					
10.34	11.25	Average Take	l/m		2.00	1.70	1.40	1.70	1.70				1.70	0.16
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	2026.1	2027.2	2028.4	2029.6	2030.7	2031.8					
		Take	litres		1.10	1.20	1.20	1.10	1.10					
6.89	7.80	Average Take	l/m		1.10	1.20	1.20	1.10	1.10				1.14	0.15
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	2032.0	2032.7	2033.4	2034.0	2034.7	2035.4					
		Take	litres		0.70	0.70	0.60	0.70	0.70					
3.45	4.35	Average Take	l/m		0.70	0.70	0.60	0.70	0.70				0.68	0.16





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Forgot to measure WL

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.171 | k (cm/s) = 1.7E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]20

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 21 OF 21

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

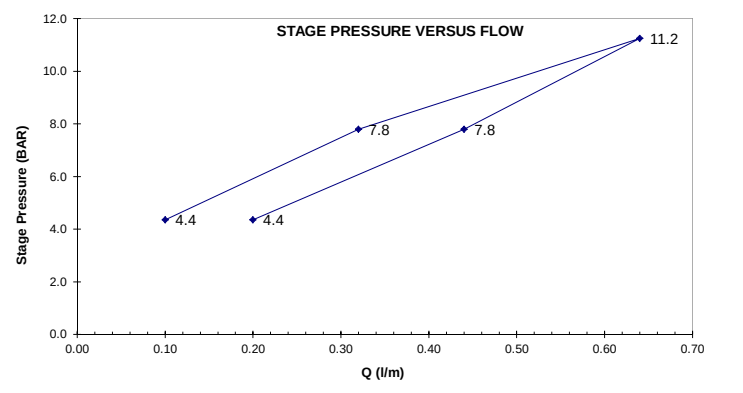
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-01

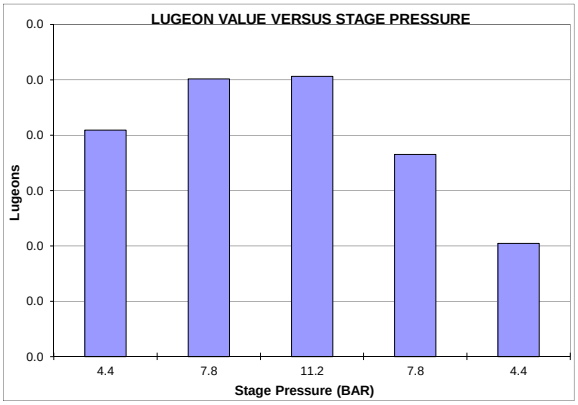
AREA: South Wall of Open Pit | TEST NO: 21

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 9.0 m (bgs) | TOP OF TEST INTERVAL: 1238.52 ft (DOWN HOLE) / 377.50 m (DOWN HOLE)

DATE: 21-Feb-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1312.34 ft (DOWN HOLE) / 400.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	2040.0	2040.0	2040.1	2040.2	2040.6	2041.0				
		Take	litres		0.00	0.10	0.10	0.40	0.40				
3.45	4.35	Average Take	l/m		0.00	0.10	0.10	0.40	0.40			0.20	0.02
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2042.1	2042.5	2042.9	2043.4	2043.8	2044.3				
		Take	litres		0.40	0.40	0.50	0.40	0.50				
6.89	7.80	Average Take	l/m		0.40	0.40	0.50	0.40	0.50			0.44	0.03
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2045.4	2046.2	2046.9	2047.3	2047.9	2048.6				
		Take	litres		0.80	0.70	0.40	0.60	0.70				
10.34	11.25	Average Take	l/m		0.80	0.70	0.40	0.60	0.70			0.64	0.03
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2048.6	2048.9	2049.2	2049.6	2050.0	2050.2				
		Take	litres		0.30	0.30	0.40	0.40	0.20				
6.89	7.80	Average Take	l/m		0.30	0.30	0.40	0.40	0.20			0.32	0.02
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2050.4	2050.5	2050.5	2050.5	2050.7	2050.9				
		Take	litres		0.10	0.00	0.00	0.20	0.20				
3.45	4.35	Average Take	l/m		0.10	0.00	0.00	0.20	0.20			0.10	0.01





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Forgot to measure WL

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.019 | k (cm/s) = 1.9E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	YES
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-01_Packer Testing Sheet.xlsx]21

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 1 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

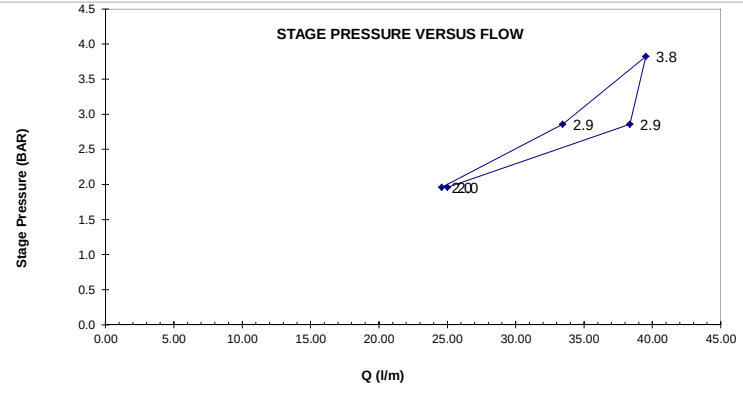
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

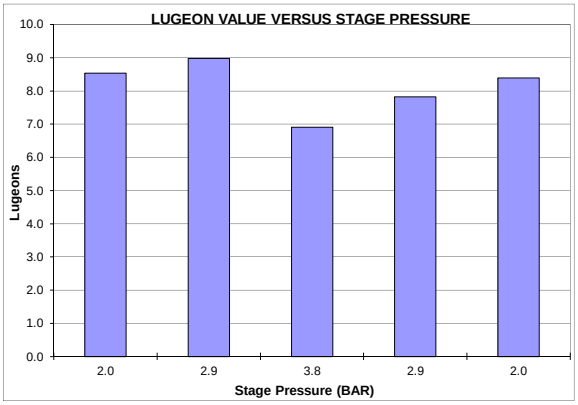
AREA: South Wall of Open Pit | TEST NO: 1

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.0 m (bgs) | TOP OF TEST INTERVAL: 52.49 ft (DOWN HOLE) / 16.00 m (DOWN HOLE)

DATE: 03-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 101.71 ft (DOWN HOLE) / 31.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	2145.0	2173.8	2197.2	2221.0	2245.8	2270.0				
		Take	litres		28.80	23.40	23.80	24.80	24.20				
0.97	1.96	Average Take	l/m		28.80	23.40	23.80	24.80	24.20			25.00	8.54
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2300.0	2339.2	2378.1	2415.8	2454.4	2491.8				
		Take	litres		39.20	38.90	37.70	38.60	37.40				
1.86	2.86	Average Take	l/m		39.20	38.90	37.70	38.60	37.40			38.36	8.98
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2525.0	2565.0	2604.7	2644.6	2683.1	2722.6				
		Take	litres		40.00	39.70	39.90	38.50	39.50				
2.83	3.82	Average Take	l/m		40.00	39.70	39.90	38.50	39.50			39.52	6.91
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2746.1	2778.8	2811.9	2846.4	2880.4	2913.3				
		Take	litres		32.70	33.10	34.50	34.00	32.90				
1.86	2.86	Average Take	l/m		32.70	33.10	34.50	34.00	32.90			33.44	7.83
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	2925.0	2949.2	2974.8	2997.9	3022.2	3047.9				
		Take	litres		24.20	25.60	23.10	24.30	25.70				
0.97	1.96	Average Take	l/m		24.20	25.60	23.10	24.30	25.70			24.58	8.39





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 8.129 | k (cm/s) = 8.1E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]1

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 2 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

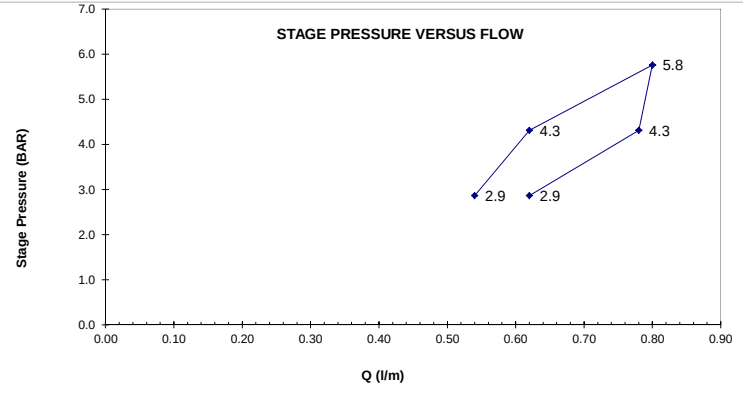
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

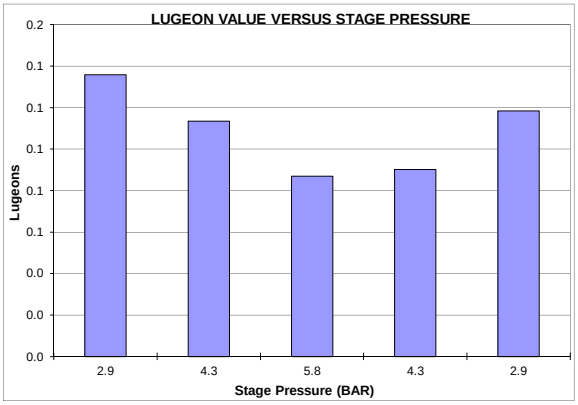
AREA: South Wall of Open Pit | TEST NO: 2

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 14.6 m (bgs) | TOP OF TEST INTERVAL: 98.43 ft (DOWN HOLE) / 30.00 m (DOWN HOLE)

DATE: 04-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 150.92 ft (DOWN HOLE) / 46.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	3053.9	3054.3	3055.0	3055.8	3056.3	3057.0				
		Take	litres		0.40	0.70	0.80	0.50	0.70				
1.45	2.86	Average Take	l/m		0.40	0.70	0.80	0.50	0.70			0.62	0.14
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3058.0	3058.9	3059.6	3060.2	3061.0	3061.9				
		Take	litres		0.90	0.70	0.60	0.80	0.90				
2.90	4.31	Average Take	l/m		0.90	0.70	0.60	0.80	0.90			0.78	0.11
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3062.8	3063.6	3064.3	3065.1	3065.9	3066.8				
		Take	litres		0.80	0.70	0.80	0.80	0.90				
4.34	5.76	Average Take	l/m		0.80	0.70	0.80	0.80	0.90			0.80	0.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3066.9	3067.5	3068.1	3068.9	3069.5	3070.0				
		Take	litres		0.60	0.60	0.80	0.60	0.50				
2.90	4.31	Average Take	l/m		0.60	0.60	0.80	0.60	0.50			0.62	0.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3070.3	3070.8	3071.3	3072.0	3072.6	3073.0				
		Take	litres		0.50	0.50	0.70	0.60	0.40				
1.45	2.86	Average Take	l/m		0.50	0.50	0.70	0.60	0.40			0.54	0.12





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.087 | k (cm/s) = 8.7E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 3 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

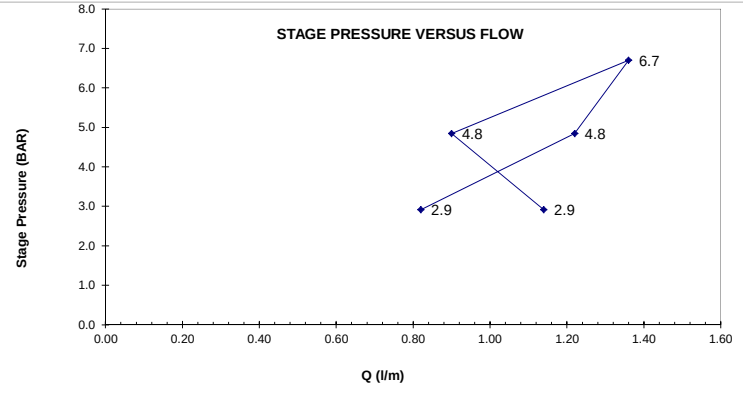
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

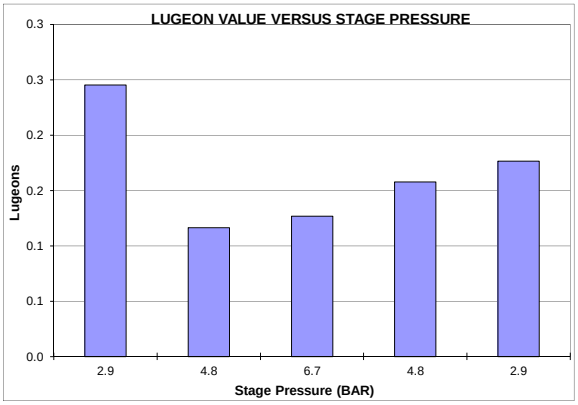
AREA: South Wall of Open Pit | TEST NO: 3

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.6 m (bgs) | TOP OF TEST INTERVAL: 147.64 ft (DOWN HOLE) / 45.00 m (DOWN HOLE)

DATE: 04-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 200.13 ft (DOWN HOLE) / 61.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	3082.0	3083.0	3084.2	3085.3	3086.5	3087.7				
		Take	litres		1.00	1.20	1.10	1.20	1.20				
1.86	2.91	Average Take	l/m		1.00	1.20	1.10	1.20	1.20			1.14	0.25
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3089.7	3090.0	3091.0	3092.1	3093.2	3094.2				
		Take	litres		0.30	1.00	1.10	1.10	1.00				
3.79	4.84	Average Take	l/m		0.30	1.00	1.10	1.10	1.00			0.90	0.12
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3095.0	3096.2	3097.9	3099.2	3100.6	3101.8				
		Take	litres		1.20	1.70	1.30	1.40	1.20				
5.65	6.70	Average Take	l/m		1.20	1.70	1.30	1.40	1.20			1.36	0.13
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3102.2	3102.4	3104.5	3105.9	3107.1	3108.3				
		Take	litres		0.20	2.10	1.40	1.20	1.20				
3.79	4.84	Average Take	l/m		0.20	2.10	1.40	1.20	1.20			1.22	0.16
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	3108.6	3109.2	3110.2	3111.2	3112.0	3112.7				
		Take	litres		0.60	1.00	1.00	0.80	0.70				
1.86	2.91	Average Take	l/m		0.60	1.00	1.00	0.80	0.70			0.82	0.18





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.177 | k (cm/s) = 1.8E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 4 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

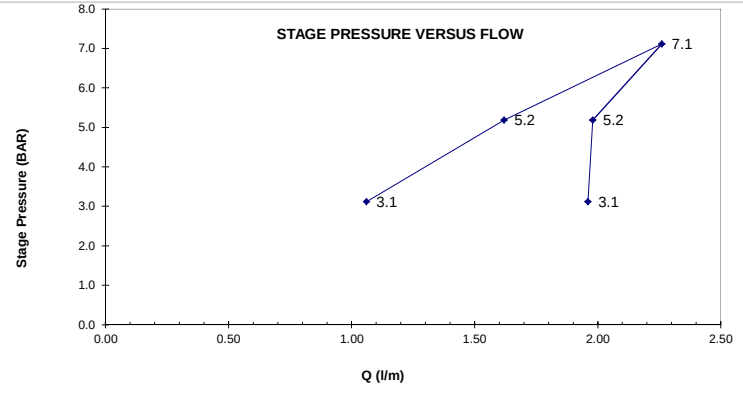
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

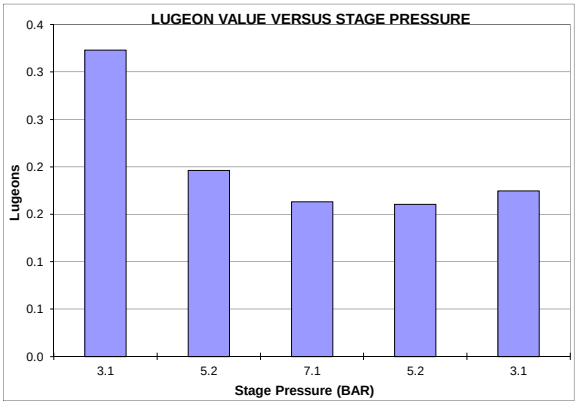
AREA: South Wall of Open Pit | TEST NO: 4

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.6 m (bgs) | TOP OF TEST INTERVAL: 195.21 ft (DOWN HOLE) / 59.50 m (DOWN HOLE)

DATE: 04-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 259.19 ft (DOWN HOLE) / 79.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	3130.5	3133.2	3135.3	3137.1	3138.8	3140.3					
		Take	litres		2.70	2.10	1.80	1.70	1.50					
2.07	3.12	Average Take	l/m		2.70	2.10	1.80	1.70	1.50				1.96	0.32
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	3143.3	3145.6	3147.7	3149.7	3151.4	3153.2					
		Take	litres		2.30	2.10	2.00	1.70	1.80					
4.14	5.19	Average Take	l/m		2.30	2.10	2.00	1.70	1.80				1.98	0.20
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	3155.8	3158.4	3160.8	3162.8	3165.0	3167.1					
		Take	litres		2.60	2.40	2.00	2.20	2.10					
6.07	7.12	Average Take	l/m		2.60	2.40	2.00	2.20	2.10				2.26	0.16
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	3168.7	3170.3	3171.9	3173.8	3175.0	3176.8					
		Take	litres		1.60	1.60	1.90	1.20	1.80					
4.14	5.19	Average Take	l/m		1.60	1.60	1.90	1.20	1.80				1.62	0.16
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	3177.8	3178.9	3179.9	3180.8	3182.0	3183.1					
		Take	litres		1.10	1.00	0.90	1.20	1.10					
2.07	3.12	Average Take	l/m		1.10	1.00	0.90	1.20	1.10				1.06	0.17





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY:

DRILLING FLUIDS USED/ TIME FOR FLUSHING: Drilling with water night previous and whole shift prior to this test (18 m)

Lu= 0.175 | k (cm/s) = 1.7E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

Flowmeter units: m3

I think the high response for the first P1 pressure can be attributed to filling voids and pressurizing pore waters in the formation. Consequently, more time should be taken pumping at P1 before test starts.

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]4

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 5 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

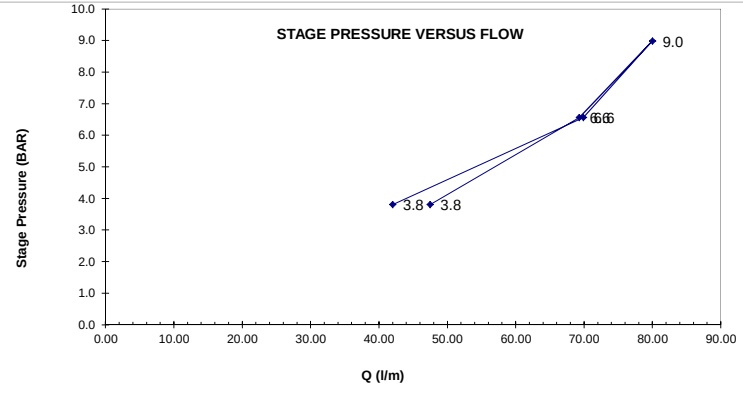
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

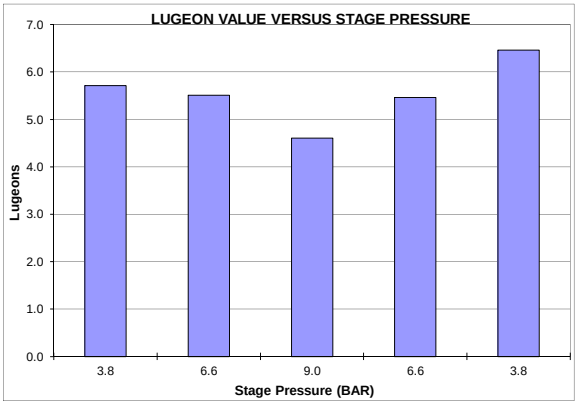
AREA: South Wall of Open Pit | TEST NO: 5

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 10.6 m (bgs) | TOP OF TEST INTERVAL: 254.27 ft (DOWN HOLE) / 77.50 m (DOWN HOLE)

DATE: 04-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 317.75 ft (DOWN HOLE) / 96.85 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	3495.0	3536.2	3577.9	3620.0	3664.2	3705.0					
		Take	litres		41.20	41.70	42.10	44.20	40.80					
2.76	3.81	Average Take	l/m		41.20	41.70	42.10	44.20	40.80				42.00	5.71
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	3770.5	3840.6	3910.0	3980.0	4050.0	4120.0					
		Take	litres		70.10	69.40	70.00	70.00	70.00					
5.52	6.57	Average Take	l/m		70.10	69.40	70.00	70.00	70.00				69.90	5.51
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	4198.0	4277.5	4357.0	4437.0	4517.5	4598.0					
		Take	litres		79.50	79.50	80.00	80.50	80.50					
7.93	8.98	Average Take	l/m		79.50	79.50	80.00	80.50	80.50				80.00	4.61
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	4668.0	4737.8	4806.5	4876.2	4944.7	5014.5					
		Take	litres		69.80	68.70	69.70	68.50	69.80					
5.52	6.57	Average Take	l/m		69.80	68.70	69.70	68.50	69.80				69.30	5.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	5065.0	5112.7	5160.3	5207.5	5255.0	5302.5					
		Take	litres		47.70	47.60	47.20	47.50	47.50					
2.76	3.81	Average Take	l/m		47.70	47.60	47.20	47.50	47.50				47.50	6.46





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY:

DRILLING FLUIDS USED/ TIME FOR FLUSHING: Polymer used, but switched to water several runs before test.

Lu= 4.609 | k (cm/s) = 4.6E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

Flowmeter units: m3

I think the high response for the first P1 pressure can be attributed to filling voids and pressurizing pore waters in the formation. Consequently, more time should be taken pumping at P1 before test starts.

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]5

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 6 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

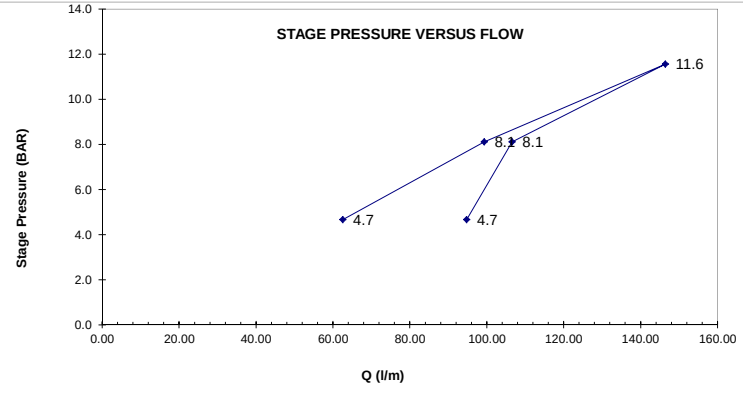
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

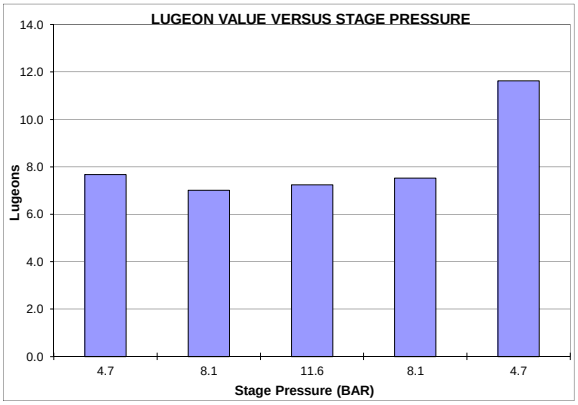
AREA: South Wall of Open Pit | TEST NO: 6

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 12.5 m (bgs) | TOP OF TEST INTERVAL: 314.96 ft (DOWN HOLE) / 96.00 m (DOWN HOLE)

DATE: 04-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 372.38 ft (DOWN HOLE) / 113.50 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	5500.0	5564.2	5625.3	5688.2	5750.3	5812.8					
		Take	litres		64.20	61.10	62.90	62.10	62.50					
3.45	4.66	Average Take	l/m		64.20	61.10	62.90	62.10	62.50				62.56	7.68
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	5920.5	6020.3	6120.3	6220.0	6318.8	6417.2					
		Take	litres		99.80	100.00	99.70	98.80	98.40					
6.89	8.11	Average Take	l/m		99.80	100.00	99.70	98.80	98.40				99.34	7.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	6650.0	6800.0	6950.3	7101.3	0.0	0.0					
		Take	litres		150.00	150.30	151.00	137.80	143.00					
10.34	11.56	Average Take	l/m		150.00	150.30	151.00	137.80	143.00				146.42	7.24
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	8000.0	8106.7	8212.8	8320.3	8427.1	8533.1					
		Take	litres		106.70	106.10	107.50	106.80	106.00					
6.89	8.11	Average Take	l/m		106.70	106.10	107.50	106.80	106.00				106.62	7.52
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	8600.0	8695.4	8789.2	8883.7	8978.8	9073.9					
		Take	litres		95.40	93.80	94.50	95.10	95.10					
3.45	4.66	Average Take	l/m		95.40	93.80	94.50	95.10	95.10				94.78	11.63





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 11.634 | k (cm/s) = 1.2E-04

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

Flowmeter units: m3

lots of take. Ran out of water mid-test so we let the water tank fill up and then continued the test

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 7 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

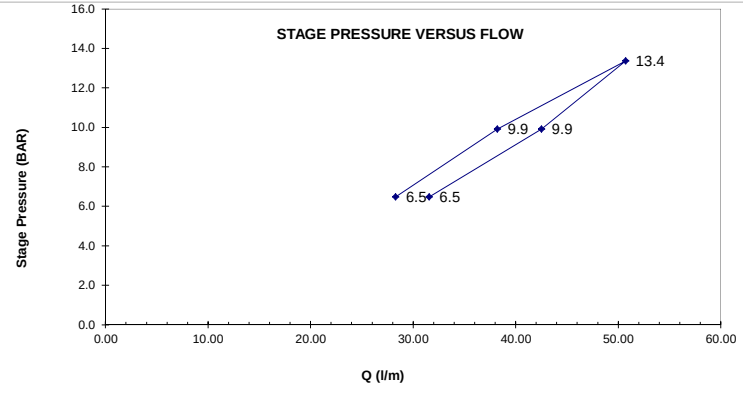
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

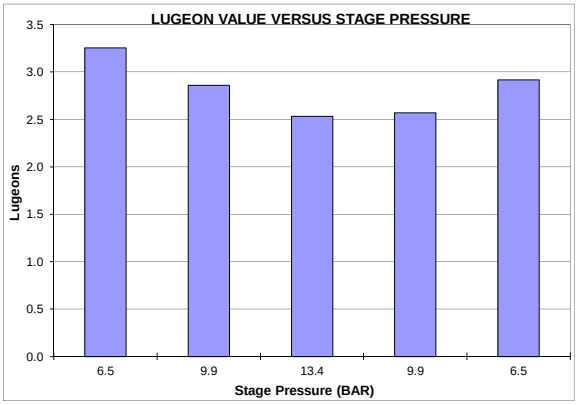
AREA: South Wall of Open Pit | TEST NO: 7

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 32.5 m (bgs) | TOP OF TEST INTERVAL: 421.59 ft (DOWN HOLE) / 128.50 m (DOWN HOLE)

DATE: 05-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 470.80 ft (DOWN HOLE) / 143.50 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	9385.0	9415.3	9448.0	9479.8	9512.1	9542.8					
		Take	litres		30.30	32.70	31.80	32.30	30.70					
3.45	6.47	Average Take	l/m		30.30	32.70	31.80	32.30	30.70				31.56	3.25
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	9580.0	9621.7	9664.7	9706.3	9749.8	9792.6					
		Take	litres		41.70	43.00	41.60	43.50	42.80					
6.89	9.92	Average Take	l/m		41.70	43.00	41.60	43.50	42.80				42.52	2.86
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	9825.0	9876.1	9925.8	9977.9	10028.4	10078.6					
		Take	litres		51.10	49.70	52.10	50.50	50.20					
10.34	13.37	Average Take	l/m		51.10	49.70	52.10	50.50	50.20				50.72	2.53
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	10120.0	10158.8	10196.8	10235.4	10273.8	10311.1					
		Take	litres		38.80	38.00	38.60	38.40	37.30					
6.89	9.92	Average Take	l/m		38.80	38.00	38.60	38.40	37.30				38.22	2.57
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	10350.0	10378.7	10406.8	10434.7	10463.2	10491.5					
		Take	litres		28.70	28.10	27.90	28.50	28.30					
3.45	6.47	Average Take	l/m		28.70	28.10	27.90	28.50	28.30				28.30	2.92





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 2.531 | k (cm/s) = 2.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 8 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

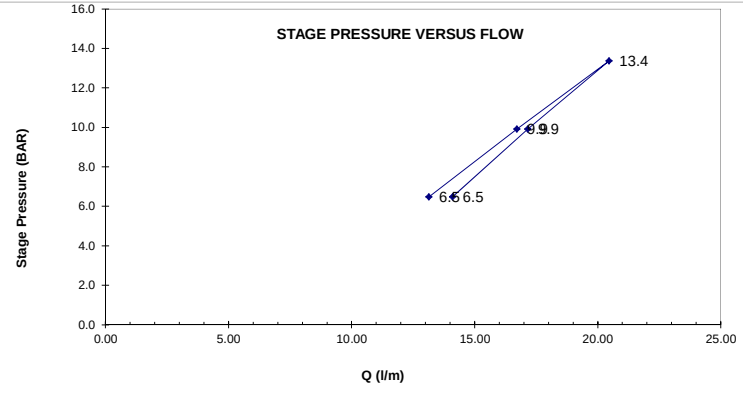
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

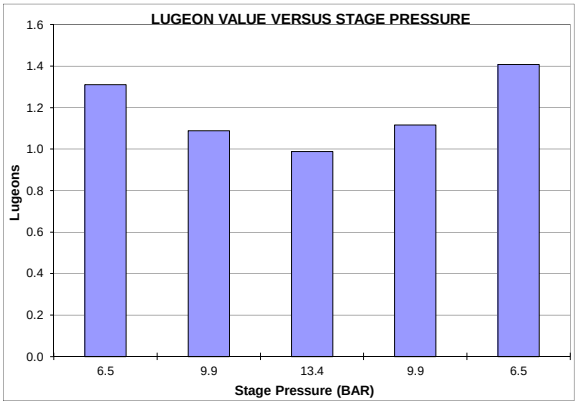
AREA: South Wall of Open Pit | TEST NO: 8

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 32.5 m (bgs) | TOP OF TEST INTERVAL: 469.16 ft (DOWN HOLE) / 143.00 m (DOWN HOLE)

DATE: 06-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 520.01 ft (DOWN HOLE) / 158.50 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	10600.0	10613.0	10626.2	10640.1	10652.8	10665.7				
		Take	litres		13.00	13.20	13.90	12.70	12.90				
3.45	6.47	Average Take	l/m		13.00	13.20	13.90	12.70	12.90			13.14	1.31
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	10680.0	10696.9	10713.7	10730.0	10745.8	10763.6				
		Take	litres		16.90	16.80	16.30	15.80	17.80				
6.89	9.92	Average Take	l/m		16.90	16.80	16.30	15.80	17.80			16.72	1.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	10783.2	10803.0	10823.7	10844.2	10864.8	10885.5				
		Take	litres		19.80	20.70	20.50	20.60	20.70				
10.34	13.37	Average Take	l/m		19.80	20.70	20.50	20.60	20.70			20.46	0.99
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	10895.0	10911.4	10929.2	10946.7	10963.9	10980.8				
		Take	litres		16.40	17.80	17.50	17.20	16.90				
6.89	9.92	Average Take	l/m		16.40	17.80	17.50	17.20	16.90			17.16	1.12
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	10990.0	11003.9	11017.6	11032.7	11046.4	11060.5				
		Take	litres		13.90	13.70	15.10	13.70	14.10				
3.45	6.47	Average Take	l/m		13.90	13.70	15.10	13.70	14.10			14.10	1.41





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.988 | k (cm/s) = 9.9E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]8

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 9 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

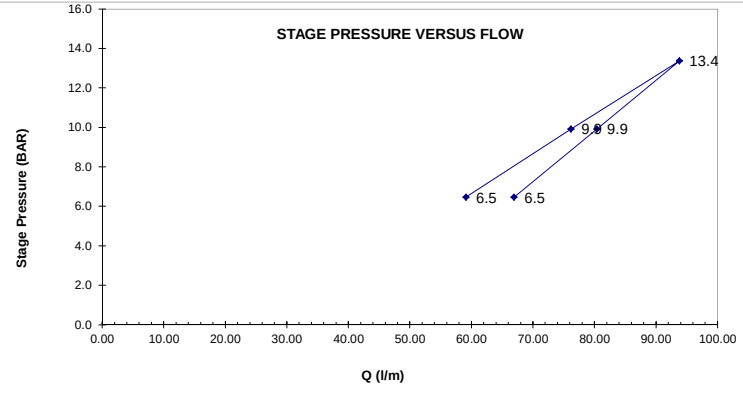
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

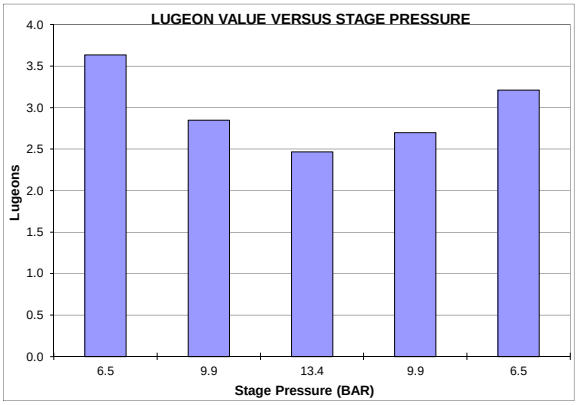
AREA: South Wall of Open Pit | TEST NO: 9

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 32.4 m (bgs) | TOP OF TEST INTERVAL: 520.01 ft (DOWN HOLE) / 158.50 m (DOWN HOLE)

DATE: 06-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 613.52 ft (DOWN HOLE) / 187.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	11345.0	11411.1	11478.9	11545.5	11611.7	11679.6				
		Take	litres		66.10	67.80	66.60	66.20	67.90				
3.45	6.47	Average Take	l/m		66.10	67.80	66.60	66.20	67.90			66.92	3.64
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	11762.0	11840.5	11922.0	12003.8	12084.2	12164.0				
		Take	litres		78.50	81.50	81.80	80.40	79.80				
6.89	9.91	Average Take	l/m		78.50	81.50	81.80	80.40	79.80			80.40	2.85
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	12260.0	12354.0	12447.0	12542.0	12636.0	12729.0				
		Take	litres		94.00	93.00	95.00	94.00	93.00				
10.34	13.36	Average Take	l/m		94.00	93.00	95.00	94.00	93.00			93.80	2.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	12808.0	12885.0	12960.0	13037.0	13112.0	13189.0				
		Take	litres		77.00	75.00	77.00	75.00	77.00				
6.89	9.91	Average Take	l/m		77.00	75.00	77.00	75.00	77.00			76.20	2.70
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	13251.2	13310.7	13370.0	13428.6	13488.2	13546.7				
		Take	litres		59.50	59.30	58.60	59.60	58.50				
3.45	6.47	Average Take	l/m		59.50	59.30	58.60	59.60	58.50			59.10	3.21





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: DR polymer used

Lu= 2.465 | k (cm/s) = 2.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]9

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 10 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

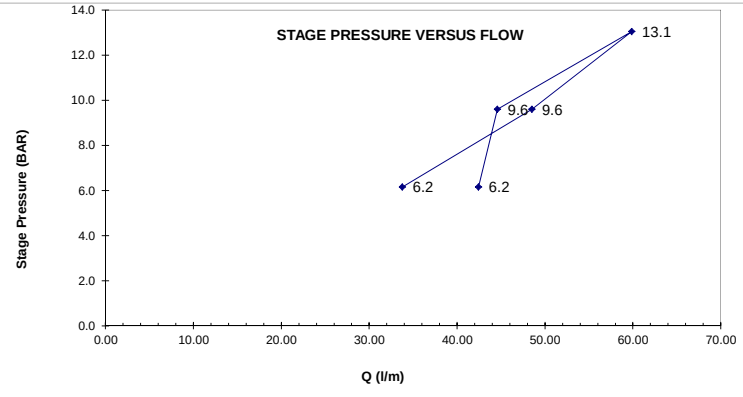
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

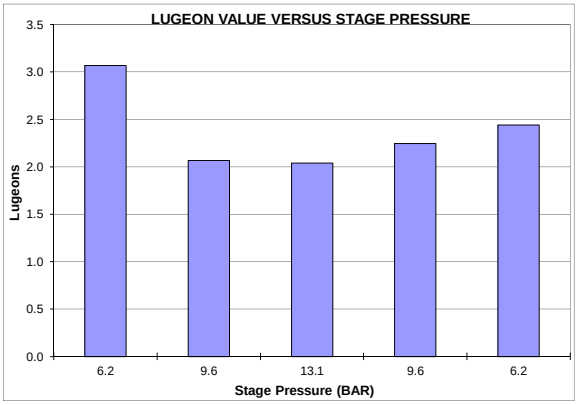
AREA: South Wall of Open Pit | TEST NO: 10

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 29.0 m (bgs) | TOP OF TEST INTERVAL: 608.60 ft (DOWN HOLE) / 185.50 m (DOWN HOLE)

DATE: 07-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 682.41 ft (DOWN HOLE) / 208.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	13700.0	13746.9	13794.8	13845.0	13879.5	13912.2				
		Take	litres		46.90	47.90	50.20	34.50	32.70				
3.45	6.16	Average Take	l/m		46.90	47.90	50.20	34.50	32.70			42.44	3.07
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	13957.0	14001.9	14047.0	14092.1	14136.1	14180.0				
		Take	litres		44.90	45.10	45.10	44.00	43.90				
6.89	9.60	Average Take	l/m		44.90	45.10	45.10	44.00	43.90			44.60	2.07
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	14234.3	14294.5	14354.0	14413.0	14473.6	14533.7				
		Take	litres		60.20	59.50	59.00	60.60	60.10				
10.34	13.05	Average Take	l/m		60.20	59.50	59.00	60.60	60.10			59.88	2.04
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	14584.5	14632.6	14681.5	14730.6	14778.8	14827.0				
		Take	litres		48.10	48.90	49.10	48.20	48.20				
6.89	9.60	Average Take	l/m		48.10	48.90	49.10	48.20	48.20			48.50	2.25
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	14865.0	14899.5	14933.8	14966.8	15000.7	15033.9				
		Take	litres		34.50	34.30	33.00	33.90	33.20				
3.45	6.16	Average Take	l/m		34.50	34.30	33.00	33.90	33.20			33.78	2.44





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 2.372 | k (cm/s) = 2.4E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]10

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 11 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

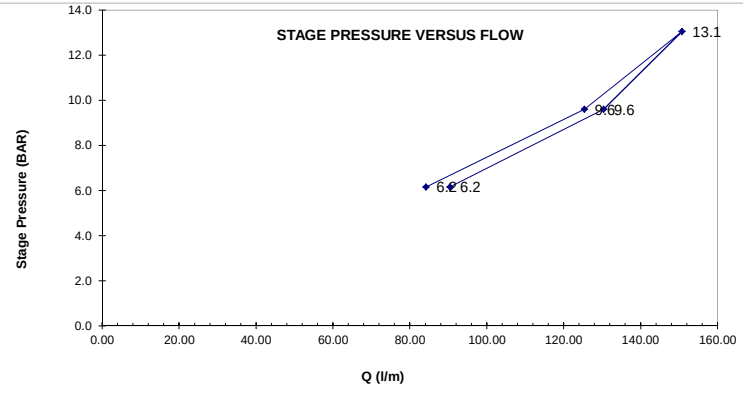
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

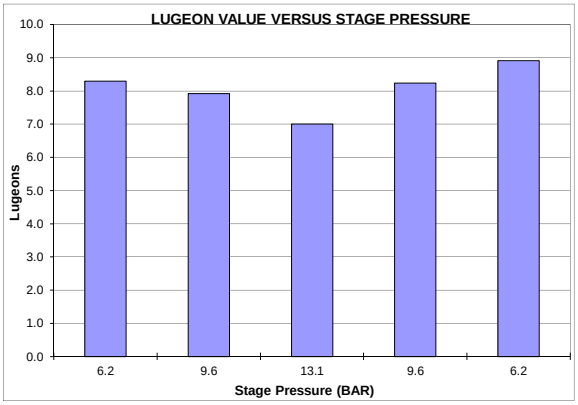
AREA: South Wall of Open Pit | TEST NO: 11

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 29.0 m (bgs) | TOP OF TEST INTERVAL: 677.49 ft (DOWN HOLE) / 206.50 m (DOWN HOLE)

DATE: 07-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 731.63 ft (DOWN HOLE) / 223.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	15345.0	15428.0	15513.0	15596.0	15681.0	15766.0				
		Take	litres		83.00	85.00	83.00	85.00	85.00				
3.45	6.16	Average Take	l/m		83.00	85.00	83.00	85.00	85.00			84.20	8.30
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	15865.0	15990.0	16115.0	16242.0	16368.0	16492.0				
		Take	litres		125.00	125.00	127.00	126.00	124.00				
6.89	9.60	Average Take	l/m		125.00	125.00	127.00	126.00	124.00			125.40	7.92
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	16800.0	16952.0	17101.0	17252.0	17403.0	17554.0				
		Take	litres		152.00	149.00	151.00	151.00	151.00				
10.34	13.05	Average Take	l/m		152.00	149.00	151.00	151.00	151.00			150.80	7.01
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	17691.0	17823.0	17955.0	18085.0	18214.0	18343.0				
		Take	litres		132.00	132.00	130.00	129.00	129.00				
6.89	9.60	Average Take	l/m		132.00	132.00	130.00	129.00	129.00			130.40	8.24
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	18438.0	18529.0	18619.0	18709.0	18799.0	18890.0				
		Take	litres		91.00	90.00	90.00	90.00	91.00				
3.45	6.16	Average Take	l/m		91.00	90.00	90.00	90.00	91.00			90.40	8.91





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test. First test to use Level TROLL transducer, but not set up properly

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 8.075 k (cm/s) = 8.1E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]11

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 12 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

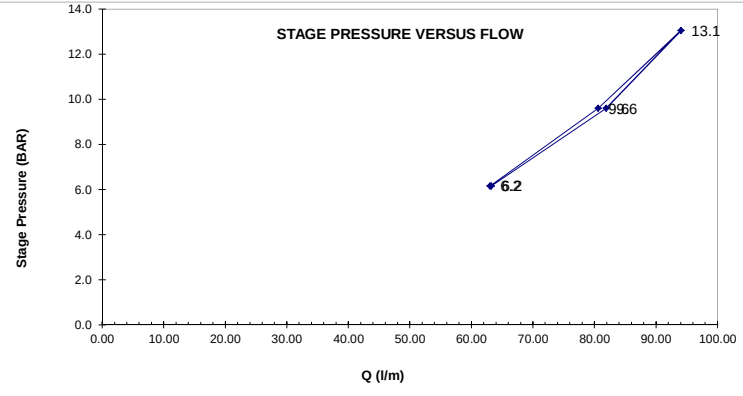
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

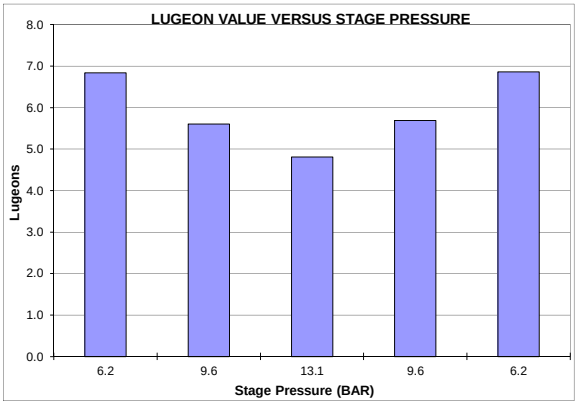
AREA: South Wall of Open Pit | TEST NO: 12

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 29.0 m (bgs) | TOP OF TEST INTERVAL: 790.68 ft (DOWN HOLE) / 241.00 m (DOWN HOLE)

DATE: 07-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 839.90 ft (DOWN HOLE) / 256.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	19200.0	19262.8	19325.2	19389.2	19453.8	19515.2				
		Take	litres		62.80	62.40	64.00	64.60	61.40				
3.45	6.16	Average Take	l/m		62.80	62.40	64.00	64.60	61.40			63.04	6.84
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	19580.0	19661.5	19740.7	19822.2	19900.9	19983.1				
		Take	litres		81.50	79.20	81.50	78.70	82.20				
6.89	9.60	Average Take	l/m		81.50	79.20	81.50	78.70	82.20			80.62	5.60
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	20050.0	20142.0	20237.1	20331.6	20425.2	20520.4				
		Take	litres		92.00	95.10	94.50	93.60	95.20				
10.34	13.05	Average Take	l/m		92.00	95.10	94.50	93.60	95.20			94.08	4.81
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	20570.0	20651.1	20733.2	20815.4	20897.1	20979.6				
		Take	litres		81.10	82.10	82.20	81.70	82.50				
6.89	9.60	Average Take	l/m		81.10	82.10	82.20	81.70	82.50			81.92	5.69
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	21050.0	21112.7	21177.2	21240.4	21303.2	21366.3				
		Take	litres		62.70	64.50	63.20	62.80	63.10				
3.45	6.16	Average Take	l/m		62.70	64.50	63.20	62.80	63.10			63.26	6.86





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test. First test to use Level TROLL transducer, but not set up properly

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 4.809 | k (cm/s) = 4.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]12

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 13 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

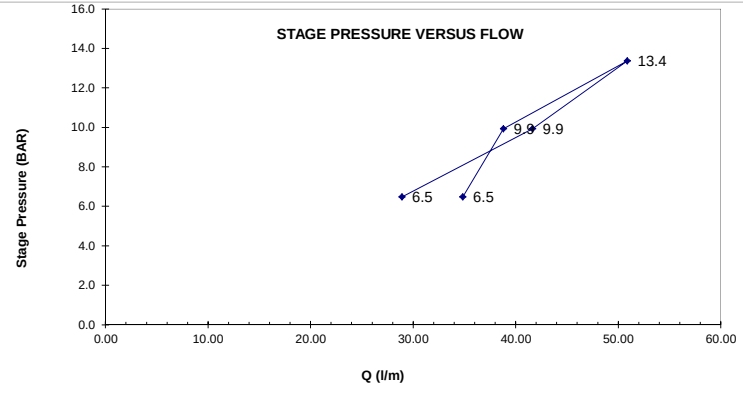
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

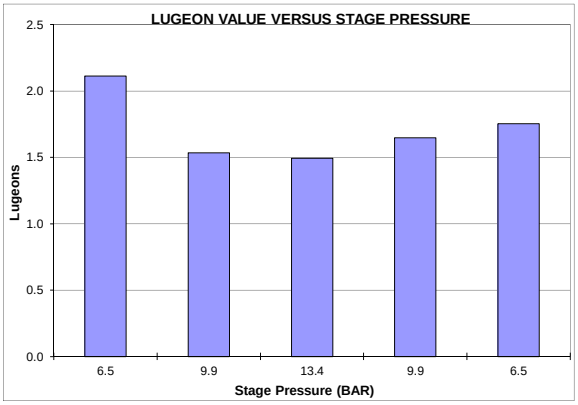
AREA: South Wall of Open Pit | TEST NO: 13

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 32.5 m (bgs) | TOP OF TEST INTERVAL: 834.97 ft (DOWN HOLE) / 254.50 m (DOWN HOLE)

DATE: 08-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 918.64 ft (DOWN HOLE) / 280.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	21770.0	21807.2	21845.5	21880.6	21913.9	21944.2					
		Take	litres		37.20	38.30	35.10	33.30	30.30					
3.45	6.48	Average Take	l/m		37.20	38.30	35.10	33.30	30.30				34.84	2.11
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	21986.0	22028.5	22071.0	22113.0	22156.2	22180.0					
		Take	litres		42.50	42.50	42.00	43.20	23.80					
6.89	9.92	Average Take	l/m		42.50	42.50	42.00	43.20	23.80				38.80	1.53
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22250.3	22298.3	22349.3	22400.0	22451.8	22504.7					
		Take	litres		48.00	51.00	50.70	51.80	52.90					
10.34	13.37	Average Take	l/m		48.00	51.00	50.70	51.80	52.90				50.88	1.49
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22547.2	22581.0	22630.5	22673.0	22713.7	22755.5					
		Take	litres		33.78	49.50	42.50	40.70	41.80					
6.89	9.92	Average Take	l/m		33.78	49.50	42.50	40.70	41.80				41.66	1.65
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	22788.0	22816.3	22846.0	22875.2	22903.7	22932.5					
		Take	litres		28.30	29.70	29.20	28.50	28.80					
3.45	6.48	Average Take	l/m		28.30	29.70	29.20	28.50	28.80				28.90	1.75





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 1.708 | k (cm/s) = 1.7E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	YES
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]13

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 14 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

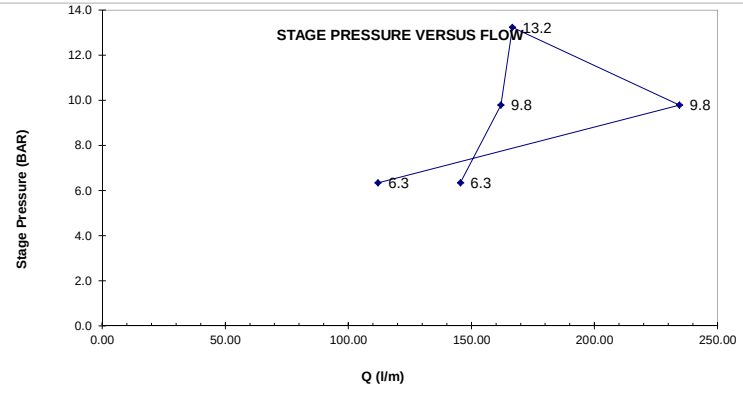
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

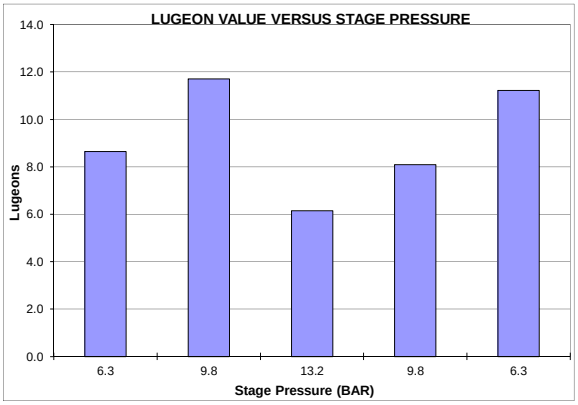
AREA: South Wall of Open Pit | TEST NO: 14

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 30.9 m (bgs) | TOP OF TEST INTERVAL: 916.99 ft (DOWN HOLE) / 279.50 m (DOWN HOLE)

DATE: 09-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 984.25 ft (DOWN HOLE) / 300.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	23240.0	23352.8	23465.1	23577.2	23609.6	23800.4				
		Take	litres		112.80	112.30	112.10	32.40	190.80				
3.45	6.33	Average Take	l/m		112.80	112.30	112.10	32.40	190.80			112.08	8.64
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	23500.0	24074.8	24200.3	24327.8	24455.2	24672.8				
		Take	litres		574.80	125.50	127.50	127.40	217.60				
6.89	9.78	Average Take	l/m		574.80	125.50	127.50	127.40	217.60			234.56	11.71
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	25550.0	25695.4	25866.2	26037.7	26208.2	26383.5				
		Take	litres		145.40	170.80	171.50	170.50	175.30				
10.34	13.23	Average Take	l/m		145.40	170.80	171.50	170.50	175.30			166.70	6.15
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	26640.0	26800.7	26964.2	27124.7	27287.4	27450.2				
		Take	litres		160.70	163.50	160.50	162.70	162.80				
6.89	9.78	Average Take	l/m		160.70	163.50	160.50	162.70	162.80			162.04	8.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	27475.0	27607.1	27742.9	27882.7	0.0	0.0				
		Take	litres		132.10	135.80	139.80	167.10	152.90				
3.45	6.33	Average Take	l/m		132.10	135.80	139.80	167.10	152.90			145.54	11.22





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 11.706 | k (cm/s) = 1.2E-04

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

Flowmeter units: m3

Lots of take, ran out of water twice

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]14

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 15 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

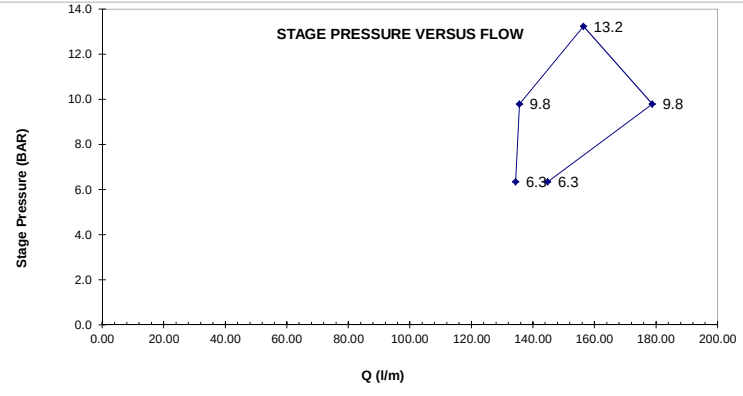
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

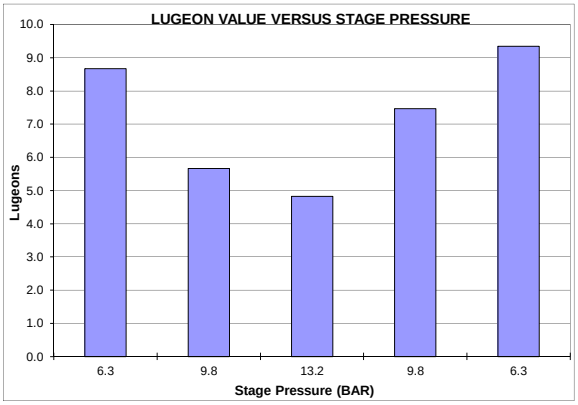
AREA: South Wall of Open Pit | TEST NO: 15

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 30.9 m (bgs) | TOP OF TEST INTERVAL: 979.33 ft (DOWN HOLE) / 298.50 m (DOWN HOLE)

DATE: 10-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1059.71 ft (DOWN HOLE) / 323.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	28600.0	28734.2	28871.8	29006.1	29142.1	29271.8				
		Take	litres		134.20	137.60	134.30	136.00	129.70				
3.45	6.33	Average Take	l/m		134.20	137.60	134.30	136.00	129.70			134.36	8.67
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	29325.0	29460.7	29695.5	29730.2	29866.6	30003.0				
		Take	litres		135.70	234.80	34.70	136.40	136.40				
6.89	9.78	Average Take	l/m		135.70	234.80	34.70	136.40	136.40			135.60	5.66
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	30125.0	30283.1	30437.9	30594.4	30750.8	30907.2				
		Take	litres		158.10	154.80	156.50	156.40	156.40				
10.34	13.23	Average Take	l/m		158.10	154.80	156.50	156.40	156.40			156.44	4.83
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	31300.0	31457.4	31637.7	31776.8	31933.6	32194.2				
		Take	litres		157.40	180.30	139.10	156.80	260.60				
6.89	9.78	Average Take	l/m		157.40	180.30	139.10	156.80	260.60			178.84	7.47
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	32170.0	32299.1	32425.8	32574.0	32718.8	0.0				
		Take	litres		129.10	126.70	148.20	167.10	152.90				
3.45	6.33	Average Take	l/m		129.10	126.70	148.20	167.10	152.90			144.80	9.34





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 4.829 | k (cm/s) = 4.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Lots of take, ran out of water twice

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]15

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 16 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

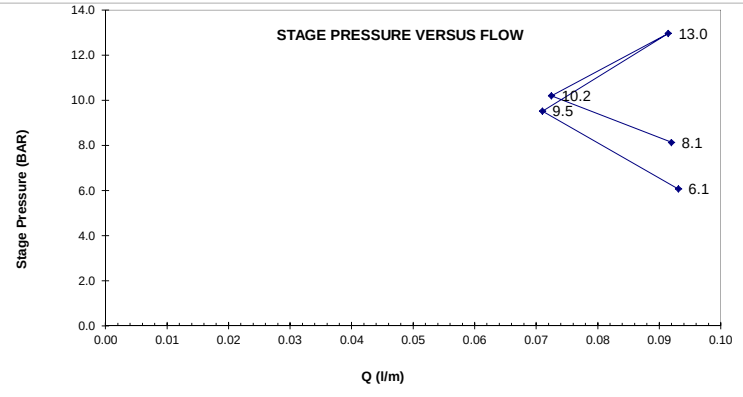
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

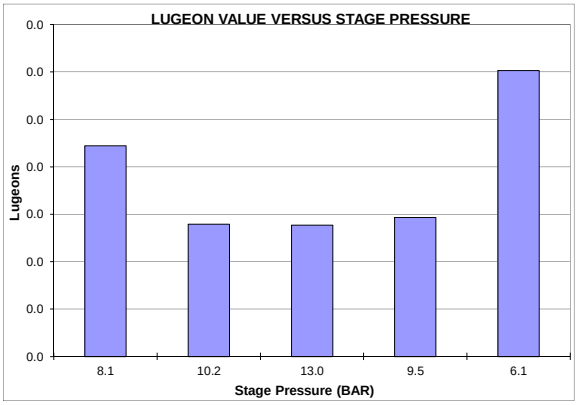
AREA: South Wall of Open Pit | TEST NO: 16

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 27.9 m (bgs) | TOP OF TEST INTERVAL: 1061.35 ft (DOWN HOLE) / 323.50 m (DOWN HOLE)

DATE: 10-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1145.01 ft (DOWN HOLE) / 349.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	32.9	32.9	33.0	33.1	33.3	33.4				
		Take	litres		0.01	0.12	0.09	0.17	0.07				
5.52	8.13	Average Take	l/m		0.01	0.12	0.09	0.17	0.07			0.09	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	33.3	33.4	33.5	33.5	33.6	33.7				
		Take	litres		0.07	0.07	0.08	0.07	0.07				
7.58	10.20	Average Take	l/m		0.07	0.07	0.08	0.07	0.07			0.07	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	33.7	33.8	33.9	34.0	34.1	34.2				
		Take	litres		0.10	0.08	0.10	0.09	0.09				
10.34	12.96	Average Take	l/m		0.10	0.08	0.10	0.09	0.09			0.09	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	34.2	34.3	34.4	34.4	34.5	34.6				
		Take	litres		0.07	0.07	0.07	0.07	0.07				
6.89	9.51	Average Take	l/m		0.07	0.07	0.07	0.07	0.07			0.07	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	34.6	34.7	34.8	34.9	35.0	35.1				
		Take	litres		0.07	0.09	0.10	0.10	0.10				
3.45	6.06	Average Take	l/m		0.07	0.09	0.10	0.10	0.10			0.09	0.01





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.003 | k (cm/s) = 2.8E-08

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
last P1 vaule pressure dropped so reajusted at 2min mark

TEST BY: JS | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 17 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

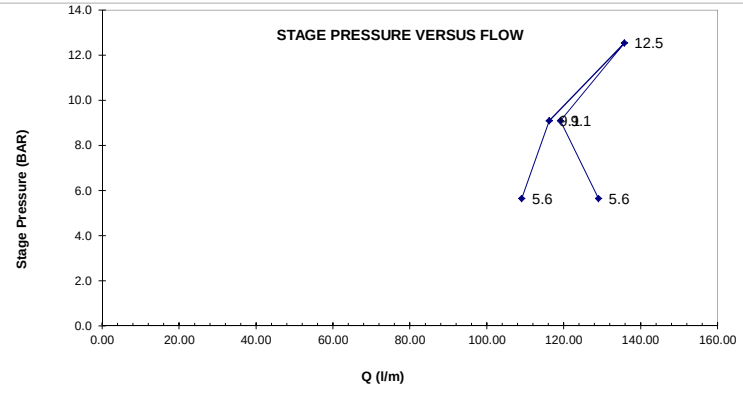
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

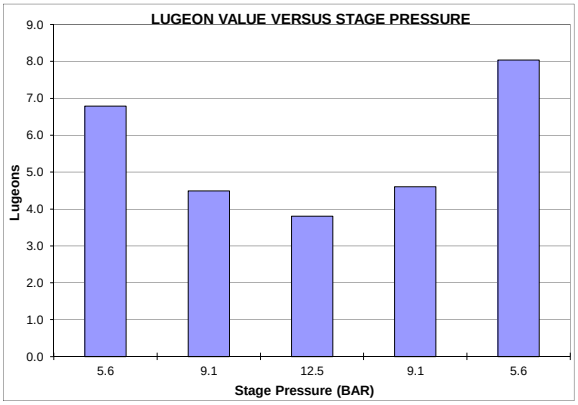
AREA: South Wall of Open Pit | TEST NO: 17

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 23.3 m (bgs) | TOP OF TEST INTERVAL: 1140.09 ft (DOWN HOLE) / 347.50 m (DOWN HOLE)

DATE: 12-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1233.60 ft (DOWN HOLE) / 376.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	35325.0	35452.8	35565.6	35666.7	35768.8	35870.3				
		Take	litres		127.80	112.80	101.10	102.10	101.50				
3.45	5.64	Average Take	l/m		127.80	112.80	101.10	102.10	101.50			109.06	6.79
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	35925.0	36042.8	36158.0	36275.2	36390.8	36506.1				
		Take	litres		117.80	115.20	117.20	115.60	115.30				
6.89	9.09	Average Take	l/m		117.80	115.20	117.20	115.60	115.30			116.22	4.49
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	36635.0	36766.4	36901.7	37038.1	37176.8	37313.8				
		Take	litres		131.40	135.30	136.40	138.70	137.00				
10.34	12.54	Average Take	l/m		131.40	135.30	136.40	138.70	137.00			135.76	3.80
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	37400.0	37520.6	37639.1	37760.0	37878.7	37995.8				
		Take	litres		120.60	118.50	120.90	118.70	117.10				
6.89	9.09	Average Take	l/m		120.60	118.50	120.90	118.70	117.10			119.16	4.60
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	38225.0	38334.8	38445.8	38550.2	38645.7	38742.3				
		Take	litres		109.80	111.00	104.40	167.10	152.90				
3.45	5.64	Average Take	l/m		109.80	111.00	104.40	167.10	152.90			129.04	8.03





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 3.802 | k (cm/s) = 3.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3
Lots of take, ran out of water
trouble seating packer

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]17

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 18 OF 18

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

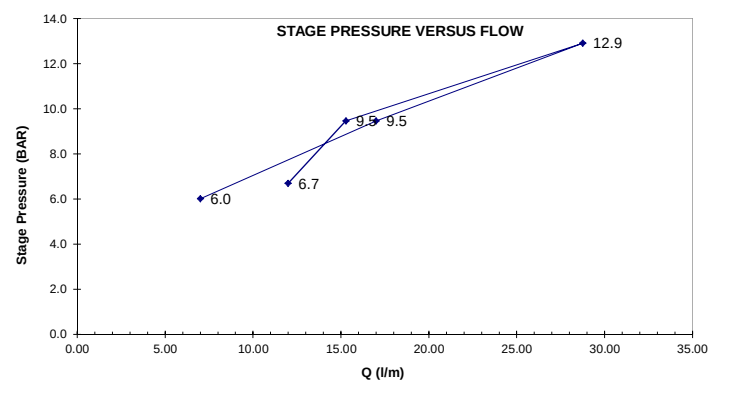
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-02

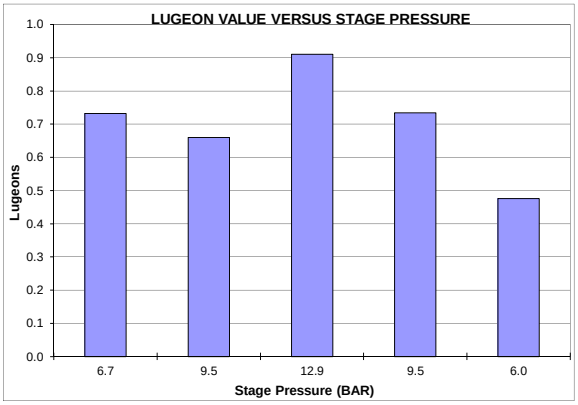
AREA: South Wal of Open Pit | TEST NO: 18

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 26.7 m (bgs) | TOP OF TEST INTERVAL: 1231.96 ft (DOWN HOLE) / 375.50 m (DOWN HOLE)

DATE: 13-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 1.5 m | BOTTOM OF TEST INTERVAL: 1312.34 ft (DOWN HOLE) / 400.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)			0	1	2	3	4	5			FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	38770.0	38784.4	38798.2	38812.0	38824.8	38830.0				
		Take	litres		14.40	13.80	13.80	12.80	5.20				
4.14	6.70	Average Take	l/m		14.40	13.80	13.80	12.80	5.20			12.00	0.73
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	38845.0	38860.0	38876.5	38891.8	38907.0	38921.4				
		Take	litres		15.00	16.50	15.30	15.20	14.40				
6.89	9.46	Average Take	l/m		15.00	16.50	15.30	15.20	14.40			15.28	0.66
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	38940.0	38970.4	38999.5	39027.5	39056.5	39083.8				
		Take	litres		30.40	29.10	28.00	29.00	27.30				
10.34	12.91	Average Take	l/m		30.40	29.10	28.00	29.00	27.30			28.76	0.91
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	39090.0	39107.0	39124.5	39142.4	39159.5	39175.0				
		Take	litres		17.00	17.50	17.90	17.10	15.50				
6.89	9.46	Average Take	l/m		17.00	17.50	17.90	17.10	15.50			17.00	0.73
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	39180.0	39187.5	39194.5	39201.3	39208.0	39215.0				
		Take	litres		7.50	7.00	6.80	6.70	7.00				
3.45	6.01	Average Take	l/m		7.50	7.00	6.80	6.70	7.00			7.00	0.48





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.651 | k (cm/s) = 6.5E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	YES
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-02_Packer Testing Sheet.xlsx]18

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 1 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

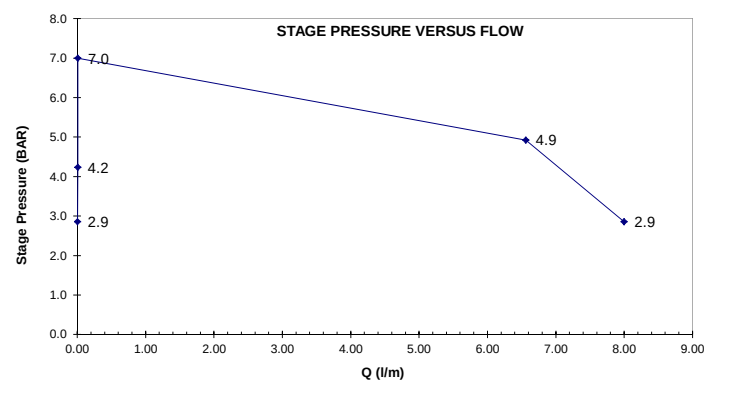
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

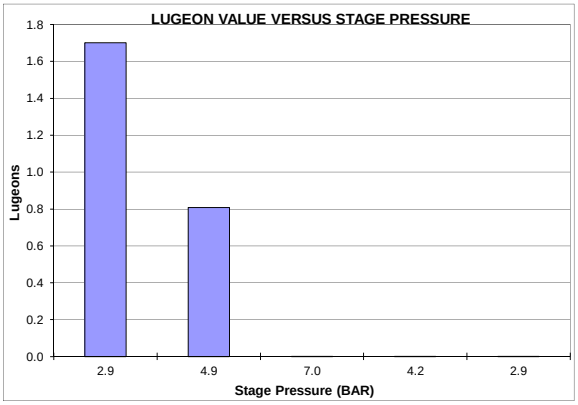
AREA: South Wall of Open Pit | TEST NO: 1

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.1 m (bgs) | TOP OF TEST INTERVAL: 195.21 ft (DOWN HOLE) / 59.50 m (DOWN HOLE)

DATE: 15-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 249.34 ft (DOWN HOLE) / 76.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	39212.0	39228.0	39234.5	39240.2	39246.4	39252.0					
		Take	litres		16.00	6.50	5.70	6.20	5.60					
2.76	2.86	Average Take	l/m		16.00	6.50	5.70	6.20	5.60				8.00	1.70
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	39257.0	39264.0	39270.4	39277.0	39283.2	39289.8					
		Take	litres		7.00	6.40	6.60	6.20	6.60					
4.83	4.93	Average Take	l/m		7.00	6.40	6.60	6.20	6.60				6.56	0.81
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	39.3	39.3	39.3	39.3	39.3	39.3					
		Take	litres		0.01	0.01	0.01	0.01	0.01					
6.89	6.99	Average Take	l/m		0.01	0.01	0.01	0.01	0.01				0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	39.4	39.4	39.4	39.4	39.4	39.4					
		Take	litres		0.01	0.01	0.01	0.01	0.01					
4.14	4.24	Average Take	l/m		0.01	0.01	0.01	0.01	0.01				0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	39.4	39.4	39.4	39.4	39.4	39.4					
		Take	litres		0.00	0.01	0.01	0.00	0.00					
2.76	2.86	Average Take	l/m		0.00	0.01	0.01	0.00	0.00				0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 1.702 | k (cm/s) = 1.7E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: JS | ANALYZED BY: DAY | REVIEWED BY: KJB

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]1

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	12AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 2 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

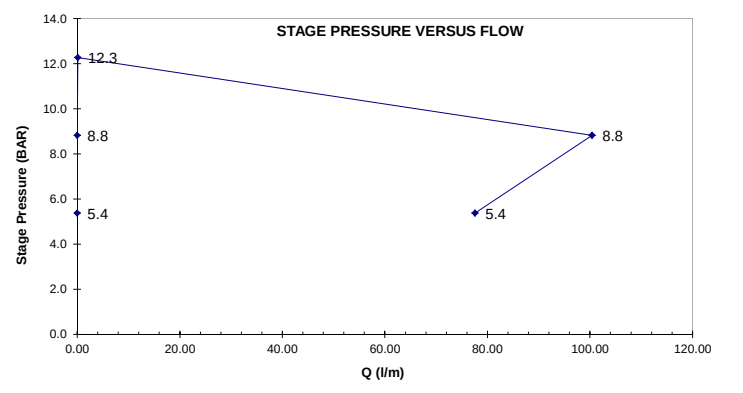
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

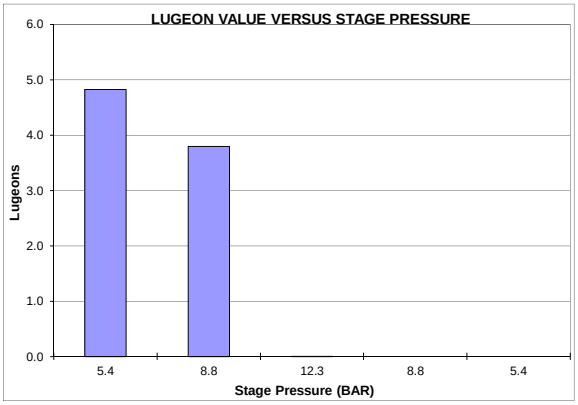
AREA: South Wall of Open Pit | TEST NO: 2

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 19.6 m (bgs) | TOP OF TEST INTERVAL: 249.34 ft (DOWN HOLE) / 76.00 m (DOWN HOLE)

DATE: 16-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 1.5 m | BOTTOM OF TEST INTERVAL: 347.77 ft (DOWN HOLE) / 106.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	39490.0	39568.6	39647.1	39723.8	39802.5	39877.9					
		Take	litres		78.60	78.50	76.70	78.70	75.40					
3.45	5.37	Average Take	l/m		78.60	78.50	76.70	78.70	75.40				77.58	4.82
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	40065.0	40165.7	40267.4	40366.5	40468.1	40567.0					
		Take	litres		100.70	101.70	99.10	101.60	98.90					
6.89	8.82	Average Take	l/m		100.70	101.70	99.10	101.60	98.90				100.40	3.80
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	40.7	40.8	41.0	0.0	0.0	0.0					
		Take	litres		0.13	0.14								
10.34	12.27	Average Take	l/m		0.13	0.14							0.13	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	0.0	0.0	0.0	0.0	0.0	0.0					
		Take	litres											
6.89	8.82	Average Take	l/m										#DIV/0!	#DIV/0!
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	0.0	0.0	0.0	0.0	0.0	0.0					
		Take	litres											
3.45	5.37	Average Take	l/m										#DIV/0!	#DIV/0!





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= #DIV/0! k (cm/s) = #DIV/0!

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

Flowmeter units: m3

Failed test, water coming up through the casing and rods

pressure were too high

TEST BY: AB | ANALYZED BY: DAY | REVIEWED BY: KJB

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]2

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 3 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

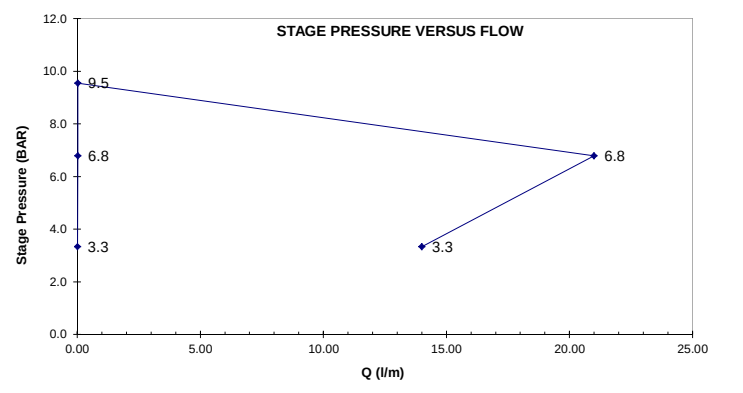
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

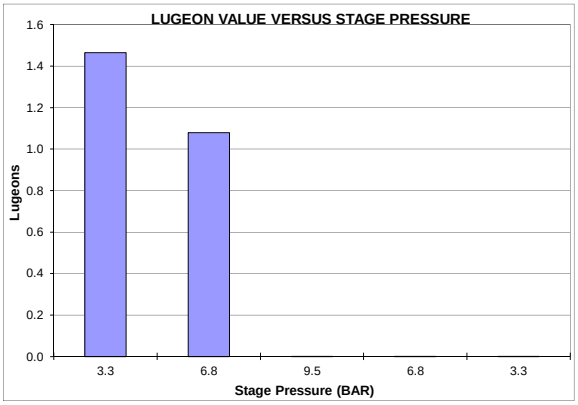
AREA: South Wall of Open Pit | TEST NO: 3

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.8 m (bgs) | TOP OF TEST INTERVAL: 282.97 ft (DOWN HOLE) / 86.25 m (DOWN HOLE)

DATE: 15-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 1.5 m | BOTTOM OF TEST INTERVAL: 377.30 ft (DOWN HOLE) / 115.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	41090.0	41105.5	41122.0	41138.0	41158.5	41160.0				
		Take	litres		15.50	16.50	16.00	20.50	1.50				
2.76	3.34	Average Take	l/m		15.50	16.50	16.00	20.50	1.50			14.00	1.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	41170.0	41192.0	41213.0	41232.9	41255.0	41275.0				
		Take	litres		22.00	21.00	19.90	22.10	20.00				
6.21	6.79	Average Take	l/m		22.00	21.00	19.90	22.10	20.00			21.00	1.08
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	41.3	41.3	41.3	41.4	41.4	41.4				
		Take	litres		0.03	0.03	0.03	0.03	0.03				
8.96	9.55	Average Take	l/m		0.03	0.03	0.03	0.03	0.03			0.03	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	41.5	41.5	41.5	41.5	41.5	41.6				
		Take	litres		0.03	0.02	0.02	0.03	0.02				
6.21	6.79	Average Take	l/m		0.03	0.02	0.02	0.03	0.02			0.02	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	41.6	41.6	41.6	41.6	41.6	41.6				
		Take	litres		0.01	0.01	0.01	0.01	0.01				
2.76	3.34	Average Take	l/m		0.01	0.01	0.01	0.01	0.01			0.01	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 1.464 | k (cm/s) = 1.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: DAY | REVIEWED BY: KJB

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]3

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 4 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

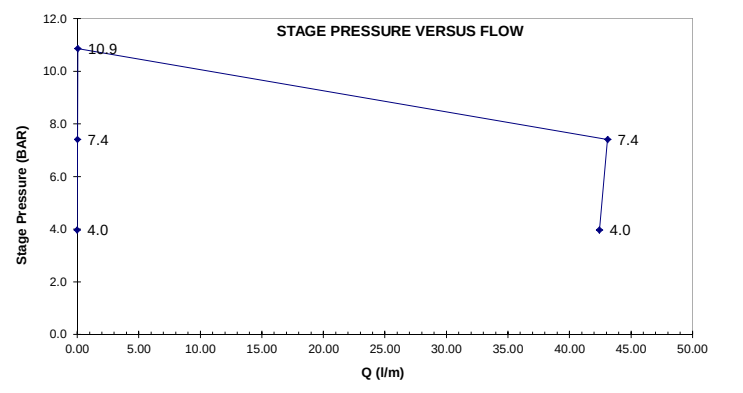
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

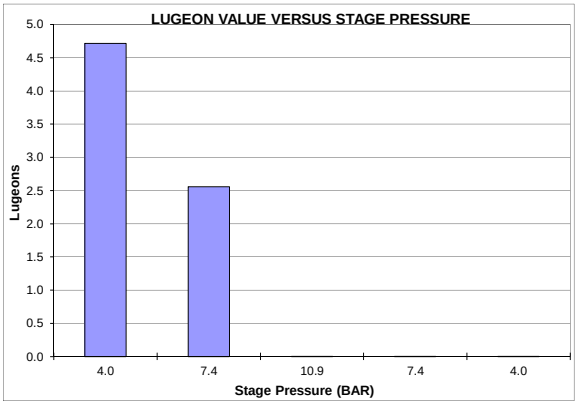
AREA: South Wall of Open Pit | TEST NO: 4

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.8 m (bgs) | TOP OF TEST INTERVAL: 656.99 ft (DOWN HOLE) / 200.25 m (DOWN HOLE)

DATE: 19-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 731.63 ft (DOWN HOLE) / 223.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	42010.0	42068.2	42123.3	42156.9	42190.6	42222.2				
		Take	litres		58.20	55.10	33.60	33.70	31.60				
3.45	3.96	Average Take	l/m		58.20	55.10	33.60	33.70	31.60			42.44	4.71
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	42245.0	42296.1	42346.8	42390.7	42426.3	42460.5				
		Take	litres		51.10	50.70	43.90	35.60	34.20				
6.89	7.41	Average Take	l/m		51.10	50.70	43.90	35.60	34.20			43.10	2.56
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	42.5	42.5	42.6	42.6	42.7	42.7				
		Take	litres		0.06	0.06	0.05	0.04	0.04				
10.34	10.86	Average Take	l/m		0.06	0.06	0.05	0.04	0.04			0.05	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	42.7	42.7	42.8	42.8	42.8	42.9				
		Take	litres		0.00	0.02	0.04	0.04	0.03				
6.89	7.41	Average Take	l/m		0.00	0.02	0.04	0.04	0.03			0.03	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	42.9	42.9	42.9	42.9	42.9	42.9				
		Take	litres		-0.02	0.00	0.00	0.02	0.02				
3.45	3.96	Average Take	l/m		-0.02	0.00	0.00	0.02	0.02			0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 1.819 | k (cm/s) = 1.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	YES
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: DAY | REVIEWED BY: KJB

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]4

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 5 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

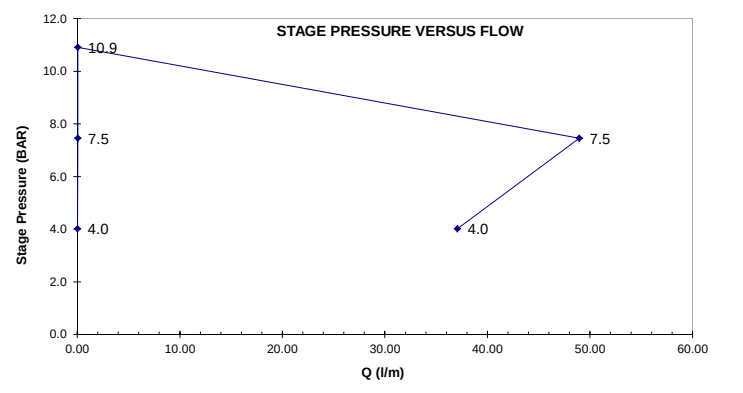
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

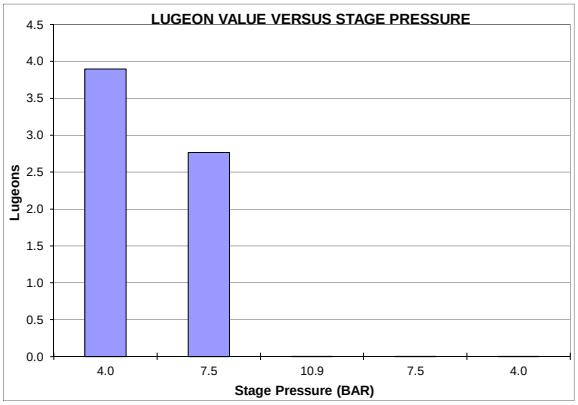
AREA: South Wall of Open Pit | TEST NO: 5

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 5.3 m (bgs) | TOP OF TEST INTERVAL: 761.98 ft (DOWN HOLE) / 232.25 m (DOWN HOLE)

DATE: 20-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 839.90 ft (DOWN HOLE) / 256.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	42823.0	42386.1	42897.2	42934.8	42972.5	43008.4					
		Take	litres		-436.89	511.09	37.60	37.70	35.90					
3.45	4.01	Average Take	l/m		-436.89	511.09	37.60	37.70	35.90				37.08	3.90
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	43170.0	43218.1	43268.7	43315.6	43365.2	43414.8					
		Take	litres		48.10	50.60	46.90	49.60	49.60					
6.89	7.46	Average Take	l/m		48.10	50.60	46.90	49.60	49.60				48.96	2.77
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	43.5	43.5	43.6	43.6	43.7	43.8					
		Take	litres		0.06	0.06	0.06	0.06	0.06					
10.34	10.91	Average Take	l/m		0.06	0.06	0.06	0.06	0.06				0.06	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	43.8	43.9	43.9	44.0	44.6	44.1					
		Take	litres		0.05	0.05	0.05	0.65	-0.55					
6.89	7.46	Average Take	l/m		0.05	0.05	0.05	0.65	-0.55				0.05	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	44.1	44.1	44.2	44.2	44.3	44.3					
		Take	litres		0.04	0.04	0.04	0.05	0.04					
3.45	4.01	Average Take	l/m		0.04	0.04	0.04	0.05	0.04				0.04	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 3.899 | k (cm/s) = 3.9E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

SHEET 6 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

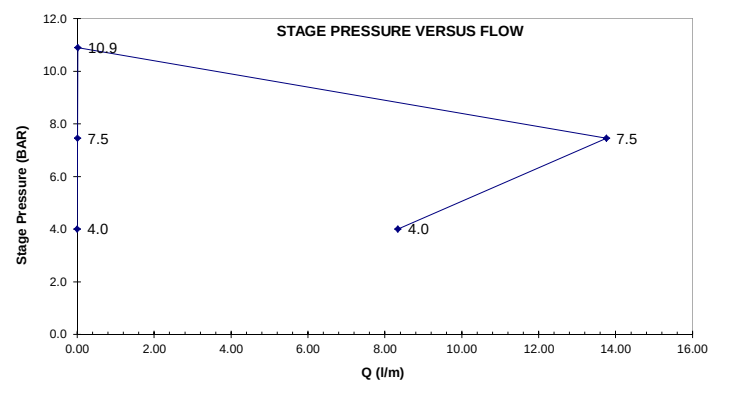
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

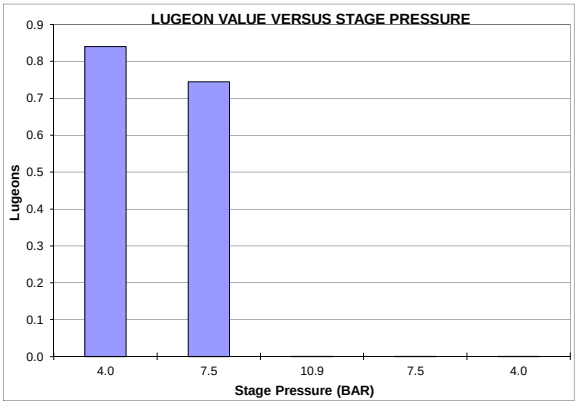
AREA: South Wall of Open Pit | TEST NO: 6

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 5.3 m (bgs) | TOP OF TEST INTERVAL: 834.97 ft (DOWN HOLE) / 254.50 m (DOWN HOLE)

DATE: 20-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 916.34 ft (DOWN HOLE) / 279.30 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	44480.0	44488.9	44497.9	44505.7	44513.4	44521.7				
		Take	litres		8.90	9.00	7.75	7.75	8.30				
3.45	4.01	Average Take	l/m		8.90	9.00	7.75	7.75	8.30			8.34	0.84
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	44537.6	44556.2	44574.6	44587.9	44596.3	44606.4				
		Take	litres		18.60	18.40	13.30	8.40	10.10				
6.89	7.46	Average Take	l/m		18.60	18.40	13.30	8.40	10.10			13.76	0.74
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	44.6	44.6	44.7	44.7	44.7	44.7				
		Take	litres		0.02	0.02	0.02	0.01	0.01				
10.34	10.90	Average Take	l/m		0.02	0.02	0.02	0.01	0.01			0.02	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	44.7	44.7	44.7	44.7	44.7	44.7				
		Take	litres		0.01	0.01	0.01	0.01	0.01				
6.89	7.46	Average Take	l/m		0.01	0.01	0.01	0.01	0.01			0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	44.7	44.7	44.7	44.8	44.8	44.8				
		Take	litres		0.00	0.00	0.00	0.01	0.01				
3.45	4.01	Average Take	l/m		0.00	0.00	0.00	0.01	0.01			0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.841 | k (cm/s) = 8.4E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]6

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 7 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

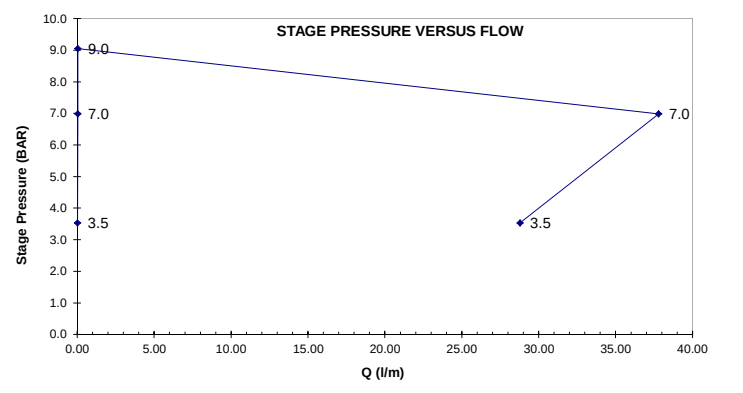
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

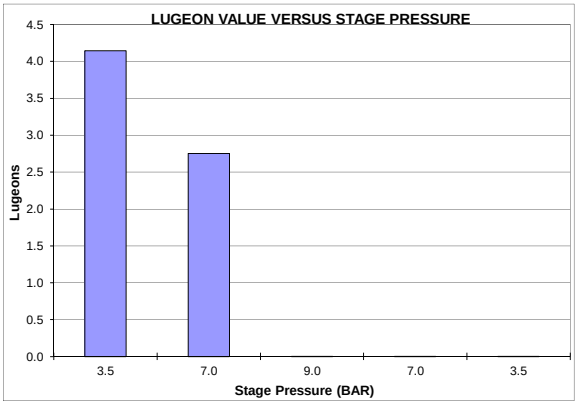
AREA: South Wall of Open Pit | TEST NO: 7

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 922.90 ft (DOWN HOLE) / 281.30 m (DOWN HOLE)

DATE: 21-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 987.53 ft (DOWN HOLE) / 301.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	45105.0	45133.9	45163.0	45191.8	45220.2	45248.9				
		Take	litres		28.90	29.10	28.80	28.40	28.70				
3.45	3.53	Average Take	l/m		28.90	29.10	28.80	28.40	28.70			28.78	4.15
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	45285.0	45322.3	45360.0	45398.2	45435.1	45474.0				
		Take	litres		37.30	37.70	38.20	36.90	38.90				
6.89	6.98	Average Take	l/m		37.30	37.70	38.20	36.90	38.90			37.80	2.75
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	45.5	45.6	45.6	45.7	45.7	45.8				
		Take	litres		0.05	0.05	0.05	0.05	0.05				
8.96	9.05	Average Take	l/m		0.05	0.05	0.05	0.05	0.05			0.05	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	45.8	45.8	45.9	45.9	45.9	46.0				
		Take	litres		0.03	0.04	0.04	0.04	0.04				
6.89	6.98	Average Take	l/m		0.03	0.04	0.04	0.04	0.04			0.04	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	46.0	46.0	46.0	46.1	46.1	46.1				
		Take	litres		0.02	0.02	0.03	0.02	0.02				
3.45	3.53	Average Take	l/m		0.02	0.02	0.03	0.02	0.02			0.02	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 4.145 | k (cm/s) = 4.1E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]7

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 8 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

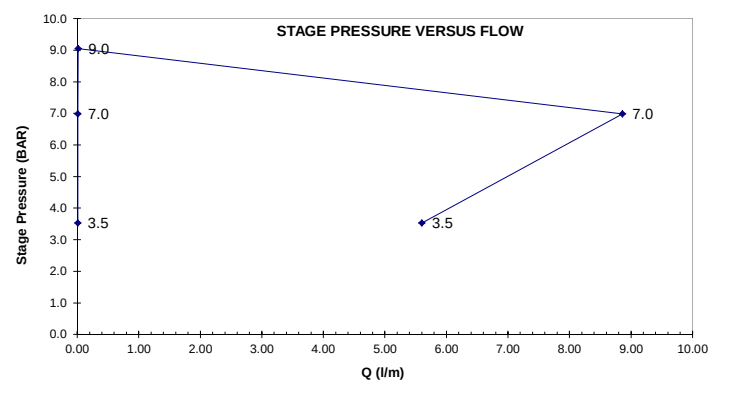
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

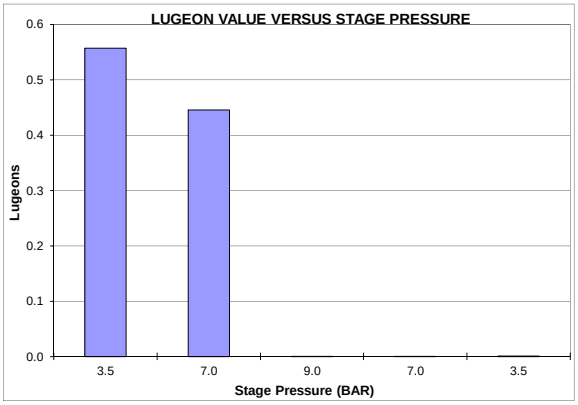
AREA: South Wall of Open Pit | TEST NO: 8

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 992.45 ft (DOWN HOLE) / 302.50 m (DOWN HOLE)

DATE: 22-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1085.96 ft (DOWN HOLE) / 331.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	46182.0	46187.7	46193.4	46198.8	46204.3	46210.0					
		Take	litres		5.70	5.70	5.40	5.50	5.70					
3.45	3.53	Average Take	l/m		5.70	5.70	5.40	5.50	5.70				5.60	0.56
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46218.7	46227.8	46236.8	46245.7	46254.2	46263.0					
		Take	litres		9.10	9.00	8.90	8.50	8.80					
6.89	6.98	Average Take	l/m		9.10	9.00	8.90	8.50	8.80				8.86	0.45
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46.3	46.3	46.3	46.3	46.3	46.3					
		Take	litres		0.01	0.01	0.01	0.01	0.01					
8.96	9.05	Average Take	l/m		0.01	0.01	0.01	0.01	0.01				0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46.4	46.4	46.4	46.4	46.4	46.4					
		Take	litres		0.01	0.01	0.01	0.01	0.01					
6.89	6.98	Average Take	l/m		0.01	0.01	0.01	0.01	0.01				0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46.4	46.4	46.4	46.4	46.5	46.5					
		Take	litres		0.01	0.01	0.01	0.01	0.01					
3.45	3.53	Average Take	l/m		0.01	0.01	0.01	0.01	0.01				0.01	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.558 | k (cm/s) = 5.6E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]8

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 9 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

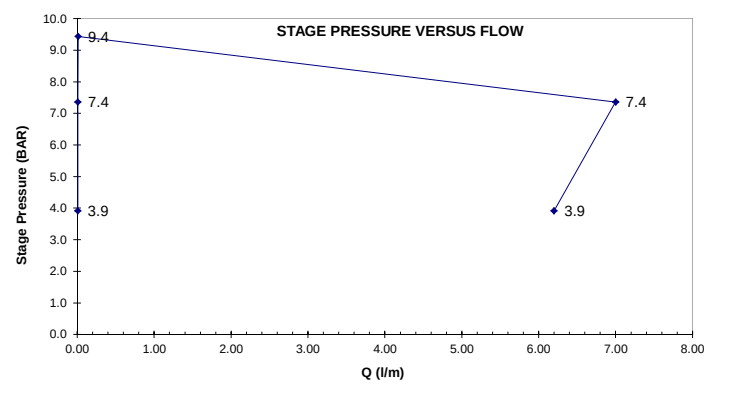
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

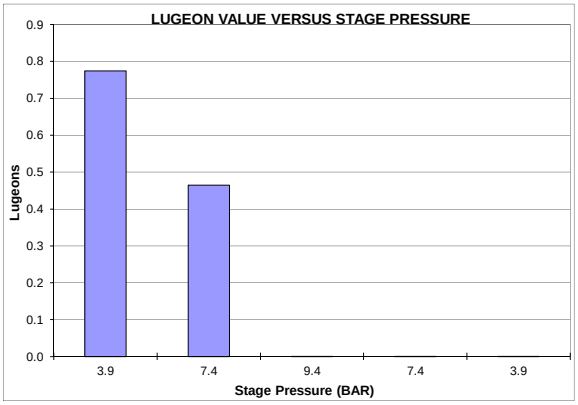
AREA: South Wall of Open Pit | TEST NO: 9

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.2 m (bgs) | TOP OF TEST INTERVAL: 1097.44 ft (DOWN HOLE) / 334.50 m (DOWN HOLE)

DATE: 22-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1164.70 ft (DOWN HOLE) / 355.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	46505.0	46512.0	46518.0	46524.0	46530.0	46536.0				
		Take	litres		7.00	6.00	6.00	6.00	6.00				
3.45	3.92	Average Take	l/m		7.00	6.00	6.00	6.00	6.00			6.20	0.77
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	46540.0	46547.0	46554.0	46562.0	46568.0	46575.0				
		Take	litres		7.00	7.00	8.00	6.00	7.00				
6.89	7.36	Average Take	l/m		7.00	7.00	8.00	6.00	7.00			7.00	0.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	46.6	46.6	46.6	46.6	46.6	46.6				
		Take	litres		0.01	0.01	0.01	0.01	0.01				
8.96	9.43	Average Take	l/m		0.01	0.01	0.01	0.01	0.01			0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	46.6	46.7	46.7	46.7	46.7	46.7				
		Take	litres		0.01	0.01	0.01	0.01	0.01				
6.89	7.36	Average Take	l/m		0.01	0.01	0.01	0.01	0.01			0.01	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	46.7	46.7	46.7	46.7	46.7	46.7				
		Take	litres		0.01	0.01	0.01	0.01	0.01				
3.45	3.92	Average Take	l/m		0.01	0.01	0.01	0.01	0.01			0.01	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.774 | k (cm/s) = 7.7E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]9

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 10 OF 10

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

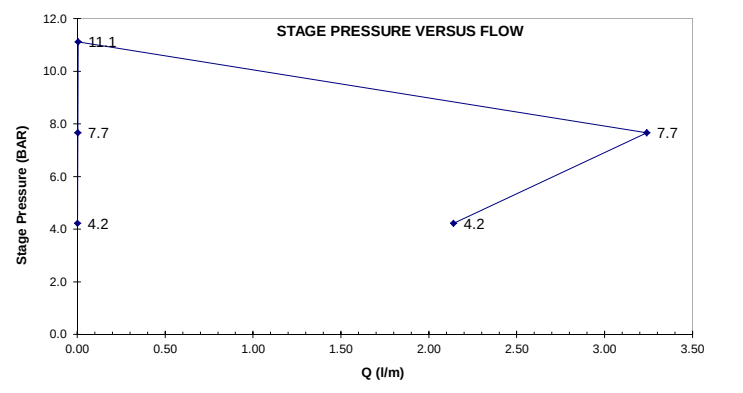
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-03

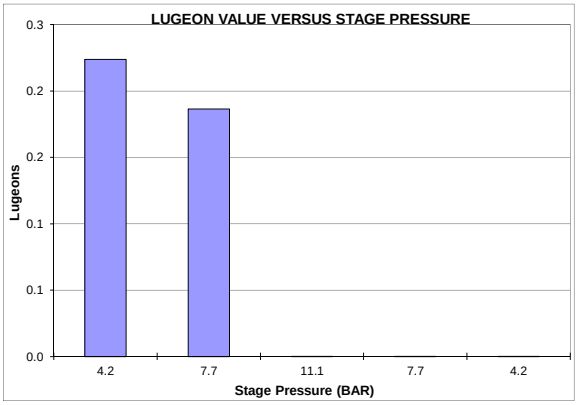
AREA: South Wall of Open Pit | TEST NO: 10

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 7.6 m (bgs) | TOP OF TEST INTERVAL: 1159.12 ft (DOWN HOLE) / 353.30 m (DOWN HOLE)

DATE: 23-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1233.60 ft (DOWN HOLE) / 376.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	46741.5	46743.9	46745.9	46748.3	46750.2	46752.2					
		Take	litres		2.40	2.00	2.40	1.90	2.00					
3.45	4.22	Average Take	l/m		2.40	2.00	2.40	1.90	2.00				2.14	0.22
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46755.8	46759.0	46762.4	46765.7	46769.1	46772.0					
		Take	litres		3.20	3.40	3.30	3.40	2.90					
6.89	7.67	Average Take	l/m		3.20	3.40	3.30	3.40	2.90				3.24	0.19
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46.8	46.8	46.8	46.8	46.8	46.8					
		Take	litres		0.01	0.00	0.00	0.00	0.00					
10.34	11.12	Average Take	l/m		0.01	0.00	0.00	0.00	0.00				0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46.8	46.8	46.8	46.8	46.8	46.8					
		Take	litres		0.00	0.00	0.00	0.00	0.00					
6.89	7.67	Average Take	l/m		0.00	0.00	0.00	0.00	0.00				0.00	0.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46.8	46.8	46.8	46.8	46.8	46.8					
		Take	litres		0.00	0.00	0.00	0.00	0.00					
3.45	4.22	Average Take	l/m		0.00	0.00	0.00	0.00	0.00				0.00	0.00





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.224 | k (cm/s) = 2.2E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: AB | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-03_Packer Testing Sheet.xlsx]10

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	15AUG'12	ISSUED WITH REPORT 3	JS	DAY	KJB

SHEET 1 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

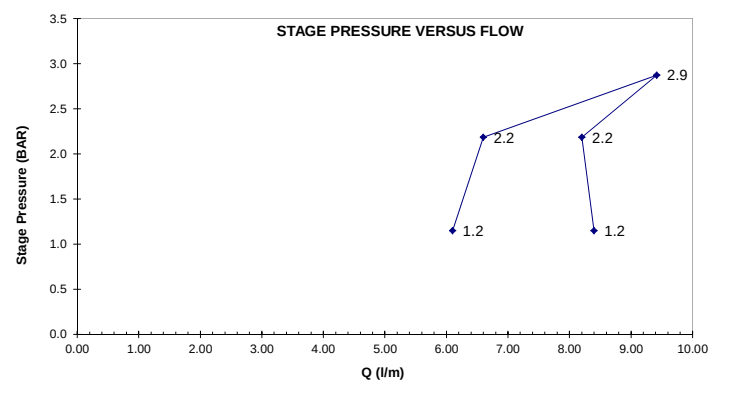
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

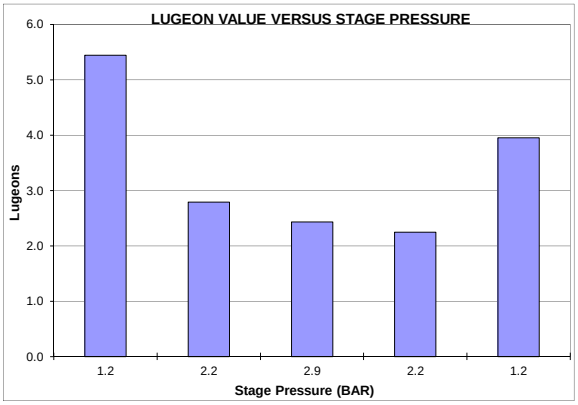
AREA: South Wal of Open Pit | TEST NO: 1

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.2 m (bgs) | TOP OF TEST INTERVAL: 67.26 ft (DOWN HOLE) / 20.50 m (DOWN HOLE)

DATE: 25-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.8 m | BOTTOM OF TEST INTERVAL: 111.55 ft (DOWN HOLE) / 34.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	46855.0	46864.5	46873.0	46881.0	46889.2	46897.0					
		Take	litres		9.50	8.50	8.00	8.20	7.80					
0.69	1.15	Average Take	l/m		9.50	8.50	8.00	8.20	7.80				8.40	5.45
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46907.0	46915.5	46924.0	46931.9	46940.0	46948.0					
		Take	litres		8.50	8.50	7.90	8.10	8.00					
1.72	2.18	Average Take	l/m		8.50	8.50	7.90	8.10	8.00				8.20	2.79
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	46958.0	46967.8	46977.3	46986.9	46996.0	47005.1					
		Take	litres		9.80	9.50	9.60	9.10	9.10					
2.41	2.87	Average Take	l/m		9.80	9.50	9.60	9.10	9.10				9.42	2.43
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47010.0	47016.0	47022.8	47029.5	47036.0	47043.0					
		Take	litres		6.00	6.80	6.70	6.50	7.00					
1.72	2.18	Average Take	l/m		6.00	6.80	6.70	6.50	7.00				6.60	2.25
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47047.0	47053.1	47059.2	47065.0	47071.2	47077.5					
		Take	litres		6.10	6.10	5.80	6.20	6.30					
0.69	1.15	Average Take	l/m		6.10	6.10	5.80	6.20	6.30				6.10	3.95





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 2.434 | k (cm/s) = 2.4E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]1

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 2 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

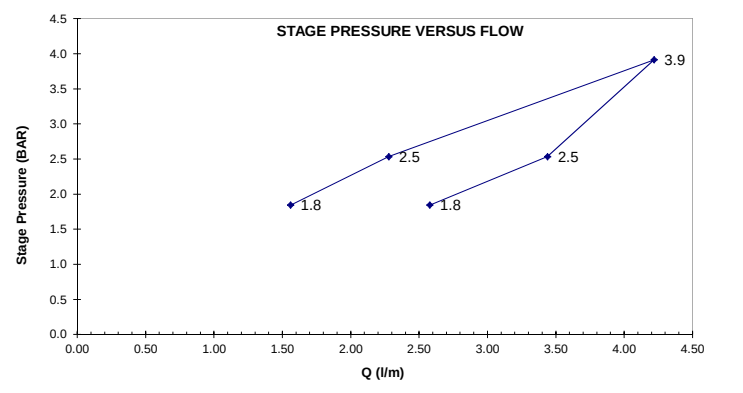
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

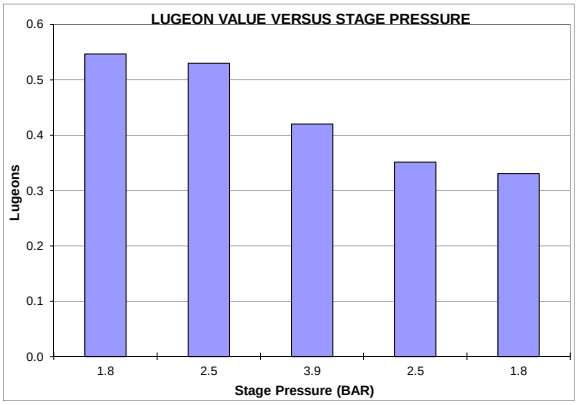
AREA: South Wall of Open Pit | TEST NO: 2

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.2 m (bgs) | TOP OF TEST INTERVAL: 105.97 ft (DOWN HOLE) / 32.30 m (DOWN HOLE)

DATE: 26-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 190.29 ft (DOWN HOLE) / 58.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	47130.0	47132.7	47135.2	47137.9	47140.3	47142.9					
		Take	litres		2.70	2.50	2.70	2.40	2.60					
1.38	1.84	Average Take	l/m		2.70	2.50	2.70	2.40	2.60				2.58	0.55
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47147.0	47150.6	47154.0	47157.6	47161.0	47164.2					
		Take	litres		3.60	3.40	3.60	3.40	3.20					
2.07	2.53	Average Take	l/m		3.60	3.40	3.60	3.40	3.20				3.44	0.53
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47168.9	47172.3	47177.6	47181.8	47186.0	47190.0					
		Take	litres		3.40	5.30	4.20	4.20	4.00					
3.45	3.91	Average Take	l/m		3.40	5.30	4.20	4.20	4.00				4.22	0.42
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47191.9	47194.1	47196.3	47198.6	47201.0	47203.3					
		Take	litres		2.20	2.20	2.30	2.40	2.30					
2.07	2.53	Average Take	l/m		2.20	2.20	2.30	2.40	2.30				2.28	0.35
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47204.2	47205.5	47207.0	47208.6	47210.3	47212.0					
		Take	litres		1.30	1.50	1.60	1.70	1.70					
1.38	1.84	Average Take	l/m		1.30	1.50	1.60	1.70	1.70				1.56	0.33





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 0.330 | k (cm/s) = 3.3E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	YES
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]2

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 3 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

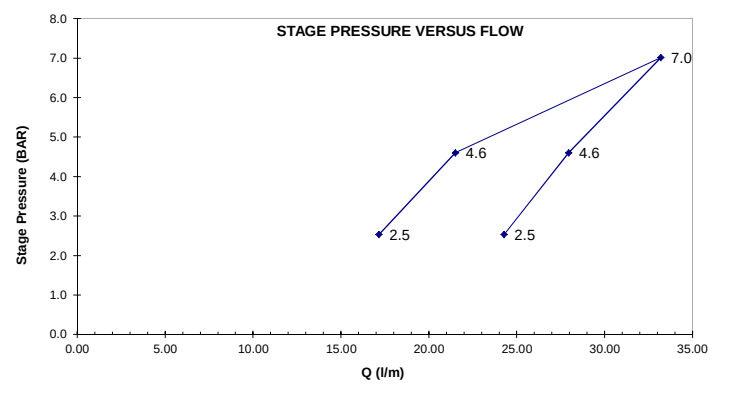
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

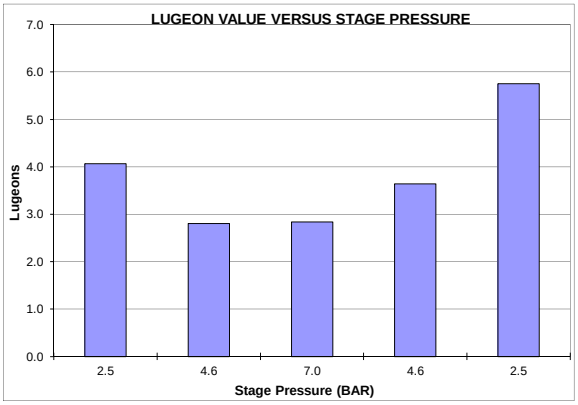
AREA: South Wall of Open Pit | TEST NO: 3

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.2 m (bgs) | TOP OF TEST INTERVAL: 204.40 ft (DOWN HOLE) / 62.30 m (DOWN HOLE)

DATE: 27-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 259.19 ft (DOWN HOLE) / 79.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	47267.0	47285.0	47301.8	47318.7	47335.6	47352.8					
		Take	litres		18.00	16.80	16.90	16.90	17.20					
2.07	2.53	Average Take	l/m		18.00	16.80	16.90	16.90	17.20				17.16	4.07
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47373.1	47395.0	47415.7	47437.2	47459.0	47480.7					
		Take	litres		21.90	20.70	21.50	21.80	21.70					
4.14	4.60	Average Take	l/m		21.90	20.70	21.50	21.80	21.70				21.52	2.80
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47511.0	47543.0	47578.0	47610.7	47643.9	47677.0					
		Take	litres		32.00	35.00	32.70	33.20	33.10					
6.55	7.02	Average Take	l/m		32.00	35.00	32.70	33.20	33.10				33.20	2.84
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47705.6	47733.6	47761.9	47790.1	47817.6	47845.4					
		Take	litres		28.00	28.30	28.20	27.50	27.80					
4.14	4.60	Average Take	l/m		28.00	28.30	28.20	27.50	27.80				27.96	3.64
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	47870.6	47894.8	47918.3	47942.9	47967.6	47992.0					
		Take	litres		24.20	23.50	24.60	24.70	24.40					
2.07	2.53	Average Take	l/m		24.20	23.50	24.60	24.70	24.40				24.28	5.76





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: lots of fluids used, including a detergent "lub tub;" may explain wash out by decomposing clays

Lu= 5.755 | k (cm/s) = 5.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]3

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 4 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

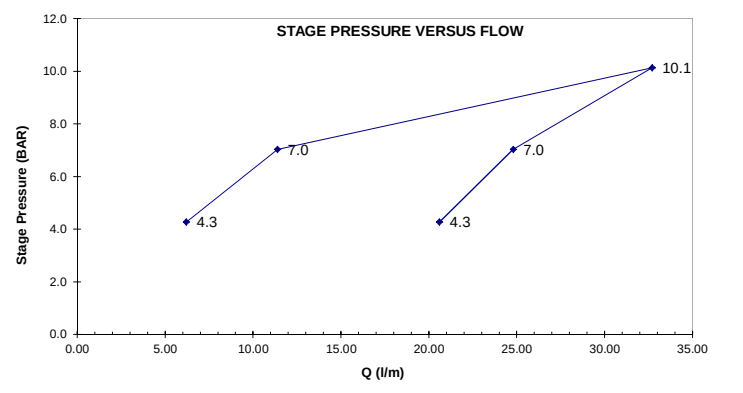
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

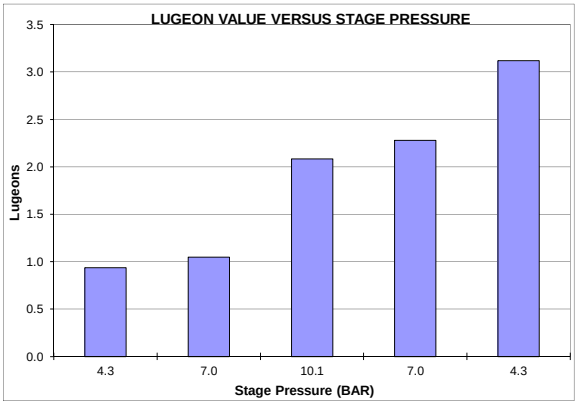
AREA: South Wall of Open Pit | TEST NO: 4

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 12.0 m (bgs) | TOP OF TEST INTERVAL: 277.23 ft (DOWN HOLE) / 84.50 m (DOWN HOLE)

DATE: 27-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 328.08 ft (DOWN HOLE) / 100.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	48032.0	48039.0	48045.2	48051.5	48057.2	48063.0					
		Take	litres		7.00	6.20	6.30	5.70	5.80					
3.10	4.27	Average Take	l/m		7.00	6.20	6.30	5.70	5.80				6.20	0.94
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	48070.0	48081.0	48092.0	48103.1	48114.2	48127.0					
		Take	litres		11.00	11.00	11.10	11.10	12.80					
5.86	7.03	Average Take	l/m		11.00	11.00	11.10	11.10	12.80				11.40	1.05
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	48140.0	48176.0	48207.5	48239.0	48271.2	48303.5					
		Take	litres		36.00	31.50	31.50	32.20	32.30					
8.96	10.13	Average Take	l/m		36.00	31.50	31.50	32.20	32.30				32.70	2.08
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	48335.0	48360.0	48385.0	48409.8	48434.5	48459.0					
		Take	litres		25.00	25.00	24.80	24.70	24.50					
5.86	7.03	Average Take	l/m		25.00	25.00	24.80	24.70	24.50				24.80	2.28
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	48475.0	48496.0	48516.2	48537.0	48557.5	48578.0					
		Take	litres		21.00	20.20	20.80	20.50	20.50					
3.10	4.27	Average Take	l/m		21.00	20.20	20.80	20.50	20.50				20.60	3.12





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: lots of fluids used, including a detergent "lub tub;" may explain wash out by decomposing clays

Lu= 3.118 | k (cm/s) = 3.1E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]4

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 5 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

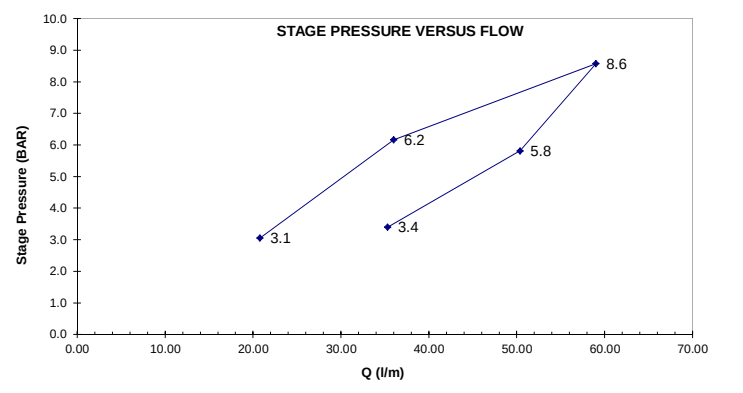
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

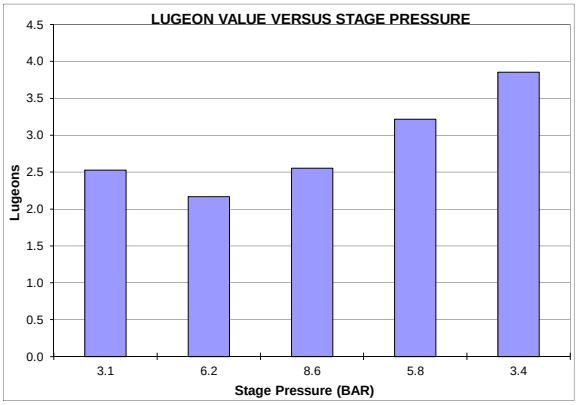
AREA: South Wall of Open Pit | TEST NO: 5

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 2.4 m (bgs) | TOP OF TEST INTERVAL: 308.40 ft (DOWN HOLE) / 94.00 m (DOWN HOLE)

DATE: 28-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 396.98 ft (DOWN HOLE) / 121.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	48631.0	48651.5	48672.2	48693.3	48710.5	48735.0					
		Take	litres		20.50	20.70	21.10	17.20	24.50					
2.76	3.06	Average Take	l/m		20.50	20.70	21.10	17.20	24.50				20.80	2.53
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	48760.0	48795.5	48830.2	48867.0	48903.0	48940.0					
		Take	litres		35.50	34.70	36.80	36.00	37.00					
5.86	6.16	Average Take	l/m		35.50	34.70	36.80	36.00	37.00				36.00	2.17
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	48975.0	49035.0	49092.7	49151.0	49209.0	49270.0					
		Take	litres		60.00	57.70	58.30	58.00	61.00					
8.27	8.57	Average Take	l/m		60.00	57.70	58.30	58.00	61.00				59.00	2.55
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	49313.0	49365.0	49414.2	49464.9	49514.4	49565.0					
		Take	litres		52.00	49.20	50.70	49.50	50.60					
5.52	5.81	Average Take	l/m		52.00	49.20	50.70	49.50	50.60				50.40	3.22
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	49610.0	49646.0	49681.0	49714.5	49751.5	49786.5					
		Take	litres		36.00	35.00	33.50	37.00	35.00					
3.10	3.40	Average Take	l/m		36.00	35.00	33.50	37.00	35.00				35.30	3.85





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: lots of fluids used, including a detergent "lub tub;" may explain wash out by decomposing clays

Lu= 3.854 | k (cm/s) = 3.9E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]5

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 6 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

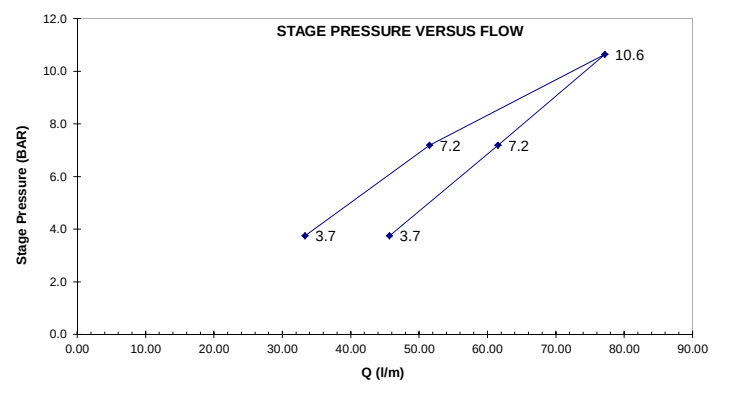
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

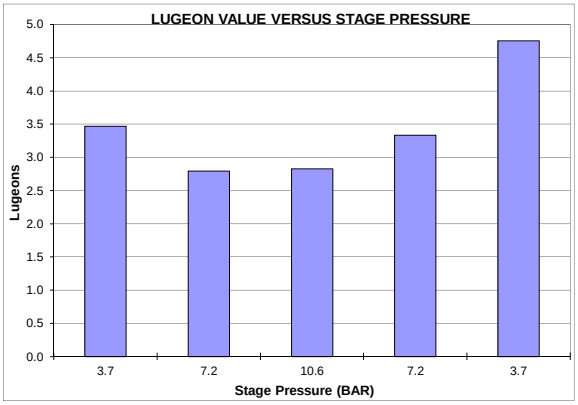
AREA: South Wall of Open Pit | TEST NO: 6

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 2.4 m (bgs) | TOP OF TEST INTERVAL: 391.40 ft (DOWN HOLE) / 119.30 m (DOWN HOLE)

DATE: 29-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 475.72 ft (DOWN HOLE) / 145.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	50060.0	50099.5	50134.5	50164.7	50196.3	50226.6					
		Take	litres		39.50	35.00	30.20	31.60	30.30					
3.45	3.75	Average Take	l/m		39.50	35.00	30.20	31.60	30.30				33.32	3.47
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	50273.8	50324.2	50375.8	50427.7	50479.8	50531.5					
		Take	litres		50.40	51.60	51.90	52.10	51.70					
6.89	7.19	Average Take	l/m		50.40	51.60	51.90	52.10	51.70				51.54	2.79
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	50605.0	50682.0	50759.0	50836.0	50913.0	50991.0					
		Take	litres		77.00	77.00	77.00	77.00	78.00					
10.34	10.64	Average Take	l/m		77.00	77.00	77.00	77.00	78.00				77.20	2.83
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	51059.0	51121.4	51183.6	51244.9	51305.5	51366.7					
		Take	litres		62.40	62.20	61.30	60.60	61.20					
6.89	7.19	Average Take	l/m		62.40	62.20	61.30	60.60	61.20				61.54	3.33
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	51415.8	51462.9	51508.7	51554.5	51600.0	51644.2					
		Take	litres		47.10	45.80	45.80	45.50	44.20					
3.45	3.75	Average Take	l/m		47.10	45.80	45.80	45.50	44.20				45.68	4.76





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Forgot to measure WL, got crossshift to measure at shiftchange.

DRILLING FLUIDS USED/ TIME FOR FLUSHING:

Lu= 4.756 | k (cm/s) = 4.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]6

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 8 OF 8

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

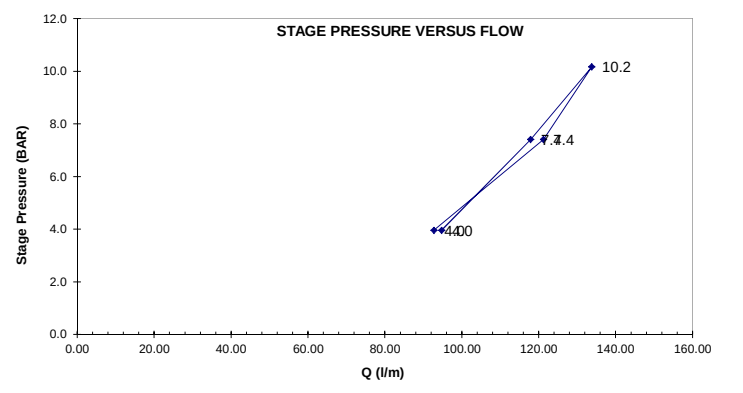
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-04

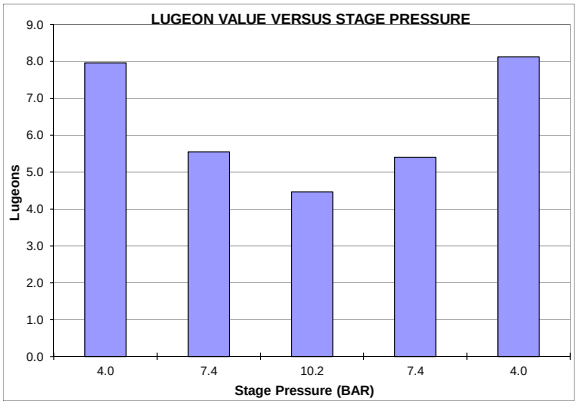
AREA: South Wall of Open Pit | TEST NO: 8

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.7 m (bgs) | TOP OF TEST INTERVAL: 559.38 ft (DOWN HOLE) / 170.50 m (DOWN HOLE)

DATE: 31-Mar-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 656.17 ft (DOWN HOLE) / 200.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	52320.0	52414.0	52505.0	52598.5	52692.0	52784.0					
		Take	litres		94.00	91.00	93.50	93.50	92.00					
3.45	3.96	Average Take	l/m		94.00	91.00	93.50	93.50	92.00				92.80	7.96
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	52825.0	52948.0	53068.0	53187.0	53308.0	53431.0					
		Take	litres		123.00	120.00	119.00	121.00	123.00					
6.89	7.41	Average Take	l/m		123.00	120.00	119.00	121.00	123.00				121.20	5.55
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	53490.0	53625.0	53757.0	53890.0	54024.0	54159.0					
		Take	litres		135.00	132.00	133.00	134.00	135.00					
9.65	10.17	Average Take	l/m		135.00	132.00	133.00	134.00	135.00				133.80	4.46
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	54185.0	54304.0	54420.0	54537.5	54656.0	54774.5					
		Take	litres		119.00	116.00	117.50	118.50	118.50					
6.89	7.41	Average Take	l/m		119.00	116.00	117.50	118.50	118.50				117.90	5.40
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	54820.0	54913.5	54994.0	55102.0	55197.0	55294.0					
		Take	litres		93.50	80.50	108.00	95.00	97.00					
3.45	3.96	Average Take	l/m		93.50	80.50	108.00	95.00	97.00				94.80	8.13





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: 20ml/s leak from casing at 100, 140, 100 psi, had to use tons of water to get to pressure, packer had been seated properlly and sheared properlly so leak is odd/bad

DRILLING FLUIDS USED/ TIME FOR FLUSHING: lub-tub (polymer), bentonite; measured water level before test

Lu= 4.465 | k (cm/s) = 4.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units:

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-04_Packer Testing Sheet.xlsx]8

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 1 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

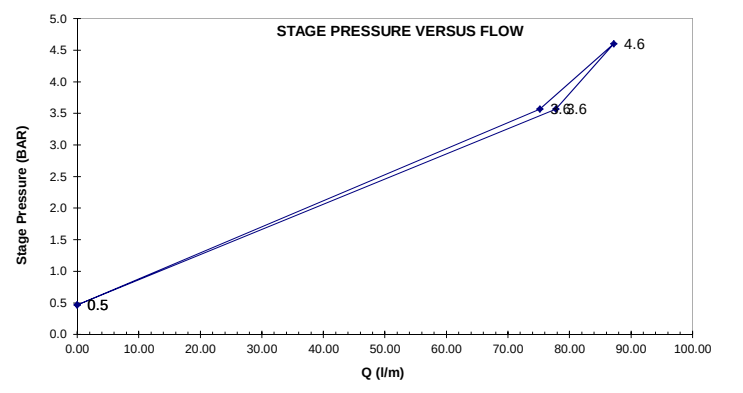
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

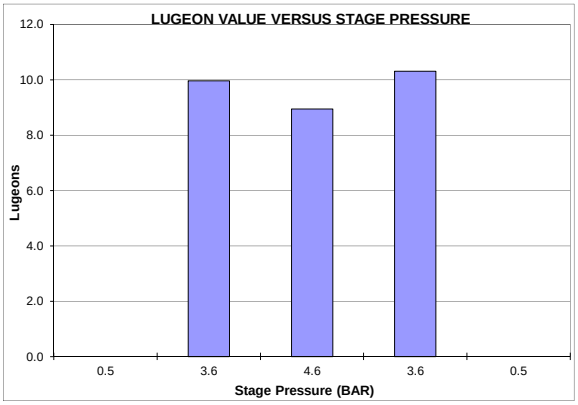
AREA: East Wall of Open Pit | TEST NO: 1

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 4.2 m (bgs) | TOP OF TEST INTERVAL: 288.06 ft (DOWN HOLE) / 87.80 m (DOWN HOLE)

DATE: 04-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 357.61 ft (DOWN HOLE) / 109.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	0.0	0.0	0.0	0.0	0.0	0.0				
		Take	litres										
0.00	0.47	Average Take	l/m									#DIV/0!	#DIV/0!
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	55680.0	55755.0	55830.0	55905.0	55981.0	56056.0				
		Take	litres		75.00	75.00	75.00	76.00	75.00				
3.10	3.57	Average Take	l/m		75.00	75.00	75.00	76.00	75.00			75.20	9.96
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	56145.0	56230.0	56317.0	56406.0	56494.0	56581.0				
		Take	litres		85.00	87.00	89.00	88.00	87.00				
4.14	4.60	Average Take	l/m		85.00	87.00	89.00	88.00	87.00			87.20	8.95
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	56663.0	56759.0	56819.0	56897.0	56975.0	57052.0				
		Take	litres		96.00	60.00	78.00	78.00	77.00				
3.10	3.57	Average Take	l/m		96.00	60.00	78.00	78.00	77.00			77.80	10.31
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	0.0	0.0	0.0	0.0	0.0	0.0				
		Take	litres										
0.00	0.47	Average Take	l/m									#DIV/0!	#DIV/0!





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: >20 minutes flushing. Water leaking out of casing at P1. May have frac'ed rock due to several minutes at 400 psi before realizing IVA had switched to injection mode.

Lu= 8.952 | k (cm/s) = 9.0E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: DAY | REVIEWED BY: KJB

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]2

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 2 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

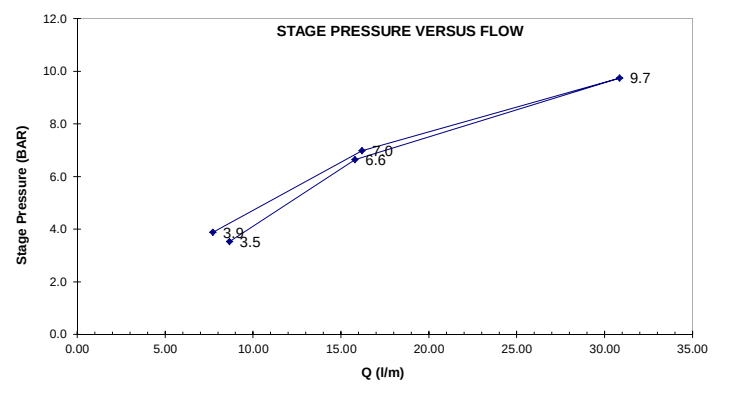
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

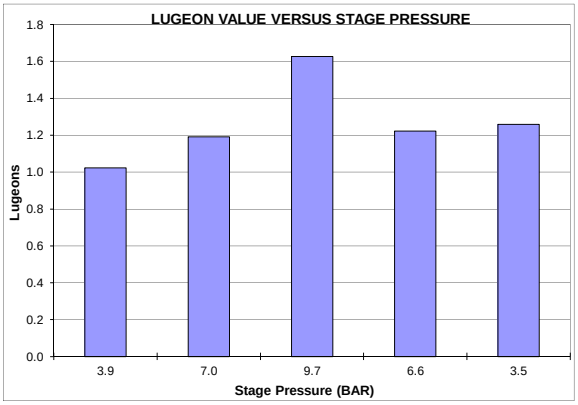
AREA: East Wall of Open Pit | TEST NO: 2

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 362.53 ft (DOWN HOLE) / 110.50 m (DOWN HOLE)

DATE: 04-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 426.51 ft (DOWN HOLE) / 130.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	57173.0	57181.7	57190.0	57197.0	57204.5	57211.6					
		Take	litres		8.70	8.30	7.00	7.50	7.10					
3.79	3.88	Average Take	l/m		8.70	8.30	7.00	7.50	7.10				7.72	1.02
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57219.0	57238.0	57253.0	57268.9	57285.0	57300.0					
		Take	litres		19.00	15.00	15.90	16.10	15.00					
6.89	6.98	Average Take	l/m		19.00	15.00	15.90	16.10	15.00				16.20	1.19
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57317.5	57349.3	57381.0	57412.5	57443.0	57471.8					
		Take	litres		31.80	31.70	31.50	30.50	28.80					
9.65	9.74	Average Take	l/m		31.80	31.70	31.50	30.50	28.80				30.86	1.63
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57490.0	57504.9	57520.5	57537.0	57554.0	57569.0					
		Take	litres		14.90	15.60	16.50	17.00	15.00					
6.55	6.64	Average Take	l/m		14.90	15.60	16.50	17.00	15.00				15.80	1.22
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57575.0	57583.5	57592.0	57601.0	57609.5	57618.3					
		Take	litres		8.50	8.50	9.00	8.50	8.80					
3.45	3.53	Average Take	l/m		8.50	8.50	9.00	8.50	8.80				8.66	1.26





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured WL before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No leaks from casing, injection mode switch happened quick and didn't fall to 0psi, but around 150psi

Lu= 1.174 | k (cm/s) = 1.2E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	YES
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]3

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 3 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

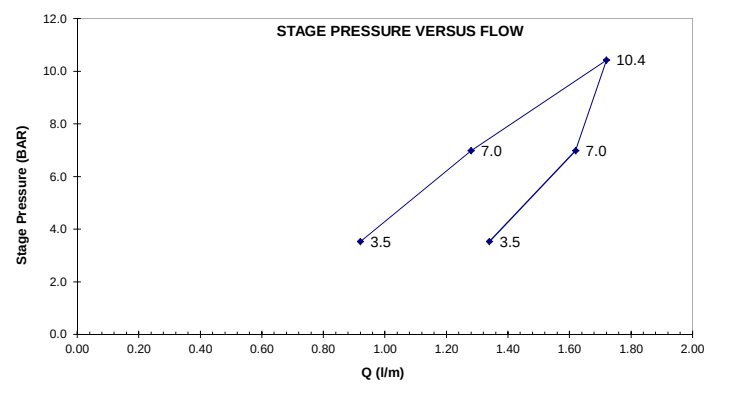
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

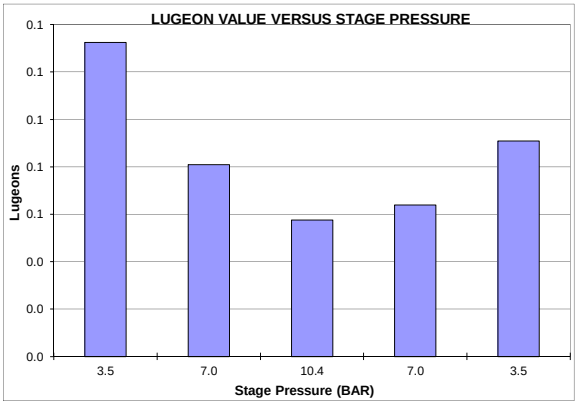
AREA: East Wall of Open Pit | TEST NO: 3

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 420.93 ft (DOWN HOLE) / 128.30 m (DOWN HOLE)

DATE: 05-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 515.09 ft (DOWN HOLE) / 157.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	57644.4	57645.8	57647.2	57648.7	57649.9	57651.1					
		Take	litres		1.40	1.40	1.50	1.20	1.20					
3.45	3.53	Average Take	l/m		1.40	1.40	1.50	1.20	1.20				1.34	0.13
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57653.2	57654.8	57656.7	57658.1	57659.7	57661.3					
		Take	litres		1.60	1.90	1.40	1.60	1.60					
6.89	6.98	Average Take	l/m		1.60	1.90	1.40	1.60	1.60				1.62	0.08
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57663.0	57665.2	57666.7	57668.2	57670.0	57671.6					
		Take	litres		2.20	1.50	1.50	1.80	1.60					
10.34	10.43	Average Take	l/m		2.20	1.50	1.50	1.80	1.60				1.72	0.06
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57672.8	57674.0	57675.3	57676.8	57678.0	57679.2					
		Take	litres		1.20	1.30	1.50	1.20	1.20					
6.89	6.98	Average Take	l/m		1.20	1.30	1.50	1.20	1.20				1.28	0.06
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57679.8	57680.9	57681.9	57682.7	57683.6	57684.4					
		Take	litres		1.10	1.00	0.80	0.90	0.80					
3.45	3.53	Average Take	l/m		1.10	1.00	0.80	0.90	0.80				0.92	0.09





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: WL near or at surface, elevated due to pumping/drilling.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No leaks from casing, injection mode switch happened quick and didn't fall to 0psi, but around 150psi

Lu= 0.058 | k (cm/s) = 5.8E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]4

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 4 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

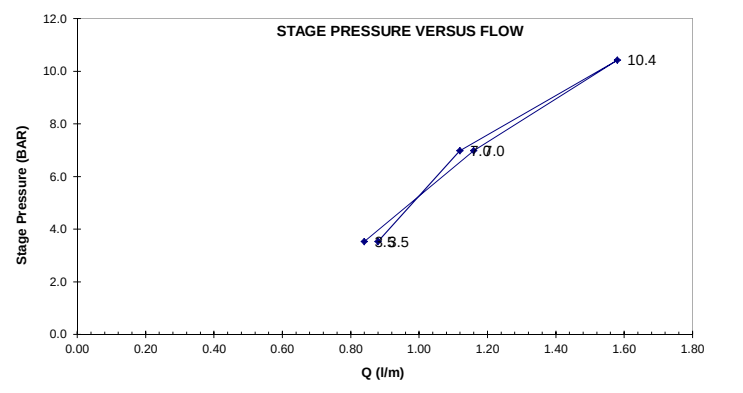
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

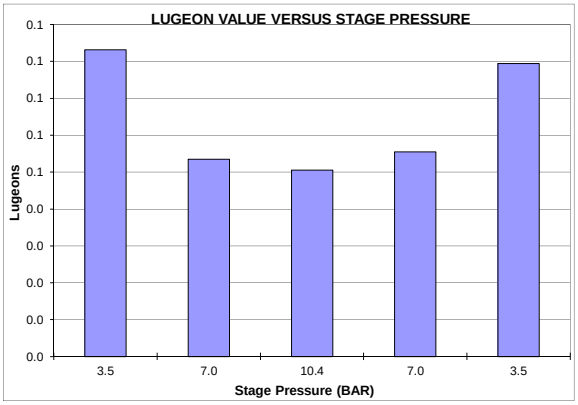
AREA: East Wall of Open Pit | TEST NO: 4

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 520.01 ft (DOWN HOLE) / 158.50 m (DOWN HOLE)

DATE: 05-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 618.44 ft (DOWN HOLE) / 188.50 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	57689.1	57689.9	57690.6	57691.5	57692.5	57693.5					
		Take	litres		0.80	0.70	0.90	1.00	1.00					
3.45	3.53	Average Take	l/m		0.80	0.70	0.90	1.00	1.00				0.88	0.08
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57694.5	57695.9	57696.9	57698.0	57699.0	57700.1					
		Take	litres		1.40	1.00	1.10	1.00	1.10					
6.89	6.98	Average Take	l/m		1.40	1.00	1.10	1.00	1.10				1.12	0.05
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57702.0	57703.5	57705.0	57706.5	57708.0	57709.9					
		Take	litres		1.50	1.50	1.50	1.50	1.90					
10.34	10.43	Average Take	l/m		1.50	1.50	1.50	1.50	1.90				1.58	0.05
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57710.2	57711.3	57712.5	57713.7	57715.0	57716.0					
		Take	litres		1.10	1.20	1.20	1.30	1.00					
6.89	6.98	Average Take	l/m		1.10	1.20	1.20	1.30	1.00				1.16	0.06
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	57716.0	57717.0	57717.8	57718.9	57719.9	57720.2					
		Take	litres		1.00	0.80	1.10	1.00	0.30					
3.45	3.53	Average Take	l/m		1.00	0.80	1.10	1.00	0.30				0.84	0.08





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: WL near or at surface, elevated due to pumping/drilling.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No leaks from casing, injection mode switch happened quick and didn't fall to 0psi, but around 300psi

Lu= 0.051 | k (cm/s) = 5.1E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]5

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 5 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

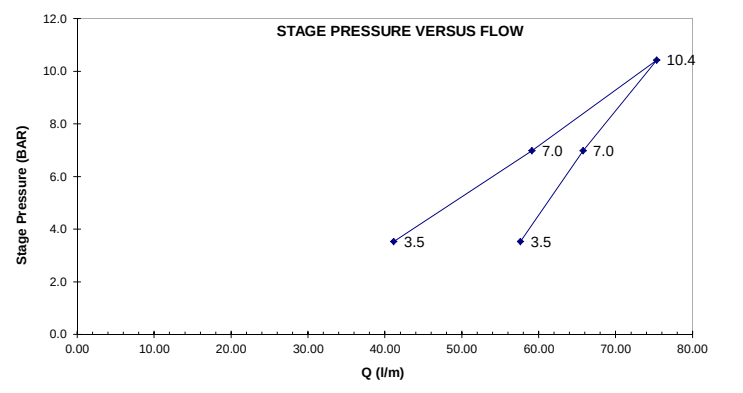
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

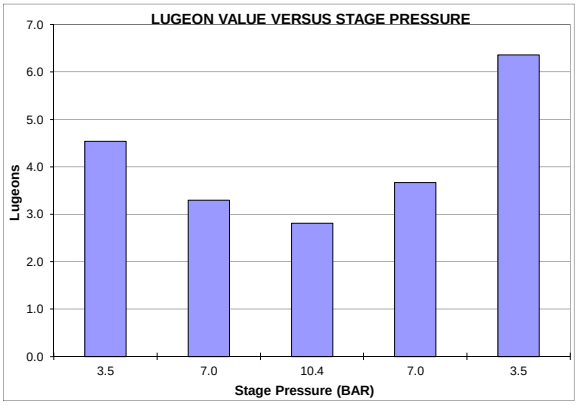
AREA: East Wall of Open Pit | TEST NO: 5

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 617.78 ft (DOWN HOLE) / 188.30 m (DOWN HOLE)

DATE: 06-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 702.10 ft (DOWN HOLE) / 214.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	57960.0	58001.5	58043.0	58084.0	58124.3	58165.7					
		Take	litres		41.50	41.50	41.00	40.30	41.40					
3.45	3.53	Average Take	l/m		41.50	41.50	41.00	40.30	41.40				41.14	4.54
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	58215.5	58272.0	58329.0	58387.0	58449.5	58511.0					
		Take	litres		56.50	57.00	58.00	62.50	61.50					
6.89	6.98	Average Take	l/m		56.50	57.00	58.00	62.50	61.50				59.10	3.30
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	58583.0	58655.5	58730.0	58806.5	58883.2	58959.7					
		Take	litres		72.50	74.50	76.50	76.70	76.50					
10.34	10.43	Average Take	l/m		72.50	74.50	76.50	76.70	76.50				75.34	2.81
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	59029.5	59095.8	59161.5	59227.5	59292.8	59358.3					
		Take	litres		66.30	65.70	66.00	65.30	65.50					
6.89	6.98	Average Take	l/m		66.30	65.70	66.00	65.30	65.50				65.76	3.67
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	59415.6	59474.0	59531.5	59589.0	59646.5	59703.7					
		Take	litres		58.40	57.50	57.50	57.50	57.20					
3.45	3.53	Average Take	l/m		58.40	57.50	57.50	57.50	57.20				57.62	6.36





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: WL near or at surface, elevated due to pumping/drilling.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No leaks from casing, injection mode switch happened quick and didn't fall to 0psi, but around 300psi

Lu= 2.813 | k (cm/s) = 2.8E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]6

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 6 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

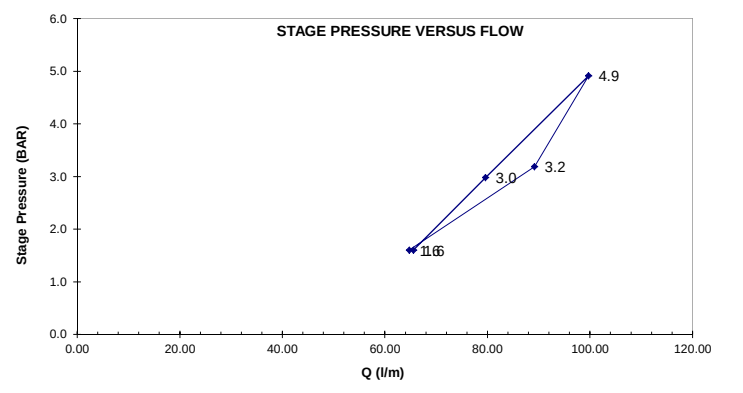
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

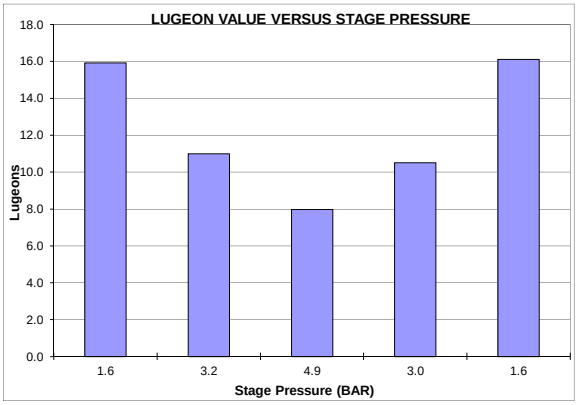
AREA: East Wall of Open Pit | TEST NO: 6

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 697.18 ft (DOWN HOLE) / 212.50 m (DOWN HOLE)

DATE: 07-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 780.84 ft (DOWN HOLE) / 238.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	60131.0	60195.0	60259.5	60324.0	60390.0	60455.0					
		Take	litres		64.00	64.50	64.50	66.00	65.00					
1.52	1.60	Average Take	l/m		64.00	64.50	64.50	66.00	65.00				64.80	15.93
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	60485.0	60575.0	60664.5	60754.2	60843.5	60931.0					
		Take	litres		90.00	89.50	89.70	89.30	87.50					
3.10	3.19	Average Take	l/m		90.00	89.50	89.70	89.30	87.50				89.20	10.99
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	60985.0	61085.0	61184.0	61284.0	61383.5	61483.5					
		Take	litres		100.00	99.00	100.00	99.50	100.00					
4.83	4.91	Average Take	l/m		100.00	99.00	100.00	99.50	100.00				99.70	7.97
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	61560.0	61638.7	61718.0	61798.0	61877.0	61958.2					
		Take	litres		78.70	79.30	80.00	79.00	81.20					
2.90	2.98	Average Take	l/m		78.70	79.30	80.00	79.00	81.20				79.64	10.50
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	61990.0	62055.0	62119.5	62186.5	62252.8	62317.9					
		Take	litres		65.00	64.50	67.00	66.30	65.10					
1.52	1.60	Average Take	l/m		65.00	64.50	67.00	66.30	65.10				65.58	16.12





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: WL near or at surface, elevated due to pumping/drilling.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No leaks from casing, hardly any pressure at max flow, set test at 20,40,70psi

Lu= 7.971 | k (cm/s) = 8.0E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]7

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 7 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

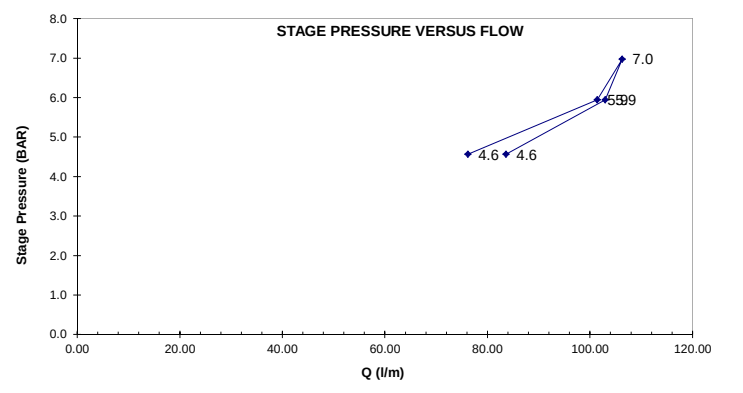
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

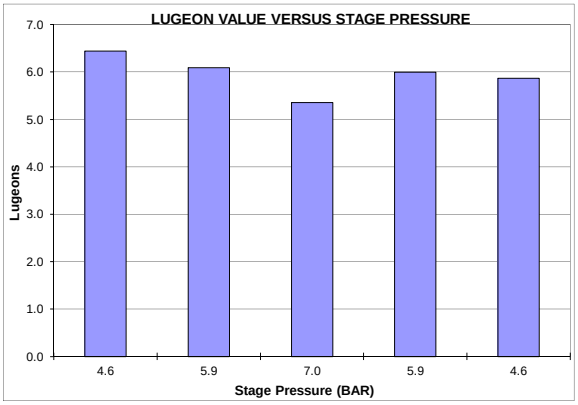
AREA: East Wall of Open Pit | TEST NO: 7

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 34.2 m (bgs) | TOP OF TEST INTERVAL: 775.92 ft (DOWN HOLE) / 236.50 m (DOWN HOLE)

DATE: 08-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 869.42 ft (DOWN HOLE) / 265.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	62750.0	62838.0	62924.0	63005.0	63087.0	63168.2				
		Take	litres		88.00	86.00	81.00	82.00	81.20				
1.38	4.56	Average Take	l/m		88.00	86.00	81.00	82.00	81.20			83.64	6.44
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	63210.0	63325.0	63418.5	63523.0	63624.0	63724.8				
		Take	litres		115.00	93.50	104.50	101.00	100.80				
2.76	5.94	Average Take	l/m		115.00	93.50	104.50	101.00	100.80			102.96	6.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	63785.0	63892.5	63998.0	64105.0	64210.0	64316.5				
		Take	litres		107.50	105.50	107.00	105.00	106.50				
3.79	6.98	Average Take	l/m		107.50	105.50	107.00	105.00	106.50			106.30	5.35
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	64395.0	64496.3	64597.5	64699.8	64800.0	64902.0				
		Take	litres		101.30	101.20	102.30	100.20	102.00				
2.76	5.94	Average Take	l/m		101.30	101.20	102.30	100.20	102.00			101.40	6.00
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	64930.0	65000.8	65078.0	65155.0	65233.0	65311.0				
		Take	litres		70.80	77.20	77.00	78.00	78.00				
1.38	4.56	Average Take	l/m		70.80	77.20	77.00	78.00	78.00			76.20	5.87





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured before test

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No leaks from casing, hardly any pressure at max flow, set test at 20,30, 50psi, Didn't emerg shear but packer deflated within 30sec of being pulled on

Lu= 5.353 | k (cm/s) = 5.4E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]8

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 8 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

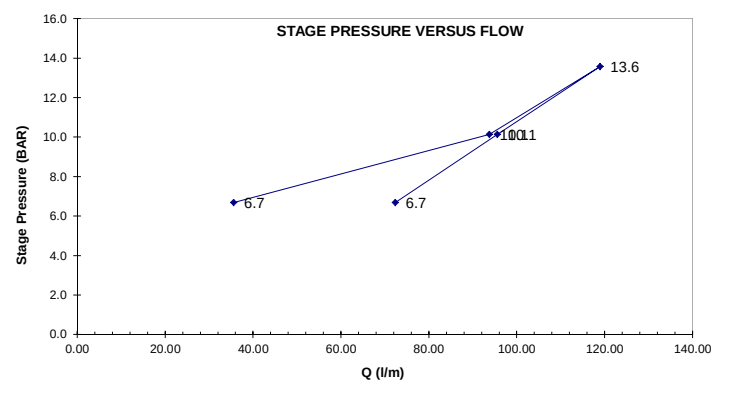
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

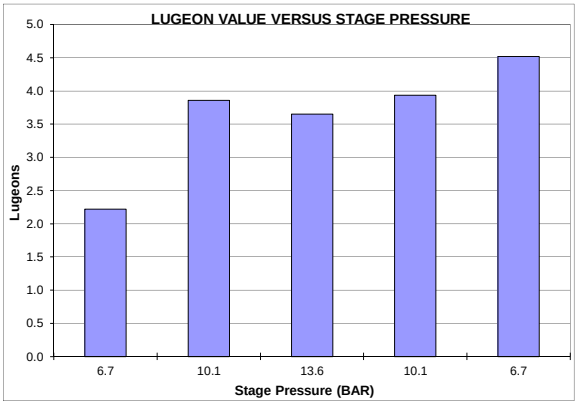
AREA: East Wall of Open Pit | TEST NO: 8

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 34.8 m (bgs) | TOP OF TEST INTERVAL: 864.50 ft (DOWN HOLE) / 263.50 m (DOWN HOLE)

DATE: 09-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 943.24 ft (DOWN HOLE) / 287.50 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	65359.5	65365.0	65390.5	65437.5	65488.0	65537.5					
		Take	litres		5.50	25.50	47.00	50.50	49.50					
3.45	6.69	Average Take	l/m		5.50	25.50	47.00	50.50	49.50				35.60	2.22
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	65570.0	65653.9	65757.0	65850.0	65945.0	66039.0					
		Take	litres		83.90	103.10	93.00	95.00	94.00					
6.89	10.13	Average Take	l/m		83.90	103.10	93.00	95.00	94.00				93.80	3.86
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	66110.0	66229.0	66348.0	66468.0	66585.0	66705.0					
		Take	litres		119.00	119.00	120.00	117.00	120.00					
10.34	13.58	Average Take	l/m		119.00	119.00	120.00	117.00	120.00				119.00	3.65
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	66765.0	66861.0	66957.0	67052.0	67148.0	67243.0					
		Take	litres		96.00	96.00	95.00	96.00	95.00					
6.89	10.13	Average Take	l/m		96.00	96.00	95.00	96.00	95.00				95.60	3.93
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	67285.0	67357.8	67429.5	67501.3	67575.5	67647.0					
		Take	litres		72.80	71.70	71.80	74.20	71.50					
3.45	6.69	Average Take	l/m		72.80	71.70	71.80	74.20	71.50				72.40	4.52





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Measured before test

DRILLING FLUIDS USED/ TIME FOR FLUSHING: Leaking from casing started late in 50psi run, when pressure dropped, increased flow to compensate, roughly 3min reading. Pulled up immediately so believe the packer is

Lu= 4.517 | k (cm/s) = 4.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	YES
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]9

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 9 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

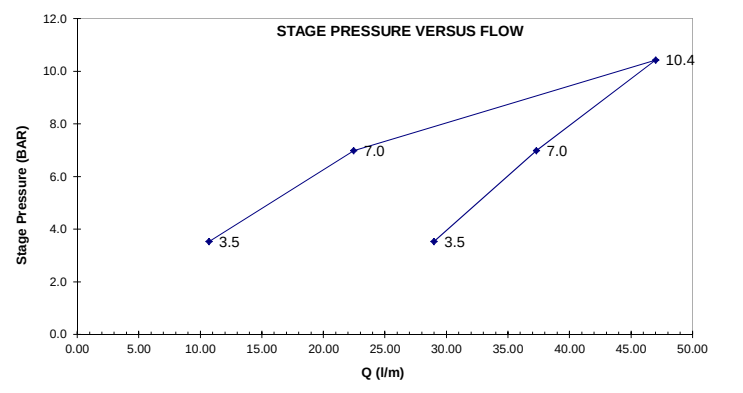
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

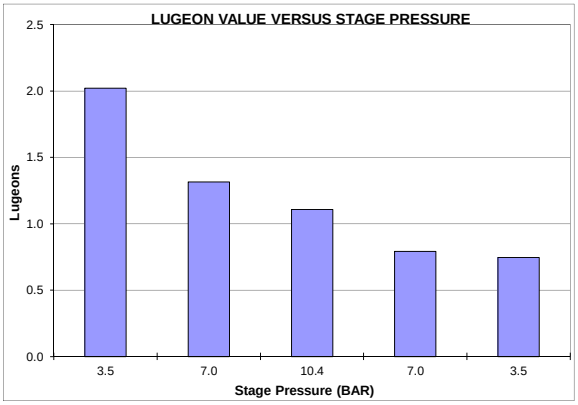
AREA: East Wall of Open Pit | TEST NO: 9

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 942.59 ft (DOWN HOLE) / 287.30 m (DOWN HOLE)

DATE: 10-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1076.12 ft (DOWN HOLE) / 328.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	68270.0	68302.9	68335.0	68362.6	68389.3	68415.0					
		Take	litres		32.90	32.10	27.60	26.70	25.70					
3.45	3.53	Average Take	l/m		32.90	32.10	27.60	26.70	25.70				29.00	2.02
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	68435.0	68476.0	68515.0	68555.0	68590.0	68621.6					
		Take	litres		41.00	39.00	40.00	35.00	31.60					
6.89	6.98	Average Take	l/m		41.00	39.00	40.00	35.00	31.60				37.32	1.32
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	68655.0	68704.8	68753.0	68799.9	68846.0	68890.0					
		Take	litres		49.80	48.20	46.90	46.10	44.00					
10.34	10.43	Average Take	l/m		49.80	48.20	46.90	46.10	44.00				47.00	1.11
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	68905.0	68926.0	68949.2	68972.0	68994.9	69017.3					
		Take	litres		21.00	23.20	22.80	22.90	22.40					
6.89	6.98	Average Take	l/m		21.00	23.20	22.80	22.90	22.40				22.46	0.79
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69024.0	69032.5	69043.0	69054.0	69066.0	69077.5					
		Take	litres		8.50	10.50	11.00	12.00	11.50					
3.45	3.53	Average Take	l/m		8.50	10.50	11.00	12.00	11.50				10.70	0.75





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: WL near or at surface, elevated due to pumping/drilling.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: Worried about premature deflation, replaced THAM seal. No Leaks, no premature deflation

Lu= 0.746 | k (cm/s) = 7.5E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	NO
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	YES
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]10

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 10 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

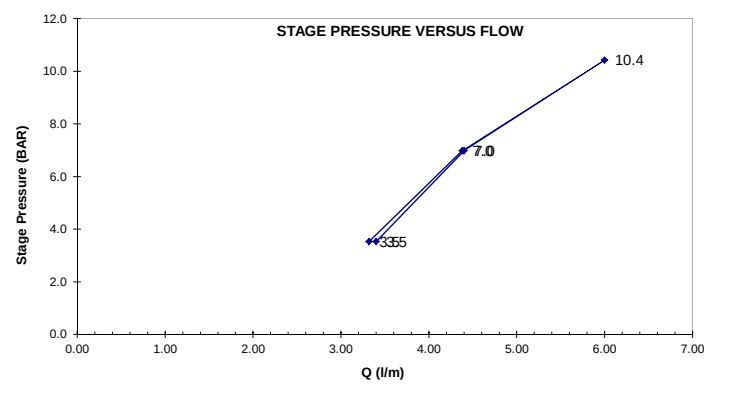
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

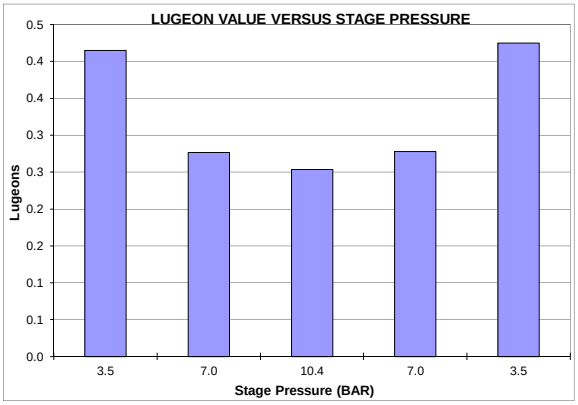
AREA: East Wall of Open Pit | TEST NO: 10

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 0.0 m (bgs) | TOP OF TEST INTERVAL: 1070.54 ft (DOWN HOLE) / 326.30 m (DOWN HOLE)

DATE: 11-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1145.01 ft (DOWN HOLE) / 349.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	69065.2	69068.8	69072.1	69075.5	69078.7	69081.8					
		Take	litres		3.60	3.30	3.40	3.20	3.10					
3.45	3.53	Average Take	l/m		3.60	3.30	3.40	3.20	3.10				3.32	0.41
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69086.6	69091.0	69095.3	69099.8	69103.9	69108.5					
		Take	litres		4.40	4.30	4.50	4.10	4.60					
6.89	6.98	Average Take	l/m		4.40	4.30	4.50	4.10	4.60				4.38	0.28
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69114.7	69120.6	69126.5	69133.7	69138.8	69144.7					
		Take	litres		5.90	5.90	7.20	5.10	5.90					
10.34	10.43	Average Take	l/m		5.90	5.90	7.20	5.10	5.90				6.00	0.25
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69148.9	69153.2	69157.8	69162.2	69166.7	69170.9					
		Take	litres		4.30	4.60	4.40	4.50	4.20					
6.89	6.98	Average Take	l/m		4.30	4.60	4.40	4.50	4.20				4.40	0.28
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69174.0	69177.6	69181.0	69184.3	69187.8	69191.0					
		Take	litres		3.60	3.40	3.30	3.50	3.20					
3.45	3.53	Average Take	l/m		3.60	3.40	3.30	3.50	3.20				3.40	0.42





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: WL near or at surface, elevated due to pumping/drilling.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: Worried about premature deflation, replaced THAM seal. No Leaks, no premature deflation

Lu= 0.254 | k (cm/s) = 2.5E-06

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: CMS | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]11

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 11 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

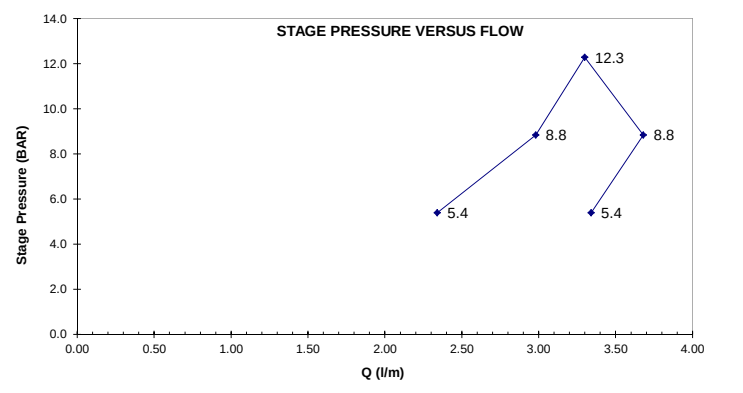
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

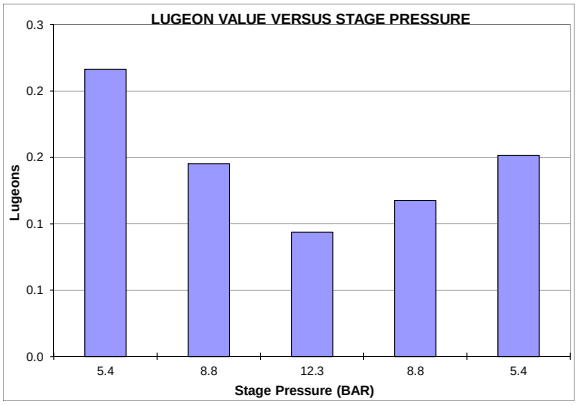
AREA: East Wall of Open Pit | TEST NO: 11

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 20.5 m (bgs) | TOP OF TEST INTERVAL: 1139.44 ft (DOWN HOLE) / 347.30 m (DOWN HOLE)

DATE: 12-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1233.60 ft (DOWN HOLE) / 376.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)												FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5					
		Flowmeter	litres	69205.0	69208.7	69212.0	69215.0	69218.5	69221.7					
		Take	litres		3.70	3.30	3.00	3.50	3.20					
3.45	5.39	Average Take	l/m		3.70	3.30	3.00	3.50	3.20				3.34	0.22
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69225.0	69229.0	69232.7	69236.2	69240.0	69243.4					
		Take	litres		4.00	3.70	3.50	3.80	3.40					
6.89	8.84	Average Take	l/m		4.00	3.70	3.50	3.80	3.40				3.68	0.15
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69247.0	69250.5	69254.0	69257.0	69260.5	69263.5					
		Take	litres		3.50	3.50	3.00	3.50	3.00					
10.34	12.28	Average Take	l/m		3.50	3.50	3.00	3.50	3.00				3.30	0.09
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69265.0	69268.0	69271.1	69274.0	69277.0	69279.9					
		Take	litres		3.00	3.10	2.90	3.00	2.90					
6.89	8.84	Average Take	l/m		3.00	3.10	2.90	3.00	2.90				2.98	0.12
GAUGE P (BAR)		Time	min	0	1	2	3	4	5				FLOW litres/min	LUGEON
		Flowmeter	litres	69280.0	69282.2	69285.0	69287.2	69289.8	69291.7					
		Take	litres		2.20	2.80	2.20	2.60	1.90					
3.45	5.39	Average Take	l/m		2.20	2.80	2.20	2.60	1.90				2.34	0.15





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Taken before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: No Leaks, no premature deflation

Lu= 0.094 | k (cm/s) = 9.4E-07

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:
Flowmeter units: m3

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

M:\1\01\00457\04\A\Report\3 - 2012 Geomechanical SI Report\Appendices\Appendix B - Hydrolic conductivity sheets\superceded\[GM12-05_Packer Testing Sheet.xlsx]12

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13JUL'12	ISSUED WITH REPORT 3	EQ	DAY	KJB

SHEET 12 OF 12

LUGEON TEST FIELD DATA SHEET

Knight Piésold CONSULTING

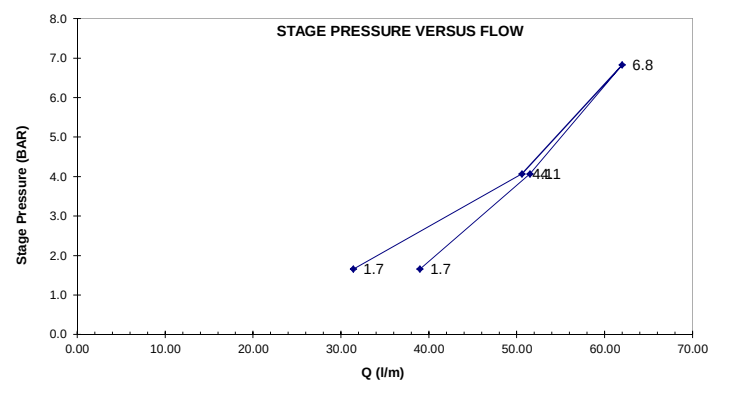
PROJECT: BLACKWATER GOLD PROJECT | PROJECT NO: VA101-457/4 | DRILLHOLE: GM12-05

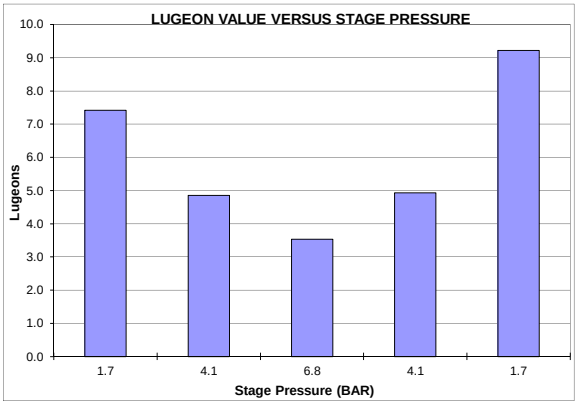
AREA: East Wall of Open Pit | TEST NO: 12

DIP: 65 ° (FROM HORIZONTAL) | DEPTH GROUNDWATER: 2.1 m (bgs) | TOP OF TEST INTERVAL: 1228.02 ft (DOWN HOLE) / 374.30 m (DOWN HOLE)

DATE: 12-Apr-12 | GAUGE HEIGHT ABOVE GROUND: 0.9 m | BOTTOM OF TEST INTERVAL: 1312.34 ft (DOWN HOLE) / 400.00 m (DOWN HOLE)

GAUGE P (BAR)	CORRECTED GAUGE P (BAR)											FLOW litres/min	LUGEON
		Time	min	0	1	2	3	4	5				
		Flowmeter	litres	69440.0	69471.5	69500.0	69531.0	69563.0	69597.0				
		Take	litres		31.50	28.50	31.00	32.00	34.00				
1.38	1.65	Average Take	l/m		31.50	28.50	31.00	32.00	34.00			31.40	7.42
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	69628.0	69681.0	69732.5	69784.0	69832.0	69881.0				
		Take	litres		53.00	51.50	51.50	48.00	49.00				
3.79	4.07	Average Take	l/m		53.00	51.50	51.50	48.00	49.00			50.60	4.85
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	69925.0	69988.0	70050.0	70111.0	70173.0	70235.0				
		Take	litres		63.00	62.00	61.00	62.00	62.00				
6.55	6.83	Average Take	l/m		63.00	62.00	61.00	62.00	62.00			62.00	3.54
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	70270.0	70320.5	70373.0	70424.0	70476.0	70527.5				
		Take	litres		50.50	52.50	51.00	52.00	51.50				
3.79	4.07	Average Take	l/m		50.50	52.50	51.00	52.00	51.50			51.50	4.94
GAUGE P (BAR)		Time	min	0	1	2	3	4	5			FLOW litres/min	LUGEON
		Flowmeter	litres	70540.0	70579.8	70618.0	70658.0	70696.0	70735.0				
		Take	litres		39.80	38.20	40.00	38.00	39.00				
1.38	1.65	Average Take	l/m		39.80	38.20	40.00	38.00	39.00			39.00	9.22





DEPTH TO GROUNDWATER MEASURED BEFORE TEST? IF NOT, DETERMINED BY: Taken before test.

DRILLING FLUIDS USED/ TIME FOR FLUSHING: Large amount of water coming from casing during test, see Test Results Comments

Lu= 3.539 | k (cm/s) = 3.5E-05

INTERPRETATION TYPE OF FLOW:

1	LAMINAR	NO
2	TURBULENT	YES
3	DILATION	NO
4	WASH-OUT	NO
5	VOID FILLING	NO
6	NO TAKE	NO

DRILLING / TEST RESULTS COMMENTS:

Flowmeter units: m3

Wire line snapped when packer was nearing/at bottom, appeared to seat fine, sheared fine, but water coming through casing during test, only had this set of shear pins so had to run test at reduced psi. Believe

TEST BY: GV | ANALYZED BY: JS | REVIEWED BY: DAY

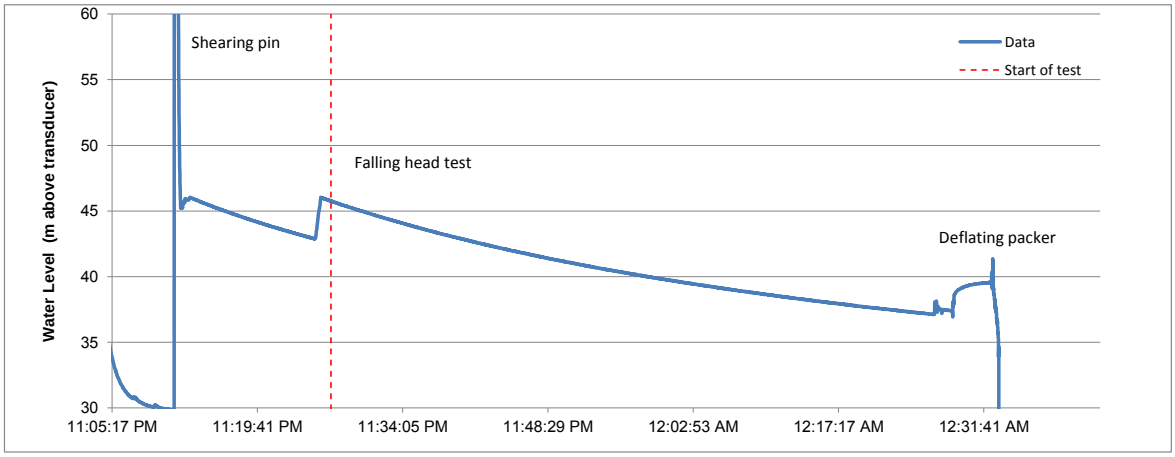
Knight Piésold CONSULTING

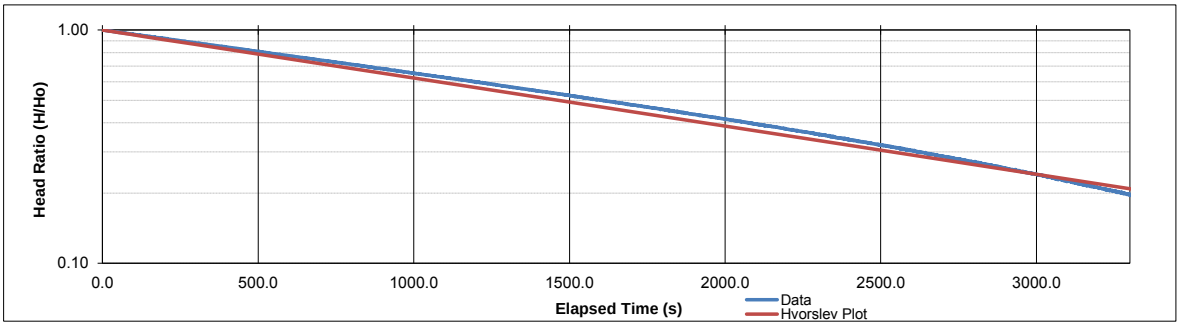
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:41

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	1	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	20-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	11:26:57 PM	
Top of test interval	37.3	**m along hole**	**Initial water level**	36	**m above transducer**
Bottom of test interval	52.5	**m along hole**	**Water level after slug**	46	**m above transducer**
Test length, L	15.2	**m along hole**	**Change in Water Level, H_o**	10	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-06	**m^2/s**			
Hydraulic Conductivity, K	2E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 1 - Hvorslev.xlsx]GM12-06 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	12DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

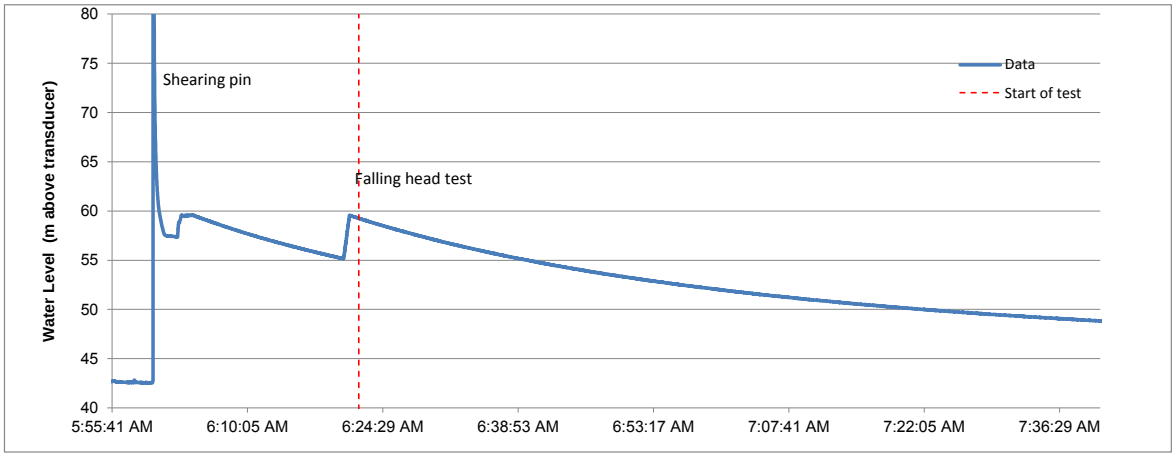
Knight Piésold CONSULTING

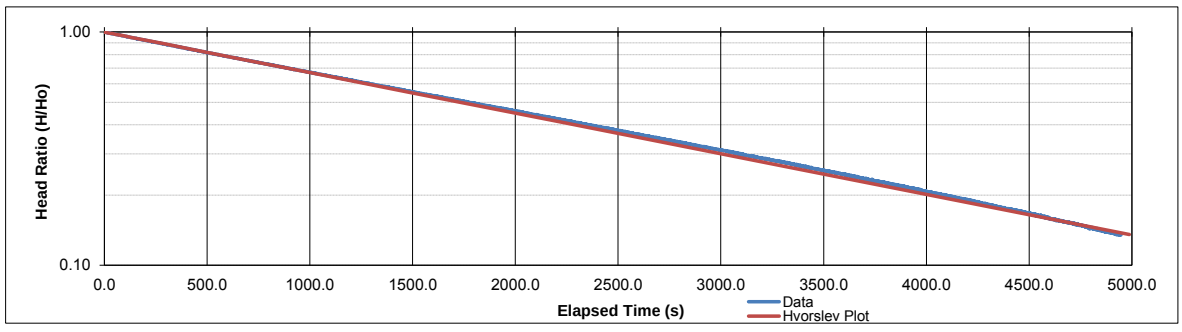
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:41

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	2	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	06:21:56	
Top of test interval	52.3	**m along hole**	**Initial water level**	47	**m above transducer**
Bottom of test interval	73.5	**m along hole**	**Water level after slug**	59	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	12	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-06	**m^2/s**			
Hydraulic Conductivity, K	1E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 2 - Hvorslev.xlsx]GM12-06 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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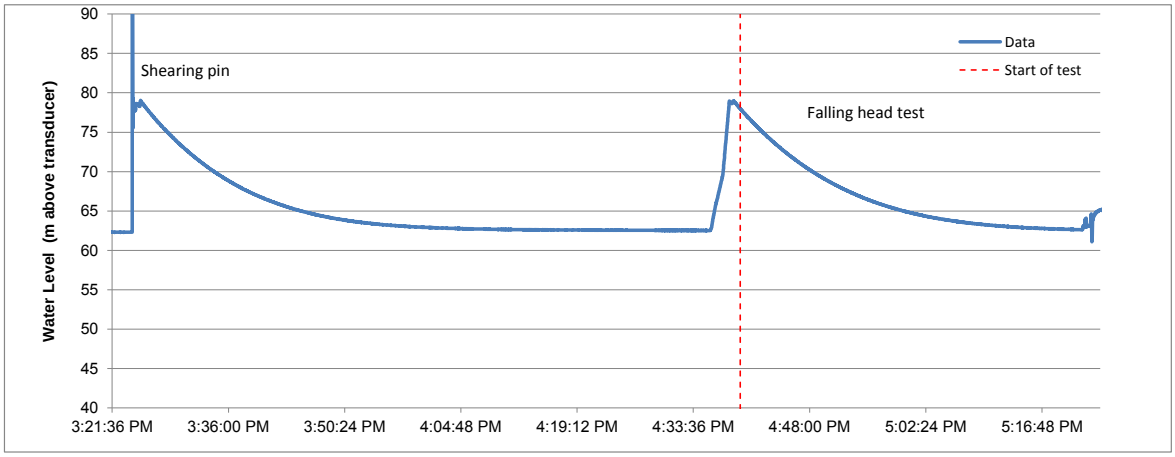
Knight Piésold CONSULTING

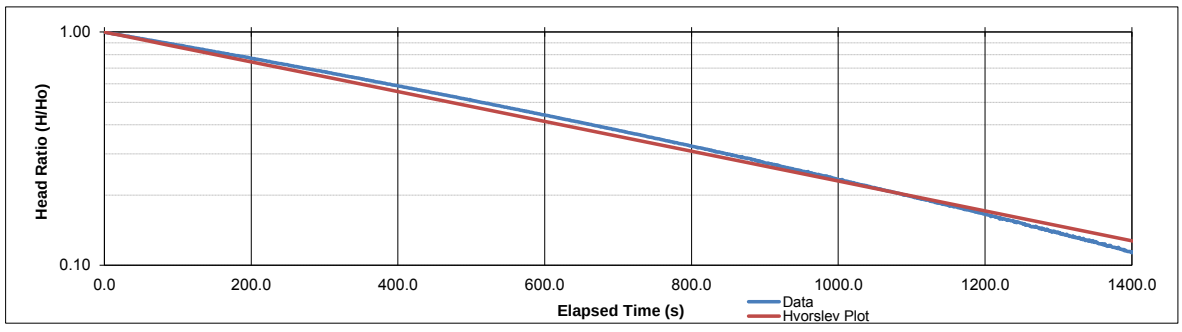
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:42

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	MGP		**Test No.**	3	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	4:39:24 PM	
Top of test interval	74.8	**m along hole**	**Initial water level**	63	**m above transducer**
Bottom of test interval	100.5	**m along hole**	**Water level after slug**	78	**m above transducer**
Test length, L	25.7	**m along hole**	**Change in Water Level, H_o**	16	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	8E-06	**m^2/s**			
Hydraulic Conductivity, K	3E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 3 - Hvorslev.xlsx]GM12-06 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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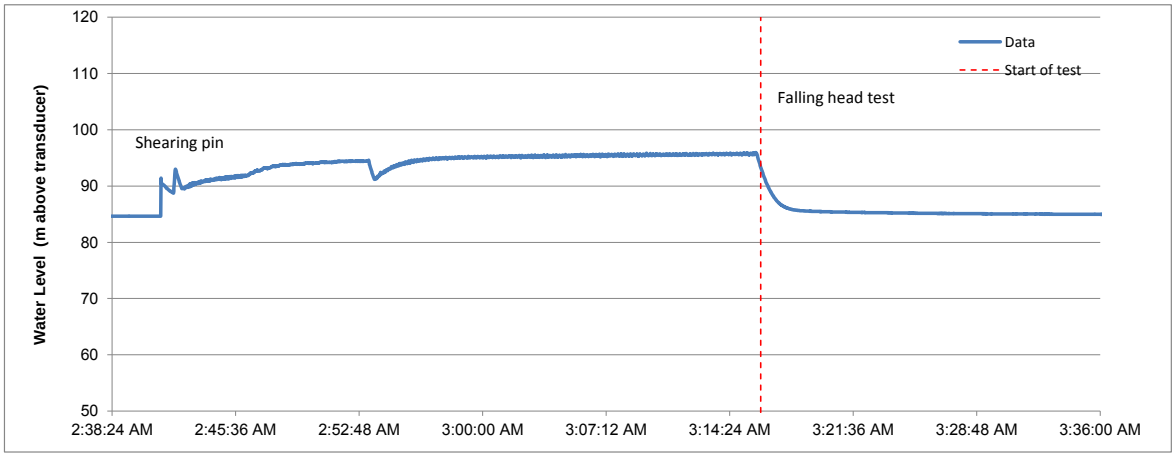
Knight Piésold CONSULTING

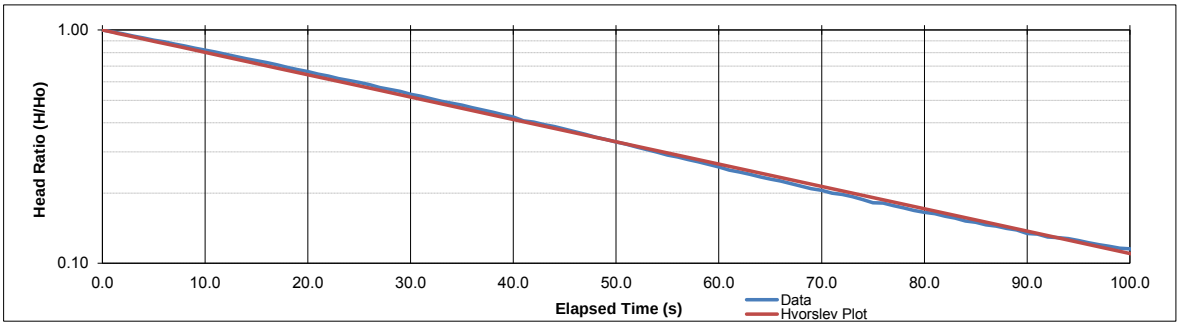
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:43

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	4	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	22-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:16:13 AM	
Top of test interval	98.8	**m along hole**	**Initial water level**	85	**m above transducer**
Bottom of test interval	127.5	**m along hole**	**Water level after slug**	93	**m above transducer**
Test length, L	28.7	**m along hole**	**Change in Water Level, H_o**	8	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-04	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 12 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 4 - Hvorslev.xlsx]GM12-06 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	12DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

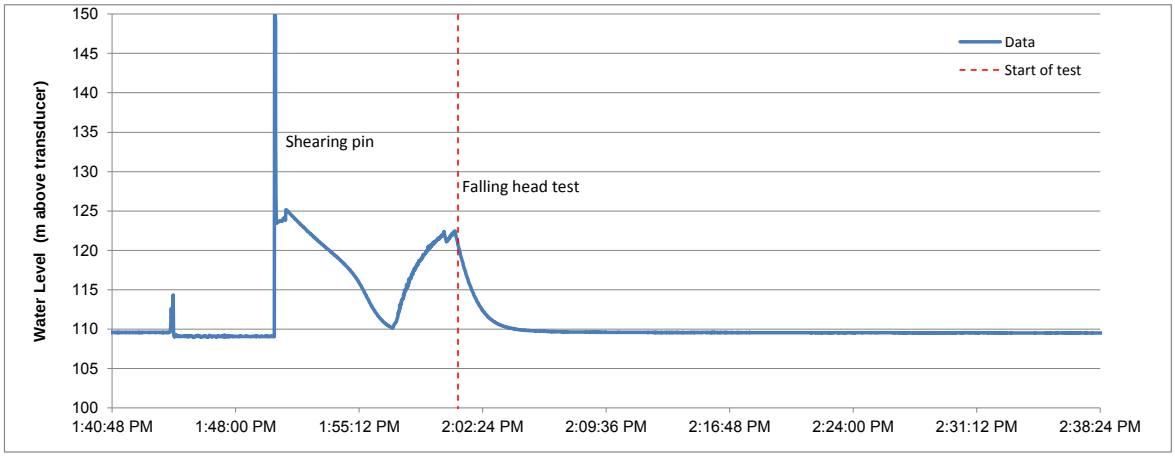
Knight Piésold CONSULTING

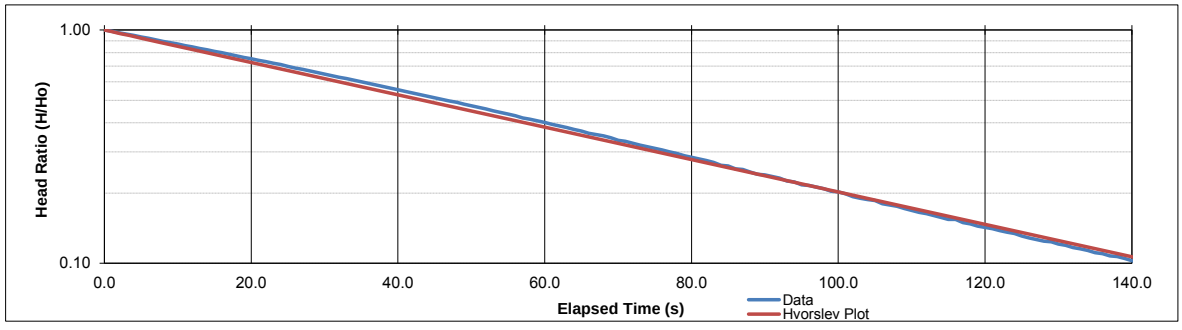
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:45

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	MGP		**Test No.**	5	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	22-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	125.8	**m along hole**	**Slug Injected, Time = 0**	2:00:58 PM	
Bottom of test interval	157.5	**m along hole**	**Initial water level**	110	**m above transducer**
Test length, L	31.7	**m along hole**	**Water level after slug**	121	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	11	**m**
Transmissivity, T	9E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 16 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 5 - Hvorslev.xlsx]GM12-06 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

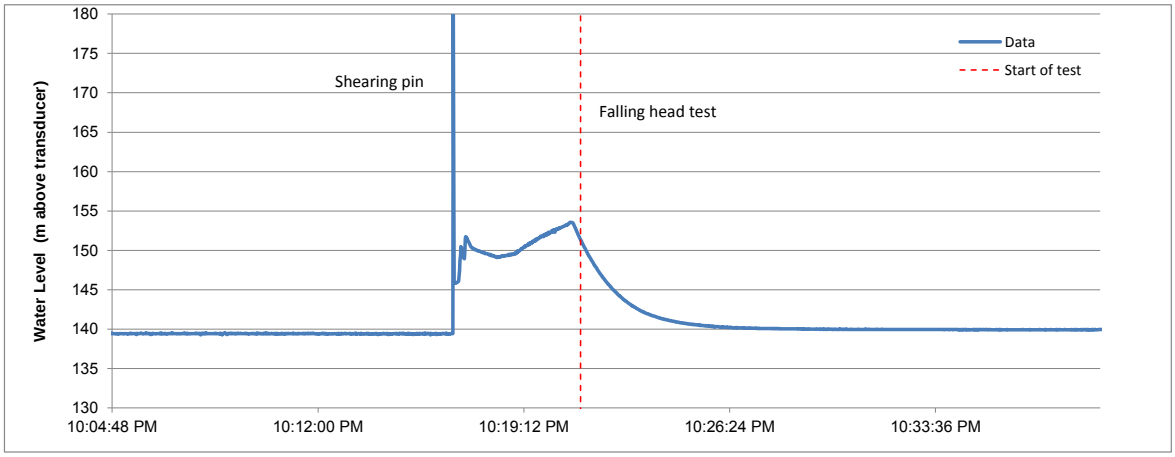
Knight Piésold CONSULTING

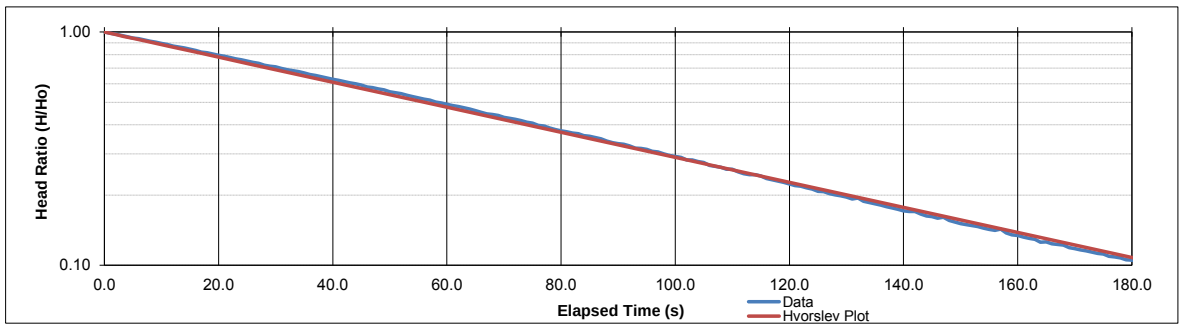
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:47

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	6	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	22-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	10:21:11 PM	
Top of test interval	158.8	**m along hole**	**Initial water level**	140	**m above transducer**
Bottom of test interval	178.5	**m along hole**	**Water level after slug**	151	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	11	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	6E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 6 - Hvorslev.xlsx]GM12-06 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

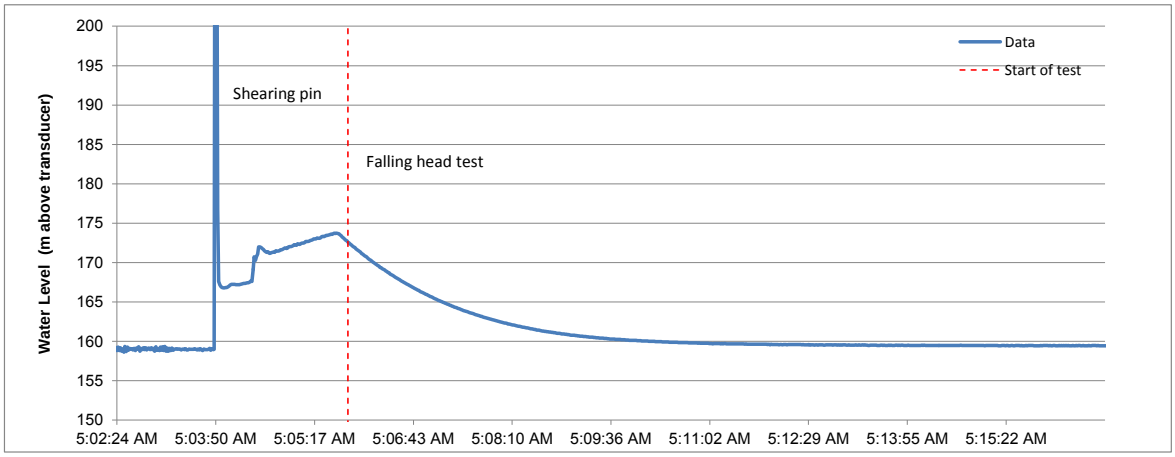
Knight Piésold CONSULTING

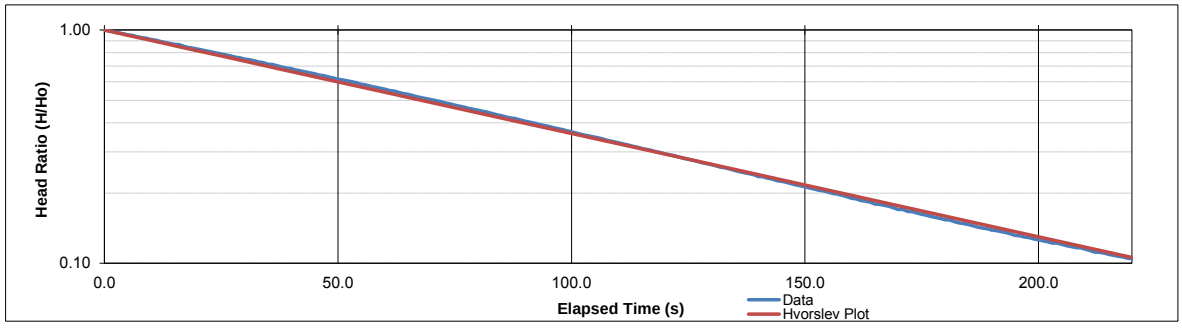
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:47

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	7	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	178.3	**m along hole**	**Slug Injected, Time = 0**	5:05:46 AM	
Bottom of test interval	198.0	**m along hole**	**Initial water level**	159	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	173	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	14	**m**
Transmissivity, T	5E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 5 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 7 - Hvorslev.xlsx]GM12-06 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	12DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

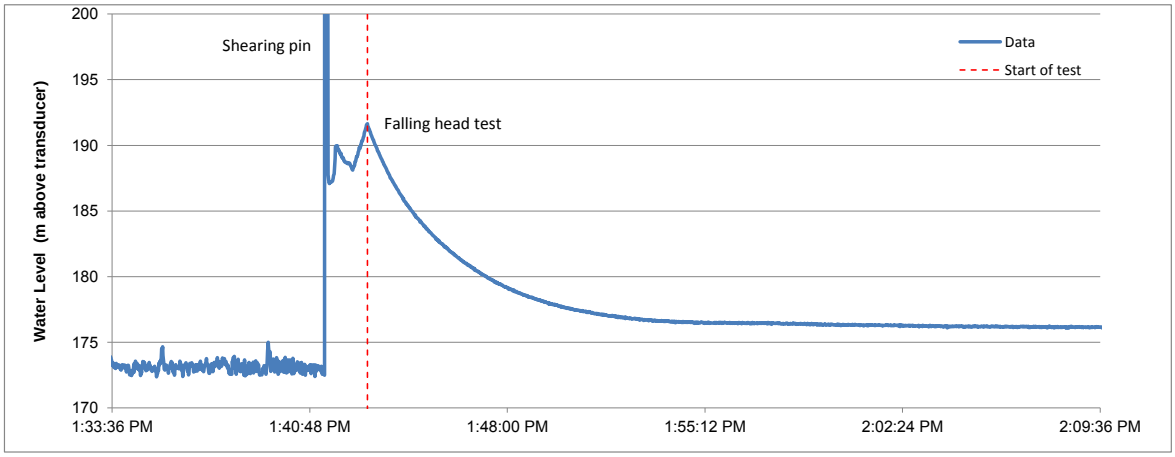
Knight Piésold CONSULTING

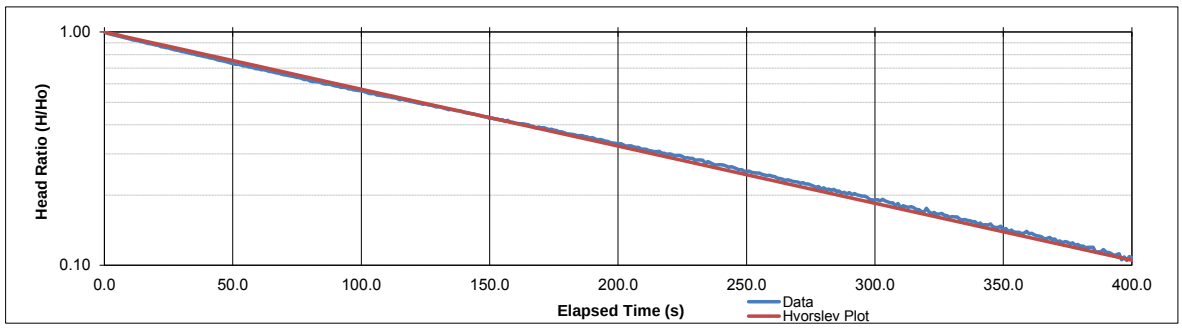
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:49

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	MGP		**Test No.**	8	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	1:42:54 PM	
Top of test interval	197.8	**m along hole**	**Initial water level**	176	**m above transducer**
Bottom of test interval	219.0	**m along hole**	**Water level after slug**	192	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	15	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 14 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 8 - Hvorslev.xlsx]GM12-06 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

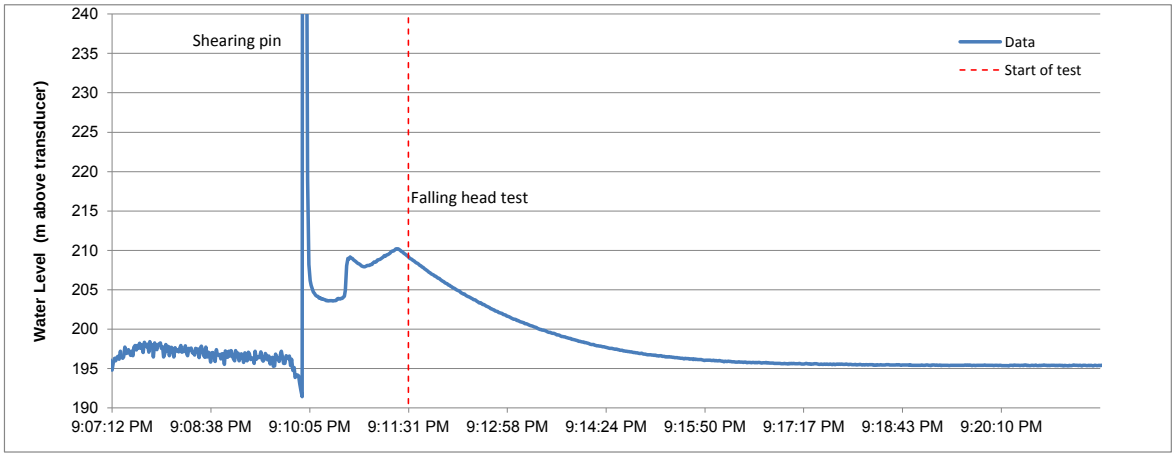
Knight Piésold CONSULTING

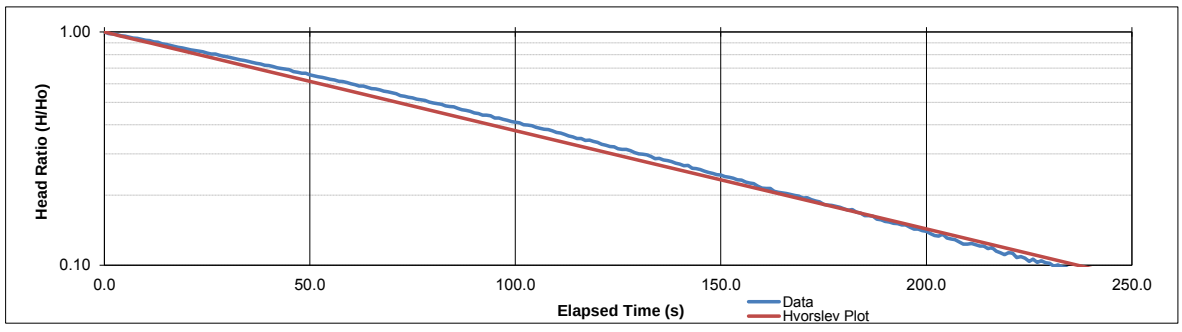
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:49

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	9	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	9:11:31 PM	
Top of test interval	217.3	**m along hole**	**Initial water level**	195	**m above transducer**
Bottom of test interval	240.0	**m along hole**	**Water level after slug**	209	**m above transducer**
Test length, L	22.7	**m along hole**	**Change in Water Level, H_o**	14	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	5E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 5 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 9 - Hvorslev.xlsx]GM12-06 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

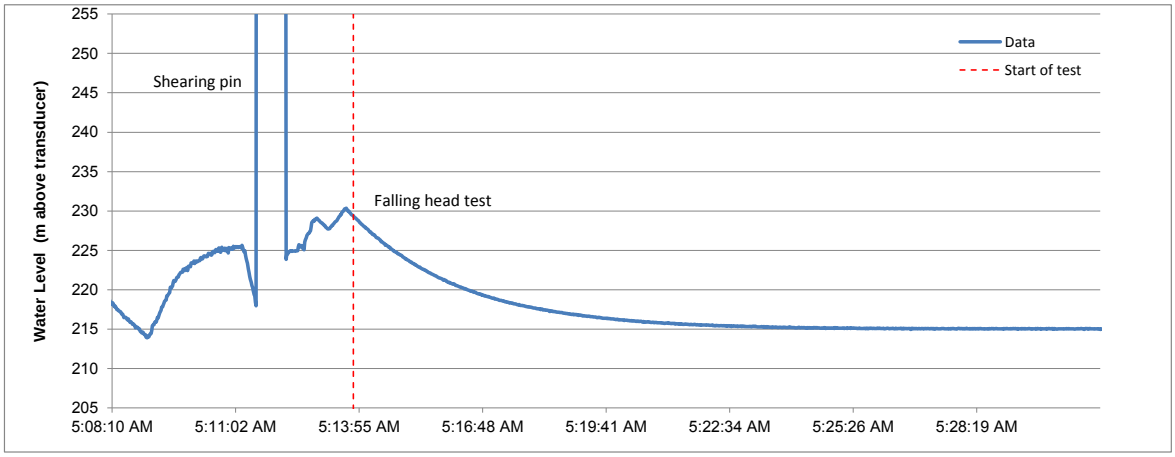
Knight Piésold CONSULTING

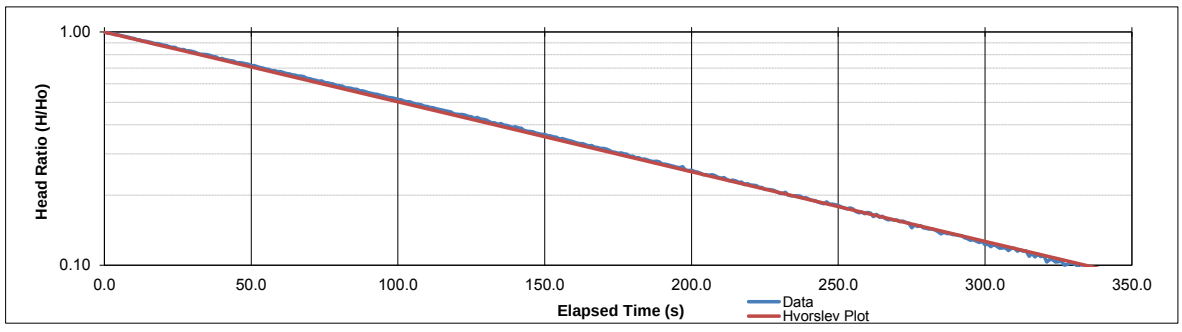
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:50

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	10	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	24-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:13:47 AM	
Top of test interval	239.8	**m along hole**	**Initial water level**	215	**m above transducer**
Bottom of test interval	261.0	**m along hole**	**Water level after slug**	229	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	14	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 4 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 10 - Hvorslev.xlsx]GM12-06 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	12DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

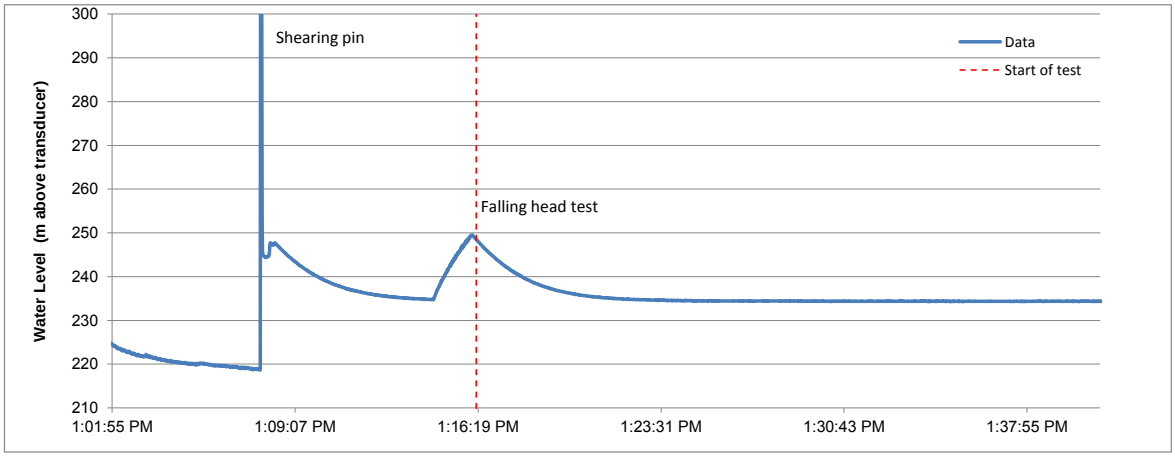
Knight Piésold CONSULTING

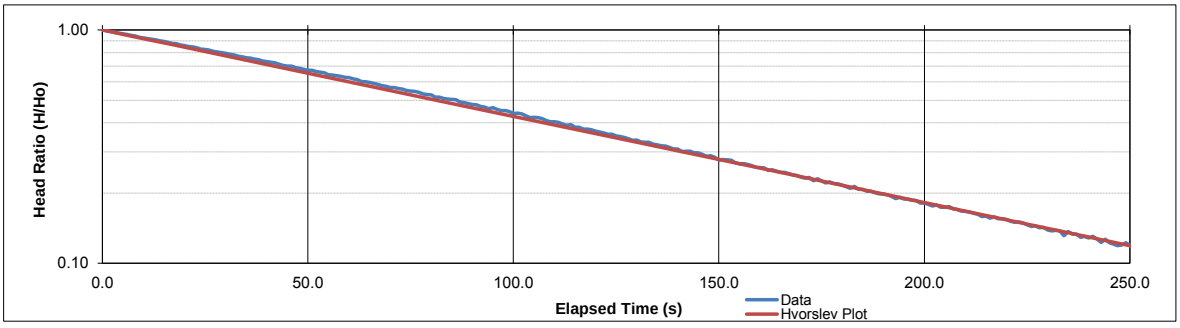
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:51

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	MGP		**Test No.**	11	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	24-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	1:16:15 PM	
Top of test interval	262.3	**m along hole**	**Initial water level**	234	**m above transducer**
Bottom of test interval	282.0	**m along hole**	**Water level after slug**	248	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	14	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 13 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 11 - Hvorslev.xlsx]GM12-06 Packer #11 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	12DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

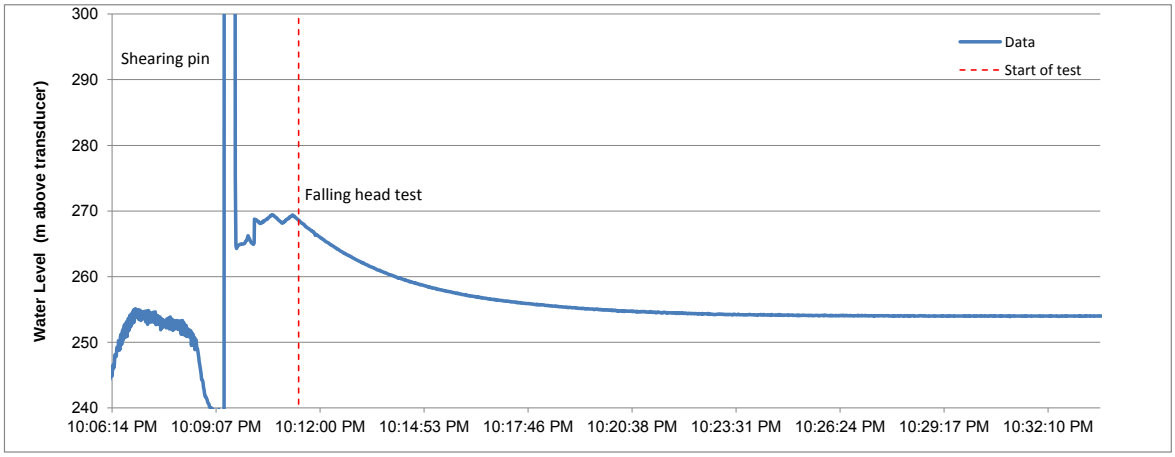
Knight Piésold CONSULTING

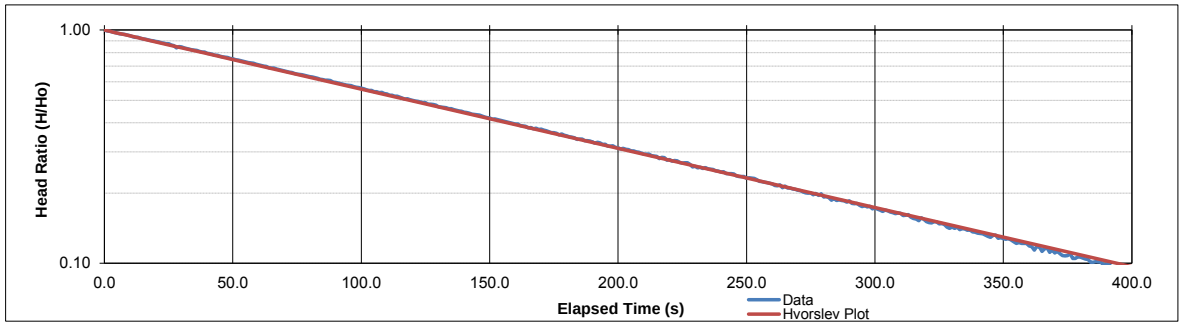
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:55

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	12	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	24-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	10:11:24 PM	
Top of test interval	281.8	**m along hole**	**Initial water level**	254	**m above transducer**
Bottom of test interval	303.0	**m along hole**	**Water level after slug**	269	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	14	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 5cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 12 - Hvorslev.xlsx]GM12-06 Packer #12 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

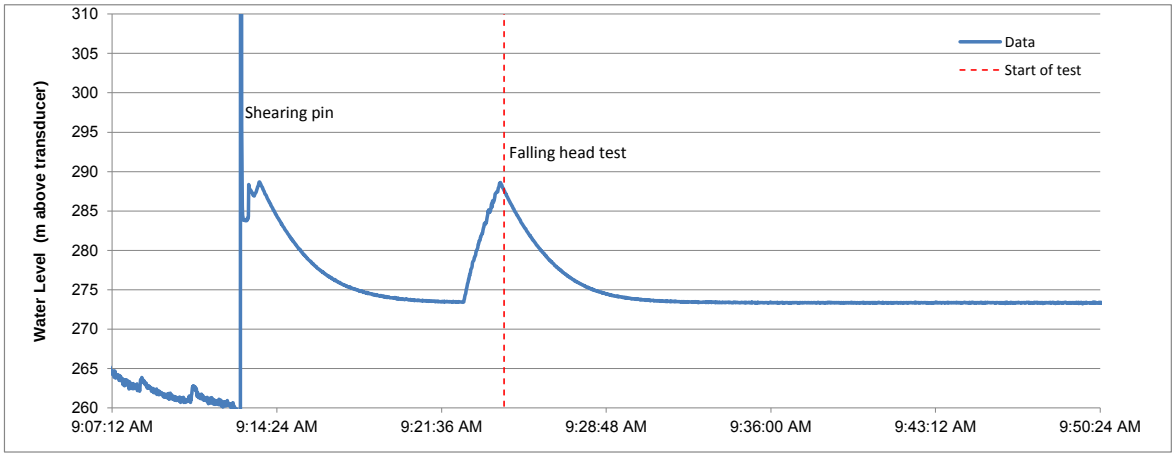
Knight Piésold CONSULTING

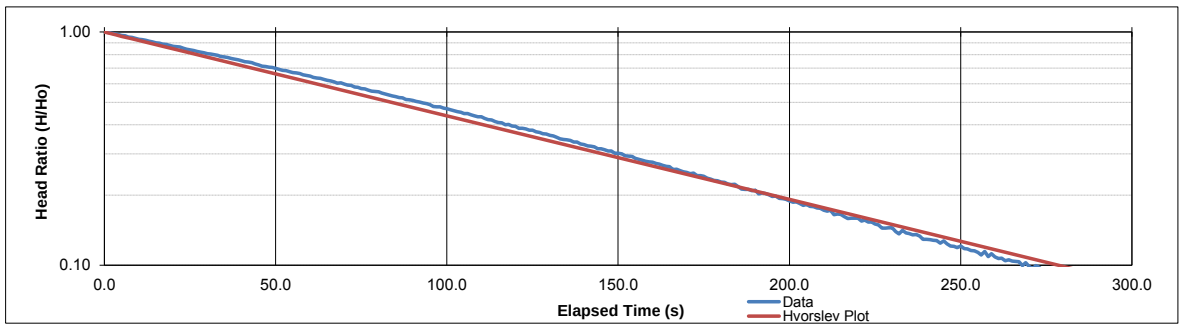
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:56

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML/MGP		**Test No.**	13	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	25-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	302.8	**m along hole**	**Slug Injected, Time = 0**	9:24:20 AM	
Bottom of test interval	324.0	**m along hole**	**Initial water level**	273	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	288	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	15	**m**
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 2 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 13 - Hvorslev.xlsx]GM12-06 Packer #13 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

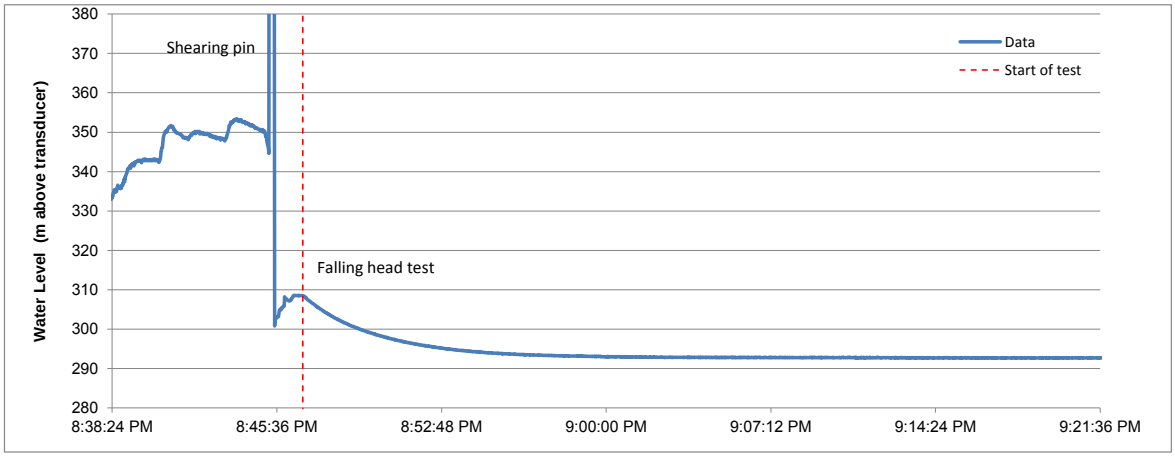
Knight Piésold CONSULTING

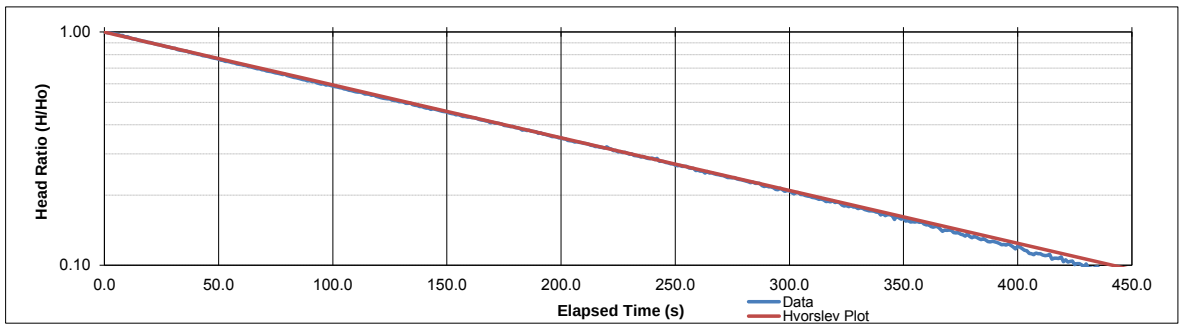
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 10:58

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	14	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	25-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	8:46:44 PM	
Top of test interval	323.8	**m along hole**	**Initial water level**	293	**m above transducer**
Bottom of test interval	345.0	**m along hole**	**Water level after slug**	309	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	16	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 14 - Hvorslev.xlsx]GM12-06 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

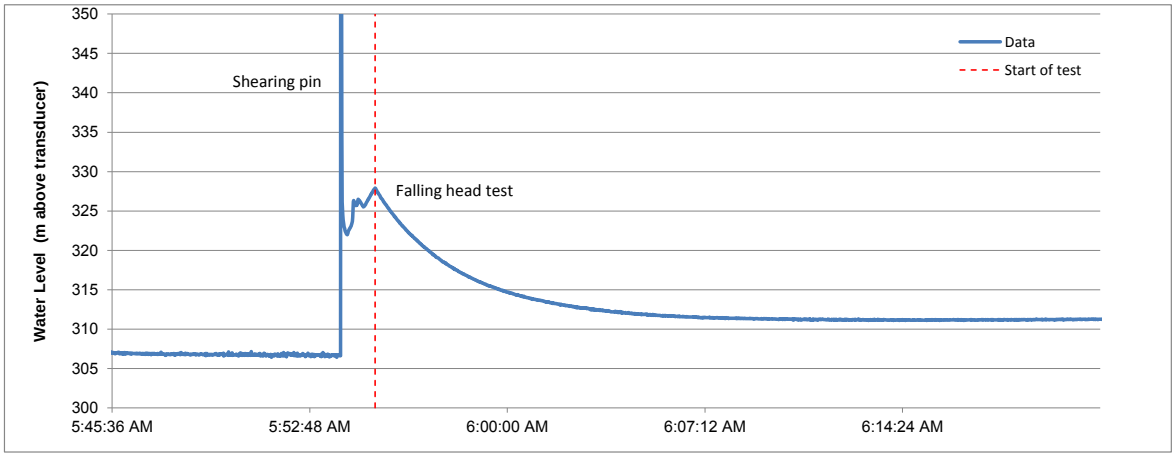
Knight Piésold CONSULTING

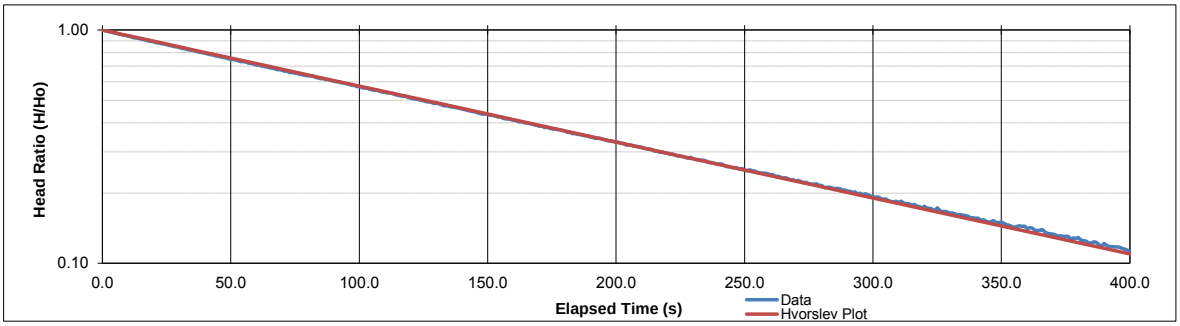
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:00

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	15	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	26-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:55:11 AM	
Top of test interval	345.3	**m along hole**	**Initial water level**	311	**m above transducer**
Bottom of test interval	366.0	**m along hole**	**Water level after slug**	328	**m above transducer**
Test length, L	20.7	**m along hole**	**Change in Water Level, H_o**	17	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 20 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 15 - Hvorslev.xlsx]GM12-06 Packer #15 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

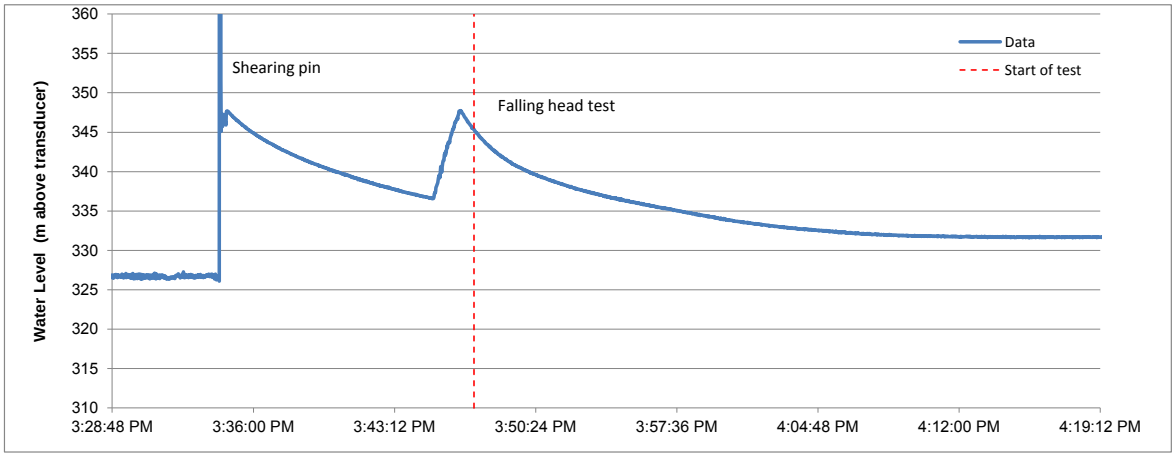
Knight Piésold CONSULTING

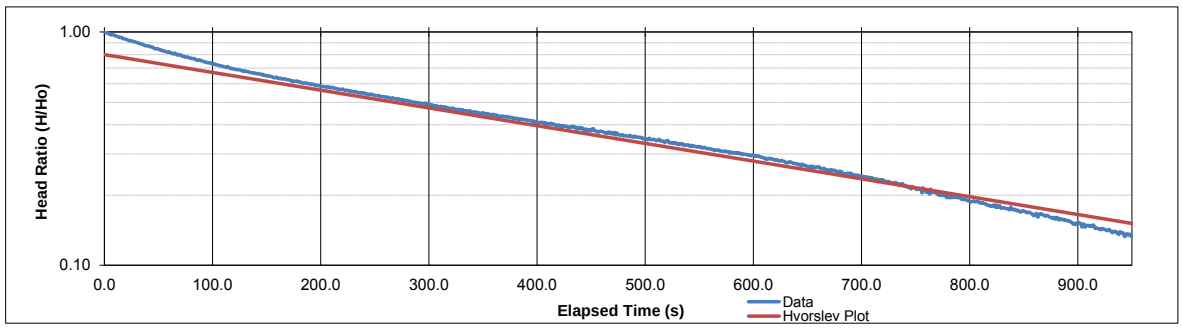
NEW GOLD INC.
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HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:00

Project No.	VA101-457/6		**Drillhole**	**GM12-06**	
Field Technician	ML		**Test No.**	16	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	26-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:47:15 PM	
Top of test interval	365.8	**m along hole**	**Initial water level**	331	**m above transducer**
Bottom of test interval	387.0	**m along hole**	**Water level after slug**	345	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	14	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	9E-06	**m^2/s**			
Hydraulic Conductivity, K	4E-07	**m/s**	Intercept	0.8	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 5 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 16 - Hvorslev.xlsx]GM12-06 Packer #16 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

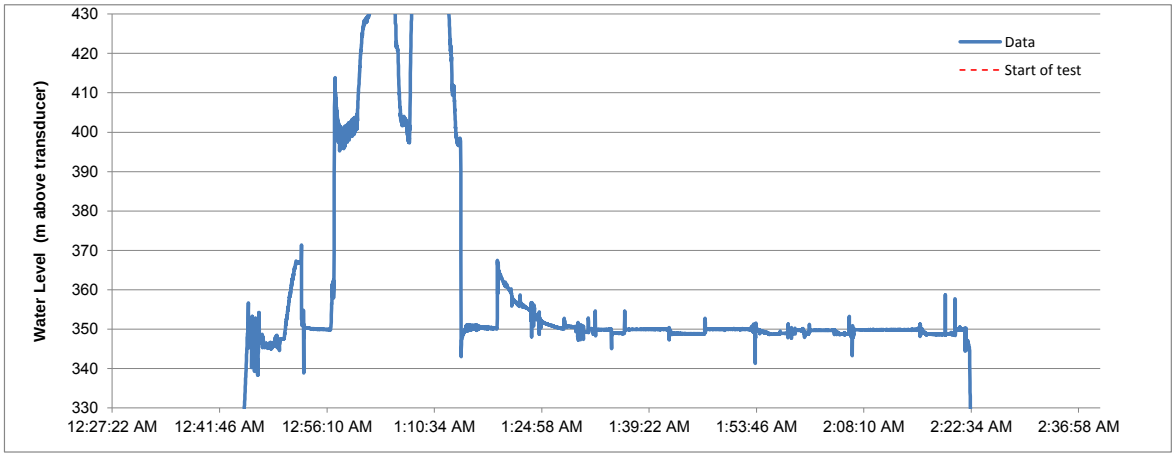
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NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:01

Project No.	VA101-457/6			**Drillhole**	**GM12-06**
Field Technician	ML			**Test No.**	17
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	27-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	
Top of test interval	386.7	**m along hole**		**Initial water level**	**m above transducer**
Bottom of test interval	400.5	**m along hole**		**Water level after slug**	**m above transducer**
Test length, L	13.8	**m along hole**		**Change in Water Level, H_o**	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T		**m^2/s**			
Hydraulic Conductivity, K		**m/s**			



TEST COMMENTS:

Could not achieve sealing or inflate packer. After multiple attempts to inflate, pulled the packer to inspect and it was jammed. Test unsuccessful.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-06\Hydraulic Conductivity\[GM12-06 Packer 17 - Hvorslev.xlsx]GM12-06 Packer #17 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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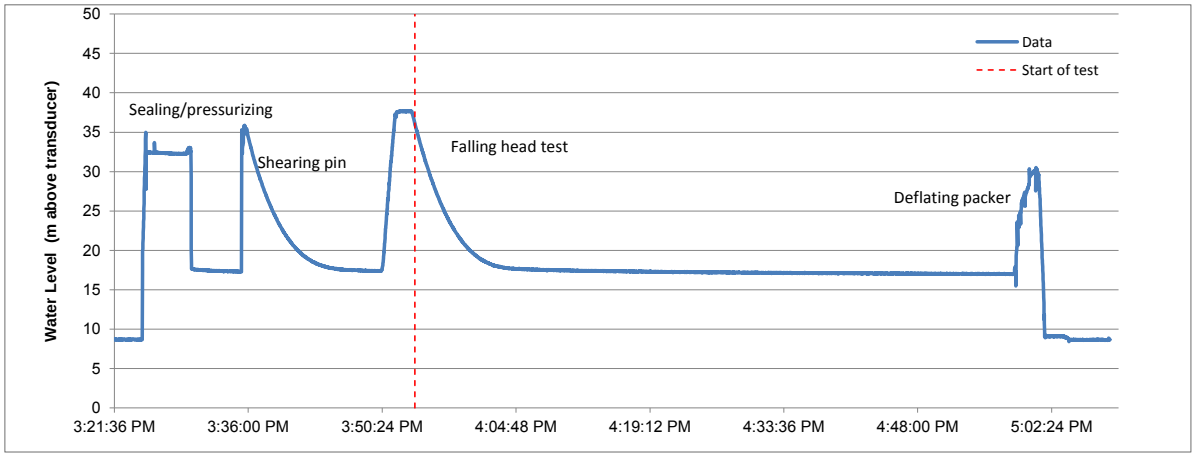
Knight Piésold CONSULTING

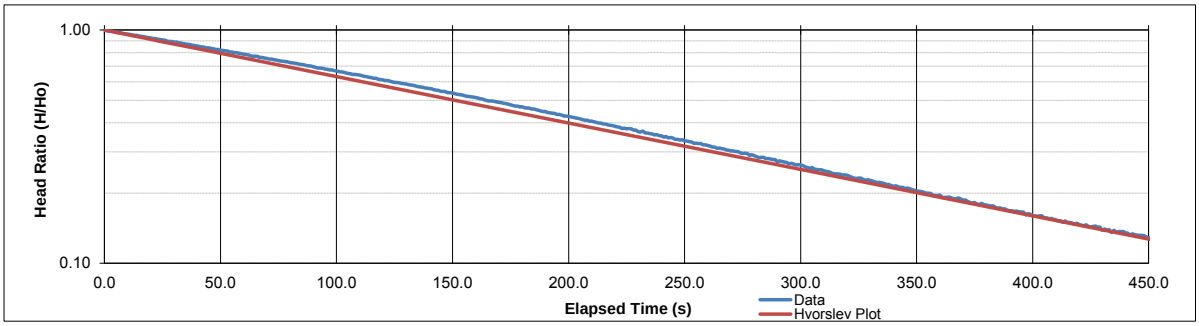
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:05

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	1	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	19-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	29.8	**m along hole**	**Slug Injected, Time = 0**	3:53:55 PM	
Bottom of test interval	51.0	**m along hole**	**Initial water level**	16	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	36	**m above transducer**
Drill-hole angle	65	**degrees**	**Change In Water Level, H_o**	20	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer1 - Hvorslev.xlsx]GM12-07 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

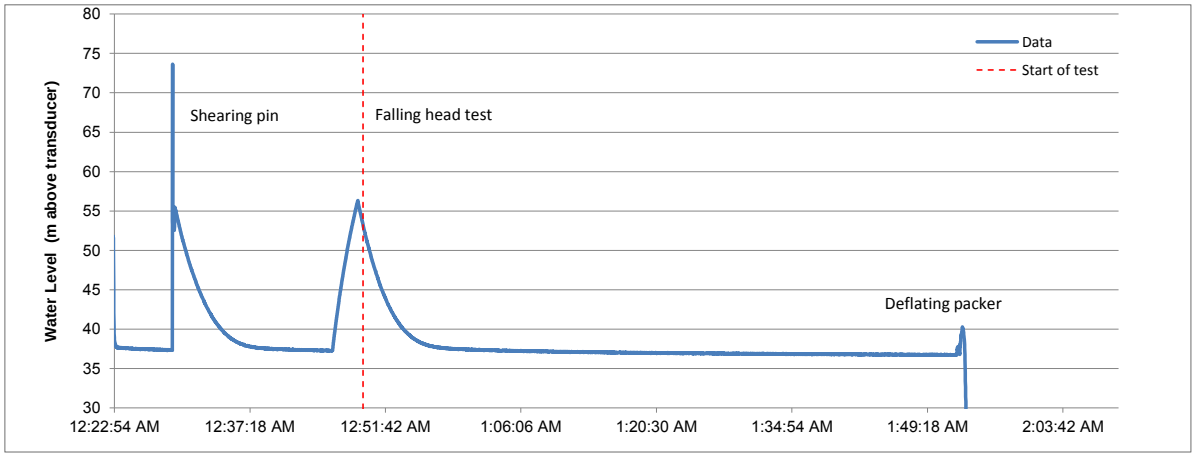
Knight Piésold CONSULTING

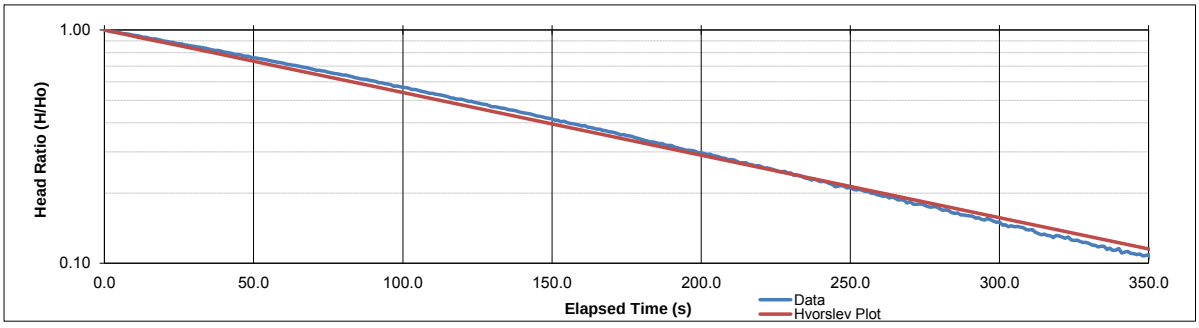
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:06

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	2	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	20-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	50.8	**m along hole**	**Slug Injected, Time = 0**	12:49:19 AM	
Bottom of test interval	72.0	**m along hole**	**Initial water level**	37	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	53	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	17	**m**
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer2 - Hvorslev.xlsx]GM12-07 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

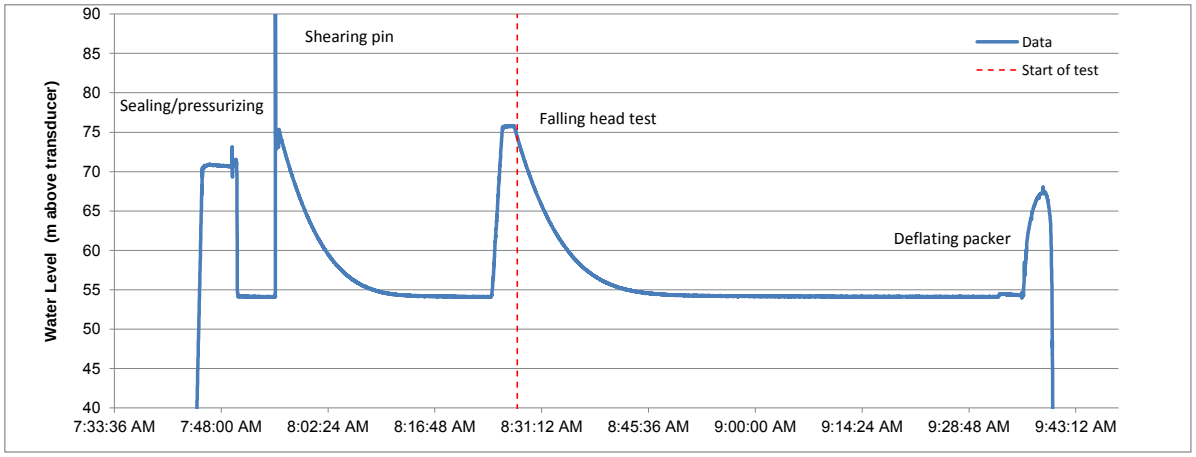
Knight Piésold CONSULTING

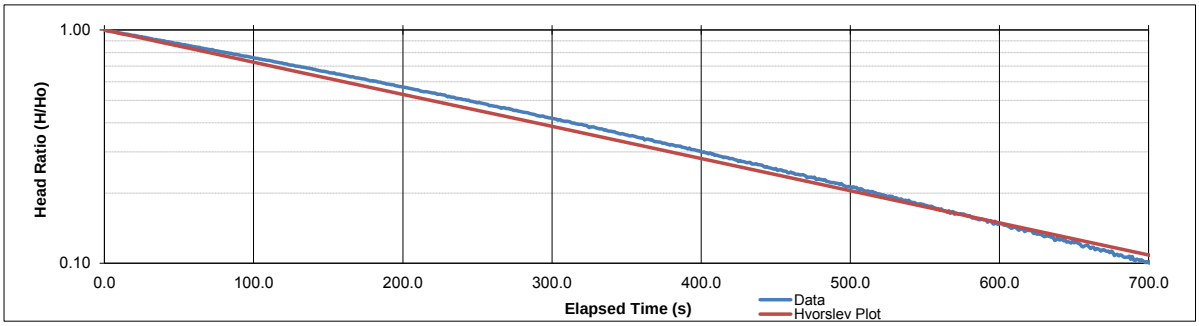
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:07

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	3	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	20-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	8:27:54 AM	
Top of test interval	71.8	**m along hole**	**Initial water level**	54	**m above transducer**
Bottom of test interval	93.0	**m along hole**	**Water level after slug**	74	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	20	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	8E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer3 - Hvorslev.xlsx]GM12-07 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

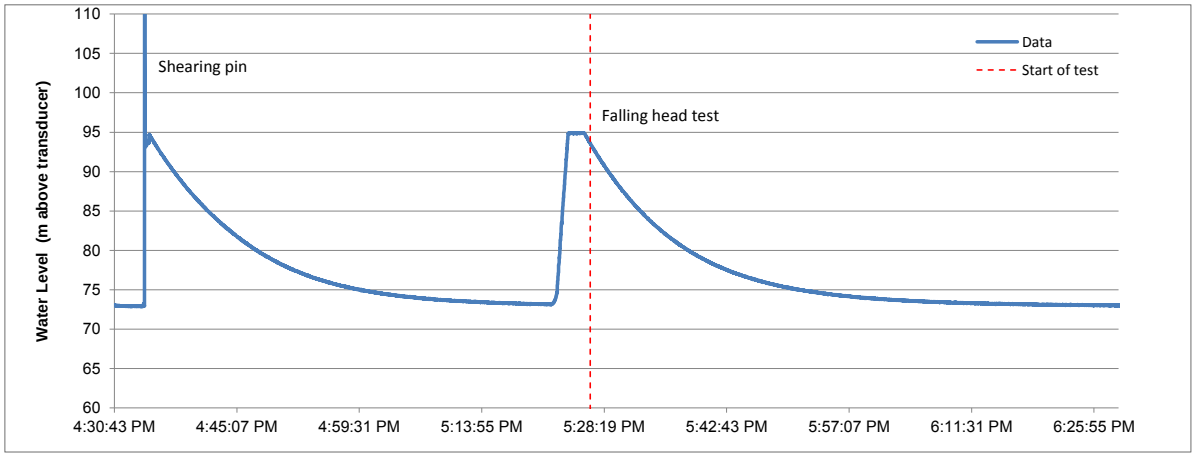
Knight Piésold CONSULTING

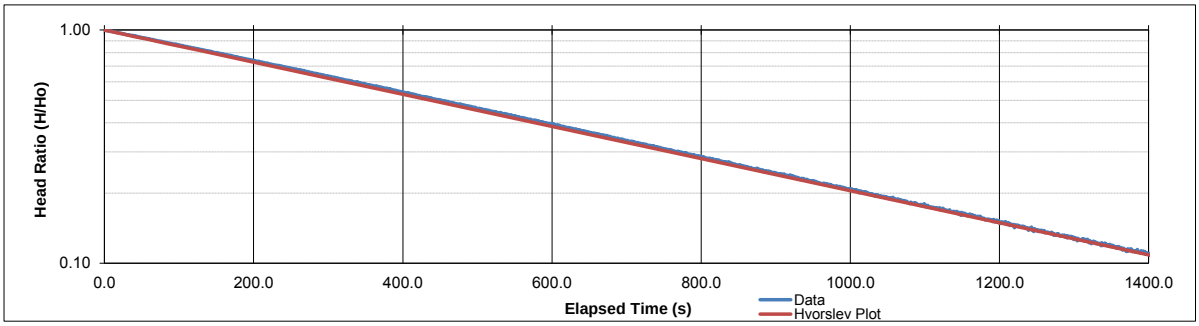
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:07

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	4	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	20-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	92.8	**m along hole**	**Slug Injected, Time = 0**	5:26:40 PM	
Bottom of test interval	114.5	**m along hole**	**Initial water level**	73	**m above transducer**
Test length, L	21.7	**m along hole**	**Water level after slug**	94	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	21	**m**
Transmissivity, T	8E-06	**m^2/s**			
Hydraulic Conductivity, K	4E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer4 - Hvorslev.xlsx]GM12-07 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

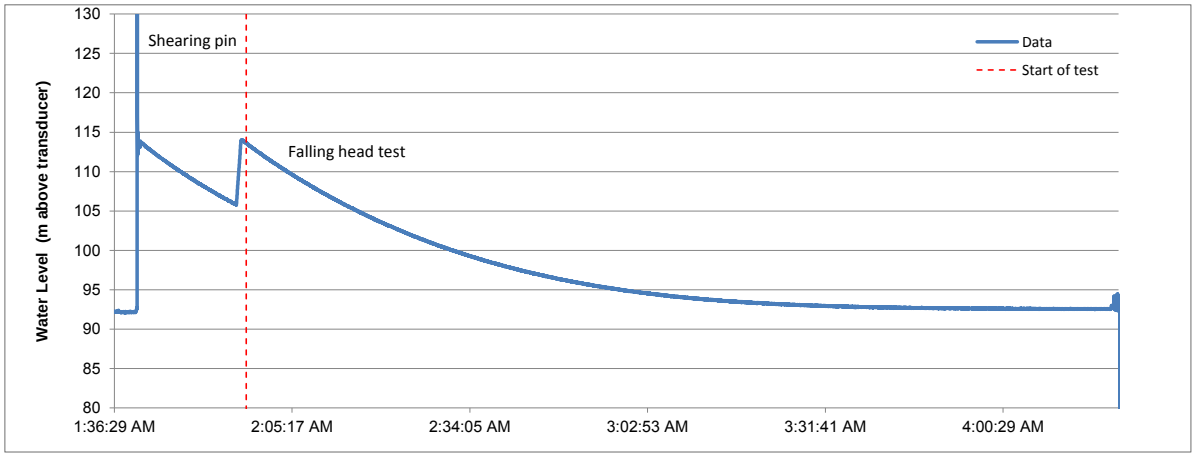
Knight Piésold CONSULTING

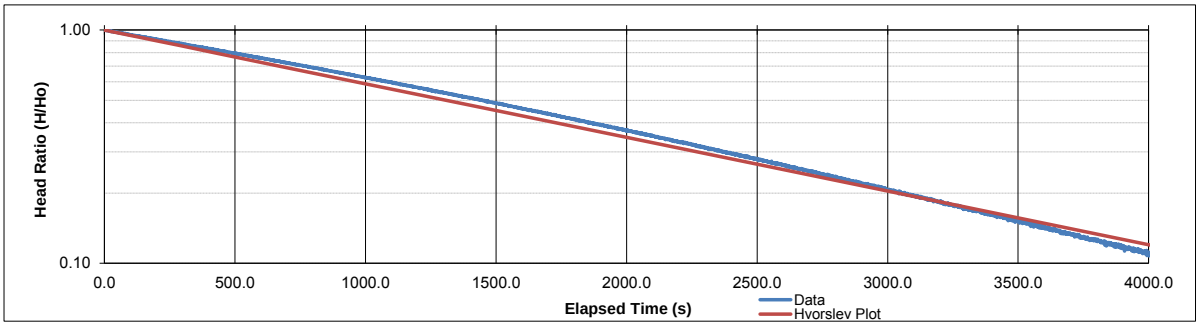
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:08

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	5	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	113.8	**m along hole**	**Slug Injected, Time = 0**	1:57:52 AM	
Bottom of test interval	135.0	**m along hole**	**Initial water level**	92	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	114	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	22	**m**
Transmissivity, T	3E-06	**m^2/s**			
Hydraulic Conductivity, K	1E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer5 - Hvorslev.xlsx]GM12-07 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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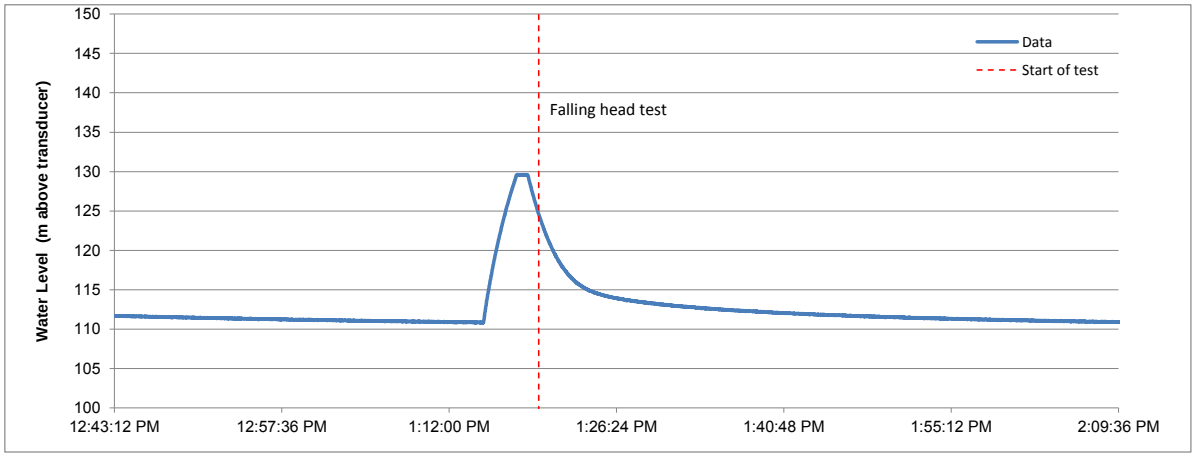
Knight Piésold CONSULTING

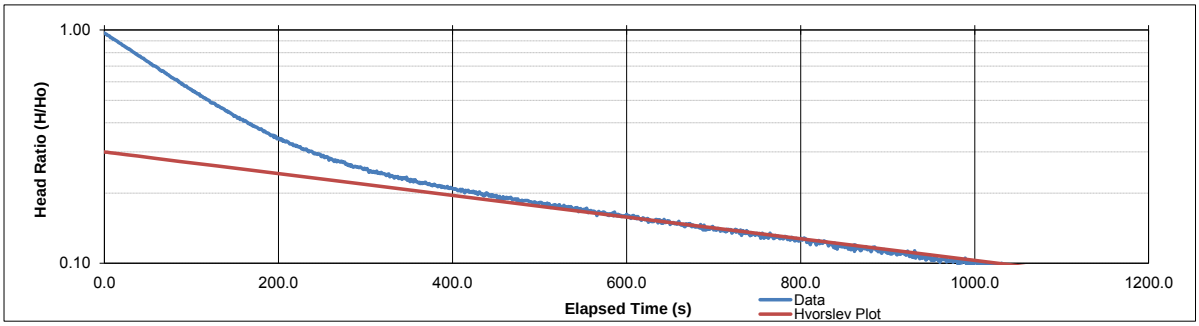
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:09

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	6	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	131.8	**m along hole**	**Slug Injected, Time = 0**	1:19:43 PM	
Bottom of test interval	156.0	**m along hole**	**Initial water level**	111	**m above transducer**
Test length, L	24.2	**m along hole**	**Water level after slug**	125	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	14	**m**
Transmissivity, T	6E-06	**m^2/s**			
Hydraulic Conductivity, K	2E-07	**m/s**	Intercept	0.3	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer6 - Hvorslev.xlsx]GM12-07 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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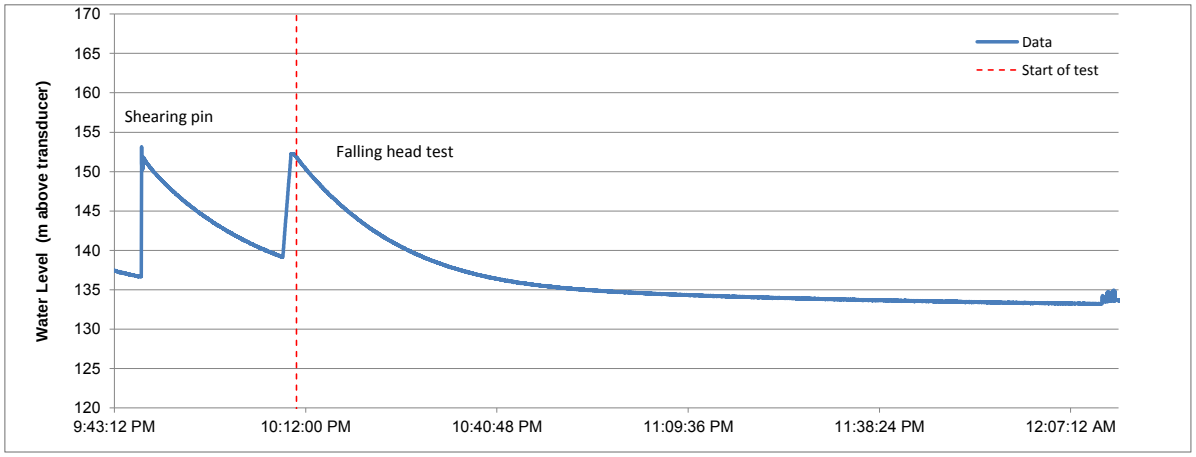
Knight Piésold CONSULTING

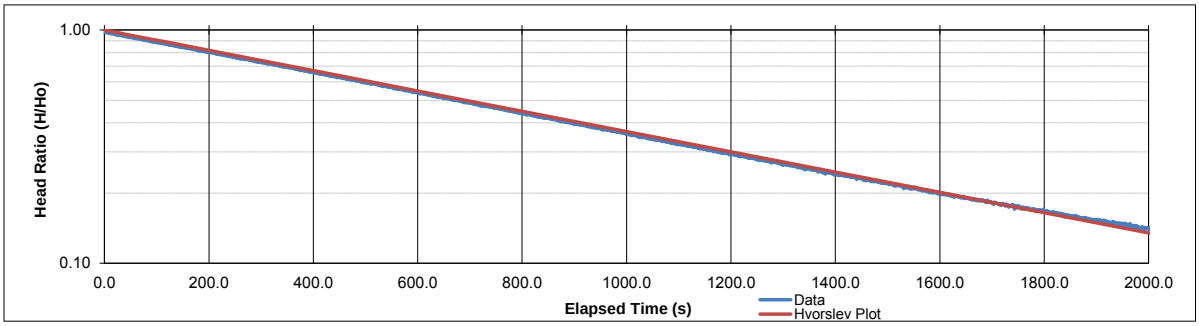
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:10

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	7	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	10:10:38 PM	
Top of test interval	155.8	**m along hole**	**Initial water level**	133	**m above transducer**
Bottom of test interval	177.0	**m along hole**	**Water level after slug**	152	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	19	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	5E-06	**m^2/s**			
Hydraulic Conductivity, K	2E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer7 - Hvorslev.xlsx]GM12-07 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

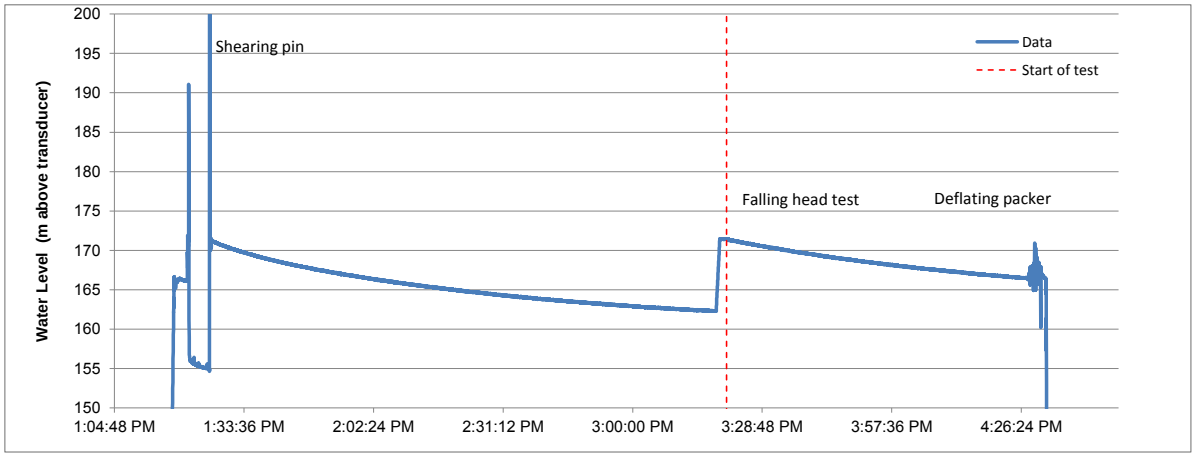
Knight Piésold CONSULTING

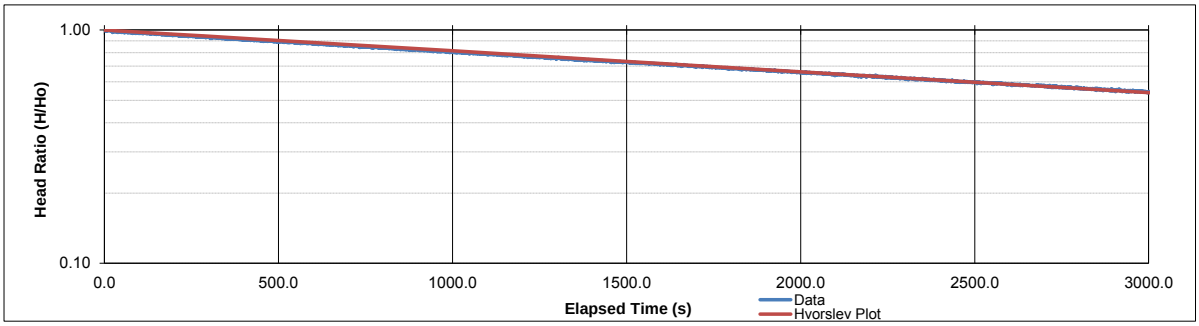
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:12

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	8	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	22-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:20:52 PM	
Top of test interval	176.8	**m along hole**	**Initial water level**	162	**m above transducer**
Bottom of test interval	204.0	**m along hole**	**Water level after slug**	171	**m above transducer**
Test length, L	27.2	**m along hole**	**Change In Water Level, H_o**	9	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-06	**m^2/s**			
Hydraulic Conductivity, K	4E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer8 - Hvorslev.xlsx]GM12-07 Packer #8 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

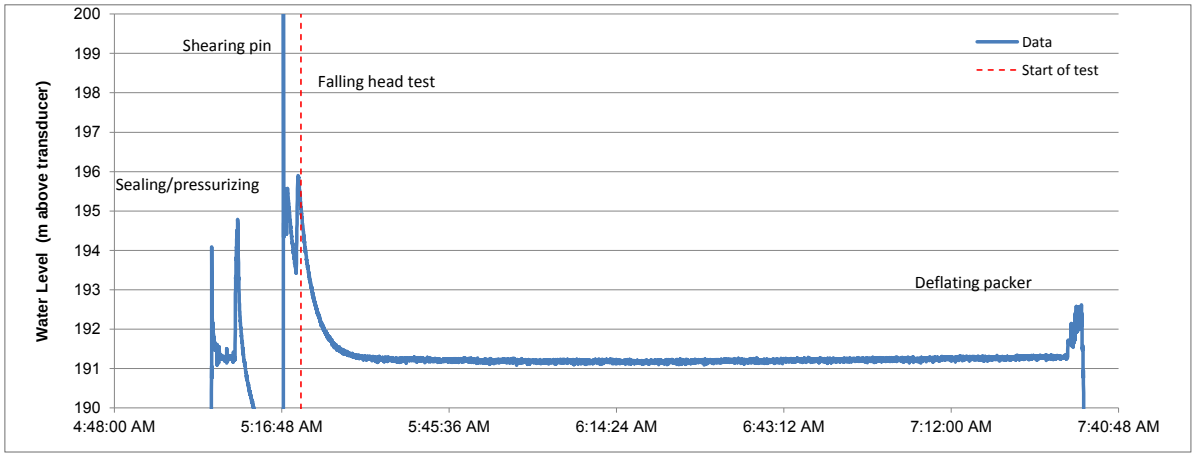
Knight Piésold CONSULTING

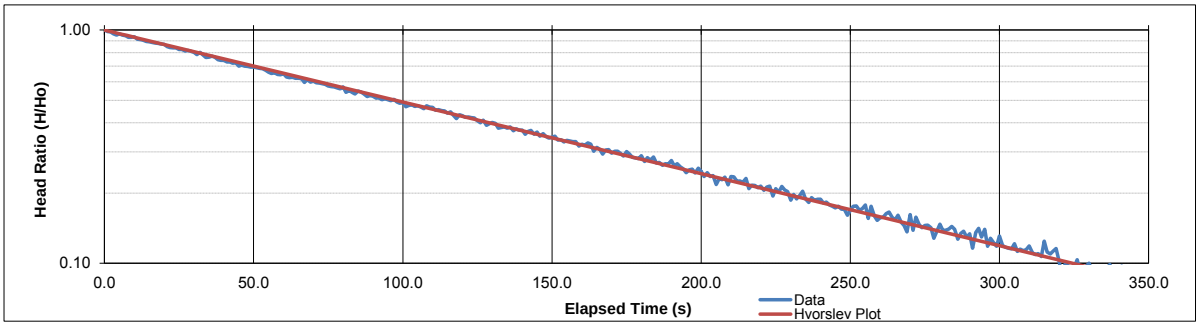
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:12

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	9	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:20:07 AM	
Top of test interval	203.8	**m along hole**	**Initial water level**	191	**m above transducer**
Bottom of test interval	225.0	**m along hole**	**Water level after slug**	195	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	4	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer9 - Hvorslev.xlsx]GM12-07 Packer #9 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

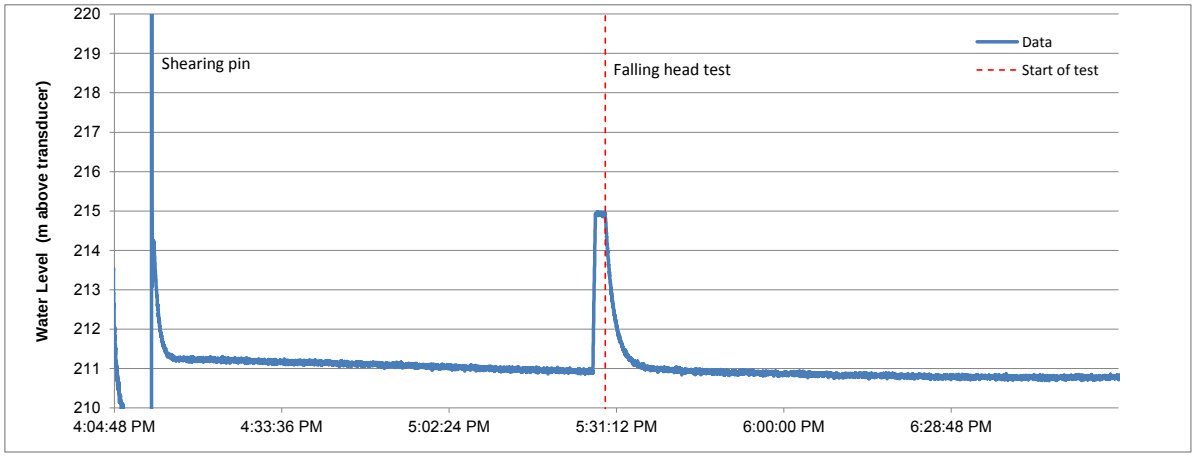
Knight Piésold CONSULTING

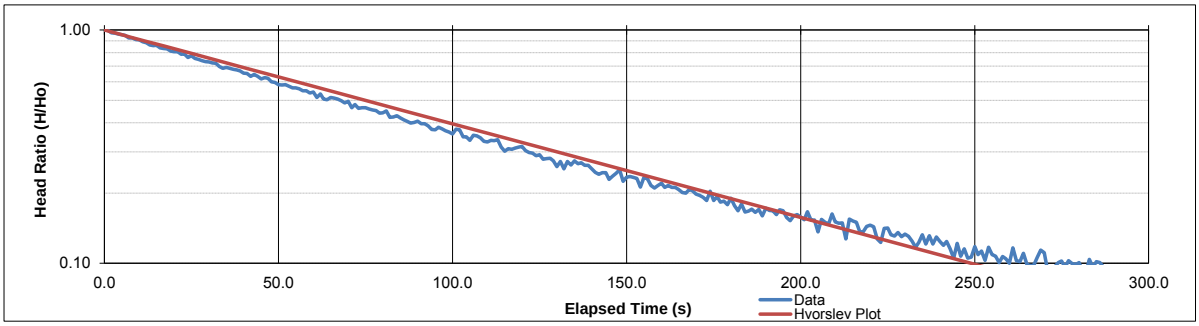
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:13

Project No.	VA101-457/6			**Drillhole**	**GM12-07**
Field Technician	JBC			**Test No.**	10
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	5:29:16 PM
Top of test interval	224.8	m along hole		**Initial water level**	211 m above transducer
Bottom of test interval	252.0	m along hole		**Water level after slug**	215 m above transducer
Test length, L	27.2	m along hole		**Change in Water Level, H_o**	4 m
Drill-hole angle	65	degrees			
Transmissivity, T	5E-05	m^2/s			
Hydraulic Conductivity, K	2E-06	m/s		Intercept	1.0





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer10 - Hvorslev.xlsx]GM12-07 Packer #10 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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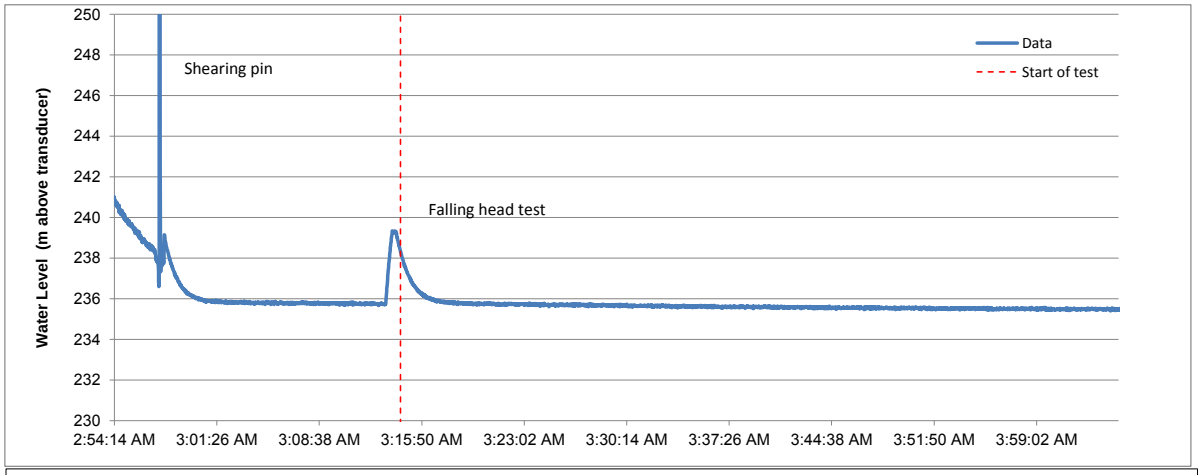
Knight Piésold CONSULTING

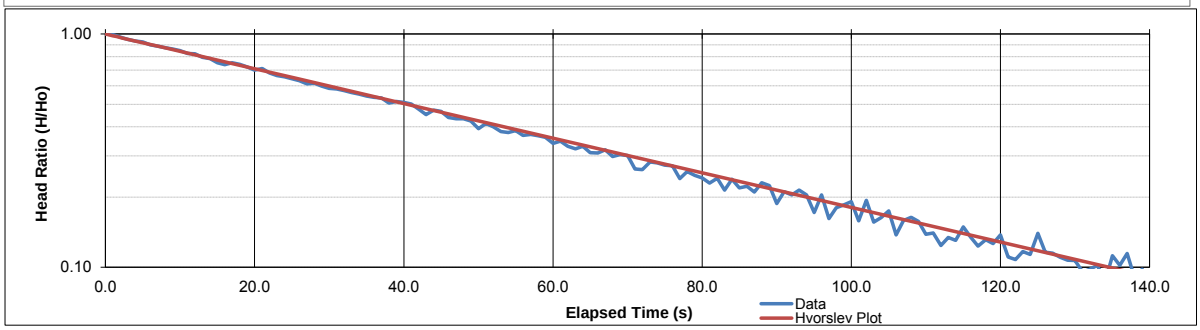
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:14

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	11	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	24-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	251.8	**m along hole**	**Slug Injected, Time = 0**	3:14:21 AM	
Bottom of test interval	273.0	**m along hole**	**Initial water level**	236	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	238	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	9E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer11 - Hvorslev.xlsx]GM12-07 Packer #11 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

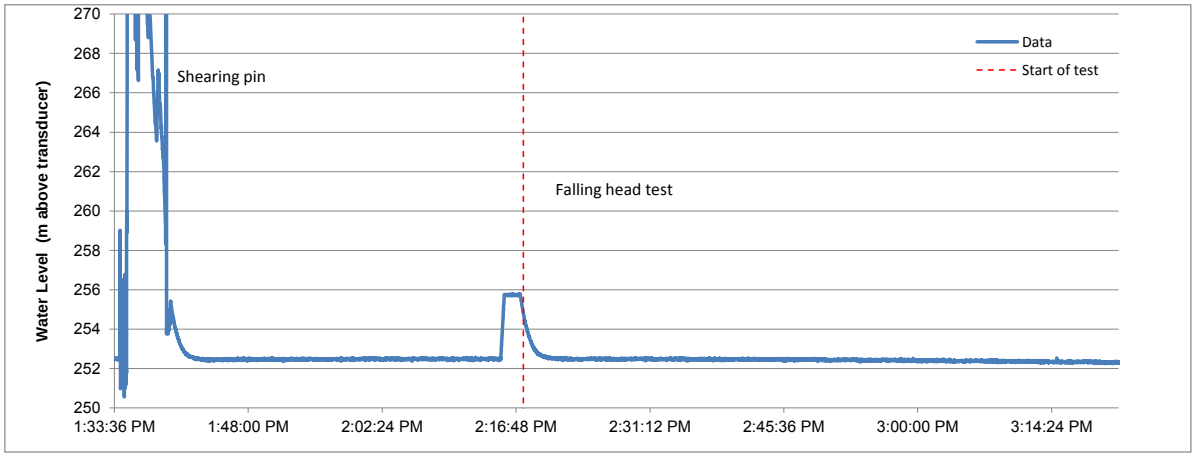
Knight Piésold CONSULTING

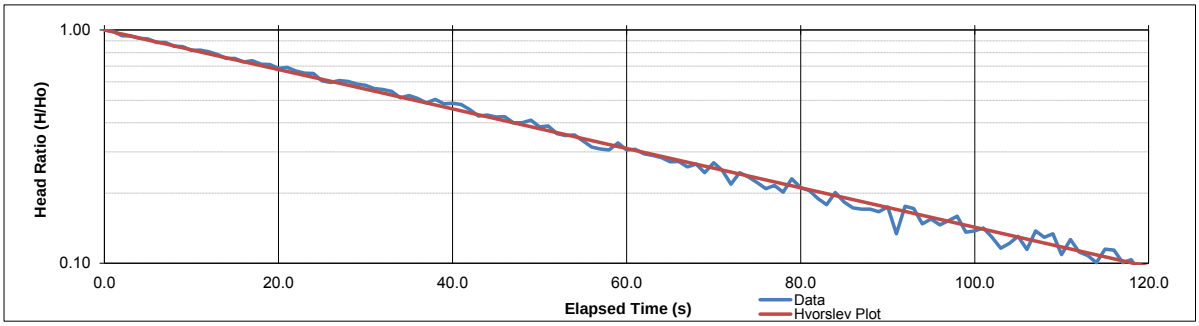
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:15

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	12	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	24-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	269.8	**m along hole**	**Slug Injected, Time = 0**	2:17:35 PM	
Bottom of test interval	296.9	**m along hole**	**Initial water level**	252	**m above transducer**
Test length, L	27.1	**m along hole**	**Water level after slug**	255	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	2	**m**
Transmissivity, T	1E-04	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer12 - Hvorslev.xlsx]GM12-07 Packer #12 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

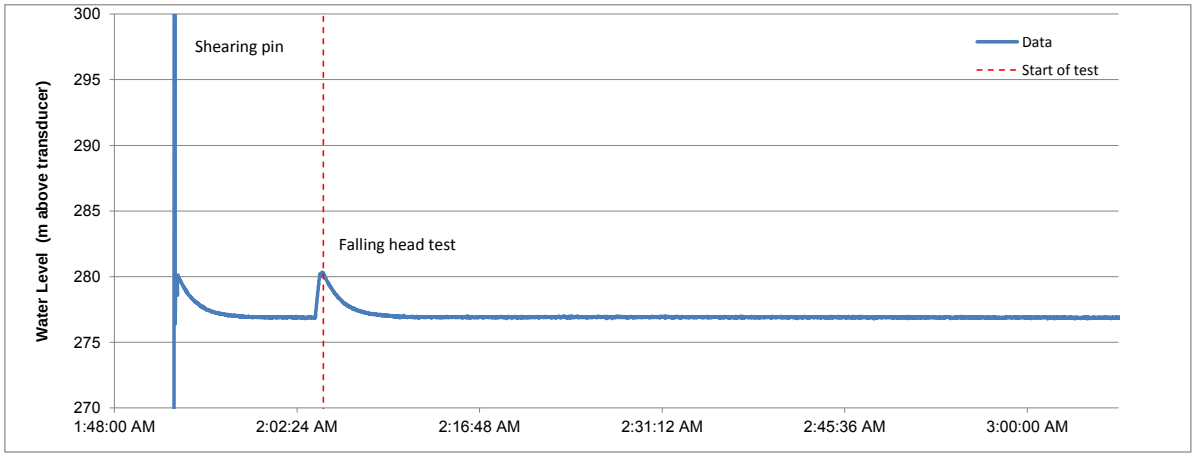
Knight Piésold CONSULTING

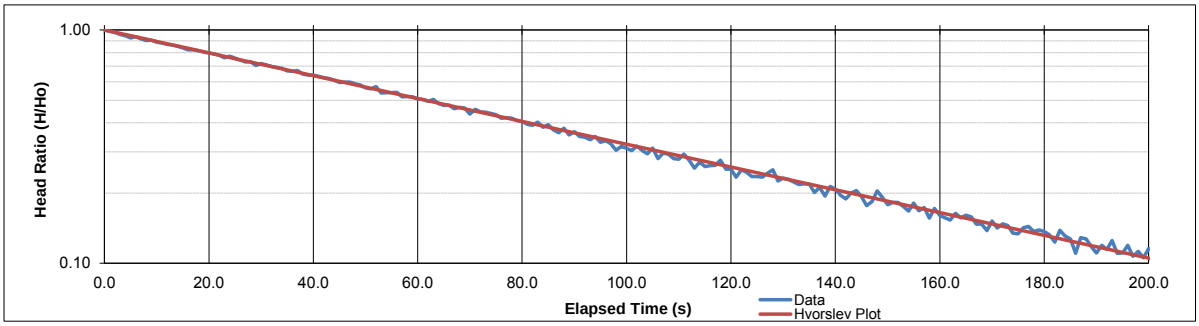
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:15

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	13	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	25-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	2:04:29 AM	
Top of test interval	296.8	**m along hole**	**Initial water level**	277	**m above transducer**
Bottom of test interval	318.0	**m along hole**	**Water level after slug**	280	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	3	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	6E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer13 - Hvorslev.xlsx]GM12-07 Packer #13 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

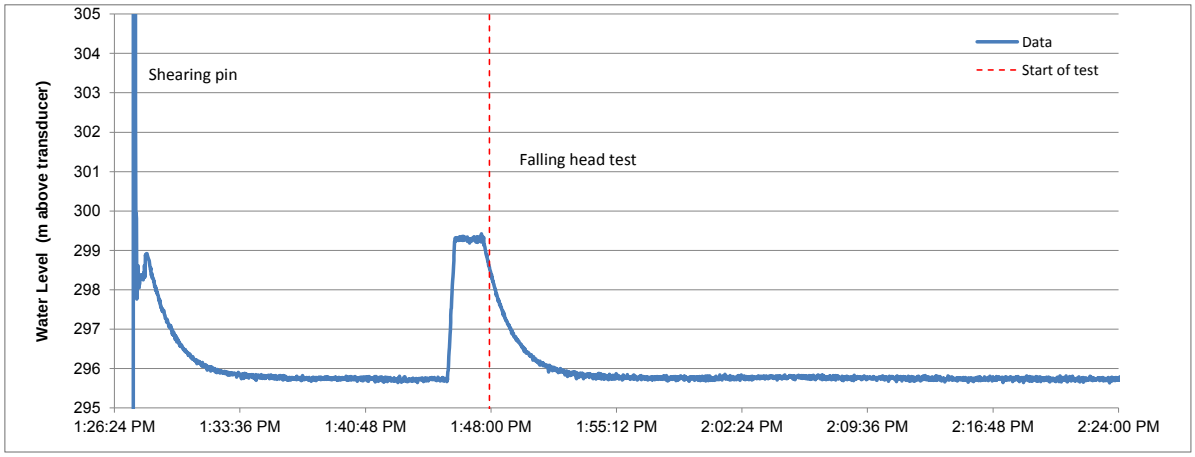
Knight Piésold CONSULTING

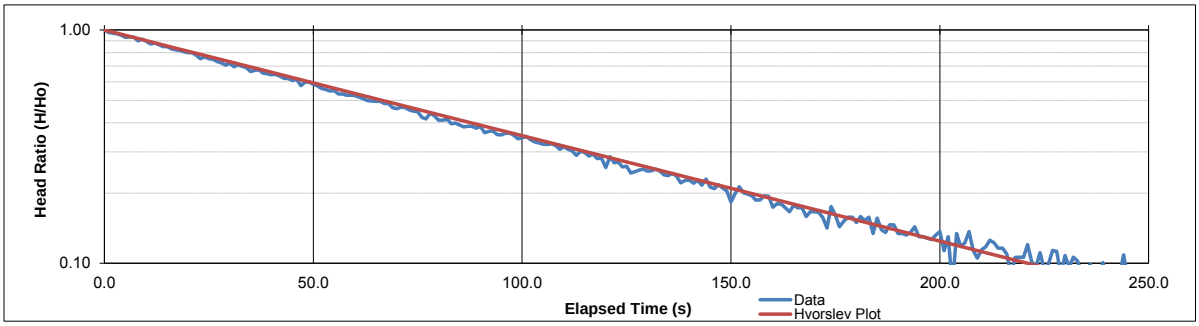
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:16

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	14	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	25-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	317.8	**m along hole**	**Slug Injected, Time = 0**	1:47:55 PM	
Bottom of test interval	339.0	**m along hole**	**Initial water level**	296	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	299	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	5E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer14 - Hvorslev.xlsx]GM12-07 Packer #14 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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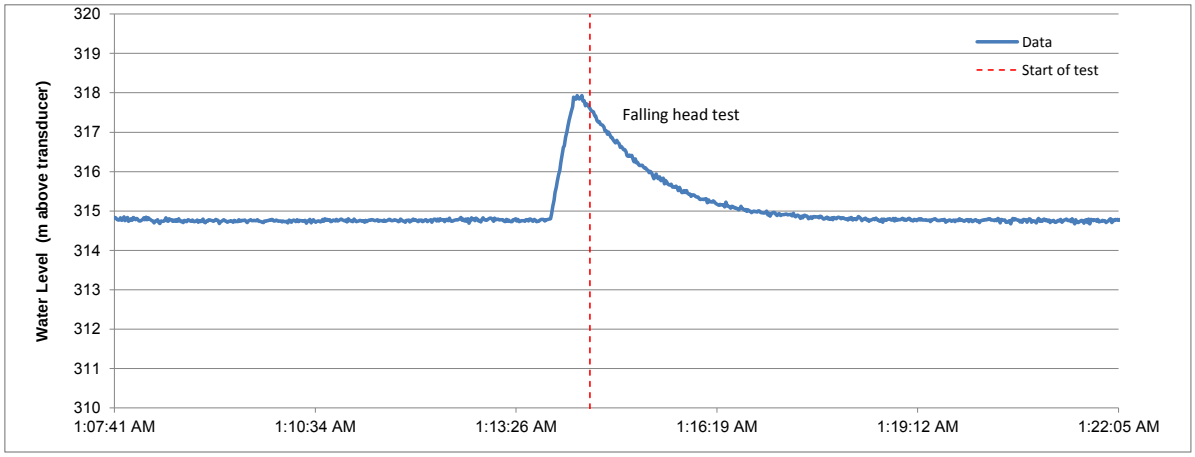
Knight Piésold CONSULTING

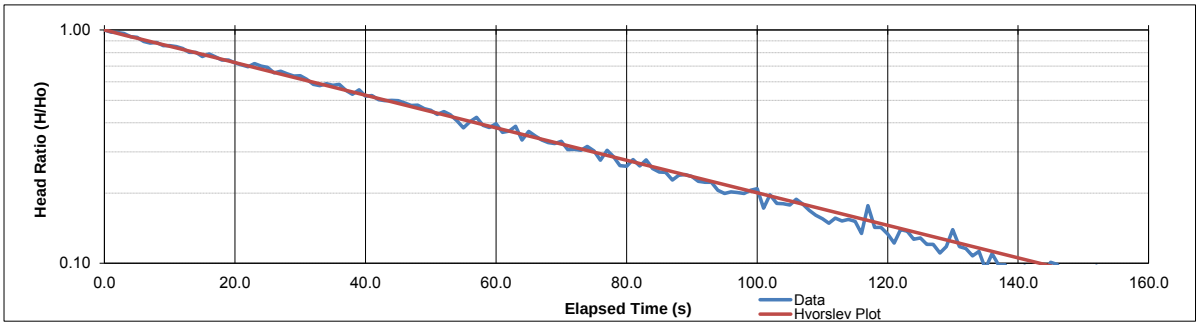
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:18

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	15	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	26-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	338.8	**m along hole**	**Slug Injected, Time = 0**	1:14:30 AM	
Bottom of test interval	360.0	**m along hole**	**Initial water level**	315	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	318	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	8E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer15 - Hvorslev.xlsx]GM12-07 Packer #15 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

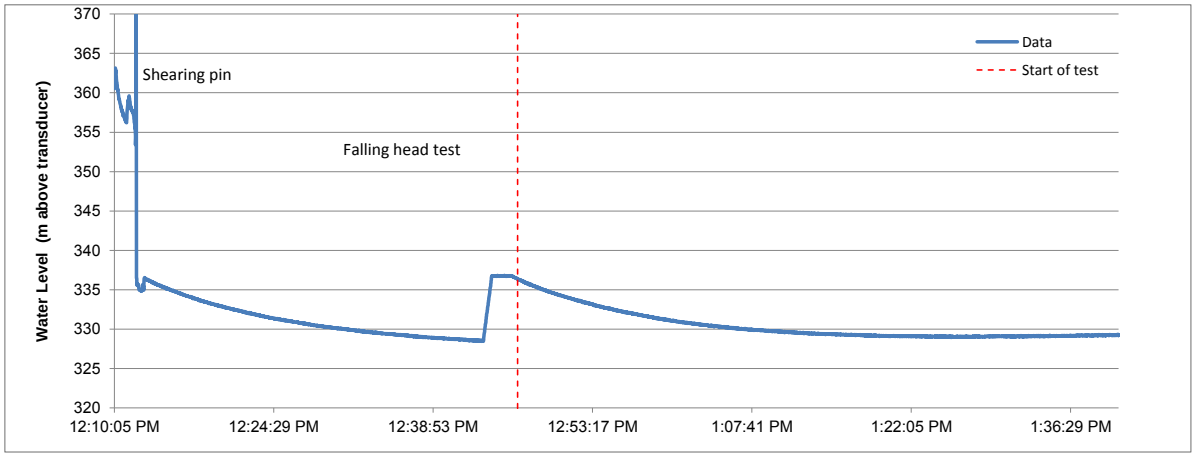
Knight Piésold CONSULTING

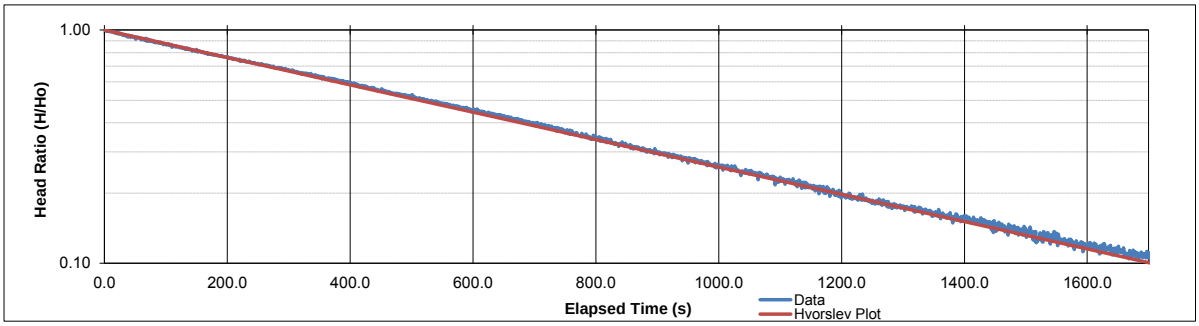
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:18

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	JBC		**Test No.**	16	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	26-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	359.8	**m along hole**	**Slug Injected, Time = 0**	12:46:31 PM	
Bottom of test interval	381.0	**m along hole**	**Initial water level**	329	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	336	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	8	**m**
Transmissivity, T	7E-06	**m^2/s**			
Hydraulic Conductivity, K	3E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer16 - Hvorslev.xlsx]GM12-07 Packer #16 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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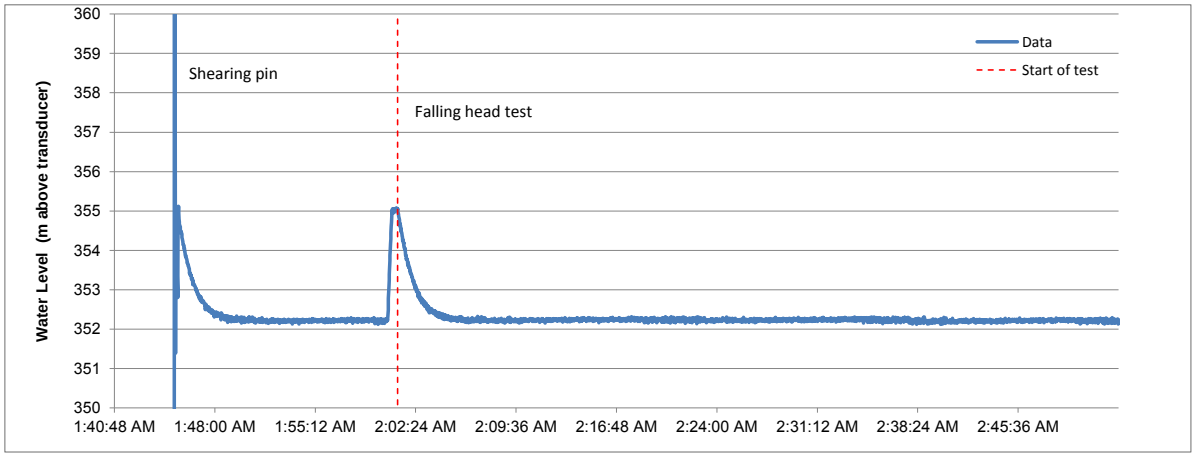
Knight Piésold CONSULTING

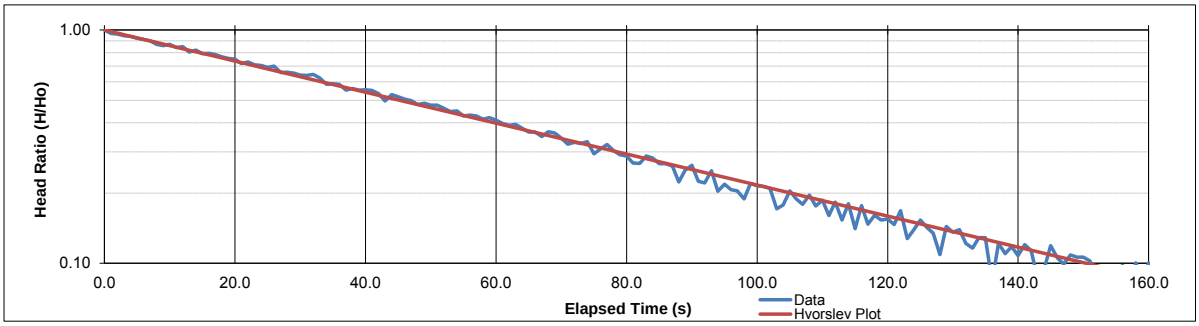
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:19

Project No.	VA101-457/6		**Drillhole**	**GM12-07**	
Field Technician	SRM		**Test No.**	17	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	27-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	380.8	**m along hole**	**Slug Injected, Time = 0**	2:01:07 AM	
Bottom of test interval	400.5	**m along hole**	**Initial water level**	352	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	355	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	8E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-07\Hydraulic conductivity\Hvorslev\[GM12-07 Packer17 - Hvorslev.xlsx]GM12-07 Packer #17 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

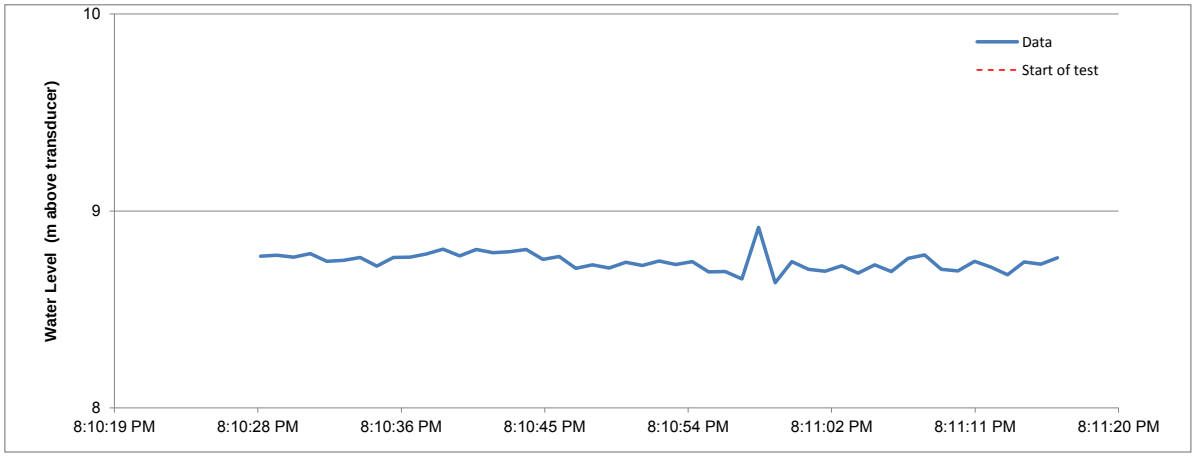
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BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:20

Project No.	VA101-457/6			**Drillhole**	**GM12-08**
Field Technician	SRM			**Test No.**	1
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water				
Test Date	2-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	
Top of test interval	121.3	**m along hole**		**Initial water level**	**m above transducer**
Bottom of test interval	139.5	**m along hole**		**Water level after slug**	**m above transducer**
Test length, L	18.2	**m along hole**		**Change in Water Level, H_o**	0 **m**
Drill-hole angle	65	**degrees**			
Transmissivity, T		**m^2/s**			
Hydraulic Conductivity, K		**m/s**			



TEST COMMENTS:

Transducer was not installed below packer (no transducer data). Water level after the slug was inserted dropped too quick to measure manually.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer1 - Hvorslev.xlsx]GM12-08 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

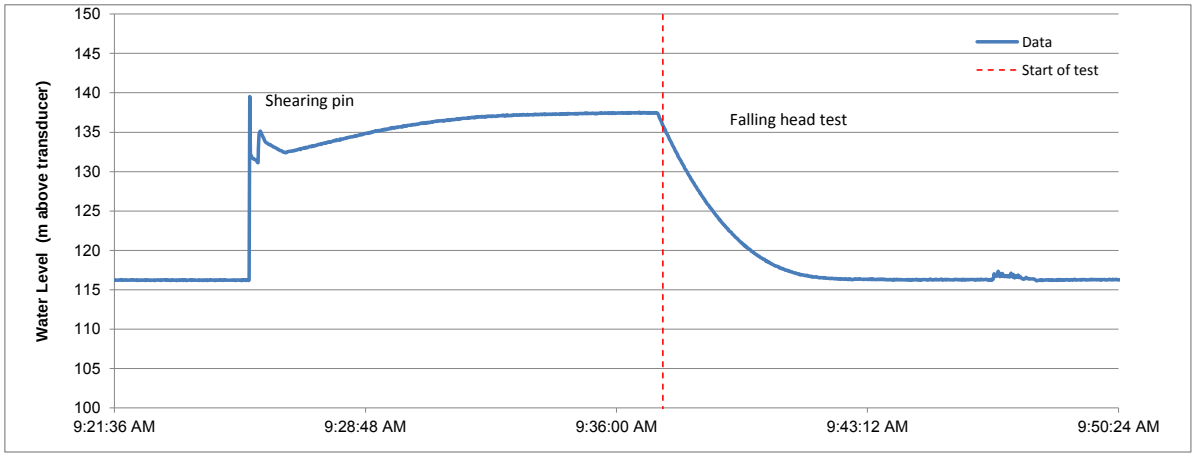
Knight Piésold CONSULTING

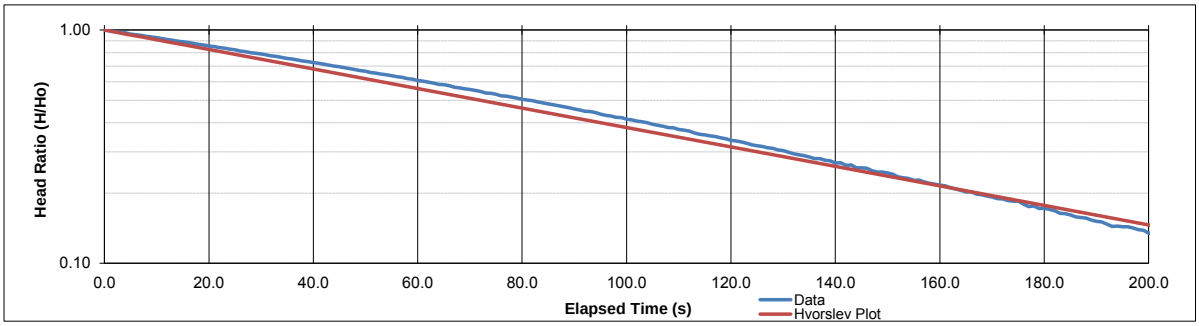
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:21

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	2	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	3-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	9:37:20 AM	
Top of test interval	139.3	**m along hole**	**Initial water level**	115	**m above transducer**
Bottom of test interval	159.0	**m along hole**	**Water level after slug**	136	**m above transducer**
Test length, L	19.7	**m along hole**	**Change In Water Level, H_o**	21	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	5E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Flushed for 30 minutes. Initial water level was estimated based on water level recovering.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer2 - Hvorslev.xlsx]GM12-08 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
A	17DEC'12	ISSUED FOR INFORMATION	EA	CHS	KJB

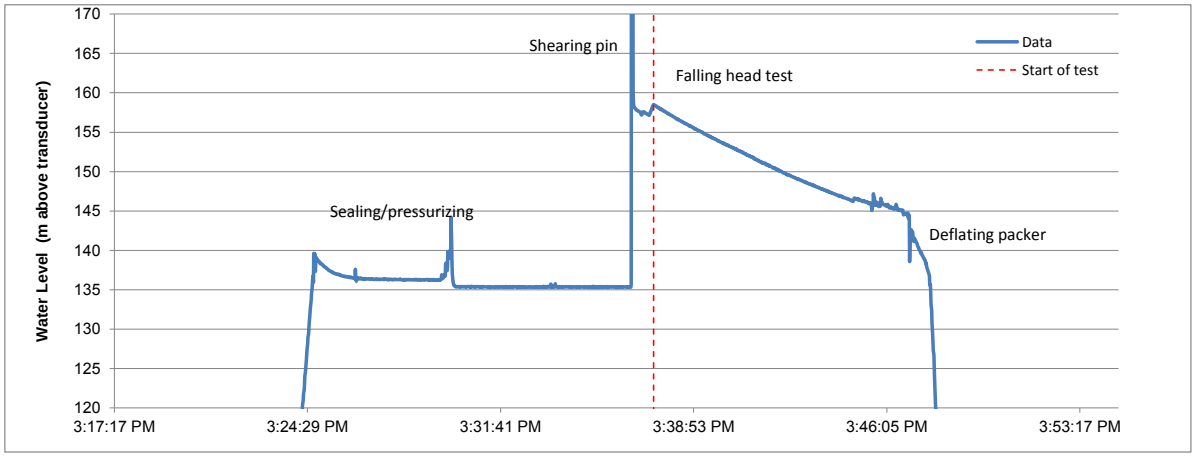
Knight Piésold CONSULTING

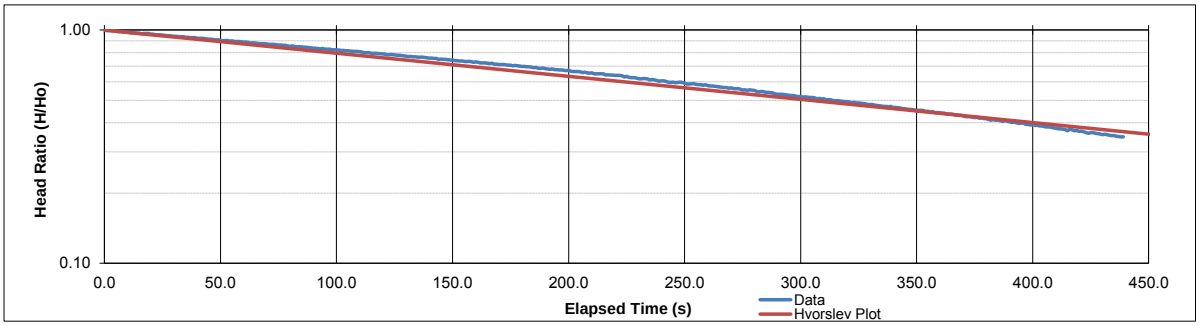
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:22

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	3	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water				
Test Date	3-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	161.3	m along hole	**Slug Injected, Time = 0**	3:37:23 PM	
Bottom of test interval	181.5	m along hole	**Initial water level**	140	m above transducer
Test length, L	20.2	m along hole	**Water level after slug**	159	m above transducer
Drill-hole angle	65	degrees	**Change in Water Level, H_o**	19	m
Transmissivity, T	1E-05	m^2/s			
Hydraulic Conductivity, K	6E-07	m/s	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer3 - Hvorslev.xlsx]GM12-08 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

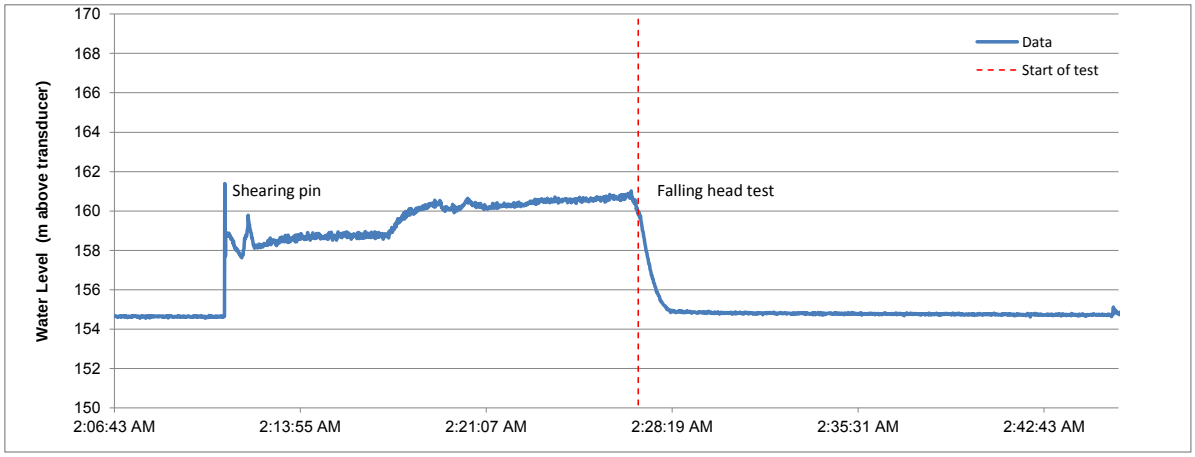
Knight Piésold CONSULTING

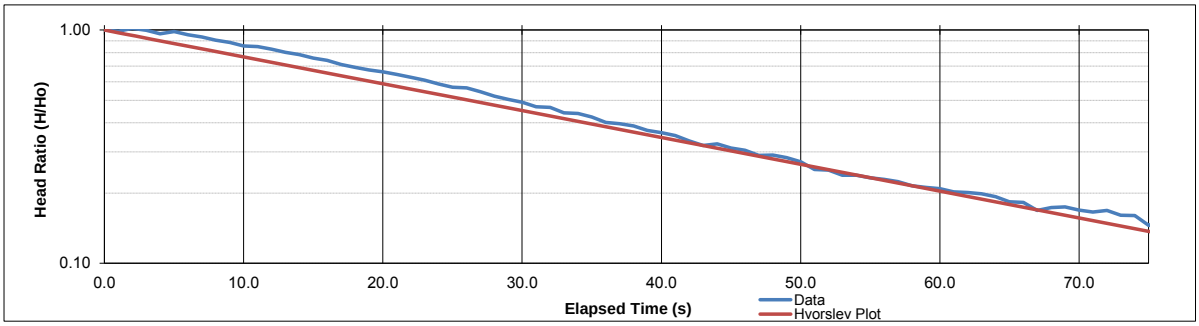
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:22

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	SRM		**Test No.**	4	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	4-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	182.8	**m along hole**	**Slug Injected, Time = 0**	2:27:00 AM	
Bottom of test interval	205.5	**m along hole**	**Initial water level**	154	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	160	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	6	**m**
Transmissivity, T	1E-04	**m^2/s**			
Hydraulic Conductivity, K	6E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer4 - Hvorslev.xlsx]GM12-08 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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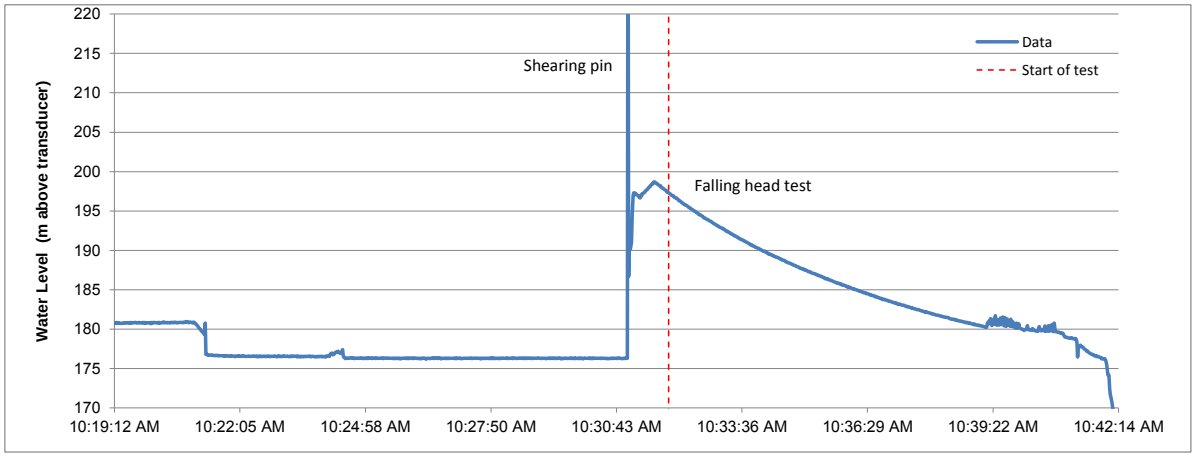
Knight Piésold CONSULTING

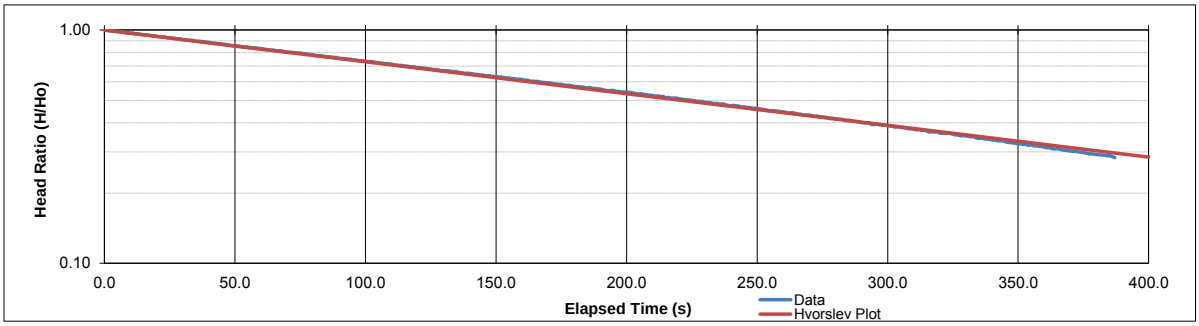
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:23

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	5	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	4-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	205.3	**m along hole**	**Slug Injected, Time = 0**	10:31:55 AM	
Bottom of test interval	225.0	**m along hole**	**Initial water level**	175	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	197	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	22	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	8E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Flushed for 50 minutes. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer5 - Hvorslev.xlsx]GM12-08 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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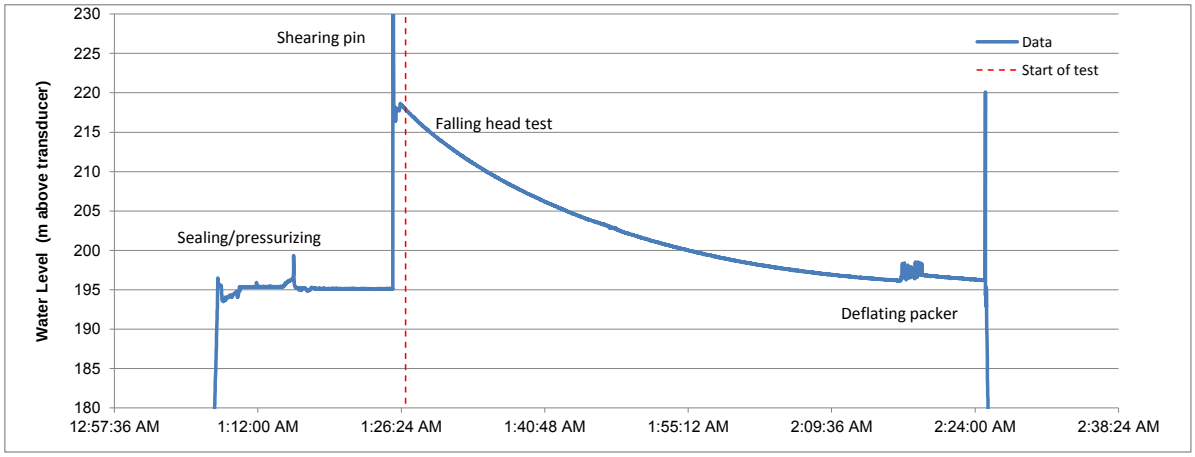
Knight Piésold CONSULTING

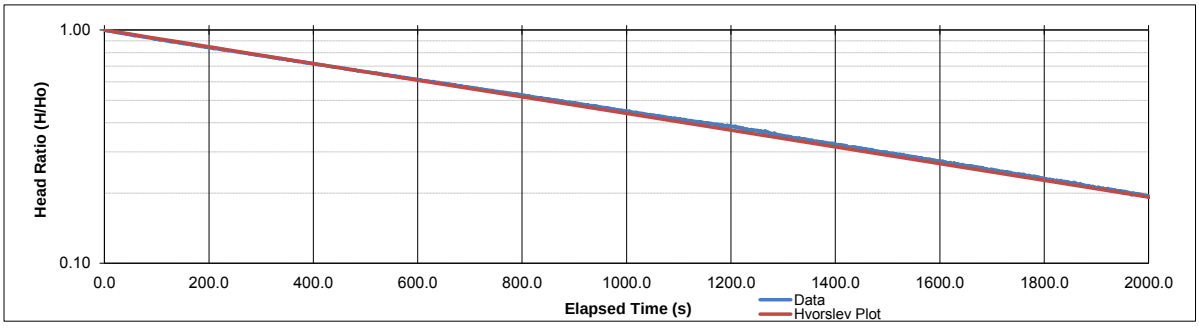
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:24

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	SRM		**Test No.**	6	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	5-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	1:26:50 AM	
Top of test interval	227.8	**m along hole**	**Initial water level**	194	**m above transducer**
Bottom of test interval	247.5	**m along hole**	**Water level after slug**	218	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	24	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	4E-06	**m^2/s**			
Hydraulic Conductivity, K	2E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer6 - Hvorslev.xlsx]GM12-08 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

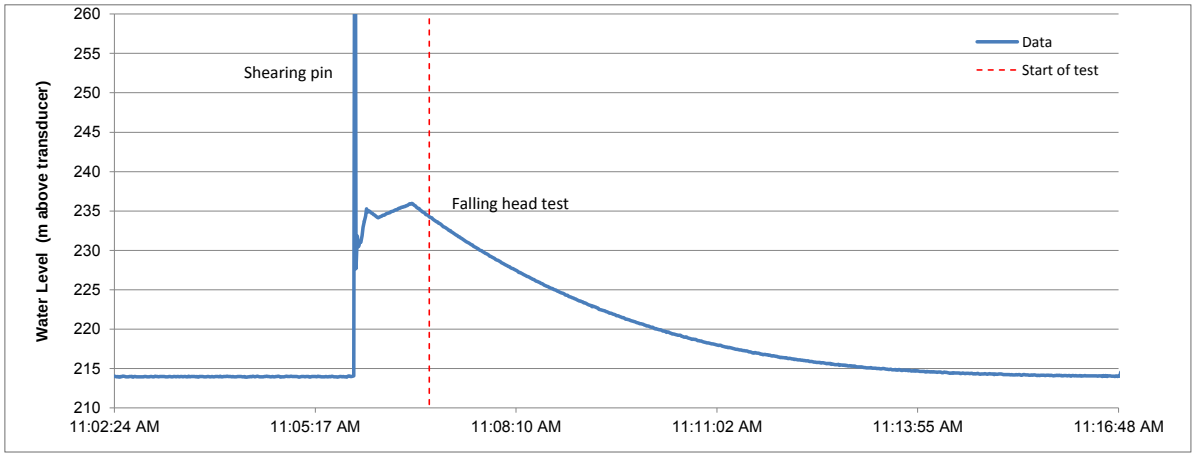
Knight Piésold CONSULTING

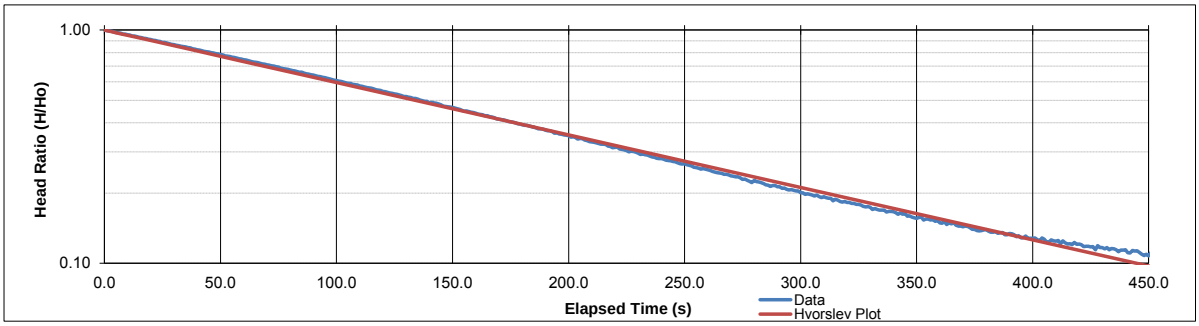
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:25

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	7	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	5-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	11:06:55 AM	
Top of test interval	247.3	**m along hole**	**Initial water level**	212	**m above transducer**
Bottom of test interval	267.0	**m along hole**	**Water level after slug**	234	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	22	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer7 - Hvorslev.xlsx]GM12-08 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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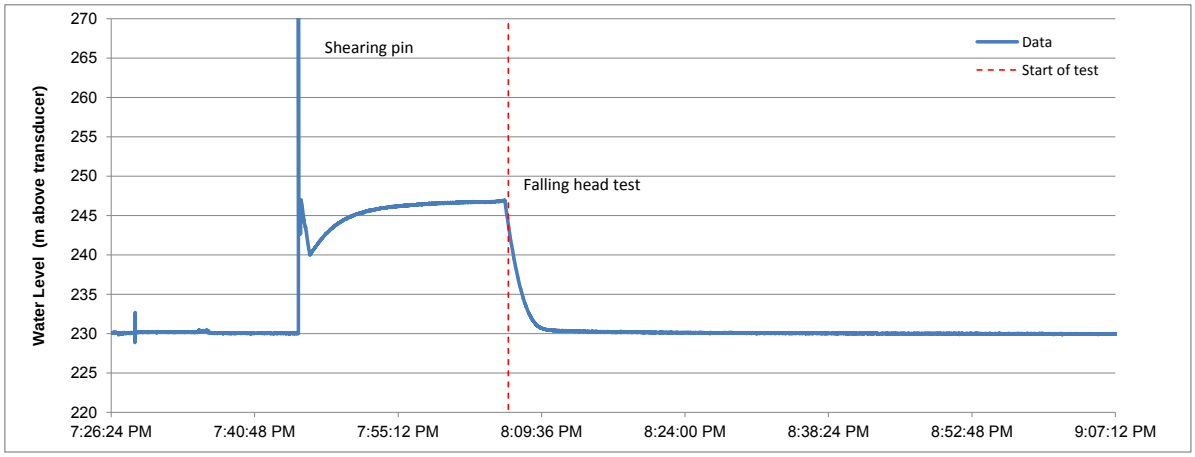
Knight Piésold CONSULTING

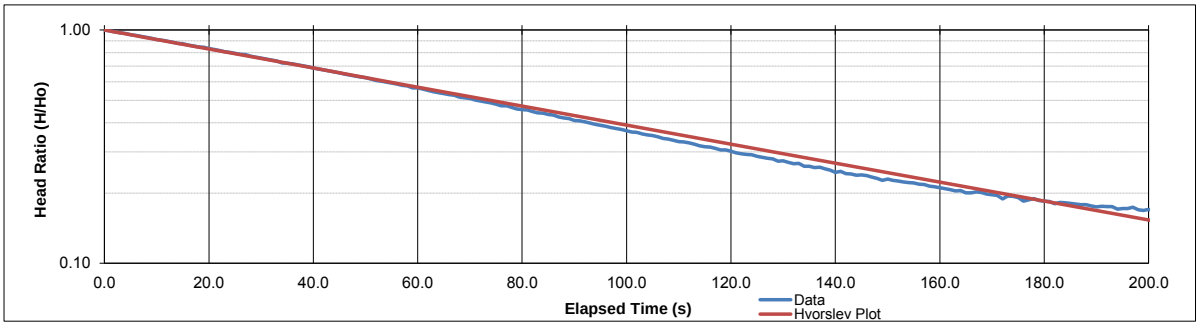
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:26

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	8	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	5-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	266.8	**m along hole**	**Slug Injected, Time = 0**	8:06:15 PM	
Bottom of test interval	288.0	**m along hole**	**Initial water level**	228	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	244	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	16	**m**
Transmissivity, T	5E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Flushed hole for 30 minutes. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer8 - Hvorslev.xlsx]GM12-08 Packer #8 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

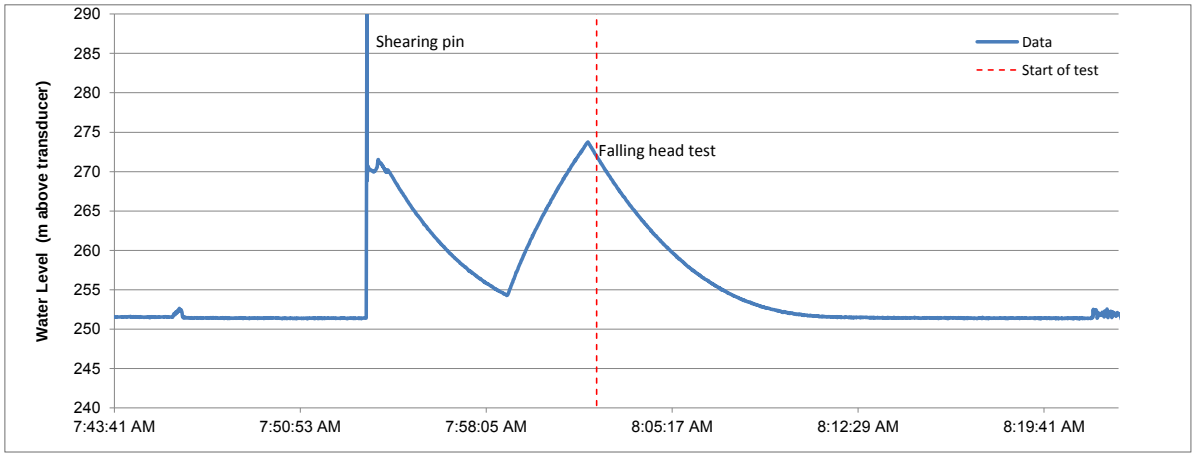
Knight Piésold CONSULTING

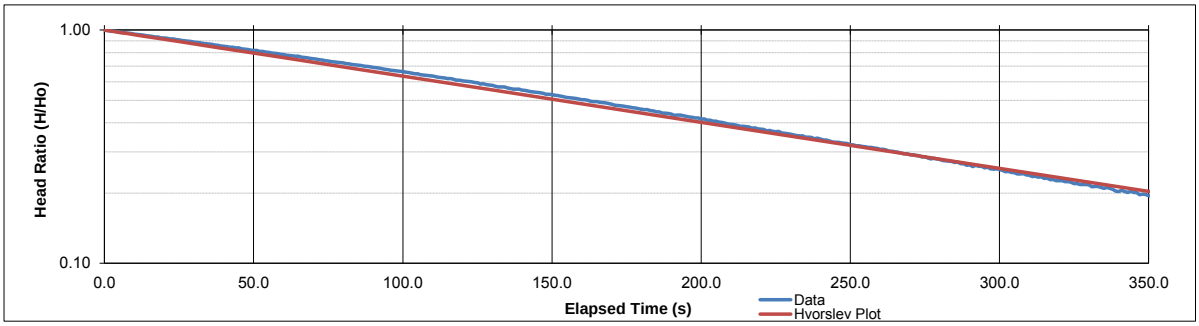
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:26

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	9	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	6-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	290.8	**m along hole**	**Slug Injected, Time = 0**	8:02:21 AM	
Bottom of test interval	310.5	**m along hole**	**Initial water level**	249	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	272	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	23	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Flushed hole for 30 minutes. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer9 - Hvorslev.xlsx]GM12-08 Packer #9 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

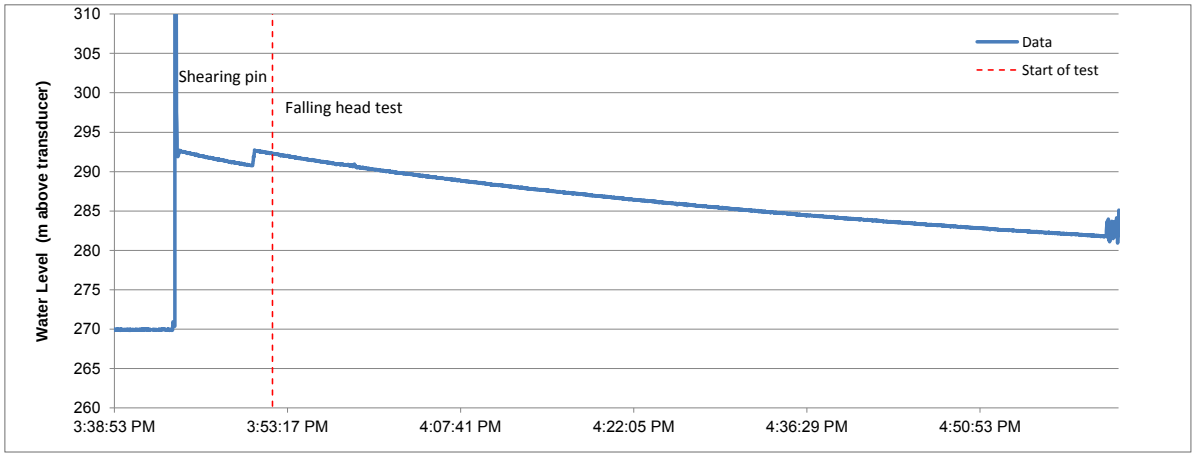
Knight Piésold CONSULTING

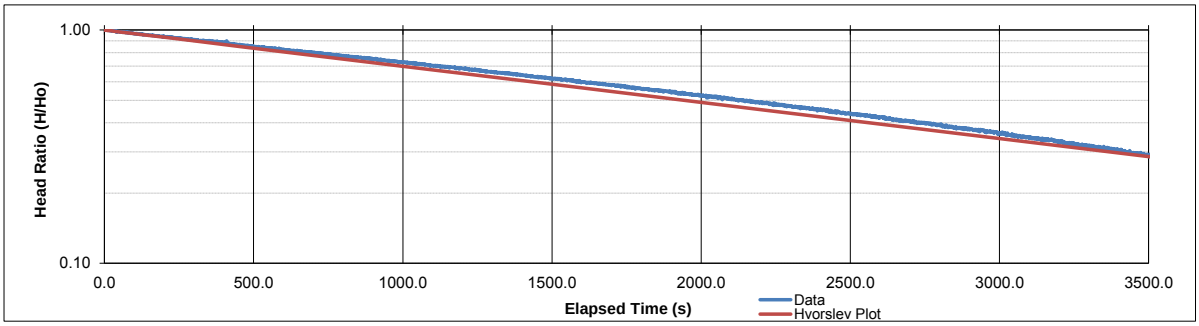
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:27

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	10	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	6-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	311.8	**m along hole**	**Slug Injected, Time = 0**	3:52:01 PM	
Bottom of test interval	331.5	**m along hole**	**Initial water level**	279	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	292	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	13	**m**
Transmissivity, T	2E-06	**m^2/s**			
Hydraulic Conductivity, K	9E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Flushed hole for 30 minutes. Initial water leverl was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer10 - Hvorslev.xlsx]GM12-08 Packer #10 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

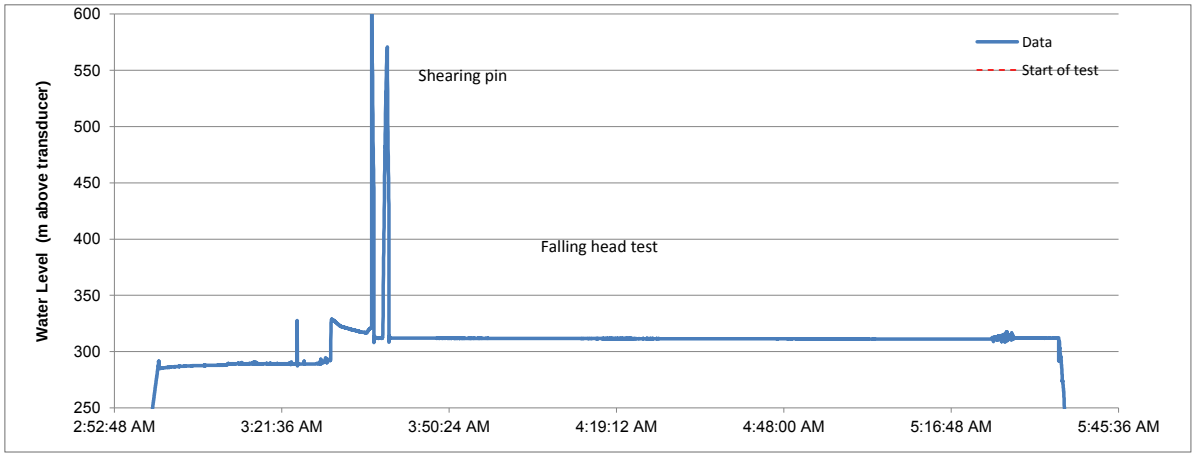
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NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:28

Project No.	VA101-457/6			**Drillhole**	**GM12-08**
Field Technician	JBC			**Test No.**	11
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	7-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	
Top of test interval	332.8	**m along hole**		**Initial water level**	**m above transducer**
Bottom of test interval	353.5	**m along hole**		**Water level after slug**	**m above transducer**
Test length, L	20.7	**m along hole**		**Change in Water Level, H_o**	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T		**m^2/s**			
Hydraulic Conductivity, K		**m/s**			



TEST COMMENTS:

Bentonite used in drilling. Water was at the top of the drill rods. No slug was insterted (Test not conducted).

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer11 - Hvorslev.xlsx]GM12-08 Packer #11 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

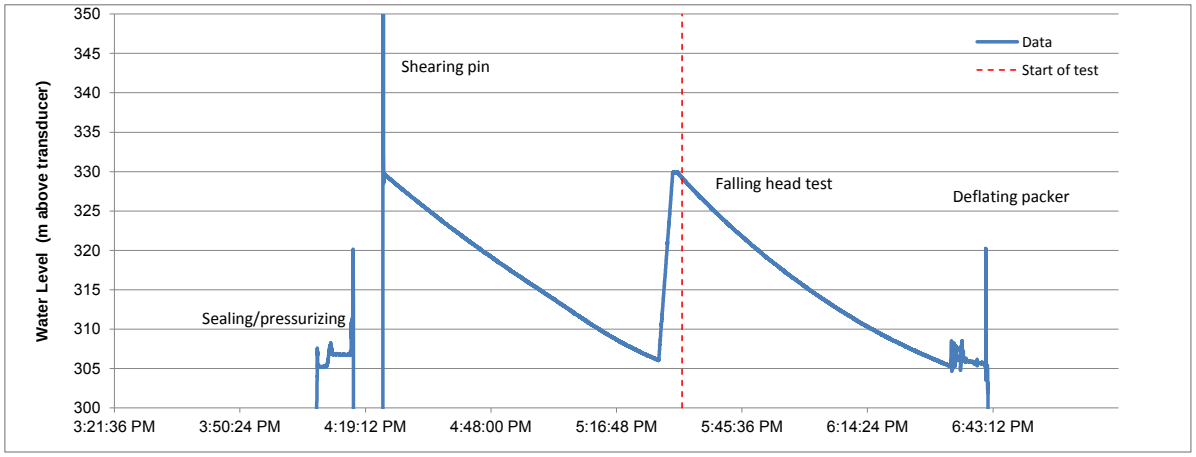
Knight Piésold CONSULTING

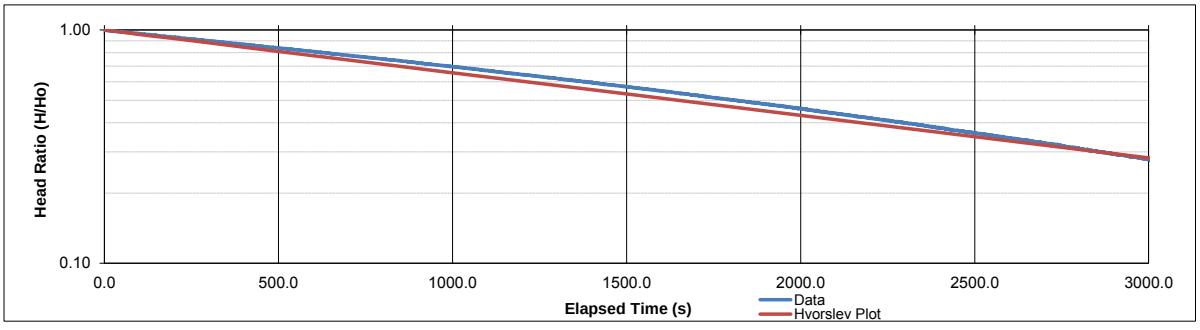
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:30

Project No.	VA101-457/6		**Drillhole**	**GM12-08**	
Field Technician	JBC		**Test No.**	12	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	7-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m	**Slug Injected, Time = 0**	5:31:51 PM	
Drill rod diameter, d	HQ3	0.078 m	**Initial water level**	300	**m above transducer**
Top of test interval	353.9	**m along hole**	**Water level after slug**	329	**m above transducer**
Bottom of test interval	379.5	**m along hole**	**Change in Water Level, H_o**	29	**m**
Test length, L	25.6	**m along hole**			
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-06	**m^2/s**			
Hydraulic Conductivity, K	9E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Bentonite used in drilling. Flushed hole for 1 hour. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer12 - Hvorslev.xlsx]GM12-08 Packer #12 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

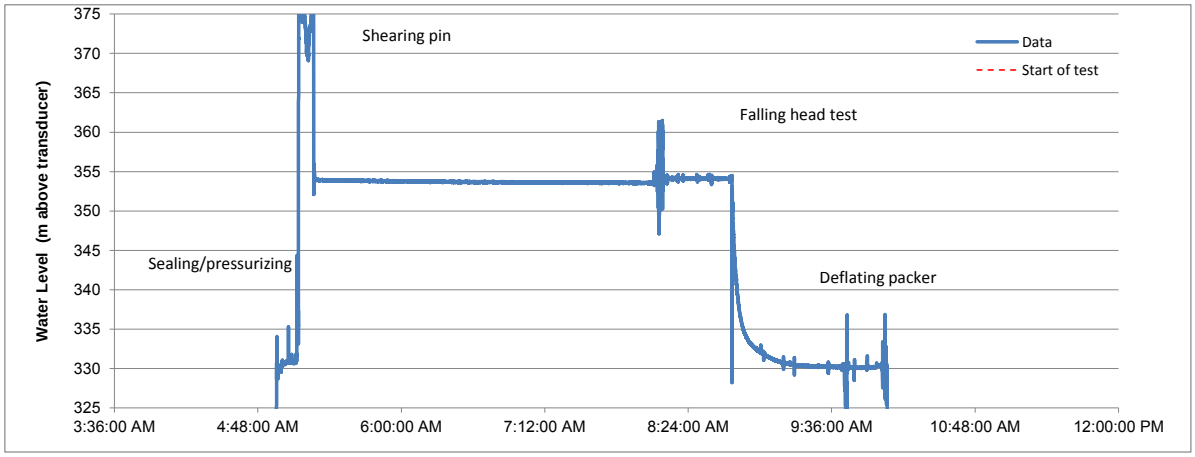
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NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:31

Project No.	VA101-457/6			**Drillhole**	**GM12-08**
Field Technician	SRM			**Test No.**	13
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	8-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	
Top of test interval	380.8	**m along hole**		**Initial water level**	**m above transducer**
Bottom of test interval	400.5	**m along hole**		**Water level after slug**	**m above transducer**
Test length, L	19.7	**m along hole**		**Change in Water Level, H_o**	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T		**m^2/s**			
Hydraulic Conductivity, K		**m/s**			



TEST COMMENTS:

Bentonite Used in drilling. Water was at the top of the drill rods. No slug was insterted (Test not conducted).

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-08\Hydraulic conductivity\Hvorslev\[GM12-08 Packer13 - Hvorslev.xlsx]GM12-08 Packer #13 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

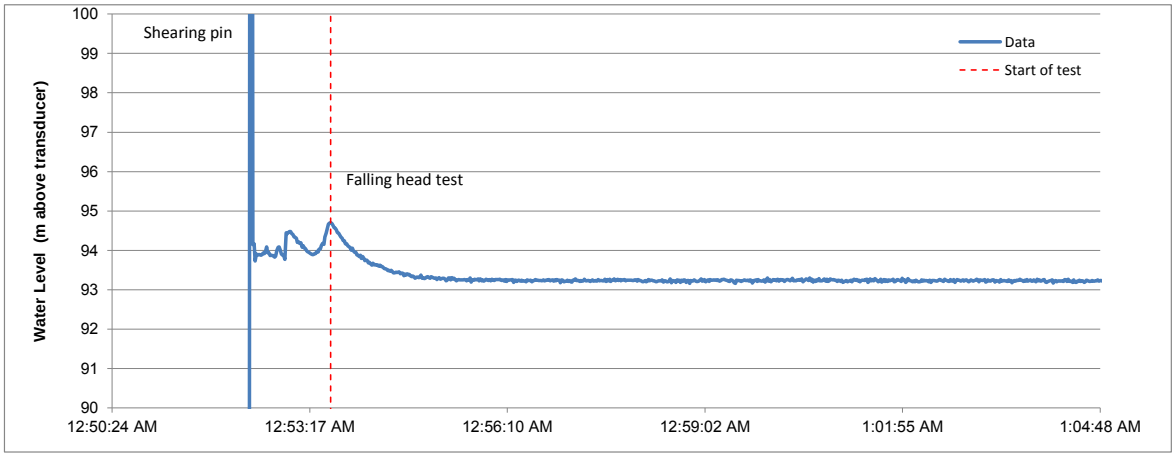
Knight Piésold CONSULTING

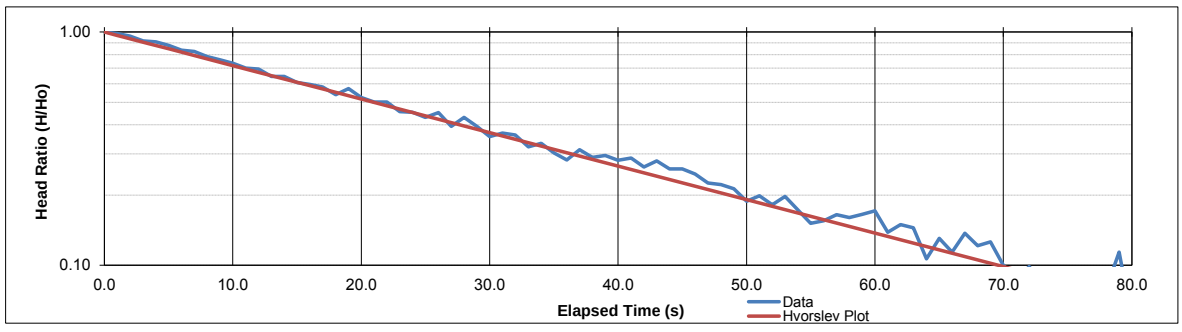
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 15:19

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	1	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	29-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	12:53:35 AM	
Top of test interval	91.8	**m along hole**	**Initial water level**	93	**m above transducer**
Bottom of test interval	110.0	**m along hole**	**Water level after slug**	95	**m above transducer**
Test length, L	18.2	**m along hole**	**Change in Water Level, H_o**	2	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-04	**m^2/s**			
Hydraulic Conductivity, K	9E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 1 - Hvorslev.xlsx]GM12-09 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

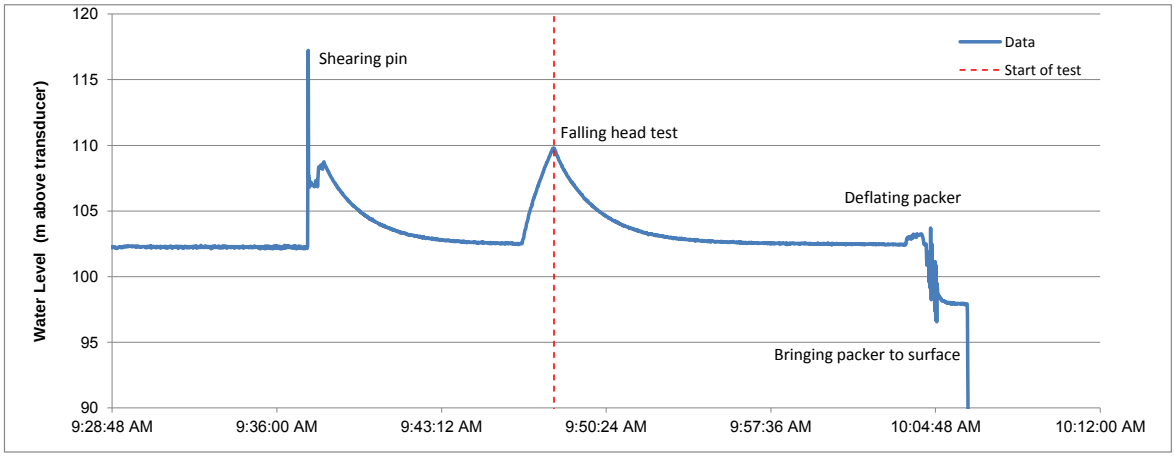
Knight Piésold CONSULTING

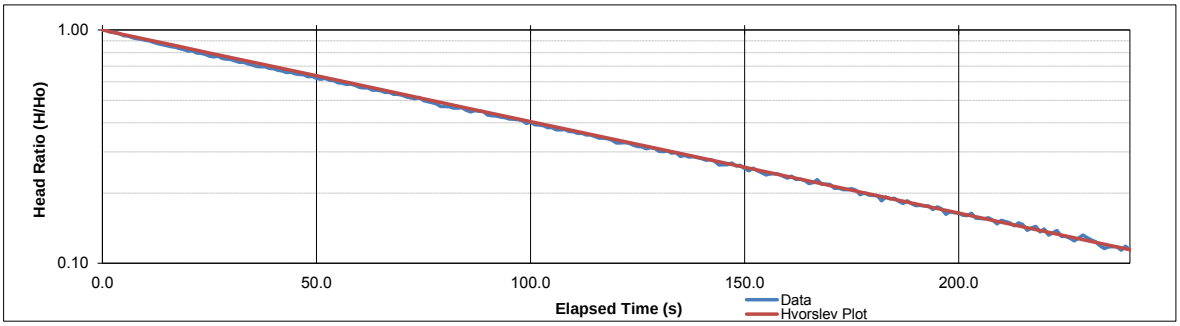
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:33

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	MGP		**Test No.**	2	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	30-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	109.3	**m along hole**	**Slug Injected, Time = 0**	9:48:07 AM	
Bottom of test interval	129.0	**m along hole**	**Initial water level**	103	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	110	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	7	**m**
Transmissivity, T	5E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 2 - Hvorslev.xlsx]GM12-09 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

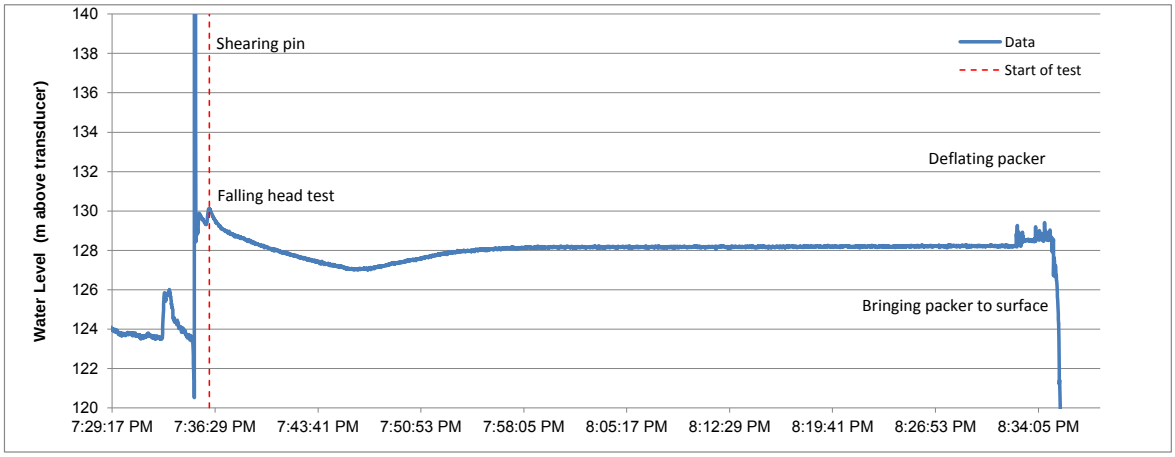
Knight Piésold CONSULTING

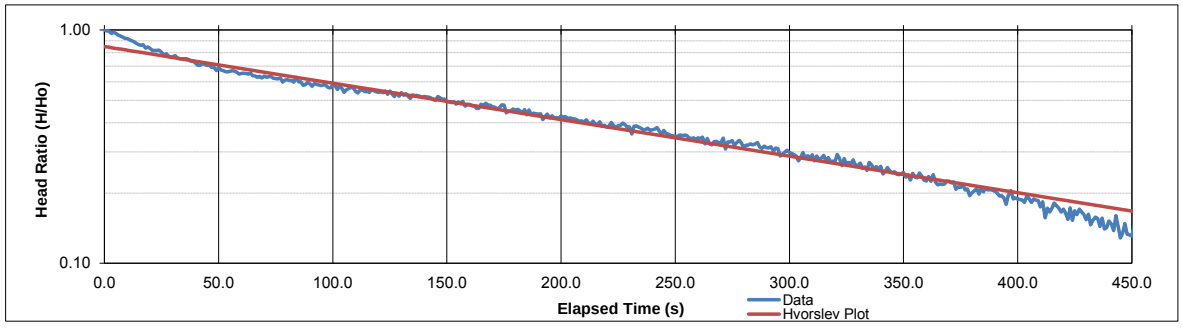
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:34

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	3	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	30-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	7:36:04 PM	
Top of test interval	131.8	**m along hole**	**Initial water level**	127	**m above transducer**
Bottom of test interval	151.5	**m along hole**	**Water level after slug**	130	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	3	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	9E-07	**m/s**	Intercept	0.9	





TEST COMMENTS:

Increasing water level at approximatly 7:48:00pm is possibly due to either drilling activity in the area or packer malfunction. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 3 - Hvorslev.xlsx]GM12-09 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

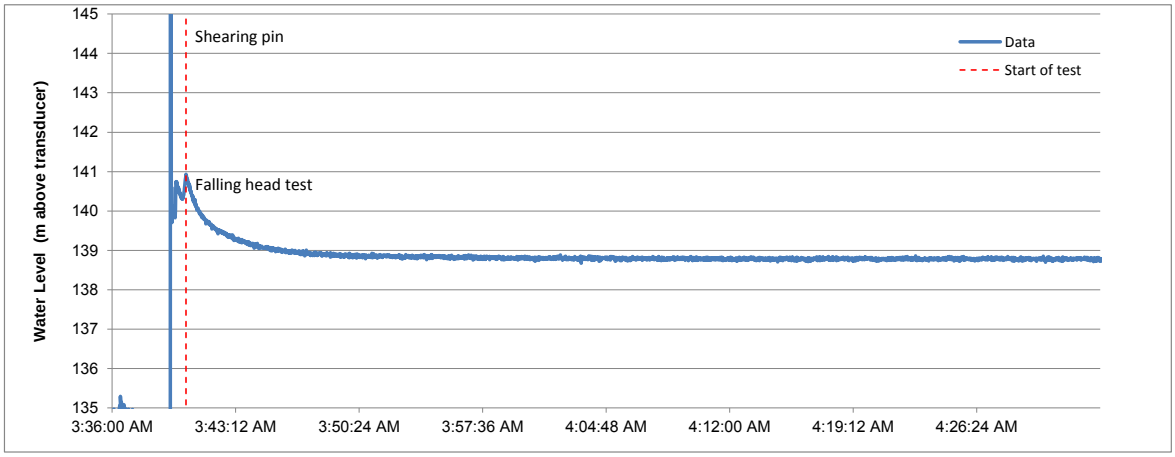
Knight Piésold CONSULTING

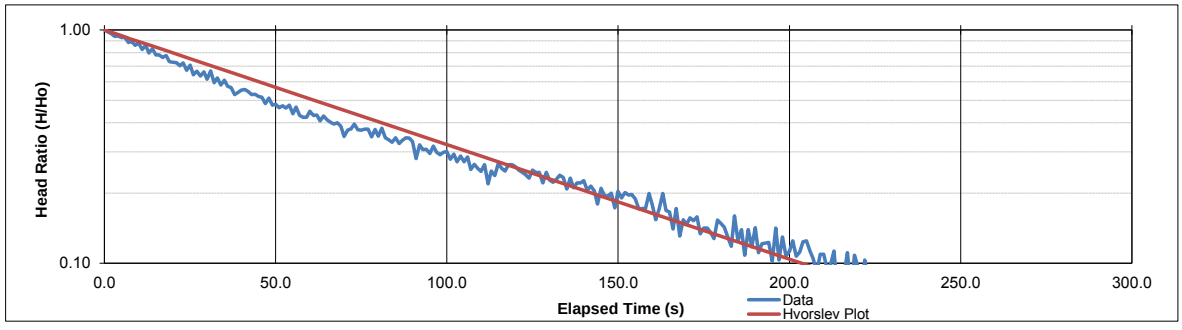
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:35

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	4	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	1-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:40:18 AM	
Top of test interval	143.8	**m along hole**	**Initial water level**	139	**m above transducer**
Bottom of test interval	172.5	**m along hole**	**Water level after slug**	141	**m above transducer**
Test length, L	28.7	**m along hole**	**Change in Water Level, H_o**	2	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	6E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 4 - Hvorslev.xlsx]GM12-09 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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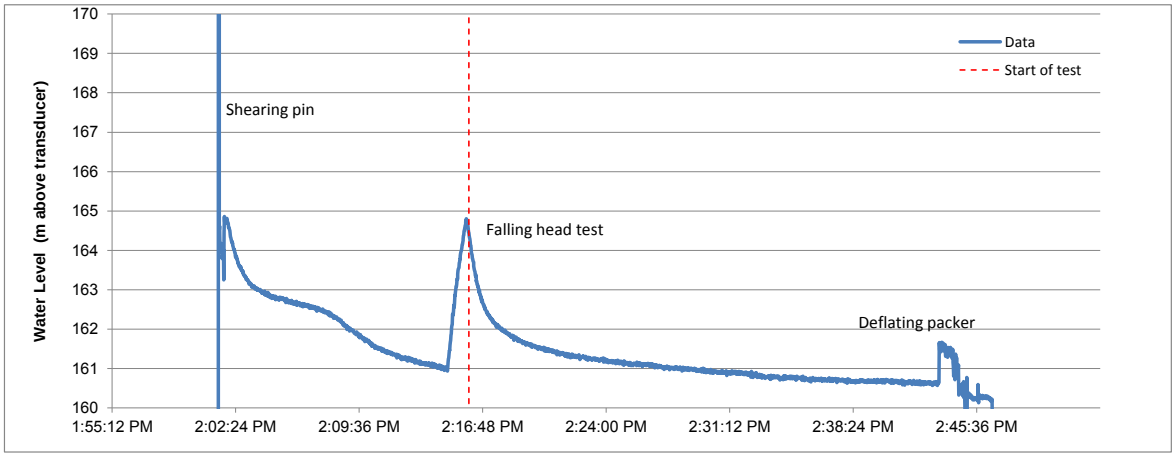
Knight Piésold CONSULTING

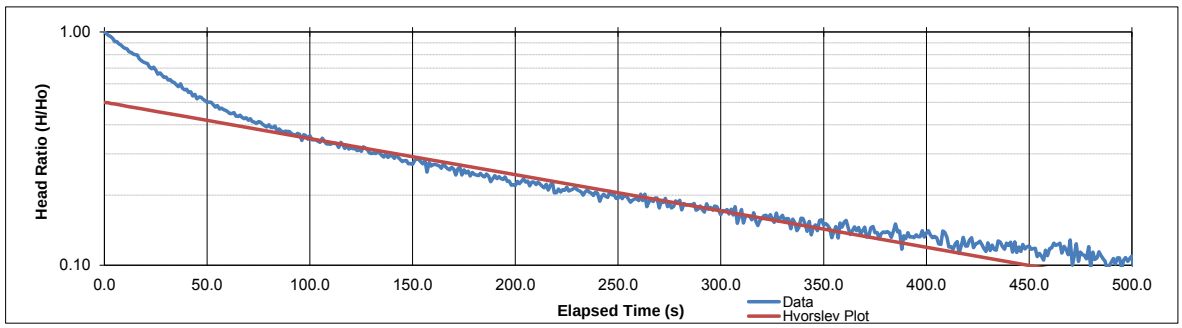
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:36

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	MGP		**Test No.**	5	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	1-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	170.8	**m along hole**	**Slug Injected, Time = 0**	2:16:00 PM	
Bottom of test interval	193.5	**m along hole**	**Initial water level**	161	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	164	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	4	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	8E-07	**m/s**	Intercept	0.5	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 5 - Hvorslev.xlsx]GM12-09 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

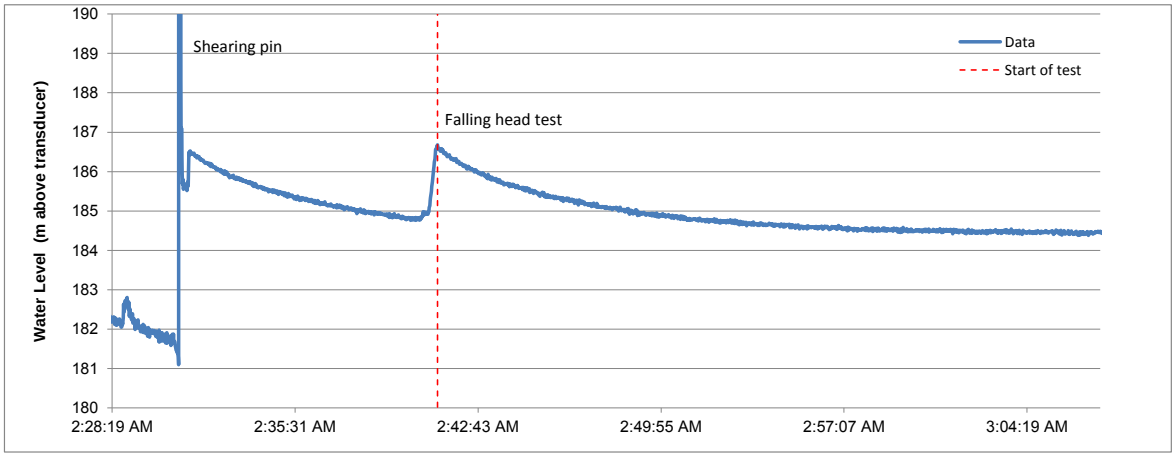
Knight Piésold CONSULTING

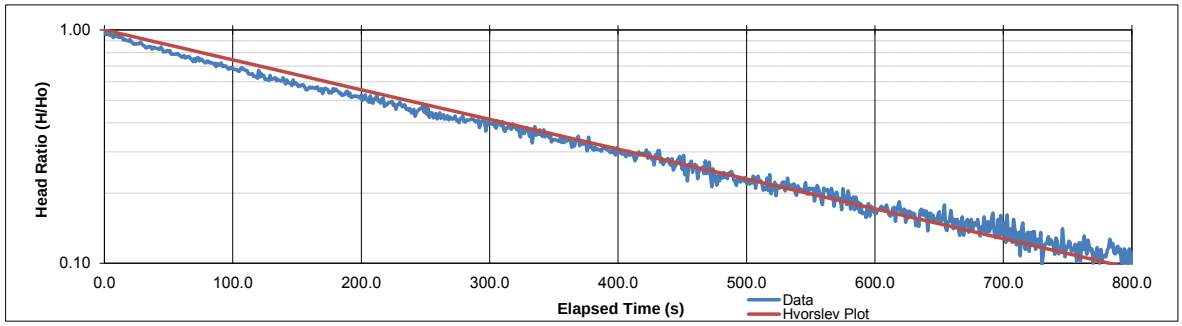
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:37

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	6	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	2-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	2:41:07 AM	
Top of test interval	194.8	**m along hole**	**Initial water level**	184	**m above transducer**
Bottom of test interval	214.5	**m along hole**	**Water level after slug**	187	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	2	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	8E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 6 - Hvorslev.xlsx]GM12-09 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

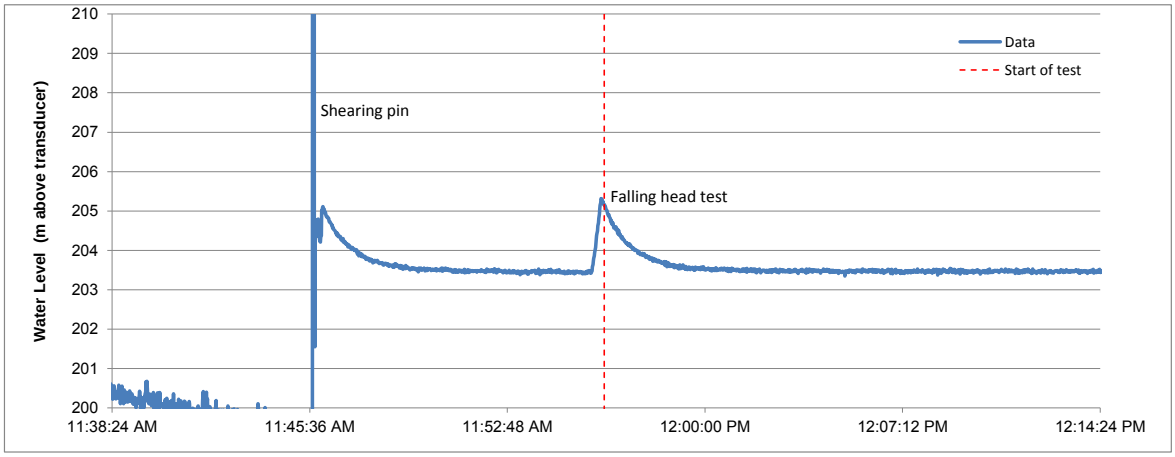
Knight Piésold CONSULTING

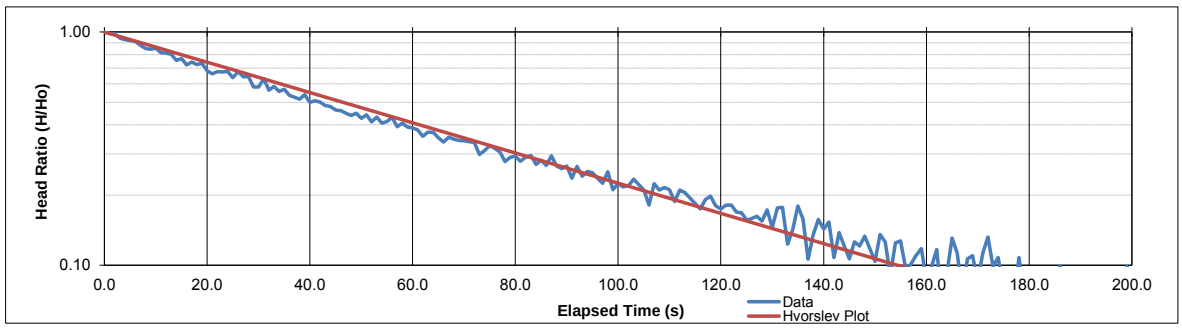
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 11:38

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	MGP		**Test No.**	7	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	2-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	11:56:20 AM	
Top of test interval	215.8	**m along hole**	**Initial water level**	203	**m above transducer**
Bottom of test interval	235.5	**m along hole**	**Water level after slug**	205	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	2	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	7E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 7 - Hvorslev.xlsx]GM12-09 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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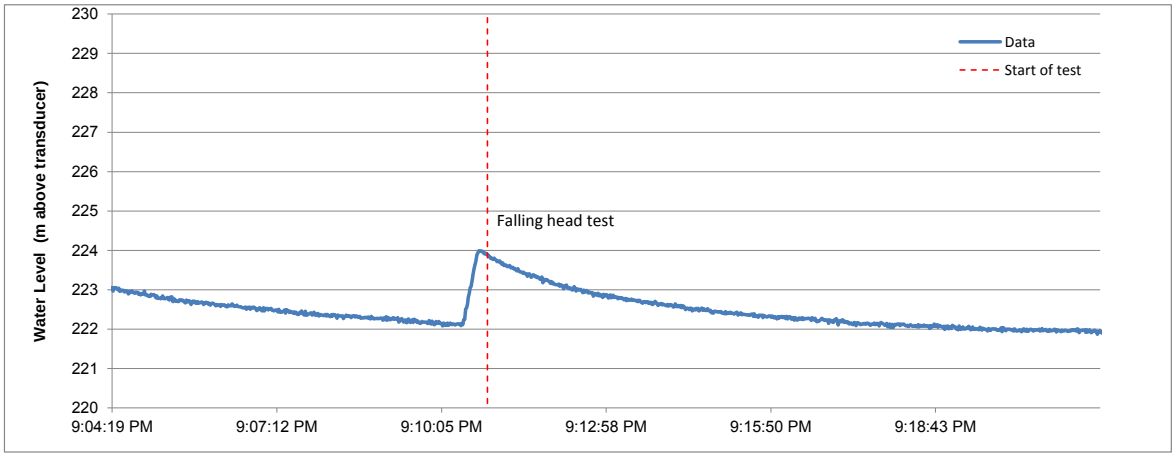
Knight Piésold CONSULTING

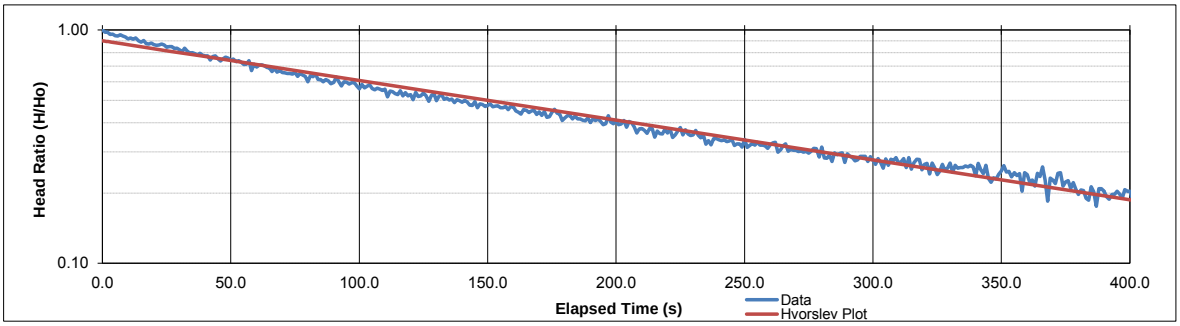
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 12:49

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	8	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	2-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	9:10:53 PM	
Top of test interval	236.8	**m along hole**	**Initial water level**	222	**m above transducer**
Bottom of test interval	256.5	**m along hole**	**Water level after slug**	224	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	2	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	0.9	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 8 - Hvorslev.xlsx]GM12-09 Packer #8 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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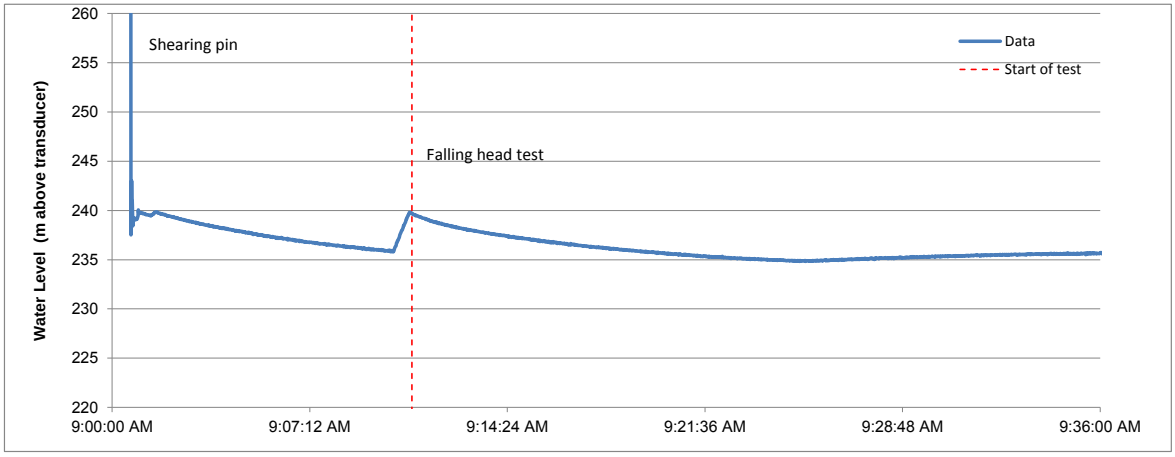
Knight Piésold CONSULTING

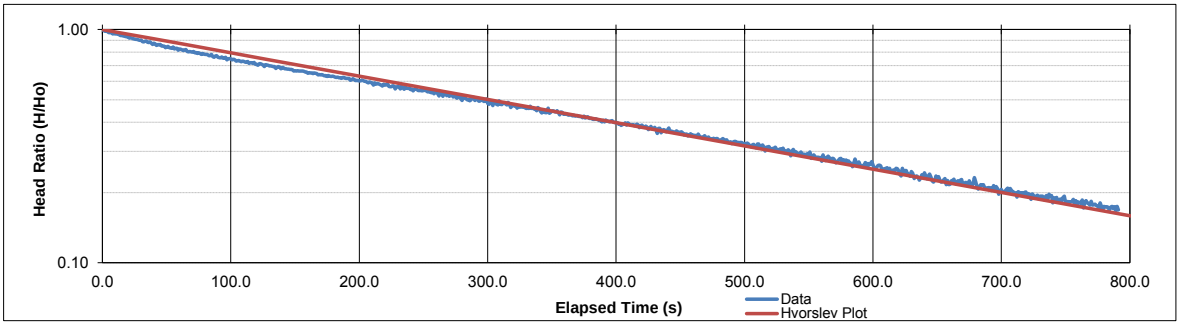
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 12:52

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	MGP		**Test No.**	9	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	3-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	9:10:55 AM	
Top of test interval	254.8	**m along hole**	**Initial water level**	234	**m above transducer**
Bottom of test interval	277.5	**m along hole**	**Water level after slug**	240	**m above transducer**
Test length, L	22.7	**m along hole**	**Change in Water Level, H_o**	6	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	5E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Only analysed the section of the test before the rise in water level. Rise in water level possibly induced by drilling and testing in the near by area or a packer malfunction. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 9 - Hvorslev.xlsx]GM12-09 Packer #9 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

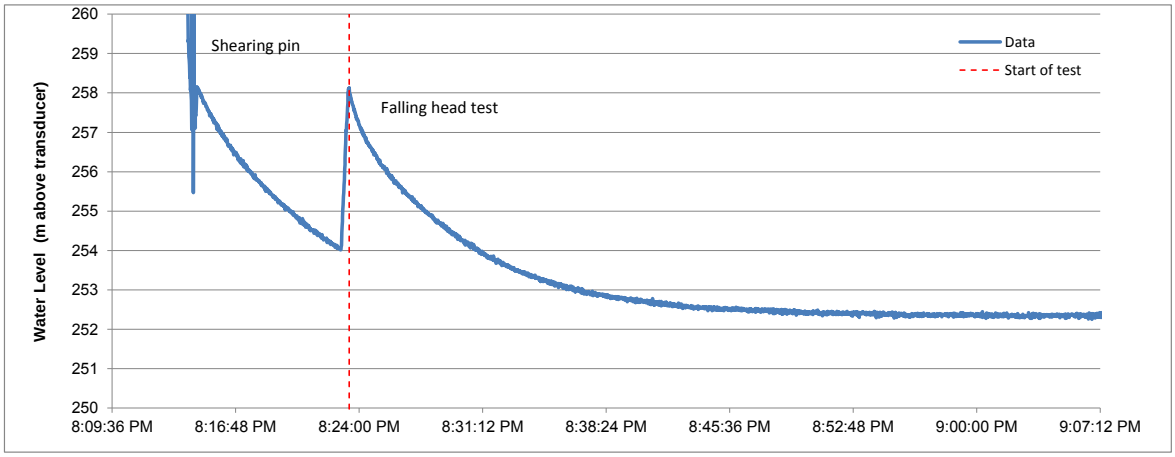
Knight Piésold CONSULTING

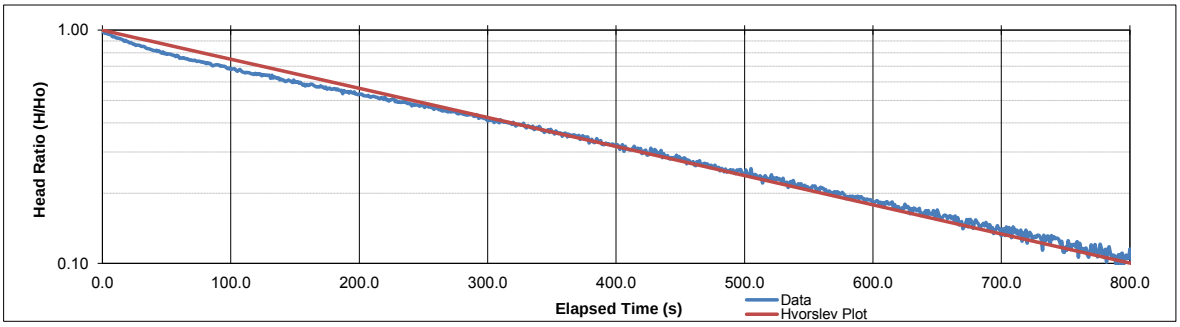
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 12:53

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	10	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	3-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	275.8	**m along hole**	**Slug Injected, Time = 0**	8:23:25 PM	
Bottom of test interval	298.5	**m along hole**	**Initial water level**	252	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	258	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	6	**m**
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	7E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 14 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 10 - Hvorslev.xlsx]GM12-09 Packer #10 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

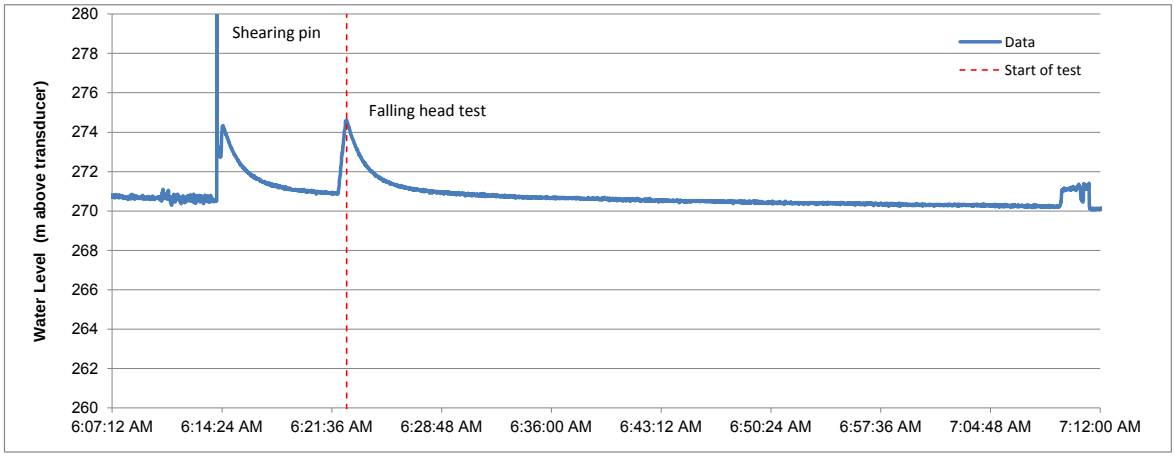
Knight Piésold CONSULTING

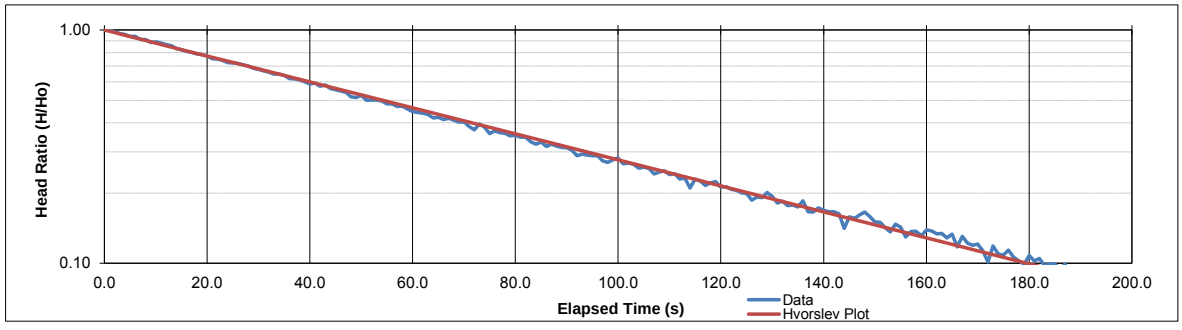
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 12:54

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	11	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	4-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	296.8	**m along hole**	**Slug Injected, Time = 0**	6:22:34 AM	
Bottom of test interval	319.5	**m along hole**	**Initial water level**	271	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	275	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	4	**m**
Transmissivity, T	7E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 11 - Hvorslev.xlsx]GM12-09 Packer #11 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	18DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

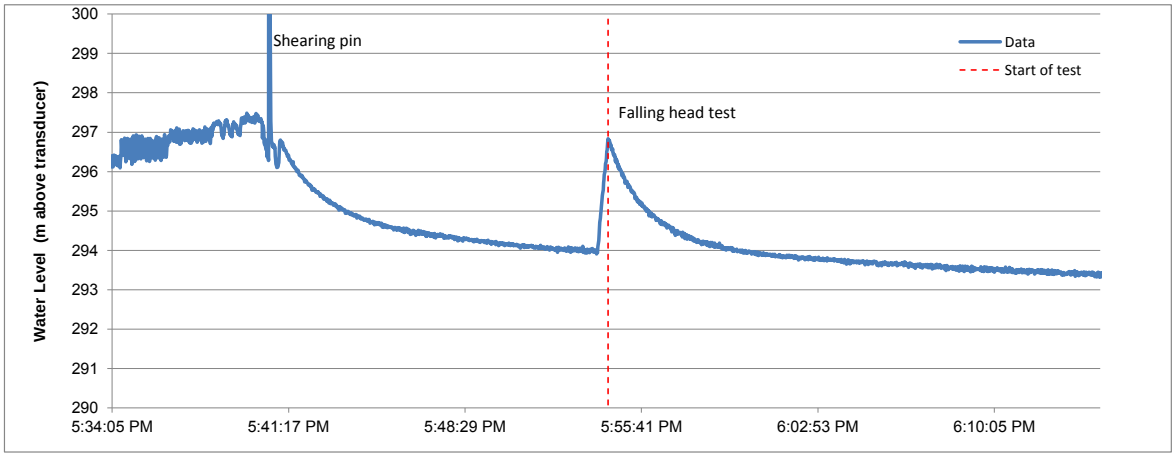
Knight Piésold CONSULTING

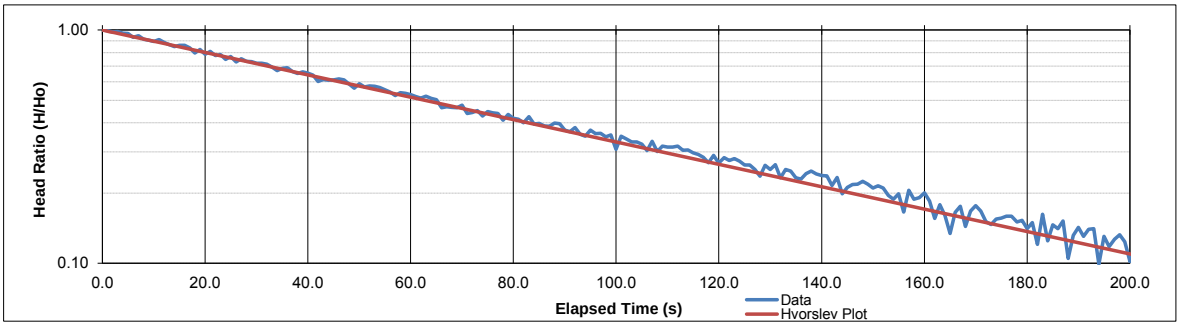
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 12:57

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	MGP		**Test No.**	12	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	4-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	320.8	**m along hole**	**Slug Injected, Time = 0**	5:54:19 PM	
Bottom of test interval	343.5	**m along hole**	**Initial water level**	294	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	297	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	6E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 12 - Hvorslev.xlsx]GM12-09 Packer #12 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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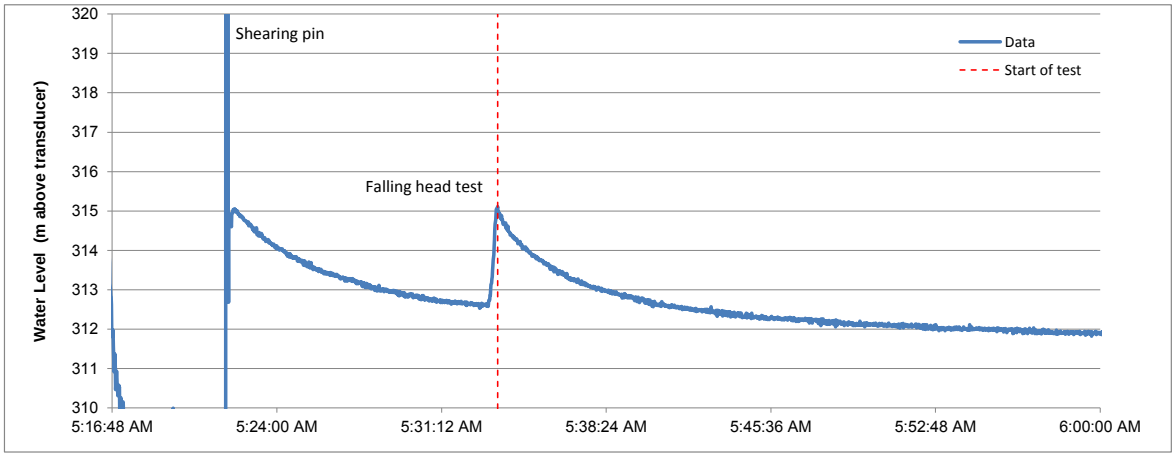
Knight Piésold CONSULTING

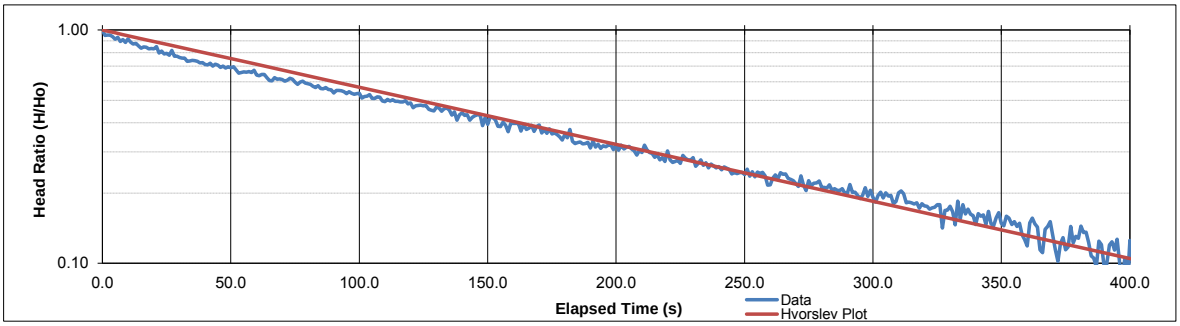
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 12:58

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	13	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	5-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:33:39 AM	
Top of test interval	341.8	**m along hole**	**Initial water level**	312	**m above transducer**
Bottom of test interval	367.5	**m along hole**	**Water level after slug**	315	**m above transducer**
Test length, L	25.7	**m along hole**	**Change in Water Level, H_o**	3	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 13 - Hvorslev.xlsx]GM12-09 Packer #13 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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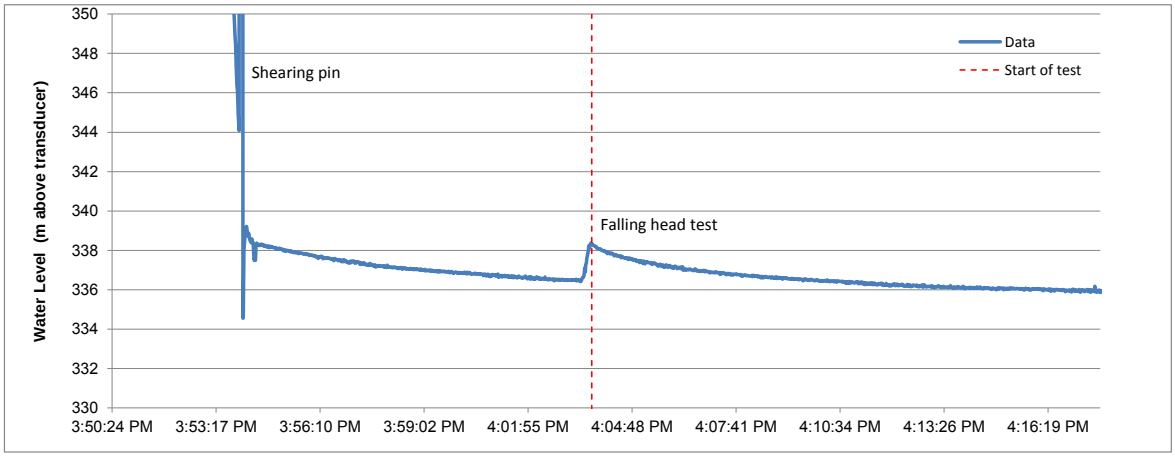
Knight Piésold CONSULTING

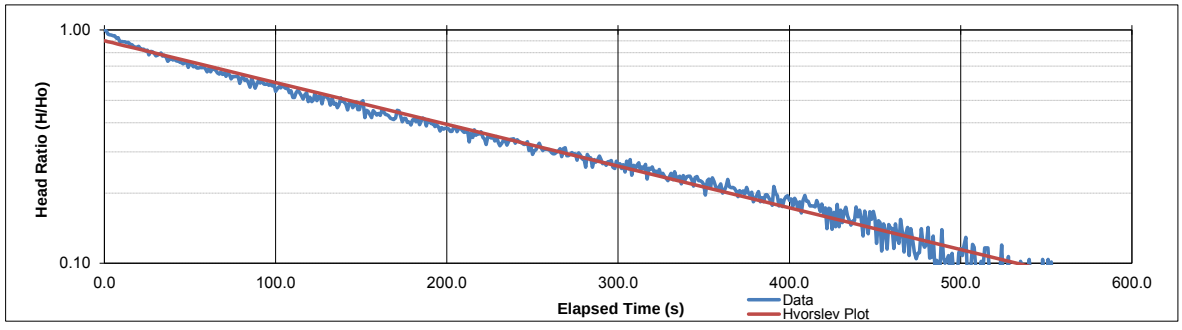
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:00

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	MGP		**Test No.**	14	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	5-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	368.8	**m along hole**	**Slug Injected, Time = 0**	4:03:41 PM	
Bottom of test interval	388.5	**m along hole**	**Initial water level**	336	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	338	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	2	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	0.9	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 14 - Hvorslev.xlsx]GM12-09 Packer #14 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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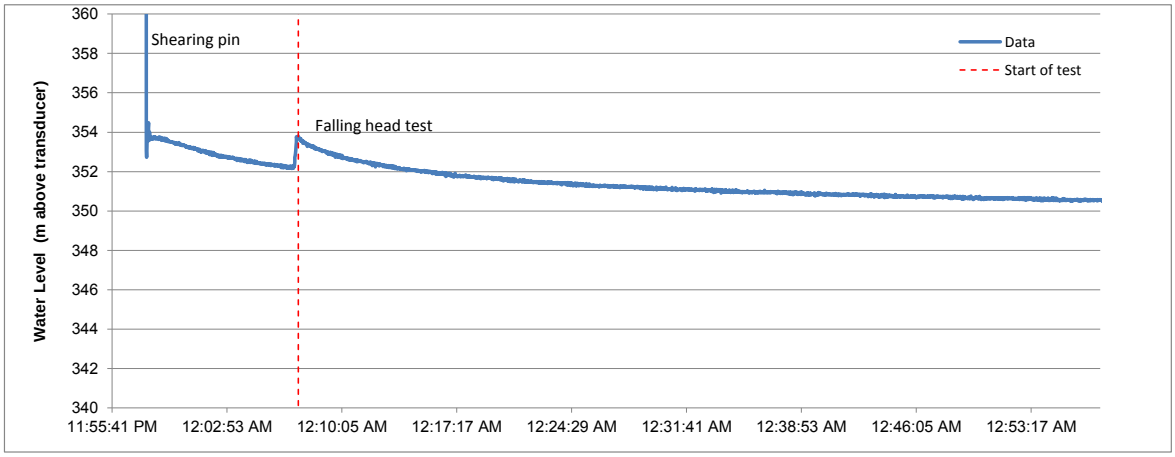
Knight Piésold CONSULTING

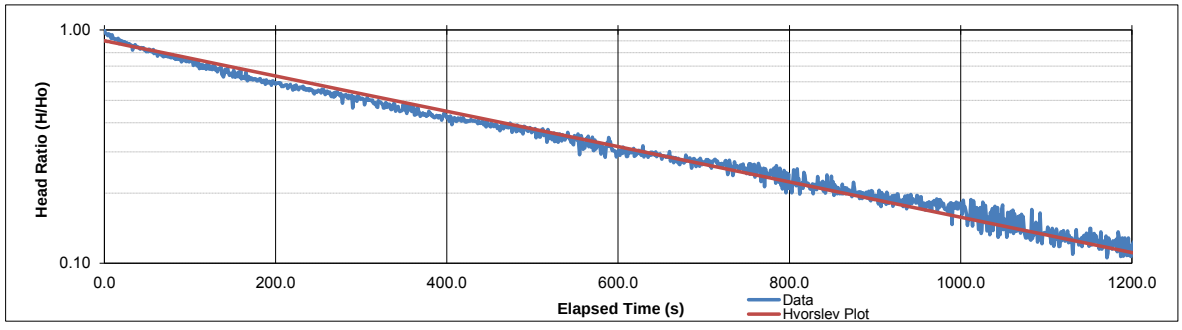
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:02

Project No.	VA101-457/6		**Drillhole**	**GM12-09**	
Field Technician	ML		**Test No.**	15	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	6-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	12:07:21 AM	
Top of test interval	386.3	**m along hole**	**Initial water level**	351	**m above transducer**
Bottom of test interval	400.0	**m along hole**	**Water level after slug**	354	**m above transducer**
Test length, L	13.7	**m along hole**	**Change in Water Level, H_o**	3	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	8E-06	**m^2/s**			
Hydraulic Conductivity, K	6E-07	**m/s**	Intercept	0.9	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-09\Hydraulic conductivity\[GM12-09 Packer 15 - Hvorslev.xlsx]GM12-09 Packer #15 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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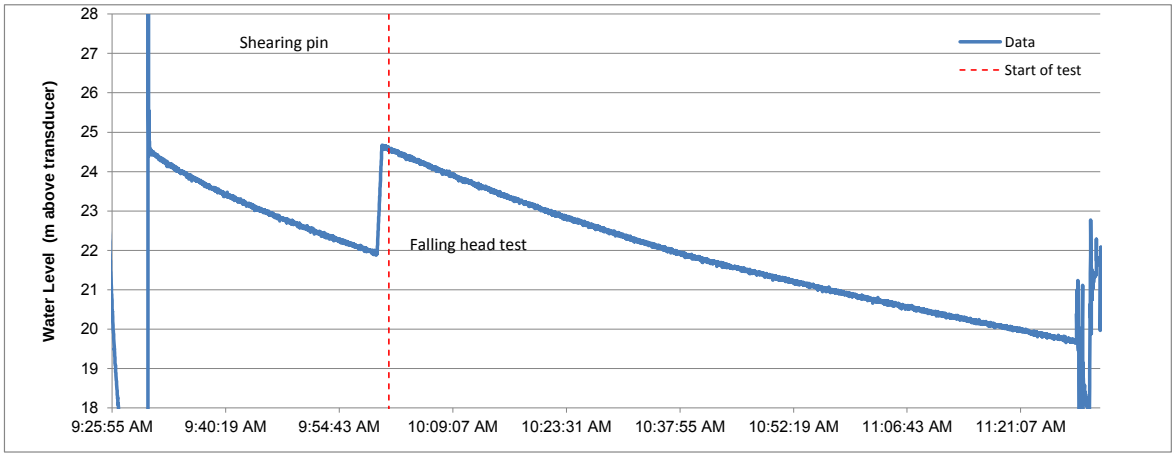
Knight Piésold CONSULTING

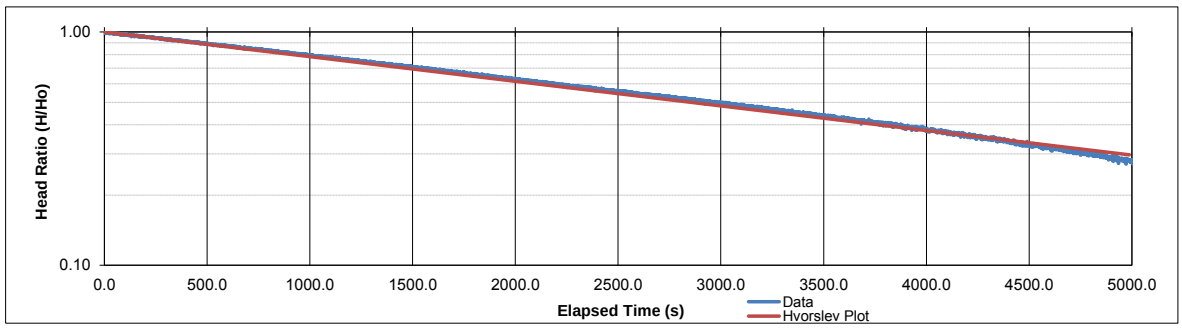
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:05

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	1	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	10-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	10:01:00 AM	
Top of test interval	14.8	**m along hole**	**Initial water level**	18	**m above transducer**
Bottom of test interval	34.5	**m along hole**	**Water level after slug**	25	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	7	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-06	**m^2/s**			
Hydraulic Conductivity, K	6E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 1 - Hvorslev.xlsx]GM12-09 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	18DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

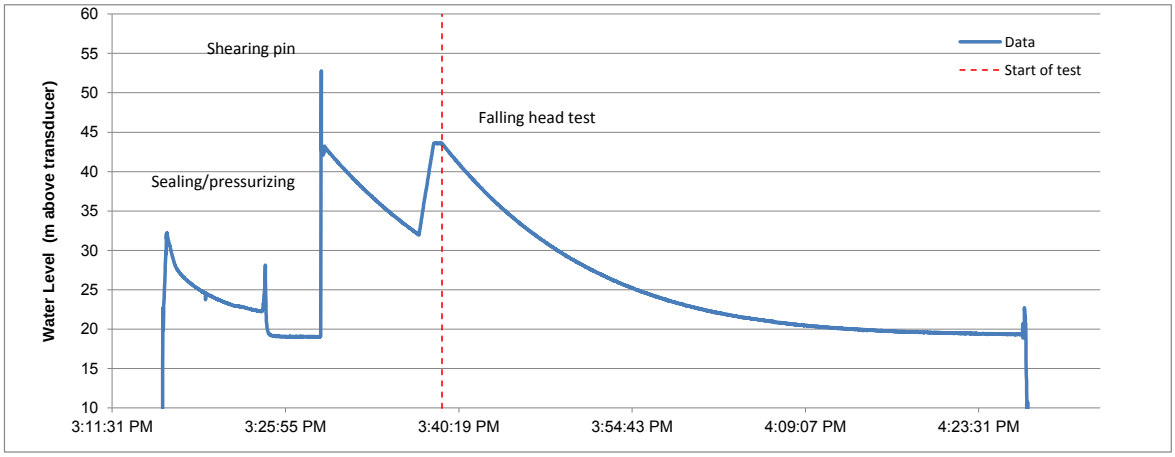
Knight Piésold CONSULTING

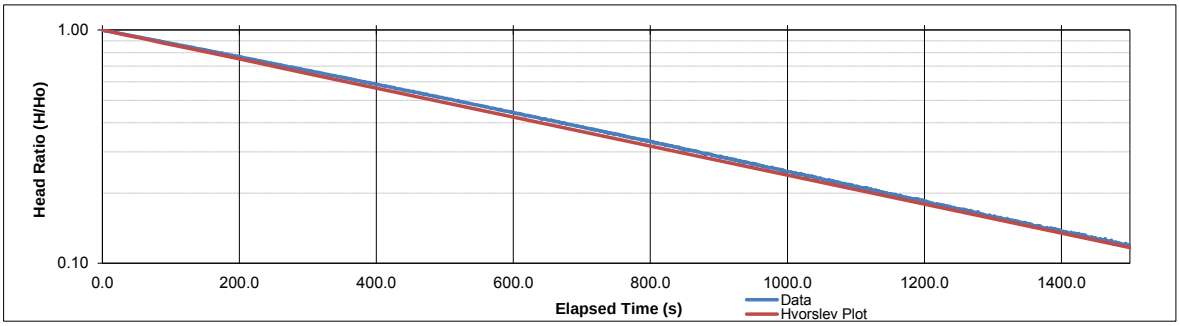
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:11

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	2	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	10-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:38:55 PM	
Top of test interval	35.8	**m along hole**	**Initial water level**	19	**m above transducer**
Bottom of test interval	55.5	**m along hole**	**Water level after slug**	44	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	25	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	7E-06	**m^2/s**			
Hydraulic Conductivity, K	4E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 2 - Hvorslev.xlsx]GM12-09 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	18DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

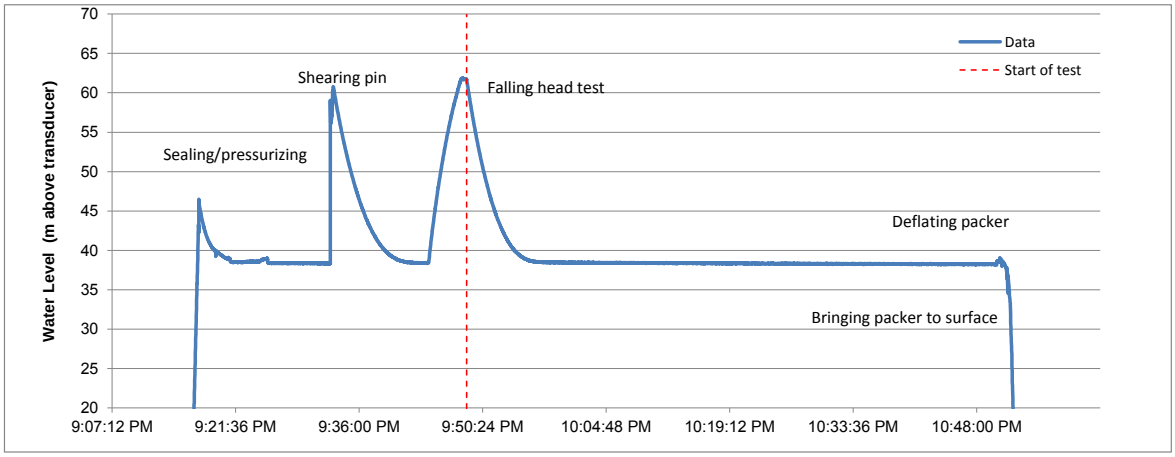
Knight Piésold CONSULTING

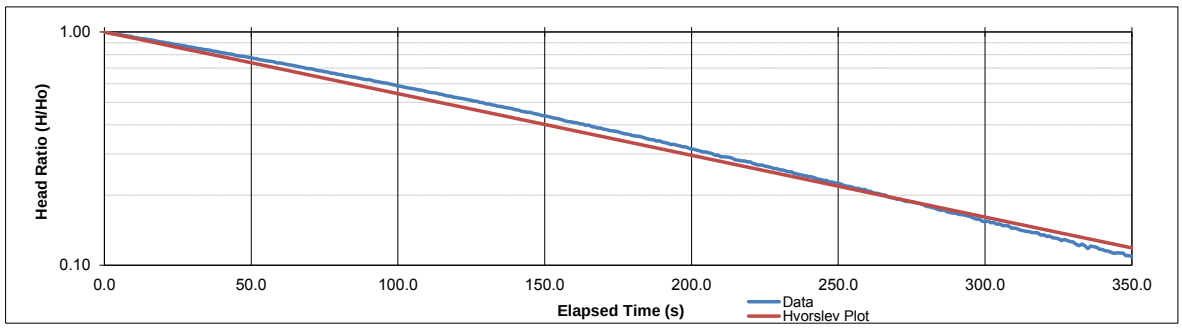
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:24

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	3	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	10-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	56.8	**m along hole**	**Slug Injected, Time = 0**	9:48:32 PM	
Bottom of test interval	76.5	**m along hole**	**Initial water level**	37	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	62	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	25	**m**
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 3 - Hvorslev.xlsx]GM12-09 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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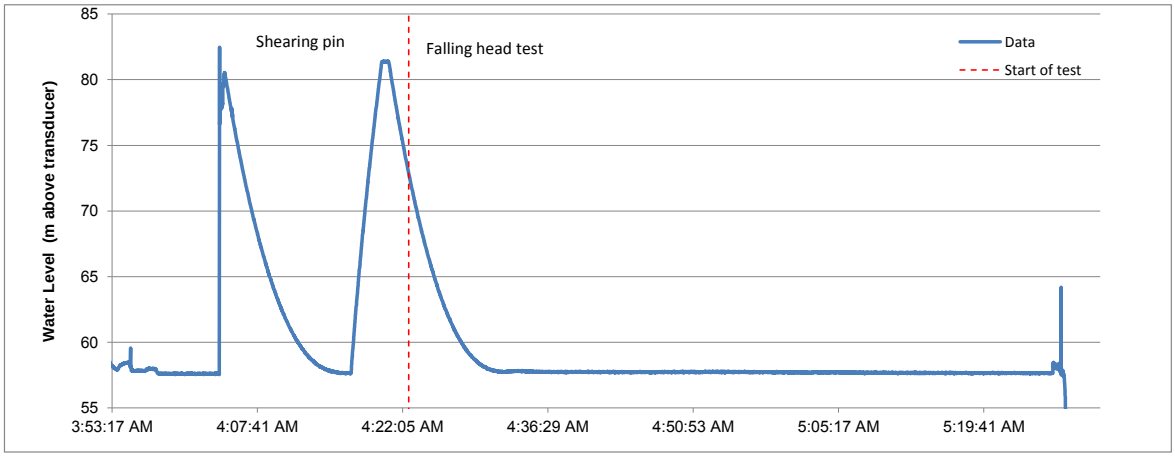
Knight Piésold CONSULTING

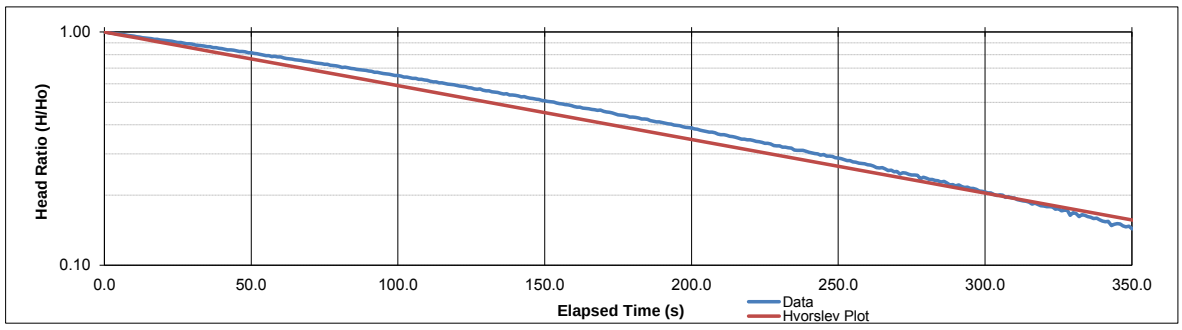
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:19

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	4	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water,volume not recorded				
Test Date	11-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	4:22:40 AM	
Top of test interval	77.8	**m along hole**	**Initial water level**	57	**m above transducer**
Bottom of test interval	97.5	**m along hole**	**Water level after slug**	73	**m above transducer**
Test length, L	19.7	**m along hole**	**Change In Water Level, H_o**	16	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 4 - Hvorslev.xlsx]GM12-09 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

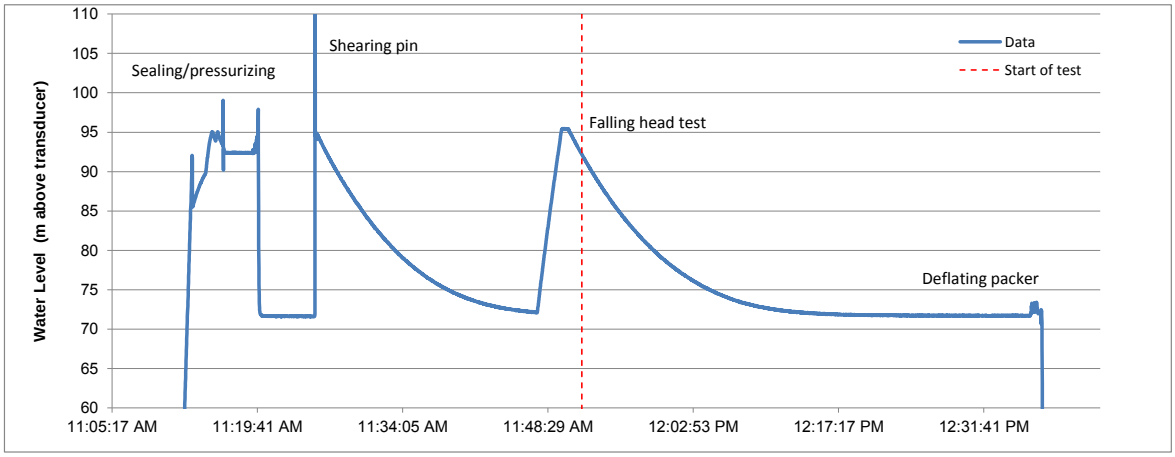
Knight Piésold CONSULTING

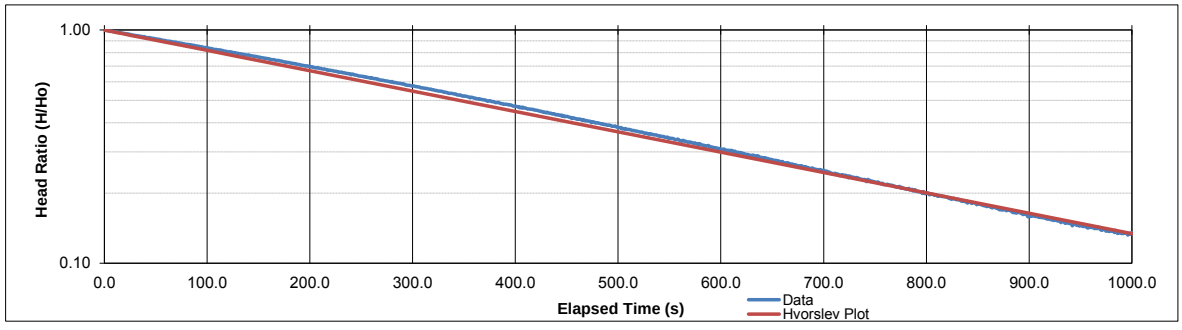
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:25

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	5	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	11-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	92.8	**m along hole**	**Slug Injected, Time = 0**	11:51:50 AM	
Bottom of test interval	118.5	**m along hole**	**Initial water level**	70	**m above transducer**
Test length, L	25.7	**m along hole**	**Water level after slug**	92	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	22	**m**
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 5 - Hvorslev.xlsx]GM12-09 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

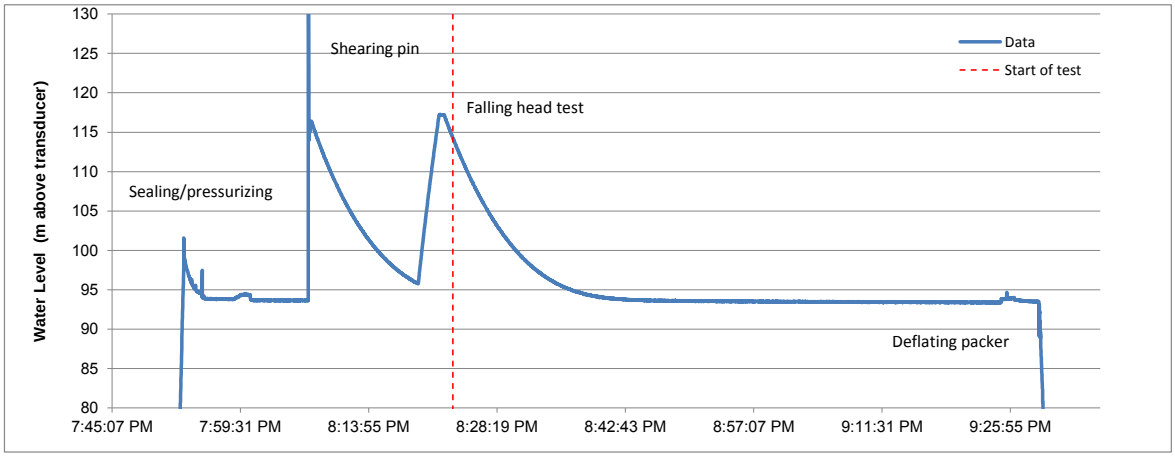
Knight Piésold CONSULTING

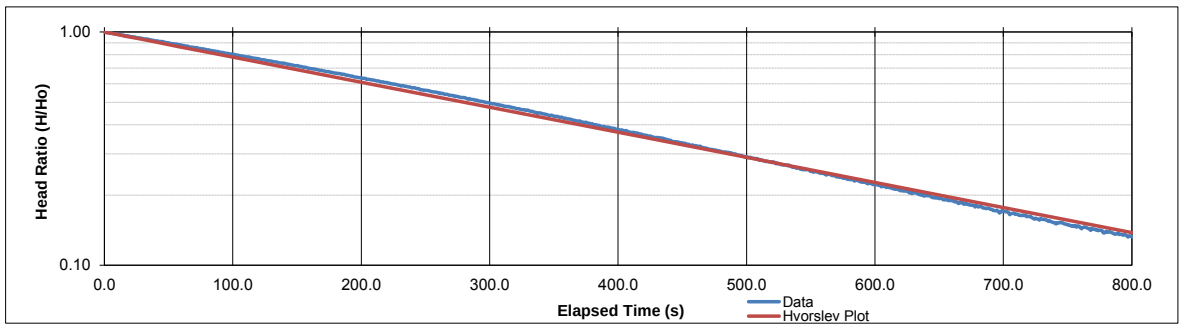
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:25

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	6	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	11-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	116.8	**m along hole**	**Slug Injected, Time = 0**	8:23:22 PM	
Bottom of test interval	139.5	**m along hole**	**Initial water level**	92	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	114	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	22	**m**
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	6E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 6 - Hvorslev.xlsx]GM12-09 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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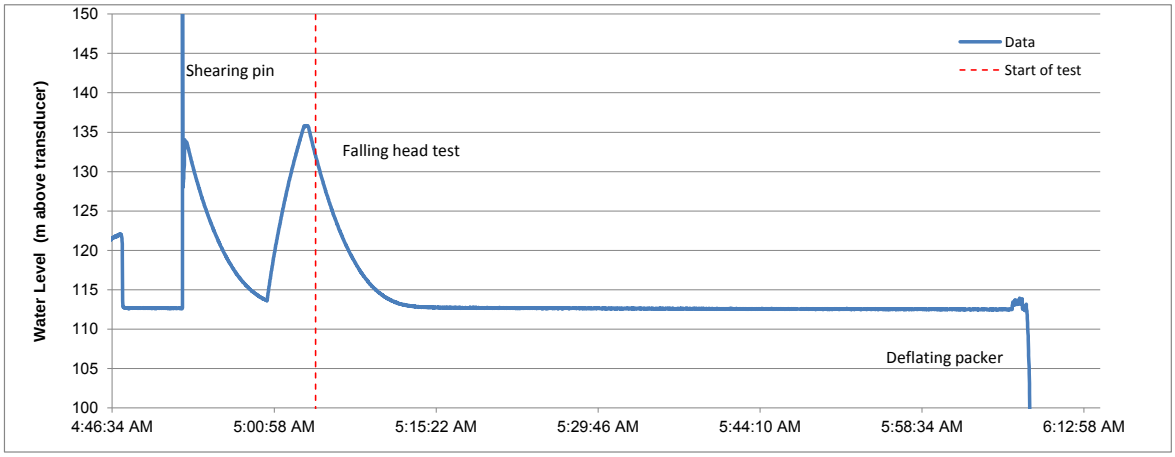
Knight Piésold CONSULTING

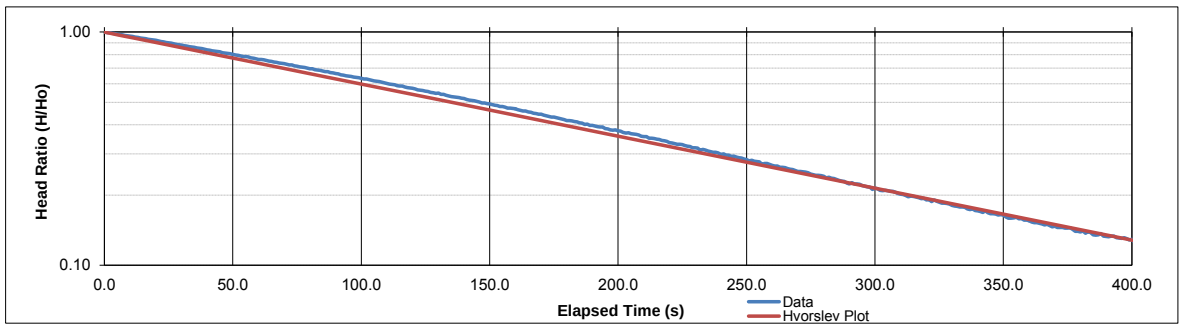
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:27

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	7	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	12-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:04:38 AM	
Top of test interval	137.8	**m along hole**	**Initial water level**	111	**m above transducer**
Bottom of test interval	159.0	**m along hole**	**Water level after slug**	132	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	21	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 7 - Hvorslev.xlsx]GM12-09 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

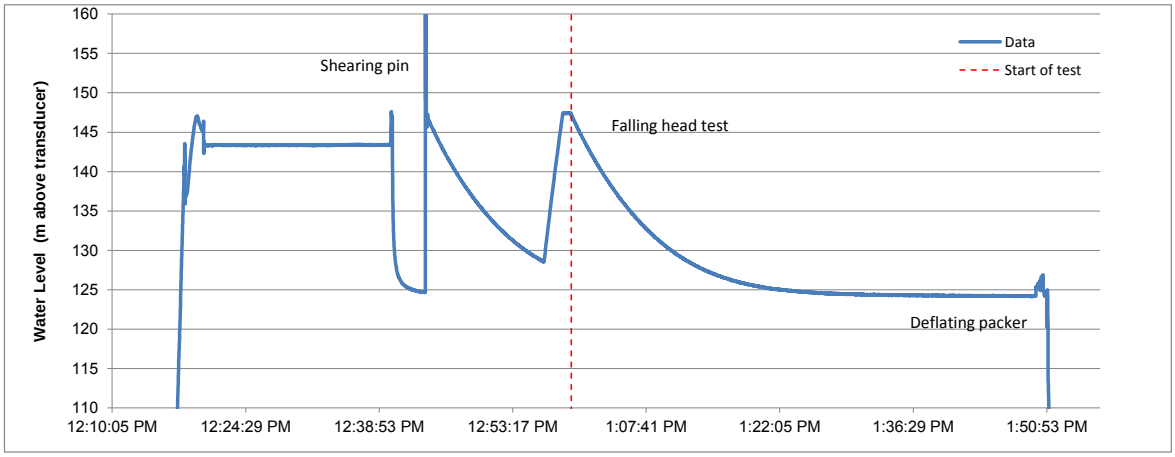
Knight Piésold CONSULTING

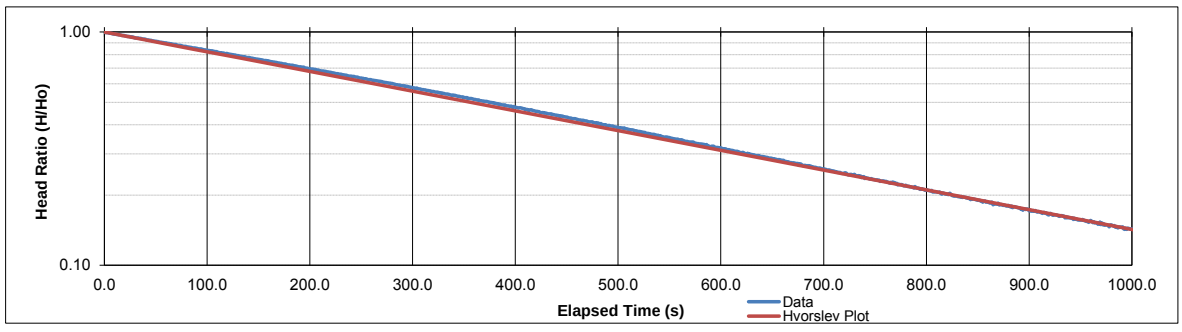
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:28

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	8	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	12-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	148.3	**m along hole**	**Slug Injected, Time = 0**	12:59:35 PM	
Bottom of test interval	181.5	**m along hole**	**Initial water level**	123	**m above transducer**
Test length, L	33.2	**m along hole**	**Water level after slug**	147	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	24	**m**
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 8 - Hvorslev.xlsx]GM12-09 Packer #8 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

Knight Piésold CONSULTING

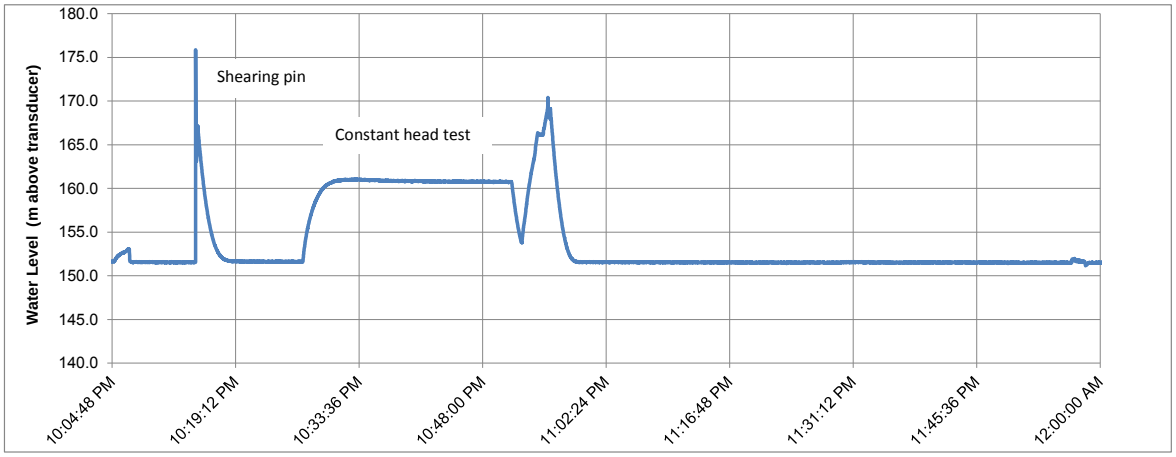
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 13:28

Project No.	VA 101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	9	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	12-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	179.8	**m along hole**	**Initial water level**	152.0	**m above transducer**
Bottom of test interval	201.0	**m along hole**	**Water level during testing**	160.8	**m above transducer**
Test length, L	21.2	**m along hole**	**Water Level Maintained , Hc**	8.8	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	2E-04	**m^2/s**	**Q**	1.3E-03	**m^3/s**
Hydraulic Conductivity, K	9E-06	**m/s**	**Shape Factor, F**	15.9	



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 9 - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	24JAN13	ISSUED FOR REPORT	EA	CHS	KJB

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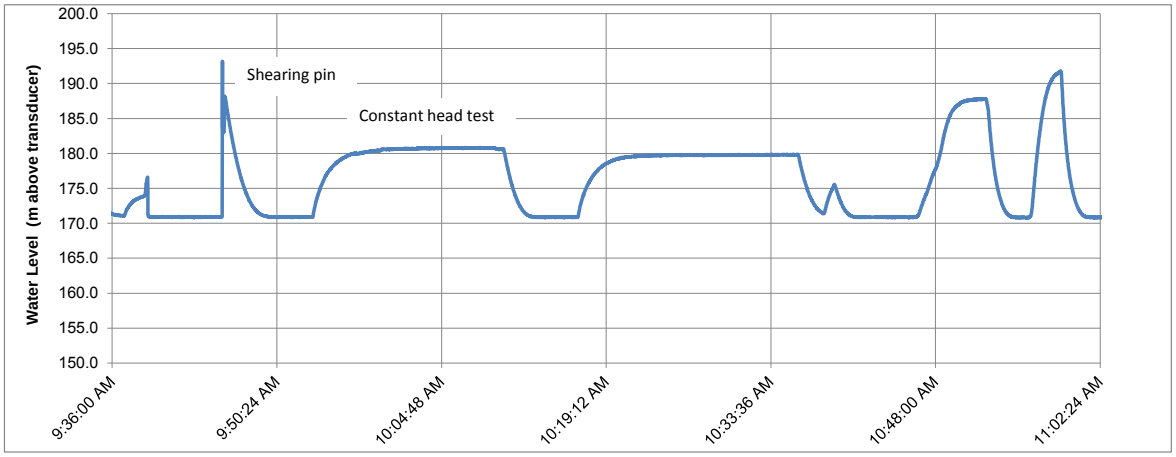
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 13:35

Project No.	VA 101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	10	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	13-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	200.8	**m along hole**	**Initial water level**	170.9	**m above transducer**
Bottom of test interval	223.5	**m along hole**	**Water level during testing**	180.7	**m above transducer**
Test length, L	22.7	**m along hole**	**Water Level Maintained , Hc**	9.9	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	1E-04	**m^2/s**	**Q**	9.5E-04	**m^3/s**
Hydraulic Conductivity, K	6E-06	**m/s**	**Shape Factor, F**	16.8	



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 10-a - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	24JAN13	ISSUED FOR REPORT	EA	CHS	KJB

Knight Piésold CONSULTING

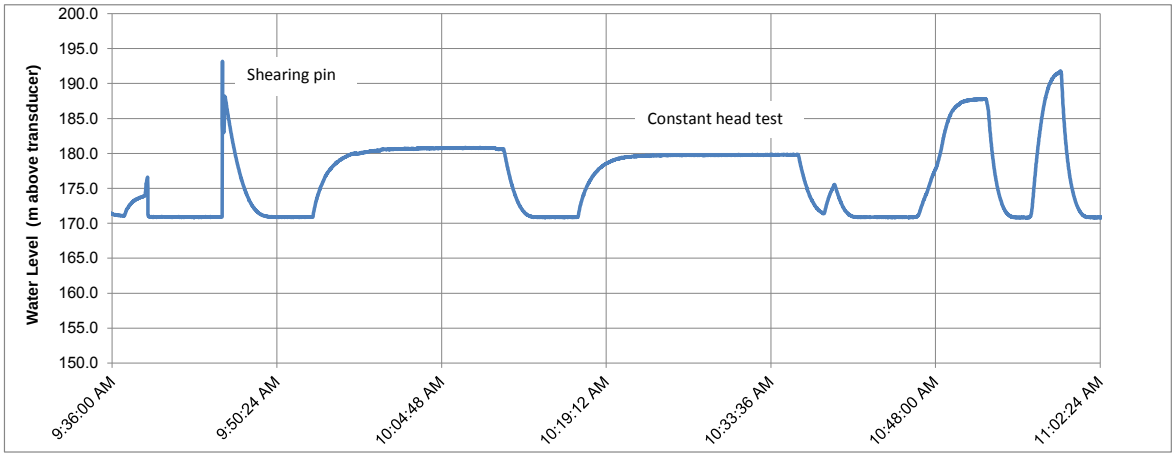
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 13:34

Project No.	VA 101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	10	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	13-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	200.8	**m along hole**	**Initial water level**	170.9	**m above transducer**
Bottom of test interval	223.5	**m along hole**	**Water level during testing**	179.8	**m above transducer**
Test length, L	22.7	**m along hole**	**Water Level Maintained , Hc**	8.9	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	1E-04	**m^2/s**	**Q**	9.5E-04	**m^3/s**
Hydraulic Conductivity, K	6E-06	**m/s**	**Shape Factor, F**	16.8	



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 10-b - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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Knight Piésold CONSULTING

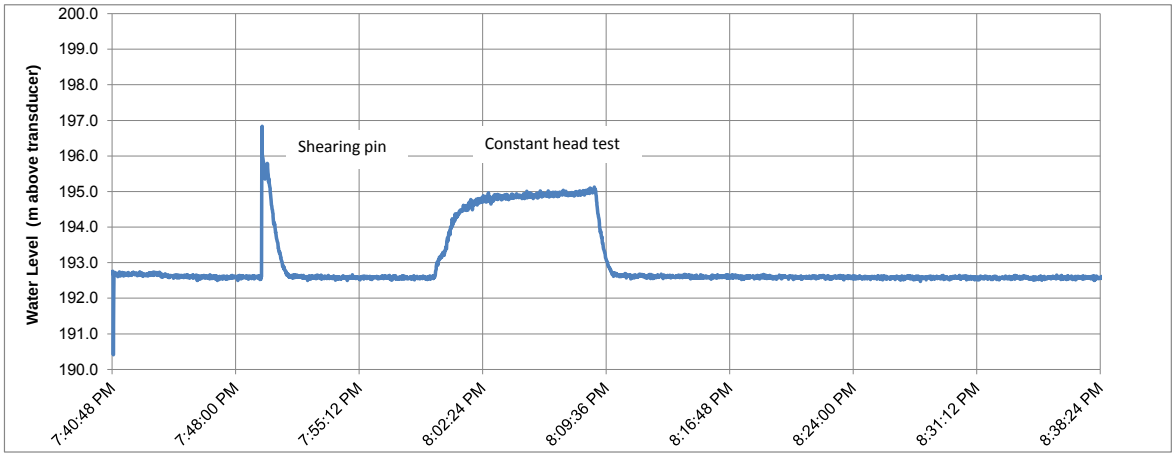
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 13:36

Project No.	VA 101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	11	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	13-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	224.8	**m along hole**	**Initial water level**	192.6	**m above transducer**
Bottom of test interval	244.5	**m along hole**	**Water level during testing**	195.0	**m above transducer**
Test length, L	19.7	**m along hole**	**Water Level Maintained , Hc**	2.4	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	1E-03	**m^2/s**	**Q**	1.9E-03	**m^3/s**
Hydraulic Conductivity, K	5E-05	**m/s**	**Shape Factor, F**	14.9	



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 11 - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	24JAN13	ISSUED FOR REPORT	EA	CHS	KJB

Knight Piésold CONSULTING

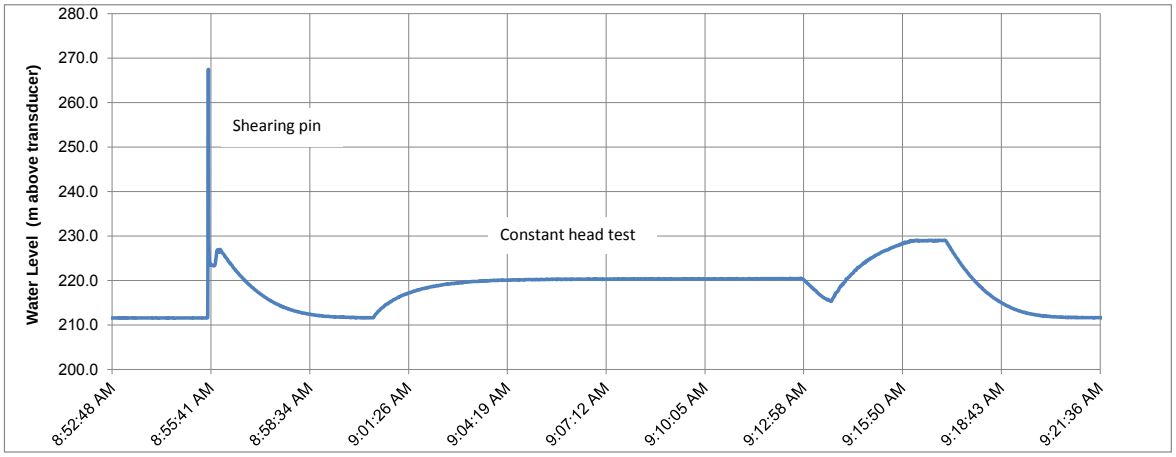
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION USING CONSTANT HEAD METHOD

Print 01/29/13 13:37

Project No.	VA 101-457/6			**Drillhole**	**GM12-10**
Field Technician	JBC			**Test No.**	12
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	14-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m		
Top of test interval	245.8	**m along hole**		**Initial water level**	211.6 **m above transducer**
Bottom of test interval	265.5	**m along hole**		**Water level during testing**	220.3 **m above transducer**
Test length, L	19.7	**m along hole**		**Water Level Maintained , Hc**	8.6 **m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	3E-04	m^2/s	**Q** 1.9E-03 m^3/s
Hydraulic Conductivity, K	1E-05	**m/s**	**Shape Factor, F** 14.9



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 12 - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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Knight Piésold CONSULTING

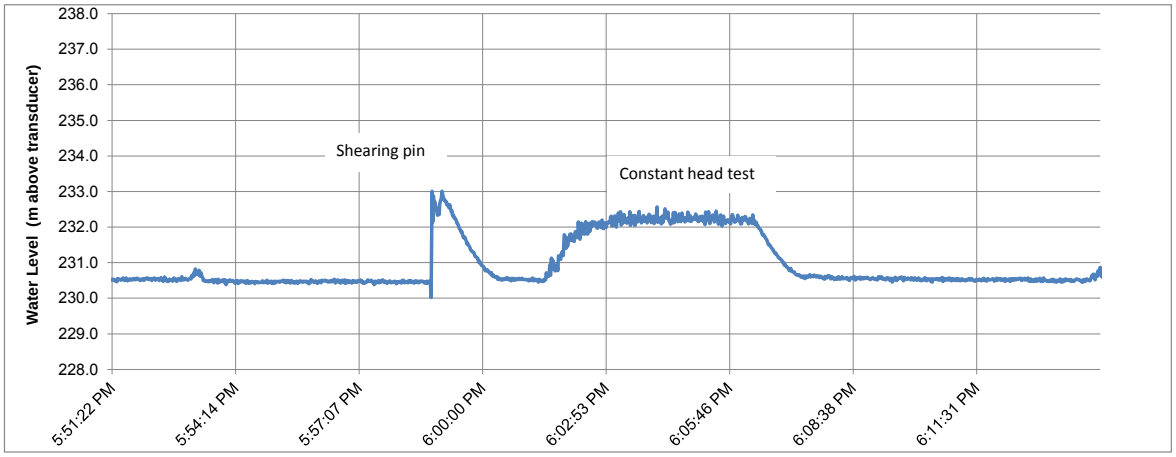
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 13:37

Project No.	VA 101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	13	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	14-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	266.8	**m along hole**	**Initial water level**	230.5	**m above transducer**
Bottom of test interval	286.5	**m along hole**	**Water level during testing**	232.7	**m above transducer**
Test length, L	19.7	**m along hole**	**Water Level Maintained , Hc**	2.2	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	1E-03	**m^2/s**	**Q**	1.9E-03	**m^3/s**
Hydraulic Conductivity, K	6E-05	**m/s**	**Shape Factor, F**	14.9	



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 13 - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	24JAN13	ISSUED FOR REPORT	EA	CHS	KJB

Knight Piésold CONSULTING

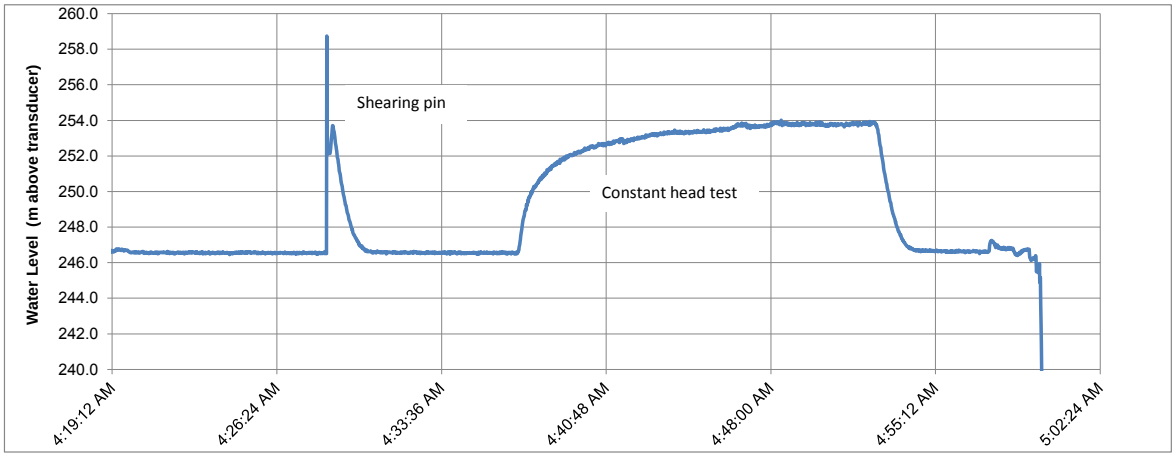
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 13:54

Project No.	VA 101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	14	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	15-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	284.8	**m along hole**	**Initial water level**	246.5	**m above transducer**
Bottom of test interval	309.0	**m along hole**	**Water level during testing**	253.7	**m above transducer**
Test length, L	24.2	**m along hole**	**Water Level Maintained , Hc**	7.2	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	4E-04	**m^2/s**	**Q**	1.9E-03	**m^3/s**
Hydraulic Conductivity, K	1E-05	**m/s**	**Shape Factor, F**	17.8	



TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 14 - constant head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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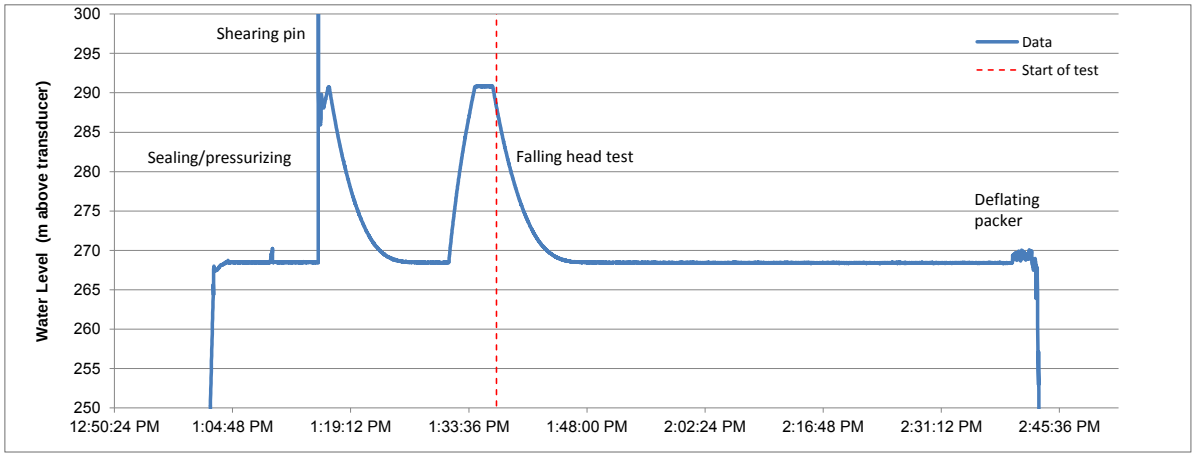
Knight Piésold CONSULTING

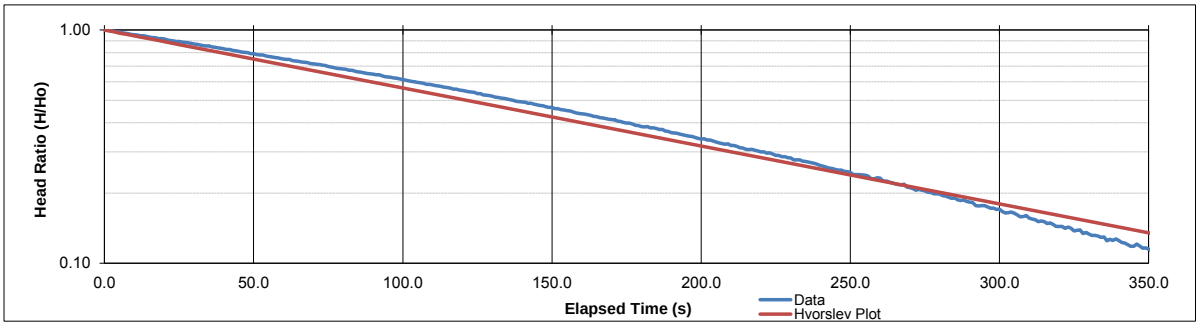
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:56

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC		**Test No.**	15	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	15-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	309.3	**m along hole**	**Slug Injected, Time = 0**	1:36:59 PM	
Bottom of test interval	330.0	**m along hole**	**Initial water level**	268	**m above transducer**
Test length, L	20.7	**m along hole**	**Water level after slug**	288	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	20	**m**
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 15 - Hvorslev.xlsx]GM12-07 Packer #15 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	20DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

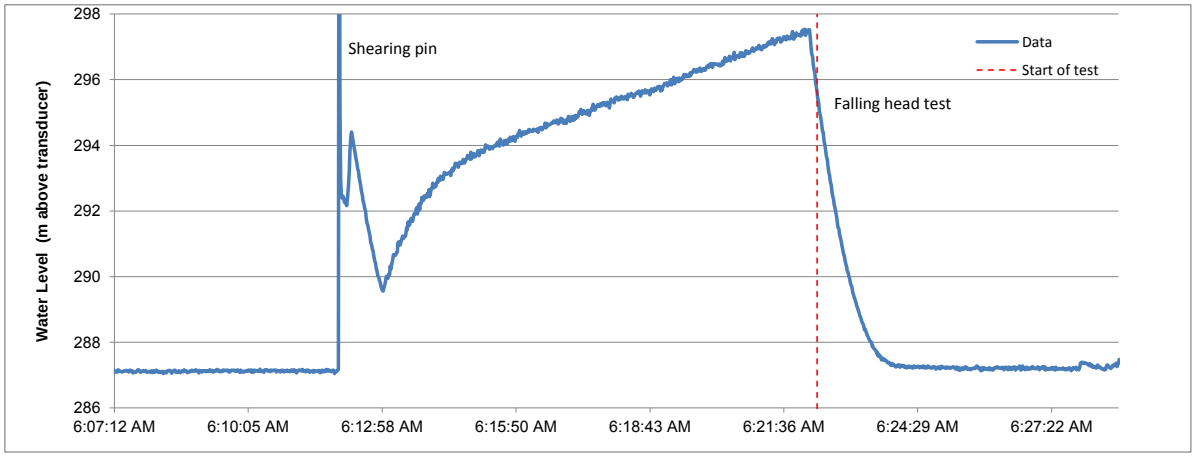
Knight Piésold CONSULTING

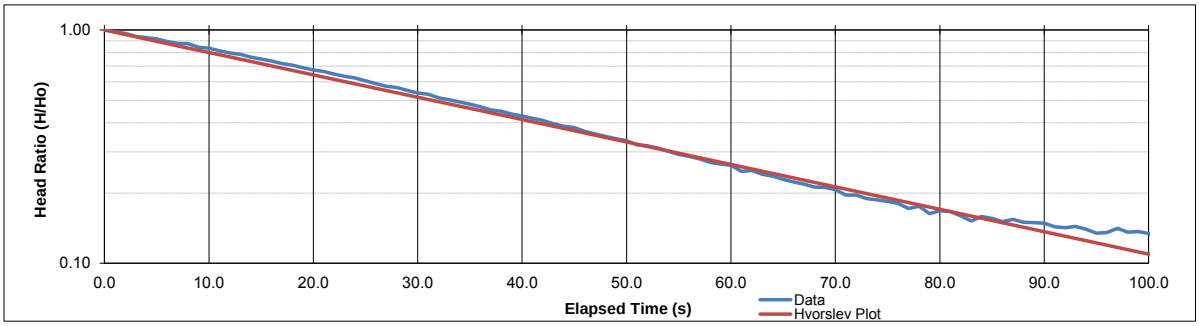
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:57

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	SRM		**Test No.**	16	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	16-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	329.8	**m along hole**	**Slug Injected, Time = 0**	6:22:19 AM	
Bottom of test interval	351.0	**m along hole**	**Initial water level**	286	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	296	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	10	**m**
Transmissivity, T	1E-04	**m^2/s**			
Hydraulic Conductivity, K	5E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 16 - Hvorslev.xlsx]GM12-07 Packer #16 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	20DEC'12	ISSUED FOR REPORT	MGP	CHS	KJB

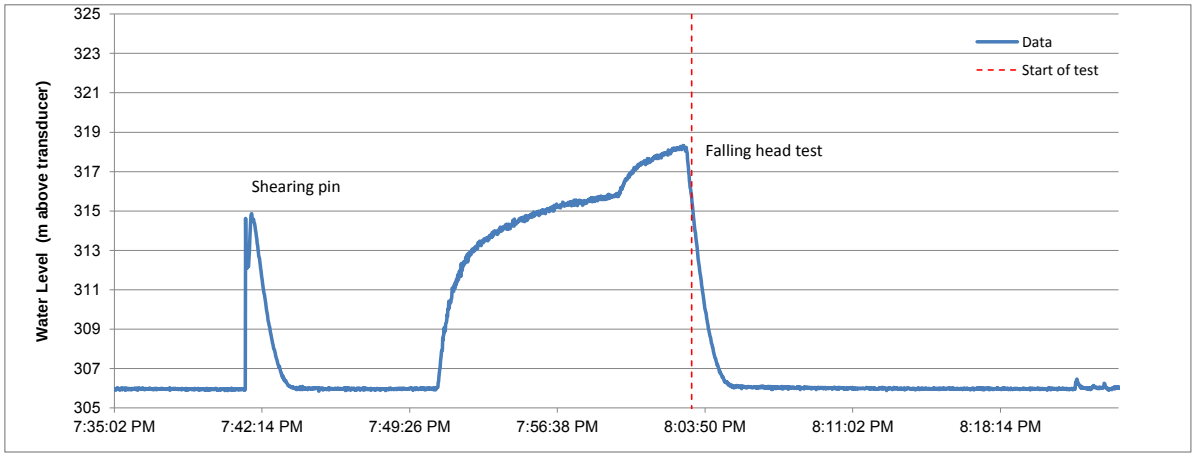
Knight Piésold CONSULTING

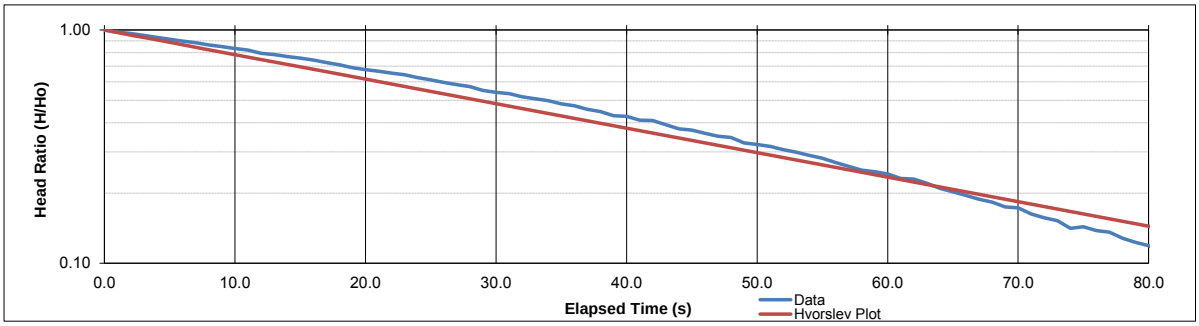
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 13:59

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC/SRM		**Test No.**	17	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	16-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	350.8	**m along hole**	**Slug Injected, Time = 0**	8:03:11 PM	
Bottom of test interval	372.0	**m along hole**	**Initial water level**	306	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	316	**m above transducer**
Drill-hole angle	65	**degrees**	**Change In Water Level, H_o**	10	**m**
Transmissivity, T	1E-04	**m^2/s**			
Hydraulic Conductivity, K	6E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 17 - Hvorslev.xlsx]GM12-07 Packer #17 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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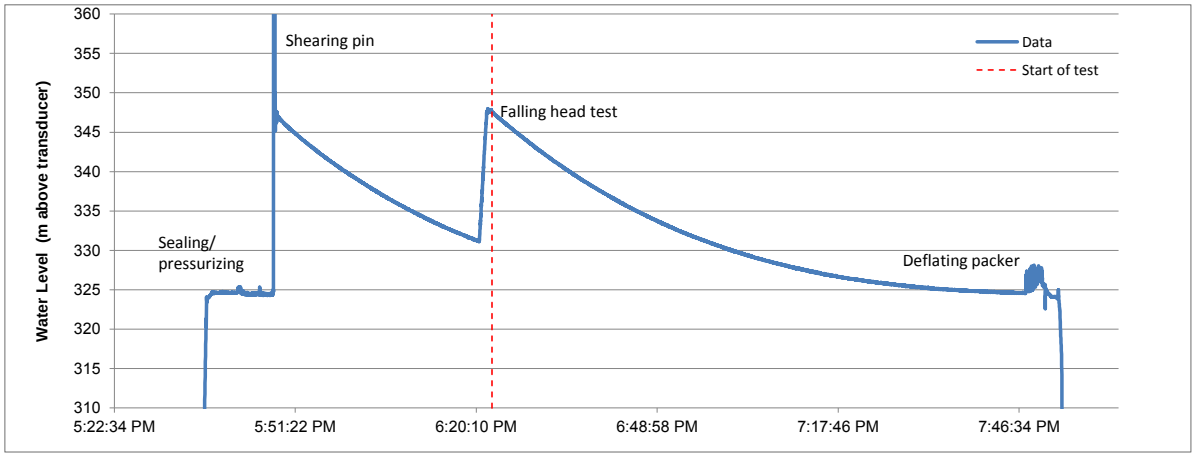
Knight Piésold CONSULTING

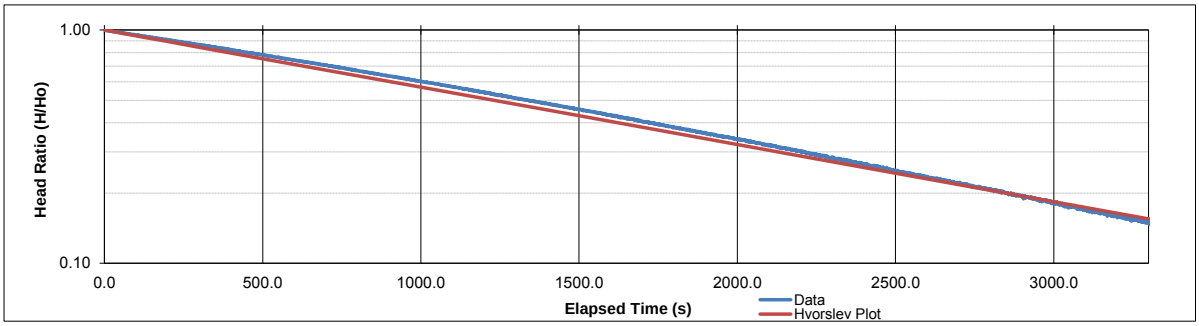
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:02

Project No.	VA101-457/6		**Drillhole**	**GM12-10**	
Field Technician	JBC/SRM		**Test No.**	18	
Analyst	MGP				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	17-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	371.3	**m along hole**	**Slug Injected, Time = 0**	6:22:40 PM	
Bottom of test interval	400.0	**m along hole**	**Initial water level**	323	**m above transducer**
Test length, L	28.7	**m along hole**	**Water level after slug**	348	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	25	**m**
Transmissivity, T	3E-06	**m^2/s**			
Hydraulic Conductivity, K	1E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-10\Hydraulic conductivity\[GM12-10 Packer 18 - Hvorslev.xlsx]GM12-07 Packer #18 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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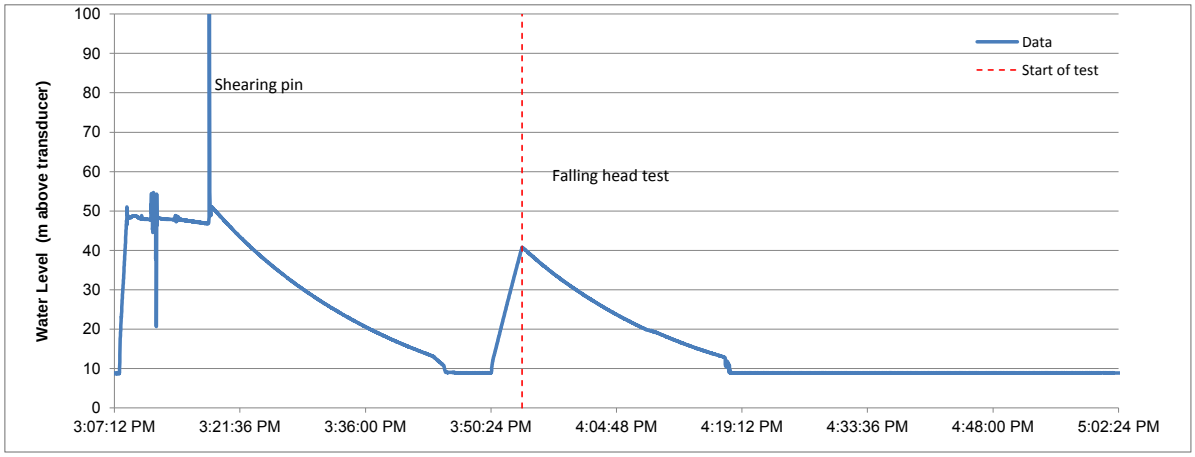
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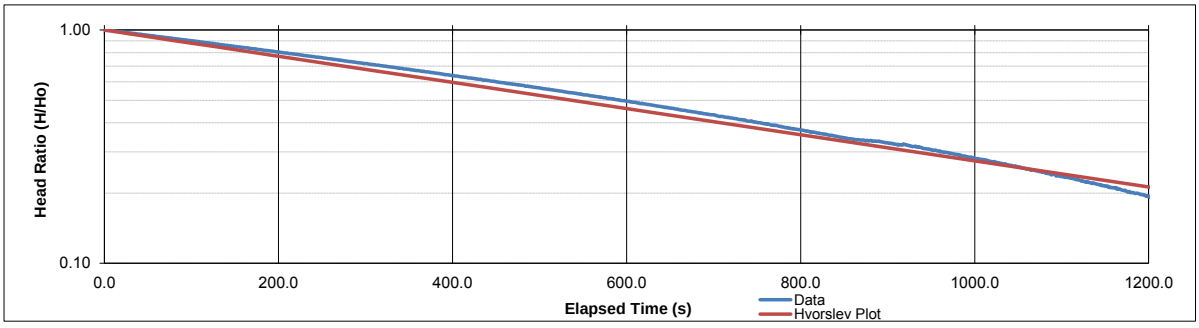
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:03

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	1	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water,volume not recorded				
Test Date	17-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	45.3	**m along hole**	**Slug Injected, Time = 0**	3:53:58 PM	
Bottom of test interval	72.0	**m along hole**	**Initial water level**	9	**m above transducer**
Test length, L	26.7	**m along hole**	**Water level after slug**	41	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	32	**m**
Transmissivity, T	7E-06	**m^2/s**			
Hydraulic Conductivity, K	3E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Unable to reach the top of the drill rods with water. Tried to fill rods for about 5 minutes. Transducer measurements indicate the drill hole was dry and therefore the test zone was unsaturated. The K value is presented for qualitative purposes only.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 1 - Hvorslev.xlsx]GM12-11 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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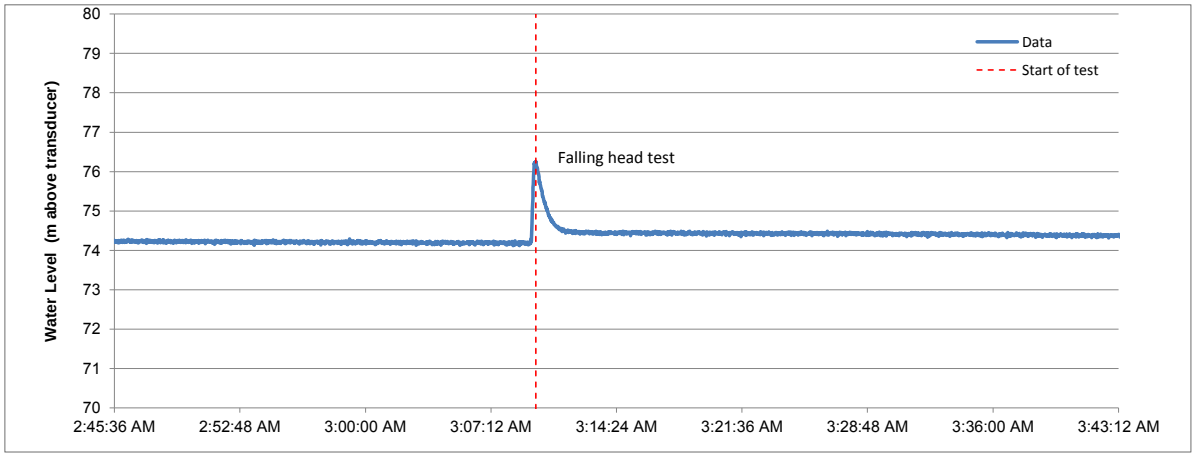
Knight Piésold CONSULTING

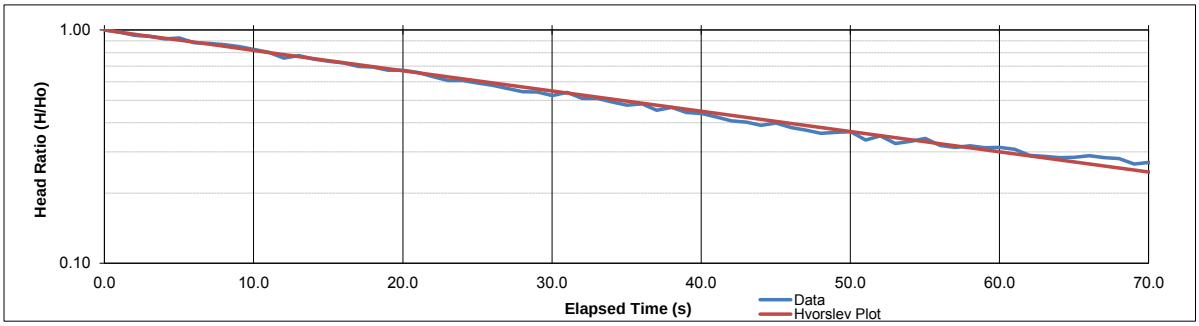
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:04

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	2	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	18-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:09:47 AM	
Top of test interval	71.8	**m along hole**	**Initial water level**	74	**m above transducer**
Bottom of test interval	91.5	**m along hole**	**Water level after slug**	76	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	2	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-04	**m^2/s**			
Hydraulic Conductivity, K	5E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 2 - Hvorslev.xlsx]GM12-11 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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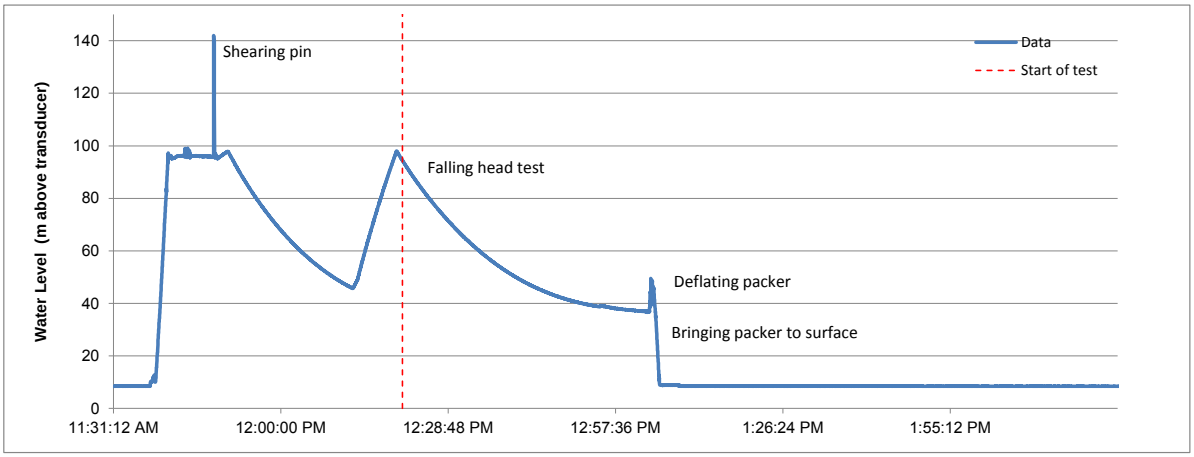
Knight Piésold CONSULTING

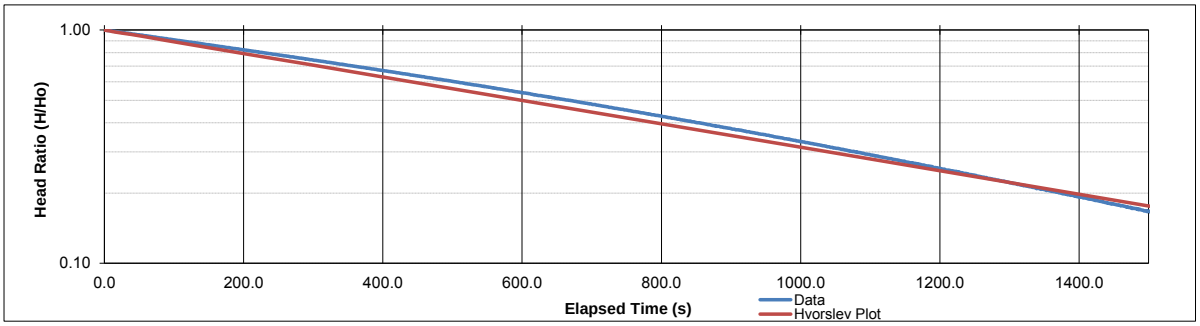
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:06

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	3	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	18-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	95.8	**m along hole**	**Slug Injected, Time = 0**	12:20:56 PM	
Bottom of test interval	115.5	**m along hole**	**Initial water level**	34	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	94	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	60	**m**
Transmissivity, T	6E-06	**m^2/s**			
Hydraulic Conductivity, K	3E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 3 - Hvorslev.xlsx]GM12-11 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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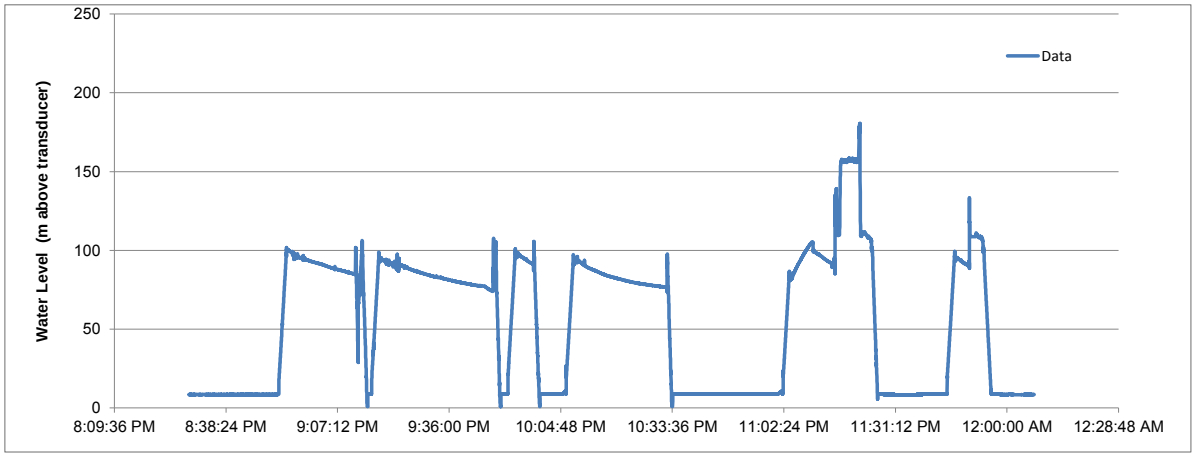
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NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:08

Project No.	VA101-457/6			**Drillhole**	**GM12-11**
Field Technician	EA			**Test No.**	4
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	18-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	10:19:58 PM
Top of test interval	116.8	**m along hole**		**Initial water level**	**m above transducer**
Bottom of test interval	139.5	**m along hole**		**Water level after slug**	**m above transducer**
Test length, L	22.7	**m along hole**		**Change in Water Level, H_o**	0 **m**
Drill-hole angle	65	**degrees**			
Transmissivity, T		**m^2/s**			
Hydraulic Conductivity, K		**m/s**			



TEST COMMENTS:
Failed test. Shear pin blew out 3 times just as pressurizing proccess began.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 4 - Hvorslev.xlsx]GM12-11 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

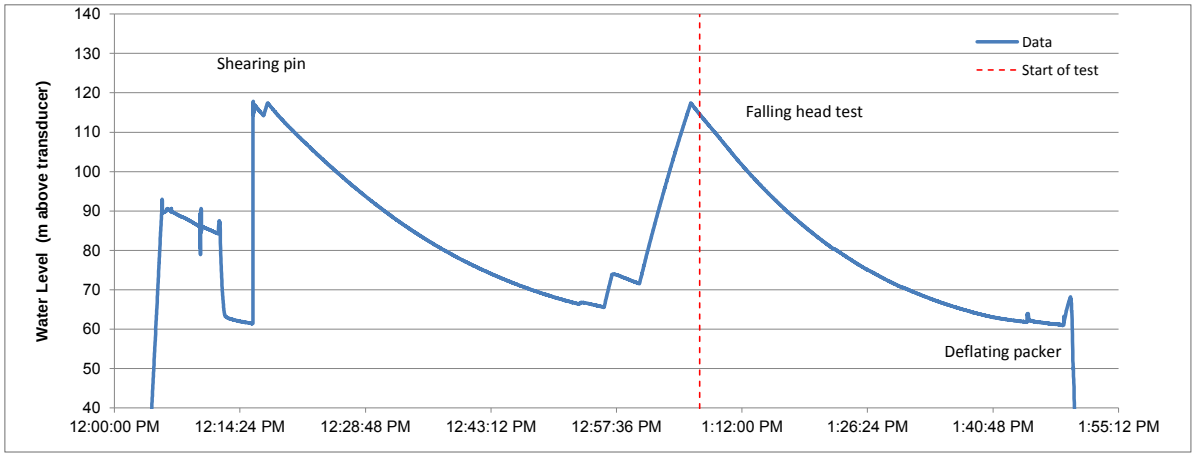
Knight Piésold CONSULTING

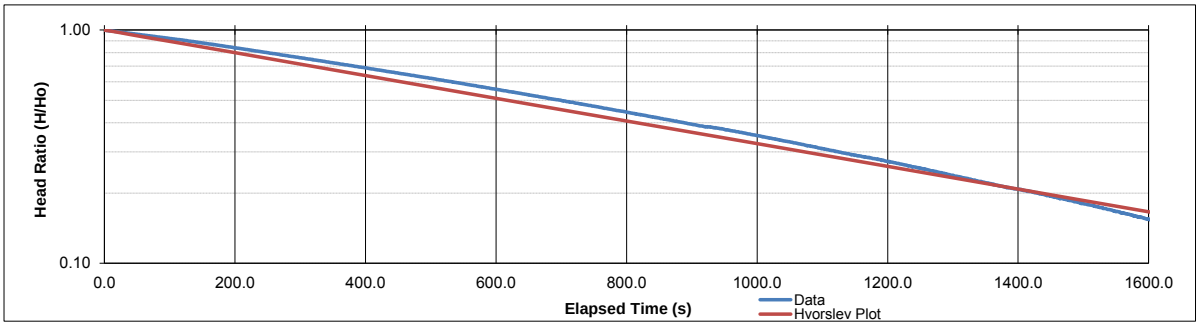
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:11

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	5	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	19-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	116.8	**m along hole**	**Slug Injected, Time = 0**	1:07:08 PM	
Bottom of test interval	157.5	**m along hole**	**Initial water level**	59	**m above transducer**
Test length, L	40.7	**m along hole**	**Water level after slug**	115	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	56	**m**
Transmissivity, T	6E-06	**m^2/s**			
Hydraulic Conductivity, K	2E-07	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 5 - Hvorslev.xlsx]GM12-11 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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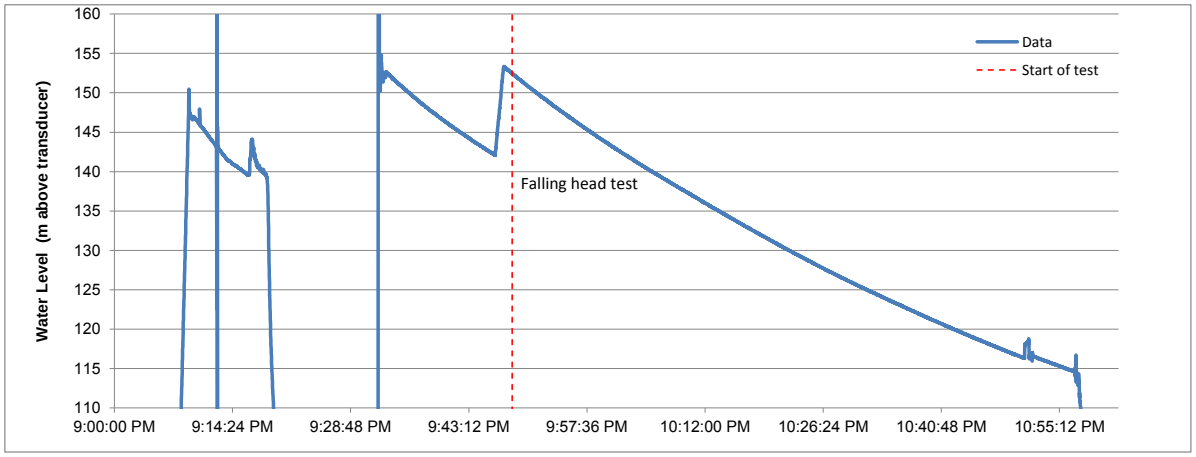
Knight Piésold CONSULTING

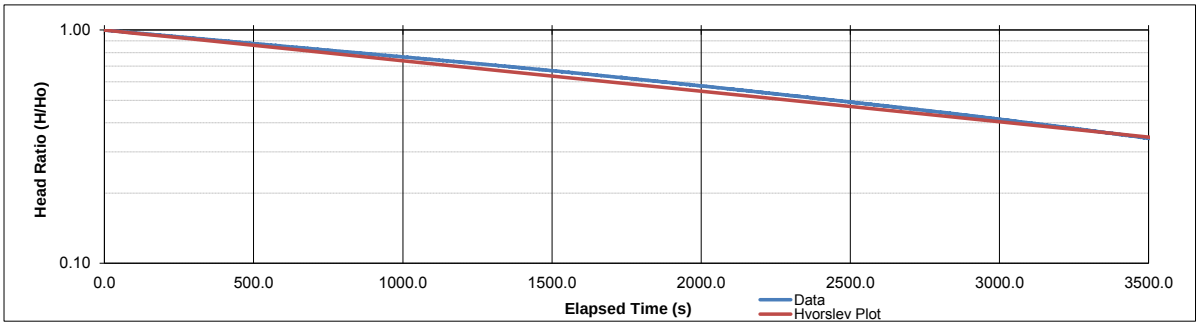
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:16

Project No.	VA101-457/6			**Drillhole**	**GM12-11**
Field Technician	EA			**Test No.**	6
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	19-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	9:48:29 PM
Top of test interval	151.3	**m along hole**		**Initial water level**	100 **m above transducer**
Bottom of test interval	171.0	**m along hole**		**Water level after slug**	152 **m above transducer**
Test length, L	19.7	**m along hole**		**Change In Water Level, H_o**	52 **m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-06	**m^2/s**			
Hydraulic Conductivity, K	8E-08	**m/s**		Intercept	1.0





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 6 - Hvorslev.xlsx]GM12-11 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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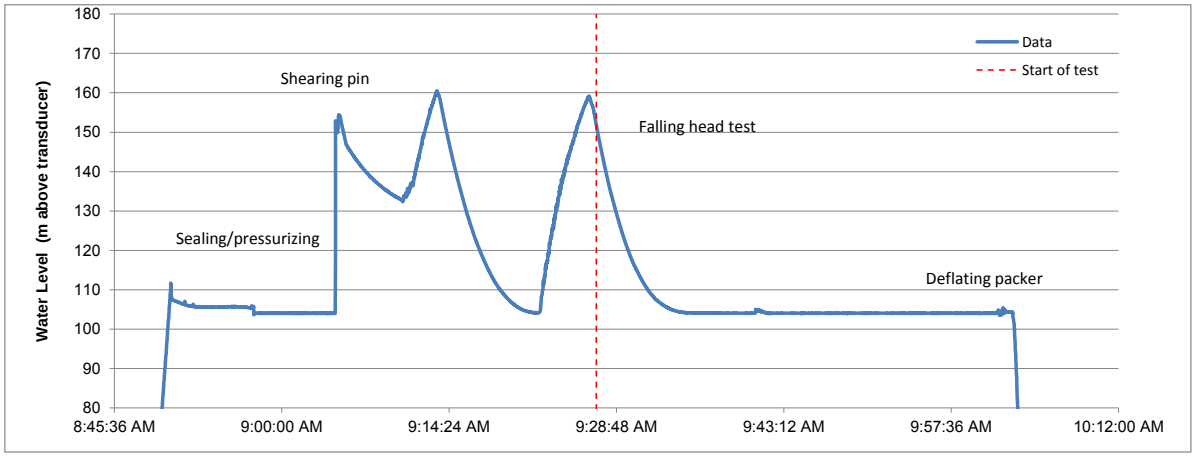
Knight Piésold CONSULTING

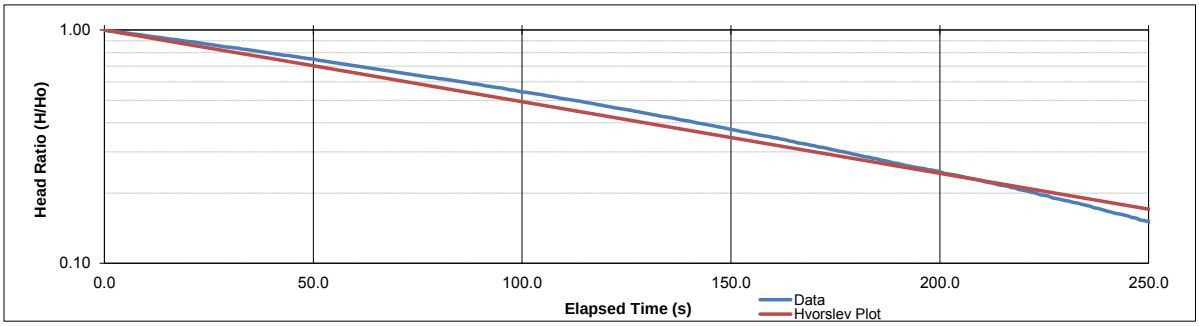
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:18

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	7	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	19-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	170.8	**m along hole**	**Slug Injected, Time = 0**	9:27:04 AM	
Bottom of test interval	193.5	**m along hole**	**Initial water level**	104	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	152	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	48	**m**
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 20 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 7 - Hvorslev.xlsx]GM12-11 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

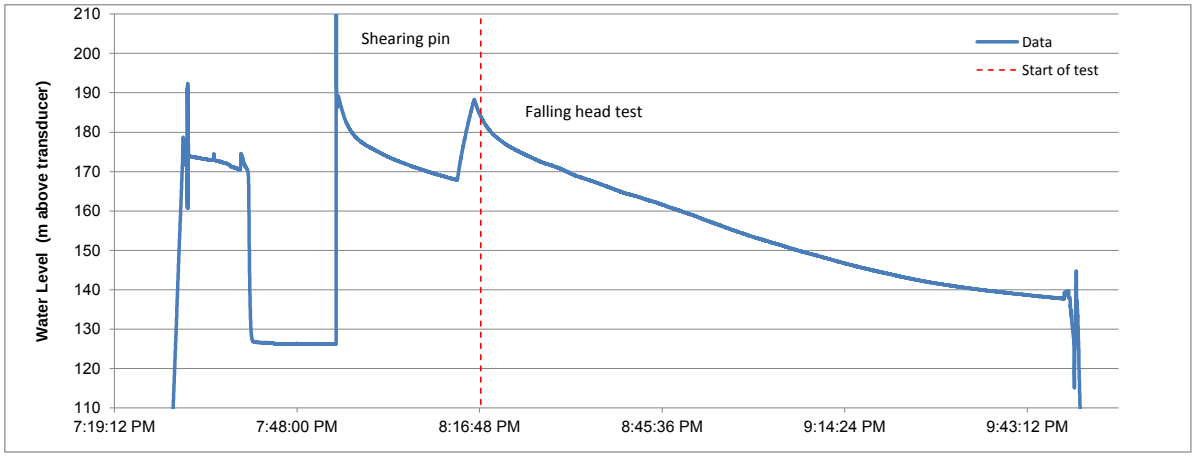
Knight Piésold CONSULTING

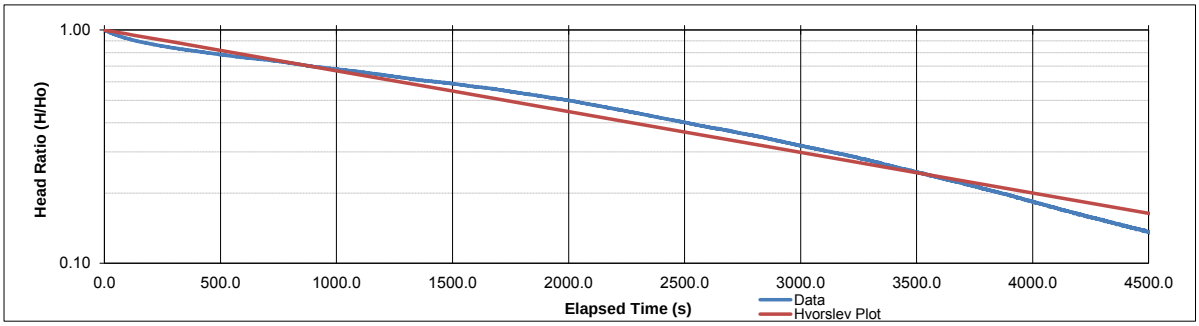
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:20

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	8	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water,volume not recorded				
Test Date	20-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	8:16:59 PM	
Top of test interval	191.8	**m along hole**	**Initial water level**	134	**m above transducer**
Bottom of test interval	214.5	**m along hole**	**Water level after slug**	184	**m above transducer**
Test length, L	22.7	**m along hole**	**Change In Water Level, H_o**	50	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	2E-06	**m^2/s**			
Hydraulic Conductivity, K	9E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 8.8cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 8 - Hvorslev.xlsx]GM12-11 Packer #8 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

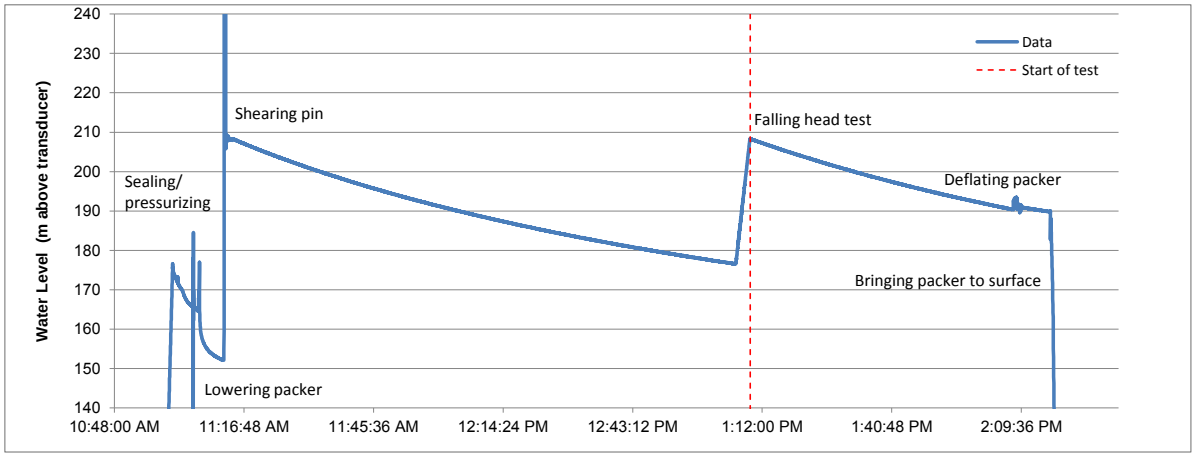
Knight Piésold CONSULTING

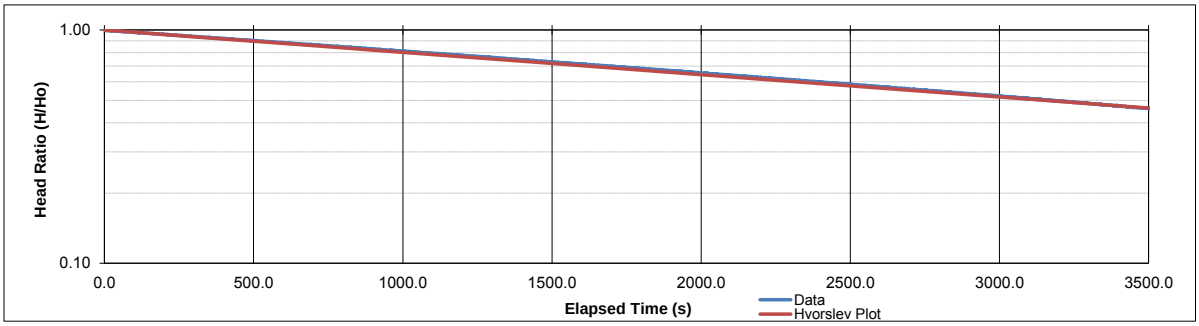
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:25

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	9	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	215.8	**m along hole**	**Slug Injected, Time = 0**	1:09:18 PM	
Bottom of test interval	235.5	**m along hole**	**Initial water level**	175	**m above transducer**
Test length, L	19.7	**m along hole**	**Water level after slug**	208	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	33	**m**
Transmissivity, T	1E-06	**m^2/s**			
Hydraulic Conductivity, K	6E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 20 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 9 - Hvorslev.xlsx]GM12-11 Packer #9 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

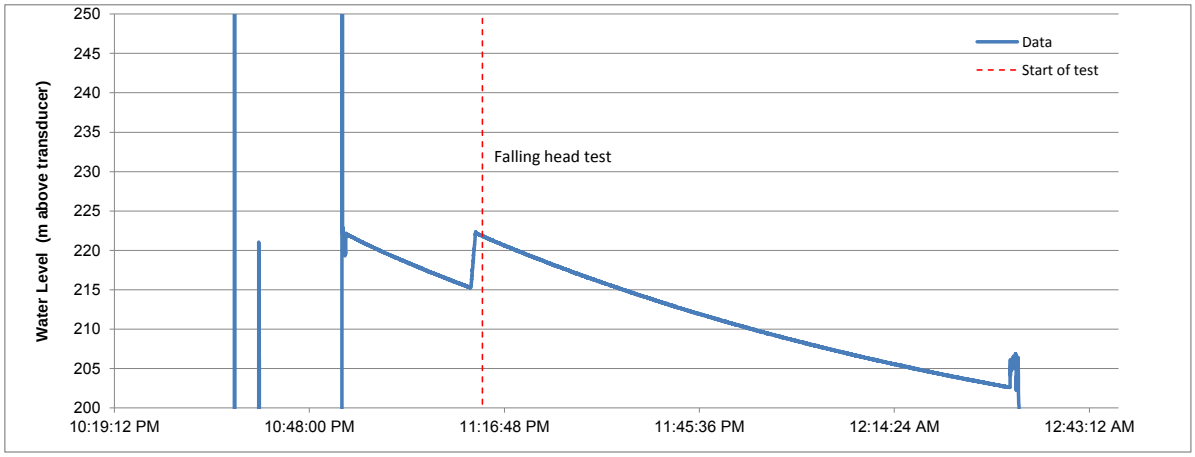
Knight Piésold CONSULTING

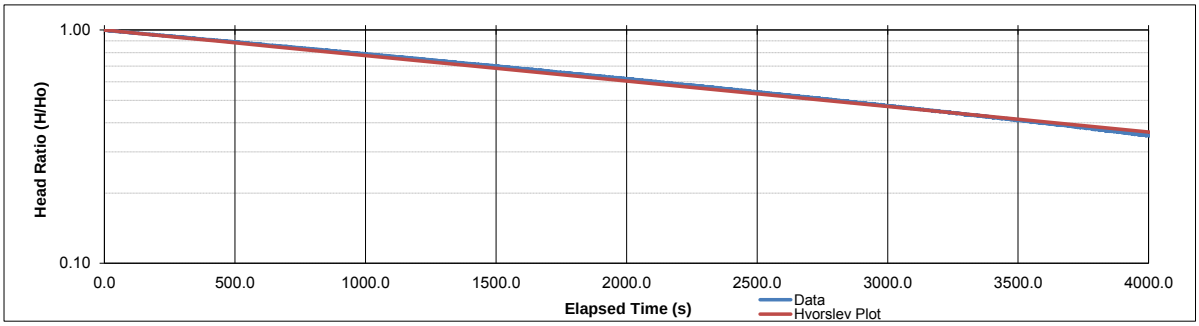
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:27

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	10	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	21-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	11:13:34 PM	
Top of test interval	233.8	**m along hole**	**Initial water level**	195	**m above transducer**
Bottom of test interval	256.5	**m along hole**	**Water level after slug**	222	**m above transducer**
Test length, L	22.7	**m along hole**	**Change in Water Level, H_o**	27	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-06	**m^2/s**			
Hydraulic Conductivity, K	6E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 11.5 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 10 - Hvorslev.xlsx]GM12-11 Packer #10 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

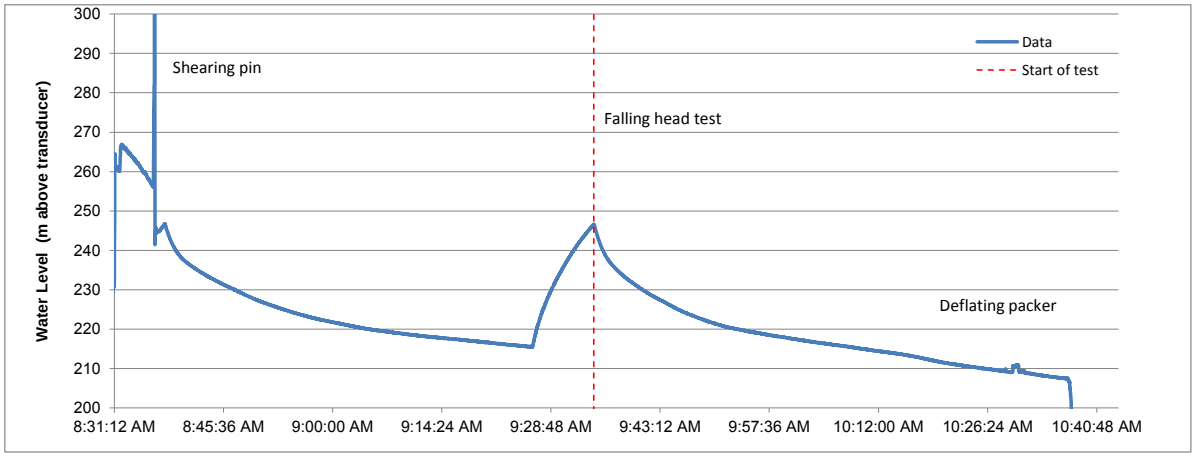
Knight Piésold CONSULTING

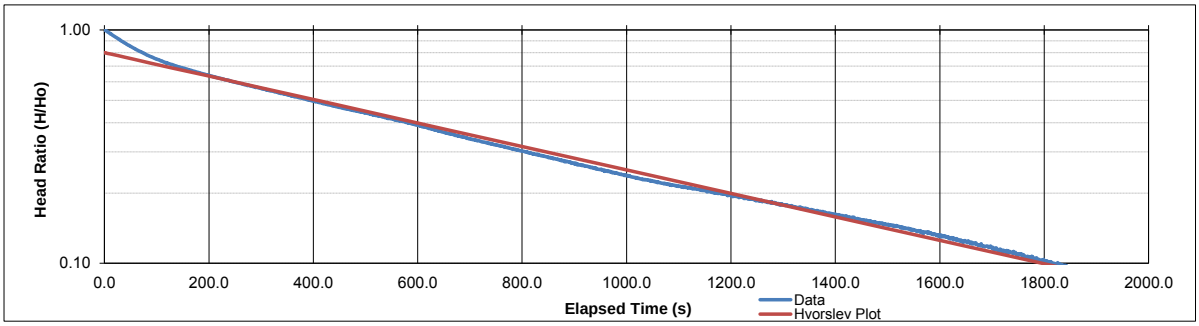
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:29

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	11	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	22-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	9:34:27 AM	
Top of test interval	257.8	**m along hole**	**Initial water level**	213	**m above transducer**
Bottom of test interval	277.5	**m along hole**	**Water level after slug**	247	**m above transducer**
Test length, L	19.7	**m along hole**	**Change In Water Level, H_o**	34	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	6E-06	**m^2/s**			
Hydraulic Conductivity, K	3E-07	**m/s**	Intercept	0.8	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 13 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 11 - Hvorslev.xlsx]GM12-11 Packer #11 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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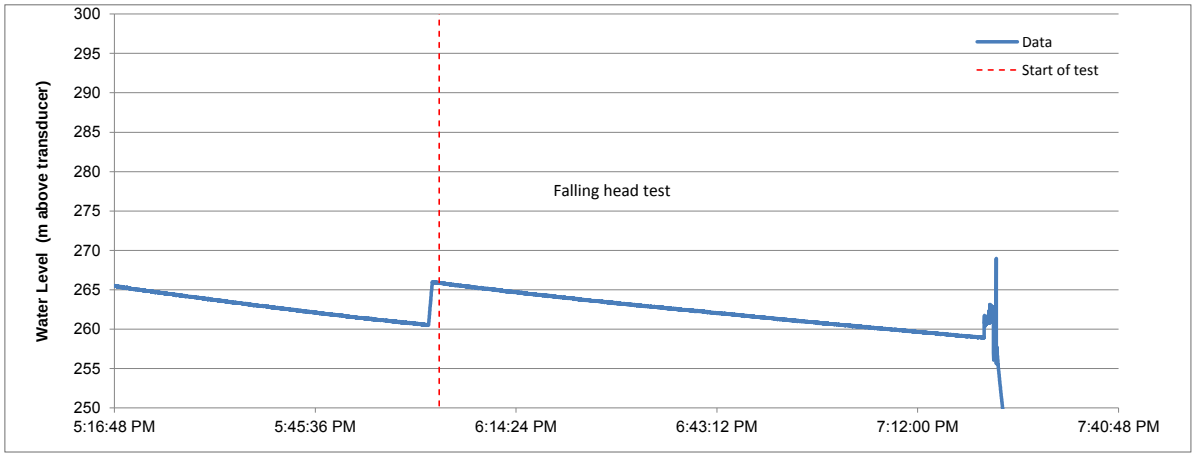
Knight Piésold CONSULTING

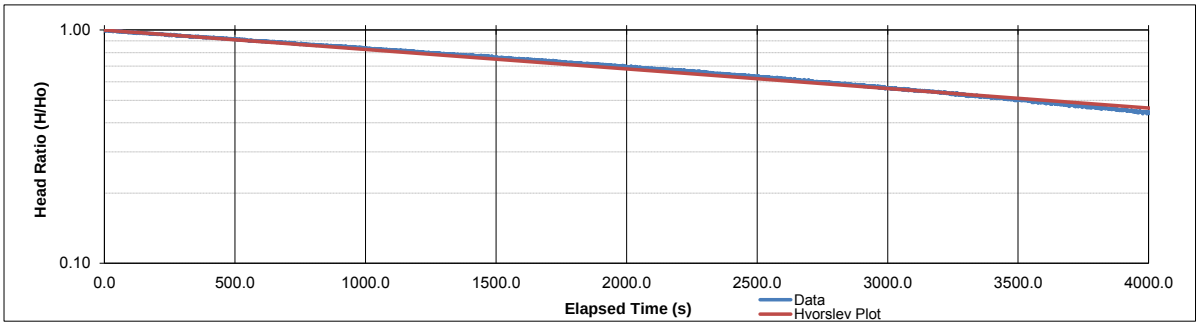
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:30

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	BOC		**Test No.**	12	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	22-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	6:03:24 PM	
Top of test interval	278.8	**m along hole**	**Initial water level**	255	**m above transducer**
Bottom of test interval	298.5	**m along hole**	**Water level after slug**	266	**m above transducer**
Test length, L	19.7	**m along hole**	**Change in Water Level, H_o**	11	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-06	**m^2/s**			
Hydraulic Conductivity, K	5E-08	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 12cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 12 - Hvorslev.xlsx]GM12-11 Packer #12 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

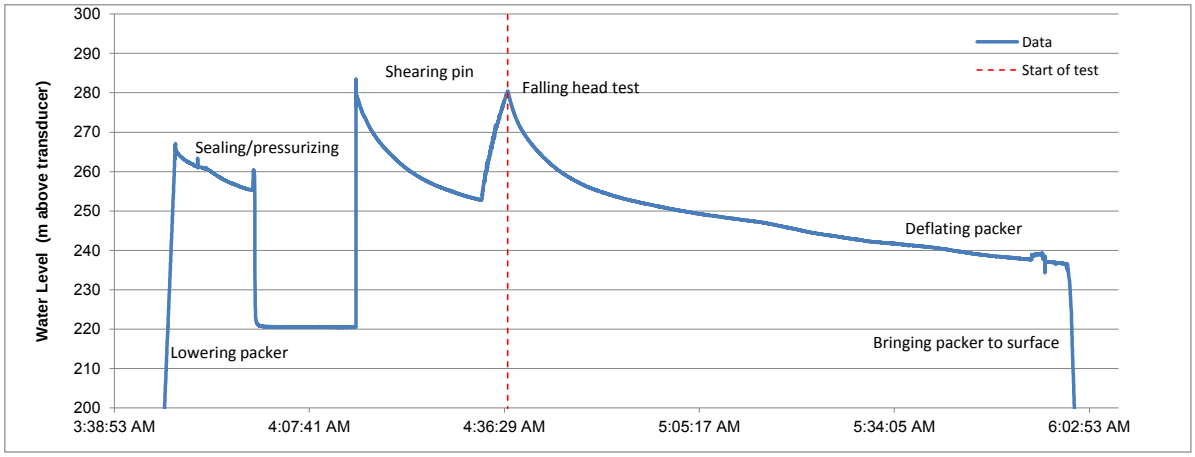
Knight Piésold CONSULTING

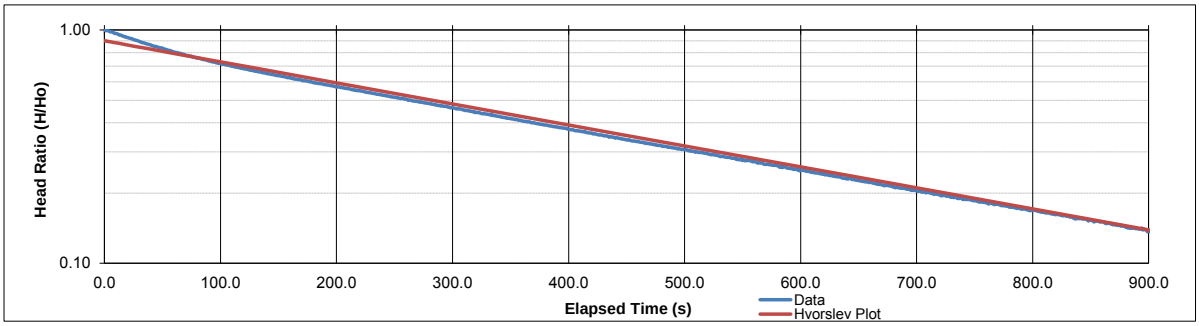
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:32

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	13	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	4:36:58 AM	
Top of test interval	296.8	**m along hole**	**Initial water level**	250	**m above transducer**
Bottom of test interval	319.5	**m along hole**	**Water level after slug**	280	**m above transducer**
Test length, L	22.7	**m along hole**	**Change In Water Level, H_o**	30	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	5E-07	**m/s**	Intercept	0.9	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 11.5 cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 13 - Hvorslev.xlsx]GM12-11 Packer #13 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

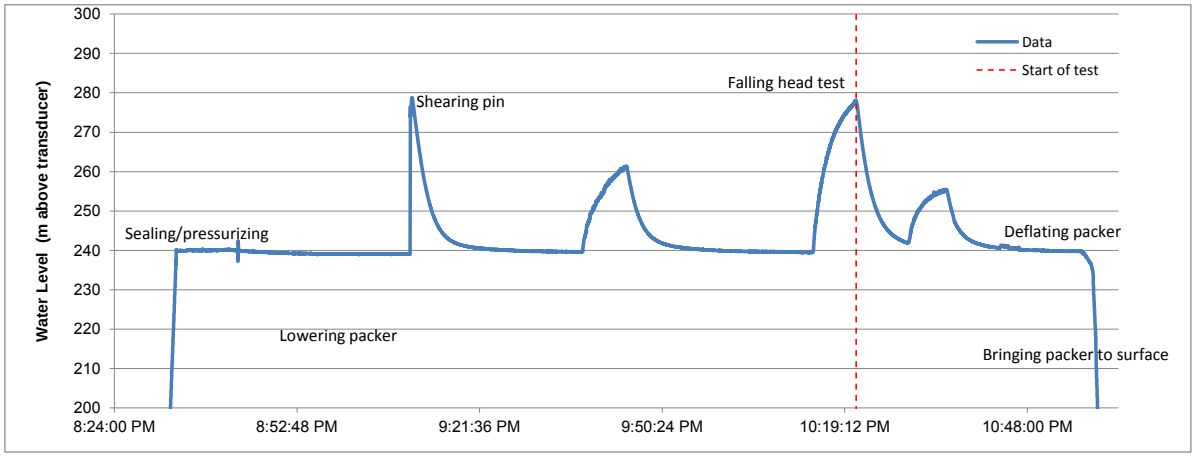
Knight Piésold CONSULTING

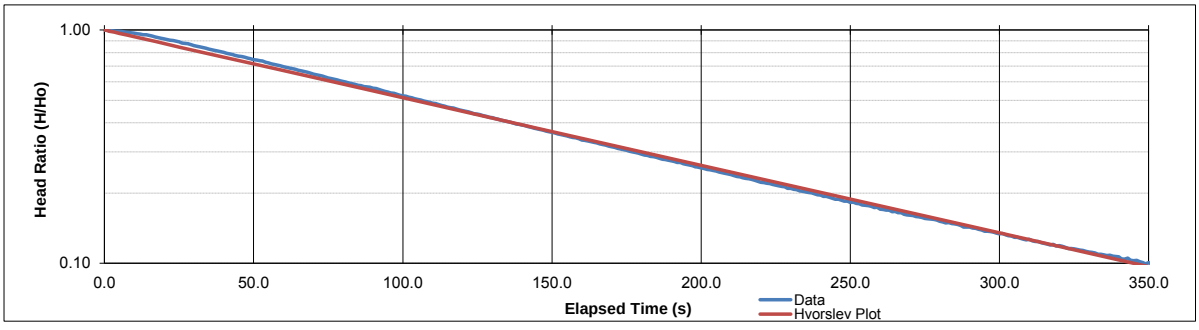
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:36

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	14	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	23-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	10:21:00 PM	
Top of test interval	319.3	**m along hole**	**Initial water level**	240	**m above transducer**
Bottom of test interval	340.5	**m along hole**	**Water level after slug**	278	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	38	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Unable to reach the top of the drill rods with water when filling at a rate of 50L/min. Multiple attempts to fill rods are shown in data plot at times 9:45pm, 10:20pm. Filling at 10:20 analysed.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 14 - Hvorslev.xlsx]GM12-11 Packer #14 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

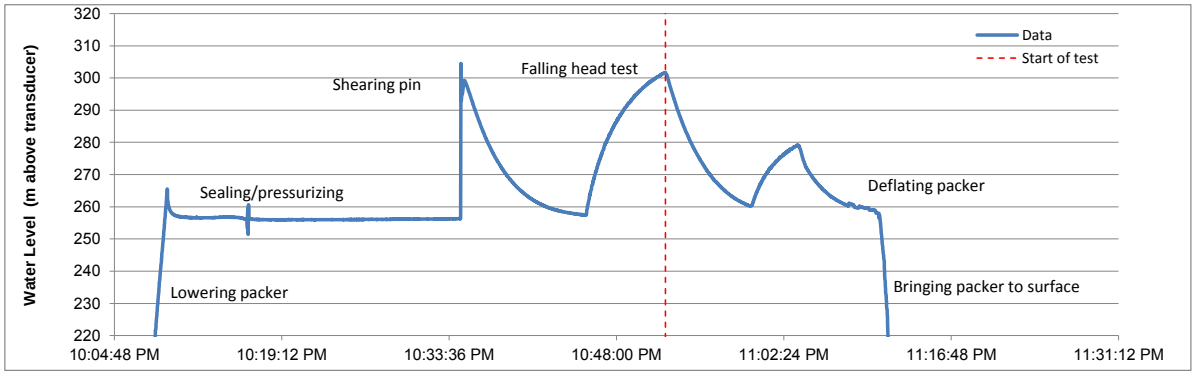
Knight Piésold CONSULTING

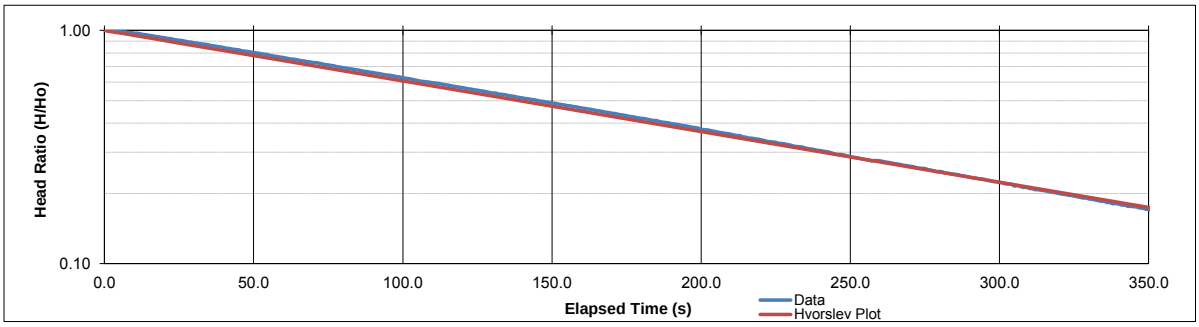
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:36

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	15	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	24-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m	**Slug Injected, Time = 0**	10:52:12 PM	
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	338.8	m along hole	**Initial water level**	255	m above transducer
Bottom of test interval	361.5	m along hole	**Water level after slug**	302	m above transducer
Test length, L	22.7	m along hole	**Change in Water Level, H_o**	47	m
Drill-hole angle	65	degrees			
Transmissivity, T	3E-05	m^2/s			
Hydraulic Conductivity, K	1E-06	m/s	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 11.4cm/minute. This rate is small compared to change in water level from the slug insertion. Initial water level was estimated based on water level recovery. Unable to reach the top of the drill rods with water when filling at a rate of 60L/min. Multiple attempts to fill rods are shown in data plot at times 10:50PM and 11:05PM. Filling at 10:50 analysed.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 15 - Hvorslev.xlsx]GM12-11 Packer #15 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	14DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

Knight Piésold CONSULTING

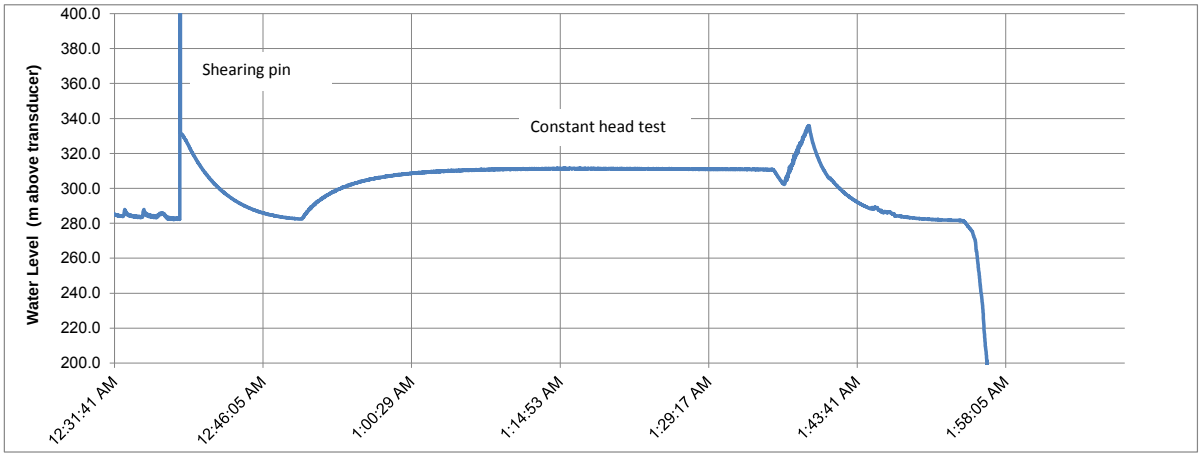
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING CONSTANT HEAD METHOD

Print 01/29/13 14:37

Project No.	VA 101-457/4		**Drillhole**	**GM12-11**	
Field Technician	MGW		**Test No.**	16	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Test Date	26-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m		12:48:28 PM	
Top of test interval	362.8	**m along hole**	**Initial water level**	282.7	**m above transducer**
Bottom of test interval	382.5	**m along hole**	**Water level during testing**	311.1	**m above transducer**
Test length, L	19.7	**m along hole**	**Water Level Maintained , Hc**	28.4	**m**
Drill-hole angle	65	**degrees**			

Transmissivity, T	3E-05	**m^2/s**	**Q**	8.5E-04	**m^3/s**
Hydraulic Conductivity, K	2E-06	**m/s**	**Shape Factor, F**	19.9	



TEST COMMENTS:

Field staff conducted constant head test instead of falling head test. Results still valid for use in analysis.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 16-Constand Head.xlsx]CH

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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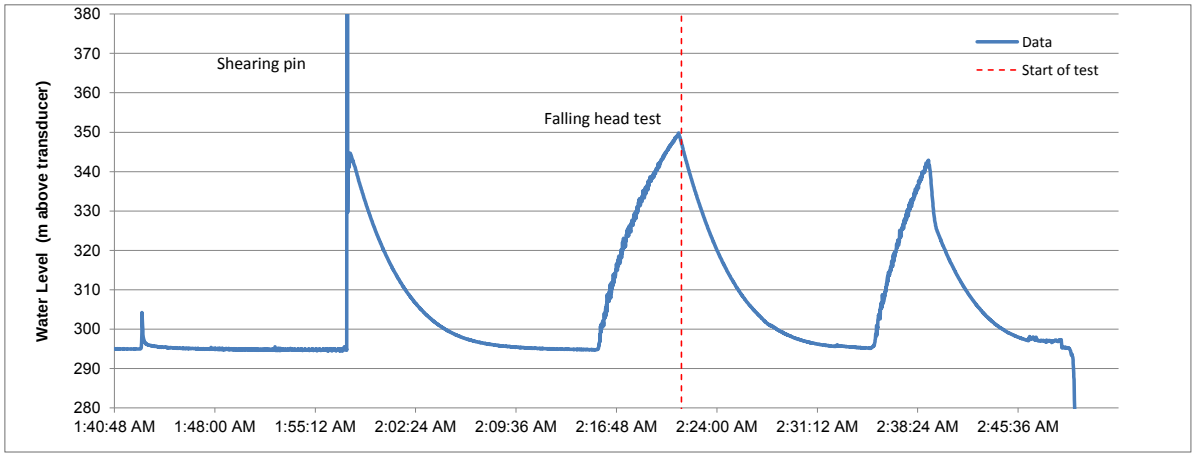
Knight Piésold CONSULTING

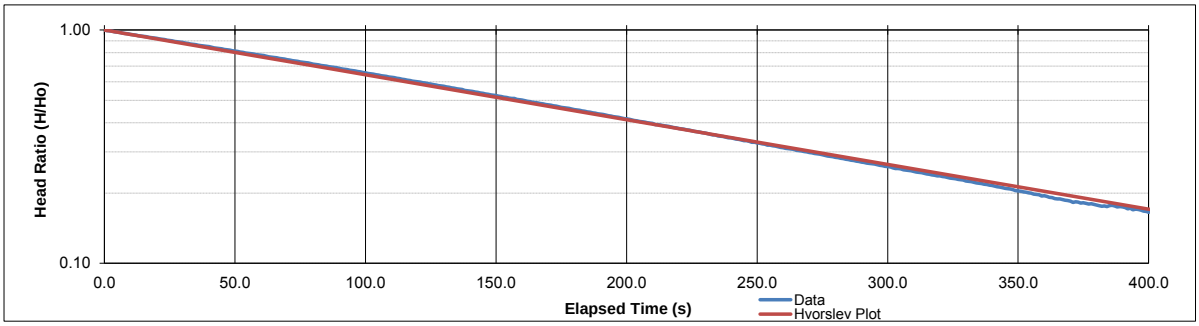
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:38

Project No.	VA101-457/6		**Drillhole**	**GM12-11**	
Field Technician	EA		**Test No.**	17	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	26-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	377.8	**m along hole**	**Slug Injected, Time = 0**	2:21:28 AM	
Bottom of test interval	400.5	**m along hole**	**Initial water level**	291	**m above transducer**
Test length, L	22.7	**m along hole**	**Water level after slug**	347	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	56	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Seal test conducted prior to shearing pin indicated leakage of 53 cm/minute. This rate is small compared to change in water level from the slug insertion.Unable to reach the top of the drill rods with water when filling at a rate of 60L/min. Multiple attempts to fill rods are shown in data plot at times 2:20 and 2:40. Filling at 2:20 analysed. Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM12-11\Hydraulic conductivity\[GM12-11 Packer 17 - Hvorslev.xlsx]GM12-11 Packer #17 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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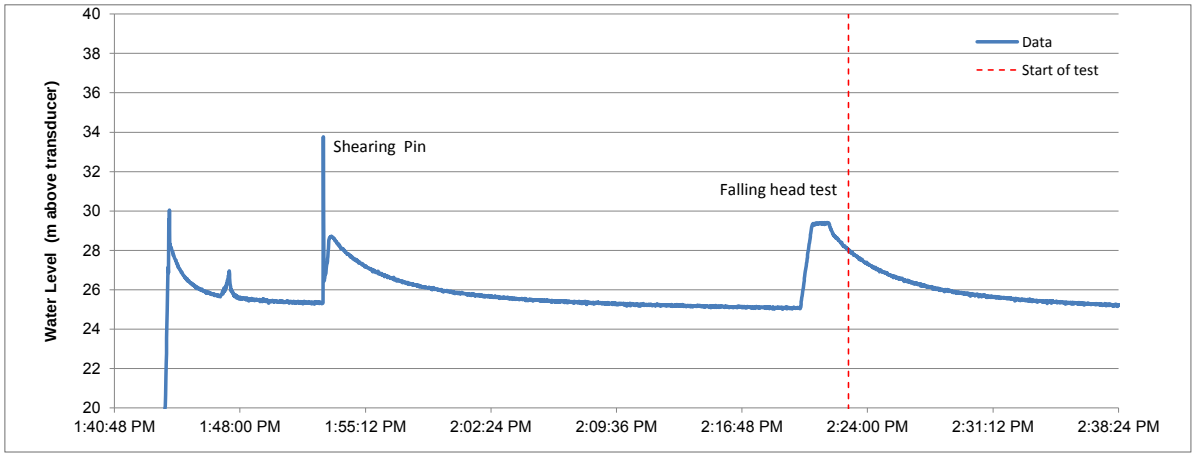
Knight Piésold CONSULTING

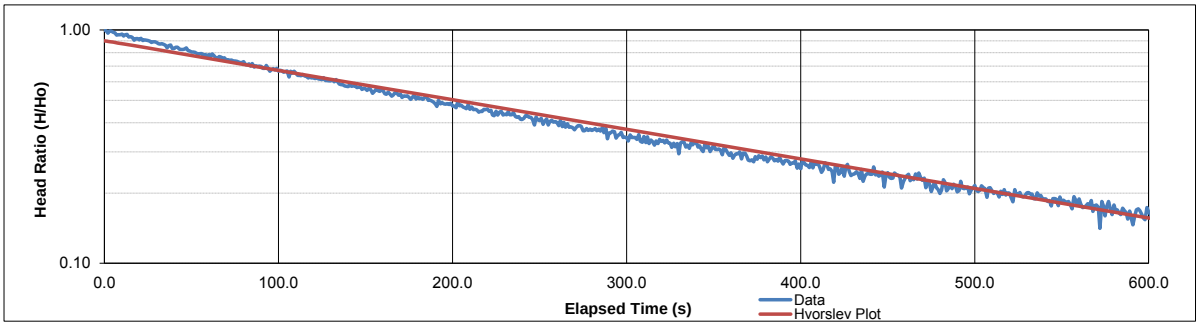
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:41

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	JBC		**Test No.**	1	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	28-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	20.8	m along hole	**Slug Injected, Time = 0**	2:22:55 PM	
Bottom of test interval	42.0	m along hole	**Initial water level**	25	m above transducer
Test length, L	21.2	m along hole	**Water level after slug**	28	m above transducer
Drill-hole angle	65	degrees	**Change in Water Level, H_o**	3	m
Transmissivity, T	1E-05	m^2/s			
Hydraulic Conductivity, K	7E-07	m/s	Intercept	0.9	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer1 - Hvorslev.xlsx]GM12-13 Packer #1 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

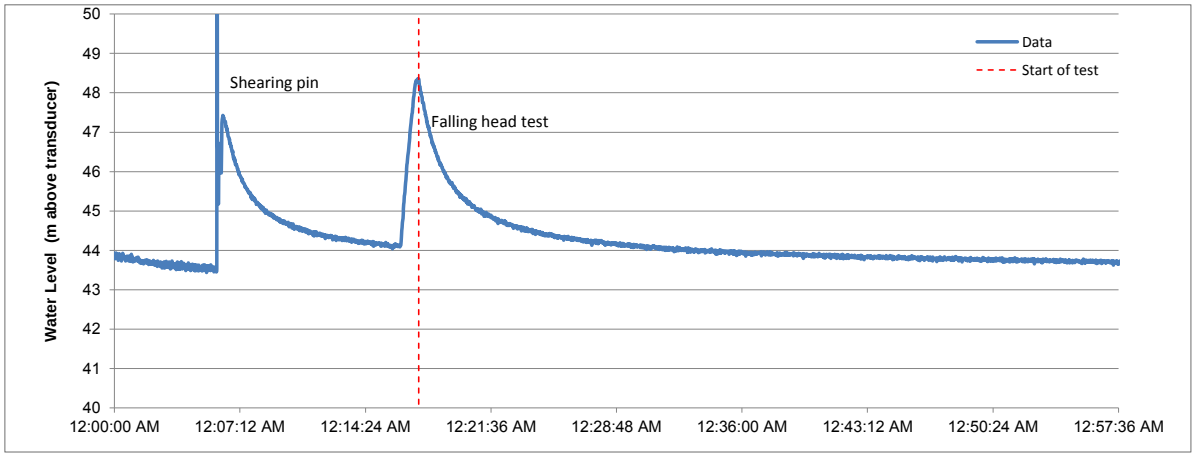
Knight Piésold CONSULTING

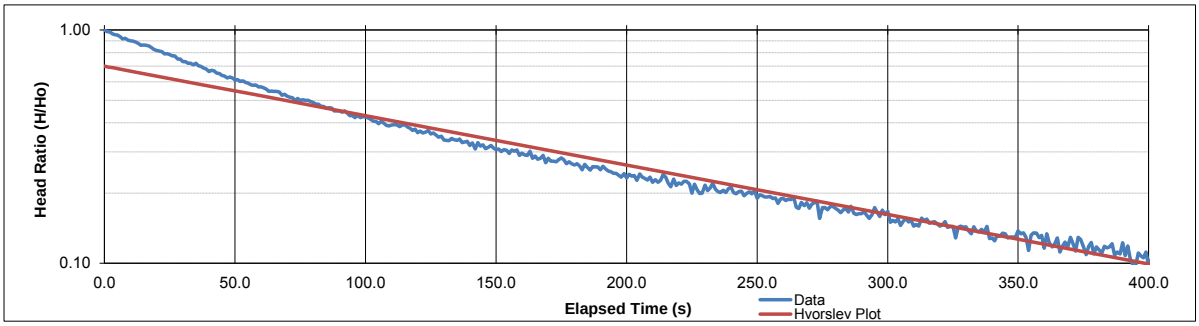
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:42

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	SRM		**Test No.**	2	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	29-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	41.8	**m along hole**	**Slug Injected, Time = 0**	12:17:27 AM	
Bottom of test interval	63.0	**m along hole**	**Initial water level**	44	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	48	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	4	**m**
Transmissivity, T	2E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	0.7	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer2 - Hvorslev.xlsx]GM12-13 Packer #2 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

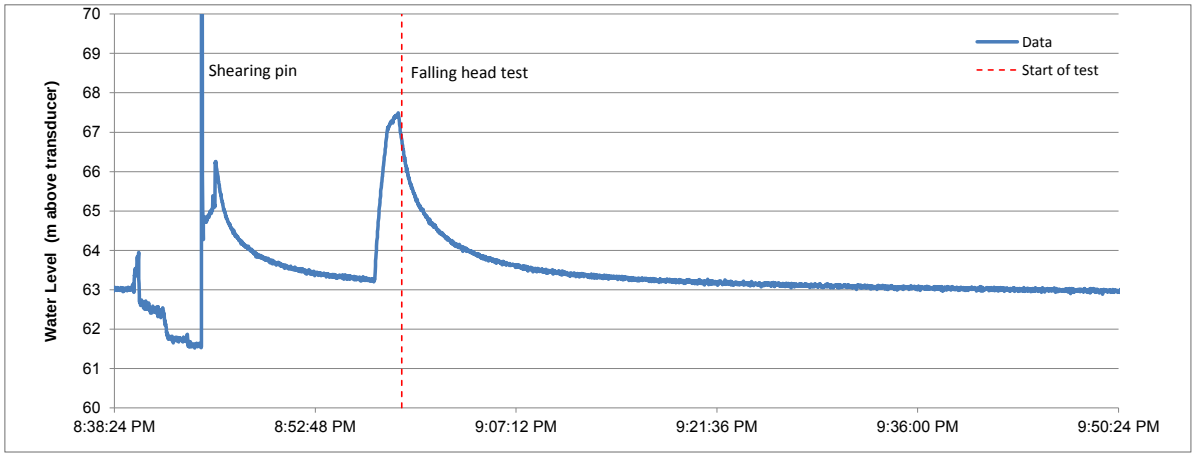
Knight Piésold CONSULTING

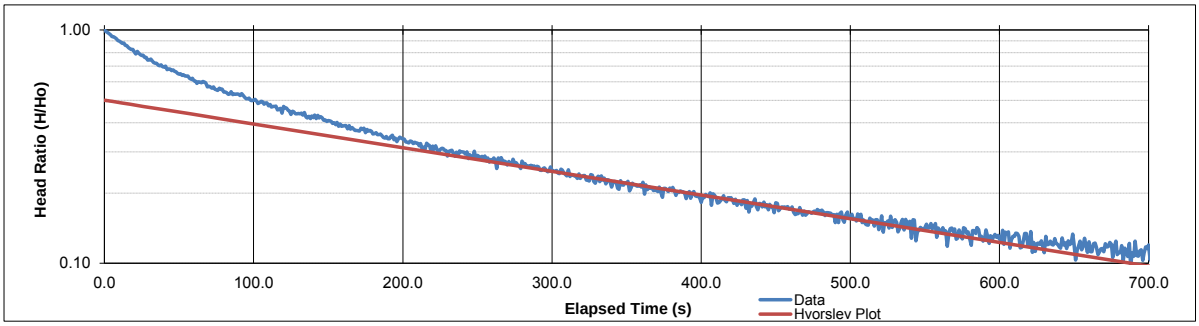
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:43

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	JBC		**Test No.**	3	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	29-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	62.8	**m along hole**	**Slug Injected, Time = 0**	8:59:00 PM	
Bottom of test interval	84.0	**m along hole**	**Initial water level**	63	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	67	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	4	**m**
Transmissivity, T	1E-05	**m^2/s**			
Hydraulic Conductivity, K	6E-07	**m/s**	Intercept	0.5	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer3 - Hvorslev.xlsx]GM12-13 Packer #3 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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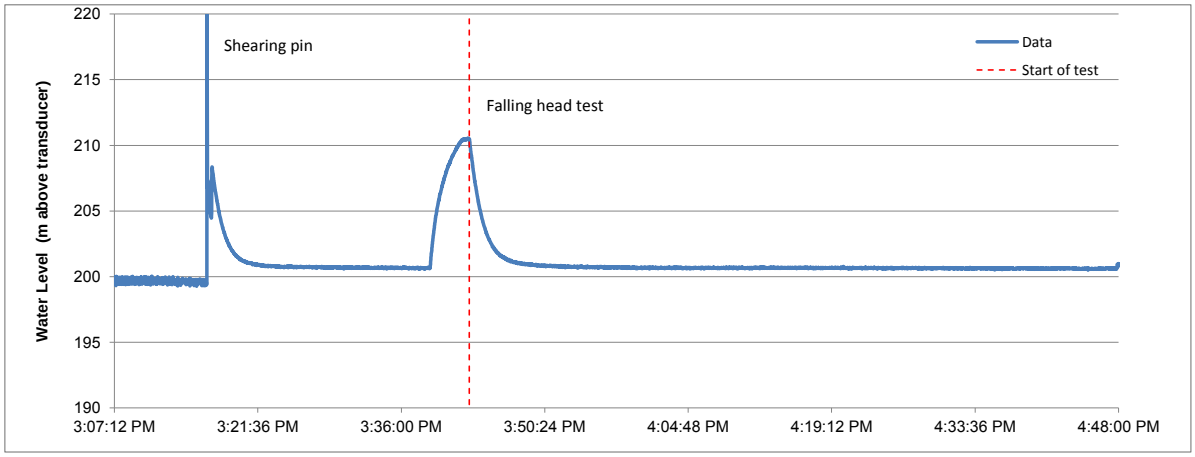
Knight Piésold CONSULTING

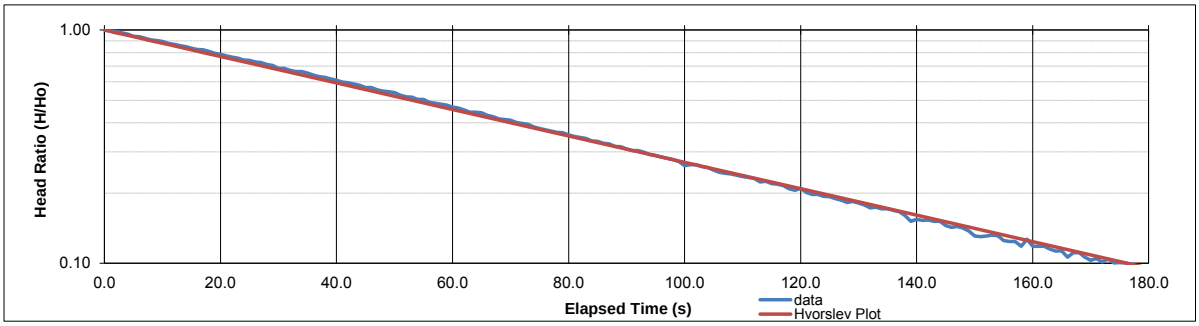
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:44

Project No.	VA101-457/6			**Drillhole**	**GM12-13**
Field Technician	MW			**Test No.**	4
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	29-Nov-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	3:42:50 PM
Top of test interval	86.8	**m along hole**		**Initial water level**	201 **m above transducer**
Bottom of test interval	111.0	**m along hole**		**Water level after slug**	210 **m above transducer**
Test length, L	24.2	**m along hole**		**Change In Water Level, H_o**	10 **m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	7E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**		Intercept	1.0





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer4 - Hvorslev.xlsx]GM12-13 Packer #4 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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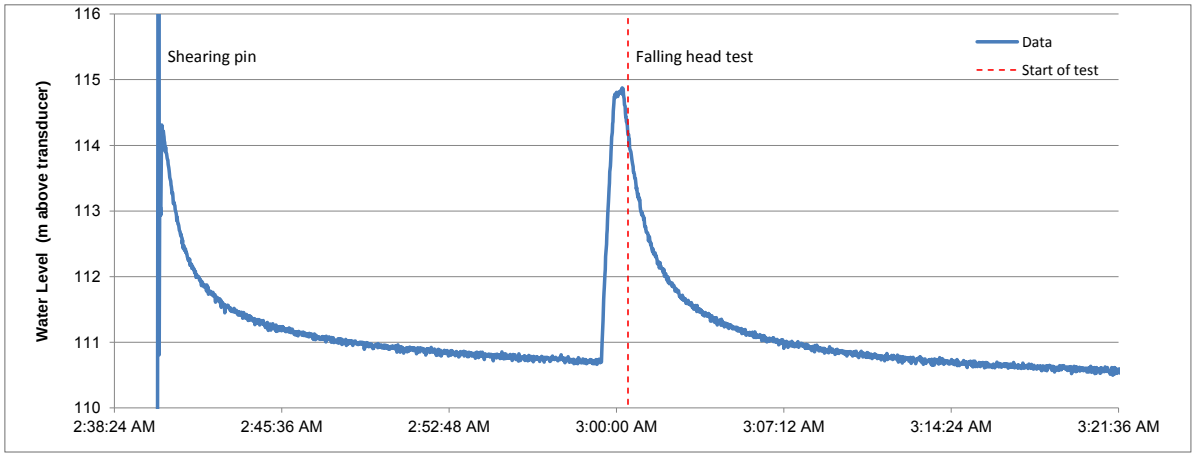
Knight Piésold CONSULTING

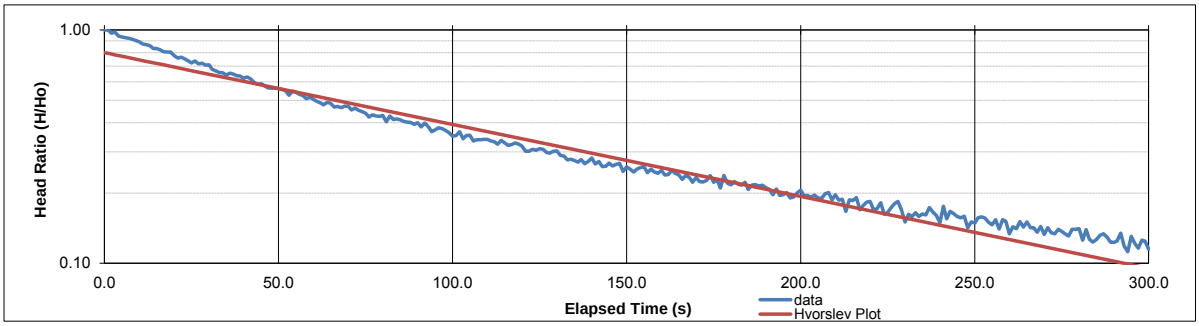
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:45

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	SRM		**Test No.**	5	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	30-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	113.8	**m along hole**	**Slug Injected, Time = 0**	3:00:30 AM	
Bottom of test interval	135.0	**m along hole**	**Initial water level**	111	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	114	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	0.8	





TEST COMMENTS:

The initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer5 - Hvorslev.xlsx]GM12-13 Packer #5 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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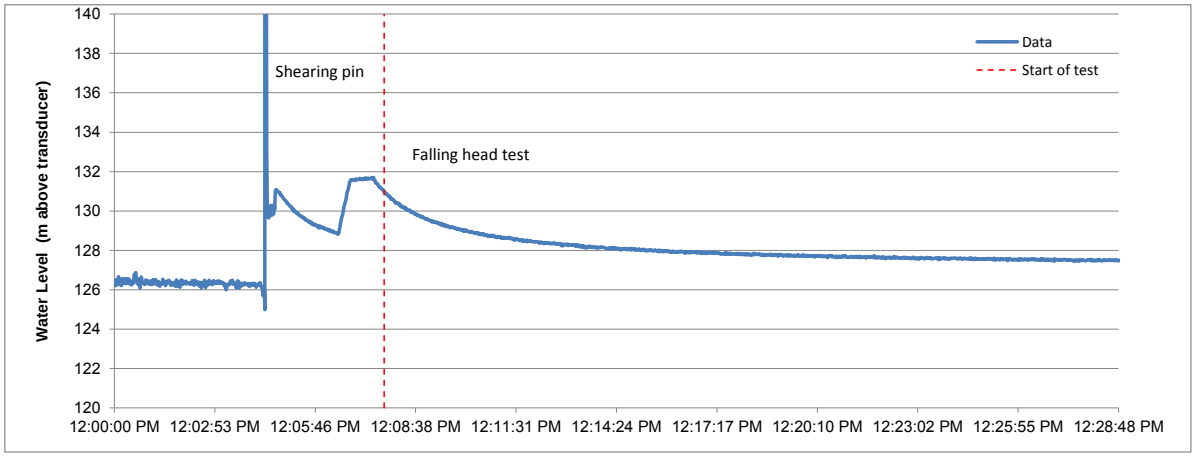
Knight Piésold CONSULTING

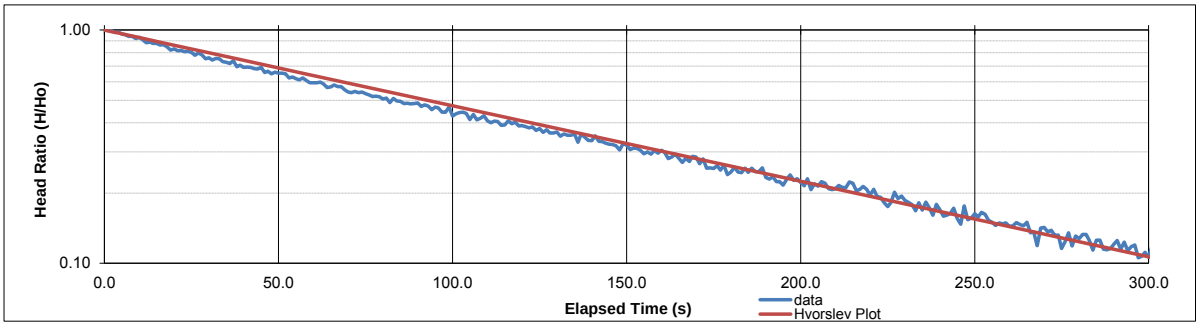
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:46

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	6	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	30-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	131.8	m along hole	**Slug Injected, Time = 0**	12:07:44 PM	
Bottom of test interval	156.0	m along hole	**Initial water level**	128	m above transducer
Test length, L	24.2	m along hole	**Water level after slug**	131	m above transducer
Drill-hole angle	65	degrees	**Change in Water Level, H_o**	3	m
Transmissivity, T	4E-05	m^2/s			
Hydraulic Conductivity, K	2E-06	m/s	Intercept	1.0	





TEST COMMENTS:

Initital water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer6 - Hvorslev.xlsx]GM12-13 Packer #6 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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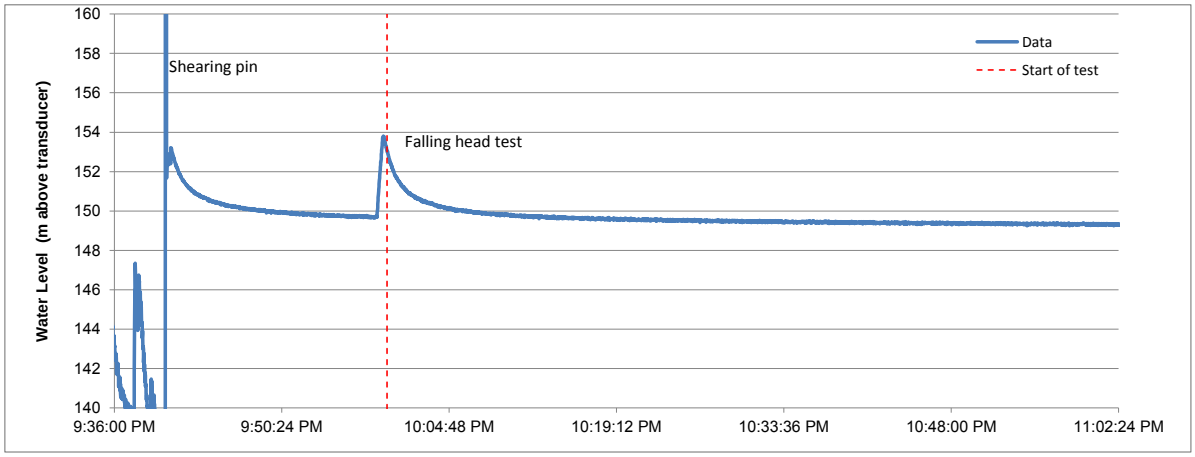
Knight Piésold CONSULTING

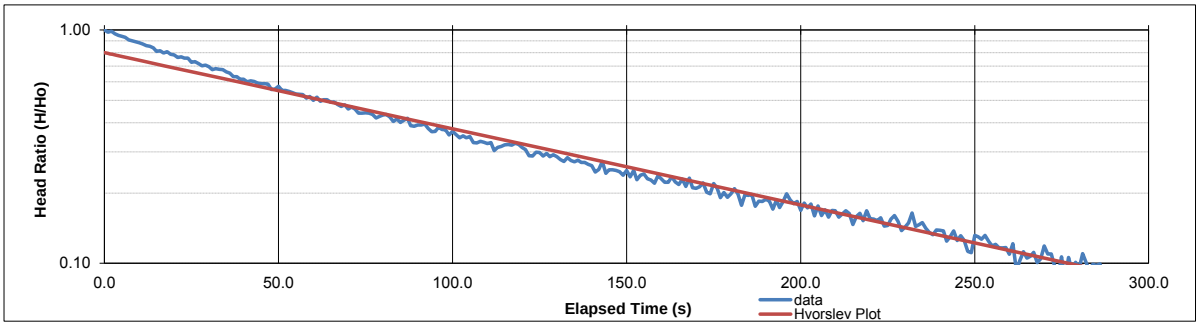
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:47

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	SRM		**Test No.**	7	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	30-Nov-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	155.8	**m along hole**	**Slug Injected, Time = 0**	9:59:28 PM	
Bottom of test interval	177.0	**m along hole**	**Initial water level**	150	**m above transducer**
Test length, L	21.2	**m along hole**	**Water level after slug**	153	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	3	**m**
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	0.8	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer7 - Hvorslev.xlsx]GM12-13 Packer #7 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

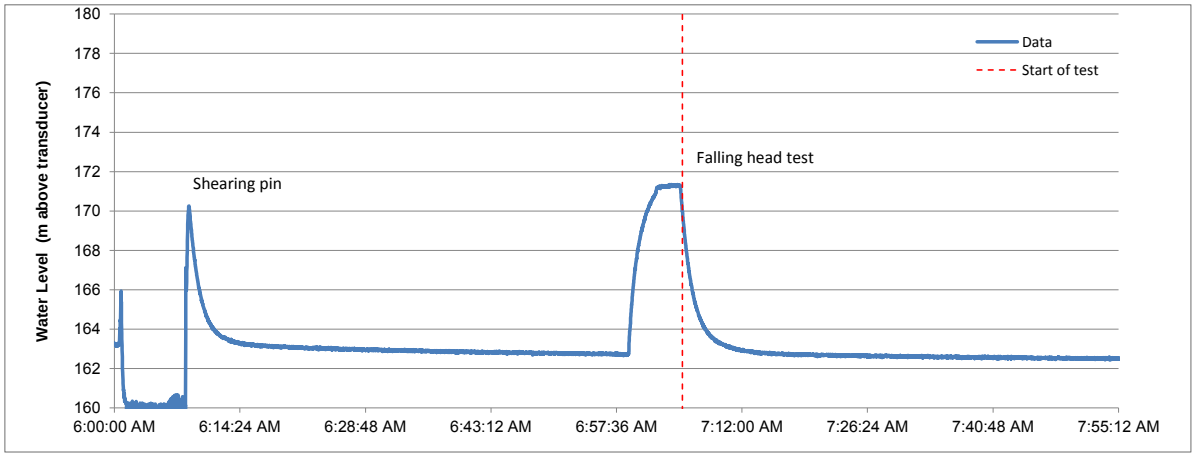
Knight Piésold CONSULTING

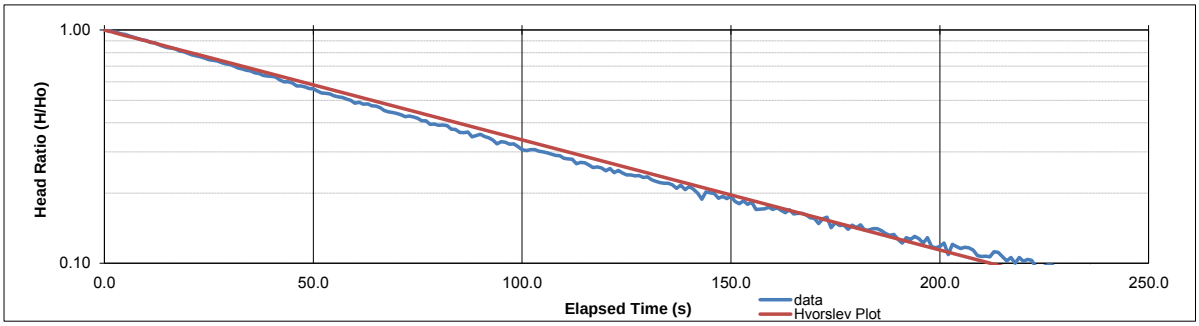
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:50

Project No.	VA101-457/6			**Drillhole**	**GM12-13**
Field Technician	SRM			**Test No.**	8
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	1-Dec-12				
Drill-hole diameter, D	HQ3	0.096	m		
Drill rod diameter, d	HQ3	0.078	m	**Slug Injected, Time = 0**	7:05:09 AM
Top of test interval	176.8	m along hole		**Initial water level**	163 m above transducer
Bottom of test interval	198.0	m along hole		**Water level after slug**	170 m above transducer
Test length, L	21.2	m along hole		**Change in Water Level, H_o**	7 m
Drill-hole angle	65	degrees			
Transmissivity, T	6E-05	m^2/s			
Hydraulic Conductivity, K	3E-06	m/s		Intercept	1.0





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer8 - Hvorslev.xlsx]GM12-13 Packer #8 Hvorslev

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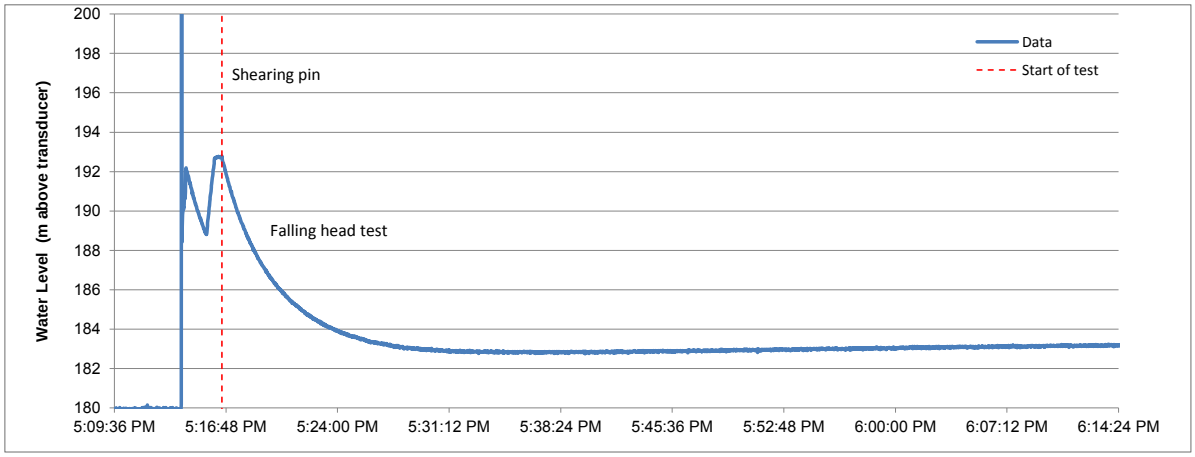
Knight Piésold CONSULTING

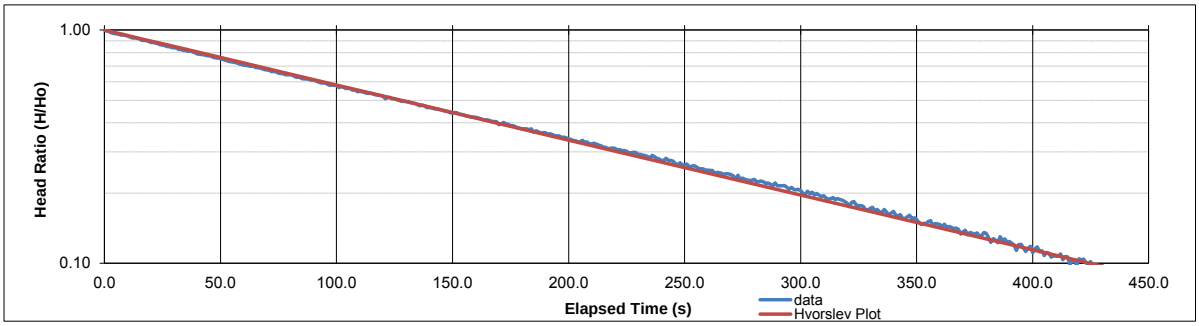
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:50

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	9	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	1-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:16:32 PM	
Top of test interval	197.8	**m along hole**	**Initial water level**	183	**m above transducer**
Bottom of test interval	219.0	**m along hole**	**Water level after slug**	193	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	10	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer9 - Hvorslev.xlsx]GM12-13 Packer #9 Hvorslev

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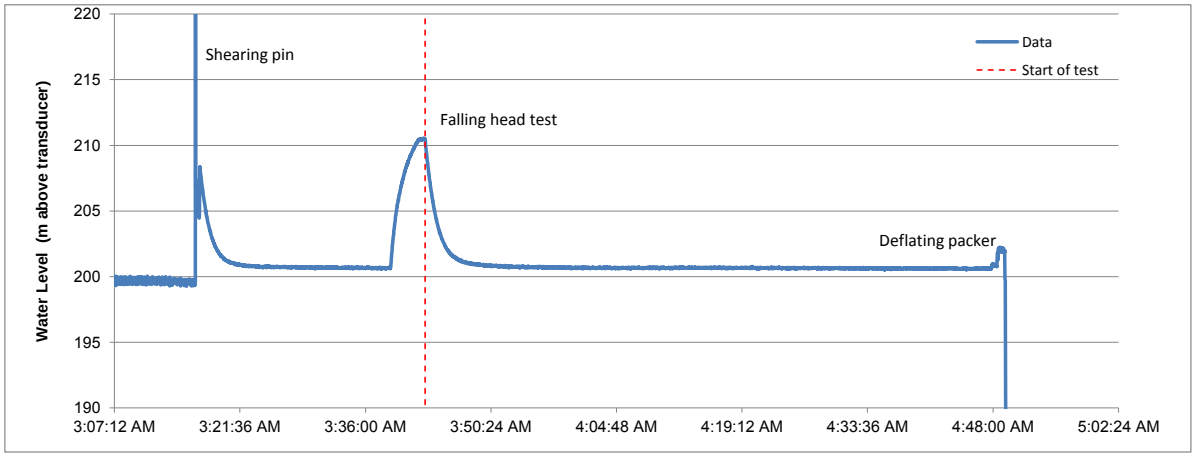
Knight Piésold CONSULTING

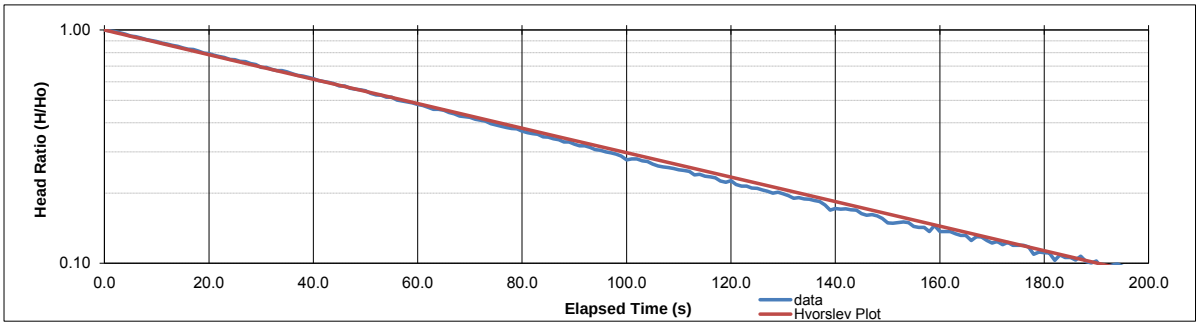
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:51

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	SRM		**Test No.**	10	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	2-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	3:42:50 AM	
Top of test interval	218.8	m along hole	**Initial water level**	201	m above transducer
Bottom of test interval	240.0	m along hole	**Water level after slug**	210	m above transducer
Test length, L	21.2	m along hole	**Change In Water Level, H_o**	10	m
Drill-hole angle	65	degrees			
Transmissivity, T	6E-05	m^2/s			
Hydraulic Conductivity, K	3E-06	m/s	Intercept	1.0	





TEST COMMENTS:

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer10 - Hvorslev.xlsx]GM12-13 Packer #10 Hvorslev

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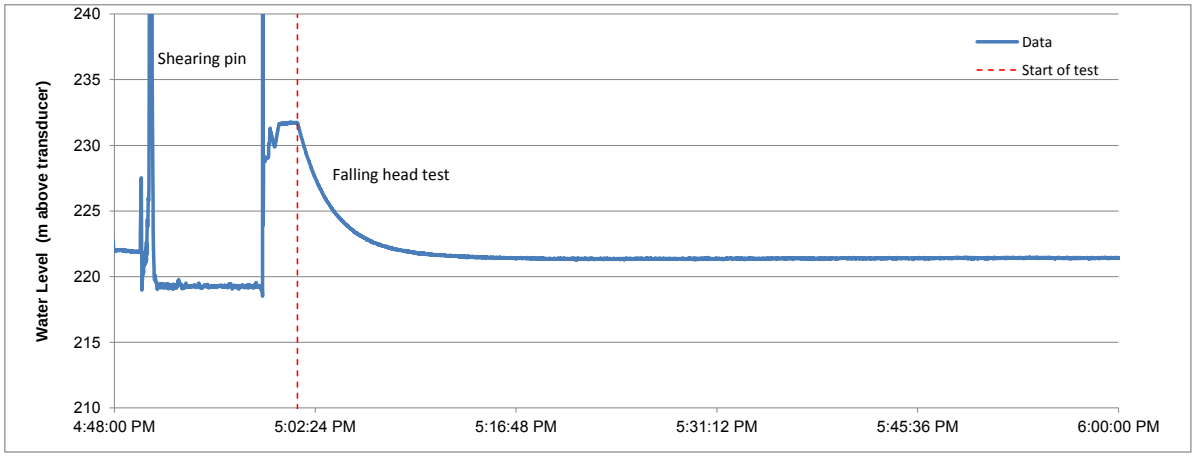
Knight Piésold CONSULTING

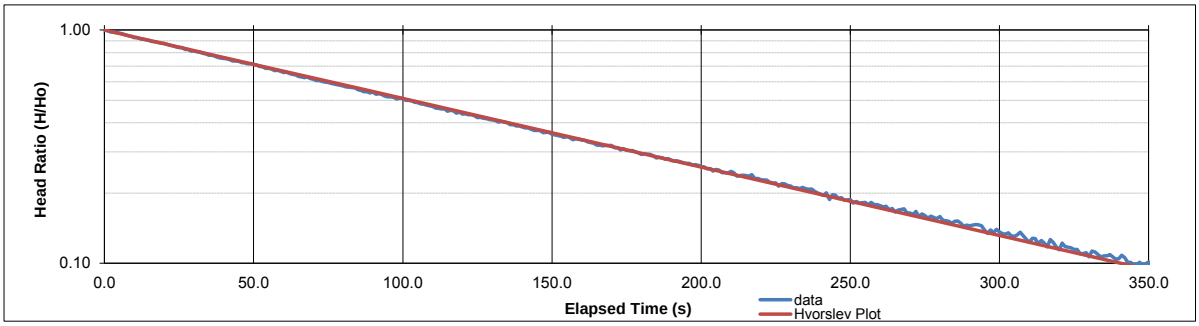
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:53

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	11	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	2-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m			
Top of test interval	239.8	**m along hole**	**Slug Injected, Time = 0**	5:01:08 PM	
Bottom of test interval	264.0	**m along hole**	**Initial water level**	221	**m above transducer**
Test length, L	24.2	**m along hole**	**Water level after slug**	232	**m above transducer**
Drill-hole angle	65	**degrees**	**Change in Water Level, H_o**	10	**m**
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	1E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer11 - Hvorslev.xlsx]GM12-13 Packer #11 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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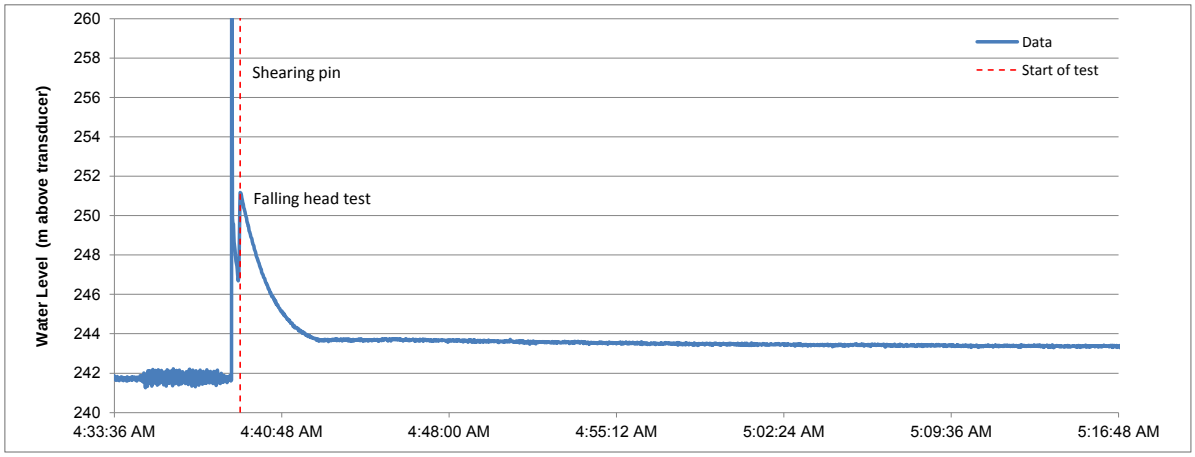
Knight Piésold CONSULTING

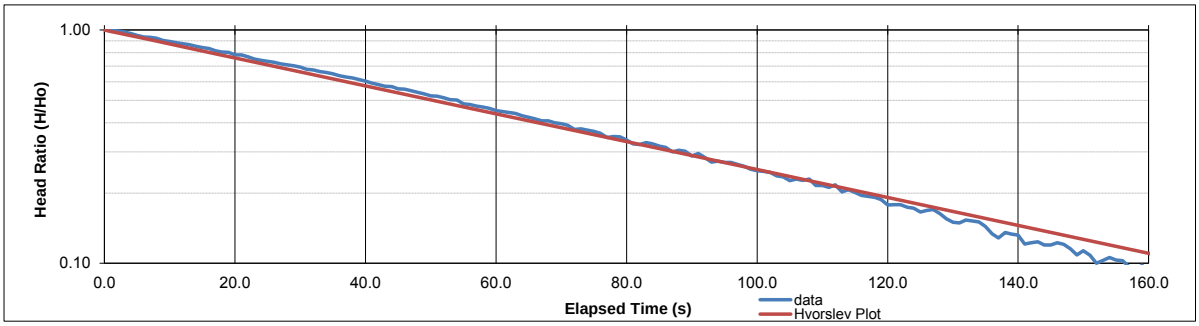
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:54

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MLS		**Test No.**	12	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	3-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	4:39:01 AM	
Top of test interval	263.8	**m along hole**	**Initial water level**	243	**m above transducer**
Bottom of test interval	285.0	**m along hole**	**Water level after slug**	251	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	8	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	7E-05	**m^2/s**			
Hydraulic Conductivity, K	3E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer12 - Hvorslev.xlsx]GM12-13 Packer #12 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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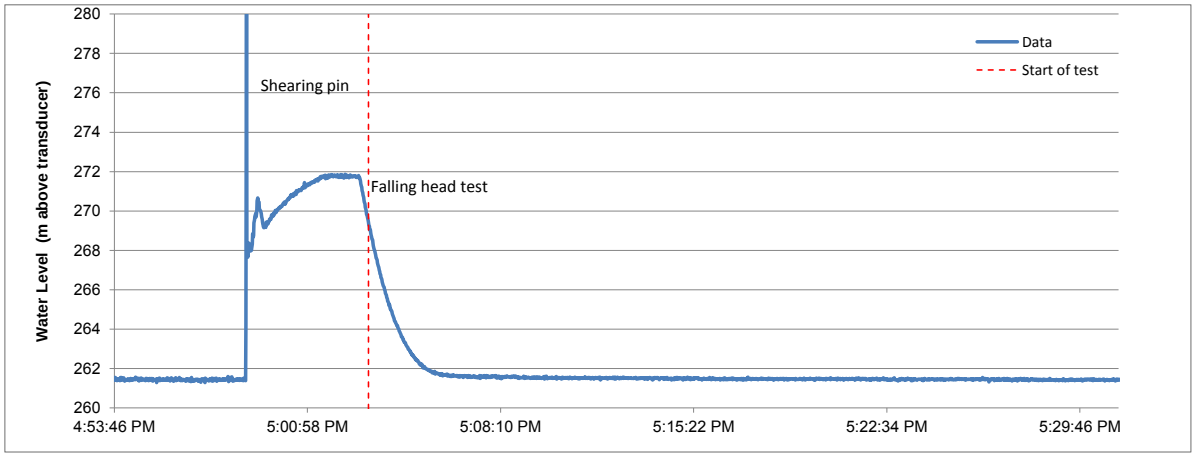
Knight Piésold CONSULTING

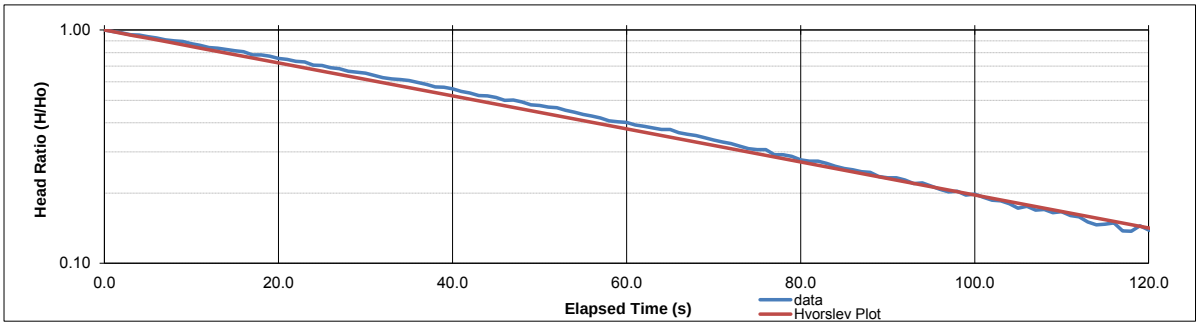
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:55

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	13	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	3-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:03:14 PM	
Top of test interval	284.8	**m along hole**	**Initial water level**	261	**m above transducer**
Bottom of test interval	306.0	**m along hole**	**Water level after slug**	269	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	8	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	8E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:
Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer13 - Hvorslev.xlsx]GM12-13 Packer #13 Hvorslev

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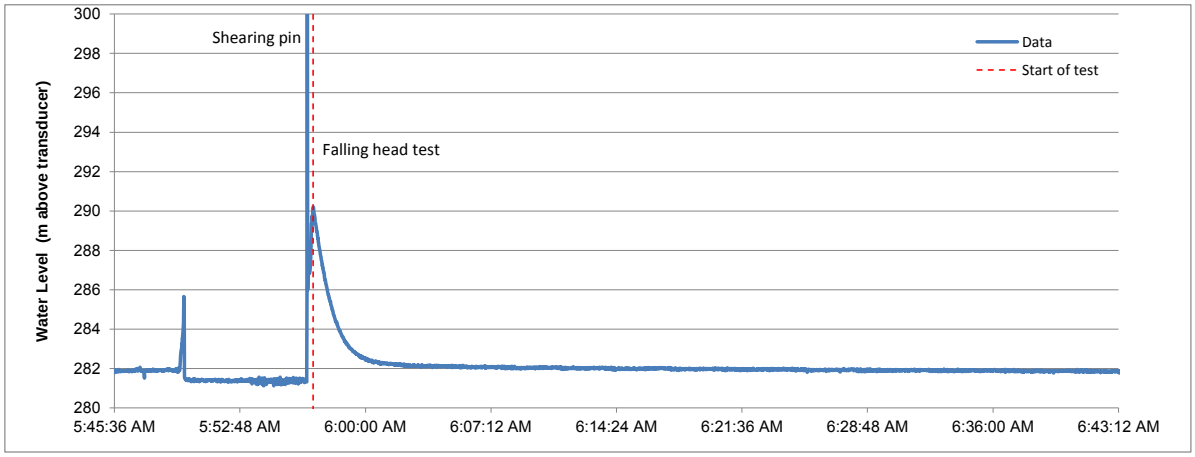
Knight Piésold CONSULTING

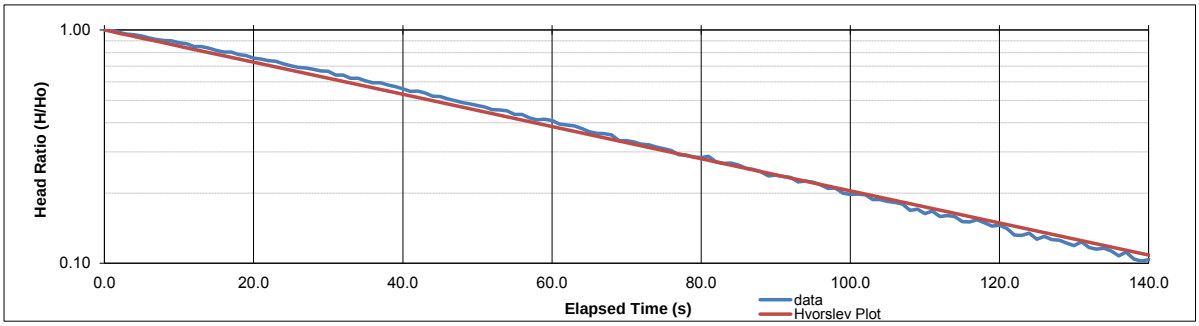
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 14:57

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Field Technician	MLS		**Test No.**	14	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	4-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:57:00 AM	
Top of test interval	305.8	**m along hole**	**Initial water level**	282	**m above transducer**
Bottom of test interval	327.0	**m along hole**	**Water level after slug**	290	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	8	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	8E-05	**m^2/s**			
Hydraulic Conductivity, K	4E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer14 - Hvorslev.xlsx]GM12-13 Packer #14 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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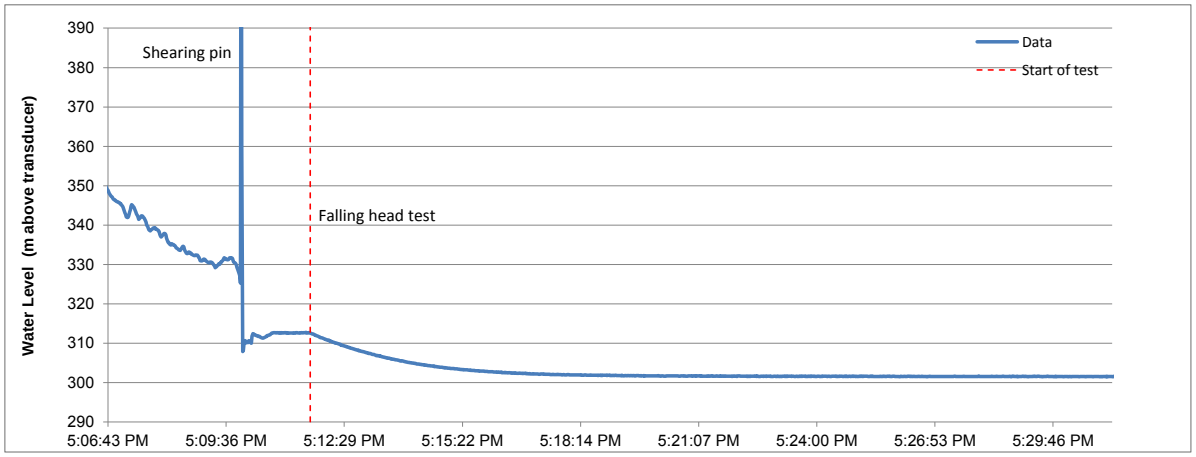
Knight Piésold CONSULTING

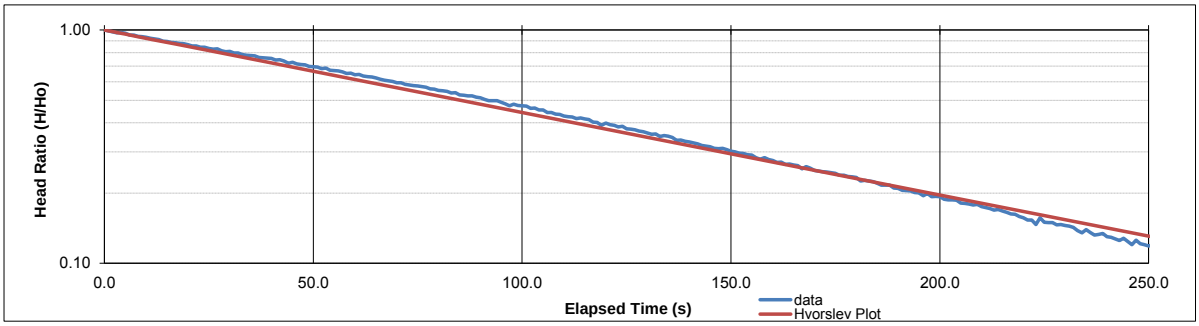
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 15:00

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	15	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	4-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	5:11:39 PM	
Top of test interval	326.8	**m along hole**	**Initial water level**	302	**m above transducer**
Bottom of test interval	348.0	**m along hole**	**Water level after slug**	313	**m above transducer**
Test length, L	21.2	**m along hole**	**Change In Water Level, H_o**	11	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

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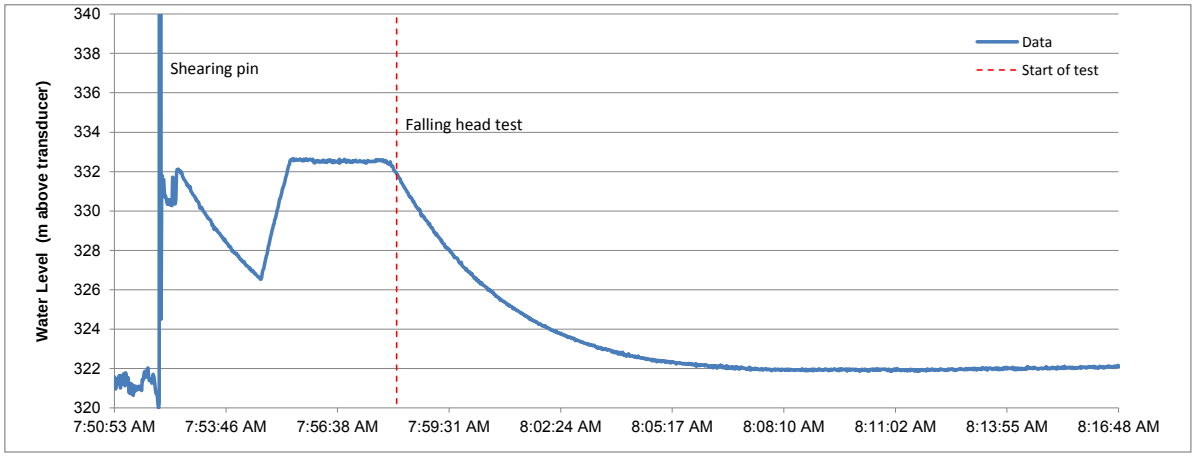
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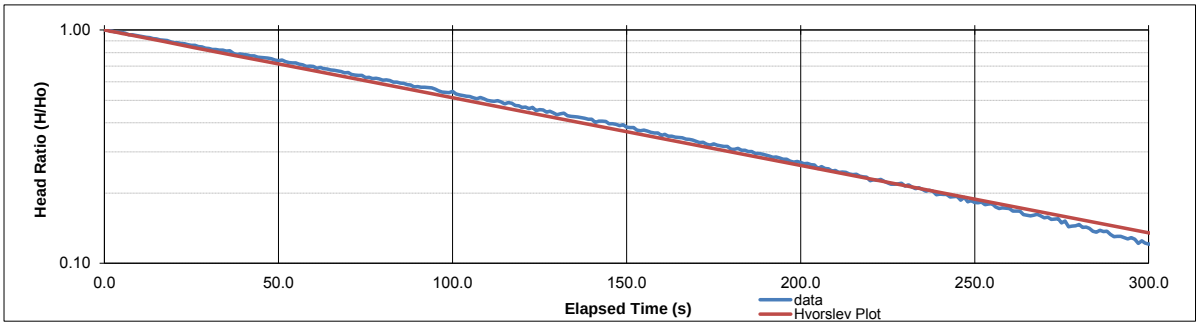
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 15:00

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	16	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume not recorded				
Test Date	5-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	7:58:10 AM	
Top of test interval	347.8	**m along hole**	**Initial water level**	322	**m above transducer**
Bottom of test interval	369.0	**m along hole**	**Water level after slug**	332	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	10	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	3E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer16 - Hvorslev.xlsx]GM12-13 Packer #16 Hvorslev

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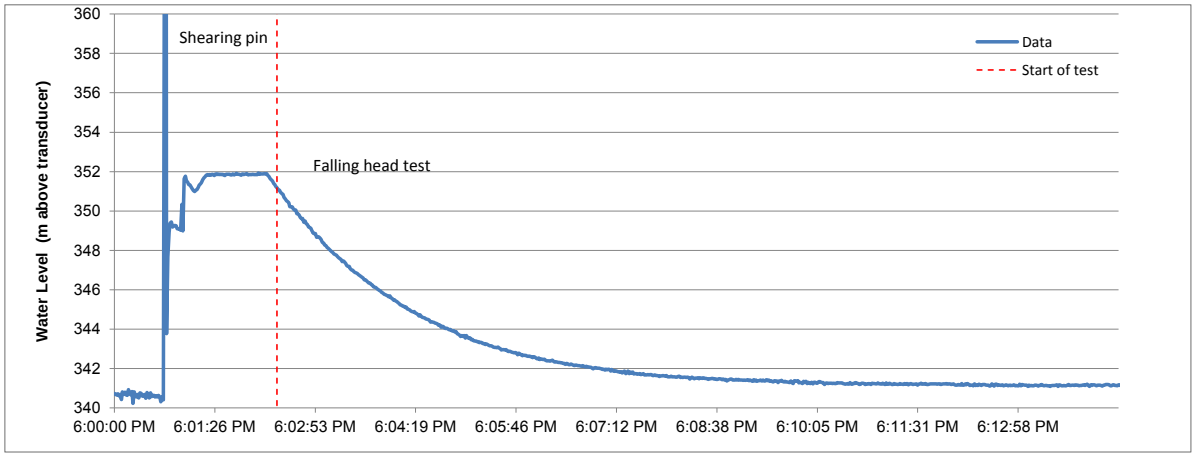
Knight Piésold CONSULTING

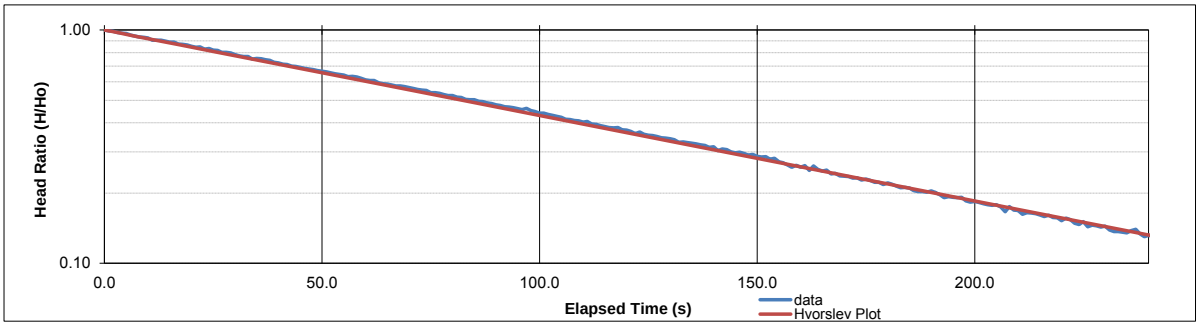
NEW GOLD INC.
BLACKWATER GOLD PROJECT

HYDRAULIC CONDUCTIVITY CALCULATION
USING HVORSLEV (1951) METHOD

Print 01/29/13 15:01

Project No.	VA101-457/6		**Drillhole**	**GM12-13**	
Field Technician	MW		**Test No.**	17	
Analyst	EA				
Monitoring Instrument Type	Transducer				
Slug Type	Water, volume recorded				
Test Date	5-Dec-12				
Drill-hole diameter, D	HQ3	0.096 m			
Drill rod diameter, d	HQ3	0.078 m	**Slug Injected, Time = 0**	6:02:20 PM	
Top of test interval	368.8	**m along hole**	**Initial water level**	341	**m above transducer**
Bottom of test interval	390.0	**m along hole**	**Water level after slug**	351	**m above transducer**
Test length, L	21.2	**m along hole**	**Change in Water Level, H_o**	10	**m**
Drill-hole angle	65	**degrees**			
Transmissivity, T	4E-05	**m^2/s**			
Hydraulic Conductivity, K	2E-06	**m/s**	Intercept	1.0	





TEST COMMENTS:

Initial water level was estimated based on water level recovery.

M:\1\01\00457\06\A\Data\Drillholes-2012 geomech and waste rock\GM13-02 (aka GM12-13)\hydraulic conductivity\HVORSLEV\[GM12-13 Packer17 - Hvorslev.xlsx]GM12-13 Packer #17 Hvorslev

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	17DEC'12	ISSUED FOR REPORT	EA	CHS	KJB

APPENDIX C

LABORATORY TEST RESULTS

Appendix C1 Overburden Properties
Appendix C2 Rock Strength Testing – UCS and PLT Results
Appendix C3 Rock Direct Shear Testing Results
Appendix C4 Fault Gouge Triaxial Testing Results
Appendix C5 Fault Gouge XRD Testing Results

APPENDIX C1

OVERBURDEN PROPERTIES

(Pages C1-1 to C1-86)

APPENDIX TABLE C1.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 PIT SLOPE DESIGN
SUMMARY OF OVERBURDEN GEOTECHNICAL PROPERTIES

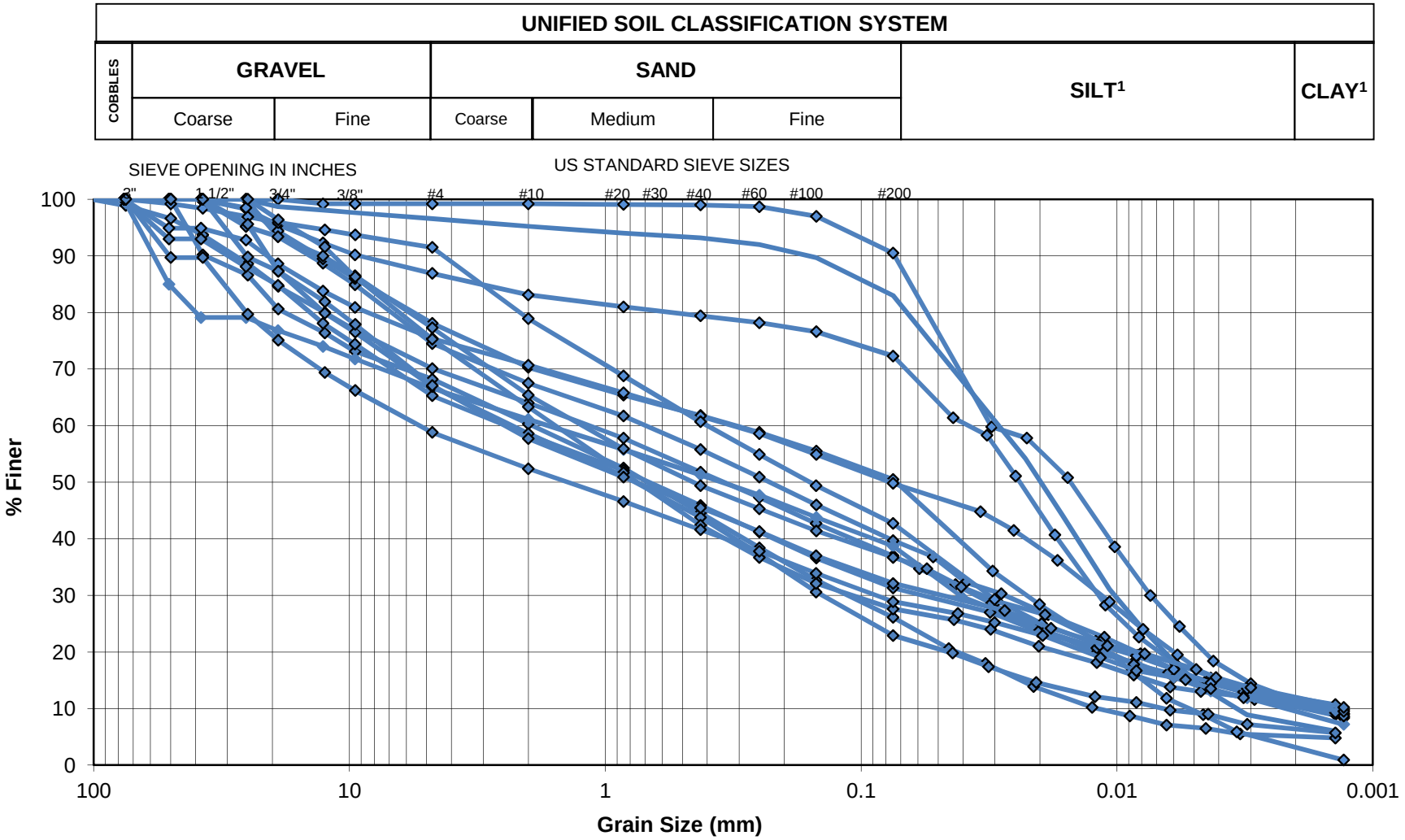
LABORATORY TESTING	GEOTECHNICAL PROPERTIES OF GLACIAL TILL				
	Properties	Unit	GT12-45	GT12-46	Average
Particle Size Analysis	Gravel	%	25	26	**25**
	Sand %	%	44	34	**38**
	Silt %	%	21	32	**27**
	Clay %	%	10	8	**9**
Atterbergs Limits	Liquid Limit		23	23	**23**
	Plastic Limit		14	13	**13.5**
	Plastic Index		9	10	**9.5**
Specific Gravity	Specific Gravity		2.69	2.77	**2.73**
Compaction Testing	Optimum Dry Density	kg/m^3	2158	2075	**2116**
	Optimum Moisture Content	%	7.0	9.8	**8.4**
Triaxial Testing	Cohesion (c)	kPa	29	0	**13**
			0	22	
	Friction Angle (Ø)	degrees	35	42	**37**
			37	34	
Flexible Wall Laboratory Test	Permeability	cm/s	9×10^{-7}	9×10^{-5}	**9×10^{-6}**
Bulk and Dry Density	Moisture Content	%	11.3	8.5	**10**
	Dry Density	kg/m^3	2087	2110	**2099**
	Bulk Density	kg/m^3	2317	2401	**2359**

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Tables\[Tables Open Pit Report Master - 10 April 2013.xlsx]Appendix C1.1_OB

NOTES:

1. BULK AND DRY DENSITY TESTING: DRILLHOLE GT12-45 AVERAGE OF 17 SAMPLES DOWNHOLE AND DRILLHOLE GT12-46 AVERAGE OF 11 SAMPLES.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19JUN'13	ISSUED FOR REPORT	JS	BB	KJB



NOTE:

1) SILT AND CLAY LIMITS FROM THE US DEPARTMENT OF AGRICULTURE DEFINITION. THE UNIFIED SOIL CLASSIFICATION SYSTEM DEFINES ALL PARTICLES WITH DIAMETERS <0.075 MM AS FINES WITH SILT AND CLAY DEFINED ONLY BY PLASTICITY.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

OPEN PIT OVERBURDEN PARTICLE SIZE DISTRIBUTION

Knight Piésold CONSULTING

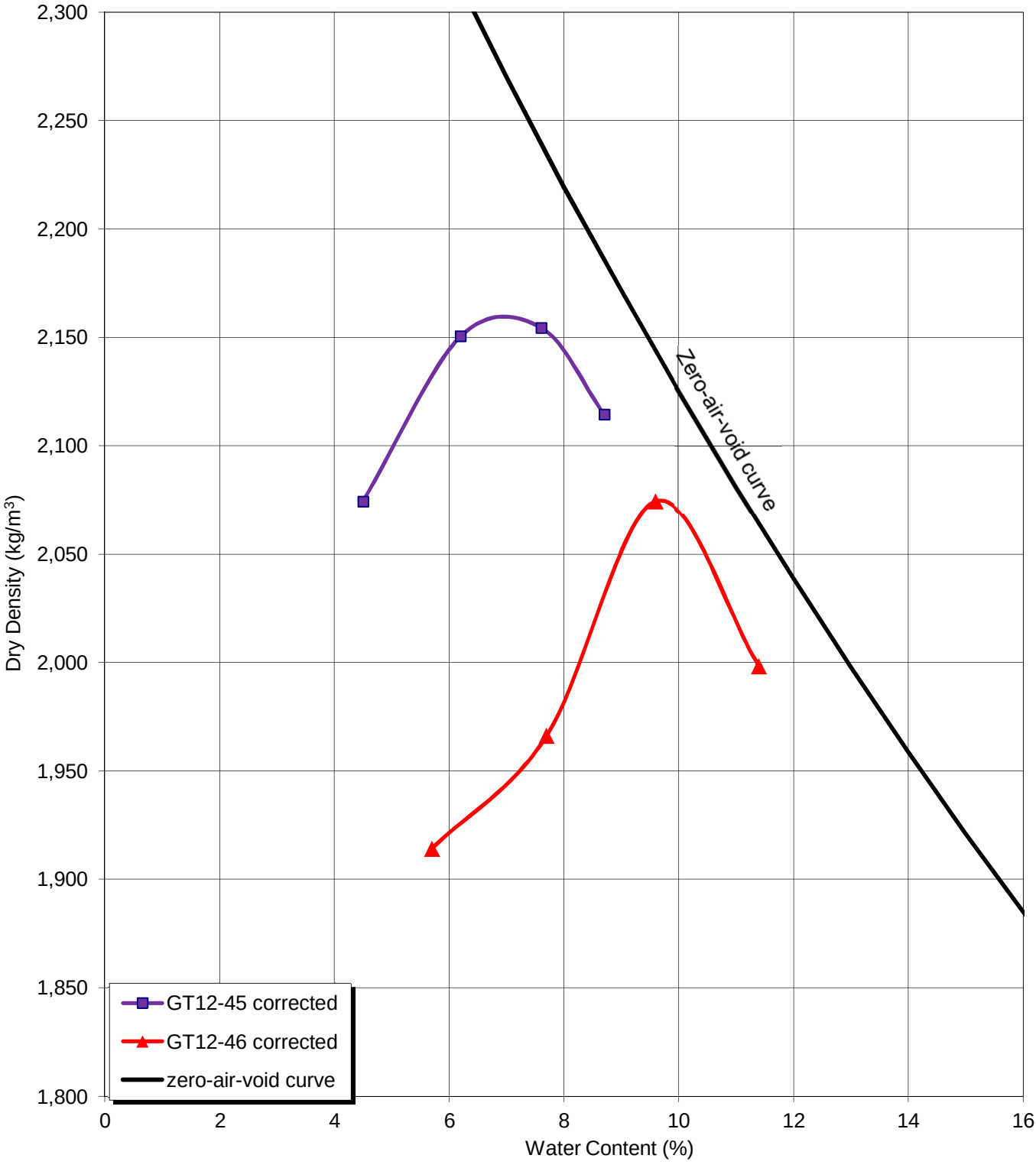
PROJECT / ASSIGNMENT NO. VA101-457/06

REF NO. 2

APPENDIX C1.2

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22 MAY'13	ISSUED FOR REPORT	ML	JS	BB



NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRY DENSITY-WATER CONTENT CURVES

Knight Piésold CONSULTING

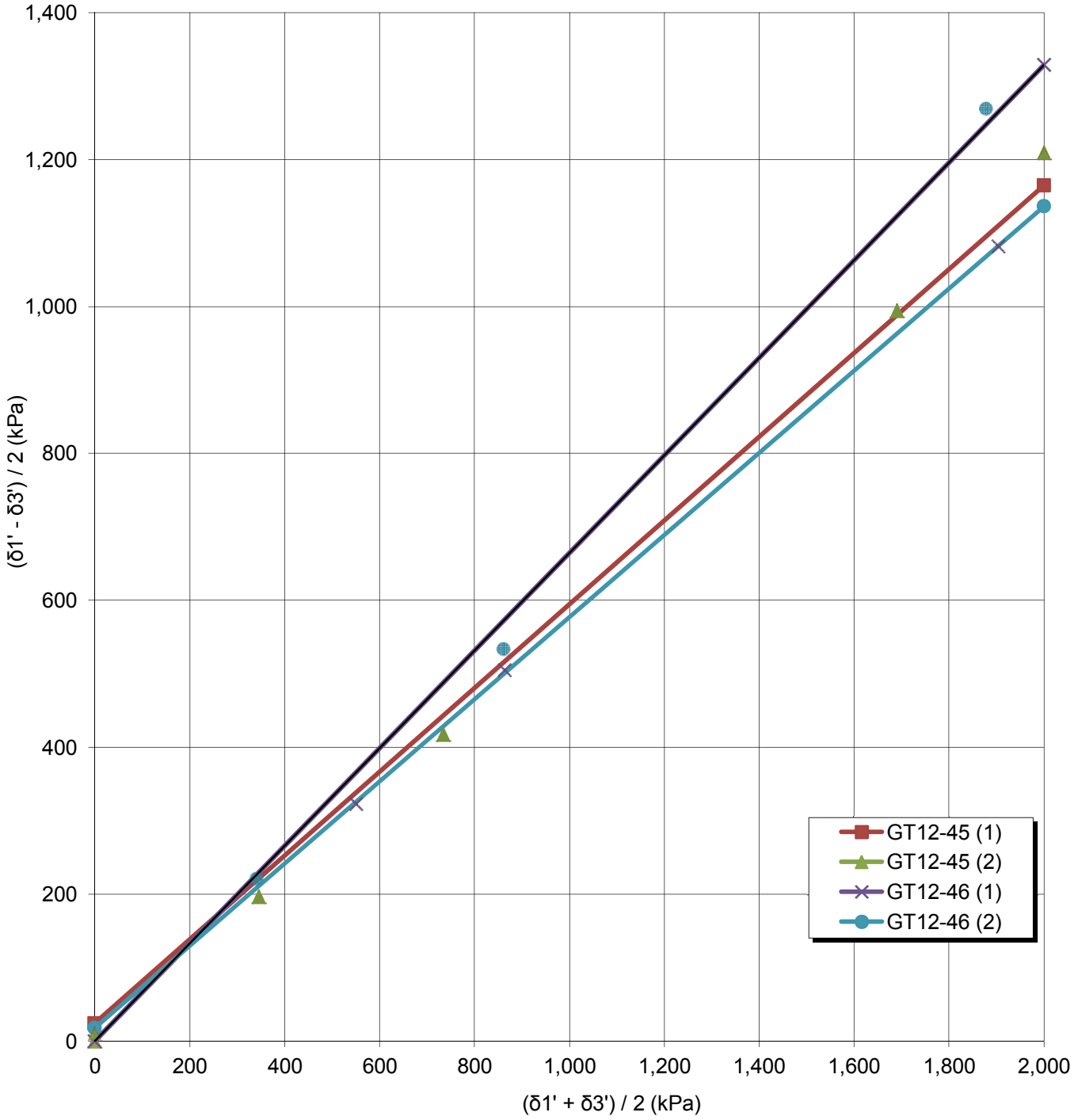
P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C1.3

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22 MAY'13	ISSUED WITH REPORT	ML	JS	KJB



NOTES:

1. SOIL TRIAXIAL TESTING RESULTS WERE PROVIDED BY KNIGHT PIESOLD GEOTECHNICAL LAB.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

GLACIAL TILL TRIAXIAL TEST RESULTS

Knight Piésold CONSULTING

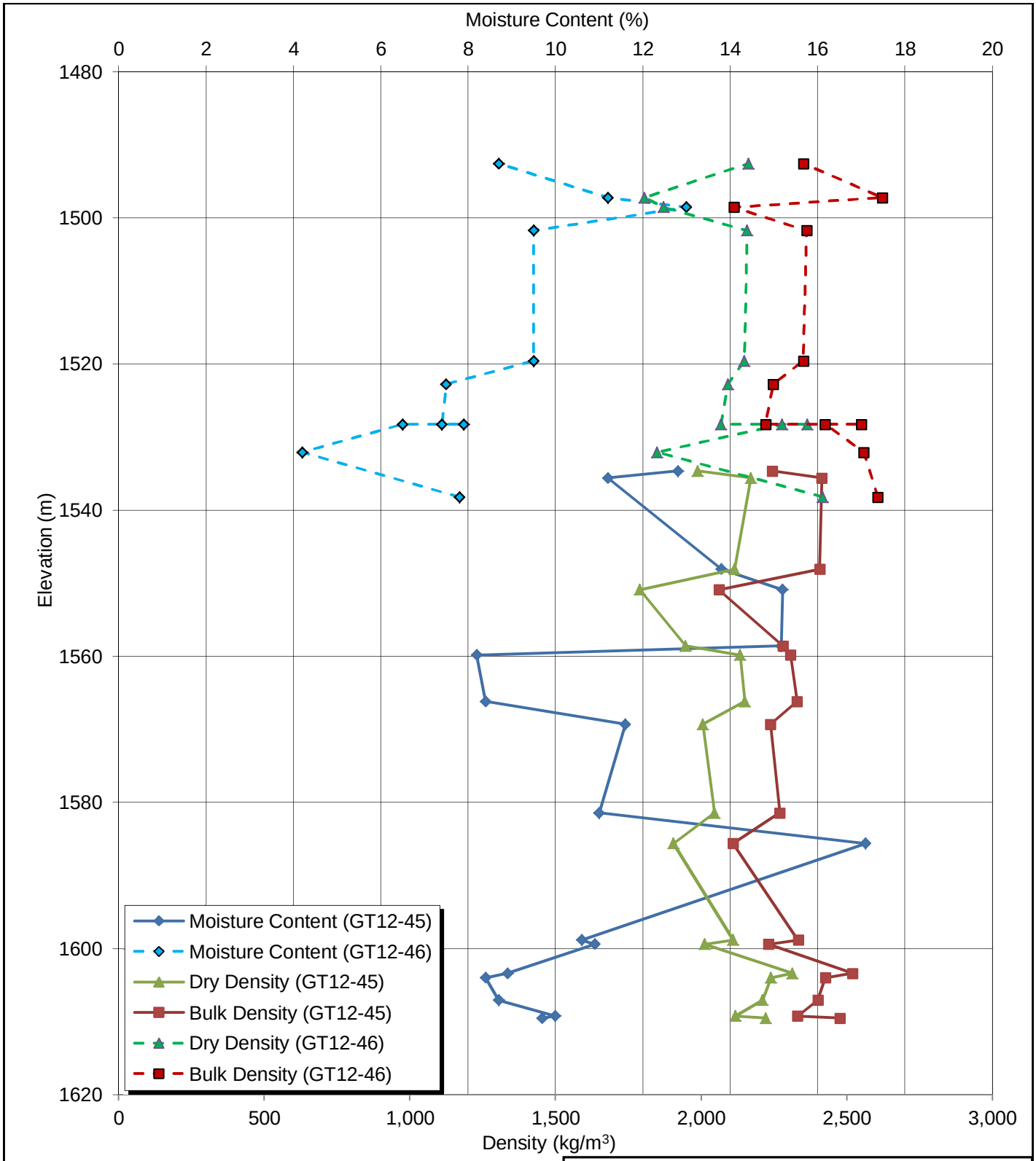
P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C1.4

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22 MAY'13	ISSUED WITH REPORT	ML	JS	KJB



NEW GOLD INC.

BLACKWATER GOLD PROJECT

DRY AND BULK DENSITY - MOISTURE CONTENT

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

APPENDIX C1.5 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22 MAY'13	ISSUED WITH REPORT	JS	BB	KJB

MDH
ENGINEERED SOLUTIONS
Member of the SNC-LAVALIN Group

SPECIFIC GRAVITY TEST (FINE MATERIAL)

Client:	Knight Piesold
Project:	Blackwater
MDH#	611748
Tech:	JA
Date:	20-Dec-12

Sample: GT 12 - 45

PYCNOMETER DATA:

Pycnometer #:	C9A
Mass of pycnometer empty & dry (g):	172.51
Mass of pycnometer with water (g):	671.08
Temperature (^{o}C):	20.2

PRE-TEST SAMPLE INFORMATION:

Water Content (wet sample):

Tare #:	Rainbow	Wet weight (g):	50.18
Tare Mass (g):	30.80	Calc. Dry Weight (g):	49.73
Wet sample + tare (g):	61.12		
Dry sample + tare (g):	60.85		
Dry sample (g):	30.05		
Water Content (%):	0.90		

POST-TEST INFORMATION:

Mass of pycnometer, water, & sample (g):	702.22
Temperature (^{o}C):	21
Mass of dry sample (g):	49.73

Specific gravity: 2.69

Comments:

MDH
ENGINEERED SOLUTIONS
Member of the SNC-LAVALIN Group

SPECIFIC GRAVITY TEST (FINE MATERIAL)

Client:	Knight Piesold
Project:	Blackwater
MDH#	611748
Tech:	JA
Date:	20-Dec-12

Sample: GT 12 - 46

PYCNOMETER DATA:

Pycnometer #:	1
Mass of pycnometer empty & dry (g):	166.70
Mass of pycnometer with water (g):	664.89
Temperature (^{o}C):	20.2

PRE-TEST SAMPLE INFORMATION:

Water Content (wet sample):

Tare #:	L	Wet weight (g):	50.87
Tare Mass (g):	31.12	Calc. Dry Weight (g):	50.30
Wet sample + tare (g):	111.06		
Dry sample + tare (g):	110.16		
Dry sample (g):	79.04		
Water Content (%):	1.14		

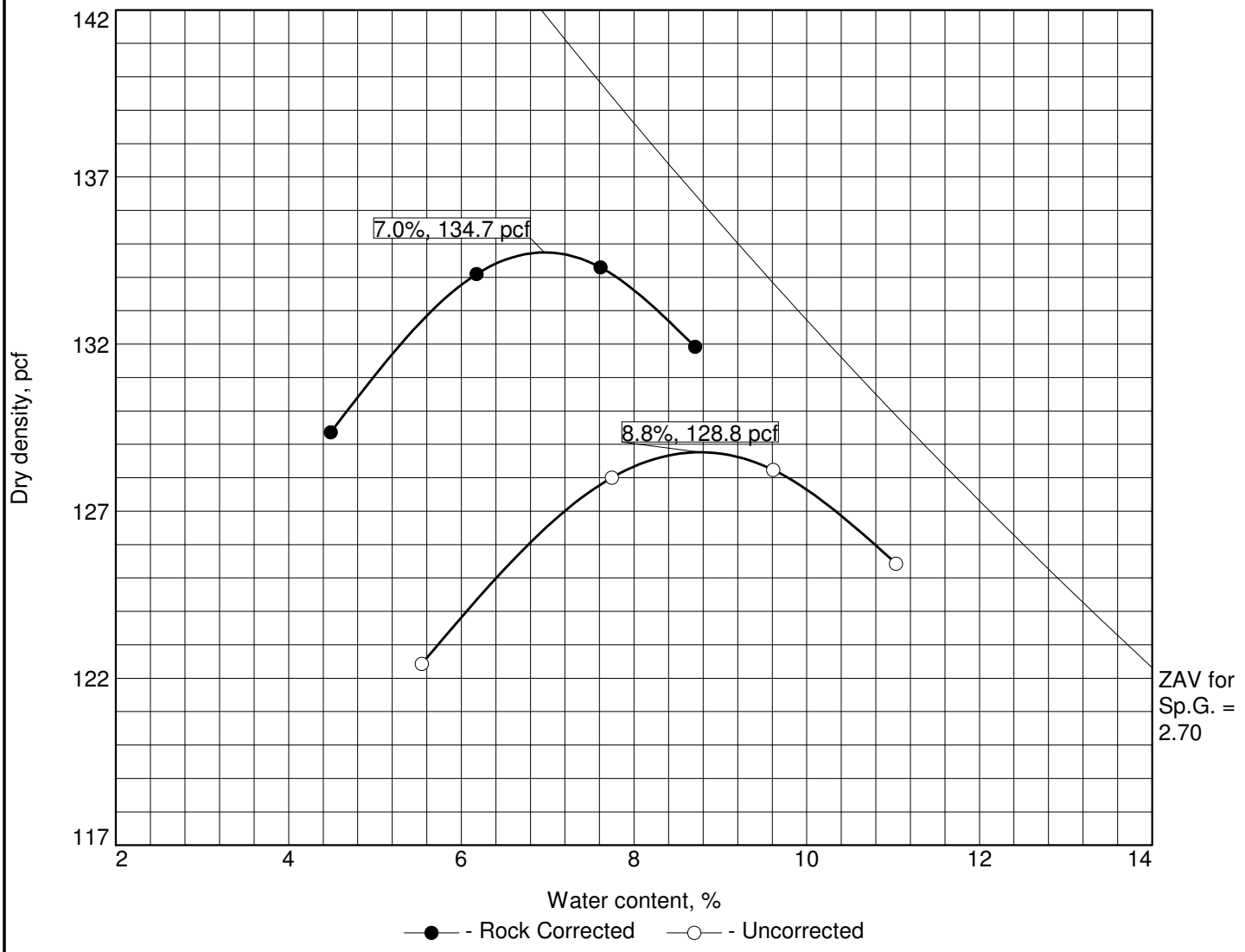
POST-TEST INFORMATION:

Mass of pycnometer, water, & sample (g):	696.93
Temperature (^{o}C):	21
Mass of dry sample (g):	50.30

Specific gravity: 2.77

Comments:

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method B Standard
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
10.67-25.91m	SC	A-4(0)		2.7	23	9	23.2	37.0

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 134.7 pcf	128.8 pcf	clayey SAND with gravel
Optimum moisture = 7.0 %	8.8 %	

Project No. VA101-457/ **Client:** New Gold Inc.
Project: Blackwater Gold Project

○ **Location:** GT12-45 **Sample Number:** 1, 2, 3

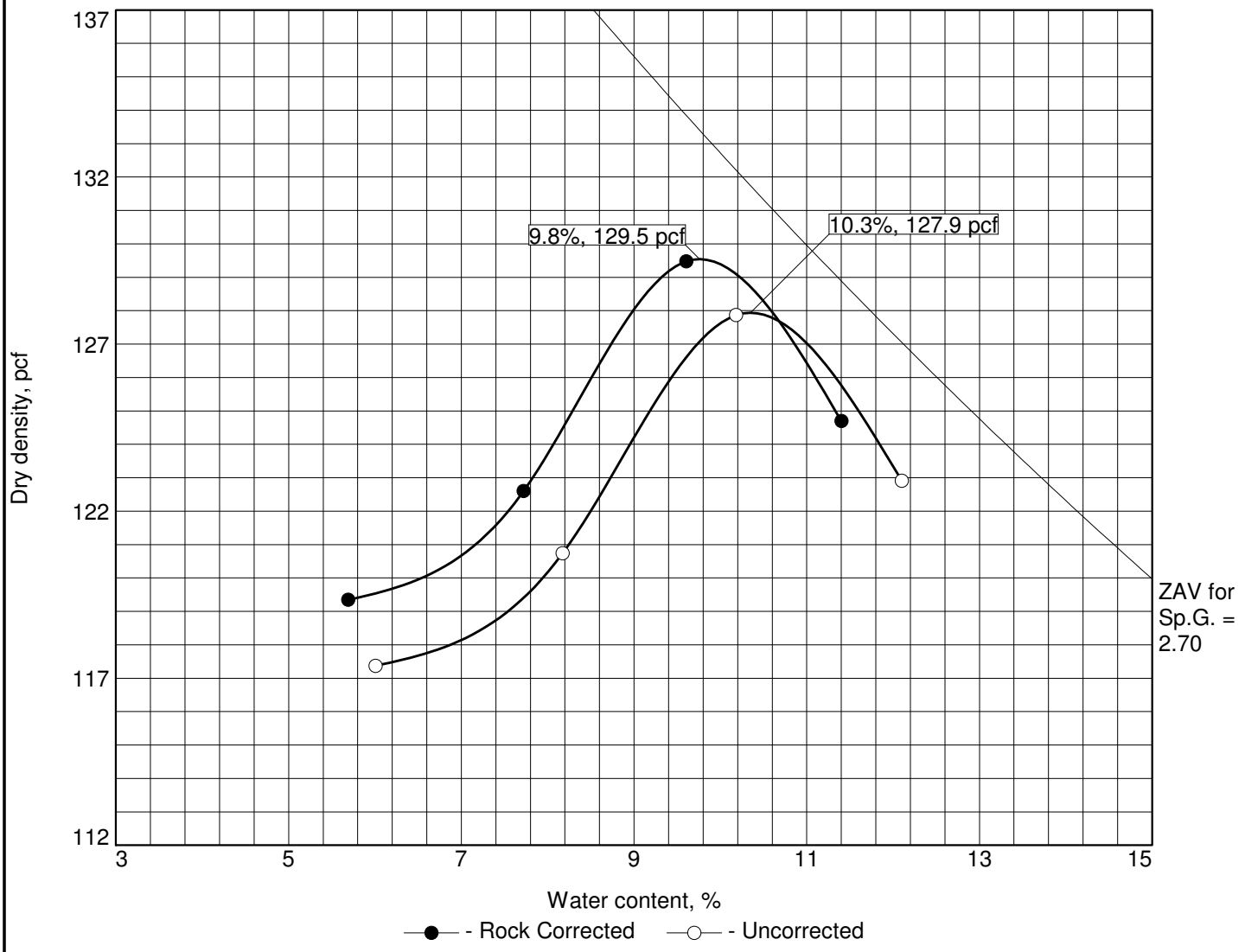
Remarks:

Knight Piésold CONSULTING

Figure

Tested By: MF

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method B Standard
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
10.67-35.05	SC	A-4(1)		2.7	23	10	6.3	42.7

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 129.5 pcf	127.9 pcf	clayey SAND
Optimum moisture = 9.8 %	10.3 %	

Project No. VA101-457/ **Client:** New Gold Inc.
Project: Blackwater Gold Project

○ **Location:** GT12-46 **Sample Number:** 1, 2, 3

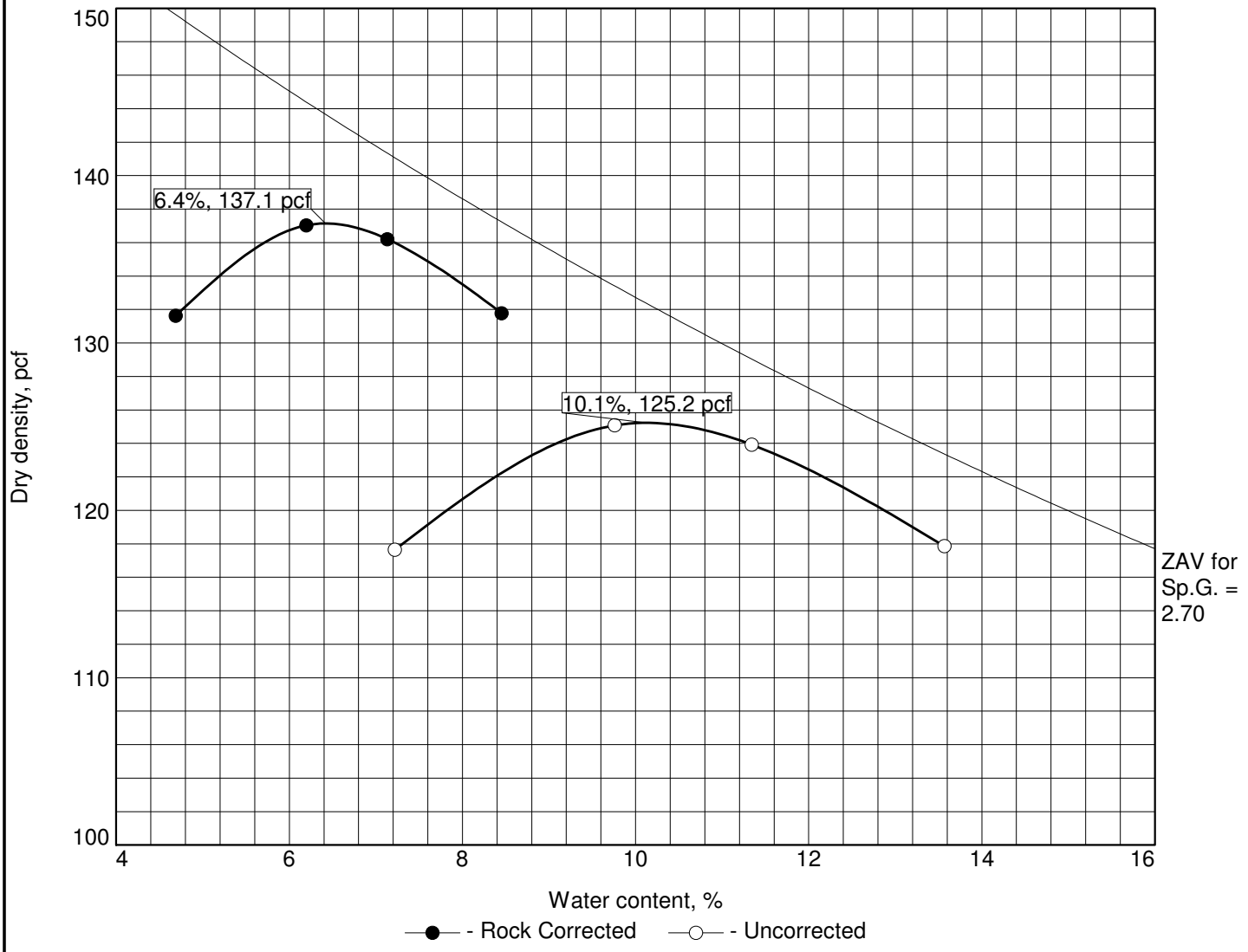
Remarks:

Knight Piésold CONSULTING

Figure

Tested By: MF

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method A Standard
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
4.0-4.2m	GC	A-2-4(0)		2.7	23	8	40.7	24.5

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 137.1 pcf	125.2 pcf	clayey GRAVEL with sand
Optimum moisture = 6.4 %	10.1 %	

Project No. VA101-457/ **Client:** New Gold Inc.
Project: Blackwater Gold Project

○ **Location:** TP12-123

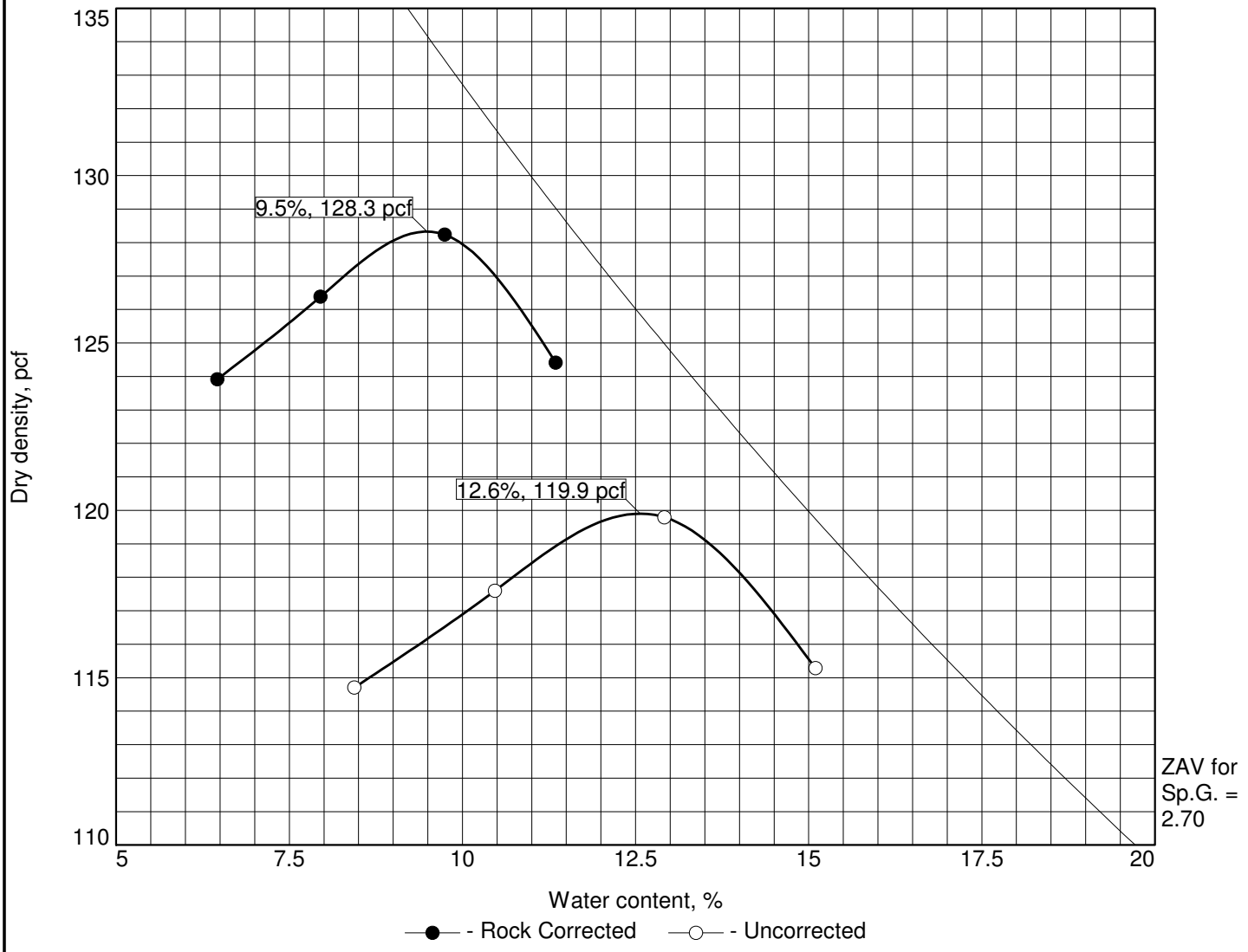
Remarks:

Knight Piésold CONSULTING

Figure

Tested By: RV

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method A Standard
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
4.0-4.2m	GC	A-6(4)		2.7	28	15	26.6	48.9

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 128.3 pcf	119.9 pcf	clayey GRAVEL with sand
Optimum moisture = 9.5 %	12.6 %	

Project No. VA101-457/ **Client:** New Gold Inc.
Project: Blackwater Gold Project

○ **Location:** TP12-142

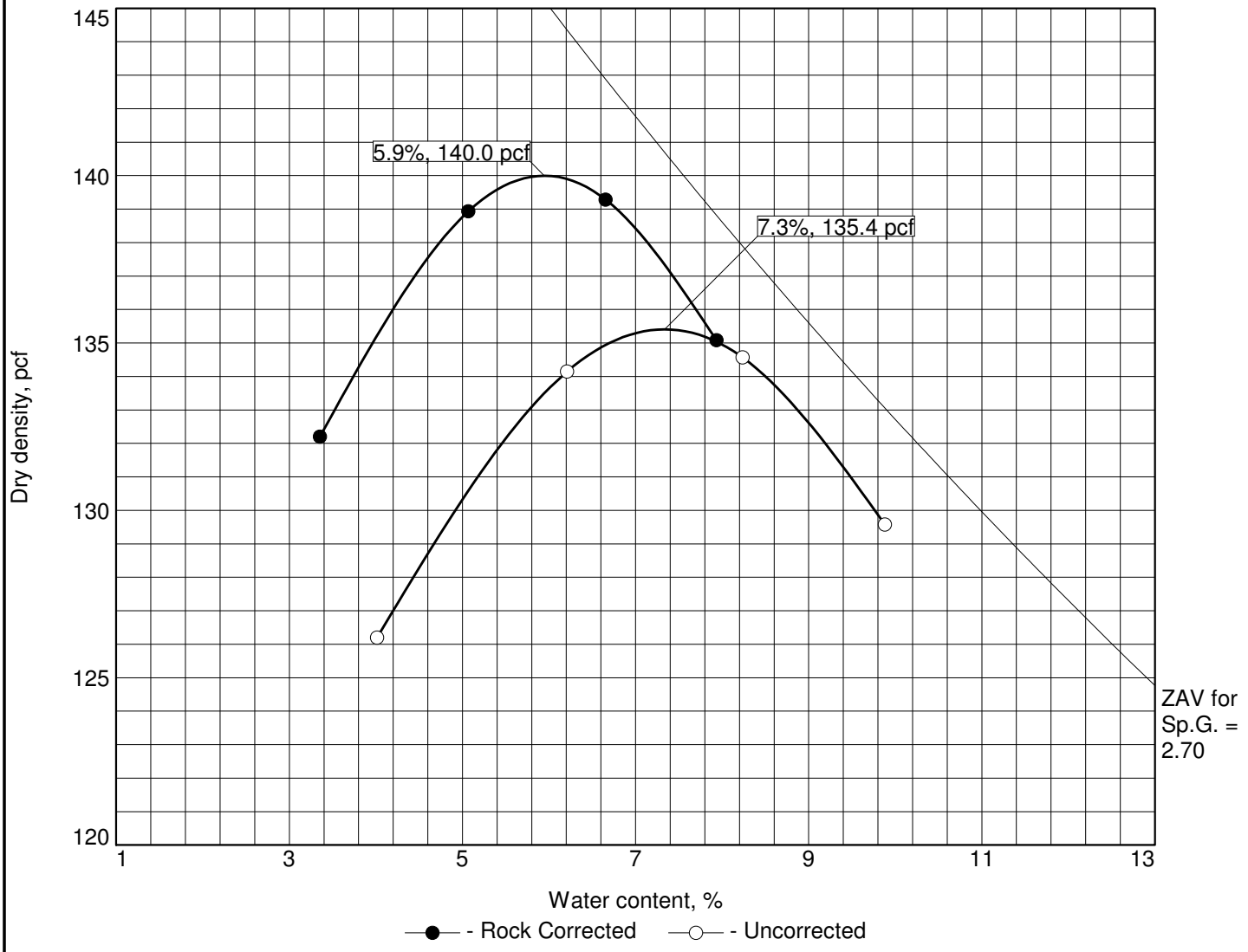
Remarks:

Knight Piésold CONSULTING

Figure

Tested By: RV

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method B Standard
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
3.0-3.2m	SM	A-2-4(0)		2.7	15	3	21.9	29.4

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 140.0 pcf	135.4 pcf	silty SAND with gravel
Optimum moisture = 5.9 %	7.3 %	

Project No. VA101-457/ **Client:** New Gold Inc.
Project: Blackwater Gold Project

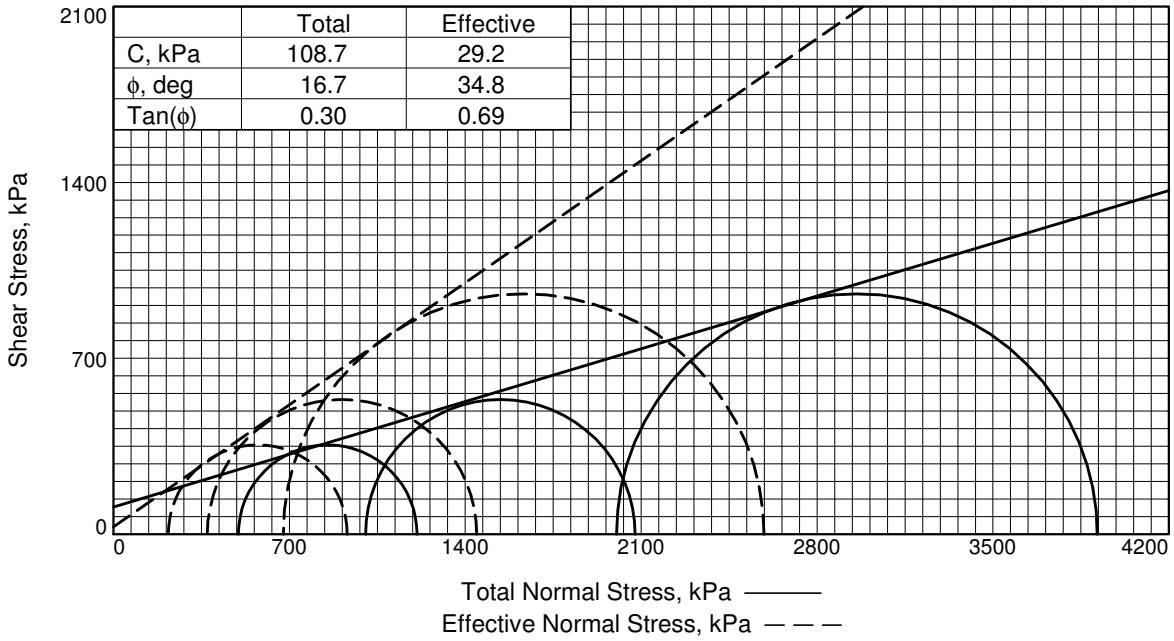
○ **Location:** TP12-150

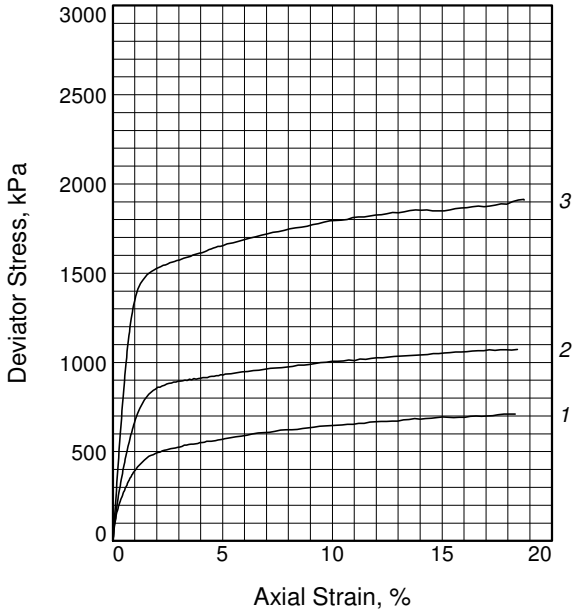
Remarks:

Knight Piésold CONSULTING

Figure

Tested By: RV





Sample No.		1	2	3
Initial	Water Content, %	8.5	8.5	8.5
	Dry Density, pcf	127.7	126.4	126.4
	Saturation, %	71.8	69.0	69.0
	Void Ratio	0.3204	0.3335	0.3334
	Diameter, in.	3.49	3.50	3.50
	Height, in.	6.95	7.00	7.00
At Test	Water Content, %	10.8	10.6	9.4
	Dry Density, pcf	130.4	131.2	134.4
	Saturation, %	100.1	100.3	100.0
	Void Ratio	0.2925	0.2852	0.2537
	Diameter, in.	3.48	3.48	3.45
	Height, in.	6.83	6.84	6.78
Strain rate, in./min.		0.04	0.04	0.04
Eff. Cell Pressure, kPa		497	1004	2002
Fail. Stress, kPa		711	1072	1913
Excess Pore Pr., kPa		279	630	1326
Strain, %		18.3	18.4	18.7
Ult. Stress, kPa				
Excess Pore Pr., kPa				
Strain, %				
$\bar{\sigma}_1$ Failure, kPa		929	1446	2589
$\bar{\sigma}_3$ Failure, kPa		218	374	676

Type of Test:
CU with Pore Pressures

Sample Type: Remolded to 95% MDD at OMC

Description: clayey SAND with gravel

LL= 23 **PL=** 14 **PI=** 9

Assumed Specific Gravity= 2.7

Remarks: Failure tangents drawn at peak deviator stress. Particles larger than .75" were removed and replaced with finer gravel.

Figure _____

Client: New Gold Inc.

Project: Blackwater Gold Project

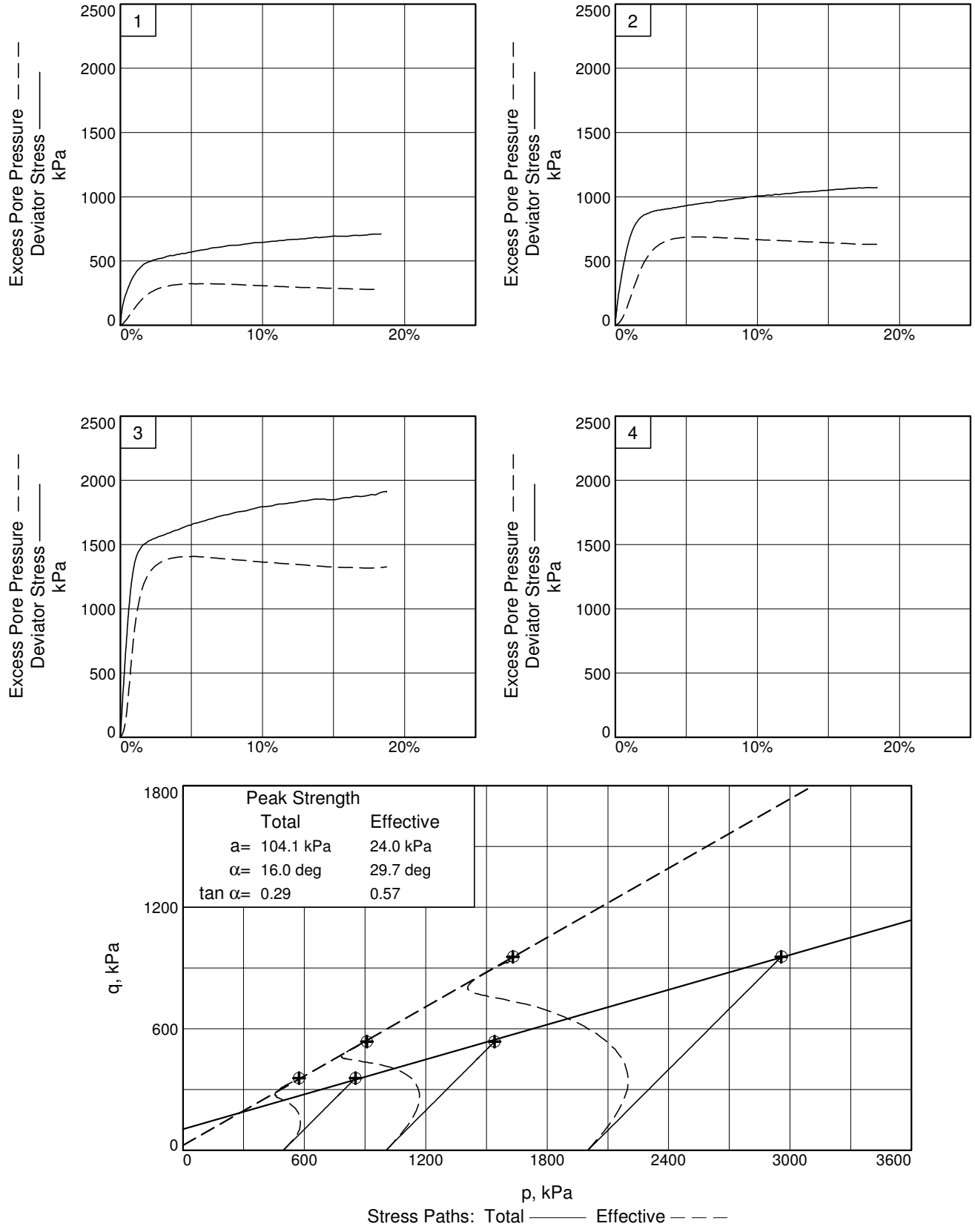
Location: GT12-45

Sample Number: 1, 2, 3 **Depth:** 10.67-25.91m

Proj. No.: VA101-457/04 **Date Sampled:** 11/26/12

Knight Piésold CONSULTING

Tested By: JHK **Checked By:** JDB



Client: New Gold Inc.

Project: Blackwater Gold Project

Location: GT12-45 **Depth:** 10.67-25.91m **Sample Number:** 1, 2, 3

Project No.: VA101-457/04 **Figure** Peak

Knight Piesold Geotechnical Lab.

Tested By: JHK **Checked By:** JDB

TRIAXIAL COMPRESSION TEST

CU with Pore Pressures

3/6/2013
5:09 PM

Date: 11/26/12
Client: New Gold Inc.
Project: Blackwater Gold Project
Project No.: VA101-457/04
Location: GT12-45
Depth: 10.67-25.91m **Sample Number:** 1, 2, 3
Description: clayey SAND with gravel
Remarks: Failure tangents drawn at peak deviator stress. Particles larger than .75" were removed and replaced with finer gravel.
Type of Sample: Remolded to 95% MDD at OMC
Assumed Specific Gravity=2.7 **LL=**23 **PL=**14 **PI=**9
Test Method: ASTM D 4767 Method A

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2132.500			2828.900
Moisture content: Dry soil+tare, gms.	1985.400			2589.700
Moisture content: Tare, gms.	259.500			383.800
Moisture, %	8.5	11.9	10.8	10.8
Moist specimen weight, gms.	2417.8			
Diameter, in.	3.49	3.49	3.48	
Area, in.²	9.57	9.57	9.53	
Height, in.	6.95	6.95	6.83	
Net decrease in height, in.		0.00	0.12	
Net decrease in water volume, cc.			23.00	
Wet density, pcf	138.5	142.8	144.6	
Dry density, pcf	127.7	127.7	130.4	
Void ratio	0.3204	0.3204	0.2925	
Saturation, %	71.8	100.1	100.1	

Test Readings for Specimen No. 1

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.02 cm
Consolidation cell pressure = 112.06 psi (772.6 kPa)
Consolidation back pressure = 40.00 psi (275.8 kPa)
Consolidation effective confining stress = 496.8 kPa
Strain rate, in./min. = 0.04
Fail. Stress = 711.2 kPa **at reading no.** 133

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-2.0528	2.151	0.0	0.0	0.0	495.3	495.3	1.00	40.23	495.3	0.0
1	-2.0511	35.932	33.8	0.0	24.4	495.4	519.8	1.05	40.21	507.6	12.2
2	-2.0493	83.687	81.5	0.1	59.0	495.0	554.0	1.12	40.26	524.5	29.5
3	-2.0476	120.739	118.6	0.1	85.7	493.6	579.4	1.17	40.46	536.5	42.9
4	-2.0458	150.740	148.6	0.1	107.4	492.3	599.7	1.22	40.66	546.0	53.7
5	-2.0441	174.846	172.7	0.1	124.8	490.6	615.4	1.25	40.90	553.0	62.4
6	-2.0423	200.306	198.2	0.2	143.2	488.6	631.8	1.29	41.19	560.2	71.6
7	-2.0406	222.686	220.5	0.2	159.3	486.1	645.4	1.33	41.55	565.8	79.6
8	-2.0389	236.331	234.2	0.2	169.1	483.2	652.3	1.35	41.97	567.8	84.6
9	-2.0371	253.199	251.0	0.2	181.2	479.8	661.1	1.38	42.46	570.5	90.6
10	-2.0354	268.078	265.9	0.3	191.9	477.2	669.2	1.40	42.84	573.2	96.0
11	-2.0336	284.933	282.8	0.3	204.0	473.7	677.7	1.43	43.36	575.7	102.0
12	-2.0319	299.185	297.0	0.3	214.3	470.0	684.3	1.46	43.89	577.1	107.1
13	-2.0302	310.337	308.2	0.3	222.3	466.1	688.4	1.48	44.45	577.3	111.1
14	-2.0284	321.808	319.7	0.4	230.5	463.1	693.5	1.50	44.90	578.3	115.2
15	-2.0267	333.025	330.9	0.4	238.5	459.5	698.0	1.52	45.42	578.7	119.2
16	-2.0249	344.748	342.6	0.4	246.9	455.9	702.7	1.54	45.94	579.3	123.4
17	-2.0232	356.625	354.5	0.4	255.4	452.4	707.8	1.56	46.44	580.1	127.7
18	-2.0215	367.495	365.3	0.5	263.1	448.4	711.5	1.59	47.03	580.0	131.6
19	-2.0197	380.563	378.4	0.5	272.5	445.2	717.7	1.61	47.49	581.4	136.2
20	-2.0180	389.924	387.8	0.5	279.1	441.0	720.1	1.63	48.10	580.5	139.6
21	-2.0162	399.488	397.3	0.5	286.0	437.1	723.0	1.65	48.67	580.1	143.0
22	-2.0145	411.287	409.1	0.6	294.4	433.3	727.7	1.68	49.21	580.5	147.2
23	-2.0127	419.059	416.9	0.6	299.9	429.0	728.9	1.70	49.84	578.9	149.9
24	-2.0110	428.846	426.7	0.6	306.9	425.3	732.1	1.72	50.38	578.7	153.4
25	-2.0093	437.876	435.7	0.6	313.3	421.2	734.5	1.74	50.97	577.8	156.6
26	-2.0075	449.369	447.2	0.7	321.4	417.2	738.7	1.77	51.55	577.9	160.7
27	-2.0058	459.875	457.7	0.7	328.9	413.2	742.1	1.80	52.13	577.7	164.5
28	-2.0040	468.484	466.3	0.7	335.0	409.3	744.3	1.82	52.70	576.8	167.5
29	-2.0023	477.352	475.2	0.7	341.3	404.9	746.2	1.84	53.33	575.5	170.6
30	-2.0006	486.067	483.9	0.8	347.5	401.0	748.5	1.87	53.90	574.7	173.7
31	-1.9988	494.729	492.6	0.8	353.6	397.0	750.6	1.89	54.48	573.8	176.8
32	-1.9971	501.002	498.9	0.8	358.0	393.0	751.0	1.91	55.06	572.0	179.0
33	-1.9953	509.680	507.5	0.8	364.1	389.0	753.1	1.94	55.65	571.0	182.1
34	-1.9936	518.286	516.1	0.9	370.2	385.4	755.6	1.96	56.16	570.5	185.1
35	-1.9919	524.021	521.9	0.9	374.2	381.5	755.7	1.98	56.73	568.6	187.1
36	-1.9901	532.040	529.9	0.9	379.9	377.4	757.3	2.01	57.33	567.3	189.9
37	-1.9884	537.883	535.7	0.9	384.0	373.2	757.2	2.03	57.93	565.2	192.0
38	-1.9866	544.682	542.5	1.0	388.8	369.5	758.3	2.05	58.47	563.9	194.4
39	-1.9849	550.138	548.0	1.0	392.6	365.8	758.3	2.07	59.01	562.1	196.3
40	-1.9832	557.215	555.1	1.0	397.5	361.7	759.3	2.10	59.59	560.5	198.8
41	-1.9762	582.685	580.5	1.1	415.3	346.7	762.1	2.20	61.77	554.4	207.7
42	-1.9693	601.046	598.9	1.2	428.0	332.5	760.6	2.29	63.83	546.6	214.0
43	-1.9623	618.907	616.8	1.3	440.4	319.9	760.3	2.38	65.66	540.1	220.2
44	-1.9554	635.525	633.4	1.4	451.8	306.6	758.4	2.47	67.58	532.5	225.9
45	-1.9484	651.169	649.0	1.5	462.4	294.7	757.2	2.57	69.31	526.0	231.2
46	-1.9414	667.243	665.1	1.6	473.4	283.5	756.9	2.67	70.95	520.2	236.7

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
47	-1.9345	676.485	674.3	1.7	479.5	273.6	753.1	2.75	72.37	513.4	239.7
48	-1.9275	683.231	681.1	1.8	483.8	263.9	747.6	2.83	73.79	505.7	241.9
49	-1.9206	693.845	691.7	1.9	490.8	255.4	746.2	2.92	75.02	500.8	245.4
50	-1.9136	700.276	698.1	2.0	494.8	247.0	741.8	3.00	76.24	494.4	247.4
51	-1.9067	704.777	702.6	2.1	497.5	240.1	737.6	3.07	77.23	488.9	248.8
52	-1.8997	716.064	713.9	2.2	505.0	234.3	739.3	3.15	78.07	486.8	252.5
53	-1.8928	720.014	717.9	2.3	507.3	228.7	736.0	3.22	78.89	482.3	253.6
54	-1.8858	725.201	723.1	2.4	510.4	222.5	732.9	3.29	79.79	477.7	255.2
55	-1.8789	731.064	728.9	2.5	514.0	217.8	731.8	3.36	80.47	474.8	257.0
56	-1.8719	735.018	732.9	2.6	516.2	213.0	729.2	3.42	81.17	471.1	258.1
57	-1.8650	740.281	738.1	2.8	519.4	208.7	728.1	3.49	81.79	468.4	259.7
58	-1.8580	741.790	739.6	2.9	519.9	205.0	724.9	3.54	82.33	464.9	260.0
59	-1.8511	747.538	745.4	3.0	523.4	201.9	725.3	3.59	82.78	463.6	261.7
60	-1.8441	752.289	750.1	3.1	526.2	198.3	724.5	3.65	83.30	461.4	263.1
61	-1.8372	757.827	755.7	3.2	529.5	195.4	724.9	3.71	83.72	460.1	264.8
62	-1.8302	768.350	766.2	3.3	536.3	194.7	731.0	3.75	83.82	462.9	268.2
63	-1.8232	769.767	767.6	3.4	536.8	192.4	729.2	3.79	84.15	460.8	268.4
64	-1.8163	776.844	774.7	3.5	541.1	189.0	730.1	3.86	84.65	459.6	270.6
65	-1.8093	779.055	776.9	3.6	542.1	187.1	729.2	3.90	84.92	458.2	271.1
66	-1.8024	778.613	776.5	3.7	541.2	185.2	726.4	3.92	85.20	455.8	270.6
67	-1.7954	782.773	780.6	3.8	543.5	183.8	727.3	3.96	85.41	455.5	271.8
68	-1.7885	787.396	785.2	3.9	546.2	182.4	728.6	3.99	85.60	455.5	273.1
69	-1.7815	795.188	793.0	4.0	551.0	181.1	732.1	4.04	85.79	456.6	275.5
70	-1.7745	796.714	794.6	4.1	551.5	179.7	731.2	4.07	85.99	455.5	275.7
71	-1.7676	799.480	797.3	4.2	552.8	178.3	731.2	4.10	86.19	454.8	276.4
72	-1.7606	806.990	804.8	4.3	557.4	178.0	735.4	4.13	86.25	456.7	278.7
73	-1.7537	810.074	807.9	4.4	559.0	177.3	736.3	4.15	86.34	456.8	279.5
74	-1.7467	810.176	808.0	4.5	558.5	175.7	734.1	4.18	86.58	454.9	279.2
75	-1.7397	813.722	811.6	4.6	560.3	175.7	736.0	4.19	86.57	455.9	280.2
76	-1.7328	817.341	815.2	4.7	562.2	174.9	737.1	4.21	86.69	456.0	281.1
77	-1.7258	823.920	821.8	4.8	566.1	173.7	739.8	4.26	86.87	456.8	283.1
78	-1.7189	826.610	824.5	4.9	567.4	173.7	741.0	4.27	86.87	457.3	283.7
79	-1.7119	828.802	826.7	5.0	568.3	174.3	742.6	4.26	86.78	458.4	284.1
80	-1.7049	836.568	834.4	5.1	573.0	174.0	747.0	4.29	86.82	460.5	286.5
81	-1.6876	847.241	845.1	5.3	578.8	175.4	754.2	4.30	86.62	464.8	289.4
82	-1.6702	856.031	853.9	5.6	583.2	172.8	756.0	4.38	87.00	464.4	291.6
83	-1.6528	864.706	862.6	5.9	587.6	173.1	760.6	4.40	86.96	466.8	293.8
84	-1.6354	872.898	870.7	6.1	591.5	173.4	765.0	4.41	86.91	469.2	295.8
85	-1.6181	886.849	884.7	6.4	599.4	174.3	773.7	4.44	86.77	474.0	299.7
86	-1.6007	897.184	895.0	6.6	604.7	174.9	779.7	4.46	86.69	477.3	302.4
87	-1.5833	901.863	899.7	6.9	606.3	175.5	781.8	4.45	86.60	478.7	303.1
88	-1.5659	908.070	905.9	7.1	608.8	176.0	784.8	4.46	86.53	480.4	304.4
89	-1.5485	918.986	916.8	7.4	614.4	177.5	791.9	4.46	86.32	484.7	307.2
90	-1.5311	930.263	928.1	7.6	620.3	178.3	798.6	4.48	86.19	488.5	310.1
91	-1.5137	936.769	934.6	7.9	622.9	178.9	801.8	4.48	86.11	490.4	311.4
92	-1.4964	939.771	937.6	8.1	623.2	179.8	803.0	4.47	85.98	491.4	311.6
93	-1.4790	944.246	942.1	8.4	624.4	181.8	806.2	4.44	85.70	494.0	312.2

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
94	-1.4616	955.353	953.2	8.7	630.0	183.6	813.6	4.43	85.43	498.6	315.0
95	-1.4442	962.282	960.1	8.9	632.8	185.3	818.1	4.41	85.18	501.7	316.4
96	-1.4268	970.366	968.2	9.2	636.4	184.8	821.1	4.44	85.26	503.0	318.2
97	-1.4094	981.915	979.8	9.4	642.1	186.9	829.1	4.44	84.95	508.0	321.1
98	-1.3921	986.916	984.8	9.7	643.6	188.3	831.9	4.42	84.75	510.1	321.8
99	-1.3747	992.428	990.3	9.9	645.4	189.0	834.4	4.41	84.64	511.7	322.7
100	-1.3573	997.825	995.7	10.2	647.1	189.6	836.6	4.41	84.57	513.1	323.5
101	-1.3399	1004.869	1002.7	10.4	649.8	191.2	841.0	4.40	84.32	516.1	324.9
102	-1.3225	1012.668	1010.5	10.7	653.0	193.8	846.8	4.37	83.95	520.3	326.5
103	-1.3052	1016.733	1014.6	10.9	653.8	194.9	848.6	4.36	83.80	521.7	326.9
104	-1.2878	1027.062	1024.9	11.2	658.5	196.0	854.5	4.36	83.63	525.3	329.3
105	-1.2704	1030.172	1028.0	11.5	658.6	196.4	855.0	4.35	83.58	525.7	329.3
106	-1.2530	1044.244	1042.1	11.7	665.7	198.2	864.0	4.36	83.31	531.1	332.9
107	-1.2356	1049.061	1046.9	12.0	666.9	199.3	866.2	4.35	83.15	532.8	333.4
108	-1.2183	1055.908	1053.8	12.2	669.3	200.4	869.7	4.34	83.00	535.0	334.7
109	-1.2009	1058.310	1056.2	12.5	668.9	201.3	870.2	4.32	82.86	535.8	334.4
110	-1.1835	1065.410	1063.3	12.7	671.4	202.5	873.9	4.32	82.69	538.2	335.7
111	-1.1661	1069.429	1067.3	13.0	672.0	203.2	875.2	4.31	82.59	539.2	336.0
112	-1.1487	1083.285	1081.1	13.2	678.7	204.1	882.8	4.33	82.45	543.5	339.4
113	-1.1314	1088.101	1086.0	13.5	679.8	205.1	884.8	4.31	82.31	545.0	339.9
114	-1.1140	1099.309	1097.2	13.7	684.7	205.4	890.1	4.33	82.27	547.8	342.4
115	-1.0966	1098.722	1096.6	14.0	682.4	205.8	888.2	4.32	82.21	547.0	341.2
116	-1.0792	1106.081	1103.9	14.3	684.9	207.0	891.9	4.31	82.04	549.4	342.5
117	-1.0618	1112.564	1110.4	14.5	686.9	208.0	894.8	4.30	81.90	551.4	343.4
118	-1.0445	1123.224	1121.1	14.8	691.4	209.6	901.1	4.30	81.65	555.3	345.7
119	-1.0271	1132.096	1129.9	15.0	694.8	209.3	904.1	4.32	81.70	556.7	347.4
120	-1.0097	1132.280	1130.1	15.3	692.8	210.3	903.1	4.30	81.56	556.7	346.4
121	-0.9923	1133.855	1131.7	15.5	691.7	210.6	902.3	4.28	81.51	556.5	345.9
122	-0.9749	1138.540	1136.4	15.8	692.5	211.6	904.1	4.27	81.37	557.9	346.2
123	-0.9575	1143.248	1141.1	16.0	693.3	213.2	906.4	4.25	81.14	559.8	346.6
124	-0.9402	1156.044	1153.9	16.3	698.9	213.7	912.6	4.27	81.06	563.2	349.5
125	-0.9228	1161.293	1159.1	16.5	700.0	214.3	914.2	4.27	80.98	564.3	350.0
126	-0.9054	1163.108	1161.0	16.8	698.9	215.5	914.4	4.24	80.81	564.9	349.5
127	-0.8880	1169.325	1167.2	17.1	700.5	215.7	916.2	4.25	80.77	566.0	350.3
128	-0.8706	1174.273	1172.1	17.3	701.3	217.3	918.6	4.23	80.55	567.9	350.7
129	-0.8533	1186.587	1184.4	17.6	706.5	217.6	924.1	4.25	80.50	570.9	353.3
130	-0.8359	1196.085	1193.9	17.8	710.0	218.1	928.1	4.26	80.43	573.1	355.0
131	-0.8185	1199.842	1197.7	18.1	710.0	217.9	927.9	4.26	80.46	572.9	355.0
132	-0.8011	1203.644	1201.5	18.3	710.0	217.9	927.9	4.26	80.46	572.9	355.0
133	-0.8009	1205.577	1203.4	18.3	711.2	218.3	929.4	4.26	80.40	573.9	355.6

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2132.500			2818.000
Moisture content: Dry soil+tare, gms.	1985.400			2585.000
Moisture content: Tare, gms.	259.500			385.000
Moisture, %	8.5	12.4	10.6	10.6
Moist specimen weight, gms.	2425.0			
Diameter, in.	3.50	3.50	3.48	
Area, in.²	9.62	9.62	9.49	
Height, in.	7.00	7.00	6.84	
Net decrease in height, in.		0.00	0.16	
Net decrease in water volume, cc.			40.00	
Wet density, pcf	137.2	142.0	145.0	
Dry density, pcf	126.4	126.4	131.2	
Void ratio	0.3335	0.3335	0.2852	
Saturation, %	69.0	100.2	100.3	

Test Readings for Specimen No. 2

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.02 cm
Consolidation cell pressure = 185.59 psi (1279.6 kPa)
Consolidation back pressure = 40.00 psi (275.8 kPa)
Consolidation effective confining stress = 1003.8 kPa
Strain rate, in./min. = 0.04
Fail. Stress = 1072.0 kPa **at reading no.** 132

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.7709	8.584	0.0	0.0	0.0	1003.6	1003.6	1.00	40.03	1003.6	0.0
1	-1.7691	73.203	64.6	0.0	46.9	1002.9	1049.8	1.05	40.14	1026.3	23.5
2	-1.7674	107.368	98.8	0.1	71.7	1001.8	1073.6	1.07	40.29	1037.7	35.9
3	-1.7656	141.960	133.4	0.1	96.8	1000.6	1097.4	1.10	40.47	1049.0	48.4
4	-1.7639	171.777	163.2	0.1	118.5	998.9	1117.3	1.12	40.71	1058.1	59.2
5	-1.7621	210.585	202.0	0.1	146.6	997.6	1144.2	1.15	40.90	1070.9	73.3
6	-1.7604	241.482	232.9	0.2	169.0	995.6	1164.5	1.17	41.20	1080.0	84.5
7	-1.7586	271.283	262.7	0.2	190.5	993.5	1184.0	1.19	41.49	1088.8	95.3
8	-1.7569	303.309	294.7	0.2	213.7	991.2	1204.9	1.22	41.83	1098.1	106.9
9	-1.7551	338.153	329.6	0.2	238.9	988.6	1227.5	1.24	42.21	1108.1	119.5
10	-1.7533	360.854	352.3	0.3	255.3	986.2	1241.5	1.26	42.55	1113.9	127.6
11	-1.7516	387.709	379.1	0.3	274.7	983.2	1257.9	1.28	42.99	1120.5	137.3
12	-1.7499	412.077	403.5	0.3	292.3	980.4	1272.6	1.30	43.40	1126.5	146.1
13	-1.7481	434.437	425.9	0.3	308.4	976.7	1285.1	1.32	43.93	1130.9	154.2
14	-1.7463	457.397	448.8	0.4	324.9	973.5	1298.4	1.33	44.40	1136.0	162.5
15	-1.7446	483.904	475.3	0.4	344.0	969.5	1313.6	1.35	44.97	1141.5	172.0
16	-1.7429	506.441	497.9	0.4	360.2	965.2	1325.5	1.37	45.60	1145.3	180.1
17	-1.7411	530.287	521.7	0.4	377.4	961.1	1338.5	1.39	46.20	1149.8	188.7
18	-1.7394	556.561	548.0	0.5	396.3	956.3	1352.6	1.41	46.89	1154.5	198.2
19	-1.7376	577.271	568.7	0.5	411.2	951.3	1362.5	1.43	47.61	1156.9	205.6
20	-1.7358	600.159	591.6	0.5	427.6	946.4	1374.0	1.45	48.33	1160.2	213.8
21	-1.7341	620.304	611.7	0.5	442.1	941.0	1383.1	1.47	49.11	1162.1	221.0
22	-1.7323	642.615	634.0	0.6	458.1	935.6	1393.7	1.49	49.89	1164.7	229.0
23	-1.7306	661.304	652.7	0.6	471.5	929.7	1401.1	1.51	50.75	1165.4	235.7

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
24	-1.7288	684.218	675.6	0.6	487.9	924.0	1411.9	1.53	51.58	1167.9	243.9
25	-1.7271	704.127	695.5	0.6	502.1	917.3	1419.5	1.55	52.54	1168.4	251.1
26	-1.7253	718.179	709.6	0.7	512.1	910.4	1422.6	1.56	53.55	1166.5	256.1
27	-1.7236	743.220	734.6	0.7	530.1	904.2	1434.3	1.59	54.45	1169.2	265.0
28	-1.7218	760.698	752.1	0.7	542.6	897.7	1440.2	1.60	55.39	1169.0	271.3
29	-1.7201	778.697	770.1	0.7	555.4	890.2	1445.6	1.62	56.47	1167.9	277.7
30	-1.7183	801.113	792.5	0.8	571.4	882.9	1454.3	1.65	57.54	1168.6	285.7
31	-1.7166	813.804	805.2	0.8	580.4	874.9	1455.3	1.66	58.69	1165.1	290.2
32	-1.7148	834.851	826.3	0.8	595.4	867.3	1462.7	1.69	59.80	1165.0	297.7
33	-1.7130	845.839	837.3	0.8	603.2	859.7	1462.9	1.70	60.90	1161.3	301.6
34	-1.7113	865.220	856.6	0.9	617.0	852.4	1469.4	1.72	61.96	1160.9	308.5
35	-1.7096	878.570	870.0	0.9	626.4	844.1	1470.5	1.74	63.16	1157.3	313.2
36	-1.7078	893.870	885.3	0.9	637.3	836.1	1473.4	1.76	64.32	1154.8	318.6
37	-1.7060	913.044	904.5	0.9	650.9	827.5	1478.5	1.79	65.57	1153.0	325.5
38	-1.7043	925.564	917.0	1.0	659.8	820.2	1480.0	1.80	66.63	1150.1	329.9
39	-1.7025	936.453	927.9	1.0	667.4	811.8	1479.3	1.82	67.84	1145.6	333.7
40	-1.7008	955.250	946.7	1.0	680.8	803.8	1484.6	1.85	69.01	1144.2	340.4
41	-1.69381001.630		993.0	1.1	713.4	770.4	1483.8	1.93	73.86	1127.1	356.7
42	-1.68681044.313		1035.7	1.2	743.3	736.2	1479.5	2.01	78.81	1107.9	371.6
43	-1.67981078.484		1069.9	1.3	767.0	703.1	1470.1	2.09	83.61	1086.6	383.5
44	-1.67281111.674		1103.1	1.4	790.0	671.5	1461.4	2.18	88.20	1066.4	395.0
45	-1.66581135.035		1126.5	1.5	805.9	640.3	1446.2	2.26	92.72	1043.3	402.9
46	-1.65881158.832		1150.2	1.6	822.0	611.3	1433.3	2.34	96.93	1022.3	411.0
47	-1.65181174.827		1166.2	1.7	832.6	583.0	1415.6	2.43	101.04	999.3	416.3
48	-1.64471191.140		1182.6	1.8	843.4	557.4	1400.7	2.51	104.75	979.0	421.7
49	-1.63771203.545		1195.0	1.9	851.3	533.2	1384.6	2.60	108.25	958.9	425.7
50	-1.63071218.034		1209.4	2.0	860.8	510.8	1371.5	2.69	111.51	941.2	430.4
51	-1.62371220.918		1212.3	2.2	861.9	490.8	1352.7	2.76	114.40	921.8	431.0
52	-1.61671232.598		1224.0	2.3	869.3	473.2	1342.5	2.84	116.96	907.8	434.6
53	-1.60971238.242		1229.7	2.4	872.4	456.6	1329.0	2.91	119.36	892.8	436.2
54	-1.60271249.190		1240.6	2.5	879.2	441.5	1320.8	2.99	121.55	881.2	439.6
55	-1.59571255.424		1246.8	2.6	882.7	428.3	1311.1	3.06	123.47	869.7	441.4
56	-1.58871260.057		1251.5	2.7	885.1	416.0	1301.0	3.13	125.26	858.5	442.5
57	-1.58171268.335		1259.8	2.8	890.0	404.8	1294.7	3.20	126.89	849.8	445.0
58	-1.57471269.450		1260.9	2.9	889.8	395.0	1284.8	3.25	128.31	839.9	444.9
59	-1.56771278.161		1269.6	3.0	895.0	386.4	1281.4	3.32	129.55	833.9	447.5
60	-1.56071279.349		1270.8	3.1	894.9	378.1	1273.0	3.37	130.76	825.5	447.5
61	-1.55371282.551		1274.0	3.2	896.2	370.7	1266.9	3.42	131.83	818.8	448.1
62	-1.54661291.161		1282.6	3.3	901.3	364.1	1265.5	3.48	132.78	814.8	450.7
63	-1.53971288.730		1280.1	3.4	898.7	358.3	1257.0	3.51	133.62	807.7	449.3
64	-1.53261299.767		1291.2	3.5	905.5	353.2	1258.7	3.56	134.36	806.0	452.7
65	-1.52561296.971		1288.4	3.6	902.5	348.1	1250.6	3.59	135.10	799.4	451.3
66	-1.51861307.894		1299.3	3.7	909.2	343.3	1252.5	3.65	135.80	797.9	454.6
67	-1.51161304.370		1295.8	3.8	905.8	339.8	1245.6	3.67	136.31	792.7	452.9
68	-1.50461310.804		1302.2	3.9	909.3	336.6	1245.9	3.70	136.77	791.3	454.7
69	-1.49761313.996		1305.4	4.0	910.6	333.6	1244.2	3.73	137.20	788.9	455.3
70	-1.49061322.422		1313.8	4.1	915.5	331.2	1246.7	3.76	137.55	789.0	457.7

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
71	-1.48361	322.077	1313.5	4.2	914.3	328.7	1243.0	3.78	137.92	785.8	457.1
72	-1.47661	325.637	1317.1	4.3	915.8	327.3	1243.0	3.80	138.12	785.2	457.9
73	-1.46961	333.495	1324.9	4.4	920.2	325.5	1245.8	3.83	138.38	785.6	460.1
74	-1.46261	337.515	1328.9	4.5	922.1	324.1	1246.2	3.84	138.58	785.1	461.0
75	-1.45561	340.359	1331.8	4.6	923.0	322.4	1245.4	3.86	138.83	783.9	461.5
76	-1.44861	345.412	1336.8	4.7	925.5	321.9	1247.4	3.88	138.91	784.6	462.8
77	-1.44161	346.787	1338.2	4.8	925.5	320.4	1245.9	3.89	139.12	783.2	462.7
78	-1.43461	355.534	1346.9	4.9	930.5	319.8	1250.3	3.91	139.21	785.1	465.3
79	-1.42761	356.072	1347.5	5.0	929.9	319.4	1249.3	3.91	139.26	784.4	465.0
80	-1.42051	364.825	1356.2	5.1	934.9	318.9	1253.8	3.93	139.34	786.4	467.5
81	-1.40301	371.922	1363.3	5.4	937.3	317.4	1254.7	3.95	139.56	786.0	468.7
82	-1.38551	383.511	1374.9	5.6	942.7	317.4	1260.1	3.97	139.55	788.8	471.4
83	-1.36801	392.950	1384.4	5.9	946.6	317.1	1263.7	3.99	139.61	790.4	473.3
84	-1.35051	401.192	1392.6	6.1	949.7	317.5	1267.1	3.99	139.54	792.3	474.8
85	-1.33301	412.357	1403.8	6.4	954.7	318.2	1272.9	4.00	139.44	795.5	477.3
86	-1.31551	417.541	1409.0	6.7	955.6	318.8	1274.4	4.00	139.35	796.6	477.8
87	-1.29801	429.330	1420.7	6.9	960.9	319.7	1280.6	4.01	139.22	800.1	480.5
88	-1.28051	442.755	1434.2	7.2	967.3	321.0	1288.3	4.01	139.03	804.7	483.7
89	-1.26301	448.474	1439.9	7.4	968.5	321.8	1290.3	4.01	138.91	806.1	484.3
90	-1.24551	454.918	1446.3	7.7	970.2	323.3	1293.4	4.00	138.71	808.3	485.1
91	-1.22801	466.336	1457.8	7.9	975.1	324.5	1299.6	4.00	138.52	812.1	487.6
92	-1.21051	475.194	1466.6	8.2	978.3	325.8	1304.1	4.00	138.33	815.0	489.2
93	-1.19301	489.700	1481.1	8.4	985.2	327.3	1312.5	4.01	138.12	819.9	492.6
94	-1.17551	494.739	1486.2	8.7	985.8	328.2	1314.0	4.00	137.99	821.1	492.9
95	-1.15801	503.801	1495.2	9.0	989.0	330.5	1319.5	3.99	137.66	825.0	494.5
96	-1.14051	516.669	1508.1	9.2	994.8	332.0	1326.7	4.00	137.44	829.3	497.4
97	-1.12301	528.583	1520.0	9.5	999.8	334.1	1333.9	3.99	137.13	834.0	499.9
98	-1.10551	533.770	1525.2	9.7	1000.4	335.1	1335.4	3.99	136.99	835.3	500.2
99	-1.08801	547.153	1538.6	10.0	1006.3	337.4	1343.7	3.98	136.65	840.5	503.1
100	-1.07051	551.773	1543.2	10.2	1006.4	338.2	1344.6	3.98	136.54	841.4	503.2
101	-1.05291	560.146	1551.6	10.5	1009.0	340.0	1349.0	3.97	136.28	844.5	504.5
102	-1.03541	572.312	1563.7	10.8	1014.0	341.0	1355.0	3.97	136.13	848.0	507.0
103	-1.01791	571.698	1563.1	11.0	1010.7	342.2	1352.9	3.95	135.96	847.6	505.4
104	-1.00041	589.045	1580.5	11.3	1019.0	343.9	1362.9	3.96	135.71	853.4	509.5
105	-0.98291	589.822	1581.2	11.5	1016.5	344.3	1360.8	3.95	135.65	852.6	508.3
106	-0.96541	603.022	1594.4	11.8	1022.1	345.7	1367.8	3.96	135.45	856.7	511.0
107	-0.94791	613.061	1604.5	12.0	1025.5	346.8	1372.4	3.96	135.28	859.6	512.8
108	-0.93041	617.904	1609.3	12.3	1025.6	348.1	1373.8	3.95	135.10	860.9	512.8
109	-0.91291	628.905	1620.3	12.5	1029.6	350.1	1379.7	3.94	134.81	864.9	514.8
110	-0.89541	639.175	1630.6	12.8	1033.1	351.4	1384.5	3.94	134.63	867.9	516.6
111	-0.87791	647.817	1639.2	13.1	1035.5	352.1	1387.6	3.94	134.52	869.9	517.8
112	-0.86041	656.318	1647.7	13.3	1037.8	353.6	1391.5	3.93	134.30	872.6	518.9
113	-0.84281	662.486	1653.9	13.6	1038.6	354.9	1393.5	3.93	134.12	874.2	519.3
114	-0.82531	670.180	1661.6	13.8	1040.4	356.1	1396.4	3.92	133.95	876.2	520.2
115	-0.80781	678.196	1669.6	14.1	1042.3	357.5	1399.8	3.92	133.74	878.7	521.2
116	-0.79031	687.054	1678.5	14.3	1044.7	358.7	1403.4	3.91	133.56	881.1	522.4
117	-0.77281	699.246	1690.7	14.6	1049.2	359.4	1408.5	3.92	133.47	884.0	524.6

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
118	-0.75531	705.759	1697.2	14.8	1050.0	360.6	1410.7	3.91	133.29	885.6	525.0
119	-0.73781	715.130	1706.5	15.1	1052.7	362.4	1415.1	3.90	133.03	888.7	526.3
120	-0.72031	724.034	1715.4	15.4	1055.0	363.8	1418.7	3.90	132.83	891.3	527.5
121	-0.70281	733.618	1725.0	15.6	1057.7	365.2	1422.8	3.90	132.62	894.0	528.8
122	-0.68531	740.275	1731.7	15.9	1058.5	366.3	1424.8	3.89	132.47	895.5	529.3
123	-0.66781	749.340	1740.8	16.1	1060.8	367.5	1428.3	3.89	132.29	897.9	530.4
124	-0.65031	759.262	1750.7	16.4	1063.6	369.1	1432.7	3.88	132.05	900.9	531.8
125	-0.63271	767.386	1758.8	16.6	1065.3	369.7	1435.0	3.88	131.96	902.4	532.6
126	-0.61531	772.767	1764.2	16.9	1065.3	371.3	1436.6	3.87	131.73	904.0	532.6
127	-0.59781	786.521	1777.9	17.2	1070.3	372.2	1442.5	3.88	131.60	907.4	535.1
128	-0.58021	787.718	1779.1	17.4	1067.7	373.5	1441.1	3.86	131.42	907.3	533.8
129	-0.56271	800.274	1791.7	17.7	1071.9	374.6	1446.5	3.86	131.26	910.5	535.9
130	-0.54521	804.802	1796.2	17.9	1071.2	374.7	1446.0	3.86	131.24	910.3	535.6
131	-0.52771	807.808	1799.2	18.2	1069.7	374.7	1444.4	3.85	131.24	909.5	534.8
132	-0.51061	817.299	1808.7	18.4	1072.0	373.6	1445.6	3.87	131.40	909.6	536.0

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2132.500			2802.900
Moisture content: Dry soil+tare, gms.	1985.400			2595.800
Moisture content: Tare, gms.	259.500			391.100
Moisture, %	8.5	12.3	9.4	9.4
Moist specimen weight, gms.	2425.2			
Diameter, in.	3.50	3.50	3.45	
Area, in.²	9.62	9.62	9.34	
Height, in.	7.00	7.00	6.78	
Net decrease in height, in.		0.00	0.22	
Net decrease in water volume, cc.			66.00	
Wet density, pcf	137.2	142.0	147.1	
Dry density, pcf	126.4	126.4	134.4	
Void ratio	0.3334	0.3334	0.2537	
Saturation, %	69.0	100.0	100.0	

Test Readings for Specimen No. 3

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.02 cm
Consolidation cell pressure = 330.35 psi (2277.7 kPa)
Consolidation back pressure = 40.00 psi (275.8 kPa)
Consolidation effective confining stress = 2001.9 kPa
Strain rate, in./min. = 0.04
Fail. Stress = 1913.1 kPa **at reading no.** 132

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.8859	6.248	0.0	0.0	0.0	2000.2	2000.2	1.00	40.25	2000.2	0.0
1	-1.8841	71.306	65.1	0.0	48.0	1997.5	2045.6	1.02	40.63	2021.6	24.0
2	-1.8824	131.729	125.5	0.1	92.6	1994.3	2086.8	1.05	41.11	2040.5	46.3
3	-1.8806	191.420	185.2	0.1	136.6	1991.6	2128.1	1.07	41.50	2059.9	68.3
4	-1.8789	250.825	244.6	0.1	180.3	1987.7	2168.1	1.09	42.06	2077.9	90.2
5	-1.8771	316.005	309.8	0.1	228.3	1982.6	2211.0	1.12	42.80	2096.8	114.2
6	-1.8753	383.840	377.6	0.2	278.3	1976.5	2254.8	1.14	43.68	2115.6	139.1
7	-1.8735	451.021	444.8	0.2	327.7	1968.8	2296.5	1.17	44.80	2132.6	163.9
8	-1.8718	513.035	506.8	0.2	373.3	1959.4	2332.7	1.19	46.16	2146.1	186.7
9	-1.8700	577.470	571.2	0.2	420.7	1949.4	2370.1	1.22	47.61	2159.7	210.3
10	-1.8682	638.890	632.6	0.3	465.8	1938.0	2403.8	1.24	49.27	2170.9	232.9
11	-1.8665	698.614	692.4	0.3	509.6	1925.7	2435.3	1.26	51.05	2180.5	254.8
12	-1.8647	759.644	753.4	0.3	554.4	1911.3	2465.7	1.29	53.13	2188.5	277.2
13	-1.8629	825.634	819.4	0.3	602.8	1894.8	2497.6	1.32	55.53	2196.2	301.4
14	-1.8612	883.366	877.1	0.4	645.1	1876.3	2521.4	1.34	58.21	2198.9	322.5
15	-1.8594	939.445	933.2	0.4	686.1	1856.1	2542.2	1.37	61.15	2199.2	343.1
16	-1.8576	999.028	992.8	0.4	729.8	1834.4	2564.2	1.40	64.29	2199.3	364.9
17	-1.8559	1053.594	1047.3	0.4	769.7	1811.2	2580.8	1.42	67.66	2196.0	384.8
18	-1.8541	1105.437	1099.2	0.5	807.6	1785.7	2593.3	1.45	71.36	2189.5	403.8
19	-1.8524	1164.114	1157.9	0.5	850.4	1758.2	2608.6	1.48	75.35	2183.4	425.2
20	-1.8506	1217.722	1211.5	0.5	889.6	1730.3	2619.8	1.51	79.40	2175.1	444.8
21	-1.8488	1268.196	1261.9	0.5	926.4	1699.8	2626.2	1.55	83.82	2163.0	463.2
22	-1.8470	1315.813	1309.6	0.6	961.1	1668.4	2629.5	1.58	88.36	2149.0	480.6
23	-1.8453	1364.930	1358.7	0.6	996.9	1636.9	2633.8	1.61	92.93	2135.4	498.4

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
24	-1.84351	406.300	1400.1	0.6	1027.0	1604.1	2631.1	1.64	97.69	2117.6	513.5
25	-1.84171	453.484	1447.2	0.7	1061.3	1570.7	2632.0	1.68	102.54	2101.4	530.7
26	-1.84001	496.120	1489.9	0.7	1092.3	1537.0	2629.3	1.71	107.43	2083.2	546.1
27	-1.83821	535.479	1529.2	0.7	1120.8	1503.1	2623.9	1.75	112.35	2063.5	560.4
28	-1.83641	576.832	1570.6	0.7	1150.9	1469.8	2620.6	1.78	117.18	2045.2	575.4
29	-1.83471	606.555	1600.3	0.8	1172.3	1437.1	2609.4	1.82	121.92	2023.2	586.2
30	-1.83291	640.145	1633.9	0.8	1196.6	1404.8	2601.5	1.85	126.59	2003.2	598.3
31	-1.83111	675.422	1669.2	0.8	1222.1	1373.1	2595.2	1.89	131.20	1984.1	611.1
32	-1.82941	706.146	1699.9	0.8	1244.3	1341.8	2586.1	1.93	135.73	1964.0	622.2
33	-1.82761	734.648	1728.4	0.9	1264.8	1311.3	2576.2	1.96	140.16	1943.8	632.4
34	-1.82581	759.701	1753.5	0.9	1282.8	1282.1	2565.0	2.00	144.39	1923.6	641.4
35	-1.82401	782.553	1776.3	0.9	1299.2	1253.8	2553.0	2.04	148.51	1903.4	649.6
36	-1.82231	806.750	1800.5	0.9	1316.6	1226.9	2543.5	2.07	152.40	1885.2	658.3
37	-1.82051	826.597	1820.3	1.0	1330.7	1200.5	2531.2	2.11	156.24	1865.8	665.4
38	-1.81871	847.212	1841.0	1.0	1345.4	1175.5	2520.9	2.14	159.86	1848.2	672.7
39	-1.81701	868.922	1862.7	1.0	1360.9	1151.4	2512.4	2.18	163.35	1831.9	680.5
40	-1.81521	882.833	1876.6	1.0	1370.7	1128.7	2499.4	2.21	166.65	1814.0	685.4
41	-1.80811	941.428	1935.2	1.1	1412.1	1046.7	2458.8	2.35	178.54	1752.7	706.0
42	-1.80111	983.976	1977.7	1.3	1441.6	978.5	2420.1	2.47	188.42	1699.3	720.8
43	-1.79402	011.566	2005.3	1.4	1460.2	922.6	2382.7	2.58	196.54	1652.6	730.1
44	-1.78702	035.527	2029.3	1.5	1476.0	876.5	2352.5	2.68	203.23	1614.5	738.0
45	-1.77992	059.846	2053.6	1.6	1492.2	837.4	2329.6	2.78	208.89	1583.5	746.1
46	-1.77282	074.387	2068.1	1.7	1501.1	805.0	2306.2	2.86	213.59	1555.6	750.6
47	-1.76582	088.784	2082.5	1.8	1510.0	776.4	2286.4	2.94	217.75	1531.4	755.0
48	-1.75872	101.032	2094.8	1.9	1517.2	752.9	2270.2	3.02	221.14	1511.6	758.6
49	-1.75172	116.712	2110.5	2.0	1527.0	732.6	2259.6	3.08	224.09	1496.1	763.5
50	-1.74462	124.954	2118.7	2.1	1531.3	715.2	2246.5	3.14	226.63	1480.8	765.7
51	-1.73762	135.705	2129.5	2.2	1537.5	699.8	2237.2	3.20	228.85	1468.5	768.7
52	-1.73052	147.632	2141.4	2.3	1544.4	686.9	2231.3	3.25	230.73	1459.1	772.2
53	-1.72352	153.331	2147.1	2.4	1546.9	675.4	2222.3	3.29	232.39	1448.8	773.4
54	-1.71642	162.829	2156.6	2.5	1552.1	665.1	2217.2	3.33	233.89	1441.1	776.0
55	-1.70942	173.332	2167.1	2.6	1558.0	656.3	2214.2	3.37	235.17	1435.2	779.0
56	-1.70232	182.148	2175.9	2.7	1562.6	648.5	2211.2	3.41	236.29	1429.8	781.3
57	-1.69522	188.641	2182.4	2.8	1565.6	641.4	2207.0	3.44	237.33	1424.2	782.8
58	-1.68822	198.359	2192.1	2.9	1570.9	635.2	2206.1	3.47	238.22	1420.7	785.5
59	-1.68112	202.847	2196.6	3.0	1572.4	629.7	2202.1	3.50	239.02	1415.9	786.2
60	-1.67412	212.612	2206.4	3.1	1577.7	624.7	2202.5	3.53	239.74	1413.6	788.9
61	-1.66702	223.859	2217.6	3.2	1584.1	620.7	2204.8	3.55	240.32	1412.8	792.0
62	-1.66002	230.063	2223.8	3.3	1586.8	616.8	2203.6	3.57	240.89	1410.2	793.4
63	-1.65292	237.481	2231.2	3.4	1590.4	612.8	2203.2	3.60	241.47	1408.0	795.2
64	-1.64592	245.940	2239.7	3.5	1594.7	609.5	2204.2	3.62	241.95	1406.8	797.3
65	-1.63882	258.230	2252.0	3.6	1601.7	607.4	2209.1	3.64	242.25	1408.3	800.8
66	-1.63172	266.836	2260.6	3.7	1606.1	604.8	2210.9	3.66	242.63	1407.9	803.0
67	-1.62472	272.772	2266.5	3.9	1608.6	602.8	2211.4	3.67	242.92	1407.1	804.3
68	-1.61762	281.027	2274.8	4.0	1612.7	601.0	2213.7	3.68	243.18	1407.3	806.3
69	-1.61062	285.974	2279.7	4.1	1614.4	600.0	2214.4	3.69	243.32	1407.2	807.2
70	-1.60352	295.788	2289.5	4.2	1619.6	598.8	2218.4	3.70	243.51	1408.6	809.8

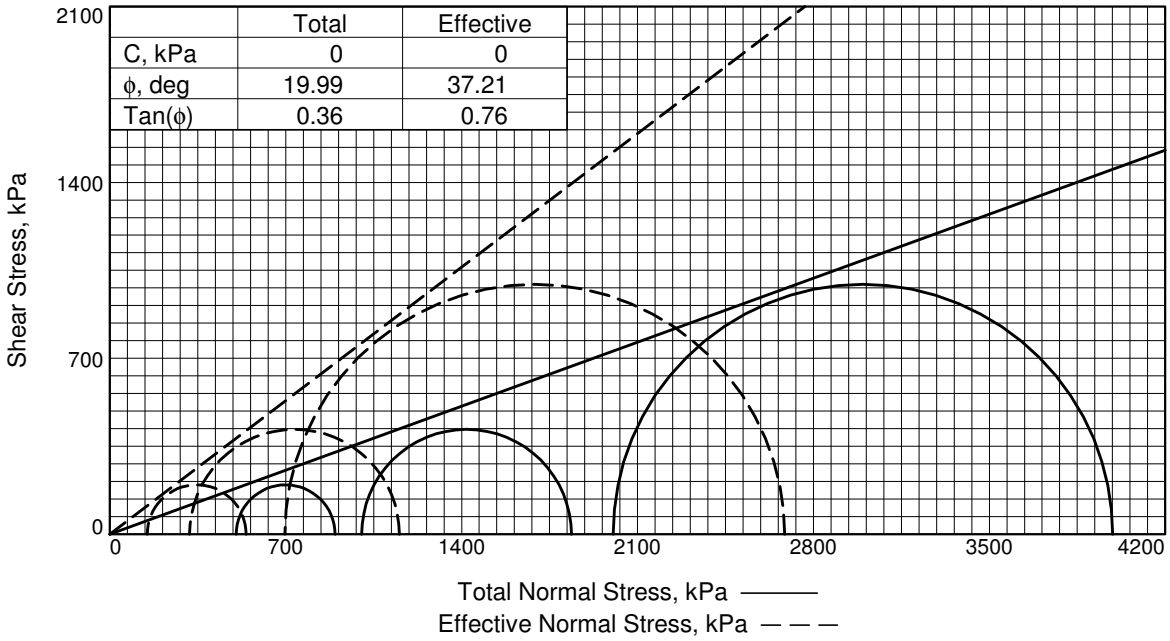
Test Readings for Specimen No. 3

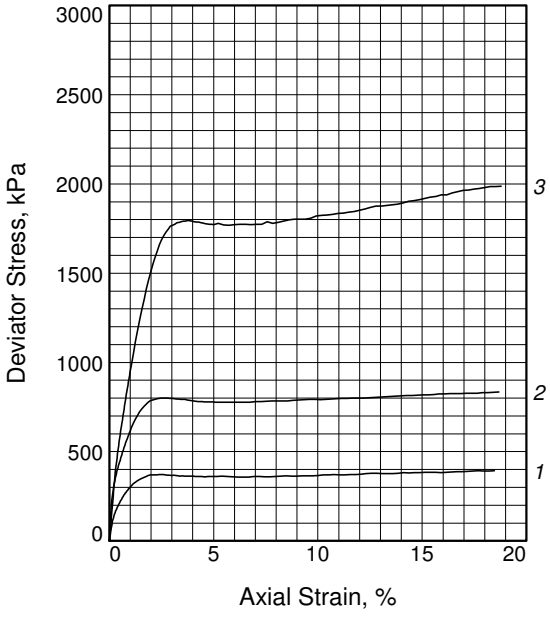
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
71	-1.59652	305.608	2299.4	4.3	1624.8	597.8	2222.6	3.72	243.65	1410.2	812.4
72	-1.58942	317.784	2311.5	4.4	1631.6	597.0	2228.6	3.73	243.77	1412.8	815.8
73	-1.58232	326.012	2319.8	4.5	1635.6	596.5	2232.1	3.74	243.84	1414.3	817.8
74	-1.57532	336.383	2330.1	4.6	1641.2	596.1	2237.3	3.75	243.89	1416.7	820.6
75	-1.56822	343.602	2337.4	4.7	1644.5	595.5	2239.9	3.76	243.98	1417.7	822.2
76	-1.56122	353.392	2347.1	4.8	1649.5	595.1	2244.6	3.77	244.04	1419.8	824.8
77	-1.55412	357.142	2350.9	4.9	1650.4	595.4	2245.7	3.77	244.00	1420.6	825.2
78	-1.54702	364.009	2357.8	5.0	1653.4	595.6	2249.0	3.78	243.97	1422.3	826.7
79	-1.54002	375.896	2369.6	5.1	1659.9	594.6	2254.5	3.79	244.11	1424.5	829.9
80	-1.53292	384.978	2378.7	5.2	1664.4	594.2	2258.7	3.80	244.16	1426.4	832.2
81	-1.51532	399.103	2392.9	5.5	1669.7	596.3	2266.0	3.80	243.87	1431.1	834.9
82	-1.49772	420.177	2413.9	5.7	1679.8	597.8	2277.6	3.81	243.65	1437.7	839.9
83	-1.48002	437.526	2431.3	6.0	1687.2	600.3	2287.5	3.81	243.29	1443.9	843.6
84	-1.46242	459.037	2452.8	6.2	1697.4	602.0	2299.4	3.82	243.04	1450.7	848.7
85	-1.44482	474.877	2468.6	6.5	1703.6	605.2	2308.9	3.81	242.57	1457.1	851.8
86	-1.42712	496.240	2490.0	6.8	1713.6	607.7	2321.3	3.82	242.21	1464.5	856.8
87	-1.40952	513.921	2507.7	7.0	1720.9	610.0	2330.9	3.82	241.88	1470.4	860.5
88	-1.39192	532.468	2526.2	7.3	1728.8	612.5	2341.3	3.82	241.52	1476.9	864.4
89	-1.37432	546.389	2540.1	7.5	1733.5	614.5	2348.0	3.82	241.22	1481.3	866.7
90	-1.35662	564.159	2557.9	7.8	1740.7	616.8	2357.5	3.82	240.89	1487.2	870.3
91	-1.33902	583.622	2577.4	8.1	1749.0	619.3	2368.3	3.82	240.53	1493.8	874.5
92	-1.32142	599.610	2593.4	8.3	1754.9	621.5	2376.3	3.82	240.21	1498.9	877.4
93	-1.30372	612.350	2606.1	8.6	1758.5	624.5	2382.9	3.82	239.78	1503.7	879.2
94	-1.28612	626.524	2620.3	8.8	1763.0	624.9	2387.9	3.82	239.72	1506.4	881.5
95	-1.26852	647.956	2641.7	9.1	1772.4	628.8	2401.1	3.82	239.16	1514.9	886.2
96	-1.25082	664.518	2658.3	9.4	1778.4	632.5	2410.8	3.81	238.62	1521.6	889.2
97	-1.23322	684.112	2677.9	9.6	1786.3	634.2	2420.5	3.82	238.37	1527.4	893.2
98	-1.21562	702.738	2696.5	9.9	1793.6	637.3	2430.8	3.81	237.92	1534.0	896.8
99	-1.19802	714.625	2708.4	10.1	1796.3	640.8	2437.1	3.80	237.40	1539.0	898.1
100	-1.18032	724.350	2718.1	10.4	1797.5	638.6	2436.1	3.81	237.73	1537.3	898.8
101	-1.16272	738.462	2732.2	10.7	1801.6	640.7	2442.3	3.81	237.42	1541.5	900.8
102	-1.14512	760.756	2754.5	10.9	1811.0	644.7	2455.7	3.81	236.84	1550.2	905.5
103	-1.12742	775.143	2768.9	11.2	1815.2	646.9	2462.1	3.81	236.53	1554.5	907.6
104	-1.10982	783.710	2777.5	11.4	1815.5	649.3	2464.7	3.80	236.18	1557.0	907.7
105	-1.09222	799.721	2793.5	11.7	1820.6	651.2	2471.8	3.80	235.90	1561.5	910.3
106	-1.07452	815.853	2809.6	12.0	1825.7	653.9	2479.5	3.79	235.52	1566.7	912.8
107	-1.05692	827.360	2821.1	12.2	1827.7	655.4	2483.1	3.79	235.29	1569.3	913.9
108	-1.03932	844.582	2838.3	12.5	1833.4	656.8	2490.2	3.79	235.09	1573.5	916.7
109	-1.02162	864.396	2858.1	12.7	1840.8	659.0	2499.7	3.79	234.77	1579.4	920.4
110	-1.00402	870.777	2864.5	13.0	1839.4	661.5	2500.8	3.78	234.41	1581.1	919.7
111	-0.98642	887.586	2881.3	13.3	1844.6	664.5	2509.1	3.78	233.97	1586.8	922.3
112	-0.96872	906.392	2900.1	13.5	1851.1	666.6	2517.7	3.78	233.67	1592.1	925.5
113	-0.95112	921.114	2914.9	13.8	1854.9	668.9	2523.8	3.77	233.33	1596.4	927.4
114	-0.93352	927.364	2921.1	14.0	1853.3	670.4	2523.7	3.76	233.12	1597.0	926.6
115	-0.91582	939.333	2933.1	14.3	1855.2	672.3	2527.5	3.76	232.84	1599.9	927.6
116	-0.89822	939.783	2933.5	14.6	1849.9	674.9	2524.8	3.74	232.46	1599.9	924.9
117	-0.88062	948.061	2941.8	14.8	1849.5	676.2	2525.6	3.74	232.28	1600.9	924.7

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
118	-0.86302	957.563	2951.3	15.1	1849.8	677.5	2527.2	3.73	232.09	1602.4	924.9
119	-0.84532	975.070	2968.8	15.4	1855.0	679.7	2534.7	3.73	231.77	1607.2	927.5
120	-0.82772	995.809	2989.6	15.6	1862.3	679.3	2541.5	3.74	231.83	1610.4	931.1
121	-0.81013	011.148	3004.9	15.9	1866.0	681.2	2547.2	3.74	231.55	1614.2	933.0
122	-0.79243	021.204	3015.0	16.1	1866.5	680.0	2546.5	3.75	231.73	1613.2	933.2
123	-0.77483	040.233	3034.0	16.4	1872.5	681.2	2553.7	3.75	231.55	1617.4	936.2
124	-0.75723	056.704	3050.5	16.7	1876.8	682.8	2559.6	3.75	231.31	1621.2	938.4
125	-0.73963	059.263	3053.0	16.9	1872.5	683.4	2555.8	3.74	231.24	1619.6	936.2
126	-0.72193	074.986	3068.7	17.2	1876.2	683.9	2560.1	3.74	231.16	1622.0	938.1
127	-0.70433	094.068	3087.8	17.4	1882.0	684.7	2566.6	3.75	231.05	1625.6	941.0
128	-0.68673	115.614	3109.4	17.7	1889.1	684.6	2573.8	3.76	231.05	1629.2	944.6
129	-0.66903	121.917	3115.7	18.0	1887.0	683.2	2570.2	3.76	231.26	1626.7	943.5
130	-0.65143	155.527	3149.3	18.2	1901.3	681.5	2582.7	3.79	231.51	1632.1	950.6
131	-0.63383	179.492	3173.2	18.5	1909.7	678.4	2588.1	3.81	231.95	1633.3	954.8
132	-0.61613	195.447	3189.2	18.7	1913.1	675.6	2588.8	3.83	232.36	1632.2	956.6
133	-0.61593	189.354	3183.1	18.7	1909.4	675.7	2585.1	3.83	232.35	1630.4	954.7

Cursory interpretations provided require review by a professional engineer. Knight Piesold accepts no responsibility in subsequent analyses.





Sample No.		1	2	3
Initial	Water Content, %	7.7	7.8	7.8
	Dry Density, pcf	128.9	125.6	127.0
	Saturation, %	67.4	61.6	64.3
	Void Ratio	0.3081	0.3421	0.3277
	Diameter, in.	3.470	3.490	3.470
	Height, in.	7.040	7.130	7.150
At Test	Water Content, %	10.6	9.5	9.1
	Dry Density, pcf	131.2	134.0	135.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.2849	0.2576	0.2467
	Diameter, in.	3.480	3.440	3.435
	Height, in.	6.874	6.878	6.853
Strain rate, in./min.		0.025	0.025	0.025
Eff. Cell Pressure, kPa		502.8	1002.3	2002.8
Fail. Stress, kPa		393.3	834.6	1988.1
Excess Pore Pr., kPa		353.9	684.9	1305.8
Strain, %		18.5	18.7	18.8
Ult. Stress, kPa				
Excess Pore Pr., kPa				
Strain, %				
$\bar{\sigma}_1$ Failure, kPa		542.1	1152.0	2685.0
$\bar{\sigma}_3$ Failure, kPa		148.9	317.4	697.0

Type of Test:
CU with Pore Pressures

Sample Type: Remolded to 95% MDD at OMC

Description:

Assumed Specific Gravity= 2.7

Remarks: Failure tangents drawn at approximately 18% strain and C=0.

Figure _____

Client: New Gold Inc.

Project: Blackwater Gold Project

Location: GT-45

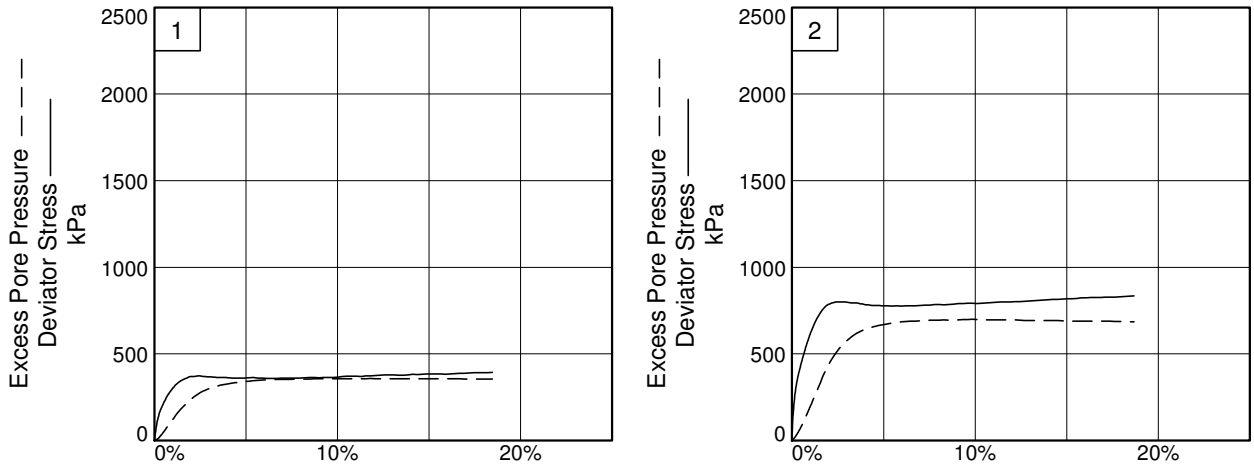
Sample Number: 7,8,9 and 25

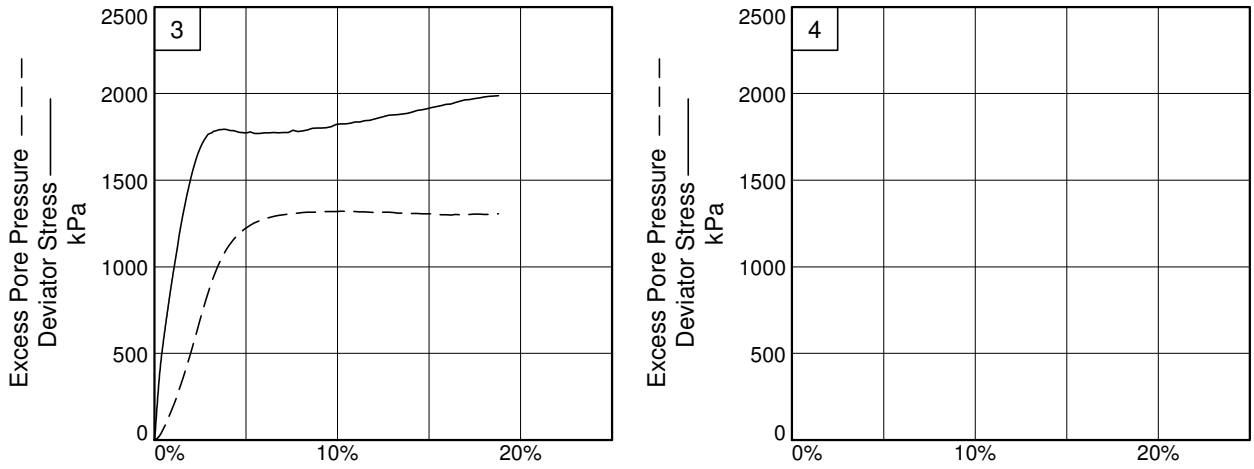
Proj. No.: VA101-457/04 **Date Sampled:** 4/15/13

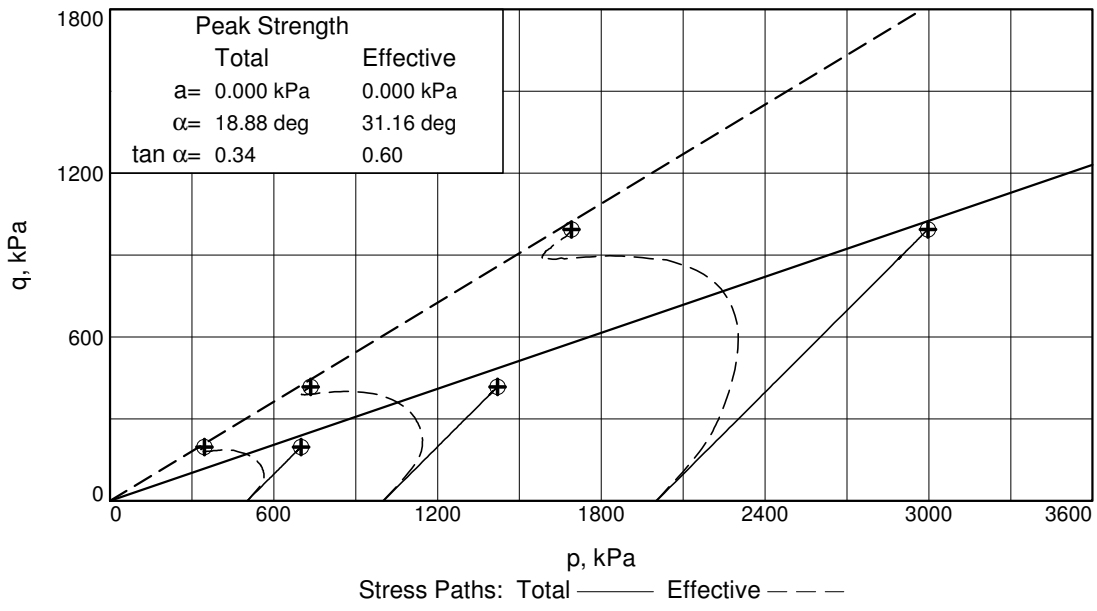
Knight Piésold CONSULTING

Tested By: JHK **Checked By:** JDB

Cursory interpretations provided require review by a professional engineer. Knight Piesold accepts no responsibility in subsequent analyses.







Client: New Gold Inc.
Project: Blackwater Gold Project
Location: GT-45 **Sample Number:** 7,8,9 and 25
Project No.: VA101-457/04 **Figure** _____

Knight Piesold Geotechnical Lab.

Tested By: JHK **Checked By:** JDB

TRIAXIAL COMPRESSION TEST

CU with Pore Pressures

4/24/2013
2:04 PM

Date: 4/15/13
Client: New Gold Inc.
Project: Blackwater Gold Project
Project No.: VA101-457/04
Location: GT-45
Sample Number: 7,8,9 and 25
Description:
Remarks: Failure tangents drawn at approximately 18% strain and C=0.
Type of Sample: Remolded to 95% MDD at OMC
Assumed Specific Gravity= 2.7 **LL=** **PL=** **PI=**
Test Method: ASTM D 4767 Method A

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2425.000			2875.000
Moisture content: Dry soil+tare, gms.	2251.800			2637.300
Moisture content: Tare, gms.	0.000			385.500
Moisture, %	7.7	11.4	10.6	10.6
Moist specimen weight, gms.	2425.00			
Diameter, in.	3.470	3.470	3.480	
Area, in.²	9.457	9.457	9.513	
Height, in.	7.040	7.040	6.874	
Net decrease in height, in.		0.000	0.166	
Net decrease in water volume, cc.			19.400	
Wet density, pcf	138.8	143.6	145.0	
Dry density, pcf	128.9	128.9	131.2	
Void ratio	0.3081	0.3081	0.2849	
Saturation, %	67.4	100.0	100.0	

Test Readings for Specimen No. 1

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 122.920 psi (847.50 kPa)
Consolidation back pressure = 50.000 psi (344.74 kPa)
Consolidation effective confining stress = 502.77 kPa
Strain rate, in./min. = 0.025
Fail. Stress = 393.26 kPa **at reading no.** 133

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.6030	-11.000	0.0	0.0	0.00	502.77	502.77	1.00	50.000	502.77	0.00
1	-1.6017	13.622	24.6	0.0	17.84	501.71	519.55	1.04	50.153	510.63	8.92
2	-1.6000	38.264	49.3	0.0	35.69	500.93	536.62	1.07	50.266	518.78	17.84
3	-1.5982	64.697	75.7	0.1	54.82	500.08	554.90	1.11	50.389	527.49	27.41
4	-1.5964	91.569	102.6	0.1	74.27	498.70	572.97	1.15	50.590	535.83	37.13
5	-1.5947	114.625	125.6	0.1	90.94	497.44	588.37	1.18	50.773	542.91	45.47
6	-1.5929	137.597	148.6	0.1	107.54	495.64	603.19	1.22	51.033	549.41	53.77
7	-1.5911	155.111	166.1	0.2	120.18	493.79	613.97	1.24	51.302	553.88	60.09
8	-1.5894	168.475	179.5	0.2	129.82	491.89	621.71	1.26	51.578	556.80	64.91
9	-1.5876	184.112	195.1	0.2	141.09	489.19	630.28	1.29	51.970	559.73	70.55
10	-1.5858	197.131	208.1	0.2	150.47	486.50	636.97	1.31	52.359	561.73	75.24
11	-1.5841	208.125	219.1	0.3	158.38	483.60	641.98	1.33	52.780	562.79	79.19
12	-1.5823	219.889	230.9	0.3	166.84	480.65	647.49	1.35	53.208	564.07	83.42
13	-1.5805	229.172	240.2	0.3	173.50	477.47	650.97	1.36	53.669	564.22	86.75
14	-1.5788	238.302	249.3	0.4	180.05	474.08	654.13	1.38	54.161	564.10	90.02
15	-1.5770	247.703	258.7	0.4	186.79	470.82	657.61	1.40	54.634	564.21	93.40
16	-1.5752	255.684	266.7	0.4	192.50	467.51	660.01	1.41	55.114	563.76	96.25
17	-1.5735	265.283	276.3	0.4	199.38	463.81	663.20	1.43	55.649	563.50	99.69
18	-1.5717	273.356	284.4	0.5	205.15	460.40	665.56	1.45	56.144	562.98	102.58
19	-1.5699	281.000	292.0	0.5	210.61	456.70	667.31	1.46	56.682	562.01	105.31
20	-1.5682	289.935	300.9	0.5	217.00	453.20	670.20	1.48	57.189	561.70	108.50
21	-1.5664	297.598	308.6	0.5	222.47	449.63	672.10	1.49	57.706	560.87	111.24
22	-1.5647	304.607	315.6	0.6	227.47	445.89	673.36	1.51	58.249	559.62	113.73
23	-1.5629	311.120	322.1	0.6	232.10	442.28	674.38	1.52	58.773	558.33	116.05
24	-1.5611	318.734	329.7	0.6	237.52	438.59	676.12	1.54	59.307	557.36	118.76
25	-1.5594	327.501	338.5	0.6	243.78	434.65	678.43	1.56	59.880	556.54	121.89
26	-1.5576	334.053	345.1	0.7	248.43	430.97	679.40	1.58	60.413	555.19	124.22
27	-1.5558	340.411	351.4	0.7	252.94	427.19	680.13	1.59	60.962	553.66	126.47
28	-1.5541	348.131	359.1	0.7	258.43	423.57	682.00	1.61	61.486	552.79	129.22
29	-1.5523	353.642	364.6	0.7	262.33	420.03	682.36	1.62	62.000	551.19	131.17
30	-1.5505	360.466	371.5	0.8	267.17	416.01	683.18	1.64	62.583	549.60	133.59
31	-1.5488	364.759	375.8	0.8	270.19	412.31	682.50	1.66	63.119	547.41	135.09
32	-1.5470	370.604	381.6	0.8	274.32	408.54	682.87	1.67	63.666	545.70	137.16
33	-1.5452	376.751	387.8	0.8	278.67	404.59	683.26	1.69	64.239	543.93	139.33
34	-1.5435	381.311	392.3	0.9	281.87	400.95	682.83	1.70	64.766	541.89	140.94
35	-1.5417	386.595	397.6	0.9	285.59	397.29	682.88	1.72	65.298	540.09	142.80
36	-1.5399	393.485	404.5	0.9	290.47	393.46	683.93	1.74	65.853	538.70	145.23
37	-1.5382	397.596	408.6	0.9	293.34	389.80	683.15	1.75	66.384	536.48	146.67
38	-1.5364	404.271	415.3	1.0	298.06	386.03	684.09	1.77	66.932	535.06	149.03
39	-1.5346	407.443	418.4	1.0	300.26	382.41	682.66	1.79	67.457	532.53	150.13
40	-1.5329	412.439	423.4	1.0	303.76	378.85	682.61	1.80	67.973	530.73	151.88
41	-1.5311	417.343	428.3	1.0	307.20	375.11	682.31	1.82	68.515	528.71	153.60
42	-1.5241	434.500	445.5	1.1	319.18	360.82	679.99	1.88	70.588	520.40	159.59
43	-1.5170	448.829	459.8	1.3	329.10	346.76	675.86	1.95	72.627	511.31	164.55
44	-1.5100	461.819	472.8	1.4	338.05	333.68	671.73	2.01	74.524	502.70	169.02
45	-1.5030	472.410	483.4	1.5	345.26	320.78	666.04	2.08	76.395	493.41	172.63
46	-1.4959	480.007	491.0	1.6	350.32	308.37	658.69	2.14	78.195	483.53	175.16

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
47	-1.4889	487.888	498.9	1.7	355.57	297.31	652.88	2.20	79.799	475.09	177.79
48	-1.4818	494.837	505.8	1.8	360.15	286.61	646.76	2.26	81.351	466.69	180.08
49	-1.4748	502.851	513.9	1.9	365.48	276.69	642.17	2.32	82.789	459.43	182.74
50	-1.4677	509.407	520.4	2.0	369.75	267.51	637.26	2.38	84.122	452.38	184.88
51	-1.4607	510.289	521.3	2.1	369.99	258.56	628.55	2.43	85.419	443.55	185.00
52	-1.4536	510.038	521.0	2.2	369.43	250.03	619.45	2.48	86.657	434.74	184.71
53	-1.4466	511.945	522.9	2.3	370.39	242.12	612.51	2.53	87.804	427.31	185.20
54	-1.4396	515.381	526.4	2.4	372.43	235.18	607.61	2.58	88.811	421.39	186.22
55	-1.4325	515.923	526.9	2.5	372.43	228.52	600.95	2.63	89.775	414.74	186.21
56	-1.4255	514.258	525.3	2.6	370.86	222.50	593.36	2.67	90.650	407.93	185.43
57	-1.4184	512.249	523.2	2.7	369.05	217.01	586.07	2.70	91.445	401.54	184.53
58	-1.4114	511.971	523.0	2.8	368.47	212.00	580.47	2.74	92.171	396.24	184.23
59	-1.4043	511.346	522.3	2.9	367.64	207.53	575.17	2.77	92.820	391.35	183.82
60	-1.3973	511.257	522.3	3.0	367.19	203.33	570.51	2.81	93.430	386.92	183.59
61	-1.3902	512.681	523.7	3.1	367.80	199.28	567.08	2.85	94.017	383.18	183.90
62	-1.3832	511.109	522.1	3.2	366.31	195.85	562.15	2.87	94.515	379.00	183.15
63	-1.3762	509.747	520.7	3.3	364.97	192.51	557.48	2.90	94.998	375.00	182.48
64	-1.3691	508.336	519.3	3.4	363.59	189.47	553.07	2.92	95.439	371.27	181.80
65	-1.3621	509.103	520.1	3.5	363.74	186.55	550.29	2.95	95.863	368.42	181.87
66	-1.3550	509.169	520.2	3.6	363.40	183.87	547.27	2.98	96.252	365.57	181.70
67	-1.3480	509.364	520.4	3.7	363.15	181.40	544.55	3.00	96.610	362.98	181.58
68	-1.3409	510.120	521.1	3.8	363.29	179.22	542.52	3.03	96.926	360.87	181.65
69	-1.3339	510.345	521.3	3.9	363.06	177.13	540.19	3.05	97.229	358.66	181.53
70	-1.3268	509.486	520.5	4.0	362.08	175.18	537.26	3.07	97.512	356.22	181.04
71	-1.3198	509.552	520.6	4.1	361.74	173.39	535.13	3.09	97.771	354.26	180.87
72	-1.3128	508.002	519.0	4.2	360.27	171.80	532.08	3.10	98.002	351.94	180.14
73	-1.3057	508.812	519.8	4.3	360.45	170.21	530.66	3.12	98.233	350.44	180.22
74	-1.2987	508.997	520.0	4.4	360.19	169.01	529.20	3.13	98.407	349.11	180.10
75	-1.2916	509.073	520.1	4.5	359.86	167.68	527.54	3.15	98.600	347.61	179.93
76	-1.2846	508.825	519.8	4.6	359.30	166.25	525.55	3.16	98.807	345.90	179.65
77	-1.2775	511.799	522.8	4.7	360.97	164.44	525.41	3.20	99.070	344.93	180.48
78	-1.2705	512.272	523.3	4.8	360.91	163.23	524.13	3.21	99.246	343.68	180.45
79	-1.2635	512.632	523.6	4.9	360.77	162.25	523.02	3.22	99.387	342.64	180.38
80	-1.2564	514.258	525.3	5.0	361.50	161.20	522.70	3.24	99.540	341.95	180.75
81	-1.2494	514.400	525.4	5.1	361.20	160.26	521.47	3.25	99.676	340.87	180.60
82	-1.2318	518.474	529.5	5.4	363.02	157.87	520.89	3.30	100.023	339.38	181.51
83	-1.2142	516.250	527.3	5.7	360.52	156.04	516.56	3.31	100.288	336.30	180.26
84	-1.1966	516.977	528.0	5.9	360.04	154.20	514.23	3.33	100.556	334.21	180.02
85	-1.1790	515.791	526.8	6.2	358.25	152.84	511.09	3.34	100.753	331.96	179.12
86	-1.1614	516.858	527.9	6.4	358.00	151.66	509.66	3.36	100.923	330.66	179.00
87	-1.1438	518.709	529.7	6.7	358.27	150.88	509.15	3.37	101.037	330.01	179.13
88	-1.1262	523.233	534.2	6.9	360.34	150.19	510.52	3.40	101.137	330.36	180.17
89	-1.1086	524.740	535.7	7.2	360.36	149.84	510.19	3.41	101.188	330.01	180.18
90	-1.0909	525.453	536.5	7.4	359.84	149.31	509.15	3.41	101.264	329.23	179.92
91	-1.0733	527.185	538.2	7.7	360.00	148.92	508.93	3.42	101.320	328.93	180.00
92	-1.0557	529.353	540.4	8.0	360.45	147.64	508.09	3.44	101.507	327.87	180.23
93	-1.0381	533.394	544.4	8.2	362.14	147.43	509.57	3.46	101.537	328.50	181.07

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
94	-1.0205	537.280	548.3	8.5	363.70	147.57	511.28	3.46	101.516	329.43	181.85
95	-1.0029	538.734	549.7	8.7	363.65	147.08	510.73	3.47	101.588	328.91	181.82
96	-0.9853	538.853	549.9	9.0	362.71	146.80	509.50	3.47	101.629	328.15	181.35
97	-0.9677	541.999	553.0	9.2	363.75	146.55	510.31	3.48	101.665	328.43	181.88
98	-0.9501	543.509	554.5	9.5	363.72	146.54	510.26	3.48	101.666	328.40	181.86
99	-0.9325	545.687	556.7	9.8	364.11	145.92	510.04	3.50	101.756	327.98	182.06
100	-0.9149	550.092	561.1	10.0	365.95	145.88	511.83	3.51	101.762	328.86	182.98
101	-0.8973	556.965	568.0	10.3	369.38	145.92	515.30	3.53	101.756	330.61	184.69
102	-0.8797	560.798	571.8	10.5	370.81	145.47	516.29	3.55	101.821	330.88	185.41
103	-0.8621	563.257	574.3	10.8	371.34	146.07	517.42	3.54	101.734	331.75	185.67
104	-0.8445	564.047	575.0	11.0	370.79	145.84	516.62	3.54	101.768	331.23	185.39
105	-0.8269	564.803	575.8	11.3	370.21	145.91	516.12	3.54	101.758	331.01	185.10
106	-0.8093	569.942	580.9	11.5	372.43	146.08	518.51	3.55	101.733	332.29	186.22
107	-0.7917	571.502	582.5	11.8	372.35	145.43	517.78	3.56	101.827	331.60	186.17
108	-0.7741	576.396	587.4	12.1	374.39	145.61	520.00	3.57	101.801	332.81	187.19
109	-0.7565	581.243	592.2	12.3	376.38	145.78	522.16	3.58	101.776	333.97	188.19
110	-0.7389	585.922	596.9	12.6	378.24	145.51	523.75	3.60	101.816	334.63	189.12
111	-0.7213	588.411	599.4	12.8	378.71	145.77	524.48	3.60	101.778	335.12	189.35
112	-0.7037	589.015	600.0	13.1	377.98	146.26	524.24	3.58	101.706	335.25	188.99
113	-0.6860	590.033	601.0	13.3	377.50	146.10	523.60	3.58	101.731	334.85	188.75
114	-0.6684	590.737	601.7	13.6	376.83	146.27	523.10	3.58	101.705	334.68	188.41
115	-0.6508	595.284	606.3	13.9	378.55	145.58	524.13	3.60	101.806	334.85	189.27
116	-0.6332	602.475	613.5	14.1	381.90	145.87	527.76	3.62	101.764	336.82	190.95
117	-0.6156	603.281	614.3	14.4	381.26	146.12	527.38	3.61	101.727	336.75	190.63
118	-0.5980	607.455	618.5	14.6	382.70	146.00	528.71	3.62	101.744	337.35	191.35
119	-0.5804	610.138	621.1	14.9	383.21	146.01	529.22	3.62	101.744	337.61	191.61
120	-0.5628	613.746	624.7	15.1	384.28	145.72	530.00	3.64	101.784	337.86	192.14
121	-0.5452	614.976	626.0	15.4	383.87	146.79	530.66	3.62	101.630	338.73	191.94
122	-0.5276	616.380	627.4	15.6	383.57	146.75	530.31	3.61	101.636	338.53	191.78
123	-0.5100	617.623	628.6	15.9	383.16	147.12	530.29	3.60	101.581	338.71	191.58
124	-0.4924	620.527	631.5	16.2	383.76	146.31	530.07	3.62	101.699	338.19	191.88
125	-0.4748	626.373	637.4	16.4	386.13	146.93	533.06	3.63	101.610	339.99	193.06
126	-0.4572	630.074	641.1	16.7	387.18	146.99	534.17	3.63	101.600	340.58	193.59
127	-0.4396	634.591	645.6	16.9	388.71	147.33	536.04	3.64	101.552	341.68	194.36
128	-0.4220	638.847	649.8	17.2	390.07	147.41	537.48	3.65	101.540	342.44	195.03
129	-0.4044	642.882	653.9	17.4	391.28	147.55	538.82	3.65	101.520	343.19	195.64
130	-0.3868	646.752	657.8	17.7	392.37	147.50	539.87	3.66	101.527	343.69	196.19
131	-0.3692	648.576	659.6	17.9	392.23	148.57	540.81	3.64	101.371	344.69	196.12
132	-0.3516	650.254	661.3	18.2	392.01	148.74	540.75	3.64	101.347	344.75	196.00
133	-0.3343	654.418	665.4	18.5	393.26	148.86	542.13	3.64	101.329	345.50	196.63

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2424.000			2854.800
Moisture content: Dry soil+tare, gms.	2248.600			2640.200
Moisture content: Tare, gms.	0.000			391.600
Moisture, %	7.8	12.7	9.5	9.5
Moist specimen weight, gms.	2424.00			
Diameter, in.	3.490	3.490	3.440	
Area, in.²	9.566	9.566	9.291	
Height, in.	7.130	7.130	6.878	
Net decrease in height, in.		0.000	0.252	
Net decrease in water volume, cc.			70.400	
Wet density, pcf	135.4	141.5	146.8	
Dry density, pcf	125.6	125.6	134.0	
Void ratio	0.3421	0.3421	0.2576	
Saturation, %	61.6	100.0	100.0	

Test Readings for Specimen No. 2

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 195.370 psi (1347.03 kPa)
Consolidation back pressure = 50.000 psi (344.74 kPa)
Consolidation effective confining stress = 1002.29 kPa
Strain rate, in./min. = 0.025
Fail. Stress = 834.57 kPa **at reading no.** 132

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.5192	-60.000	0.0	0.0	0.00	1000.45	1000.45	1.00	50.267	1000.45	0.00
1	-1.5174	73.459	133.5	0.0	99.01	998.43	1097.44	1.10	50.560	1047.93	49.50
2	-1.5156	123.886	183.9	0.1	136.38	996.29	1132.67	1.14	50.871	1064.48	68.19
3	-1.5139	173.648	233.6	0.1	173.24	993.54	1166.78	1.17	51.270	1080.16	86.62
4	-1.5121	219.554	279.6	0.1	207.23	990.68	1197.91	1.21	51.684	1094.29	103.61
5	-1.5103	259.010	319.0	0.1	236.42	987.50	1223.92	1.24	52.145	1105.71	118.21
6	-1.5085	294.011	354.0	0.2	262.29	983.89	1246.18	1.27	52.668	1115.04	131.14
7	-1.5067	324.215	384.2	0.2	284.59	980.18	1264.77	1.29	53.207	1122.48	142.29
8	-1.5049	350.019	410.0	0.2	303.62	976.10	1279.72	1.31	53.799	1127.91	151.81
9	-1.5031	373.785	433.8	0.2	321.14	971.84	1292.98	1.33	54.416	1132.41	160.57
10	-1.5013	394.498	454.5	0.3	336.39	967.56	1303.95	1.35	55.037	1135.76	168.19
11	-1.4996	413.608	473.6	0.3	350.44	963.19	1313.62	1.36	55.672	1138.40	175.22
12	-1.4978	431.532	491.5	0.3	363.61	958.66	1322.26	1.38	56.328	1140.46	181.80
13	-1.4960	449.336	509.3	0.3	376.68	953.81	1330.49	1.39	57.031	1142.15	188.34
14	-1.4942	466.083	526.1	0.4	388.96	948.87	1337.83	1.41	57.748	1143.35	194.48
15	-1.4924	480.623	540.6	0.4	399.61	944.02	1343.62	1.42	58.452	1143.82	199.80
16	-1.4906	495.652	555.7	0.4	410.61	938.88	1349.49	1.44	59.197	1144.18	205.30
17	-1.4888	510.892	570.9	0.4	421.76	933.77	1355.53	1.45	59.938	1144.65	210.88
18	-1.4871	525.697	585.7	0.5	432.59	928.48	1361.07	1.47	60.705	1144.77	216.29
19	-1.4853	541.492	601.5	0.5	444.14	923.11	1367.25	1.48	61.484	1145.18	222.07
20	-1.4835	553.917	613.9	0.5	453.19	917.63	1370.82	1.49	62.279	1144.23	226.60
21	-1.4817	568.724	628.7	0.5	464.00	912.13	1376.13	1.51	63.077	1144.13	232.00
22	-1.4799	582.045	642.0	0.6	473.71	906.49	1380.20	1.52	63.894	1143.35	236.85
23	-1.4781	594.906	654.9	0.6	483.07	900.71	1383.78	1.54	64.733	1142.25	241.54

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
24	-1.4763	608.441	668.4	0.6	492.93	894.80	1387.73	1.55	65.590	1141.27	246.46
25	-1.4745	622.072	682.1	0.6	502.85	889.05	1391.89	1.57	66.425	1140.47	251.42
26	-1.4727	634.256	694.3	0.7	511.70	883.23	1394.92	1.58	67.269	1139.07	255.85
27	-1.4710	646.747	706.7	0.7	520.77	877.25	1398.01	1.59	68.136	1137.63	260.38
28	-1.4692	659.410	719.4	0.7	529.96	871.32	1401.28	1.61	68.996	1136.30	264.98
29	-1.4674	672.139	732.1	0.8	539.19	865.20	1404.39	1.62	69.883	1134.80	269.60
30	-1.4656	683.308	743.3	0.8	547.28	858.82	1406.09	1.64	70.809	1132.45	273.64
31	-1.4638	695.538	755.5	0.8	556.13	852.60	1408.73	1.65	71.712	1130.66	278.07
32	-1.4620	707.381	767.4	0.8	564.70	846.52	1411.23	1.67	72.592	1128.87	282.35
33	-1.4602	718.323	778.3	0.9	572.60	840.21	1412.82	1.68	73.507	1126.52	286.30
34	-1.4584	728.540	788.5	0.9	579.97	833.60	1413.57	1.70	74.467	1123.58	289.98
35	-1.4567	740.770	800.8	0.9	588.81	827.16	1415.98	1.71	75.400	1121.57	294.41
36	-1.4549	752.584	812.6	0.9	597.34	820.88	1418.22	1.73	76.311	1119.55	298.67
37	-1.4531	763.598	823.6	1.0	605.28	814.53	1419.81	1.74	77.232	1117.17	302.64
38	-1.4513	773.759	833.8	1.0	612.58	808.25	1420.84	1.76	78.143	1114.54	306.29
39	-1.4495	783.966	844.0	1.0	619.92	801.59	1421.51	1.77	79.110	1111.55	309.96
40	-1.4477	794.934	854.9	1.0	627.81	795.11	1422.92	1.79	80.050	1109.01	313.91
41	-1.4406	834.591	894.6	1.1	656.25	768.68	1424.93	1.85	83.882	1096.81	328.12
42	-1.4335	869.884	929.9	1.2	681.42	742.07	1423.49	1.92	87.742	1082.78	340.71
43	-1.4263	900.748	960.7	1.4	703.30	715.43	1418.73	1.98	91.605	1067.08	351.65
44	-1.4192	928.330	988.3	1.5	722.73	689.59	1412.32	2.05	95.353	1050.96	361.37
45	-1.4121	952.625	1012.6	1.6	739.72	664.07	1403.79	2.11	99.055	1033.93	369.86
46	-1.4049	973.579	1033.6	1.7	754.23	639.11	1393.33	2.18	102.676	1016.22	377.11
47	-1.3978	991.886	1051.9	1.8	766.78	615.32	1382.09	2.25	106.126	998.71	383.39
48	-1.39071007.387		1067.4	1.9	777.26	592.62	1369.88	2.31	109.417	981.25	388.63
49	-1.38351019.508		1079.5	2.0	785.25	570.71	1355.96	2.38	112.595	963.34	392.63
50	-1.37641025.734		1085.7	2.1	788.94	550.60	1339.54	2.43	115.512	945.07	394.47
51	-1.36931033.694		1093.7	2.2	793.89	531.73	1325.62	2.49	118.249	928.68	396.94
52	-1.36211038.780		1098.8	2.3	796.73	514.21	1310.94	2.55	120.791	912.57	398.37
53	-1.35501043.578		1103.6	2.4	799.36	498.04	1297.41	2.61	123.135	897.72	399.68
54	-1.34791046.185		1106.2	2.5	800.40	482.98	1283.38	2.66	125.319	883.18	400.20
55	-1.34071047.084		1107.1	2.6	800.20	468.58	1268.78	2.71	127.408	868.68	400.10
56	-1.33361048.376		1108.4	2.7	800.28	456.07	1256.35	2.75	129.223	856.21	400.14
57	-1.32651048.631		1108.6	2.8	799.61	444.53	1244.14	2.80	130.896	844.34	399.80
58	-1.31931048.839		1108.8	2.9	798.91	433.84	1232.75	2.84	132.446	833.30	399.45
59	-1.31221049.186		1109.2	3.0	798.30	424.28	1222.58	2.88	133.834	823.43	399.15
60	-1.30501047.464		1107.5	3.1	796.21	415.27	1211.48	2.92	135.141	813.37	398.11
61	-1.29791046.793		1106.8	3.2	794.88	406.34	1201.21	2.96	136.436	803.77	397.44
62	-1.29081047.451		1107.5	3.3	794.50	398.27	1192.76	2.99	137.606	795.51	397.25
63	-1.28371047.600		1107.6	3.4	793.75	390.37	1184.12	3.03	138.752	787.24	396.88
64	-1.27651048.393		1108.4	3.5	793.47	384.12	1177.59	3.07	139.658	780.86	396.73
65	-1.26941048.617		1108.6	3.6	792.78	378.14	1170.91	3.10	140.526	774.53	396.39
66	-1.26231045.177		1105.2	3.7	789.47	372.52	1161.99	3.12	141.341	767.25	394.73
67	-1.25511044.255		1104.3	3.8	787.96	367.47	1155.42	3.14	142.074	761.44	393.98
68	-1.24801042.246		1102.2	3.9	785.67	362.84	1148.51	3.17	142.745	755.67	392.84
69	-1.24091040.102		1100.1	4.0	783.30	358.57	1141.87	3.18	143.364	750.22	391.65
70	-1.23371040.475		1100.5	4.2	782.72	354.63	1137.35	3.21	143.935	745.99	391.36

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
71	-1.22661	039.854	1099.9	4.3	781.43	351.27	1132.70	3.22	144.422	741.99	390.72
72	-1.21951	039.428	1099.4	4.4	780.28	347.88	1128.16	3.24	144.914	738.02	390.14
73	-1.21231	039.864	1099.9	4.5	779.74	345.05	1124.79	3.26	145.325	734.92	389.87
74	-1.20521	040.287	1100.3	4.6	779.20	342.22	1121.42	3.28	145.735	731.82	389.60
75	-1.19811	041.146	1101.1	4.7	778.96	339.76	1118.72	3.29	146.092	729.24	389.48
76	-1.19091	042.640	1102.6	4.8	779.17	337.66	1116.83	3.31	146.397	727.24	389.58
77	-1.18381	042.811	1102.8	4.9	778.44	335.59	1114.03	3.32	146.697	724.81	389.22
78	-1.17661	043.499	1103.5	5.0	778.07	333.66	1111.74	3.33	146.976	722.70	389.04
79	-1.16951	043.076	1103.1	5.1	776.93	331.96	1108.89	3.34	147.223	720.42	388.46
80	-1.16241	044.477	1104.5	5.2	777.06	330.00	1107.07	3.35	147.507	718.53	388.53
81	-1.14461	046.116	1106.1	5.4	776.09	324.39	1100.48	3.39	148.322	712.43	388.04
82	-1.12671	051.552	1111.6	5.7	777.77	320.37	1098.14	3.43	148.904	709.26	388.88
83	-1.10891	052.583	1112.6	6.0	776.35	317.99	1094.34	3.44	149.249	706.17	388.17
84	-1.09111	056.998	1117.0	6.2	777.28	315.79	1093.07	3.46	149.569	704.43	388.64
85	-1.07321	059.734	1119.7	6.5	777.03	314.09	1091.12	3.47	149.816	702.60	388.52
86	-1.05541	063.035	1123.0	6.7	777.16	312.94	1090.10	3.48	149.981	701.52	388.58
87	-1.03761	070.070	1130.1	7.0	779.86	311.94	1091.80	3.50	150.127	701.87	389.93
88	-1.01981	074.363	1134.4	7.3	780.64	310.36	1091.00	3.52	150.356	700.68	390.32
89	-1.00191	078.817	1138.8	7.5	781.51	308.30	1089.81	3.53	150.655	699.05	390.76
90	-0.98411	086.011	1146.0	7.8	784.25	307.12	1091.37	3.55	150.826	699.24	392.12
91	-0.96631	089.180	1149.2	8.0	784.20	307.16	1091.36	3.55	150.820	699.26	392.10
92	-0.94851	092.022	1152.0	8.3	783.93	306.84	1090.76	3.55	150.867	698.80	391.96
93	-0.93061	095.753	1155.8	8.6	784.24	307.08	1091.32	3.55	150.832	699.20	392.12
94	-0.91281	103.842	1163.8	8.8	787.49	307.83	1095.33	3.56	150.723	701.58	393.75
95	-0.89501	110.623	1170.6	9.1	789.83	305.64	1095.47	3.58	151.041	700.55	394.92
96	-0.87711	115.527	1175.5	9.3	790.88	304.61	1095.49	3.60	151.190	700.05	395.44
97	-0.85931	120.956	1181.0	9.6	792.26	303.61	1095.87	3.61	151.335	699.74	396.13
98	-0.84151	124.789	1184.8	9.9	792.55	302.76	1095.31	3.62	151.459	699.03	396.28
99	-0.82371	126.392	1186.4	10.1	791.34	304.03	1095.38	3.60	151.274	699.70	395.67
100	-0.80581	132.377	1192.4	10.4	793.04	305.01	1098.05	3.60	151.132	701.53	396.52
101	-0.78801	138.206	1198.2	10.6	794.61	306.21	1100.83	3.59	150.957	703.52	397.31
102	-0.77021	143.840	1203.8	10.9	796.04	306.14	1102.17	3.60	150.969	704.15	398.02
103	-0.75231	150.370	1210.4	11.1	798.02	305.72	1103.74	3.61	151.029	704.73	399.01
104	-0.73451	155.297	1215.3	11.4	798.94	306.00	1104.94	3.61	150.988	705.47	399.47
105	-0.71671	160.984	1221.0	11.7	800.33	305.69	1106.01	3.62	151.034	705.85	400.16
106	-0.69891	164.156	1224.2	11.9	800.05	305.02	1105.07	3.62	151.130	705.05	400.03
107	-0.68101	169.311	1229.3	12.2	801.06	306.31	1107.36	3.62	150.944	706.84	400.53
108	-0.66321	174.083	1234.1	12.4	801.79	308.10	1109.89	3.60	150.684	709.00	400.90
109	-0.64541	180.054	1240.1	12.7	803.29	309.33	1112.62	3.60	150.506	710.97	401.64
110	-0.62761	187.046	1247.0	13.0	805.42	309.97	1115.39	3.60	150.412	712.68	402.71
111	-0.60971	194.227	1254.2	13.2	807.64	309.54	1117.18	3.61	150.475	713.36	403.82
112	-0.59191	200.082	1260.1	13.5	808.99	310.00	1118.99	3.61	150.408	714.50	404.50
113	-0.57411	206.427	1266.4	13.7	810.63	309.99	1120.62	3.62	150.410	715.30	405.31
114	-0.55631	213.552	1273.6	14.0	812.74	309.85	1122.59	3.62	150.431	716.22	406.37
115	-0.53841	219.814	1279.8	14.3	814.28	309.71	1123.99	3.63	150.450	716.85	407.14
116	-0.52061	222.946	1282.9	14.5	813.80	309.66	1123.46	3.63	150.458	716.56	406.90
117	-0.50281	231.065	1291.1	14.8	816.47	312.15	1128.62	3.62	150.096	720.39	408.23

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
118	-0.48491	237.093	1297.1	15.0	817.79	313.34	1131.13	3.61	149.924	722.24	408.89
119	-0.46711	241.861	1301.9	15.3	818.29	313.74	1132.03	3.61	149.866	722.88	409.14
120	-0.44931	249.488	1309.5	15.6	820.56	313.42	1133.98	3.62	149.913	723.70	410.28
121	-0.43141	258.176	1318.2	15.8	823.47	313.43	1136.90	3.63	149.911	725.16	411.74
122	-0.41361	262.802	1322.8	16.1	823.82	313.96	1137.77	3.62	149.835	725.86	411.91
123	-0.39581	268.816	1328.8	16.3	825.01	313.80	1138.81	3.63	149.857	726.31	412.50
124	-0.37801	274.444	1334.4	16.6	825.94	313.49	1139.42	3.63	149.902	726.46	412.97
125	-0.36011	279.153	1339.2	16.9	826.27	313.93	1140.20	3.63	149.839	727.06	413.14
126	-0.34231	283.964	1344.0	17.1	826.66	314.06	1140.72	3.63	149.819	727.39	413.33
127	-0.32451	290.229	1350.2	17.4	827.92	314.14	1142.05	3.64	149.808	728.10	413.96
128	-0.30671	294.403	1354.4	17.6	827.87	315.13	1142.99	3.63	149.665	729.06	413.93
129	-0.28881	302.387	1362.4	17.9	830.13	315.33	1145.46	3.63	149.636	730.39	415.06
130	-0.27101	309.012	1369.0	18.1	831.53	316.10	1147.64	3.63	149.523	731.87	415.77
131	-0.25321	315.036	1375.0	18.4	832.55	316.55	1149.09	3.63	149.459	732.82	416.27
132	-0.23541	322.769	1382.8	18.7	834.57	317.41	1151.99	3.63	149.333	734.70	417.29
133	-0.23501	322.399	1382.4	18.7	834.30	317.47	1151.78	3.63	149.324	734.63	417.15

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2429.100			2875.000
Moisture content: Dry soil+tare, gms.	2253.300			2669.100
Moisture content: Tare, gms.	0.000			415.800
Moisture, %	7.8	12.1	9.1	9.1
Moist specimen weight, gms.	2429.10			
Diameter, in.	3.470	3.470	3.435	
Area, in.²	9.457	9.457	9.265	
Height, in.	7.150	7.150	6.853	
Net decrease in height, in.		0.000	0.297	
Net decrease in water volume, cc.			67.600	
Wet density, pcf	136.9	142.4	147.6	
Dry density, pcf	127.0	127.0	135.2	
Void ratio	0.3277	0.3277	0.2467	
Saturation, %	64.3	100.0	100.0	

Test Readings for Specimen No. 3

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 340.480 psi (2347.53 kPa)
Consolidation back pressure = 50.000 psi (344.74 kPa)
Consolidation effective confining stress = 2002.79 kPa
Strain rate, in./min. = 0.025
Fail. Stress = 1988.06 kPa **at reading no.** 132

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.4874	-12.000	0.0	0.0	0.00	2000.44	2000.44	1.00	50.341	2000.44	0.00
1	-1.4856	21.559	33.6	0.0	24.97	1999.99	2024.96	1.01	50.406	2012.48	12.48
2	-1.4838	65.403	77.4	0.1	57.57	1999.29	2056.87	1.03	50.507	2028.08	28.79
3	-1.4820	117.480	129.5	0.1	96.28	1998.23	2094.51	1.05	50.662	2046.37	48.14
4	-1.4802	169.085	181.1	0.1	134.62	1996.95	2131.57	1.07	50.847	2064.26	67.31
5	-1.4784	223.691	235.7	0.1	175.17	1994.98	2170.15	1.09	51.132	2082.57	87.58
6	-1.4766	271.449	283.4	0.2	210.61	1993.05	2203.66	1.11	51.413	2098.35	105.30
7	-1.4748	323.680	335.7	0.2	249.35	1990.36	2239.71	1.13	51.802	2115.04	124.68
8	-1.4730	370.822	382.8	0.2	284.30	1987.64	2271.94	1.14	52.197	2129.79	142.15
9	-1.4712	418.173	430.2	0.2	319.38	1984.57	2303.95	1.16	52.642	2144.26	159.69
10	-1.4694	465.864	477.9	0.3	354.69	1980.73	2335.42	1.18	53.199	2158.08	177.35
11	-1.4676	504.905	516.9	0.3	383.57	1976.93	2360.50	1.19	53.751	2168.71	191.78
12	-1.4658	544.039	556.0	0.3	412.50	1972.53	2385.03	1.21	54.389	2178.78	206.25
13	-1.4641	579.704	591.7	0.3	438.84	1967.97	2406.82	1.22	55.049	2187.40	219.42
14	-1.4623	613.386	625.4	0.4	463.70	1963.08	2426.78	1.24	55.759	2194.93	231.85
15	-1.4605	647.325	659.3	0.4	488.74	1958.14	2446.88	1.25	56.475	2202.51	244.37
16	-1.4587	677.956	690.0	0.4	511.31	1953.08	2464.39	1.26	57.210	2208.74	255.65
17	-1.4569	706.735	718.7	0.4	532.50	1947.53	2480.03	1.27	58.014	2213.78	266.25
18	-1.4551	736.371	748.4	0.5	554.31	1942.11	2496.42	1.29	58.800	2219.27	277.15
19	-1.4533	765.348	777.3	0.5	575.62	1936.59	2512.21	1.30	59.601	2224.40	287.81
20	-1.4515	795.380	807.4	0.5	597.70	1930.75	2528.45	1.31	60.449	2229.60	298.85
21	-1.4497	822.350	834.4	0.5	617.50	1925.22	2542.72	1.32	61.251	2233.97	308.75
22	-1.4479	849.639	861.6	0.6	637.53	1919.40	2556.94	1.33	62.094	2238.17	318.77
23	-1.4461	880.325	892.3	0.6	660.06	1913.23	2573.30	1.34	62.989	2243.26	330.03

Test Readings for Specimen No. 3

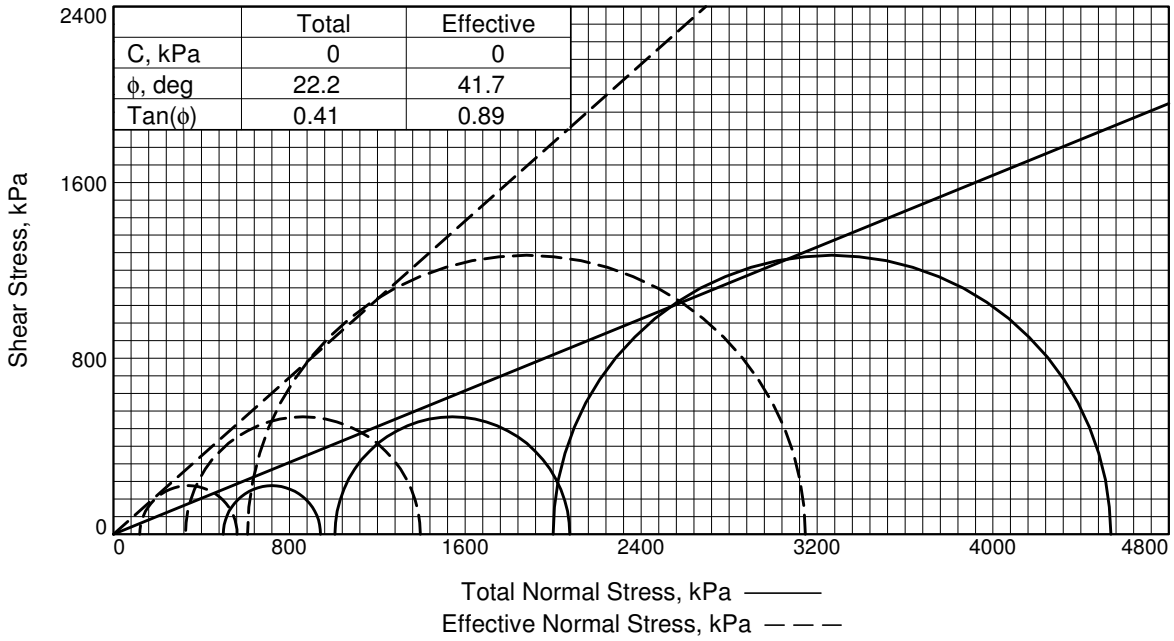
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
24	-1.4443	905.762	917.8	0.6	678.70	1907.27	2585.97	1.36	63.855	2246.62	339.35
25	-1.4425	932.524	944.5	0.7	698.31	1900.89	2599.20	1.37	64.779	2250.05	349.15
26	-1.4408	958.290	970.3	0.7	717.17	1894.43	2611.60	1.38	65.716	2253.02	358.58
27	-1.4390	985.898	997.9	0.7	737.38	1887.98	2625.36	1.39	66.652	2256.67	368.69
28	-1.4372	1013.006	1025.0	0.7	757.21	1881.56	2638.77	1.40	67.583	2260.16	378.61
29	-1.4354	1039.630	1051.6	0.8	776.68	1875.39	2652.06	1.41	68.478	2263.73	388.34
30	-1.4336	1067.134	1079.1	0.8	796.78	1869.02	2665.80	1.43	69.401	2267.41	398.39
31	-1.4318	1092.285	1104.3	0.8	815.13	1862.26	2677.39	1.44	70.382	2269.83	407.57
32	-1.4300	1118.426	1130.4	0.8	834.21	1855.82	2690.03	1.45	71.315	2272.93	417.10
33	-1.4282	1145.341	1157.3	0.9	853.85	1848.97	2702.82	1.46	72.309	2275.90	426.92
34	-1.4264	1170.333	1182.3	0.9	872.05	1842.32	2714.38	1.47	73.274	2278.35	436.03
35	-1.4246	1194.236	1206.2	0.9	889.45	1835.73	2725.18	1.48	74.229	2280.46	444.72
36	-1.4228	1220.003	1232.0	0.9	908.21	1828.81	2737.02	1.50	75.233	2282.92	454.10
37	-1.4210	1244.203	1256.2	1.0	925.80	1822.05	2747.85	1.51	76.214	2284.95	462.90
38	-1.4192	1269.508	1281.5	1.0	944.20	1814.91	2759.11	1.52	77.250	2287.01	472.10
39	-1.4174	1294.594	1306.6	1.0	962.43	1808.01	2770.45	1.53	78.250	2289.23	481.22
40	-1.4156	1319.107	1331.1	1.0	980.23	1800.92	2781.15	1.54	79.279	2291.03	490.11
41	-1.4085	1414.853	1426.9	1.2	1049.63	1772.00	2821.62	1.59	83.474	2296.81	524.81
42	-1.4013	1506.537	1518.5	1.3	1115.89	1742.21	2858.10	1.64	87.794	2300.16	557.95
43	-1.3942	1596.874	1608.9	1.4	1181.03	1711.32	2892.34	1.69	92.275	2301.83	590.51
44	-1.3870	1684.480	1696.5	1.5	1244.02	1679.42	2923.44	1.74	96.900	2301.43	622.01
45	-1.3799	1765.523	1777.5	1.6	1302.07	1646.06	2948.13	1.79	101.739	2297.09	651.03
46	-1.3727	1841.895	1853.9	1.7	1356.57	1611.28	2967.84	1.84	106.784	2289.56	678.28
47	-1.3656	1917.639	1929.6	1.8	1410.49	1575.53	2986.03	1.90	111.968	2280.78	705.25
48	-1.3584	1987.904	1999.9	1.9	1460.30	1539.37	2999.68	1.95	117.213	2269.52	730.15
49	-1.3513	2053.552	2065.6	2.0	1506.63	1501.79	3008.42	2.00	122.664	2255.11	753.32
50	-1.3441	2118.233	2130.2	2.1	1552.16	1463.20	3015.36	2.06	128.261	2239.28	776.08
51	-1.3369	2173.724	2185.7	2.2	1590.89	1424.30	3015.19	2.12	133.903	2219.74	795.45
52	-1.3298	2225.477	2237.5	2.3	1626.82	1385.01	3011.84	2.17	139.601	2198.43	813.41
53	-1.3226	2271.729	2283.7	2.4	1658.68	1345.27	3003.94	2.23	145.366	2174.60	829.34
54	-1.3155	2313.567	2325.6	2.5	1687.26	1304.98	2992.24	2.29	151.209	2148.61	843.63
55	-1.3083	2348.743	2360.7	2.6	1710.94	1266.36	2977.30	2.35	156.810	2121.83	855.47
56	-1.3012	2378.533	2390.5	2.7	1730.68	1228.67	2959.35	2.41	162.276	2094.01	865.34
57	-1.2940	2404.278	2416.3	2.8	1747.44	1192.12	2939.56	2.47	167.578	2065.84	873.72
58	-1.2869	2429.412	2441.4	2.9	1763.72	1156.61	2920.33	2.52	172.727	2038.47	881.86
59	-1.2797	2439.636	2451.6	3.0	1769.20	1122.34	2891.54	2.58	177.698	2006.94	884.60
60	-1.2726	2449.150	2461.1	3.1	1774.16	1089.80	2863.96	2.63	182.417	1976.88	887.08
61	-1.2654	2462.962	2475.0	3.2	1782.19	1059.26	2841.45	2.68	186.847	1950.36	891.10
62	-1.2583	2470.041	2482.0	3.3	1785.36	1030.64	2816.00	2.73	190.998	1923.32	892.68
63	-1.2511	2476.879	2488.9	3.4	1788.35	1003.78	2792.12	2.78	194.894	1897.95	894.17
64	-1.2440	2484.837	2496.8	3.6	1792.12	978.79	2770.92	2.83	198.518	1874.85	896.06
65	-1.2368	2488.289	2500.3	3.7	1792.66	955.73	2748.39	2.88	201.863	1852.06	896.33
66	-1.2297	2493.692	2505.7	3.8	1794.59	934.35	2728.93	2.92	204.965	1831.64	897.29
67	-1.2225	2495.209	2507.2	3.9	1793.72	914.32	2708.05	2.96	207.869	1811.18	896.86
68	-1.2153	2496.116	2508.1	4.0	1792.43	896.06	2688.48	3.00	210.518	1792.27	896.21
69	-1.2082	2493.961	2506.0	4.1	1788.94	879.37	2668.31	3.03	212.939	1773.84	894.47
70	-1.2010	2493.565	2505.6	4.2	1786.71	863.99	2650.70	3.07	215.169	1757.34	893.35

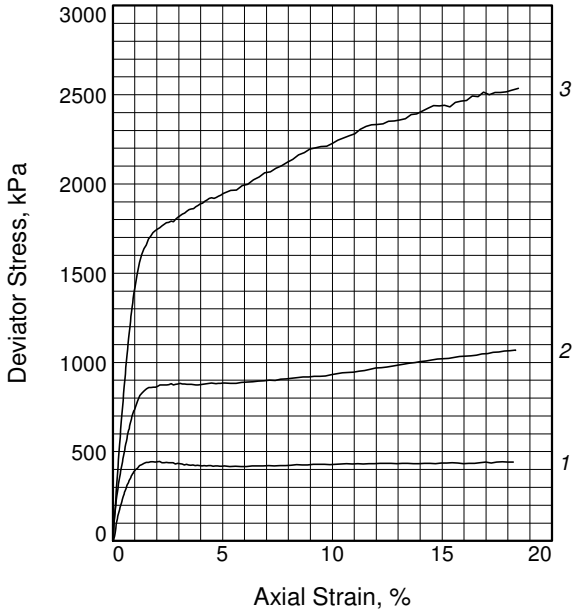
Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
71	-1.19392	494.945	2506.9	4.3	1785.75	850.08	2635.83	3.10	217.186	1742.95	892.87
72	-1.18672	494.835	2506.8	4.4	1783.72	837.06	2620.78	3.13	219.074	1728.92	891.86
73	-1.17962	494.247	2506.2	4.5	1781.36	824.95	2606.31	3.16	220.831	1715.63	890.68
74	-1.17242	492.290	2504.3	4.6	1778.02	813.85	2591.87	3.18	222.441	1702.86	889.01
75	-1.16532	492.290	2504.3	4.7	1776.07	803.77	2579.84	3.21	223.903	1691.81	888.04
76	-1.15812	492.774	2504.8	4.8	1774.47	794.46	2568.94	3.23	225.253	1681.70	887.24
77	-1.15102	495.231	2507.2	4.9	1774.27	785.72	2559.99	3.26	226.521	1672.85	887.13
78	-1.14382	496.204	2508.2	5.0	1773.01	777.76	2550.76	3.28	227.676	1664.26	886.50
79	-1.13672	502.579	2514.6	5.1	1775.56	770.52	2546.08	3.30	228.726	1658.30	887.78
80	-1.12952	510.274	2522.3	5.2	1779.03	763.86	2542.90	3.33	229.691	1653.38	889.52
81	-1.11162	504.948	2516.9	5.5	1770.39	748.92	2519.32	3.36	231.858	1634.12	885.20
82	-1.09382	510.230	2522.2	5.7	1769.21	736.62	2505.83	3.40	233.642	1621.22	884.61
83	-1.07592	522.119	2534.1	6.0	1772.63	726.61	2499.24	3.44	235.094	1612.93	886.32
84	-1.05802	531.199	2543.2	6.3	1774.04	718.20	2492.24	3.47	236.314	1605.22	887.02
85	-1.04012	539.207	2551.2	6.5	1774.68	711.59	2486.27	3.49	237.273	1598.93	887.34
86	-1.02222	543.472	2555.5	6.8	1772.68	706.28	2478.96	3.51	238.042	1592.62	886.34
87	-1.00442	553.695	2565.7	7.0	1774.79	702.05	2476.85	3.53	238.656	1589.45	887.40
88	-0.98652	560.857	2572.9	7.3	1774.75	698.45	2473.20	3.54	239.179	1585.82	887.38
89	-0.96862	587.970	2600.0	7.6	1788.41	695.67	2484.08	3.57	239.581	1589.88	894.20
90	-0.95072	583.128	2595.1	7.8	1780.04	693.79	2473.82	3.57	239.855	1583.81	890.02
91	-0.93292	597.067	2609.1	8.1	1784.53	690.09	2474.63	3.59	240.390	1582.36	892.27
92	-0.91502	613.973	2626.0	8.4	1791.00	687.85	2478.85	3.60	240.715	1583.35	895.50
93	-0.89712	633.524	2645.5	8.6	1799.20	687.57	2486.76	3.62	240.757	1587.16	899.60
94	-0.87922	645.286	2657.3	8.9	1802.04	686.82	2488.86	3.62	240.865	1587.84	901.02
95	-0.86142	652.717	2664.7	9.1	1801.91	685.29	2487.19	3.63	241.088	1586.24	900.95
96	-0.84352	662.368	2674.4	9.4	1803.24	684.51	2487.75	3.63	241.200	1586.13	901.62
97	-0.82562	676.879	2688.9	9.7	1807.80	684.42	2492.22	3.64	241.213	1588.32	903.90
98	-0.80772	704.860	2716.9	9.9	1821.34	684.64	2505.98	3.66	241.182	1595.31	910.67
99	-0.78982	718.277	2730.3	10.2	1825.03	681.90	2506.93	3.68	241.579	1594.42	912.52
100	-0.77202	726.450	2738.4	10.4	1825.18	682.69	2507.87	3.67	241.464	1595.28	912.59
101	-0.75412	741.164	2753.2	10.7	1829.64	682.26	2511.90	3.68	241.527	1597.08	914.82
102	-0.73622	757.872	2769.9	11.0	1835.37	684.11	2519.48	3.68	241.258	1601.80	917.68
103	-0.71832	767.958	2780.0	11.2	1836.65	685.47	2522.12	3.68	241.062	1603.79	918.33
104	-0.70042	785.546	2797.5	11.5	1842.84	685.32	2528.16	3.69	241.083	1606.74	921.42
105	-0.68262	798.215	2810.2	11.7	1845.73	686.90	2532.63	3.69	240.853	1609.77	922.86
106	-0.66472	816.705	2828.7	12.0	1852.38	689.09	2541.47	3.69	240.537	1615.28	926.19
107	-0.64682	835.986	2848.0	12.3	1859.48	686.90	2546.38	3.71	240.854	1616.64	929.74
108	-0.62892	858.411	2870.4	12.5	1868.55	687.57	2556.11	3.72	240.757	1621.84	934.27
109	-0.61102	877.626	2889.6	12.8	1875.45	688.37	2563.82	3.72	240.640	1626.09	937.72
110	-0.59322	887.184	2899.2	13.0	1876.02	688.69	2564.71	3.72	240.594	1626.70	938.01
111	-0.57532	901.497	2913.5	13.3	1879.62	692.15	2571.77	3.72	240.092	1631.96	939.81
112	-0.55742	915.111	2927.1	13.6	1882.73	693.01	2575.74	3.72	239.967	1634.38	941.36
113	-0.53952	929.138	2941.1	13.8	1886.04	694.43	2580.47	3.72	239.761	1637.45	943.02
114	-0.52172	950.199	2962.2	14.1	1893.80	694.26	2588.05	3.73	239.786	1641.16	946.90
115	-0.50382	973.938	2985.9	14.4	1903.17	694.39	2597.56	3.74	239.768	1645.97	951.59
116	-0.48592	987.943	2999.9	14.6	1906.28	696.10	2602.38	3.74	239.519	1649.24	953.14
117	-0.46803	005.773	3017.8	14.9	1911.75	696.89	2608.64	3.74	239.404	1652.77	955.87

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
118	-0.45013	027.604	3039.6	15.1	1919.68	697.18	2616.86	3.75	239.362	1657.02	959.84
119	-0.43233	046.363	3058.4	15.4	1925.58	700.23	2625.81	3.75	238.921	1663.02	962.79
120	-0.41443	063.907	3075.9	15.7	1930.66	701.58	2632.24	3.75	238.724	1666.91	965.33
121	-0.39653	085.601	3097.6	15.9	1938.26	702.61	2640.87	3.76	238.575	1671.74	969.13
122	-0.37863	097.627	3109.6	16.2	1939.75	703.64	2643.39	3.76	238.426	1673.51	969.87
123	-0.36073	122.822	3134.8	16.4	1949.38	701.07	2650.45	3.78	238.799	1675.76	974.69
124	-0.34293	144.153	3156.2	16.7	1956.52	702.13	2658.65	3.79	238.645	1680.39	978.26
125	-0.32503	164.995	3177.0	17.0	1963.27	702.43	2665.70	3.79	238.601	1684.07	981.63
126	-0.30713	178.582	3190.6	17.2	1965.47	700.52	2665.99	3.81	238.879	1683.25	982.74
127	-0.28923	197.418	3209.4	17.5	1970.85	699.14	2669.99	3.82	239.078	1684.56	985.42
128	-0.27143	214.303	3226.3	17.7	1974.95	699.40	2674.35	3.82	239.040	1686.88	987.47
129	-0.25353	233.282	3245.3	18.0	1980.27	699.78	2680.05	3.83	238.985	1689.92	990.13
130	-0.23563	251.024	3263.0	18.3	1984.76	699.61	2684.36	3.84	239.010	1691.99	992.38
131	-0.21773	261.973	3274.0	18.5	1985.06	698.69	2683.74	3.84	239.144	1691.22	992.53
132	-0.19983	277.450	3289.5	18.8	1988.06	696.96	2685.02	3.85	239.395	1690.99	994.03
133	-0.19963	277.159	3289.2	18.8	1987.81	696.78	2684.58	3.85	239.421	1690.68	993.90





Sample No.		1	2	3
Initial	Water Content, %	8.1	5.8	8.1
	Dry Density, pcf	127.8	130.4	130.8
	Saturation, %	68.5	53.8	75.7
	Void Ratio	0.3184	0.2924	0.2883
	Diameter, in.	3.48	3.49	3.45
	Height, in.	7.07	7.04	7.03
At Test	Water Content, %	9.9	8.2	6.9
	Dry Density, pcf	133.0	138.0	142.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.2674	0.2217	0.1868
	Diameter, in.	3.43	3.42	3.36
	Height, in.	6.98	6.91	6.84
Strain rate, in./min.		0.04	0.04	0.04
Eff. Cell Pressure, kPa		500	1007	1999
Fail. Stress, kPa		442	1067	2537
Excess Pore Pr., kPa		380	680	1389
Strain, %		18.2	18.3	18.5
Ult. Stress, kPa				
Excess Pore Pr., kPa				
Strain, %				
$\bar{\sigma}_1$ Failure, kPa		562	1395	3147
$\bar{\sigma}_3$ Failure, kPa		120	328	610

Type of Test:
CU with Pore Pressures

Sample Type: Remolded 95% MDD at OMC

Description: clayey SAND

LL= 23 **PL=** 13 **PI=** 10

Assumed Specific Gravity= 2.7

Remarks: Failure tangents drawn at peak deviator stress and C=0.Particles larger than .75" were removed and replaced with finer gravel.

Figure _____

Client: New Gold Inc.

Project: Blackwater Gold Project

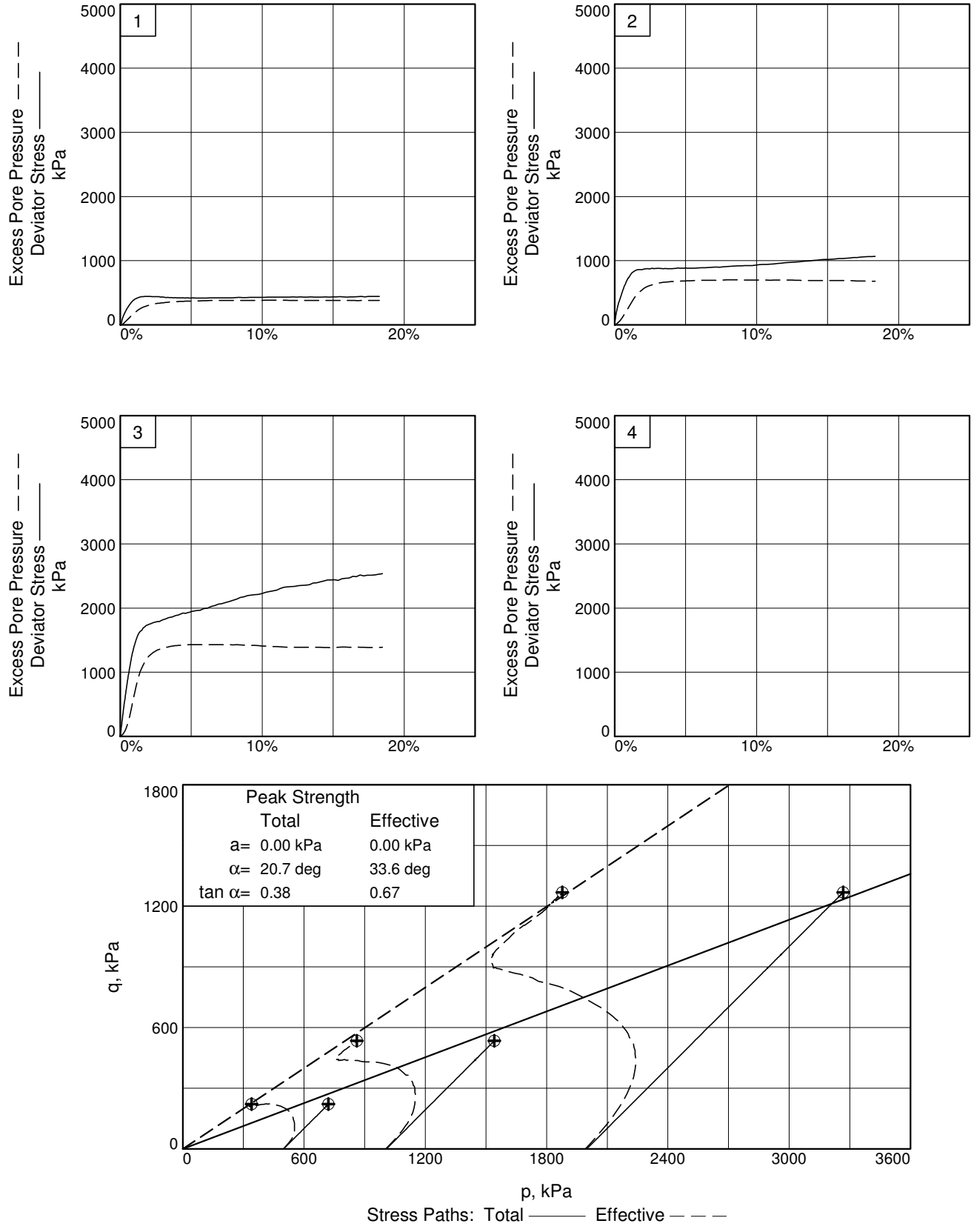
Location: GT12-46

Sample Number: 1, 2, 3 **Depth:** 10.67-35.05

Proj. No.: VA101-457/04 **Date Sampled:** 11/19/12

Knight Piésold CONSULTING

Tested By: JHK **Checked By:** JDB



Client: New Gold Inc.
Project: Blackwater Gold Project
Location: GT12-46 **Depth:** 10.67-35.05 **Sample Number:** 1, 2, 3
Project No.: VA101-457/04 **Figure** peak

Knight Piesold Geotechnical Lab.

Tested By: JHK **Checked By:** JDB

TRIAXIAL COMPRESSION TEST

CU with Pore Pressures

3/13/2013
3:23 PM

Date: 11/19/12
Client: New Gold Inc.
Project: Blackwater Gold Project
Project No.: VA101-457/04
Location: GT12-46
Depth: 10.67-35.05 **Sample Number:** 1, 2, 3
Description: clayey SAND
Remarks: Failure tangents drawn at peak deviator stress and C=0.Particles larger than .75" were removed and replaced with finer gravel.
Type of Sample: Remolded 95% MDD at OMC
Assumed Specific Gravity=2.7 **LL=**23 **PL=**13 **PI=**10
Test Method: COE uniform strain

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	650.400			2841.800
Moisture content: Dry soil+tare, gms.	615.600			2635.900
Moisture content: Tare, gms.	185.100			382.900
Moisture, %	8.1	11.8	9.9	9.1
Moist specimen weight, gms.	2439.2			
Diameter, in.	3.48	3.48	3.43	
Area, in.²	9.51	9.51	9.26	
Height, in.	7.07	7.07	6.98	
Net decrease in height, in.		0.00	0.09	
Wet density, pcf	138.2	142.9	146.2	
Dry density, pcf	127.8	127.8	133.0	
Void ratio	0.3184	0.3184	0.2674	
Saturation, %	68.5	100.0	100.0	

Test Readings for Specimen No. 1

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 112.46 psi (775.4 kPa)
Consolidation back pressure = 40.00 psi (275.8 kPa)
Consolidation effective confining stress = 499.6 kPa
Strain rate, in./min. = 0.04
Fail. Stress = 442.2 kPa **at reading no.** 132

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.8111	4.489	0.0	0.0	0.0	498.7	498.7	1.00	40.13	498.7	0.0
1	-1.8094	10.119	5.6	0.0	4.2	498.4	502.6	1.01	40.18	500.5	2.1
2	-1.8076	21.747	17.3	0.1	12.8	498.3	511.2	1.03	40.19	504.7	6.4
3	-1.8058	38.218	33.7	0.1	25.1	497.2	522.2	1.05	40.35	509.7	12.5
4	-1.8041	66.382	61.9	0.1	46.0	496.1	542.1	1.09	40.51	519.1	23.0
5	-1.8023	99.310	94.8	0.1	70.5	494.2	564.7	1.14	40.78	529.5	35.2
6	-1.8005	127.995	123.5	0.2	91.8	491.1	582.9	1.19	41.23	537.0	45.9
7	-1.7987	151.530	147.0	0.2	109.2	487.5	596.7	1.22	41.76	542.1	54.6
8	-1.7970	172.603	168.1	0.2	124.9	483.0	607.9	1.26	42.40	545.4	62.4
9	-1.7952	191.279	186.8	0.2	138.7	479.5	618.2	1.29	42.91	548.9	69.4
10	-1.7934	209.140	204.7	0.3	151.9	474.6	626.5	1.32	43.63	550.5	76.0
11	-1.7916	225.637	221.1	0.3	164.1	469.8	633.9	1.35	44.33	551.8	82.1
12	-1.7898	242.580	238.1	0.3	176.7	464.7	641.3	1.38	45.07	553.0	88.3
13	-1.7881	256.127	251.6	0.3	186.7	459.1	645.8	1.41	45.87	552.4	93.3
14	-1.7863	271.374	266.9	0.4	197.9	453.6	651.5	1.44	46.67	552.5	99.0
15	-1.7845	286.234	281.7	0.4	208.9	448.3	657.1	1.47	47.45	552.7	104.4
16	-1.7827	302.163	297.7	0.4	220.6	442.5	663.1	1.50	48.29	552.8	110.3
17	-1.7810	316.074	311.6	0.4	230.9	436.9	667.8	1.53	49.09	552.4	115.4
18	-1.7792	331.892	327.4	0.5	242.6	431.5	674.1	1.56	49.87	552.8	121.3
19	-1.7774	345.997	341.5	0.5	252.9	425.8	678.7	1.59	50.70	552.3	126.5
20	-1.7756	359.767	355.3	0.5	263.1	420.0	683.1	1.63	51.54	551.5	131.5
21	-1.7738	372.773	368.3	0.5	272.6	414.2	686.8	1.66	52.38	550.5	136.3
22	-1.7721	383.479	379.0	0.6	280.5	408.6	689.1	1.69	53.20	548.8	140.2
23	-1.7703	395.343	390.9	0.6	289.2	402.8	692.0	1.72	54.04	547.4	144.6
24	-1.7685	407.801	403.3	0.6	298.3	397.1	695.5	1.75	54.86	546.3	149.2
25	-1.7667	420.331	415.8	0.6	307.5	391.4	698.9	1.79	55.69	545.2	153.8
26	-1.7650	431.079	426.6	0.7	315.4	385.9	701.3	1.82	56.49	543.6	157.7
27	-1.7632	438.708	434.2	0.7	321.0	380.5	701.4	1.84	57.28	540.9	160.5
28	-1.7614	448.616	444.1	0.7	328.2	374.5	702.7	1.88	58.14	538.6	164.1
29	-1.7597	458.512	454.0	0.7	335.4	368.5	703.9	1.91	59.01	536.2	167.7
30	-1.7579	468.456	464.0	0.8	342.7	363.4	706.0	1.94	59.76	534.7	171.3
31	-1.7561	477.555	473.1	0.8	349.3	357.8	707.1	1.98	60.57	532.4	174.7
32	-1.7543	487.329	482.8	0.8	356.4	351.9	708.4	2.01	61.41	530.2	178.2
33	-1.7526	495.377	490.9	0.8	362.3	347.1	709.3	2.04	62.12	528.2	181.1
34	-1.7508	503.799	499.3	0.9	368.4	341.5	709.9	2.08	62.93	525.7	184.2
35	-1.7490	512.737	508.2	0.9	374.9	337.0	711.9	2.11	63.59	524.4	187.5
36	-1.7473	518.646	514.2	0.9	379.2	331.9	711.0	2.14	64.33	521.4	189.6
37	-1.7455	526.267	521.8	0.9	384.7	326.8	711.5	2.18	65.06	519.1	192.3
38	-1.7437	532.872	528.4	1.0	389.5	321.7	711.1	2.21	65.81	516.4	194.7
39	-1.7419	537.505	533.0	1.0	392.8	316.0	708.7	2.24	66.63	512.4	196.4
40	-1.7401	544.798	540.3	1.0	398.0	310.9	708.9	2.28	67.37	509.9	199.0
41	-1.7331	559.461	555.0	1.1	408.4	292.1	700.5	2.40	70.10	496.3	204.2
42	-1.7260	578.488	574.0	1.2	422.0	275.5	697.5	2.53	72.50	486.5	211.0
43	-1.7189	586.559	582.1	1.3	427.5	259.9	687.3	2.65	74.77	473.6	213.7
44	-1.7118	595.919	591.4	1.4	433.9	245.9	679.8	2.76	76.80	462.8	217.0
45	-1.7048	603.449	599.0	1.5	439.0	234.5	673.5	2.87	78.45	454.0	219.5
46	-1.6977	604.936	600.4	1.6	439.6	223.5	663.2	2.97	80.04	443.3	219.8

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
47	-1.6906	609.765	605.3	1.7	442.7	215.2	657.9	3.06	81.24	436.6	221.4
48	-1.6835	612.321	607.8	1.8	444.1	206.6	650.7	3.15	82.50	428.7	222.1
49	-1.6765	610.461	606.0	1.9	442.3	199.6	641.9	3.22	83.50	420.8	221.1
50	-1.6694	613.348	608.9	2.0	443.9	193.0	637.0	3.30	84.46	415.0	222.0
51	-1.6623	614.710	610.2	2.1	444.5	187.6	632.1	3.37	85.24	409.9	222.2
52	-1.6552	607.416	602.9	2.2	438.7	181.8	620.5	3.41	86.09	401.1	219.4
53	-1.6481	608.266	603.8	2.3	438.9	177.2	616.1	3.48	86.76	396.6	219.4
54	-1.6411	609.686	605.2	2.4	439.4	172.8	612.3	3.54	87.39	392.6	219.7
55	-1.6340	608.545	604.1	2.5	438.2	168.7	606.9	3.60	87.99	387.8	219.1
56	-1.6269	608.427	603.9	2.6	437.6	165.0	602.6	3.65	88.53	383.8	218.8
57	-1.6198	609.398	604.9	2.7	437.9	162.3	600.2	3.70	88.91	381.3	218.9
58	-1.6128	601.353	596.9	2.8	431.6	159.0	590.6	3.71	89.40	374.8	215.8
59	-1.6057	605.474	601.0	2.9	434.1	156.9	591.0	3.77	89.71	373.9	217.1
60	-1.5986	604.896	600.4	3.0	433.2	154.5	587.8	3.80	90.05	371.2	216.6
61	-1.5916	601.025	596.5	3.1	430.0	152.2	582.2	3.83	90.39	367.2	215.0
62	-1.5845	594.686	590.2	3.2	425.0	150.6	575.6	3.82	90.62	363.1	212.5
63	-1.5774	600.142	595.7	3.3	428.5	147.1	575.6	3.91	91.12	361.4	214.2
64	-1.5703	597.087	592.6	3.5	425.8	144.6	570.4	3.94	91.49	357.5	212.9
65	-1.5632	595.604	591.1	3.6	424.3	142.7	567.0	3.97	91.76	354.8	212.2
66	-1.5562	597.478	593.0	3.7	425.2	141.1	566.3	4.01	92.00	353.7	212.6
67	-1.5491	593.413	588.9	3.8	421.9	139.8	561.6	4.02	92.19	350.7	210.9
68	-1.5420	595.723	591.2	3.9	423.1	139.0	562.1	4.04	92.29	350.6	211.5
69	-1.5349	594.827	590.3	4.0	422.0	137.3	559.3	4.07	92.54	348.3	211.0
70	-1.5279	593.741	589.3	4.1	420.8	136.7	557.4	4.08	92.63	347.1	210.4
71	-1.5208	594.948	590.5	4.2	421.2	135.7	556.9	4.10	92.78	346.3	210.6
72	-1.5137	594.341	589.9	4.3	420.3	134.4	554.7	4.13	92.97	344.5	210.1
73	-1.5066	596.520	592.0	4.4	421.4	134.2	555.6	4.14	93.00	344.9	210.7
74	-1.4996	597.757	593.3	4.5	421.8	133.6	555.5	4.16	93.08	344.5	210.9
75	-1.4925	594.407	589.9	4.6	419.0	132.1	551.1	4.17	93.31	341.6	209.5
76	-1.4854	597.041	592.6	4.7	420.4	131.9	552.3	4.19	93.33	342.1	210.2
77	-1.4783	597.822	593.3	4.8	420.5	131.1	551.6	4.21	93.45	341.4	210.3
78	-1.4712	595.837	591.3	4.9	418.7	130.1	548.7	4.22	93.60	339.4	209.3
79	-1.4642	595.234	590.7	5.0	417.8	129.8	547.6	4.22	93.63	338.7	208.9
80	-1.4571	597.937	593.4	5.1	419.3	128.8	548.1	4.25	93.78	338.4	209.6
81	-1.4394	595.942	591.5	5.3	416.7	128.4	545.1	4.25	93.84	336.7	208.4
82	-1.4217	599.738	595.2	5.6	418.3	125.8	544.1	4.33	94.22	334.9	209.1
83	-1.4040	599.568	595.1	5.8	417.1	123.7	540.8	4.37	94.52	332.2	208.5
84	-1.3864	601.559	597.1	6.1	417.3	122.6	539.9	4.40	94.68	331.2	208.7
85	-1.3687	607.951	603.5	6.3	420.7	120.5	541.2	4.49	94.98	330.9	210.3
86	-1.3510	608.751	604.3	6.6	420.1	119.2	539.3	4.52	95.17	329.3	210.0
87	-1.3333	611.494	607.0	6.8	420.8	118.3	539.1	4.56	95.31	328.7	210.4
88	-1.3157	615.353	610.9	7.1	422.4	117.9	540.3	4.58	95.35	329.1	211.2
89	-1.2980	614.946	610.5	7.4	420.9	118.6	539.5	4.55	95.26	329.1	210.5
90	-1.2803	618.525	614.0	7.6	422.2	119.5	541.7	4.53	95.13	330.6	211.1
91	-1.2626	618.883	614.4	7.9	421.3	118.6	539.9	4.55	95.26	329.2	210.7
92	-1.2449	623.854	619.4	8.1	423.6	118.1	541.6	4.59	95.34	329.8	211.8
93	-1.2272	629.815	625.3	8.4	426.5	117.9	544.3	4.62	95.36	331.1	213.2

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
94	-1.2095	631.351	626.9	8.6	426.3	117.9	544.2	4.62	95.36	331.1	213.2
95	-1.1919	633.031	628.5	8.9	426.3	118.3	544.6	4.60	95.30	331.5	213.1
96	-1.1742	637.676	633.2	9.1	428.2	118.0	546.2	4.63	95.35	332.1	214.1
97	-1.1565	641.394	636.9	9.4	429.6	118.1	547.6	4.64	95.34	332.8	214.8
98	-1.1388	642.860	638.4	9.6	429.3	117.7	547.1	4.65	95.38	332.4	214.7
99	-1.1211	642.335	637.8	9.9	427.8	118.1	545.8	4.62	95.34	332.0	213.9
100	-1.1034	647.231	642.7	10.1	429.9	116.9	546.7	4.68	95.51	331.8	214.9
101	-1.0858	651.312	646.8	10.4	431.4	116.7	548.1	4.70	95.54	332.4	215.7
102	-1.0681	653.888	649.4	10.6	431.9	116.0	547.9	4.72	95.63	332.0	215.9
103	-1.0504	653.478	649.0	10.9	430.4	116.2	546.6	4.70	95.60	331.4	215.2
104	-1.0327	657.992	653.5	11.2	432.1	116.0	548.1	4.72	95.63	332.1	216.1
105	-1.0150	658.941	654.5	11.4	431.5	116.0	547.5	4.72	95.64	331.7	215.8
106	-0.9974	663.672	659.2	11.7	433.4	116.9	550.3	4.71	95.50	333.6	216.7
107	-0.9797	665.657	661.2	11.9	433.4	117.6	551.0	4.69	95.41	334.3	216.7
108	-0.9620	668.990	664.5	12.2	434.4	119.2	553.6	4.64	95.18	336.4	217.2
109	-0.9443	669.830	665.3	12.4	433.7	118.3	552.0	4.67	95.30	335.1	216.8
110	-0.9266	673.718	669.2	12.7	434.9	118.9	553.8	4.66	95.22	336.4	217.5
111	-0.9090	672.324	667.8	12.9	432.8	119.2	552.0	4.63	95.17	335.6	216.4
112	-0.8913	675.726	671.2	13.2	433.7	119.9	553.6	4.62	95.07	336.7	216.9
113	-0.8736	680.188	675.7	13.4	435.3	119.8	555.1	4.64	95.09	337.4	217.7
114	-0.8559	679.375	674.9	13.7	433.5	120.7	554.2	4.59	94.95	337.5	216.8
115	-0.8382	680.989	676.5	13.9	433.3	118.9	552.2	4.64	95.22	335.5	216.6
116	-0.8206	683.627	679.1	14.2	433.7	118.7	552.4	4.65	95.25	335.5	216.9
117	-0.8029	686.481	682.0	14.4	434.2	118.9	553.1	4.65	95.22	336.0	217.1
118	-0.7852	685.425	680.9	14.7	432.3	118.4	550.7	4.65	95.29	334.5	216.1
119	-0.7675	694.926	690.4	15.0	437.0	118.2	555.2	4.70	95.31	336.7	218.5
120	-0.7498	697.010	692.5	15.2	437.0	118.6	555.7	4.68	95.25	337.2	218.5
121	-0.7322	700.478	696.0	15.5	437.9	119.5	557.4	4.66	95.13	338.5	219.0
122	-0.7145	698.693	694.2	15.7	435.5	119.6	555.1	4.64	95.11	337.3	217.7
123	-0.6968	697.430	692.9	16.0	433.4	120.2	553.6	4.60	95.02	336.9	216.7
124	-0.6791	700.461	696.0	16.2	434.0	119.7	553.7	4.62	95.10	336.7	217.0
125	-0.6615	703.536	699.0	16.5	434.6	120.7	555.2	4.60	94.96	337.9	217.3
126	-0.6438	711.210	706.7	16.7	438.0	121.6	559.6	4.60	94.82	340.6	219.0
127	-0.6261	718.720	714.2	17.0	441.3	120.3	561.6	4.67	95.02	340.9	220.6
128	-0.6084	714.137	709.6	17.2	437.1	120.4	557.5	4.63	95.00	338.9	218.6
129	-0.5907	724.468	720.0	17.5	442.1	120.6	562.8	4.66	94.96	341.7	221.1
130	-0.5730	727.684	723.2	17.7	442.7	120.7	563.4	4.67	94.95	342.1	221.4
131	-0.5554	728.957	724.5	18.0	442.2	121.0	563.2	4.65	94.91	342.1	221.1
132	-0.5378	731.198	726.7	18.2	442.2	119.9	562.1	4.69	95.07	341.0	221.1

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	650.400			2739.500
Moisture content: Dry soil+tare, gms.	615.600			2556.800
Moisture content: Tare, gms.	18.100			298.700
Moisture, %	5.8	10.8	8.2	8.1
Moist specimen weight, gms.	2439.9			
Diameter, in.	3.49	3.49	3.42	
Area, in.²	9.57	9.57	9.21	
Height, in.	7.04	7.04	6.91	
Net decrease in height, in.		0.00	0.13	
Wet density, pcf	138.0	144.5	149.3	
Dry density, pcf	130.4	130.4	138.0	
Void ratio	0.2924	0.2924	0.2217	
Saturation, %	53.8	100.0	100.0	

Test Readings for Specimen No. 2

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 186.10 psi (1283.1 kPa)
Consolidation back pressure = 40.00 psi (275.8 kPa)
Consolidation effective confining stress = 1007.3 kPa
Strain rate, in./min. = 0.04
Fail. Stress = 1067.4 kPa **at reading no.** 133

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.6566	33.165	0.0	0.0	0.0	1004.6	1004.6	1.00	40.40	1004.6	0.0
1	-1.6548	104.863	71.7	0.0	53.6	1003.3	1057.0	1.05	40.58	1030.1	26.8
2	-1.6530	164.954	131.8	0.1	98.6	1001.7	1100.3	1.10	40.82	1051.0	49.3
3	-1.6513	215.909	182.7	0.1	136.7	999.2	1135.8	1.14	41.18	1067.5	68.3
4	-1.6495	262.241	229.1	0.1	171.3	996.5	1167.8	1.17	41.57	1082.1	85.6
5	-1.6477	300.004	266.8	0.1	199.4	992.8	1192.3	1.20	42.10	1092.6	99.7
6	-1.6460	334.861	301.7	0.2	225.4	989.3	1214.7	1.23	42.61	1102.0	112.7
7	-1.6442	368.840	335.7	0.2	250.8	985.2	1235.9	1.25	43.21	1110.6	125.4
8	-1.6424	399.159	366.0	0.2	273.3	981.0	1254.3	1.28	43.82	1117.7	136.7
9	-1.6407	431.040	397.9	0.2	297.1	976.0	1273.0	1.30	44.55	1124.5	148.5
10	-1.6389	457.950	424.8	0.3	317.1	970.6	1287.7	1.33	45.33	1129.1	158.5
11	-1.6371	485.887	452.7	0.3	337.9	964.6	1302.5	1.35	46.20	1133.5	168.9
12	-1.6354	511.530	478.4	0.3	356.9	958.9	1315.8	1.37	47.02	1137.4	178.4
13	-1.6336	535.503	502.3	0.3	374.7	952.8	1327.5	1.39	47.90	1140.2	187.3
14	-1.6318	558.534	525.4	0.4	391.8	946.4	1338.1	1.41	48.84	1142.2	195.9
15	-1.6301	581.609	548.4	0.4	408.9	939.9	1348.8	1.43	49.77	1144.4	204.4
16	-1.6283	605.204	572.0	0.4	426.3	933.0	1359.4	1.46	50.78	1146.2	213.2
17	-1.6265	628.532	595.4	0.4	443.6	926.0	1369.7	1.48	51.79	1147.9	221.8
18	-1.6247	649.968	616.8	0.5	459.5	918.4	1377.8	1.50	52.90	1148.1	229.7
19	-1.6230	672.486	639.3	0.5	476.1	911.0	1387.1	1.52	53.97	1149.0	238.1
20	-1.6212	696.517	663.4	0.5	493.9	903.0	1396.9	1.55	55.13	1150.0	246.9
21	-1.6195	718.142	685.0	0.5	509.9	895.1	1404.9	1.57	56.28	1150.0	254.9
22	-1.6177	740.920	707.8	0.6	526.7	886.8	1413.5	1.59	57.47	1150.2	263.3
23	-1.6159	763.731	730.6	0.6	543.5	878.4	1422.0	1.62	58.69	1150.2	271.8
24	-1.6142	782.183	749.0	0.6	557.1	870.1	1427.2	1.64	59.91	1148.6	278.6

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
25	-1.6124	804.674	771.5	0.6	573.7	861.4	1435.1	1.67	61.16	1148.3	286.8
26	-1.6106	828.607	795.4	0.7	591.3	852.8	1444.1	1.69	62.41	1148.5	295.7
27	-1.6089	848.610	815.4	0.7	606.0	843.7	1449.7	1.72	63.73	1146.7	303.0
28	-1.6071	868.117	835.0	0.7	620.4	834.9	1455.3	1.74	65.01	1145.1	310.2
29	-1.6053	879.308	846.1	0.7	628.5	825.7	1454.3	1.76	66.34	1140.0	314.3
30	-1.6035	900.109	866.9	0.8	643.8	816.8	1460.6	1.79	67.63	1138.7	321.9
31	-1.6018	920.501	887.3	0.8	658.8	807.5	1466.3	1.82	68.99	1136.9	329.4
32	-1.6000	936.625	903.5	0.8	670.6	798.4	1469.0	1.84	70.30	1133.7	335.3
33	-1.5983	954.371	921.2	0.8	683.6	788.9	1472.5	1.87	71.68	1130.7	341.8
34	-1.5965	971.306	938.1	0.9	696.0	779.1	1475.1	1.89	73.10	1127.1	348.0
35	-1.5947	985.988	952.8	0.9	706.7	769.6	1476.3	1.92	74.48	1122.9	353.3
36	-1.5930	1000.788	967.6	0.9	717.5	759.9	1477.4	1.94	75.88	1118.7	358.7
37	-1.5912	1015.655	982.5	0.9	728.3	750.1	1478.4	1.97	77.30	1114.3	364.2
38	-1.5894	1016.304	983.1	1.0	728.6	740.2	1468.8	1.98	78.75	1104.5	364.3
39	-1.5877	1029.235	996.1	1.0	738.0	730.2	1468.2	2.01	80.19	1099.2	369.0
40	-1.5859	1042.768	1009.6	1.0	747.8	720.1	1468.0	2.04	81.65	1094.1	373.9
41	-1.5789	1093.411	1060.2	1.1	784.5	680.9	1465.4	2.15	87.35	1073.2	392.3
42	-1.5718	1134.635	1101.5	1.2	814.2	643.8	1458.0	2.26	92.72	1050.9	407.1
43	-1.5648	1155.084	1121.9	1.3	828.5	607.6	1436.0	2.36	97.98	1021.8	414.2
44	-1.5577	1174.989	1141.8	1.4	842.3	573.9	1416.2	2.47	102.87	995.0	421.1
45	-1.5507	1188.897	1155.7	1.5	851.7	545.2	1396.9	2.56	107.03	971.0	425.8
46	-1.5437	1199.872	1166.7	1.6	858.9	520.0	1378.9	2.65	110.68	949.5	429.4
47	-1.5366	1201.264	1168.1	1.7	859.0	497.6	1356.6	2.73	113.93	927.1	429.5
48	-1.5296	1204.471	1171.3	1.8	860.5	477.7	1338.2	2.80	116.82	907.9	430.2
49	-1.5225	1206.958	1173.8	1.9	861.4	460.0	1321.4	2.87	119.39	890.7	430.7
50	-1.5155	1215.848	1182.7	2.0	867.0	443.6	1310.6	2.95	121.76	877.1	433.5
51	-1.5084	1225.501	1192.3	2.1	873.2	429.3	1302.5	3.03	123.83	865.9	436.6
52	-1.5014	1228.715	1195.5	2.2	874.6	416.8	1291.4	3.10	125.65	854.1	437.3
53	-1.4943	1229.975	1196.8	2.3	874.6	406.3	1281.0	3.15	127.17	843.6	437.3
54	-1.4873	1229.309	1196.1	2.4	873.2	397.5	1270.7	3.20	128.45	834.1	436.6
55	-1.4803	1234.080	1200.9	2.6	875.8	388.9	1264.7	3.25	129.70	826.8	437.9
56	-1.4732	1242.406	1209.2	2.7	881.0	381.6	1262.6	3.31	130.75	822.1	440.5
57	-1.4662	1234.202	1201.0	2.8	874.1	374.8	1248.9	3.33	131.74	811.8	437.0
58	-1.4591	1239.828	1206.7	2.9	877.2	368.9	1246.2	3.38	132.59	807.6	438.6
59	-1.4521	1244.545	1211.4	3.0	879.7	363.8	1243.5	3.42	133.34	803.6	439.9
60	-1.4450	1249.681	1216.5	3.1	882.5	358.9	1241.4	3.46	134.05	800.2	441.3
61	-1.4380	1247.032	1213.9	3.2	879.7	354.5	1234.2	3.48	134.68	794.3	439.8
62	-1.4310	1246.542	1213.4	3.3	878.4	350.5	1228.9	3.51	135.27	789.7	439.2
63	-1.4239	1245.397	1212.2	3.4	876.7	347.4	1224.1	3.52	135.71	785.8	438.3
64	-1.4169	1246.556	1213.4	3.5	876.6	343.6	1220.2	3.55	136.27	781.9	438.3
65	-1.4098	1249.664	1216.5	3.6	877.9	341.2	1219.1	3.57	136.62	780.1	438.9
66	-1.4028	1248.775	1215.6	3.7	876.3	338.7	1215.0	3.59	136.98	776.8	438.2
67	-1.3957	1247.356	1214.2	3.8	874.4	337.2	1211.6	3.59	137.19	774.4	437.2
68	-1.3887	1248.799	1215.6	3.9	874.5	335.1	1209.6	3.61	137.49	772.4	437.2
69	-1.3817	1250.570	1217.4	4.0	874.8	333.2	1208.1	3.63	137.77	770.6	437.4
70	-1.3746	1255.114	1221.9	4.1	877.2	332.1	1209.3	3.64	137.93	770.7	438.6
71	-1.3676	1259.683	1226.5	4.2	879.5	331.3	1210.8	3.65	138.05	771.1	439.8

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
72	-1.36051	262.440	1229.3	4.3	880.6	330.2	1210.8	3.67	138.21	770.5	440.3
73	-1.35351	267.586	1234.4	4.4	883.3	328.9	1212.2	3.69	138.40	770.6	441.6
74	-1.34651	270.857	1237.7	4.5	884.7	327.5	1212.2	3.70	138.61	769.8	442.3
75	-1.33941	269.441	1236.3	4.6	882.7	326.6	1209.3	3.70	138.73	768.0	441.4
76	-1.33241	268.911	1235.7	4.7	881.4	325.6	1207.0	3.71	138.87	766.3	440.7
77	-1.32531	272.847	1239.7	4.8	883.3	324.7	1208.0	3.72	139.01	766.3	441.6
78	-1.31831	273.090	1239.9	4.9	882.5	323.9	1206.4	3.72	139.12	765.1	441.3
79	-1.31121	277.753	1244.6	5.0	884.9	323.2	1208.0	3.74	139.23	765.6	442.4
80	-1.30421	277.655	1244.5	5.1	883.9	322.2	1206.1	3.74	139.37	764.1	441.9
81	-1.28661	279.429	1246.3	5.4	882.7	319.6	1202.3	3.76	139.75	760.9	441.4
82	-1.26901	283.075	1249.9	5.6	882.9	318.1	1201.1	3.78	139.96	759.6	441.5
83	-1.25141	293.026	1259.9	5.9	887.6	315.2	1202.7	3.82	140.39	759.0	443.8
84	-1.23371	300.041	1266.9	6.1	890.1	313.8	1203.9	3.84	140.58	758.9	445.0
85	-1.21611	306.106	1272.9	6.4	891.9	313.1	1205.1	3.85	140.68	759.1	446.0
86	-1.19851	314.553	1281.4	6.6	895.4	312.3	1207.7	3.87	140.81	760.0	447.7
87	-1.18091	320.369	1287.2	6.9	897.0	311.6	1208.6	3.88	140.91	760.1	448.5
88	-1.16331	329.546	1296.4	7.1	900.9	311.3	1212.2	3.89	140.96	761.7	450.5
89	-1.14571	329.691	1296.5	7.4	898.6	311.5	1210.0	3.88	140.93	760.7	449.3
90	-1.12811	343.004	1309.8	7.6	905.3	309.3	1214.6	3.93	141.24	761.9	452.6
91	-1.11051	349.505	1316.3	7.9	907.3	307.2	1214.5	3.95	141.54	760.8	453.6
92	-1.09291	358.196	1325.0	8.2	910.7	306.9	1217.6	3.97	141.59	762.2	455.4
93	-1.07531	367.174	1334.0	8.4	914.4	306.3	1220.6	3.99	141.68	763.4	457.2
94	-1.05771	376.983	1343.8	8.7	918.5	305.7	1224.2	4.00	141.77	764.9	459.3
95	-1.04011	380.659	1347.5	8.9	918.5	308.1	1226.6	3.98	141.41	767.4	459.2
96	-1.02251	390.201	1357.0	9.2	922.4	309.2	1231.6	3.98	141.25	770.4	461.2
97	-1.00491	394.205	1361.0	9.4	922.5	310.3	1232.8	3.97	141.10	771.5	461.3
98	-0.98731	400.517	1367.4	9.7	924.2	308.4	1232.6	4.00	141.37	770.5	462.1
99	-0.96961	414.952	1381.8	9.9	931.3	308.6	1239.9	4.02	141.35	774.2	465.6
100	-0.95201	427.022	1393.9	10.2	936.8	309.5	1246.3	4.03	141.21	777.9	468.4
101	-0.93441	438.240	1405.1	10.5	941.6	310.2	1251.9	4.04	141.11	781.0	470.8
102	-0.91681	445.292	1412.1	10.7	943.7	310.5	1254.2	4.04	141.07	782.3	471.8
103	-0.89921	452.702	1419.5	11.0	945.9	311.7	1257.6	4.03	140.89	784.7	473.0
104	-0.88161	463.741	1430.6	11.2	950.5	310.7	1261.3	4.06	141.03	786.0	475.3
105	-0.86401	475.026	1441.9	11.5	955.3	309.9	1265.1	4.08	141.16	787.5	477.6
106	-0.84641	487.762	1454.6	11.7	961.0	309.9	1270.8	4.10	141.16	790.3	480.5
107	-0.82881	502.950	1469.8	12.0	968.2	310.1	1278.3	4.12	141.12	794.2	484.1
108	-0.81121	510.384	1477.2	12.2	970.3	310.2	1280.5	4.13	141.11	795.3	485.1
109	-0.79361	521.426	1488.3	12.5	974.7	310.3	1285.0	4.14	141.09	797.6	487.3
110	-0.77601	533.634	1500.5	12.7	979.8	312.0	1291.8	4.14	140.85	801.9	489.9
111	-0.75841	544.731	1511.6	13.0	984.2	314.2	1298.4	4.13	140.53	806.3	492.1
112	-0.74081	557.422	1524.3	13.3	989.5	315.3	1304.9	4.14	140.36	810.1	494.8
113	-0.72321	570.438	1537.3	13.5	995.1	316.4	1311.4	4.15	140.22	813.9	497.5
114	-0.70561	581.139	1548.0	13.8	999.0	316.5	1315.5	4.16	140.20	816.0	499.5
115	-0.68801	594.983	1561.8	14.0	1005.0	316.8	1321.8	4.17	140.15	819.3	502.5
116	-0.67041	603.859	1570.7	14.3	1007.7	318.2	1325.9	4.17	139.95	822.0	503.9
117	-0.65281	618.443	1585.3	14.5	1014.0	318.4	1332.5	4.18	139.91	825.5	507.0
118	-0.63521	630.850	1597.7	14.8	1018.9	316.6	1335.5	4.22	140.18	826.1	509.5

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
119	-0.61761	639.193	1606.0	15.0	1021.2	316.4	1337.6	4.23	140.21	827.0	510.6
120	-0.60001	645.937	1612.8	15.3	1022.4	316.2	1338.6	4.23	140.25	827.4	511.2
121	-0.58241	659.291	1626.1	15.5	1027.8	315.3	1343.1	4.26	140.37	829.2	513.9
122	-0.56481	671.941	1638.8	15.8	1032.6	316.5	1349.1	4.26	140.20	832.8	516.3
123	-0.54721	679.645	1646.5	16.1	1034.4	317.3	1351.6	4.26	140.09	834.4	517.2
124	-0.52961	690.039	1656.9	16.3	1037.7	317.7	1355.4	4.27	140.02	836.6	518.9
125	-0.51201	700.984	1667.8	16.6	1041.4	318.3	1359.7	4.27	139.94	839.0	520.7
126	-0.49431	715.905	1682.7	16.8	1047.5	321.7	1369.2	4.26	139.44	845.5	523.8
127	-0.47681	725.609	1692.4	17.1	1050.3	323.6	1374.0	4.25	139.16	848.8	525.2
128	-0.45911	742.237	1709.1	17.3	1057.4	324.6	1382.0	4.26	139.01	853.3	528.7
129	-0.44151	749.992	1716.8	17.6	1058.9	325.8	1384.7	4.25	138.85	855.3	529.5
130	-0.42391	762.224	1729.1	17.8	1063.2	326.5	1389.6	4.26	138.75	858.1	531.6
131	-0.40631	771.279	1738.1	18.1	1065.4	328.0	1393.4	4.25	138.52	860.7	532.7
132	-0.38871	781.659	1748.5	18.3	1068.4	327.7	1396.2	4.26	138.57	861.9	534.2
133	-0.38871	779.879	1746.7	18.3	1067.4	327.8	1395.1	4.26	138.56	861.4	533.7

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	650.400			2737.500
Moisture content: Dry soil+tare, gms.	615.600			2565.600
Moisture content: Tare, gms.	185.100			305.700
Moisture, %	8.1	10.7	6.9	7.6
Moist specimen weight, gms.	2439.4			
Diameter, in.	3.45	3.45	3.36	
Area, in.²	9.35	9.35	8.85	
Height, in.	7.03	7.03	6.84	
Net decrease in height, in.		0.00	0.19	
Wet density, pcf	141.4	144.8	151.9	
Dry density, pcf	130.8	130.8	142.0	
Void ratio	0.2883	0.2883	0.1868	
Saturation, %	75.7	100.0	100.0	

Test Readings for Specimen No. 3

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 329.92 psi (2274.7 kPa)
Consolidation back pressure = 40.00 psi (275.8 kPa)
Consolidation effective confining stress = 1998.9 kPa
Strain rate, in./min. = 0.04
Fail. Stress = 2536.8 kPa **at reading no.** 132

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.7130	78.811	0.0	0.0	0.0	1991.9	1991.9	1.00	41.02	1991.9	0.0
1	-1.7112	134.339	55.5	0.0	43.3	1990.7	2034.0	1.02	41.19	2012.3	21.6
2	-1.7095	192.727	113.9	0.1	88.7	1988.2	2076.9	1.04	41.56	2032.5	44.4
3	-1.7077	252.198	173.4	0.1	135.0	1985.3	2120.3	1.07	41.97	2052.8	67.5
4	-1.7060	311.709	232.9	0.1	181.3	1981.6	2162.9	1.09	42.51	2072.2	90.6
5	-1.7042	375.081	296.3	0.1	230.6	1978.0	2208.5	1.12	43.04	2093.2	115.3
6	-1.7024	431.832	353.0	0.2	274.7	1973.4	2248.0	1.14	43.71	2110.7	137.3
7	-1.7007	494.246	415.4	0.2	323.1	1967.3	2290.4	1.16	44.59	2128.8	161.6
8	-1.6989	551.112	472.3	0.2	367.3	1960.4	2327.6	1.19	45.59	2144.0	183.6
9	-1.6972	612.257	533.4	0.2	414.7	1952.6	2367.3	1.21	46.72	2160.0	207.4
10	-1.6954	666.108	587.3	0.3	456.5	1945.1	2401.6	1.23	47.80	2173.4	228.2
11	-1.6937	722.800	644.0	0.3	500.4	1935.4	2435.7	1.26	49.22	2185.5	250.2
12	-1.6919	781.700	702.9	0.3	546.0	1925.4	2471.4	1.28	50.66	2198.4	273.0
13	-1.6901	830.797	752.0	0.3	584.0	1914.5	2498.5	1.31	52.25	2206.5	292.0
14	-1.6884	886.311	807.5	0.4	627.0	1901.9	2528.9	1.33	54.07	2215.4	313.5
15	-1.6866	942.891	864.1	0.4	670.7	1889.0	2559.7	1.36	55.95	2224.3	335.4
16	-1.6848	995.135	916.3	0.4	711.1	1875.5	2586.6	1.38	57.90	2231.0	355.5
17	-1.68301044.458		965.6	0.4	749.2	1859.8	2608.9	1.40	60.18	2234.3	374.6
18	-1.68131092.655		1013.8	0.5	786.4	1844.1	2630.5	1.43	62.45	2237.3	393.2
19	-1.67951141.913		1063.1	0.5	824.3	1827.4	2651.7	1.45	64.88	2239.6	412.2
20	-1.67781194.723		1115.9	0.5	865.1	1810.0	2675.1	1.48	67.39	2242.6	432.5
21	-1.67601239.118		1160.3	0.5	899.2	1790.8	2690.1	1.50	70.18	2240.5	449.6
22	-1.67421284.219		1205.4	0.6	934.0	1771.2	2705.2	1.53	73.03	2238.2	467.0
23	-1.67251334.405		1255.6	0.6	972.6	1751.0	2723.6	1.56	75.96	2237.3	486.3
24	-1.67071378.554		1299.7	0.6	1006.5	1729.1	2735.7	1.58	79.13	2232.4	503.3

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
25	-1.66901	425.350	1346.5	0.6	1042.5	1707.8	2750.3	1.61	82.23	2229.0	521.3
26	-1.66721	466.651	1387.8	0.7	1074.2	1684.3	2758.5	1.64	85.63	2221.4	537.1
27	-1.66541	501.971	1423.2	0.7	1101.3	1659.3	2760.5	1.66	89.26	2209.9	550.6
28	-1.66371	548.509	1469.7	0.7	1137.0	1634.9	2771.9	1.70	92.79	2203.4	568.5
29	-1.66191	589.245	1510.4	0.7	1168.2	1608.9	2777.1	1.73	96.56	2193.0	584.1
30	-1.66011	626.029	1547.2	0.8	1196.3	1583.0	2779.3	1.76	100.33	2181.2	598.2
31	-1.65841	668.330	1589.5	0.8	1228.7	1556.7	2785.4	1.79	104.14	2171.0	614.4
32	-1.65661	706.137	1627.3	0.8	1257.6	1529.1	2786.7	1.82	108.14	2157.9	628.8
33	-1.65481	739.180	1660.4	0.8	1282.8	1501.4	2784.2	1.85	112.16	2142.8	641.4
34	-1.65311	775.704	1696.9	0.9	1310.7	1472.1	2782.8	1.89	116.41	2127.4	655.3
35	-1.65131	807.625	1728.8	0.9	1335.0	1443.7	2778.7	1.92	120.53	2111.2	667.5
36	-1.64961	838.085	1759.3	0.9	1358.2	1416.0	2774.2	1.96	124.54	2095.1	679.1
37	-1.64781	870.977	1792.2	1.0	1383.2	1388.7	2771.9	2.00	128.50	2080.3	691.6
38	-1.64601	898.839	1820.0	1.0	1404.3	1361.0	2765.3	2.03	132.52	2063.2	702.2
39	-1.64431	922.144	1843.3	1.0	1421.9	1334.9	2756.8	2.07	136.31	2045.9	711.0
40	-1.63722	021.377	1942.6	1.1	1496.9	1232.2	2729.1	2.21	151.21	1980.7	748.5
41	-1.63022	106.207	2027.4	1.2	1560.7	1139.0	2699.7	2.37	164.72	1919.3	780.3
42	-1.62322	166.984	2088.2	1.3	1605.8	1059.5	2665.3	2.52	176.26	1862.4	802.9
43	-1.61612	209.535	2130.7	1.4	1636.8	987.4	2624.2	2.66	186.71	1805.8	818.4
44	-1.60912	237.657	2158.8	1.5	1656.7	931.1	2587.8	2.78	194.87	1759.5	828.3
45	-1.60212	285.536	2206.7	1.6	1691.7	883.4	2575.0	2.91	201.80	1729.2	845.8
46	-1.59502	309.573	2230.8	1.7	1708.3	841.9	2550.2	3.03	207.81	1696.1	854.1
47	-1.58802	336.903	2258.1	1.8	1727.4	804.9	2532.3	3.15	213.18	1668.6	863.7
48	-1.58092	352.560	2273.7	1.9	1737.6	773.8	2511.3	3.25	217.69	1642.6	868.8
49	-1.57392	367.662	2288.9	2.0	1747.3	746.9	2494.2	3.34	221.59	1620.5	873.6
50	-1.56692	380.248	2301.4	2.1	1755.0	724.9	2479.9	3.42	224.79	1602.4	877.5
51	-1.55982	395.879	2317.1	2.2	1765.1	705.5	2470.6	3.50	227.59	1588.1	882.5
52	-1.55282	410.827	2332.0	2.3	1774.6	689.0	2463.6	3.58	229.99	1576.3	887.3
53	-1.54582	423.429	2344.6	2.4	1782.3	675.2	2457.5	3.64	232.00	1566.3	891.2
54	-1.53872	428.049	2349.2	2.5	1784.0	662.4	2446.4	3.69	233.85	1554.4	892.0
55	-1.53172	440.960	2362.1	2.6	1791.9	651.3	2443.2	3.75	235.45	1547.3	895.9
56	-1.52472	437.984	2359.2	2.8	1787.7	643.1	2430.8	3.78	236.64	1537.0	893.9
57	-1.51762	460.885	2382.1	2.9	1803.2	633.8	2437.0	3.84	237.99	1535.4	901.6
58	-1.51062	477.867	2399.1	3.0	1814.1	626.7	2440.8	3.89	239.02	1533.8	907.1
59	-1.50362	490.227	2411.4	3.1	1821.5	621.8	2443.3	3.93	239.74	1532.5	910.8
60	-1.49652	504.860	2426.0	3.2	1830.6	615.7	2446.3	3.97	240.62	1531.0	915.3
61	-1.48952	515.490	2436.7	3.3	1836.7	610.2	2446.9	4.01	241.42	1528.6	918.4
62	-1.48252	533.001	2454.2	3.4	1847.9	605.3	2453.2	4.05	242.13	1529.3	924.0
63	-1.47542	546.381	2467.6	3.5	1856.0	597.2	2453.2	4.11	243.30	1525.2	928.0
64	-1.46842	553.159	2474.3	3.6	1859.1	593.1	2452.3	4.13	243.89	1522.7	929.6
65	-1.46142	560.020	2481.2	3.7	1862.3	589.6	2452.0	4.16	244.40	1520.8	931.2
66	-1.45432	576.307	2497.5	3.8	1872.5	586.5	2459.1	4.19	244.85	1522.8	936.3
67	-1.44732	588.893	2510.1	3.9	1880.0	584.8	2464.7	4.21	245.11	1524.7	940.0
68	-1.44032	602.384	2523.6	4.0	1888.0	583.9	2472.0	4.23	245.23	1527.9	944.0
69	-1.43322	611.955	2533.1	4.1	1893.2	581.7	2474.9	4.25	245.55	1528.3	946.6
70	-1.42622	628.858	2550.0	4.2	1903.8	579.9	2483.7	4.28	245.81	1531.8	951.9
71	-1.41922	641.405	2562.6	4.3	1911.1	577.9	2489.0	4.31	246.10	1533.4	955.5

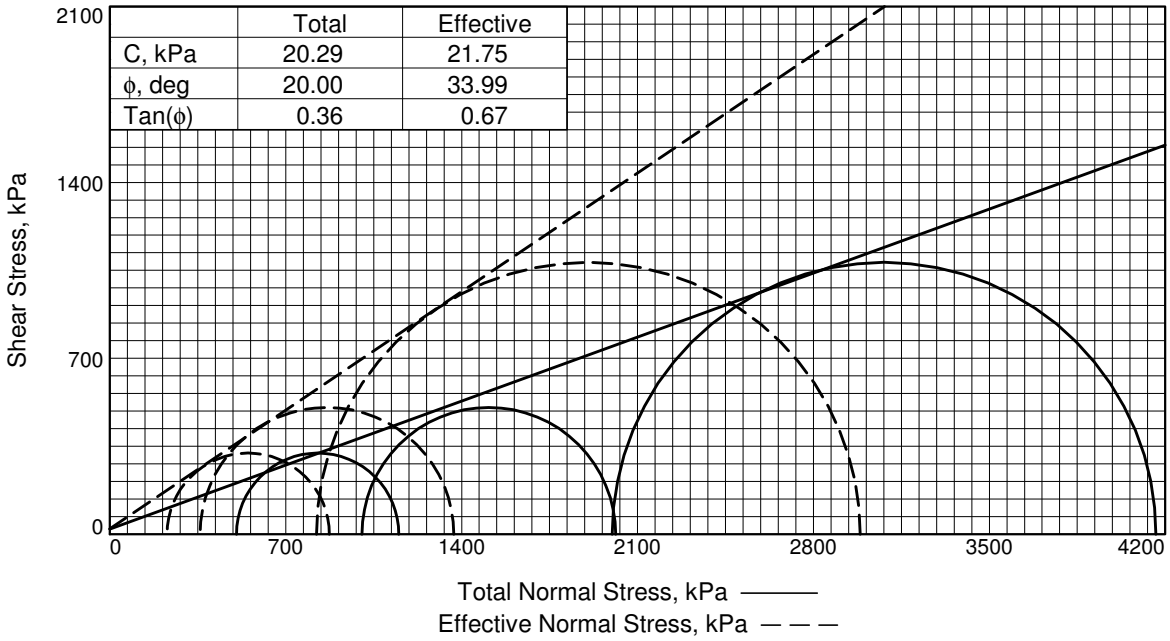
Test Readings for Specimen No. 3

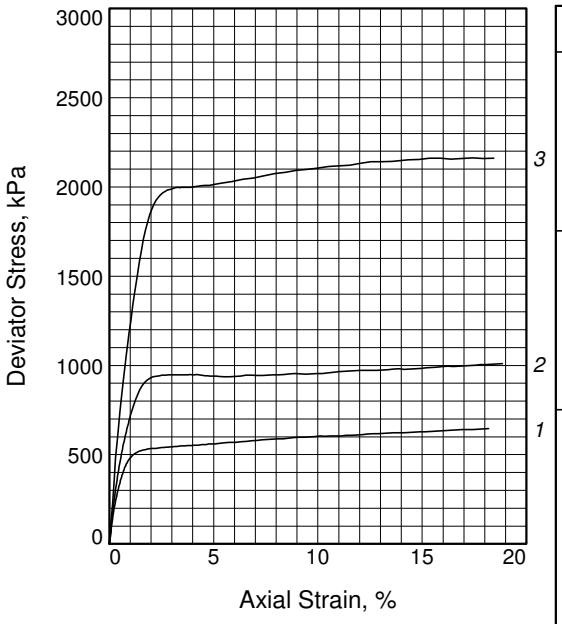
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
72	-1.41212	655.913	2577.1	4.4	1919.8	576.4	2496.2	4.33	246.32	1536.3	959.9
73	-1.40512	662.547	2583.7	4.5	1922.7	575.7	2498.4	4.34	246.42	1537.0	961.4
74	-1.39802	660.195	2581.4	4.6	1918.9	572.0	2490.9	4.35	246.96	1531.5	959.4
75	-1.39102	669.608	2590.8	4.7	1923.8	571.0	2494.8	4.37	247.10	1532.9	961.9
76	-1.38402	683.730	2604.9	4.8	1932.2	570.6	2502.8	4.39	247.17	1536.7	966.1
77	-1.37692	693.084	2614.3	4.9	1937.1	570.8	2507.8	4.39	247.13	1539.3	968.5
78	-1.36992	708.560	2629.7	5.0	1946.4	569.5	2515.9	4.42	247.32	1542.7	973.2
79	-1.36292	717.350	2638.5	5.1	1950.8	569.7	2520.5	4.42	247.29	1545.1	975.4
80	-1.34532	741.905	2663.1	5.4	1963.6	567.3	2531.0	4.46	247.64	1549.1	981.8
81	-1.32772	753.300	2674.5	5.6	1966.7	567.8	2534.5	4.46	247.56	1551.2	983.3
82	-1.31012	793.009	2714.2	5.9	1990.4	568.6	2559.1	4.50	247.45	1563.9	995.2
83	-1.29252	810.976	2732.2	6.1	1998.1	568.3	2566.4	4.52	247.50	1567.3	999.1
84	-1.27492	852.448	2773.6	6.4	2022.9	569.8	2592.7	4.55	247.28	1581.2	1011.5
85	-1.25742	882.433	2803.6	6.7	2039.2	570.0	2609.2	4.58	247.25	1589.6	1019.6
86	-1.23982	922.966	2844.2	6.9	2063.0	570.0	2632.9	4.62	247.25	1601.5	1031.5
87	-1.22222	937.035	2858.2	7.2	2067.4	570.4	2637.8	4.62	247.19	1604.1	1033.7
88	-1.20462	974.241	2895.4	7.4	2088.6	571.5	2660.0	4.65	247.04	1615.7	1044.3
89	-1.18713	001.575	2922.8	7.7	2102.4	570.6	2673.1	4.68	247.16	1621.8	1051.2
90	-1.16953	037.085	2958.3	7.9	2122.0	571.0	2693.0	4.72	247.11	1632.0	1061.0
91	-1.15193	067.549	2988.7	8.2	2137.9	570.6	2708.5	4.75	247.16	1639.6	1069.0
92	-1.13433	111.908	3033.1	8.5	2163.6	574.0	2737.6	4.77	246.66	1655.8	1081.8
93	-1.11673	136.269	3057.5	8.7	2174.8	575.8	2750.7	4.78	246.40	1663.3	1087.4
94	-1.09913	172.960	3094.1	9.0	2194.7	578.5	2773.2	4.79	246.02	1675.8	1097.4
95	-1.08163	193.135	3114.3	9.2	2202.8	580.6	2783.4	4.79	245.70	1682.0	1101.4
96	-1.06403	212.739	3133.9	9.5	2210.4	581.1	2791.5	4.80	245.63	1686.3	1105.2
97	-1.04643	223.173	3144.4	9.7	2211.5	585.4	2796.9	4.78	245.01	1691.1	1105.7
98	-1.02883	256.261	3177.5	10.0	2228.4	589.5	2817.8	4.78	244.42	1703.7	1114.2
99	-1.01133	290.984	3212.2	10.3	2246.3	592.7	2839.0	4.79	243.95	1715.9	1123.1
100	-0.99373	317.800	3239.0	10.5	2258.6	596.3	2854.9	4.79	243.43	1725.6	1129.3
101	-0.97613	344.061	3265.2	10.8	2270.3	598.3	2868.6	4.79	243.15	1733.4	1135.2
102	-0.95913	368.127	3289.3	11.0	2280.7	599.8	2880.5	4.80	242.93	1740.1	1140.4
103	-0.94153	414.021	3335.2	11.3	2305.8	603.1	2909.0	4.82	242.45	1756.0	1152.9
104	-0.92393	448.038	3369.2	11.5	2322.6	605.7	2928.3	4.83	242.07	1767.0	1161.3
105	-0.90643	470.339	3391.5	11.8	2331.2	608.1	2939.3	4.83	241.73	1773.7	1165.6
106	-0.88883	483.853	3405.0	12.0	2333.7	607.3	2941.0	4.84	241.84	1774.1	1166.8
107	-0.87123	499.829	3421.0	12.3	2337.8	608.8	2946.5	4.84	241.63	1777.7	1168.9
108	-0.85363	528.488	3449.7	12.6	2350.5	608.8	2959.3	4.86	241.62	1784.0	1175.2
109	-0.83603	541.405	3462.6	12.8	2352.3	610.1	2962.4	4.86	241.43	1786.3	1176.2
110	-0.81853	560.222	3481.4	13.1	2358.1	610.0	2968.1	4.87	241.45	1789.0	1179.1
111	-0.80093	581.473	3502.7	13.3	2365.5	610.2	2975.8	4.88	241.41	1793.0	1182.8
112	-0.78333	626.895	3548.1	13.6	2389.1	610.5	2999.5	4.91	241.38	1805.0	1194.5
113	-0.76573	642.551	3563.7	13.8	2392.5	610.1	3002.6	4.92	241.44	1806.3	1196.2
114	-0.74823	677.737	3598.9	14.1	2408.9	611.6	3020.5	4.94	241.22	1816.0	1204.5
115	-0.73063	712.118	3633.3	14.4	2424.7	612.8	3037.4	4.96	241.05	1825.1	1212.3
116	-0.71303	743.786	3665.0	14.6	2438.4	614.4	3052.9	4.97	240.80	1833.7	1219.2
117	-0.69543	754.105	3675.3	14.9	2438.0	615.8	3053.7	4.96	240.61	1834.8	1219.0
118	-0.67973	768.259	3689.4	15.1	2440.7	612.4	3053.1	4.99	241.10	1832.8	1220.4

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
119	-0.66273	764.932	3686.1	15.4	2431.4	609.5	3040.9	4.99	241.52	1825.2	1215.7
120	-0.64513	816.221	3737.4	15.6	2457.7	607.2	3064.9	5.05	241.86	1836.0	1228.9
121	-0.62763	838.804	3760.0	15.9	2465.1	607.7	3072.8	5.06	241.78	1840.2	1232.5
122	-0.61003	853.361	3774.6	16.1	2467.1	609.3	3076.4	5.05	241.55	1842.8	1233.5
123	-0.59253	906.041	3827.2	16.4	2493.9	611.2	3105.0	5.08	241.28	1858.1	1246.9
124	-0.57483	910.805	3832.0	16.6	2489.3	607.7	3096.9	5.10	241.79	1852.3	1244.6
125	-0.55723	961.670	3882.9	16.9	2514.5	609.6	3124.2	5.12	241.50	1866.9	1257.3
126	-0.53973	950.400	3871.6	17.1	2499.5	611.1	3110.6	5.09	241.29	1860.8	1249.7
127	-0.52213	982.104	3903.3	17.4	2512.1	612.1	3124.2	5.10	241.14	1868.2	1256.1
128	-0.50453	993.915	3915.1	17.7	2511.9	612.0	3123.9	5.10	241.15	1868.0	1255.9
129	-0.48694	012.962	3934.2	17.9	2516.2	612.0	3128.2	5.11	241.16	1870.1	1258.1
130	-0.46934	040.745	3961.9	18.2	2526.1	612.2	3138.2	5.13	241.13	1875.2	1263.0
131	-0.45174	065.208	3986.4	18.4	2533.7	609.3	3143.0	5.16	241.55	1876.1	1266.8
132	-0.44914	071.954	3993.1	18.5	2536.8	609.9	3146.6	5.16	241.46	1878.3	1268.4

Cursory interpretations provided require review by a professional engineer. Knight Piesold accepts no responsibility in subsequent analyses.





Sample No.		1	2	3
Initial	Water Content, %	7.8	7.6	7.8
	Dry Density, pcf	129.6	127.0	126.5
	Saturation, %	70.2	62.5	63.2
	Void Ratio	0.3002	0.3276	0.3329
	Diameter, in.	3.490	3.490	3.499
	Height, in.	6.970	7.120	7.100
At Test	Water Content, %	10.2	10.1	9.6
	Dry Density, pcf	132.2	132.5	134.0
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.2749	0.2719	0.2583
	Diameter, in.	3.472	3.495	3.449
	Height, in.	6.904	6.801	6.898
Strain rate, in./min.		0.025	0.025	0.025
Eff. Cell Pressure, kPa		504.3	1003.3	1999.5
Fail. Stress, kPa		645.8	1009.4	2163.5
Excess Pore Pr., kPa		276.9	644.0	1176.9
Strain, %		18.2	18.8	17.4
Ult. Stress, kPa				
Excess Pore Pr., kPa				
Strain, %				
$\bar{\sigma}_1$ Failure, kPa		873.2	1368.7	2986.1
$\bar{\sigma}_3$ Failure, kPa		227.4	359.4	822.5

Type of Test:
CU with Pore Pressures

Sample Type: Remolded to 95% MDD at OMC

Description:

Assumed Specific Gravity= 2.7

Remarks: Failure tangents drawn at approximately 18% strain.

Figure _____

Client: New Gold Inc.

Project: Blackwater Gold Project

Location: GT-46

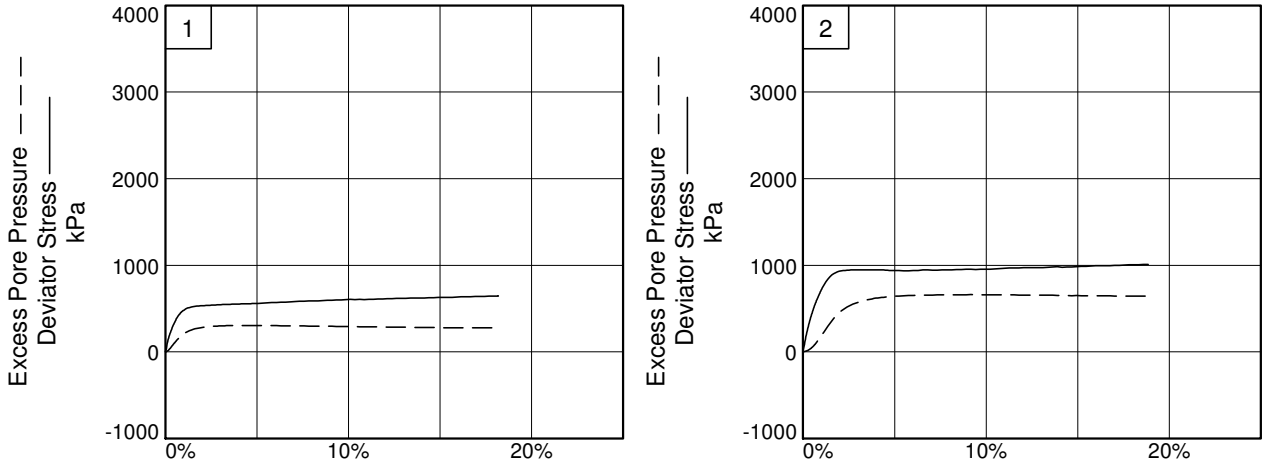
Sample Number: 15,16,17 and 18

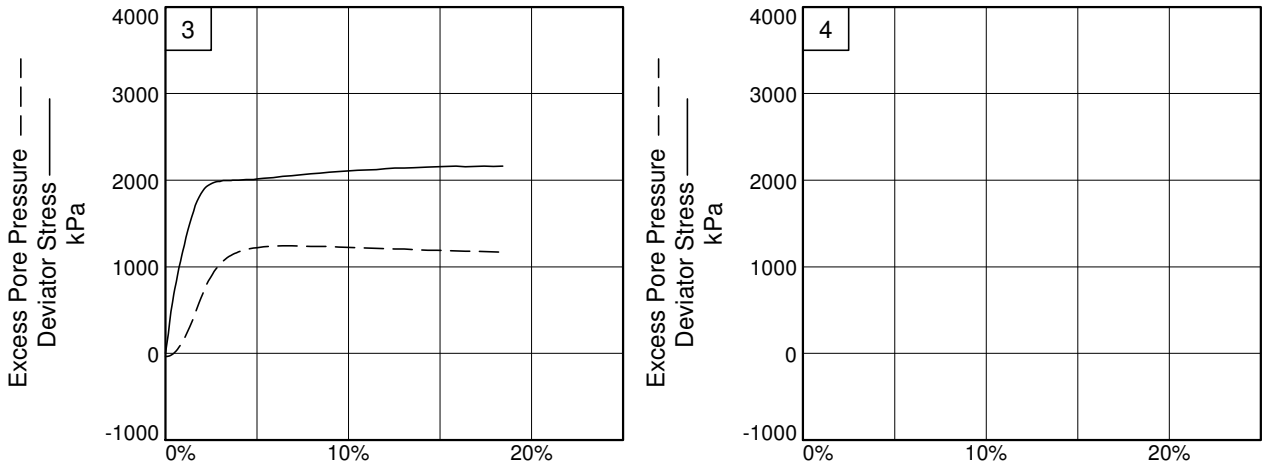
Proj. No.: VA101-457/04 **Date Sampled:** 418/13

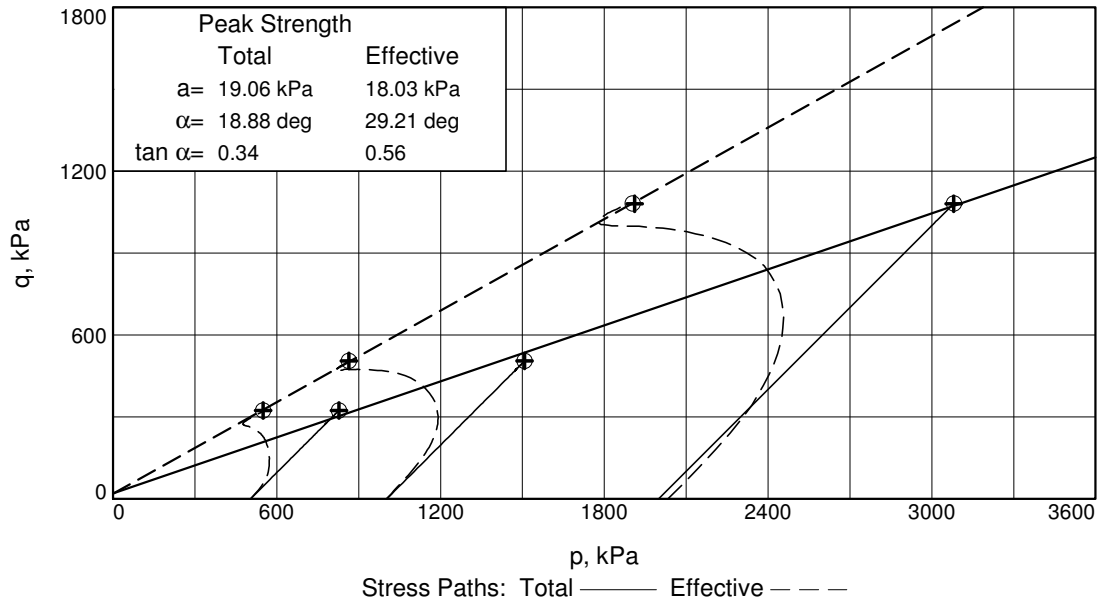
Knight Piésold CONSULTING

Tested By: JHK **Checked By:** JDB

Cursory interpretations provided require review by a professional engineer. Knight Piesold accepts no responsibility in subsequent analyses.







Client: New Gold Inc.
Project: Blackwater Gold Project
Location: GT-46 **Sample Number:** 15,16,17 and 18
Project No.: VA101-457/04 **Figure** _____

Knight Piesold Geotechnical Lab.

Tested By: JHK **Checked By:** JDB

TRIAXIAL COMPRESSION TEST

CU with Pore Pressures

4/24/2013
12:48 PM

Date: 418/13
Client: New Gold Inc.
Project: Blackwater Gold Project
Project No.: VA101-457/04
Location: GT-46
Sample Number: 15,16,17 and 18
Description:
Remarks: Failure tangents drawn at approximately 18% strain.
Type of Sample: Remolded to 95% MDD at OMC
Assumed Specific Gravity=2.7 **LL=** **PL=** **PI=**
Test Method: ASTM D 4767 Method A

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2446.000			2798.800
Moisture content: Dry soil+tare, gms.	2268.960			2567.860
Moisture content: Tare, gms.	0.000			298.900
Moisture, %	7.8	11.1	10.2	10.2
Moist specimen weight, gms.	2446.00			
Diameter, in.	3.490	3.490	3.472	
Area, in.²	9.566	9.566	9.469	
Height, in.	6.970	6.970	6.904	
Net decrease in height, in.		0.000	0.066	
Net decrease in water volume, cc.			21.300	
Wet density, pcf	139.8	144.0	145.7	
Dry density, pcf	129.6	129.6	132.2	
Void ratio	0.3002	0.3002	0.2749	
Saturation, %	70.2	100.0	100.0	

Test Readings for Specimen No. 1

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 123.140 psi (849.02 kPa)
Consolidation back pressure = 50.000 psi (344.74 kPa)
Consolidation effective confining stress = 504.28 kPa
Strain rate, in./min. = 0.025
Fail. Stress = 645.76 kPa **at reading no.** 133

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.7072	21.900	0.0	0.0	0.00	503.46	503.46	1.00	50.120	503.46	0.00
1	-1.7055	46.791	24.9	0.0	18.12	503.05	521.17	1.04	50.179	512.11	9.06
2	-1.7037	75.240	53.3	0.1	38.82	502.18	541.00	1.08	50.305	521.59	19.41
3	-1.7020	111.472	89.6	0.1	65.17	500.24	565.41	1.13	50.586	532.82	32.58
4	-1.7002	148.720	126.8	0.1	92.25	497.14	589.38	1.19	51.036	543.26	46.12
5	-1.6985	183.985	162.1	0.1	117.87	493.15	611.02	1.24	51.615	552.08	58.93
6	-1.6967	214.324	192.4	0.2	139.89	488.61	628.50	1.29	52.273	558.56	69.95
7	-1.6950	241.784	219.9	0.2	159.82	483.23	643.04	1.33	53.054	563.14	79.91
8	-1.6932	266.803	244.9	0.2	177.96	477.54	655.49	1.37	53.879	566.51	88.98
9	-1.6915	290.284	268.4	0.2	194.97	471.41	666.38	1.41	54.767	568.90	97.48
10	-1.6897	311.406	289.5	0.3	210.26	464.91	675.16	1.45	55.711	570.04	105.13
11	-1.6880	332.979	311.1	0.3	225.87	458.41	684.28	1.49	56.654	571.34	112.93
12	-1.6862	354.568	332.7	0.3	241.48	451.58	693.06	1.53	57.645	572.32	120.74
13	-1.6845	373.053	351.2	0.3	254.84	444.88	699.72	1.57	58.615	572.30	127.42
14	-1.6827	391.350	369.4	0.4	268.05	438.23	706.28	1.61	59.580	572.25	134.02
15	-1.6810	409.746	387.8	0.4	281.32	431.64	712.97	1.65	60.535	572.31	140.66
16	-1.6792	429.577	407.7	0.4	295.63	424.99	720.62	1.70	61.500	572.81	147.82
17	-1.6775	444.818	422.9	0.4	306.61	418.25	724.85	1.73	62.479	571.55	153.30
18	-1.6758	461.857	440.0	0.5	318.88	411.87	730.74	1.77	63.404	571.30	159.44
19	-1.6740	478.148	456.2	0.5	330.60	405.26	735.86	1.82	64.362	570.56	165.30
20	-1.6723	493.779	471.9	0.5	341.84	398.84	740.69	1.86	65.292	569.77	170.92
21	-1.6705	509.581	487.7	0.5	353.20	392.69	745.89	1.90	66.185	569.29	176.60
22	-1.6688	524.377	502.5	0.6	363.82	386.47	750.29	1.94	67.088	568.38	181.91
23	-1.6670	538.541	516.6	0.6	373.98	380.21	754.19	1.98	67.995	567.20	186.99
24	-1.6653	552.898	531.0	0.6	384.28	374.10	758.37	2.03	68.882	566.23	192.14
25	-1.6635	563.582	541.7	0.6	391.91	368.24	760.15	2.06	69.731	564.20	195.95
26	-1.6618	576.284	554.4	0.7	401.00	362.54	763.54	2.11	70.557	563.04	200.50
27	-1.6600	587.937	566.0	0.7	409.32	356.92	766.24	2.15	71.373	561.58	204.66
28	-1.6583	599.171	577.3	0.7	417.34	351.17	768.51	2.19	72.207	559.84	208.67
29	-1.6565	610.801	588.9	0.7	425.64	345.74	771.38	2.23	72.994	558.56	212.82
30	-1.6548	619.645	597.7	0.8	431.92	340.58	772.50	2.27	73.743	556.54	215.96
31	-1.6530	628.395	606.5	0.8	438.13	335.37	773.50	2.31	74.499	554.43	219.06
32	-1.6513	639.651	617.8	0.8	446.15	330.26	776.40	2.35	75.240	553.33	223.07
33	-1.6495	646.329	624.4	0.8	450.86	325.54	776.40	2.38	75.924	550.97	225.43
34	-1.6478	654.684	632.8	0.9	456.77	320.63	777.40	2.42	76.637	549.01	228.39
35	-1.6460	662.736	640.8	0.9	462.47	316.06	778.52	2.46	77.300	547.29	231.23
36	-1.6443	668.452	646.6	0.9	466.47	311.65	778.12	2.50	77.939	544.88	233.24
37	-1.6426	675.465	653.6	0.9	471.41	307.51	778.92	2.53	78.539	543.22	235.71
38	-1.6408	682.385	660.5	1.0	476.28	303.42	779.70	2.57	79.132	541.56	238.14
39	-1.6391	686.584	664.7	1.0	479.19	299.23	778.42	2.60	79.740	538.83	239.59
40	-1.6373	691.949	670.0	1.0	482.93	295.46	778.39	2.63	80.287	536.93	241.47
41	-1.6303	709.669	687.8	1.1	495.20	281.45	776.64	2.76	82.319	529.05	247.60
42	-1.6234	725.476	703.6	1.2	506.06	269.93	775.99	2.87	83.990	522.96	253.03
43	-1.6164	734.996	713.1	1.3	512.38	260.36	772.75	2.97	85.378	516.55	256.19
44	-1.6094	743.944	722.0	1.4	518.28	252.27	770.55	3.05	86.552	511.41	259.14
45	-1.6025	749.270	727.4	1.5	521.57	244.83	766.40	3.13	87.630	505.62	260.79
46	-1.5955	755.266	733.4	1.6	525.33	238.92	764.25	3.20	88.488	501.58	262.67

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
47	-1.5885	760.609	738.7	1.7	528.61	233.58	762.20	3.26	89.262	497.89	264.31
48	-1.5815	764.242	742.3	1.8	530.67	229.25	759.91	3.31	89.891	494.58	265.33
49	-1.5746	767.226	745.3	1.9	532.25	225.37	757.63	3.36	90.452	491.50	266.13
50	-1.5676	771.074	749.2	2.0	534.45	222.02	756.47	3.41	90.939	489.24	267.22
51	-1.5606	771.695	749.8	2.1	534.34	219.06	753.40	3.44	91.368	486.23	267.17
52	-1.5536	773.849	751.9	2.2	535.32	216.26	751.58	3.48	91.775	483.92	267.66
53	-1.5467	776.752	754.9	2.3	536.83	214.16	750.99	3.51	92.079	482.58	268.42
54	-1.5397	778.994	757.1	2.4	537.87	212.06	749.94	3.54	92.383	481.00	268.94
55	-1.5327	782.946	761.0	2.5	540.12	210.34	750.46	3.57	92.633	480.40	270.06
56	-1.5257	783.655	761.8	2.6	540.06	208.99	749.05	3.58	92.829	479.02	270.03
57	-1.5188	786.183	764.3	2.7	541.29	207.58	748.88	3.61	93.033	478.23	270.65
58	-1.5118	788.668	766.8	2.8	542.49	206.26	748.75	3.63	93.224	477.50	271.24
59	-1.5048	790.470	768.6	2.9	543.20	205.30	748.50	3.65	93.364	476.90	271.60
60	-1.4978	792.713	770.8	3.0	544.22	204.44	748.65	3.66	93.489	476.55	272.11
61	-1.4909	796.005	774.1	3.1	545.97	203.42	749.39	3.68	93.637	476.40	272.99
62	-1.4839	796.972	775.1	3.2	546.08	202.65	748.74	3.69	93.747	475.70	273.04
63	-1.4769	798.561	776.7	3.3	546.63	202.19	748.83	3.70	93.814	475.51	273.32
64	-1.4700	802.474	780.6	3.4	548.81	201.41	750.22	3.72	93.928	475.82	274.41
65	-1.4630	803.524	781.6	3.5	548.98	201.02	749.99	3.73	93.985	475.50	274.49
66	-1.4560	805.420	783.5	3.6	549.73	200.73	750.46	3.74	94.026	475.60	274.87
67	-1.4490	806.844	784.9	3.7	550.15	200.29	750.45	3.75	94.090	475.37	275.08
68	-1.4421	809.636	787.7	3.8	551.53	200.14	751.68	3.76	94.111	475.91	275.77
69	-1.4351	810.405	788.5	3.9	551.49	199.94	751.43	3.76	94.141	475.69	275.75
70	-1.4281	812.719	790.8	4.0	552.53	199.60	752.12	3.77	94.191	475.86	276.26
71	-1.4212	814.940	793.0	4.1	553.50	199.31	752.80	3.78	94.233	476.05	276.75
72	-1.4142	816.078	794.2	4.2	553.71	199.32	753.03	3.78	94.231	476.17	276.85
73	-1.4072	817.952	796.1	4.3	554.43	199.00	753.43	3.79	94.277	476.22	277.21
74	-1.4002	821.206	799.3	4.4	556.11	199.11	755.21	3.79	94.262	477.16	278.05
75	-1.3933	822.278	800.4	4.5	556.26	199.25	755.51	3.79	94.241	477.38	278.13
76	-1.3863	823.492	801.6	4.6	556.52	199.35	755.87	3.79	94.227	477.61	278.26
77	-1.3793	828.104	806.2	4.7	559.13	199.33	758.45	3.81	94.230	478.89	279.56
78	-1.3724	829.445	807.5	4.8	559.46	199.45	758.92	3.80	94.212	479.19	279.73
79	-1.3654	830.390	808.5	5.0	559.52	199.65	759.17	3.80	94.183	479.41	279.76
80	-1.3584	831.407	809.5	5.1	559.63	199.61	759.25	3.80	94.188	479.43	279.82
81	-1.3410	838.920	817.0	5.3	563.32	200.02	763.34	3.82	94.130	481.68	281.66
82	-1.3235	846.044	824.1	5.6	566.72	200.64	767.36	3.82	94.040	484.00	283.36
83	-1.3061	851.232	829.3	5.8	568.76	201.15	769.91	3.83	93.966	485.53	284.38
84	-1.2887	854.486	832.6	6.1	569.47	201.74	771.21	3.82	93.880	486.48	284.73
85	-1.2713	861.125	839.2	6.3	572.46	202.42	774.88	3.83	93.782	488.65	286.23
86	-1.2538	866.270	844.4	6.6	574.42	202.94	777.36	3.83	93.706	490.15	287.21
87	-1.2364	873.399	851.5	6.8	577.71	203.48	781.19	3.84	93.628	492.33	288.85
88	-1.2190	879.087	857.2	7.1	579.99	204.15	784.14	3.84	93.531	494.14	290.00
89	-1.2016	886.958	865.1	7.3	583.73	204.98	788.71	3.85	93.410	496.85	291.86
90	-1.1841	891.399	869.5	7.6	585.12	205.67	790.79	3.85	93.311	498.23	292.56
91	-1.1667	896.329	874.4	7.8	586.84	206.03	792.86	3.85	93.258	499.44	293.42
92	-1.1493	901.446	879.5	8.1	588.65	206.78	795.43	3.85	93.150	501.10	294.33
93	-1.1318	905.250	883.3	8.3	589.57	207.33	796.91	3.84	93.069	502.12	294.79

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
94	-1.1144	911.560	889.7	8.6	592.15	207.99	800.14	3.85	92.973	504.07	296.08
95	-1.0970	918.359	896.5	8.8	595.03	208.78	803.81	3.85	92.859	506.29	297.51
96	-1.0795	924.053	902.2	9.1	597.15	209.49	806.64	3.85	92.755	508.07	298.57
97	-1.0621	928.560	906.7	9.3	598.47	210.20	808.66	3.85	92.653	509.43	299.23
98	-1.0447	932.556	910.7	9.6	599.43	211.07	810.50	3.84	92.527	510.78	299.71
99	-1.0273	938.228	916.3	9.8	601.48	211.17	812.65	3.85	92.512	511.91	300.74
100	-1.0098	946.450	924.6	10.1	605.18	211.93	817.11	3.86	92.402	514.52	302.59
101	-0.9924	947.137	925.2	10.4	603.93	212.81	816.74	3.84	92.274	514.78	301.96
102	-0.9750	952.188	930.3	10.6	605.51	213.47	818.99	3.84	92.178	516.23	302.76
103	-0.9576	953.464	931.6	10.9	604.63	214.02	818.65	3.83	92.099	516.33	302.32
104	-0.9401	957.668	935.8	11.1	605.64	214.76	820.40	3.82	91.992	517.58	302.82
105	-0.9227	963.291	941.4	11.4	607.55	215.59	823.14	3.82	91.872	519.36	303.77
106	-0.9053	967.930	946.0	11.6	608.80	216.24	825.04	3.82	91.777	520.64	304.40
107	-0.8878	973.470	951.6	11.9	610.62	216.94	827.56	3.81	91.676	522.25	305.31
108	-0.8704	979.763	957.9	12.1	612.90	217.57	830.47	3.82	91.584	524.02	306.45
109	-0.8530	986.997	965.1	12.4	615.75	218.14	833.89	3.82	91.501	526.02	307.88
110	-0.8356	991.630	969.7	12.6	616.93	218.75	835.68	3.82	91.413	527.21	308.46
111	-0.8181	996.142	974.2	12.9	618.01	219.42	837.43	3.82	91.316	528.42	309.00
112	-0.8007	1000.957	979.1	13.1	619.26	219.80	839.06	3.82	91.261	529.43	309.63
113	-0.7833	1006.756	984.9	13.4	621.12	220.69	841.81	3.81	91.131	531.25	310.56
114	-0.7659	1011.488	989.6	13.6	622.29	220.99	843.27	3.82	91.089	532.13	311.14
115	-0.7484	1016.144	994.2	13.9	623.39	221.78	845.17	3.81	90.973	533.47	311.69
116	-0.7310	1017.314	995.4	14.1	622.29	222.47	844.76	3.80	90.874	533.61	311.15
117	-0.7136	1023.228	1001.3	14.4	624.15	222.91	847.06	3.80	90.809	534.99	312.07
118	-0.6961	1029.604	1007.7	14.6	626.27	223.54	849.81	3.80	90.718	536.67	313.13
119	-0.6787	1034.507	1012.6	14.9	627.46	224.10	851.55	3.80	90.637	537.83	313.73
120	-0.6613	1038.722	1016.8	15.1	628.20	224.47	852.67	3.80	90.584	538.57	314.10
121	-0.6439	1044.373	1022.5	15.4	629.81	225.03	854.84	3.80	90.503	539.93	314.90
122	-0.6264	1049.187	1027.3	15.7	630.89	225.45	856.34	3.80	90.441	540.90	315.44
123	-0.6090	1055.239	1033.3	15.9	632.70	226.27	858.97	3.80	90.323	542.62	316.35
124	-0.5916	1061.966	1040.1	16.2	634.91	226.79	861.70	3.80	90.247	544.25	317.46
125	-0.5741	1067.836	1045.9	16.4	636.57	227.23	863.81	3.80	90.182	545.52	318.29
126	-0.5567	1073.487	1051.6	16.7	638.08	227.71	865.79	3.80	90.114	546.75	319.04
127	-0.5393	1080.566	1058.7	16.9	640.43	227.87	868.30	3.81	90.090	548.09	320.21
128	-0.5219	1085.095	1063.2	17.2	641.21	227.85	869.07	3.81	90.093	548.46	320.61
129	-0.5044	1088.299	1066.4	17.4	641.19	227.82	869.01	3.81	90.097	548.42	320.59
130	-0.4870	1094.351	1072.5	17.7	642.86	228.04	870.90	3.82	90.065	549.47	321.43
131	-0.4696	1099.072	1077.2	17.9	643.71	227.54	871.24	3.83	90.138	549.39	321.85
132	-0.4522	1105.343	1083.4	18.2	645.46	227.08	872.54	3.84	90.205	549.81	322.73
133	-0.4518	1105.915	1084.0	18.2	645.76	227.40	873.16	3.84	90.158	550.28	322.88

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2442.000			2728.400
Moisture content: Dry soil+tare, gms.	2270.000			2499.900
Moisture content: Tare, gms.	0.000			229.900
Moisture, %	7.6	12.1	10.1	10.1
Moist specimen weight, gms.	2442.00			
Diameter, in.	3.490	3.490	3.495	
Area, in.²	9.566	9.566	9.595	
Height, in.	7.120	7.120	6.801	
Net decrease in height, in.		0.000	0.319	
Net decrease in water volume, cc.			46.800	
Wet density, pcf	136.6	142.4	145.9	
Dry density, pcf	127.0	127.0	132.5	
Void ratio	0.3276	0.3276	0.2719	
Saturation, %	62.5	100.0	100.0	

Test Readings for Specimen No. 2

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 195.520 psi (1348.06 kPa)
Consolidation back pressure = 50.000 psi (344.74 kPa)
Consolidation effective confining stress = 1003.33 kPa
Strain rate, in./min. = 0.025
Fail. Stress = 1009.36 kPa **at reading no.** 132

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	-1.6549	-38.000	0.0	0.0	0.00	1001.21	1001.21	1.00	50.307	1001.21	0.00
1	-1.6532	14.355	52.4	0.0	37.61	1000.86	1038.47	1.04	50.358	1019.67	18.81
2	-1.6514	41.227	79.2	0.1	56.90	999.82	1056.72	1.06	50.509	1028.27	28.45
3	-1.6496	83.829	121.8	0.1	87.47	998.63	1086.11	1.09	50.680	1042.37	43.74
4	-1.6478	124.537	162.5	0.1	116.67	997.76	1114.43	1.12	50.807	1056.09	58.34
5	-1.6460	166.560	204.6	0.1	146.80	996.29	1143.09	1.15	51.020	1069.69	73.40
6	-1.6442	203.822	241.8	0.2	173.49	994.85	1168.34	1.17	51.230	1081.59	86.75
7	-1.6424	239.785	277.8	0.2	199.24	993.17	1192.41	1.20	51.473	1092.79	99.62
8	-1.6407	274.257	312.3	0.2	223.91	991.24	1215.15	1.23	51.753	1103.19	111.95
9	-1.6389	308.085	346.1	0.2	248.10	989.01	1237.12	1.25	52.076	1113.06	124.05
10	-1.6371	340.681	378.7	0.3	271.40	986.48	1257.87	1.28	52.444	1122.18	135.70
11	-1.6353	371.148	409.1	0.3	293.16	983.43	1276.59	1.30	52.885	1130.01	146.58
12	-1.6335	402.197	440.2	0.3	315.32	980.35	1295.67	1.32	53.333	1138.01	157.66
13	-1.6317	431.753	469.8	0.3	336.40	977.11	1313.51	1.34	53.803	1145.31	168.20
14	-1.6300	460.106	498.1	0.4	356.61	973.41	1330.02	1.37	54.339	1151.71	178.31
15	-1.6282	488.511	526.5	0.4	376.85	969.58	1346.43	1.39	54.894	1158.00	188.42
16	-1.6264	515.578	553.6	0.4	396.12	965.18	1361.30	1.41	55.533	1163.24	198.06
17	-1.6246	540.881	578.9	0.4	414.11	960.62	1374.73	1.43	56.194	1167.68	207.06
18	-1.6228	565.876	603.9	0.5	431.88	955.76	1387.64	1.45	56.899	1171.70	215.94
19	-1.6210	590.630	628.6	0.5	449.47	950.76	1400.23	1.47	57.624	1175.50	224.73
20	-1.6192	614.439	652.4	0.5	466.37	945.15	1411.52	1.49	58.437	1178.33	233.18
21	-1.6175	640.237	678.2	0.6	484.68	939.72	1424.40	1.52	59.225	1182.06	242.34
22	-1.6157	662.949	700.9	0.6	500.78	934.17	1434.95	1.54	60.030	1184.56	250.39
23	-1.6139	685.129	723.1	0.6	516.49	928.20	1444.68	1.56	60.896	1186.44	258.24

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
24	-1.6121	707.015	745.0	0.6	531.98	922.02	1453.99	1.58	61.793	1188.01	265.99
25	-1.6103	728.616	766.6	0.7	547.26	915.76	1463.02	1.60	62.700	1189.39	273.63
26	-1.6085	748.694	786.7	0.7	561.44	909.26	1470.71	1.62	63.642	1189.99	280.72
27	-1.6068	767.976	806.0	0.7	575.05	902.71	1477.76	1.64	64.593	1190.23	287.53
28	-1.6050	789.749	827.7	0.7	590.43	895.81	1486.24	1.66	65.594	1191.02	295.22
29	-1.6032	807.739	845.7	0.8	603.10	888.99	1492.09	1.68	66.583	1190.54	301.55
30	-1.6014	826.096	864.1	0.8	616.03	882.11	1498.14	1.70	67.581	1190.13	308.02
31	-1.5996	843.821	881.8	0.8	628.50	874.76	1503.26	1.72	68.646	1189.01	314.25
32	-1.5978	861.748	899.7	0.8	641.11	867.24	1508.35	1.74	69.737	1187.80	320.55
33	-1.5960	881.228	919.2	0.9	654.82	859.84	1514.65	1.76	70.811	1187.25	327.41
34	-1.5943	897.873	935.9	0.9	666.50	852.29	1518.78	1.78	71.906	1185.54	333.25
35	-1.5925	915.119	953.1	0.9	678.60	844.55	1523.14	1.80	73.029	1183.84	339.30
36	-1.5907	932.213	970.2	0.9	690.59	836.74	1527.32	1.83	74.161	1182.03	345.29
37	-1.5889	950.199	988.2	1.0	703.20	828.80	1532.00	1.85	75.313	1180.40	351.60
38	-1.5871	965.757	1003.8	1.0	714.08	820.67	1534.76	1.87	76.491	1177.72	357.04
39	-1.5853	981.714	1019.7	1.0	725.24	812.63	1537.88	1.89	77.657	1175.26	362.62
40	-1.5835	995.246	1033.2	1.0	734.67	804.56	1539.23	1.91	78.828	1171.90	367.34
41	-1.5764	1050.831	1088.8	1.2	773.38	772.36	1545.73	2.00	83.499	1159.05	386.69
42	-1.5693	1101.532	1139.5	1.3	808.53	740.09	1548.62	2.09	88.180	1144.35	404.26
43	-1.5622	1146.675	1184.7	1.4	839.67	707.65	1547.32	2.19	92.884	1127.49	419.83
44	-1.5550	1182.744	1220.7	1.5	864.31	676.13	1540.44	2.28	97.456	1108.29	432.16
45	-1.5479	1215.250	1253.3	1.6	886.39	646.73	1533.11	2.37	101.720	1089.92	443.19
46	-1.5408	1238.289	1276.3	1.7	901.72	619.29	1521.01	2.46	105.700	1070.15	450.86
47	-1.5337	1257.535	1295.5	1.8	914.34	594.09	1508.43	2.54	109.355	1051.26	457.17
48	-1.5266	1273.211	1311.2	1.9	924.42	571.08	1495.50	2.62	112.691	1033.29	462.21
49	-1.5194	1283.799	1321.8	2.0	930.89	550.14	1481.03	2.69	115.729	1015.58	465.44
50	-1.5123	1292.166	1330.2	2.1	935.78	531.10	1466.88	2.76	118.490	998.99	467.89
51	-1.5052	1297.344	1335.3	2.2	938.42	514.23	1452.65	2.82	120.937	983.44	469.21
52	-1.4981	1301.432	1339.4	2.3	940.28	499.02	1439.31	2.88	123.143	969.16	470.14
53	-1.4909	1306.002	1344.0	2.4	942.48	485.54	1428.02	2.94	125.099	956.78	471.24
54	-1.4838	1310.813	1348.8	2.5	944.84	473.31	1418.15	3.00	126.872	945.73	472.42
55	-1.4767	1313.179	1351.2	2.6	945.48	462.40	1407.88	3.04	128.454	935.14	472.74
56	-1.4696	1315.823	1353.8	2.7	946.31	452.49	1398.80	3.09	129.892	925.65	473.16
57	-1.4624	1318.228	1356.2	2.8	946.97	443.59	1390.56	3.13	131.183	917.08	473.49
58	-1.4553	1318.998	1357.0	2.9	946.49	435.37	1381.85	3.17	132.375	908.61	473.24
59	-1.4482	1320.598	1358.6	3.0	946.58	428.33	1374.91	3.21	133.395	901.62	473.29
60	-1.4411	1323.598	1361.6	3.1	947.65	421.41	1369.05	3.25	134.400	895.23	473.82
61	-1.4339	1324.629	1362.6	3.2	947.34	415.62	1362.96	3.28	135.239	889.29	473.67
62	-1.4268	1325.079	1363.1	3.4	946.62	409.30	1355.92	3.31	136.156	882.61	473.31
63	-1.4197	1326.926	1364.9	3.5	946.88	403.71	1350.58	3.35	136.967	877.15	473.44
64	-1.4126	1328.727	1366.7	3.6	947.10	399.51	1346.60	3.37	137.577	873.05	473.55
65	-1.4054	1329.903	1367.9	3.7	946.88	395.14	1342.02	3.40	138.210	868.58	473.44
66	-1.3983	1331.701	1369.7	3.8	947.10	390.97	1338.06	3.42	138.815	864.51	473.55
67	-1.3912	1334.913	1372.9	3.9	948.29	387.13	1335.41	3.45	139.372	861.27	474.14
68	-1.3841	1335.812	1373.8	4.0	947.87	383.47	1331.35	3.47	139.902	857.41	473.94
69	-1.3769	1337.596	1375.6	4.1	948.07	380.18	1328.25	3.49	140.379	854.22	474.03
70	-1.3698	1339.932	1377.9	4.2	948.64	377.76	1326.40	3.51	140.730	852.08	474.32

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
71	-1.36271	340.474	1378.5	4.3	947.98	375.30	1323.28	3.53	141.087	849.29	473.99
72	-1.35561	338.862	1376.9	4.4	945.83	372.56	1318.39	3.54	141.485	845.47	472.92
73	-1.34851	337.213	1375.2	4.5	943.66	370.44	1314.10	3.55	141.792	842.27	471.83
74	-1.34131	336.601	1374.6	4.6	942.21	367.79	1310.00	3.56	142.176	838.90	471.10
75	-1.33421	336.459	1374.5	4.7	941.08	365.73	1306.81	3.57	142.475	836.27	470.54
76	-1.32711	336.443	1374.4	4.8	940.03	363.98	1304.01	3.58	142.729	834.00	470.02
77	-1.31991	337.794	1375.8	4.9	939.92	362.23	1302.14	3.59	142.984	832.19	469.96
78	-1.31281	339.790	1377.8	5.0	940.25	360.80	1301.04	3.61	143.191	830.92	470.12
79	-1.30571	341.043	1379.0	5.1	940.06	359.55	1299.61	3.61	143.372	829.58	470.03
80	-1.29861	341.284	1379.3	5.2	939.19	358.05	1297.24	3.62	143.589	827.64	469.59
81	-1.28081	340.435	1378.4	5.5	936.02	355.72	1291.74	3.63	143.927	823.73	468.01
82	-1.26301	345.246	1383.2	5.8	936.68	353.56	1290.25	3.65	144.240	821.90	468.34
83	-1.24521	352.387	1390.4	6.0	938.90	352.35	1291.25	3.66	144.416	821.80	469.45
84	-1.22741	357.631	1395.6	6.3	939.82	349.53	1289.35	3.69	144.825	819.44	469.91
85	-1.20951	370.588	1408.6	6.5	945.89	348.51	1294.41	3.71	144.972	821.46	472.95
86	-1.19181	373.228	1411.2	6.8	945.01	346.84	1291.85	3.72	145.215	819.35	472.51
87	-1.17391	374.167	1412.2	7.1	942.98	346.81	1289.79	3.72	145.220	818.30	471.49
88	-1.15611	379.986	1418.0	7.3	944.20	345.94	1290.14	3.73	145.345	818.04	472.10
89	-1.13831	386.965	1425.0	7.6	946.17	345.24	1291.41	3.74	145.447	818.32	473.08
90	-1.12051	391.800	1429.8	7.9	946.69	345.14	1291.83	3.74	145.462	818.48	473.34
91	-1.10271	396.694	1434.7	8.1	947.23	343.84	1291.07	3.75	145.650	817.46	473.62
92	-1.08491	404.846	1442.8	8.4	949.90	343.87	1293.77	3.76	145.646	818.82	474.95
93	-1.06711	412.569	1450.6	8.6	952.25	343.49	1295.75	3.77	145.701	819.62	476.13
94	-1.04931	420.420	1458.4	8.9	954.67	343.53	1298.19	3.78	145.696	820.86	477.33
95	-1.03151	422.403	1460.4	9.2	953.22	342.76	1295.98	3.78	145.806	819.37	476.61
96	-1.01371	423.285	1461.3	9.4	951.04	344.25	1295.29	3.76	145.591	819.77	475.52
97	-0.99591	429.659	1467.7	9.7	952.43	344.48	1296.91	3.76	145.557	820.70	476.22
98	-0.97811	436.900	1474.9	10.0	954.36	345.40	1299.76	3.76	145.424	822.58	477.18
99	-0.96031	440.617	1478.6	10.2	953.98	344.64	1298.62	3.77	145.534	821.63	476.99
100	-0.94251	450.266	1488.3	10.5	957.41	344.71	1302.12	3.78	145.524	823.41	478.70
101	-0.92471	460.867	1498.9	10.7	961.41	345.43	1306.84	3.78	145.420	826.13	480.70
102	-0.90691	470.619	1508.6	11.0	964.82	345.53	1310.35	3.79	145.405	827.94	482.41
103	-0.88911	479.676	1517.7	11.3	967.76	345.51	1313.27	3.80	145.408	829.39	483.88
104	-0.87131	487.194	1525.2	11.5	969.68	345.80	1315.48	3.80	145.366	830.64	484.84
105	-0.85351	491.877	1529.9	11.8	969.78	346.61	1316.39	3.80	145.249	831.50	484.89
106	-0.83571	499.649	1537.6	12.0	971.82	347.84	1319.66	3.79	145.070	833.75	485.91
107	-0.81791	505.253	1543.3	12.3	972.46	348.64	1321.10	3.79	144.953	834.87	486.23
108	-0.80011	511.053	1549.1	12.6	973.20	349.48	1322.68	3.78	144.832	836.08	486.60
109	-0.78231	515.071	1553.1	12.8	972.80	348.57	1321.37	3.79	144.964	834.97	486.40
110	-0.76441	521.538	1559.5	13.1	973.91	349.76	1323.68	3.78	144.791	836.72	486.96
111	-0.74661	528.940	1566.9	13.4	975.59	349.54	1325.13	3.79	144.824	837.33	487.79
112	-0.72881	539.171	1577.2	13.6	978.99	349.86	1328.85	3.80	144.777	839.36	489.50
113	-0.71101	549.266	1587.3	13.9	982.27	350.50	1332.78	3.80	144.684	841.64	491.14
114	-0.69321	546.014	1584.0	14.1	977.28	352.68	1329.96	3.77	144.368	841.32	488.64
115	-0.67541	553.496	1591.5	14.4	978.90	353.40	1332.30	3.77	144.263	842.85	489.45
116	-0.65761	561.968	1600.0	14.7	981.10	354.40	1335.50	3.77	144.119	844.95	490.55
117	-0.63981	570.497	1608.5	14.9	983.31	353.17	1336.48	3.78	144.296	844.83	491.65

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
118	-0.62201	582.393	1620.4	15.2	987.53	354.27	1341.80	3.79	144.138	848.03	493.77
119	-0.60421	589.359	1627.4	15.4	988.71	353.99	1342.71	3.79	144.177	848.35	494.36
120	-0.58641	598.529	1636.5	15.7	991.21	354.66	1345.86	3.79	144.082	850.26	495.60
121	-0.56861	608.261	1646.3	16.0	994.01	355.42	1349.42	3.80	143.971	852.42	497.00
122	-0.55081	615.742	1653.7	16.2	995.41	355.46	1350.87	3.80	143.965	853.17	497.71
123	-0.53301	619.176	1657.2	16.5	994.36	356.05	1350.41	3.79	143.880	853.23	497.18
124	-0.51521	625.573	1663.6	16.8	995.07	357.23	1352.30	3.79	143.709	854.76	497.54
125	-0.49741	633.917	1671.9	17.0	996.92	358.28	1355.20	3.78	143.555	856.74	498.46
126	-0.47961	643.973	1682.0	17.3	999.75	359.06	1358.81	3.78	143.443	858.93	499.87
127	-0.46181	650.569	1688.6	17.5	1000.49	358.04	1358.53	3.79	143.591	858.28	500.25
128	-0.44401	662.336	1700.3	17.8	1004.27	357.88	1362.14	3.81	143.614	860.01	502.13
129	-0.42621	669.910	1707.9	18.1	1005.53	358.72	1364.25	3.80	143.492	861.49	502.76
130	-0.40831	677.137	1715.1	18.3	1006.55	359.15	1365.71	3.80	143.429	862.43	503.28
131	-0.39051	686.495	1724.5	18.6	1008.80	359.28	1368.08	3.81	143.411	863.68	504.40
132	-0.37331	692.830	1730.8	18.8	1009.36	359.37	1368.73	3.81	143.398	864.05	504.68

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	2442.700			2629.400
Moisture content: Dry soil+tare, gms.	2266.200			2412.600
Moisture content: Tare, gms.	0.000			146.400
Moisture, %	7.8	12.3	9.6	9.6
Moist specimen weight, gms.	2442.70			
Diameter, in.	3.499	3.499	3.449	
Area, in.²	9.616	9.616	9.343	
Height, in.	7.100	7.100	6.898	
Net decrease in height, in.		0.000	0.202	
Net decrease in water volume, cc.			62.600	
Wet density, pcf	136.3	142.0	146.8	
Dry density, pcf	126.5	126.5	134.0	
Void ratio	0.3329	0.3329	0.2583	
Saturation, %	63.2	100.0	100.0	

Test Readings for Specimen No. 3

Membrane modulus = 0.124105 kN/cm²
Membrane thickness = 0.064 cm
Consolidation cell pressure = 340.000 psi (2344.22 kPa)
Consolidation back pressure = 50.000 psi (344.74 kPa)
Consolidation effective confining stress = 1999.48 kPa
Strain rate, in./min. = 0.025
Fail. Stress = 2163.54 kPa **at reading no.** 72

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
0	0.0000	67.000	0.0	0.0	0.00	2033.26	2033.26	1.00	45.100	2033.26	0.00
1	0.0050	208.100	141.1	0.1	104.05	2035.33	2139.38	1.05	44.800	2087.36	52.02
2	0.0110	373.300	306.3	0.2	225.67	2032.57	2258.24	1.11	45.200	2145.41	112.83
3	0.0160	555.800	488.8	0.2	359.86	2027.75	2387.61	1.18	45.900	2207.68	179.93
4	0.0210	723.000	656.0	0.3	482.61	2020.16	2502.77	1.24	47.000	2261.47	241.30
5	0.0270	868.300	801.3	0.4	588.99	2010.51	2599.50	1.29	48.400	2305.00	294.49
6	0.0320	999.100	932.1	0.5	684.63	1997.41	2682.04	1.34	50.300	2339.73	342.32
7	0.03501080.100		1013.1	0.5	743.80	1985.69	2729.49	1.37	52.000	2357.59	371.90
8	0.04101197.800		1130.8	0.6	829.49	1967.76	2797.25	1.42	54.600	2382.51	414.74
9	0.04601306.900		1239.9	0.7	908.85	1949.15	2858.00	1.47	57.300	2403.57	454.43
10	0.05101414.300		1347.3	0.7	986.86	1927.77	2914.63	1.51	60.400	2421.20	493.43
11	0.05701519.600		1452.6	0.8	1063.05	1903.64	2966.70	1.56	63.900	2435.17	531.53
12	0.06201616.800		1549.8	0.9	1133.36	1877.44	3010.80	1.60	67.700	2444.12	566.68
13	0.06501682.300		1615.3	0.9	1180.74	1859.52	3040.26	1.63	70.300	2449.89	590.37
14	0.07101777.100		1710.1	1.0	1248.94	1829.87	3078.81	1.68	74.600	2454.34	624.47
15	0.07801903.000		1836.0	1.1	1339.51	1787.12	3126.63	1.75	80.800	2456.88	669.76
16	0.08502018.300		1951.3	1.2	1422.17	1740.93	3163.10	1.82	87.500	2452.01	711.09
17	0.09202129.900		2062.9	1.3	1501.97	1693.35	3195.32	1.89	94.400	2444.34	750.98
18	0.09902231.800		2164.8	1.4	1574.54	1640.95	3215.49	1.96	102.000	2428.22	787.27
19	0.10602327.800		2260.8	1.5	1642.67	1587.17	3229.84	2.03	109.800	2408.51	821.33
20	0.11302418.400		2351.4	1.6	1706.74	1532.02	3238.75	2.11	117.800	2385.38	853.37
21	0.12002495.600		2428.6	1.7	1760.95	1474.10	3235.05	2.19	126.200	2354.58	880.48
22	0.12702559.800		2492.8	1.8	1805.64	1416.18	3221.82	2.28	134.600	2319.00	902.82
23	0.13402616.900		2549.9	1.9	1845.09	1360.34	3205.42	2.36	142.700	2282.88	922.54

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
24	0.141	026	64.800	2597.8	2.0	1877.80	1306.56	3184.36	2.44	150.500	2245.46	938.90
25	0.148	027	02.300	2635.3	2.1	1902.93	1254.85	3157.78	2.52	158.000	2206.31	951.47
26	0.155	027	38.000	2671.0	2.2	1926.71	1207.27	3133.99	2.60	164.900	2170.63	963.36
27	0.162	027	61.600	2694.6	2.3	1941.72	1163.15	3104.87	2.67	171.300	2134.01	970.86
28	0.170	027	85.900	2718.9	2.5	1956.90	1123.16	3080.06	2.74	177.100	2101.61	978.45
29	0.177	028	02.600	2735.6	2.6	1966.87	1085.92	3052.80	2.81	182.500	2069.36	983.44
30	0.184	028	17.600	2750.6	2.7	1975.60	1052.83	3028.43	2.88	187.300	2040.63	987.80
31	0.191	028	30.100	2763.1	2.8	1982.51	1023.18	3005.69	2.94	191.600	2014.44	991.25
32	0.198	028	38.200	2771.2	2.9	1986.24	996.29	2982.54	2.99	195.500	1989.41	993.12
33	0.205	028	41.600	2774.6	3.0	1986.60	971.47	2958.08	3.04	199.100	1964.77	993.30
34	0.212	028	52.400	2785.4	3.1	1992.25	949.41	2941.66	3.10	202.300	1945.53	996.13
35	0.219	028	60.400	2793.4	3.2	1995.88	930.10	2925.98	3.15	205.100	1928.04	997.94
36	0.226	028	65.700	2798.7	3.3	1997.57	911.49	2909.06	3.19	207.800	1910.27	998.79
37	0.233	028	67.900	2800.9	3.4	1997.04	894.94	2891.98	3.23	210.200	1893.46	998.52
38	0.240	028	71.700	2804.7	3.5	1997.65	880.46	2878.11	3.27	212.300	1879.29	998.83
39	0.247	028	75.400	2808.4	3.6	1998.19	868.05	2866.24	3.30	214.100	1867.14	999.09
40	0.254	028	78.500	2811.5	3.7	1998.29	856.33	2854.62	3.33	215.800	1855.47	999.14
41	0.261	028	81.600	2814.6	3.8	1998.38	845.99	2844.37	3.36	217.300	1845.18	999.19
42	0.268	028	85.300	2818.3	3.9	1998.90	837.02	2835.92	3.39	218.600	1836.47	999.45
43	0.275	028	89.000	2822.0	4.0	1999.41	828.06	2827.47	3.41	219.900	1827.77	999.70
44	0.290	029	01.600	2834.6	4.2	2003.79	812.89	2816.68	3.47	222.100	1814.79	1001.89
45	0.304	029	11.000	2844.0	4.4	2006.17	802.55	2808.72	3.50	223.600	1805.64	1003.09
46	0.318	029	20.200	2853.2	4.6	2008.39	791.52	2799.91	3.54	225.200	1795.71	1004.20
47	0.332	029	26.800	2859.8	4.8	2008.75	783.93	2792.69	3.56	226.300	1788.31	1004.38
48	0.346	029	40.900	2873.9	5.0	2014.35	777.73	2792.08	3.59	227.200	1784.91	1007.18
49	0.371	029	60.900	2893.9	5.4	2020.63	769.45	2790.09	3.63	228.400	1779.77	1010.32
50	0.406	029	91.400	2924.4	5.9	2030.98	761.87	2792.85	3.67	229.500	1777.36	1015.49
51	0.441	030	24.200	2957.2	6.4	2042.69	757.73	2800.42	3.70	230.100	1779.08	1021.34
52	0.477	030	52.200	2985.2	6.9	2050.53	757.73	2808.26	3.71	230.100	1783.00	1025.27
53	0.512	030	86.600	3019.6	7.4	2062.85	759.11	2821.97	3.72	229.900	1790.54	1031.43
54	0.547	031	21.100	3054.1	7.9	2074.99	762.56	2837.55	3.72	229.400	1800.05	1037.49
55	0.583	031	50.600	3083.6	8.5	2083.15	764.63	2847.78	3.72	229.100	1806.21	1041.58
56	0.618	031	81.300	3114.3	9.0	2092.23	766.01	2858.24	3.73	228.900	1812.12	1046.12
57	0.653	032	07.500	3140.5	9.5	2098.08	770.14	2868.22	3.72	228.300	1819.18	1049.04
58	0.689	032	38.200	3171.2	10.0	2106.37	774.28	2880.65	3.72	227.700	1827.47	1053.19
59	0.724	032	68.500	3201.5	10.5	2114.51	779.11	2893.62	3.71	227.000	1836.36	1057.26
60	0.759	032	91.100	3224.1	11.0	2117.37	781.18	2898.54	3.71	226.700	1839.86	1058.68
61	0.795	033	17.500	3250.5	11.5	2122.19	784.62	2906.81	3.70	226.200	1845.72	1061.09
62	0.830	033	53.100	3286.1	12.0	2133.13	789.45	2922.58	3.70	225.500	1856.01	1066.56
63	0.865	033	84.700	3317.7	12.5	2141.22	792.21	2933.42	3.70	225.100	1862.82	1070.61
64	0.900	034	03.700	3336.7	13.0	2140.99	793.59	2934.57	3.70	224.900	1864.08	1070.49
65	0.936	034	27.900	3360.9	13.6	2143.57	799.79	2943.36	3.68	224.000	1871.58	1071.78
66	0.989	034	72.100	3405.1	14.3	2152.45	806.69	2959.14	3.67	223.000	1882.91	1076.23
67	1.024	034	94.600	3427.6	14.8	2153.84	807.38	2961.22	3.67	222.900	1884.30	1076.92
68	1.059	035	26.000	3459.0	15.4	2160.62	810.82	2971.45	3.66	222.400	1891.14	1080.31
69	1.095	035	48.500	3481.5	15.9	2161.27	814.96	2976.23	3.65	221.800	1895.60	1080.64
70	1.130	035	60.600	3493.6	16.4	2155.70	819.79	2975.49	3.63	221.100	1897.64	1077.85

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress kPa	Minor Eff. Stress kPa	Major Eff. Stress kPa	1:3 Ratio	Pore Press. psi	P kPa	Q kPa
71	1.16503	587.900	3520.9	16.9	2159.36	819.79	2979.15	3.63	221.100	1899.47	1079.68
72	1.20103	617.000	3550.0	17.4	2163.54	822.54	2986.08	3.63	220.700	1904.31	1081.77
73	1.23603	631.300	3564.3	17.9	2158.91	828.06	2986.97	3.61	219.900	1907.51	1079.45
74	1.27103	656.700	3589.7	18.4	2160.85	830.82	2991.67	3.60	219.500	1911.24	1080.43

TRIAXIAL HYDRAULIC CONDUCTIVITY TEST REPORT

Test reference: ASTM D 5084

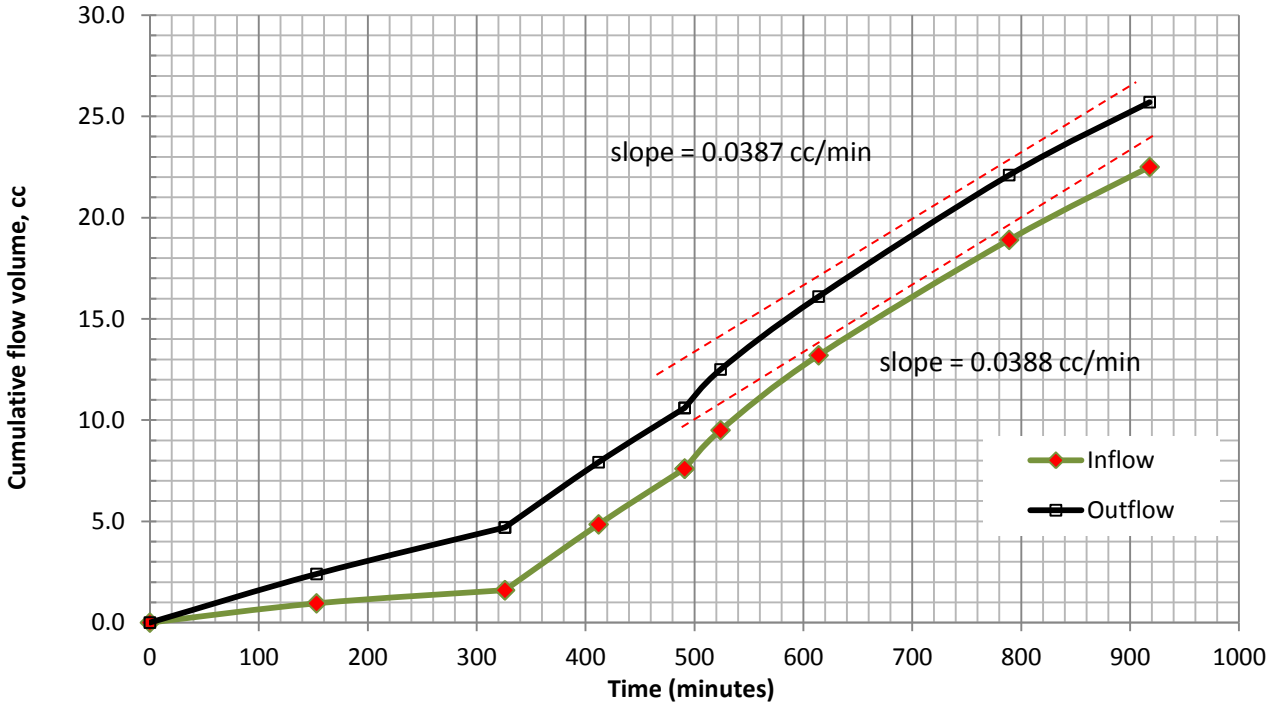
CLIENT:	Knight Piesold Consulting
PROJECT:	Blackwater Project
MDH Job No:	611748
DATE:	13/03/2013

SAMPLE: GT12-45 Remolded, Standard Proctor Effort

Testing Summary:

Cell pressure =	230 kPa	Final Water Content =	13.0%
Average back pressure =	200 kPa	Final Dry Density =	1990 kg/m^3
Head across specimen =	67.5 cm	Final deg of saturation =	100%
Hydraulic gradient =	17.0		
Initial sample diameter =	72.98 mm	Inflow rate =	0.03880 cc/min
Initial sample height =	39.60 mm	Outflow rate =	0.03870 cc/min
Initial Water Content =	15.2%	Average flow rate =	0.03875 cc/min
Initial Dry Density =	1950 kg/m^3		
Initial Deg of saturation =	100%	**Hydraulic Conductivity (based on average flow rate):**	
Permeant:	de-aired tap-water	k = 9.1E-07 cm/s	

Comments:



The testing services reported here have been performed in accordance with accepted local industry standards.

The results presented are for the sole use of the designated client only.

This report constitutes a testing service only. It does not represent any interpretation or opinion regarding specification compliance or material suitability.

Engineering interpretation will be provided by MDH Engineered Solutions Corp upon request.

TRIAXIAL HYDRAULIC CONDUCTIVITY TEST REPORT

Test reference: ASTM D 5084

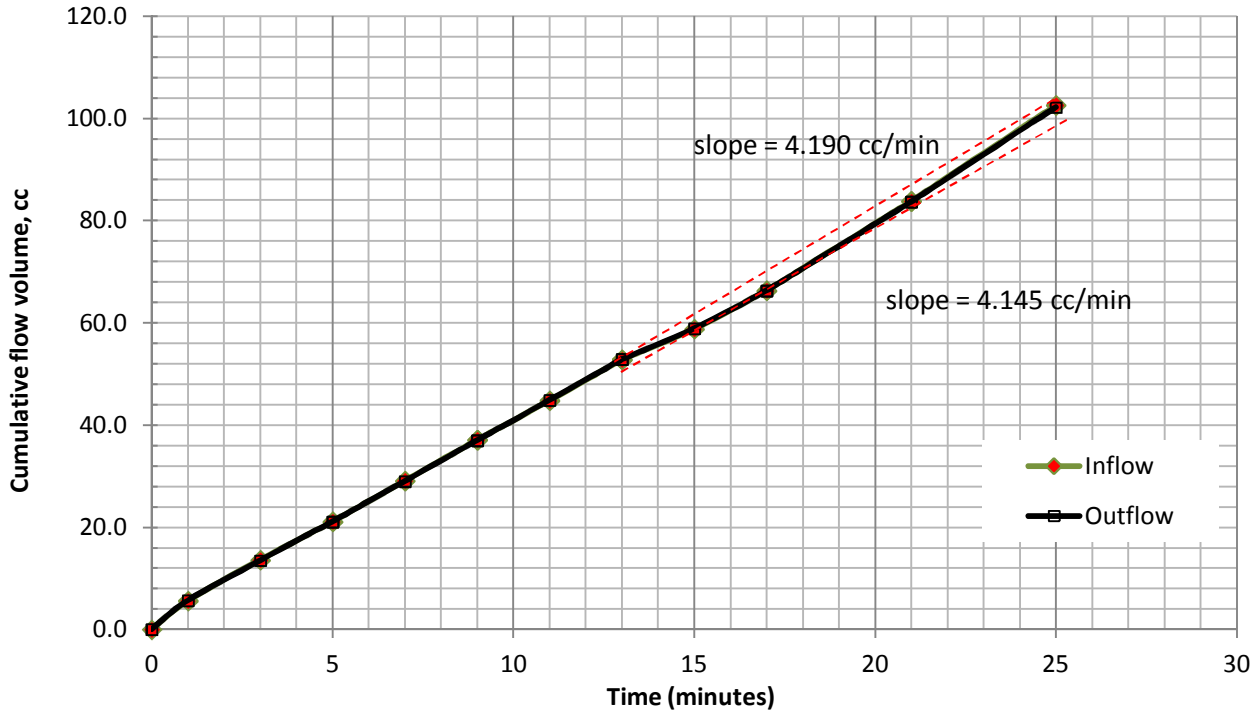
CLIENT:	Knight Piesold Consulting
PROJECT:	Blacwater Project
MDH Job No:	611748
DATE:	10-Jan-13

SAMPLE: GT12-46 Remolded, Standard Proctor Effort

Testing Summary:

Cell pressure =	230 kPa	Final Water Content =	16.0%
Average back pressure =	200 kPa	Final Dry Density =	1627 kg/m^3
Head across specimen =	67.1 cm	Final deg of saturation =	100%
Hydraulic gradient =	17.5		
Initial sample diameter =	73.46 mm	Inflow rate =	4.1900 cc/min
Initial sample height =	38.28 mm	Outflow rate =	4.1450 cc/min
Initial Water Content =	11.5%	Average flow rate =	4.1675 cc/min
Initial Dry Density =	1801 kg/m^3		
Initial Deg of saturation =	59%	**Hydraulic Conductivity (based on average flow rate):**	
Permeant:	de-aired tap-water	k = 9.3E-05 cm/s	

Comments:



The testing services reported here have been performed in accordance with accepted local industry standards.

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Engineering interpretation will be provided by MDH Engineered Solutions Corp upon request.

Knight Piésold CONSULTING

Moisture-Density Worksheet

Identification				*Test Results (Summary)*				*Density Determination*					*Moisture Determination*				
Hole	Depth (m)	Sample No.	Sample Type	% Moisture	Dry Density (pcf)	USCS	Component, Color, Consistency, Structure ...	Sample Length (in)	Sample Diameter (in)	Wet Wt. + Tare, g	Tare, g	Wet Soil Wt., g	Tare I.D.	Wet Wt. + Tare	Dry Wt. + Tare	Tare	Run By
GH12-18	35.75-35.95		11	11.1	120.5		Clayey Silty Sand and Gravel, Lt Brown, Dense,	6.400	3.815			2571.0		3209.0	2930.0	412.3	dab
							Moist										
GH12-28	23-25		4	17.8			Sand, Wet, Brown, Loose							1513.7	1347.1	411.1	dab
GH12-15	86.12-86.32		24	-0.7			Clay Silty Sand and Gravel, Loose, Moist							2671.7	2409.4	40808.0	dab
GH12-18	25.13-25.23		8	15.8	117.5		Sandy Elastic Silt, Brown, Dense, Moist	3.343	3.717			1295.3		850.9	791.4	414.3	dab
GH12-18	15.6-15.8		5	13.4	120.7		Clayey Sand and Gravel, Brown, Dense, Moist	5.533	3.771			2221.3		1276.1	1174.4	416.7	dab
GH12-18	32.95-33.15		10	19.9	117.9		Sandy Elastic Silt, Brown, Dense, Moist	2.588	2.833			605.30		995.30	898.35	412.00	dab

Project	**Blackwater Gold Project**	**Sheet Prep. By**	**db**	**Lab No.**	**L2012-120PPQ**
Project No.	**VA101-457/04**	**Checked By**	**jdb**	**Date**	**9/13/2012**

Knight Piésold CONSULTING

Moisture-Density Worksheet

Identification				Test Results (Summary)				Density Determination					Moisture Determination				
Hole	Depth (m)	Sample No.	Sample Type	% Moisture	Dry Density (pcf)	USCS	Component, Color, Consistency, Structure ...	Sample Length (in)	Sample Diameter (in)	Wet Wt. + Tare, g	Tare, g	Wet Soil Wt., g	Tare I.D.	Wet Wt. + Tare	Dry Wt. + Tare	Tare	Run By
GT12-14-2	45.0-45.2m			19.4	106.7			2.990	3.490			956.8	C75	882.1	757.9	117.1	RV
GT12-32-1	15.84-16.04m			5.6	126.2			2.390	3.770			933.70	C69	917.40	875.60	131.90	RV
GT12-32-2a	24.38-24.58m			6.1	139.9			2.510	3.720			1062.9	C56	870.8	827.5	117.3	RV
GT12-32-2b	39.63-39.83m			8.9	133.1			2.330	3.820			1016.4	C58	865.4	804.0	117.1	RV
GT12-32-4	49.08-49.28m			7.2	135.1			2.730	3.760			1152.3	C54	854.4	804.8	117.0	RV
GT12-32-6	64.75-64.9m			13.7	128.2			4.640	3.550			1757.1	C53	952.6	852.0	118.4	RV
GT12-33-1	4.6-4.8m			9.4	132.4			5.220	3.780			2227.0	C79	854.9	791.8	117.6	RV
GT12-33-4	40.03-40.23m			19.6	109.3			5.910	3.460			1906.5	C55	670.9	580.5	118.1	RV
GT12-35-3	36.65-36.85m			23.3	103.8			4.860	3.480			1553.6	P69	627.3	537.4	151.9	RV
GT12-35-4	41.13-41.33m			25.9	97.0			3.130	3.480			954.3	C64	913.1	752.7	132.2	RV
GT12-37-1	3.75-3.9m			8.9	87.0			3.180	3.340			693.3	Slimer	823.8	767.3	134.6	RV
GT12-37-4	43.4-43.6m			13.7	115.5			3.130	3.770			1204.2	Bat	873.2	784.7	136.6	RV
GT12-38-1	8.6-8.75m			7.8	136.0			3.920	3.760			1675.30	C71	1131.00	1058.70	134.10	RV
GT12-39-6	89.9-90.1m			28.2	93.9			3.500	3.730			1209.40	P59	585.70	489.10	146.90	RV
GT12-41	73.0-73.9m			23.4	93.7			1.730	3.350			462.80	Hog	594.00	506.20	131.62	RV
GT12-44-3	15.6-15.8m			7.3	148.5			1.850	3.510			748.70	C52	864.90	814.10	117.60	RV
GT12-45	10.67-13.72m	1		9.7	138.7			4.270	3.730			1863.90	RG14	1633.90	1505.60	185.50	RV
GT12-45	16.76-19.87m	2		8.9	144.4			3.630	3.760			1664.80	Bat	1449.50	1341.70	136.60	RV

Knight Piésold CONSULTING

Moisture-Density Worksheet

Identification				Test Results (Summary)				Density Determination					Moisture Determination				
Hole	Depth (m)	Sample No.	Sample Type	% Moisture	Dry Density (pcf)	USCS	Component, Color, Consistency, Structure ...	Sample Length (in)	Sample Diameter (in)	Wet Wt. + Tare, g	Tare, g	Wet Soil Wt., g	Tare I.D.	Wet Wt. + Tare	Dry Wt. + Tare	Tare	Run By
GT12-45	19.87-25.91m	3		10.6	131.7			1.750	3.450			625.50	C56	741.40	681.50	117.40	RV
GT12-45-2	12.37-12.55m			10.0	132.2			3.400	3.830			1496.30	CG3	731.06	676.40	132.10	RV
GT12-45-21	14.55-14.75m			8.7	138.0			3.010	3.710			1280.30	C72	1106.40	1027.50	116.20	RV
GT12-45-3	17.6-17.8m			8.4	139.8			5.280	3.770			2344.00	C70	791.70	740.60	132.80	RV
GT12-45-22	22.2-22.4m			10.9	125.6			3.140	3.730			1254.90	C51	1368.10	1244.70	117.66	RV
GT12-45-6	36.0-36.2m			17.1	118.9			6.440	3.600			2394.60	P111	1409.00	1225.40	148.80	RV
GT12-45-7	40.15-40.39m			11.0	127.7			3.290	3.750			1351.90	C55	1041.30	950.10	118.10	RV
GT12-45-26	52.3-52.5m			11.6	125.2			4.680	3.750			1895.90	P61	1218.40	1106.60	145.40	RV
GT12-45-10	55.45-55.6m			8.4	134.2			3.590	3.770			1530.00	C61	1385.50	1288.40	133.00	RV
GT12-45-11	61.75-62.0m			8.2	133.2			2.740	3.660			1090.00	Hog	1220.40	1138.20	131.70	RV
GT12-45-29	70.7-70.95m			15.2	111.7			2.060	3.760			772.60	P52	830.10	728.20	57.90	RV
GT12-45-13	73.55-73.7m			13.8	132.0			2.270	3.660			942.00	P68	1090.70	976.30	149.00	RV
GT12-45-15	86.0-86.2m			11.2	135.5			1.380	3.770			609.50	P66	755.00	693.80	147.90	RV
GT12-45-16	86.95-87.2m			12.8	124.1			6.070	3.780			2504.80	DB	1334.50	1199.80	151.10	RV
GT12-46	10.67-35.05m	1		6.5	142.2			3.500	3.788			1567.76	Cat	565.78	539.60	135.99	RV
GT12-46	10.67-35.05m	2		7.9	147.6			2.780	3.800			1317.70	Bird	528.53	499.70	133.29	RV
GT12-46	10.67-35.05m	3		7.4	129.1			3.380	3.800			1395.46	Skunk	521.54	494.50	130.53	RV
GT12-46-5	12.8-13.0m			7.8	150.9			2.570	3.740			1206.00	C61	1338.60	1251.10	132.90	RV

Knight Piésold CONSULTING

Moisture-Density Worksheet

Identification				Test Results (Summary)				Density Determination					Moisture Determination				
Hole	Depth (m)	Sample No.	Sample Type	% Moisture	Dry Density (pcf)	USCS	Component, Color, Consistency, Structure ...	Sample Length (in)	Sample Diameter (in)	Wet Wt. + Tare, g	Tare, g	Wet Soil Wt., g	Tare I.D.	Wet Wt. + Tare	Dry Wt. + Tare	Tare	Run By
GT12-46-7	18.9-19.15m			4.2	115.4			2.790	4.380			1326.60	Skunk	1445.20	1392.10	130.50	RV
GT12-46-10	28.2-28.45m			7.5	130.6			1.940	3.800			810.50	C64	941.20	885.00	132.20	RV
GT12-46-11	31.4-31.65m			9.5	134.1			4.360	3.760			1865.10	C638	1412.30	1301.60	132.20	RV
GT12-46-17	49.25-49.52m			9.5	134.7			2.970	3.770			1283.50	RG4	1463.40	1352.10	182.90	RV
GT12-46-18	52.45-52.7m			13.0	116.8			2.510	3.800			985.70	RG14	1171.10	1058.00	185.70	RV
GT12-46-20	58.4-58.69m			8.7	135.0			2.730	3.750			1161.80	RG2	1318.80	1227.70	183.00	RV
GT12-47-3	6.83-7.05m			6.9	141.5			2.020	3.800			909.70	RG11	1096.20	1037.30	187.00	RV

Project	**Blackwater**	**Sheet Prep. By**	**EAP**	**Lab No.**	**L2012-140PPQ**
Project No.	**VA101-00457.04**	**Checked By**		**Date**	**12/4/2012**

MDH ENGINEERED SOLUTIONS
Member of the SNC-LAVALIN Group

Client:	Knight Piesold
Project:	Black Water
MDH Project No:	611748
Date:	27-Nov-12

Water Content

Sample #	GT12-45	GT12-46				
Depth (m)	63-63.25	53.75-54				
Tare #	CC24	BB01				
Tare Mass (g)	37.75	37.95				
Wet sample + tare (g)	226.47	216.91				
Dry sample + tare (g)	201.61	198.89				
Wt. Dry sample (g)	163.86	160.94				
Water Content (%)	15.17	11.20				

Bulk Density

Sample #	GT12-45	GT12-46				
Depth (m)	63-63.25	53.75-54				
Mass of sample in air (g):	133.5	230.2				
Mass of sample + wax in air (g):	140.28	241.7				
Mass of sample + wax in water (g):	73.14	114.12				
Wet density (kg/m^3):	2243	2008				
Dry density (kg/m^3):	1947	1806				

Comments:

The testing services reported here have been performed in accordance with accepted local industry standards.

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This report constitutes a testing service only. It does not represent any interpretation or opinion regarding specification compliance or material suitability.

Engineering interpretation will be provided by MDH Engineered Solutions Corp upon request.

Knight Piésold CONSULTING

Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / 105 deg C (105 deg C) Method: Oven (O) / Microwave (M) (Oven (O))

Sample No.						
Sample ID		TP12-121	TP12-122	TP12-123	TP12-126	TP12-127
Depth		5.5-5.7m	5.0-5.2m	4.0-4.2m	4.5-4.7m	4.0-4.2m
Soil Description						
(USCS)						
Trial No.		1	2	3	4	5
Tare No.		Bat	Bird	Cadet	C58	C54
Tare + Wet Soil	A	1205.86	1167.76	3825	1205.8	1178.44
Tare + Dry Soil	B	1110.39	1066.5	3556	1122.78	1088.5
Tare	C	136.58	133.27	259	116.91	116.9
Wt. of Water	D , A-B	95.47	101.26	269	83.02	89.94
Dry Soil, Ws	E , B-C	973.81	933.23	3297	1005.87	971.6
Moisture Content, (%)	(D / E) x100	9.80	10.85	8.16	8.25	9.26

Remarks:

Sample No.						
Sample ID		TP12-130	TP12-133	TP12-135	TP12-136	TP12-138
Depth		3.0-3.2m	3.5-3.7m	4.5-4.7m	5.0-5.2m	5.0-5.2m
Soil Description						
(USCS)						
Trial No.		6	7	8	9	10
Tare No.		C62	Skunk	C68	C60	C76
Tare + Wet Soil	A	1382.15	1075.19	1440.35	1133.47	1362.66
Tare + Dry Soil	B	1261.42	982.23	1310.57	1069.87	1288.58
Tare	C	131.14	130.45	131.84	131.33	115.70
Wt. of Water	A-B, D	120.73	92.96	129.78	63.60	74.08
Dry Soil, Ws	B-C, E	1130.28	851.78	1178.73	938.54	1172.88
Moisture Content, (%)	(D / E) x100	10.68	10.91	11.01	6.78	6.32

Remarks:

Knight Piésold CONSULTING

Moisture Content
ASTM D 2216 / ASTM D 4643

Project	*Blackwater*	*Project No.*	*VA101-00457.04/DV101-00077.13-1700*
Lab No.	*L2012-140*	*Date of Test*	*11/6/2012*
Tested By	*RV*	*Checked By*	*EAP*

Drying Conditions: *60 deg C / 105 deg C* (105 deg C circled) *Method:* *Oven (O) / Microwave (M)* (Oven (O) circled)

Sample No.						
Sample ID		TP12-139(1)	TP12-139(2)	TP12-142	TP12-144	TP12-146
Depth		2.0-2.2m	4.0-4.2m	4.0-4.2m	4.0-4.2m	4.5-4.7m
Soil Description						
(USCS)						
Trial No.		*1*	*2*	*3*	*4*	*5*
Tare No.		P66	C77	3kings	DB	C64
Tare + Wet Soil	*A*	1112.90	1400.49	2773.00	1266.88	1339.23
Tare + Dry Soil	*B*	1044.64	1265.33	2531.50	1159.44	1248.48
Tare	*C*	147.88	117.47	229.00	151.65	132.04
Wt. of Water	*D , A-B*	68.26	135.16	241.50	107.44	90.75
Dry Soil, Ws	*E , B-C*	896.76	1147.86	2302.50	1007.79	1116.44
Moisture Content, (%)	*(D / E) x100*	7.61	11.77	10.49	10.66	8.13

Remarks:

Sample No.						
Sample ID		TP12-147	TP12-150	TP12-151	TP12-152	TP12-155
Depth		5.5-5.7m	3.0-3.2m	5.0-5.2m	5.5-5.7m	5.0-5.2m
Soil Description						
(USCS)						
Trial No.		*6*	*7*	*8*	*9*	*10*
Tare No.		C66	Cudda's	C69	C61	C56
Tare + Wet Soil	*A*	1425.38	3702.00	1535.10	1573.28	877.82
Tare + Dry Soil	*B*	1324.11	3457.00	1257.63	1442.14	822.67
Tare	*C*	132.21	241.50	131.95	132.82	117.17
Wt. of Water	*A-B, D*	101.27	245.00	277.47	131.14	55.15
Dry Soil, Ws	*B-C, E*	1191.90	3215.50	1125.68	1309.32	705.50
Moisture Content, (%)	*(D / E) x100*	8.50	7.62	24.65	10.02	7.82

Remarks:

Knight Piésold CONSULTING

Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-13	GT12-13	GT12-13	GT12-13	GT12-14
Sample ID		1	2	3	4	1
Depth		9.75-9.95m	18.15-18.3m	45.13-45.3m	54.73-54.9m	36.0-36.2m
Soil Description						
(USCS)						
Trial No.		1	2	3	4	5
Tare No.		P59	C74	C72	C55	Cat
Tare + Wet Soil	A	706.63	665.58	786.95	686.33	678.89
Tare + Dry Soil	B	664.96	596.42	731.21	630.73	618.59
Tare	C	146.86	117.40	116.19	117.91	135.93
Wt. of Water	D , A-B	41.67	69.16	55.74	55.60	60.30
Dry Soil, Ws	E , B-C	518.10	479.02	615.02	512.82	482.66
Moisture Content, (%)	(D / E) x100	8.04	14.44	9.06	10.84	12.49

Remarks:

Sample No.		GT12-14	GT12-15	GT12-31	GT12-31	GT12-31
Sample ID		3	1	1	4	7
Depth		51.0-51.2m	5.4-5.6m	4.57-4.87m	19.8-20.0m	37.38-37.54m
Soil Description						
(USCS)						
Trial No.		7	8	5	7	8
Tare No.		J31	J04	B	A	C5
Tare + Wet Soil	A	693.84	854.13	835.67	757.30	765.42
Tare + Dry Soil	B	639.75	769.05	782.39	679.90	692.36
Tare	C	196.15	199.26	145.96	144.90	305.94
Wt. of Water	A-B, D	54.09	85.08	53.28	77.40	73.06
Dry Soil, Ws	B-C, E	443.60	569.79	636.43	535.00	386.42
Moisture Content, (%)	(D / E) x100	12.19	14.93	8.37	14.47	18.91

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	*Blackwater*	*Project No.*	*VA101-00457.04/DV101-00077.13-1700*
Lab No.	*L2012-140*	*Date of Test*	*11/6/2012*
Tested By	*RV*	*Checked By*	*EAP*

Drying Conditions: *60 deg C / (105 deg C)* *Method:* *(Oven (O)) / Microwave (M)*

Sample No.		GT12-31				
Sample ID		3				
Depth		14.16-14.43m				
Soil Description						
(USCS)						
Trial No.		*1*				
Tare No.						
Tare + Wet Soil	*A*	835.67				
Tare + Dry Soil	*B*	782.39				
Tare	*C*	145.96				
Wt. of Water	*D , A-B*	53.28				
Dry Soil, Ws	*E , B-C*	636.43				
Moisture Content, (%)	*(D / E) x100*	8.37				

Remarks:

Sample No.						
Sample ID						
Depth						
Soil Description						
(USCS)						
Trial No.						
Tare No.						
Tare + Wet Soil	*A*					
Tare + Dry Soil	*B*					
Tare	*C*					
Wt. of Water	*A-B, D*					
Dry Soil, Ws	*B-C, E*					
Moisture Content, (%)	*(D / E) x100*					

Remarks:

Knight Piésold CONSULTING

Moisture Content
ASTM D 2216 / ASTM D 4643

Project	*Blackwater*	*Project No.*	*VA101-00457.04/DV101-00077.13-1700*
Lab No.	*L2012-140*	*Date of Test*	*11/6/2012*
Tested By	*RV*	*Checked By*	*EAP*

Drying Conditions: *60 deg C / 105 deg C* (105 deg C circled) *Method:* *Oven (O) / Microwave (M)* (Oven (O) circled)

Sample No.		GT12-33	GT12-34	GT12-34	GT12-34	GT12-34
Sample ID		3	1	3	4	5
Depth		33.4-33.54m	3.45-3.7m	17.45-17.6m	42.07-72.27m	52.22-52.37m
Soil Description						
(USCS)						
Trial No.		*6*	*8*	*9*	*10*	*1*
Tare No.		I	Cray	Passy	C69	C67
Tare + Wet Soil	*A*	799.18	818.04	838.99	843.25	736.11
Tare + Dry Soil	*B*	746.49	722.74	785.37	788.37	651.70
Tare	*C*	160.80	120.04	146.55	131.91	133.28
Wt. of Water	*D , A-B*	52.69	95.30	53.62	54.88	84.41
Dry Soil, Ws	*E , B-C*	585.69	602.70	638.82	656.46	518.42
Moisture Content, (%)	*(D / E) x100*	9.00	15.81	8.39	8.36	16.28

Remarks:

Sample No.		GT12-35	GT12-36	GT12-36	GT12-36	GT12-36
Sample ID		1	1	3	4	5
Depth		6.9-7.1m	10.2-10.4m	41.18-41.32m	53.3-53.5m	78.35-78.55m
Soil Description						
(USCS)						
Trial No.		*2*	*5*	*6*	*7*	*8*
Tare No.		P111	C52	P66	C56	P69
Tare + Wet Soil	*A*	730.30	700.17	789.77	805.77	657.98
Tare + Dry Soil	*B*	686.60	655.90	742.69	678.71	524.13
Tare	*C*	148.90	117.53	147.93	117.26	151.87
Wt. of Water	*A-B, D*	43.70	44.27	47.08	127.06	133.85
Dry Soil, Ws	*B-C, E*	537.70	538.37	594.76	561.45	372.26
Moisture Content, (%)	*(D / E) x100*	8.13	8.22	7.92	22.63	35.96

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater 1	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-38	GT12-39	GT12-39	GT12-40	GT12-40
Sample ID		2	2	4	1	3
Depth		15.65-15.83m	16.6-16.75m	59.3-59.45m	7.35-7.5m	19.75-19.9m
Soil Description						
(USCS)						
Trial No.		3	4	5	7	8
Tare No.		P19	C638	Slimer	C79	P68
Tare + Wet Soil	A	823.25	469.20	637.70	803.50	496.22
Tare + Dry Soil	B	760.40	425.50	602.30	742.19	448.39
Tare	C	117.83	132.20	134.60	117.56	148.90
Wt. of Water	D , A-B	62.85	43.70	35.40	61.31	47.83
Dry Soil, Ws	E , B-C	642.57	293.30	467.70	624.63	299.49
Moisture Content, (%)	(D / E) x100	9.78	14.90	7.57	9.82	15.97

Remarks:

Sample No.		GT12-40	GT12-40	GT12-41	GT12-41	GT12-41
Sample ID		4	7			
Depth		24.4-24.6m	57.5-57.7m	7.0m	10.0-10.2m	20.0-20.2m
Soil Description						
(USCS)						
Trial No.		9	10	1	2	3
Tare No.		C57	C53	C69	C74	C53
Tare + Wet Soil	A	570.36	681.75	521.15	594.01	826.12
Tare + Dry Soil	B	502.05	592.83	488.00	565.18	773.99
Tare	C	116.67	118.28	131.90	117.41	118.31
Wt. of Water	A-B, D	68.31	88.92	33.15	28.83	52.13
Dry Soil, Ws	B-C, E	385.38	474.55	356.10	447.77	655.68
Moisture Content, (%)	(D / E) x100	17.73	18.74	9.31	6.44	7.95

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	*Blackwater 1*	*Project No.*	*VA101-00457.04/DV101-00077.13-1700*
Lab No.	*L2012-140*	*Date of Test*	*11/6/2012*
Tested By	*RV*	*Checked By*	*EAP*

Drying Conditions: *60 deg C / (105 deg C)* *Method:* *(Oven (O)) / Microwave (M)*

Sample No.		GT12-41	GT12-41	GT12-41	GT12-41	GT12-41
Sample ID						
Depth		30.0-30.2m	40.0-40.17m	47.0m	50.0-50.2m	57.1-57.3m
Soil Description						
(USCS)						
Trial No.		*4*	*5*	*6*	*7*	*8*
Tare No.		C55	P12	J04	J81	P26
Tare + Wet Soil	*A*	671.51	710	818.07	843.53	558.64
Tare + Dry Soil	*B*	620.07	642.09	711.85	749.21	454.84
Tare	*C*	118.01	113.21	199.19	196.17	118.11
Wt. of Water	*D , A-B*	51.44	67.91	106.22	94.32	103.8
Dry Soil, Ws	*E , B-C*	502.06	528.88	512.66	553.04	336.73
Moisture Content, (%)	*(D / E) x100*	10.25	12.84	20.72	17.05	30.83

Remarks:

Sample No.		GT12-41	GT12-42	GT12-43	GT12-43	GT12-43
Sample ID						
Depth		80.0-80.3m	10.0-10.2m	9.8-10.0m	21.5-21.7m	25.0m
Soil Description						
(USCS)						
Trial No.		*10*	*1*	*2*	*3*	*4*
Tare No.		P06	J23	C72	10	C59
Tare + Wet Soil	*A*	603.44	987.45	729.42	1024.44	836.13
Tare + Dry Soil	*B*	548.17	899.95	682.3	965.19	777.4
Tare	*C*	113.1	199.82	116.24	371.95	117.01
Wt. of Water	*A-B, D*	55.27	87.5	47.12	59.25	58.73
Dry Soil, Ws	*B-C, E*	435.07	700.13	566.06	593.24	660.39
Moisture Content, (%)	*(D / E) x100*	12.70	12.50	8.32	9.99	8.89

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater 1	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-43	GT12-43	GT12-43	GT12-43	GT12-43
Sample ID						
Depth		30.0m	43.8m	50.0-50.2m	53.0-53.2m	55.0-55.2m
Soil Description						
(USCS)						
Trial No.		5	6	7	8	9
Tare No.		X-2	C64	C71	C60	C67
Tare + Wet Soil	A	780.52	623.81	645.54	412.58	693.29
Tare + Dry Soil	B	708.40	526.30	569.30	359.70	587.60
Tare	C	196.86	132.11	134.10	131.46	133.30
Wt. of Water	D , A-B	72.12	97.51	76.24	52.88	105.69
Dry Soil, Ws	E , B-C	511.54	394.19	435.20	228.24	454.30
Moisture Content, (%)	(D / E) x100	14.10	24.74	17.52	23.17	23.26

Remarks:

Sample No.		GT12-43	GT12-44	GT12-44	GT12-45	GT12-45
Sample ID					19	1
Depth		62.0-62.2m	7.14-7.24m	13.2-13.4m	3.8-4.0m	5.6-5.8m
Soil Description						
(USCS)						
Trial No.		10	1	2	3	4
Tare No.		Slimer	Possy	B	C66	Bird
Tare + Wet Soil	A	723.63	823.51	830.96	1022.40	788.80
Tare + Dry Soil	B	645.20	723.00	730.60	932.00	725.30
Tare	C	134.59	146.57	146.00	132.30	133.30
Wt. of Water	A-B, D	78.43	100.51	100.36	90.40	63.50
Dry Soil, Ws	B-C, E	510.61	576.43	584.60	799.70	592.00
Moisture Content, (%)	(D / E) x100	15.36	17.44	17.17	11.30	10.73

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater 1	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-45	GT12-45	GT12-45	GT12-45	GT12-45
Sample ID		20	4	23	5	24
Depth		9.65-9.9m	23.6-23.8m	27.8-28.0m	30.05-30.2m	34.1-34.4m
Soil Description						
(USCS)						
Trial No.		5	6	7	8	9
Tare No.		C68	P69	C58	C56	C75
Tare + Wet Soil	A	977.50	1102.80	1058.60	1275.10	869.40
Tare + Dry Soil	B	879.60	999.90	931.90	1064.40	754.20
Tare	C	131.90	152.00	117.10	117.30	117.20
Wt. of Water	D , A-B	97.90	102.90	126.70	210.70	115.20
Dry Soil, Ws	E , B-C	747.70	847.90	814.80	947.10	637.00
Moisture Content, (%)	(D / E) x100	13.09	12.14	15.55	22.25	18.08

Remarks:

Sample No.		GT12-45	GT12-45	GT12-45	GT12-45	GT12-45
Sample ID		8	25	9	27	28
Depth		43.5-43.7	46.3-46.55m	49.4-49.6	58.3-58.5	64.0-64.3m
Soil Description						
(USCS)						
Trial No.		10	1	2	3	4
Tare No.		C79	C53	C60	Skunk	C73
Tare + Wet Soil	A	881.30	1007.30	1006.00	954.70	1160.30
Tare + Dry Soil	B	837.50	934.60	945.20	860.50	1057.90
Tare	C	117.60	118.40	131.40	130.60	117.20
Wt. of Water	A-B, D	43.80	72.70	60.80	94.20	102.40
Dry Soil, Ws	B-C, E	719.90	816.20	813.80	729.90	940.70
Moisture Content, (%)	(D / E) x100	6.08	8.91	7.47	12.91	10.89

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-45	GT12-45	GT12-45	GT12-45	GT12-45
Sample ID		12	14	30	31	17
Depth		67.1-67.3	76.3-76.5m	79.4-79.65m	81.0-81.2m	92.2-92.45
Soil Description						
(USCS)						
Trial No.		5	6	7	8	9
Tare No.		C77	C52	C74	C51	C60
Tare + Wet Soil	A	1079.50	956.90	83.22	1106.90	904.00
Tare + Dry Soil	B	935.40	876.80	738.40	971.10	808.20
Tare	C	117.60	117.60	117.50	117.60	131.40
Wt. of Water	D , A-B	144.10	80.10	-655.18	135.80	95.80
Dry Soil, Ws	E , B-C	817.80	759.20	620.90	853.50	676.80
Moisture Content, (%)	(D / E) x100	17.62	10.55	-105.52	15.91	14.15

Remarks:

Sample No.		GT12-45	GT12-46	GT12-46	GT12-46	GT12-46
Sample ID		18	1	2	3	4
Depth		95.25-95.4	0.0m	4.45-4.53m	6.66-6.87m	9.3-9.6m
Soil Description						
(USCS)						
Trial No.		10	1	2	3	4
Tare No.		C70	C63	C66	Bird	C68
Tare + Wet Soil	A	1380.10	1227.60	1708.50	1377.00	1218.40
Tare + Dry Soil	B	1215.40	1102.20	1584.10	1276.60	1146.20
Tare	C	132.90	132.00	132.30	133.30	131.90
Wt. of Water	A-B, D	164.70	125.40	124.40	100.40	72.20
Dry Soil, Ws	B-C, E	1082.50	970.20	1451.80	1143.30	1014.30
Moisture Content, (%)	(D / E) x100	15.21	12.93	8.57	8.78	7.12

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-46	GT12-46	GT12-46	GT12-46	GT12-46
Sample ID		6	8	9	12	13
Depth		15.6-15.8m	22.2-22.45m	25.06-25.3m	34.2-34.45m	37.15-37.37m
Soil Description						
(USCS)						
Trial No.		5	6	7	8	9
Tare No.		Hog	Cat	C69	C67	Slimer
Tare + Wet Soil	A	1009.80	912.20	1679.60	1363.40	972.30
Tare + Dry Soil	B	930.90	859.80	1558.70	1265.20	913.00
Tare	C	131.70	136.00	131.90	133.40	134.60
Wt. of Water	D , A-B	78.90	52.40	120.90	98.20	59.30
Dry Soil, Ws	E , B-C	799.20	723.80	1426.80	1131.80	778.40
Moisture Content, (%)	(D / E) x100	9.87	7.24	8.47	8.68	7.62

Remarks:

Sample No.		GT12-46	GT12-46	GT12-46	GT12-46	GT12-46
Sample ID		14	15	16	19	21
Depth		39.86-40.1m	42.8-43.05m	46.3-46.5m	54.55-54.8m	60.7-60.9m
Soil Description						
(USCS)						
Trial No.		10	1	2	3	4
Tare No.		RG8	RG15	RG10	RG5	RG18
Tare + Wet Soil	A	1149.20	1359.70	1111.40	1246.00	1368.80
Tare + Dry Soil	B	1032.30	1252.20	1053.10	1152.60	1339.20
Tare	C	184.60	183.90	184.70	184.70	186.00
Wt. of Water	A-B, D	116.90	107.50	58.30	93.40	29.60
Dry Soil, Ws	B-C, E	847.70	1068.30	868.40	967.90	1153.20
Moisture Content, (%)	(D / E) x100	13.79	10.06	6.71	9.65	2.57

Remarks:

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Moisture Content
ASTM D 2216 / ASTM D 4643

Project	Blackwater 1	Project No.	VA101-00457.04/DV101-00077.13-1700
Lab No.	L2012-140	Date of Test	11/6/2012
Tested By	RV	Checked By	EAP

Drying Conditions: 60 deg C / (105 deg C) Method: (Oven (O)) / Microwave (M)

Sample No.		GT12-46	GT12-47	GT12-47	GT12-47	GT12-47
Sample ID		22	1	5	7	9
Depth		64.6-64.8m	0.0m	12.9-13.1m	18.05-18.26m	23.5-23.75m
Soil Description						
(USCS)						
Trial No.		5	2	3	4	5
Tare No.		RG16	Manning	Ryan	DB	P111
Tare + Wet Soil	A	890.20	1242.90	892.60	621.00	686.13
Tare + Dry Soil	B	882.20	1153.70	811.90	570.40	609.50
Tare	C	185.80	183.40	184.00	151.65	148.74
Wt. of Water	D , A-B	8.00	89.20	80.70	50.60	76.63
Dry Soil, Ws	E , B-C	696.40	970.30	627.90	418.75	460.76
Moisture Content, (%)	(D / E) x100	1.15	9.19	12.85	12.08	16.63

Remarks:

Sample No.		GT12-47	GT12-47	GT12-47	GT12-47	GT12-47
Sample ID		14	18	22	25	30
Depth		34.33-34.53m	43.3-43.5m	58.42-58.67m	64.8-64.97m	88.62-88.79m
Soil Description						
(USCS)						
Trial No.		6	7	8	9	10
Tare No.		Luck	Bat	P61	C75	Rodgers
Tare + Wet Soil	A	931.30	586.26	436.06	506.34	928.60
Tare + Dry Soil	B	850.00	489.60	388.30	414.20	816.60
Tare	C	183.00	136.64	145.33	117.14	184.30
Wt. of Water	A-B, D	81.30	96.66	47.76	92.14	112.00
Dry Soil, Ws	B-C, E	667.00	352.96	242.97	297.06	632.30
Moisture Content, (%)	(D / E) x100	12.19	27.39	19.66	31.02	17.71

Remarks:

APPENDIX C2

ROCK STRENGTH TESTING - UCS AND PLT RESULTS

(Pages C2-1 to C2-98)

APPENDIX TABLE C2.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
SUMMARY OF LABORATORY UNCONFINED COMPRESSIVE STRENGTH TESTING RESULTS

Drillhole ID	Sample ID	Lithology	Depth		UCS	Young Modulus, E	Poisson's Ratio, v
			from	to			
			(m)	(m)	(MPa)	(GPa)	-
GM12-01	UCS01-01	VC	76.8	77.0	54	111	N/A
GM12-01	UCS01-02	AND	110.8	110.9	153	87	0.21
GM12-01	UCS01-03	AND	124.7	125.0	56	56	0.2
GM12-01	UCS01-04	VC	171.0	171.2	184	70	0.17
GM12-01	UCS01-05	AND	212.6	213.0	31	69	0.17
GM12-01	UCS01-06	VC	322.8	323.1	38	57	0.2
GM12-01	UCS01-07	VC	340.7	341.0	36	46	0.29
GM12-01	UCS01-08	VC	385.6	386.0	73	77	0.17
GM12-02	UCS02-01	VC	103.6	103.8	137	41	0.2
GM12-02	UCS02-02	FLPT	140.6	140.8	181	63	0.18
GM12-02	UCS02-03	VC	248.7	248.9	169	73	0.19
GM12-02	UCS02-04	FLPT	42.4	42.6	53	16	0.36
GM12-02	UCS02-05	VC	352.6	352.8	58	72	0.25
GM12-02	UCS02-08	SED	397.0	397.2	66	70	0.16
GM12-03	UCS03-01	VC	60.8	61.0	108	17	0.17
GM12-03	UCS03-05	AND	254.8	255.0	26	67	0.14
GM12-05	UCS05-02	FT	173.1	173.4	24	39	0.22
GM12-05	UCS05-03	AND	235.3	235.5	102	26	0.16
GM12-05	UCS05-04	AND	290.6	290.9	98	54	0.21
GM12-05	UCS05-05	AND	339.7	339.9	28	63	0.19
GM12-06	UCS#2	AND	136.0	136.3	205	54	0.20
GM12-06	UCS#3	AND	201.2	201.5	181	67	0.20
GM12-06	UCS06-01	AND	237.6	237.9	201	60	0.22
GM12-06	UCS#5	AND	282.6	282.9	111	64	0.15
GM12-06	UCS#6	AND	324.5	324.8	276	59	0.24
GM12-07	UCS 07-01	VC	46.2	46.4	158	33	0.16
GM12-07	UCS 07-02	VC	91.2	91.4	103	47	0.23
GM12-07	UCS 07-04	AND	264.2	264.5	69	57	0.18
GM12-07	UCS 07-05	AND	340.0	340.2	276	69	0.22
GM12-07	FM 07-01	AND	203.0	203.2	1	0	0.35
GM12-08	UCS 08-02	VC	159.7	159.9	209	54	0.19
GM12-08	UCS 08-05	VC	306.0	306.2	109	53	0.29
GM12-08	UCS 08-06	AND	357.9	358.1	64	60	0.22
GM12-08	UCS #7	AND	399.3	399.6	98	62	0.24
GM12-09	UCS 09-01	VC	95.4	95.8	132	46	0.18
GM12-09	UCS#2	AND	232.3	232.5	25	36	0.06
GM12-09	UCS#4	AND	316.7	317.0	44	50	0.13
GM12-09	UCS#5	AND	375.5	375.7	74	70	0.17
GM12-10	UCS10-01	VC	60.5	60.6	186	46	0.18
GM12-10	UCS10-02	VC	107.3	107.5	215	58	0.17

APPENDIX TABLE C2.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
SUMMARY OF LABORATORY UNCONFINED COMPRESSIVE STRENGTH TESTING RESULTS

Drillhole ID	Sample ID	Lithology	Depth		UCS	Young Modulus, E	Poisson's Ratio, v
			from	to			
			(m)	(m)	(MPa)	(GPa)	-
GM12-10	UCS10-03	VC	175.0	175.3	173	64	0.20
GM12-10	UCS10-04	VC	223.3	223.5	172	69	0.22
GM12-10	UCS10-05	VC	266.6	266.8	180	69	0.18
GM12-10	UCS12-06	VC	277.5	277.7	227	66	0.14
GM12-11	UCS#3	VC	197.2	197.5	218	62	0.16
GM12-11	UCS#4	VC	220.5	220.7	277	84	0.21
GM12-12	UCS#1	VC	21.1	21.5	1	0	0.44
GM12-12	UCS#2	AND	118.8	119.0	25	13	0.12
GM12-12	UCS#2	AND	137.7	138.0	220	78	0.18
GM12-12	UCS#3	AND	191.0	191.2	267	67	0.24
GM12-12	UCS#4	AND	261.4	261.7	85	68	0.18
GM12-12	UCS#5	AND	345.2	345.5	111	70	0.22
GM12-13	UCS-1	AND	190.2	190.5	47	50	0.11
GM12-13	UCS-2	AND	213.8	214.1	20	46	0.15
GM12-13	UCS-3	AND	241.5	241.8	46	41	0.40
GM12-13	UCS-5	AND	273.9	274.3	115	61	0.20
GM12-13	UCS-6	AND	339.4	339.6	117	61	0.12
GM12-13	UCS 7	AND	353.3	353.7	189	75	0.26
GM12-13	UCS13-01	AND	21.8	22.0	132	42	0.19
BWWR12	UCS #1	VC	102.5	102.8	152	79	0.21
BWWR12	UCS #3	VC	150.4	150.9	193	82	0.22
BWWR12	UCS #3	VC	203.1	203.3	256	82	0.19
BWWR12	UCS #4	VC	249.0	249.3	102	63	0.11
BWWR12	UCS #5	INTR	296.6	297.0	86	24	0.20
BWWR13	UCS 1	FLPT	77.1	77.4	274	68	0.14
BWWR13	UCS 2	CON	157.1	157.5	181	72	0.23
BWWR13	UCS#4	CON	221.5	221.8	206	81	0.23
BWWR13	UCS#5	CON	333.9	334.2	114	88	0.18
BWWR13	UCS#6	CON	340.5	341.0	214	89	0.18
BWWR14	UCS #1	VC	99.0	100.5	98	67	0.14
BWWR14	UCS #2	VC	150.3	150.7	208	73	0.25
BWWR14	UCS #4	VC	249.8	250.0	35	14	0.43
GM12-12	Gouge #1	Fault gouge	44.2	44.5	0.061		

NOTES:

1. LITHOLOGY: VC - VOLCANICLASTIC; AND - ANDESITE; CON - CONGLOMERATE; FT - FELSIC TUFF; FTLP - FELSIC LAPILLI TUFF; SED - SEDIMENTRY; INTR - DIORITE DYKE

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19JUN'13	ISSUED FOR REPORT	JS	DAY	KJB

APPENDIX TABLE C2.2

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 PIT SLOPE DESIGN
SUMMARY OF POINT LOAD TESTING RESULTS

Drillhole ID	Sample ID	Lithology	Depth		Is_{50}	UCS
			from	to		
			(m)	(m)	(MPa)	(MPa)
GM12-07	PLT 07-01	FT	28.0	28.1	1.97	43
GM12-07	PLT 07-02	FT	30.2	30.3	5.25	115
GM12-07	PLT 07-03	VC	43.6	43.7	6.88	151
GM12-07	PLT 07-04	VC	45.7	45.8	7.86	173
GM12-09	PLT #1	FLPT	19.9	20.0	7.32	161
BWWR13	PLT #1	SED	246.5	246.6	4.99	110
BWWR13	PLT #2	SED	258.9	259.0	8.14	179
BWWR13	PLT #3	SED	256.4	256.5	4.33	95

NOTES:
1. LITHOLOGY: VC - VOLCANICLASTIC; FT - FELSIC TUFF; FTLP - FELSIC LAPILLI TUFF; SED - SEDIMENTRY

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19JUN'13	ISSUED FOR REPORT	JS	DAY	KJB

NORMAN B. KEEVIL
INSTITUTE OF MINING ENGINEERING

Blackwater Project
Rock Strength Laboratory Report

Prepared for:
Knight Piesold Ltd.
Suite 1400 - 750 West Pender Street
Vancouver, BC V6C 2T8
Canada

Prepared by:
Norman B. Keevil Institute of Mining Engineering
University of British Columbia
5th Floor, 6350 Stores Road
Vancouver, BC V6T 1Z4
Canada

July 27, 2012

LABORATORY TESTING

July 2012

Testing Date: May, 2012

Tested by: Paul Hughes

Tested at: Norman B Keevil Institute of Mining Engineering, University of British Columbia

Testing Program: This program consisted of thirty-one (31) core samples for Unconfined Compressive Strength Testing with Elastic Modulus readings. Twenty-five (25) samples were suitable for testing.

Samples GT12-02/UCS 02-06; GT12-02/UCS02-07; GM12-03/UCS03-03; GM12-03/UCS03-04; GM12-03/UCS03-06; and GM12-05/UCS05-01 were not competent for testing.

Equipment: MTS Electro-Hydraulic Testing Machine

Method: ISRM-1979 (UCS & Modulus)

Procedure: UCS samples identified as competent were wet cut, surface polished and tested per ISRM specifications.

Comments: Samples GM12-05/UCS05-03 & GT12-08/UCS 2 had audible breaking noises during loading before failure. The audible noise corresponded with the deviations in the stress-strain graphs. The audible cracking is likely slippage along a pre-existing discontinuity plane.

For GT12-05/UCS05-03 2 the listed elastic modulus properties readings were obtained by calculating the slope for data points per ISRM standard at the 50% point

of UCS. Although these points are shown as negative strain (relative to initial reading), it can be seen through inspection of the graph that the near-linear trend between the data points before and after the audible crack is similar.

Sample GM12-01/UCS 01-02 did not behave elastically during loading. Caution should be used when using the Young's Modulus for this samples. Poisson's Ratio was not reported for this samples as the value exceeds the physical limit of Poisson's Ratio of 0.5.

Samples GM12-01/UCS01-2.5; GM12-01/UCS01-4; GM12-02/UCS02-1; GM12-02/UCS02-2; GM12-02/UCS02-3; and GM12-08/UCS 1 were high strength samples. These samples exceeded the 320 kN load capacity of the strain gauges used in testing (nominal 110 MPa stress). As such the complete stress-strain profiles of the samples were not recorded. It was found that this was not an issue when determining the elastic modulus values of the samples as the recorded stress-strain behavior included the 50% of UCS point that is used to obtain the elastic modulus values per ISRM standards.

Summary

Unconfined Compressive and Elastic Modulus Test Results

Borehole ID	Sample ID	Depth From: (m)	Depth To: (m)	Lithology	Height H	Diameter d (mm)	Ratio H/d	UCS (MPa)	UCS (psi)	Young Modulus E (GPa)	Poisson Ratio ν ( )
GM12-01	UCS01-02	76.80	77.00	Intermediate Metavolcanics	142.19	59.55	2.39	54.4	7893	110.53	N/A
GM12-01	UCS01-02.5	110.76	110.90	Mafic Intrusive	122.34	59.62	2.05	152.8	22153	87.07	0.214
GM12-01	UCS01-03	124.70	124.98	Mafic Metavolcanics	172.42	59.76	2.89	56.1	8134	56.23	0.199
GM12-01	UCS01-04	171.00	171.17	Synvolcanic Felsic to Intermediate Intrusives	153.00	59.94	2.55	184.3	26719	69.65	0.167
GM12-01	UCS01-05	212.62	212.98	Intermediate Metavolcanics	176.33	59.63	2.96	31.3	4539	69.25	0.173
GM12-01	UCS01-06	322.77	323.12	Mafic Intrusive	165.97	59.99	2.77	38.5	5581	56.56	0.200
GM12-01	UCS01-07	340.73	341.03	Mafic Metavolcanics	125.14	59.65	2.10	36.3	5262	45.96	0.285
GM12-01	UCS01-08	385.60	386.00	Synvolcanic Felsic to Intermediate Intrusives	167.72	60.31	2.78	73.2	10615	76.91	0.167
GM12-02	UCS02-01	103.57	103.84	Intermediate Metavolcanics	172.34	60.74	2.84	137.1	19874	40.53	0.199
GM12-02	UCS02-02	140.60	140.76	Mafic Intrusive	141.15	60.30	2.34	180.7	26197	63.03	0.183
GM12-02	UCS02-03	248.71	248.93	Mafic Metavolcanics	176.34	60.38	2.92	169.1	24519	72.87	0.189
GM12-02	UCS02-04	42.35	42.63	Synvolcanic Felsic to Intermediate Intrusives	135.85	59.64	2.28	53.4	7746	15.75	0.360
GM12-02	UCS02-05	352.64	352.82	Intermediate Metavolcanics	150.49	60.41	2.49	57.9	8389	71.74	0.249
GM12-02	UCS02-08	397.00	397.20	Synvolcanic Felsic to Intermediate Intrusives	153.85	60.37	2.55	66.4	9622	69.59	0.164
GM12-03	UCS03-01	60.75	61.00	Intermediate Metavolcanics	181.35	60.32	3.01	107.8	15629	17.13	0.167
GM12-03	UCS03-05	254.75	255.02	Synvolcanic Felsic to Intermediate Intrusives	177.95	60.34	2.95	25.9	3752	66.51	0.136
GM12-05	UCS05-02	173.11	173.38	Mafic Metavolcanics	178.58	60.14	2.97	23.5	3407	38.92	0.217
GM12-05	UCS05-03	235.25	235.52	Synvolcanic Felsic to Intermediate Intrusives	181.04	60.50	2.99	102.0	14797	25.69	0.159
GM12-05	UCS05-04	290.63	290.94	Intermediate Metavolcanics	180.73	60.74	2.98	98.5	14277	53.59	0.213
GM12-05	UCS05-05	339.74	339.94	Mafic Intrusive	185.53	60.34	3.07	27.8	4033	63.18	0.186
GT12-03	UCS 1	71.70	72.09	Mafic Metavolcanics	159.55	60.55	2.64	37.7	5468	28.33	0.203
GT12-07	UCS 1	21.94	22.23	Synvolcanic Felsic to Intermediate Intrusives	178.93	60.48	2.96	70.9	10282	29.95	0.246
GT12-07	UCS 2	32.48	32.99	Intermediate Metavolcanics	181.34	60.49	3.00	91.9	13319	23.45	0.195
GT12-08	UCS 1	3.72	4.04	Mafic Intrusive	181.96	60.55	3.01	193.0	27991	67.44	0.253
GT12-08	UCS 2	27.28	27.70	Mafic Metavolcanics	179.62	60.24	2.98	90.6	13131	62.28	0.218



NORMAN B. KEEVIL
INSTITUTE OF MINING ENGINEERING

Rock Strength Laboratory Report

Prepared for: Knight Piesold Ltd.
Blackwater Project

May 5, 2012

LABORATORY TESTING

May 2012

Testing Date: May, 2012

Tested by: Paul Hughes

Tested at: Norman B Keevil Institute of Mining Engineering, University of British Columbia

Testing Program: This program consisted of thirty-one (31) core samples for Unconfined Compressive Strength Testing with Elastic Modulus readings. Twenty-five (25) samples were suitable for testing.

Samples GT12-02/UCS 02-06; GT12-02/UCS02-07; GM12-03/UCS03-03; GM12-03/UCS03-04; GM12-03/UCS03-06; and GM12-05/UCS05-01 were not competent for testing.

Equipment: MTS Electro-Hydraulic Testing Machine

Method: ISRM-1979 (UCS & Modulus)

Procedure: UCS samples identified as competent were wet cut, surface polished and tested per ISRM specifications.

Comments: Samples GM12-05/UCS05-03 & GT12-08/UCS 2 had audible breaking noises during loading before failure. The audible noise corresponded with the deviations in the stress-strain graphs. The audible cracking is likely slippage along a pre-existing discontinuity plane.

For GT12-05/UCS05-03 2 the listed elastic modulus properties readings were obtained by calculating the slope for data points per ISRM standard at the 50% point

of UCS. Although these points are shown as negative strain (relative to initial reading), it can be seen through inspection of the graph that the near-linear trend between the data points before and after the audible crack is similar.

Sample GM12-01/UCS 01-02 did not behave elastically during loading. Caution should be used when using the Young's Modulus for this samples. Poisson's Ratio was not reported for this samples as the value exceeds the physical limit of Poisson's Ratio of 0.5.

Samples GM12-01/UCS01-2.5; GM12-01/UCS01-4; GM12-02/UCS02-1; GM12-02/UCS02-2; GM12-02/UCS02-3; and GM12-08/UCS 1 were high strength samples. These samples exceeded the 320 kN load capacity of the strain gauges used in testing (nominal 110 MPa stress). As such the complete stress-strain profiles of the samples were not recorded. It was found that this was not an issue when determining the elastic modulus values of the samples as the recorded stress-strain behavior included the 50% of UCS point that is used to obtain the elastic modulus values per ISRM standards.

Summary

Unconfined Compressive and Elastic Modulus Test Results

Borehole ID	Sample ID	Depth From: (m)	Depth To: (m)	Lithology	Height H	Diameter d (mm)	Ratio H/d	UCS (MPa)	UCS (psi)	Young Modulus E (GPa)	Poisson Ratio ν ( )
GM12-01	UCS01-02	76.80	77.00	Intermediate Metavolcanics	142.19	59.55	2.39	54.4	7893	110.53	N/A
GM12-01	UCS01-02.5	110.76	110.90	Mafic Intrusive	122.34	59.62	2.05	152.8	22153	87.07	0.214
GM12-01	UCS01-03	124.70	124.98	Mafic Metavolcanics	172.42	59.76	2.89	56.1	8134	56.23	0.199
GM12-01	UCS01-04	171.00	171.17	Synvolcanic Felsic to Intermediate Intrusives	153.00	59.94	2.55	184.3	26719	69.65	0.167
GM12-01	UCS01-05	212.62	212.98	Intermediate Metavolcanics	176.33	59.63	2.96	31.3	4539	69.25	0.173
GM12-01	UCS01-06	322.77	323.12	Mafic Intrusive	165.97	59.99	2.77	38.5	5581	56.56	0.200
GM12-01	UCS01-07	340.73	341.03	Mafic Metavolcanics	125.14	59.65	2.10	36.3	5262	45.96	0.285
GM12-01	UCS01-08	385.60	386.00	Synvolcanic Felsic to Intermediate Intrusives	167.72	60.31	2.78	73.2	10615	76.91	0.167
GM12-02	UCS02-01	103.57	103.84	Intermediate Metavolcanics	172.34	60.74	2.84	137.1	19874	40.53	0.199
GM12-02	UCS02-02	140.60	140.76	Mafic Intrusive	141.15	60.30	2.34	180.7	26197	63.03	0.183
GM12-02	UCS02-03	248.71	248.93	Mafic Metavolcanics	176.34	60.38	2.92	169.1	24519	72.87	0.189
GM12-02	UCS02-04	42.35	42.63	Synvolcanic Felsic to Intermediate Intrusives	135.85	59.64	2.28	53.4	7746	15.75	0.360
GM12-02	UCS02-05	352.64	352.82	Intermediate Metavolcanics	150.49	60.41	2.49	57.9	8389	71.74	0.249
GM12-02	UCS02-08	397.00	397.20	Synvolcanic Felsic to Intermediate Intrusives	153.85	60.37	2.55	66.4	9622	69.59	0.164
GM12-03	UCS03-01	60.75	61.00	Intermediate Metavolcanics	181.35	60.32	3.01	107.8	15629	17.13	0.167
GM12-03	UCS03-05	254.75	255.02	Synvolcanic Felsic to Intermediate Intrusives	177.95	60.34	2.95	25.9	3752	66.51	0.136
GM12-05	UCS05-02	173.11	173.38	Mafic Metavolcanics	178.58	60.14	2.97	23.5	3407	38.92	0.217
GM12-05	UCS05-03	235.25	235.52	Synvolcanic Felsic to Intermediate Intrusives	181.04	60.50	2.99	102.0	14797	25.69	0.159
GM12-05	UCS05-04	290.63	290.94	Intermediate Metavolcanics	180.73	60.74	2.98	98.5	14277	53.59	0.213
GM12-05	UCS05-05	339.74	339.94	Mafic Intrusive	185.53	60.34	3.07	27.8	4033	63.18	0.186
GT12-03	UCS 1	71.70	72.09	Mafic Metavolcanics	159.55	60.55	2.64	37.7	5468	28.33	0.203
GT12-07	UCS 1	21.94	22.23	Synvolcanic Felsic to Intermediate Intrusives	178.93	60.48	2.96	70.9	10282	29.95	0.246
GT12-07	UCS 2	32.48	32.99	Intermediate Metavolcanics	181.34	60.49	3.00	91.9	13319	23.45	0.195
GT12-08	UCS 1	3.72	4.04	Mafic Intrusive	181.96	60.55	3.01	193.0	27991	67.44	0.253
GT12-08	UCS 2	27.28	27.70	Mafic Metavolcanics	179.62	60.24	2.98	90.6	13131	62.28	0.218

ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-02
Depth From (m):	76.80
Depth To (m):	77.00
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**110.53**
Poisson Ratio, ν	**N/A**
Failure Mode:	**Pre-existing Feature**

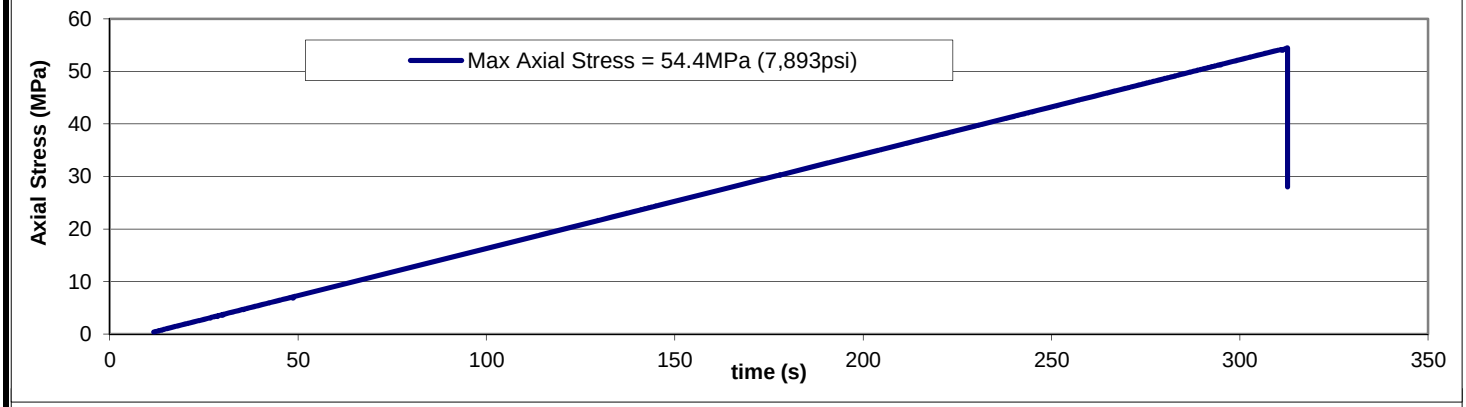
Before Test

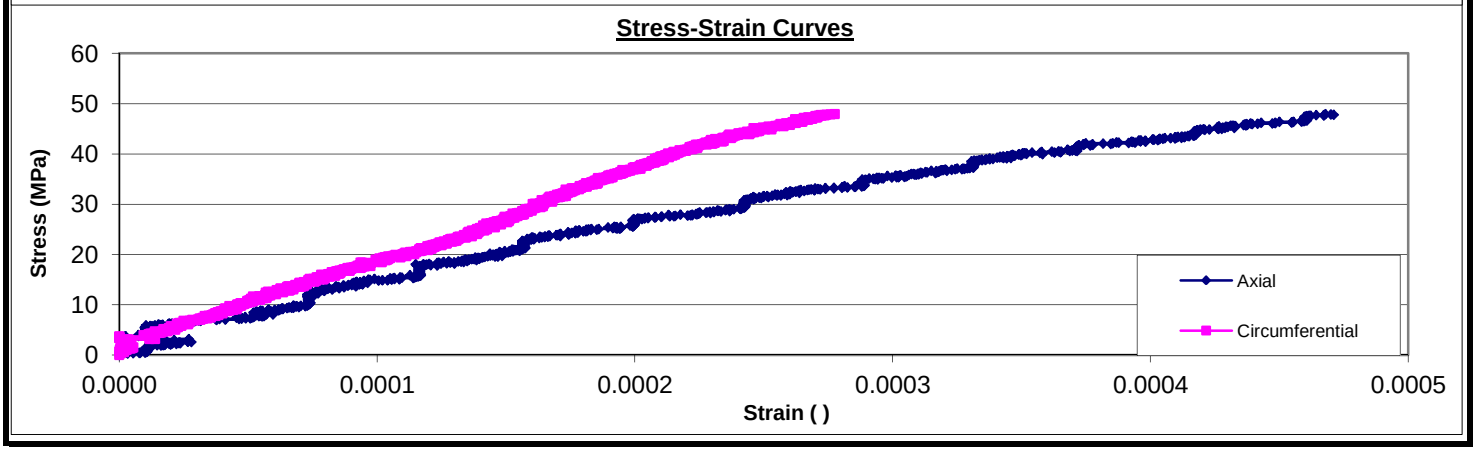


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.55	2785.2	142.19	2.4	151.6	54.4	7,893





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-02.5
Depth From (m):	110.76
Depth To (m):	110.90
Lithology	Mafic Intrusive
Tested By:	P.Hughes
Young Modulus, E (GPa)	**87.07**
Poisson Ratio, ν	**0.21**
Failure Mode:	**Explosive**

Before Test

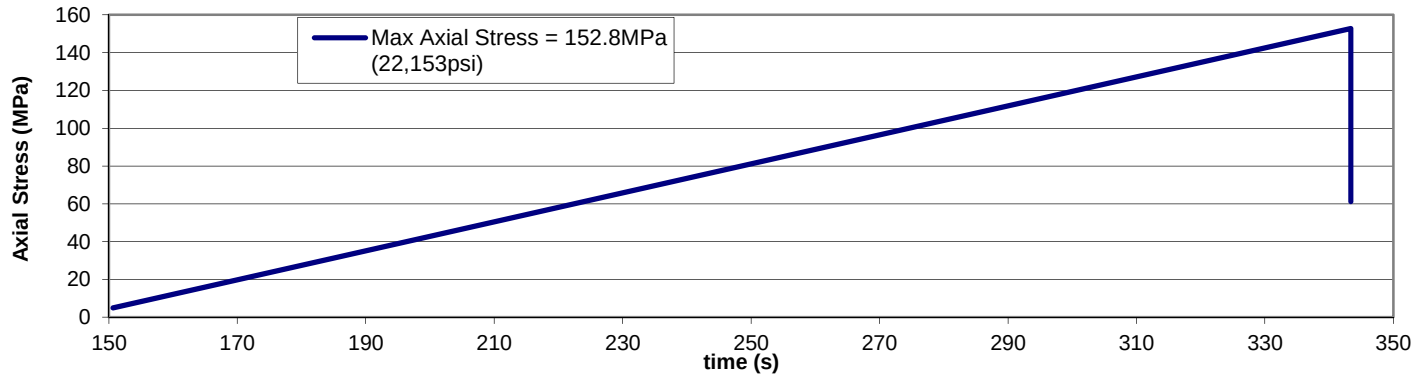


After Test

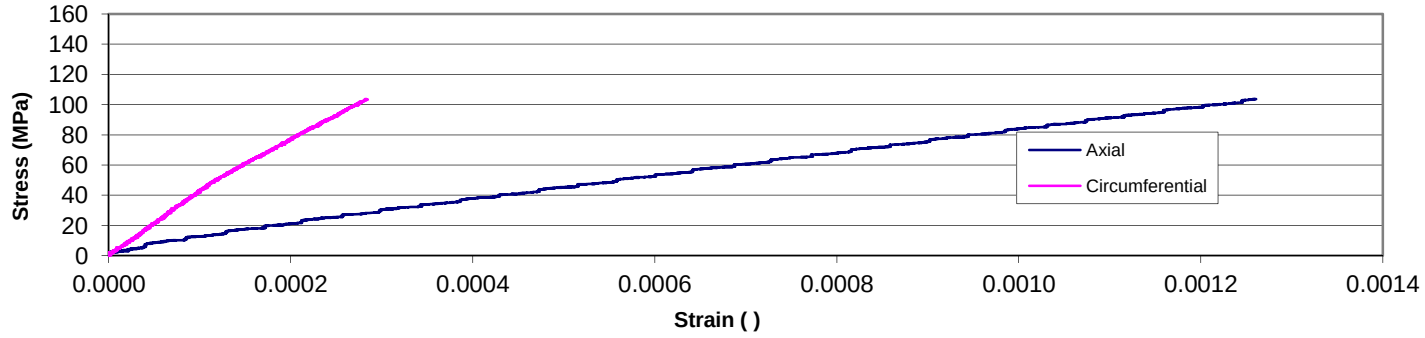


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.62	2791.7	122.34	2.1	426.5	152.8	22,153

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-03
Depth From (m):	124.70
Depth To (m):	124.98
Lithology	Mafic Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**56.23**
Poisson Ratio, ν	**0.20**
Failure Mode:	**Shear**

Before Test

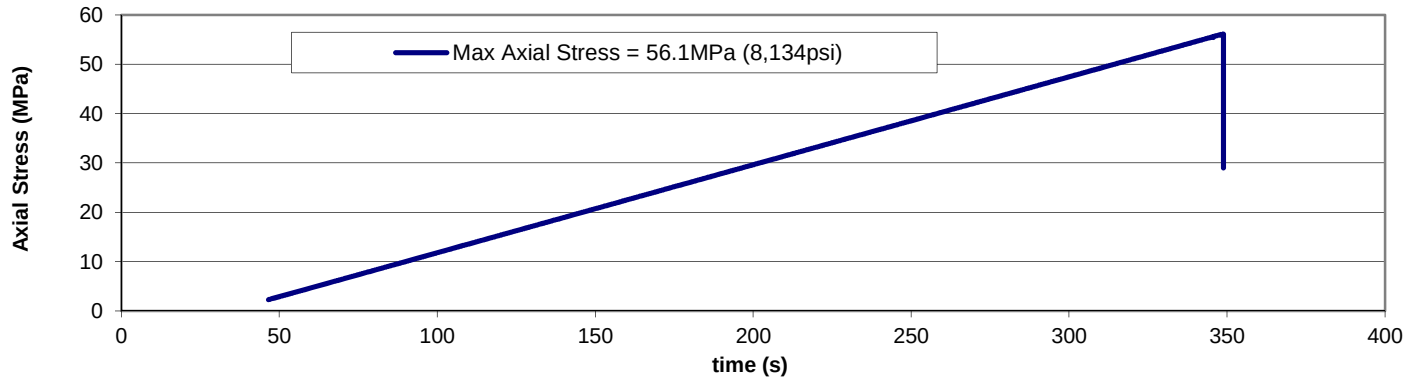


After Test

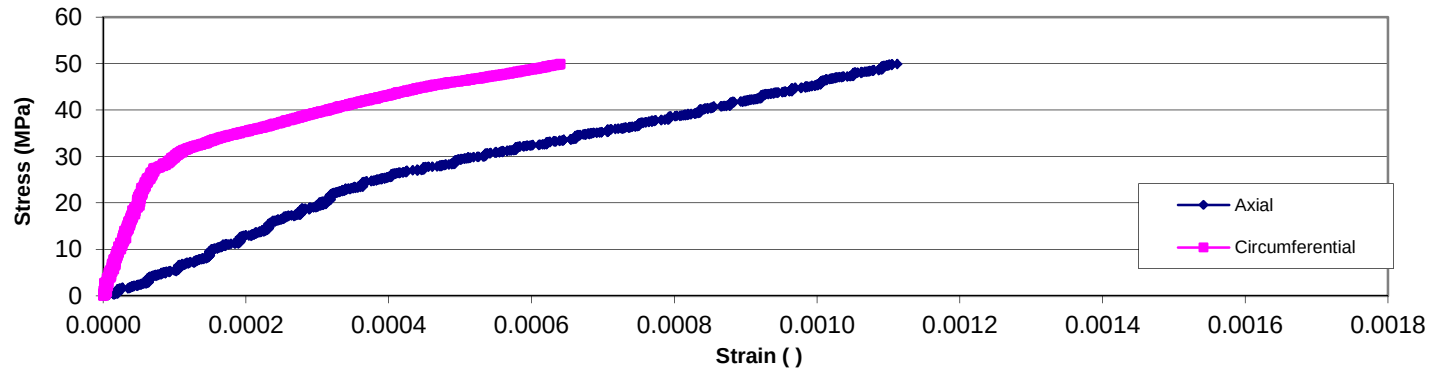


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.76	2804.9	172.42	2.9	157.3	56.1	8,134

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-04
Depth From (m):	171.00
Depth To (m):	171.17
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**69.65**
Poisson Ratio, ν	**0.17**
Failure Mode:	**Tensile**

Before Test

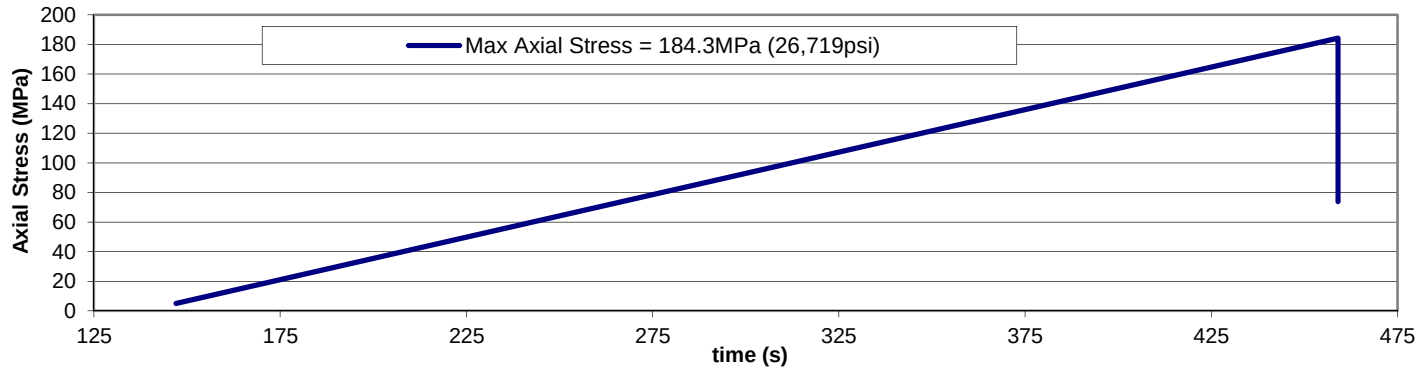


After Test

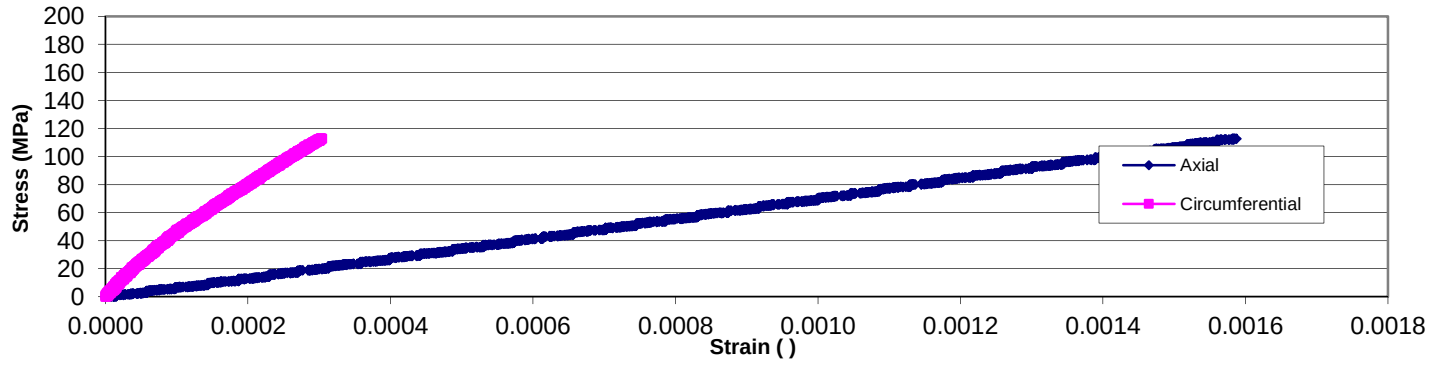


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.94	2821.8	153.00	2.6	520.0	184.3	26,719

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-05
Depth From (m):	212.62
Depth To (m):	212.98
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**69.25**
Poisson Ratio, ν	**0.17**
Failure Mode:	**Pre-existing Feature**

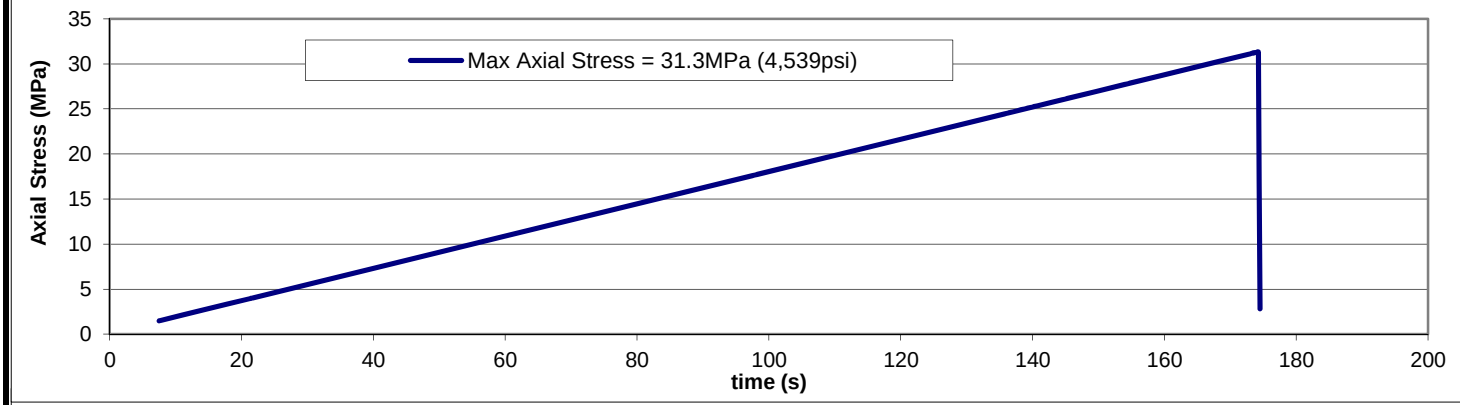
Before Test

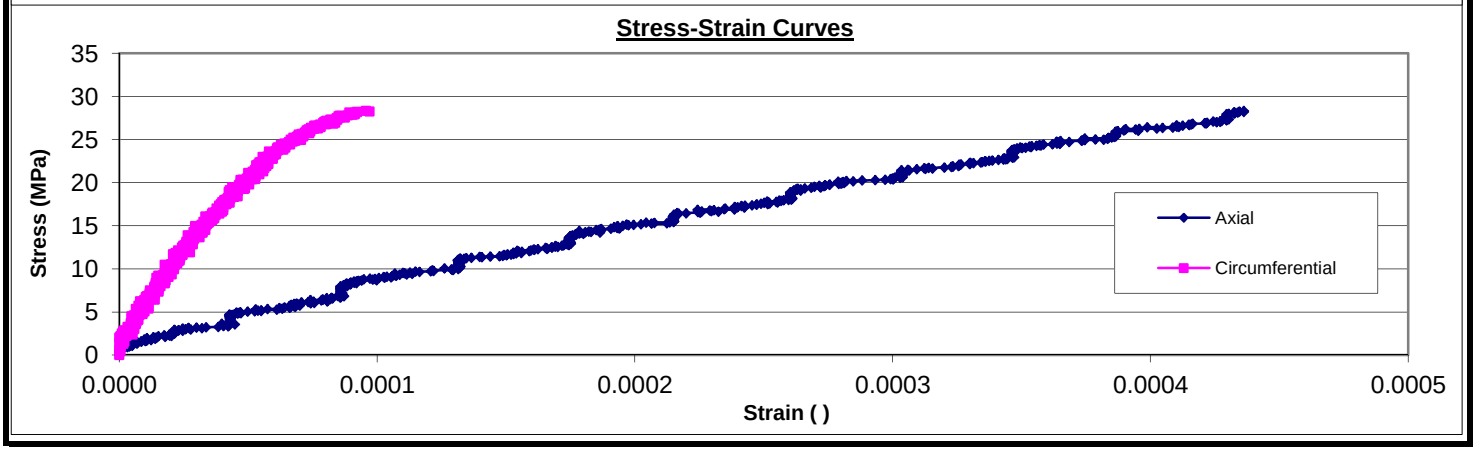


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.63	2792.7	176.33	3.0	87.4	31.3	4,539





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-06
Depth From (m):	322.77
Depth To (m):	323.12
Lithology	Mafic Intrusive
Tested By:	P.Hughes
Young Modulus, E (GPa)	**56.56**
Poisson Ratio, ν	**0.20**
Failure Mode:	**Pre-existing feature**

Before Test

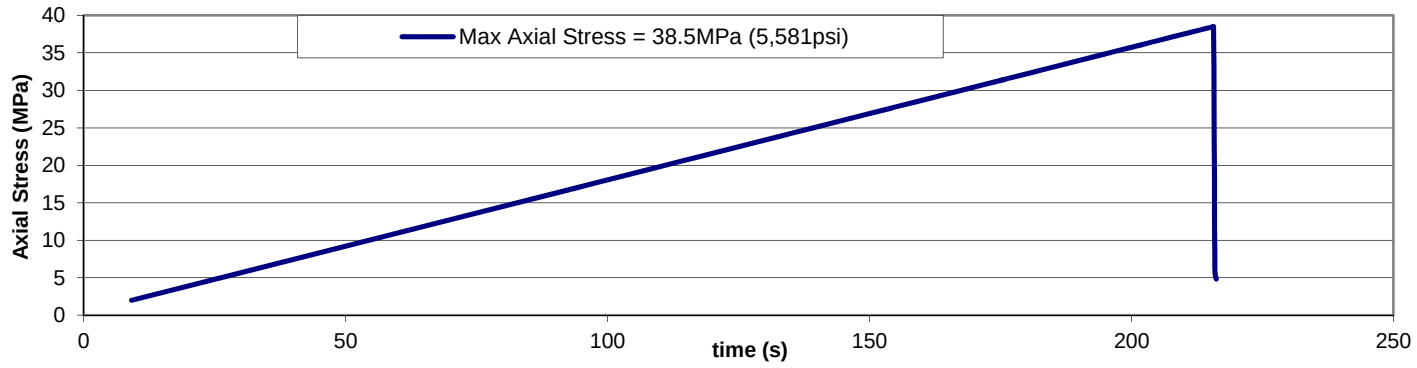


After Test

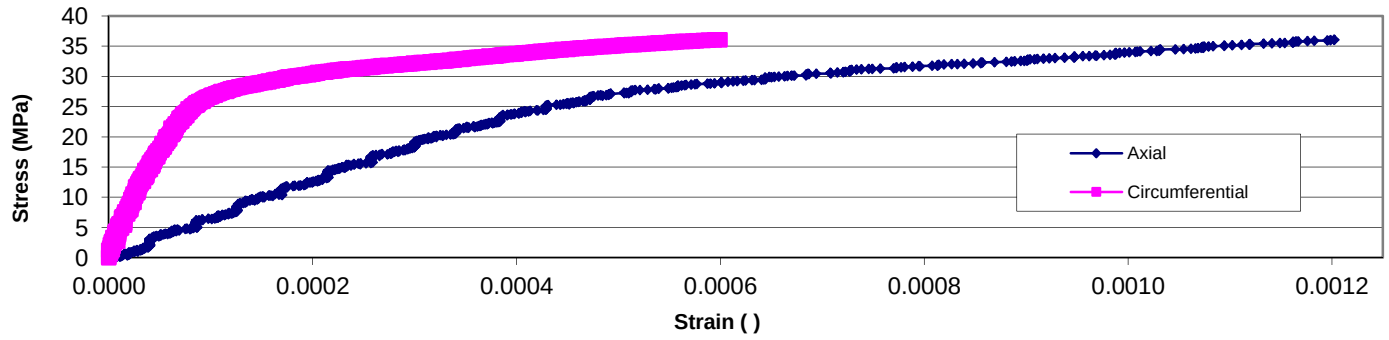


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.99	2826.5	165.97	2.8	108.8	38.5	5,581

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-07
Depth From (m):	340.73
Depth To (m):	341.03
Lithology	Mafic Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**45.96**
Poisson Ratio, ν	**0.29**
Failure Mode:	**Pre-existing feature**

Before Test

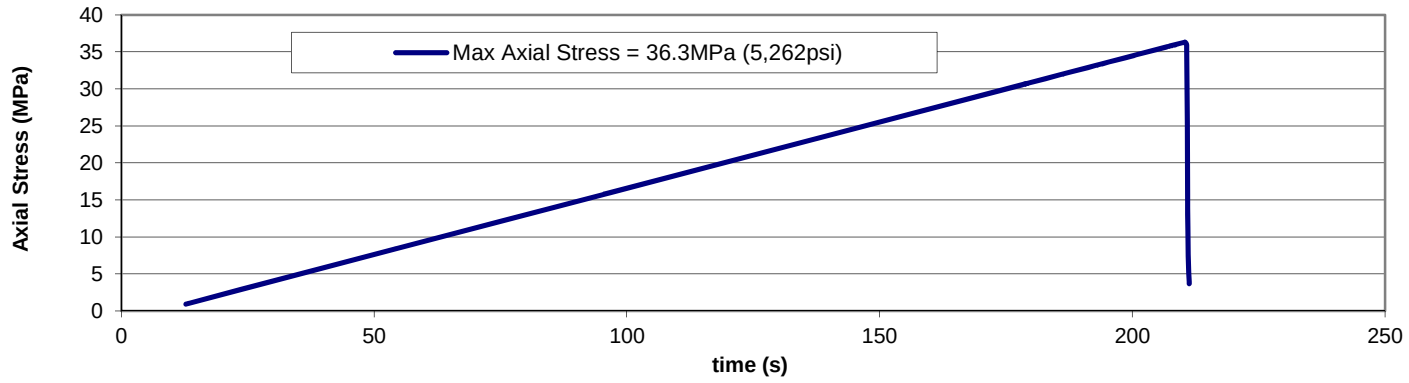


After Test

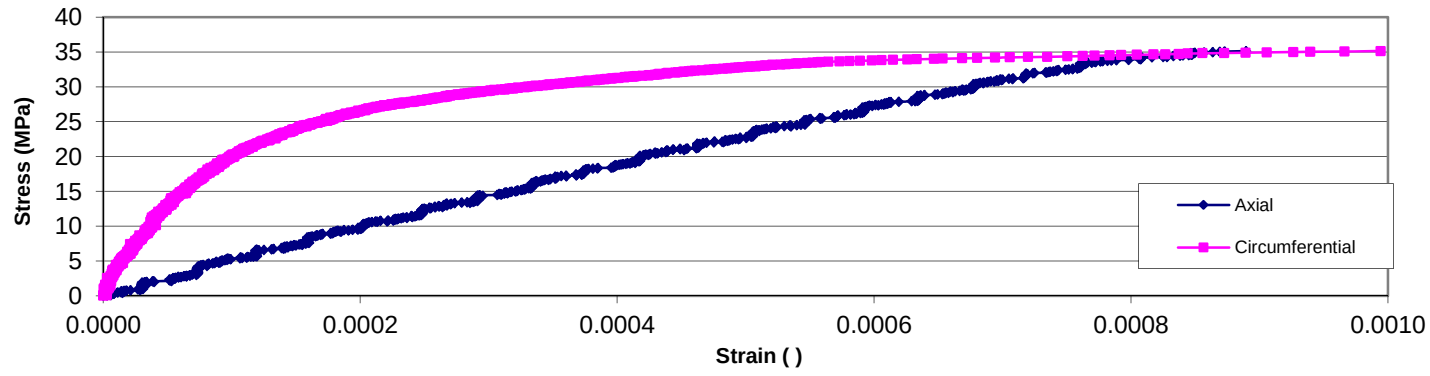


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.65	2794.5	125.14	2.1	101.4	36.3	5,262

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-01
Sample ID	UCS01-08
Depth From (m):	385.6
Depth To (m):	386
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**76.91**
Poisson Ratio, ν	**0.17**
Failure Mode:	**Pre-existing Feature**

Before Test

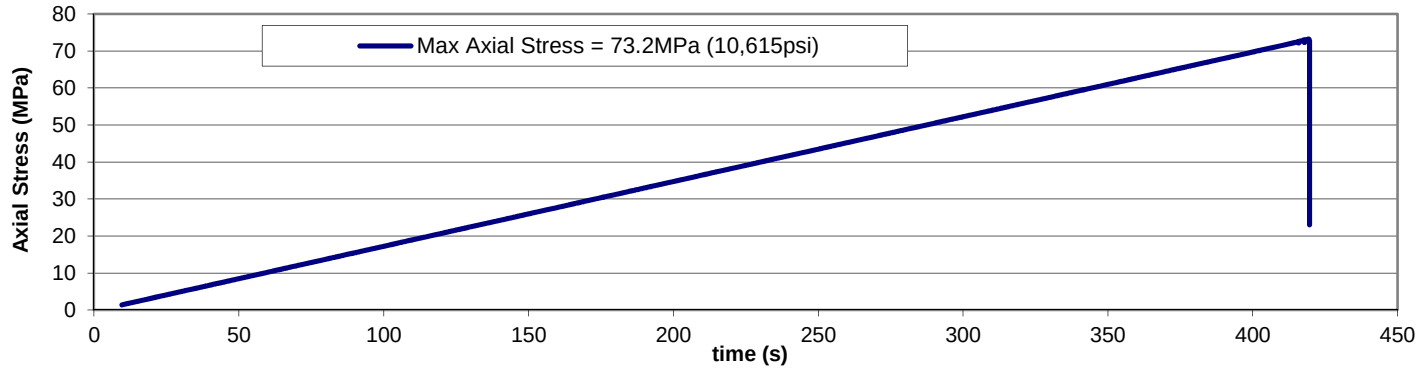


After Test

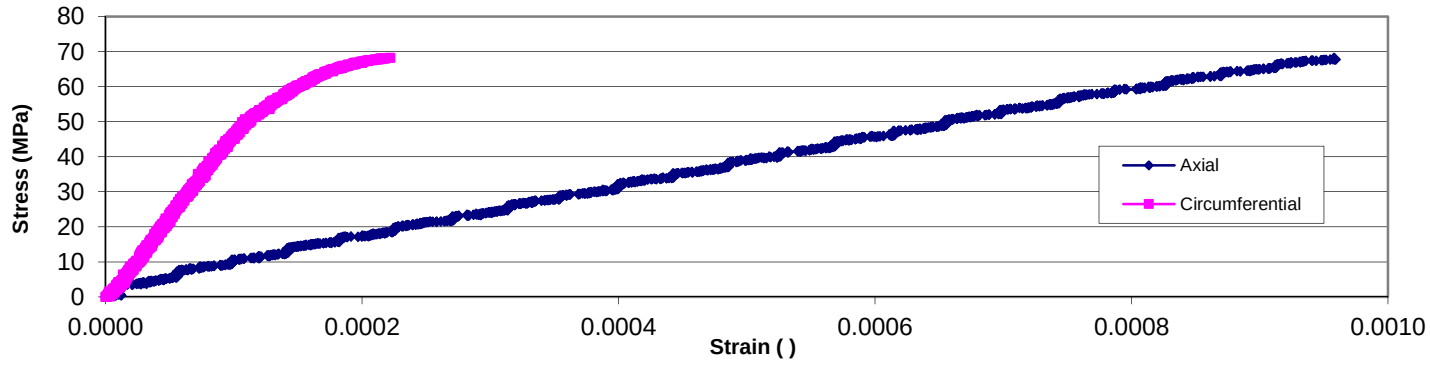


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.31	2856.7	167.72	2.8	209.1	73.2	10,615

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-02
Sample ID	UCS02-01
Depth From (m):	103.57
Depth To (m):	103.84
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**40.53**
Poisson Ratio, ν	**0.20**
Failure Mode:	**Shear**

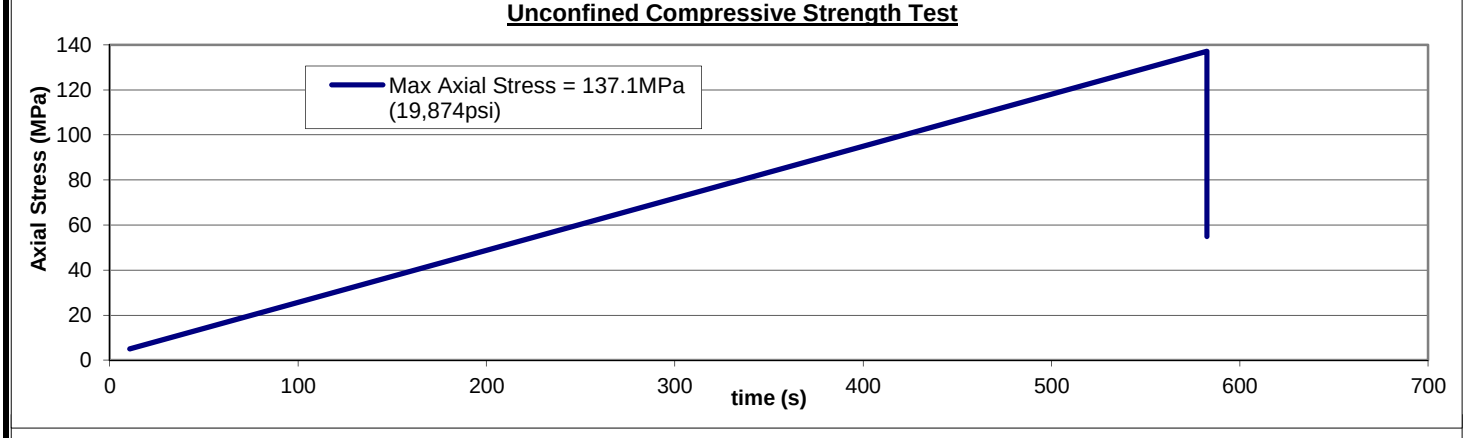
Before Test

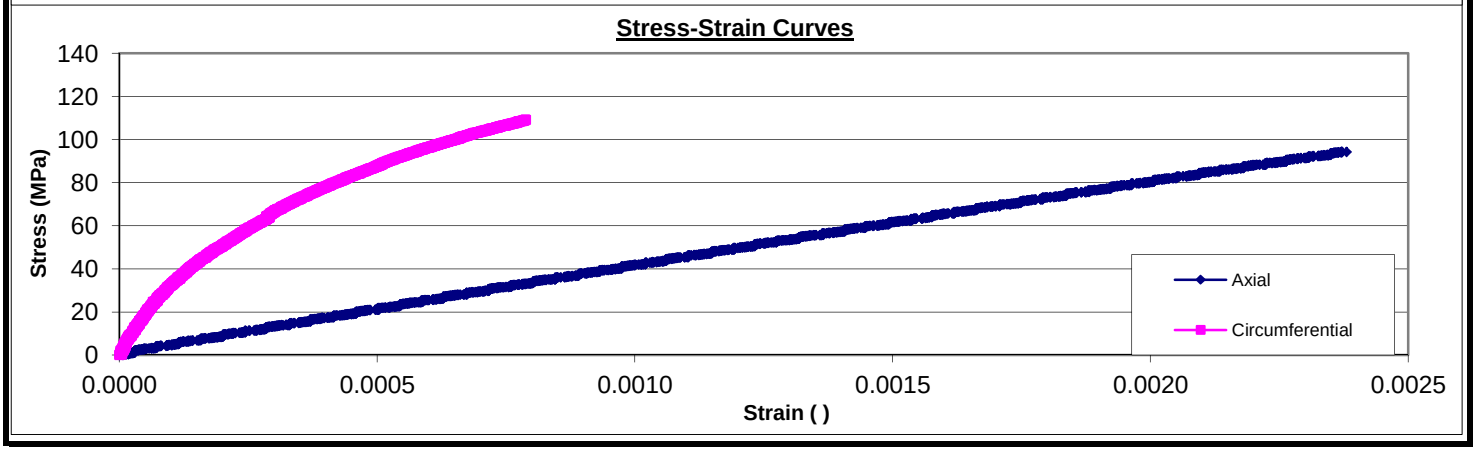


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.74	2897.6	172.34	2.8	397.1	137.1	19,874





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-02
Sample ID	UCS02-02
Depth From (m):	140.6
Depth To (m):	140.76
Lithology	Mafic Intrusive
Tested By:	P.Hughes
Young Modulus, E (GPa)	**63.03**
Poisson Ratio, ν	**0.18**
Failure Mode:	**Shear**

Before Test

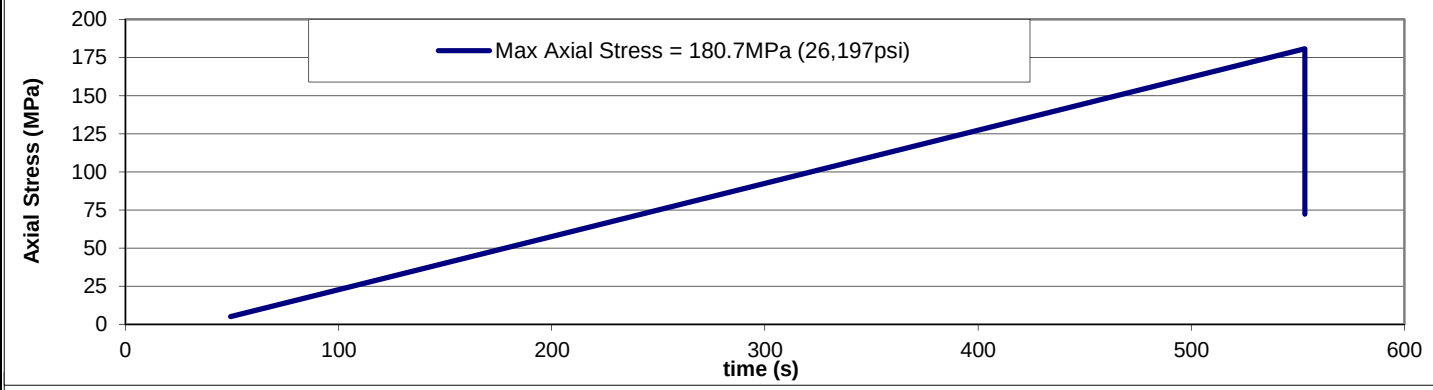


After Test

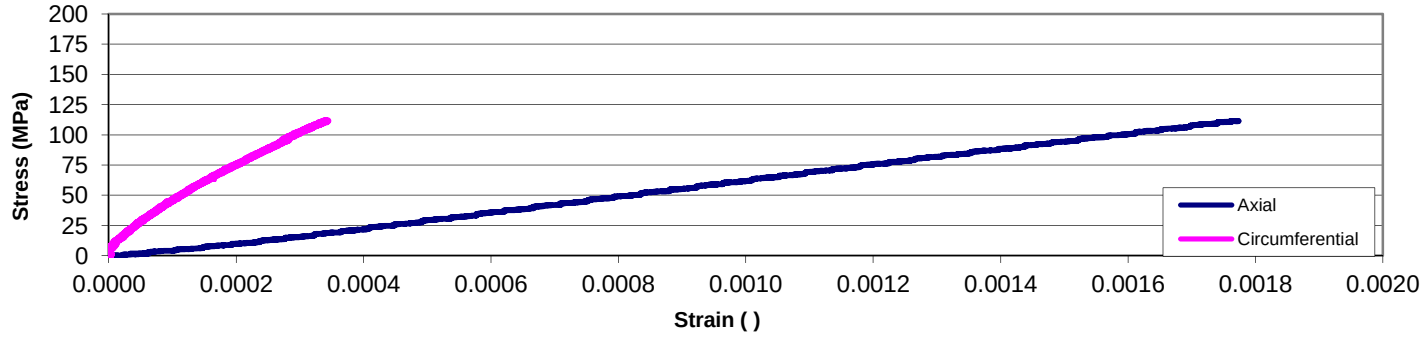


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.30	2855.8	141.15	2.3	516.0	180.7	26,197

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-02
Sample ID	UCS02-03
Depth From (m):	248.71
Depth To (m):	248.93
Lithology	Mafic Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**72.87**
Poisson Ratio, ν	**0.19**
Failure Mode:	**Shear**

Before Test

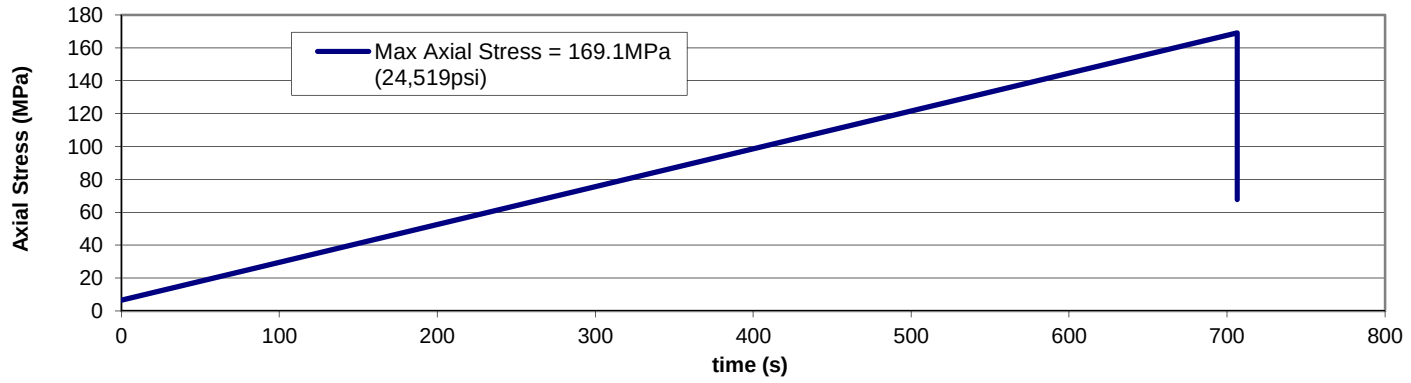


After Test

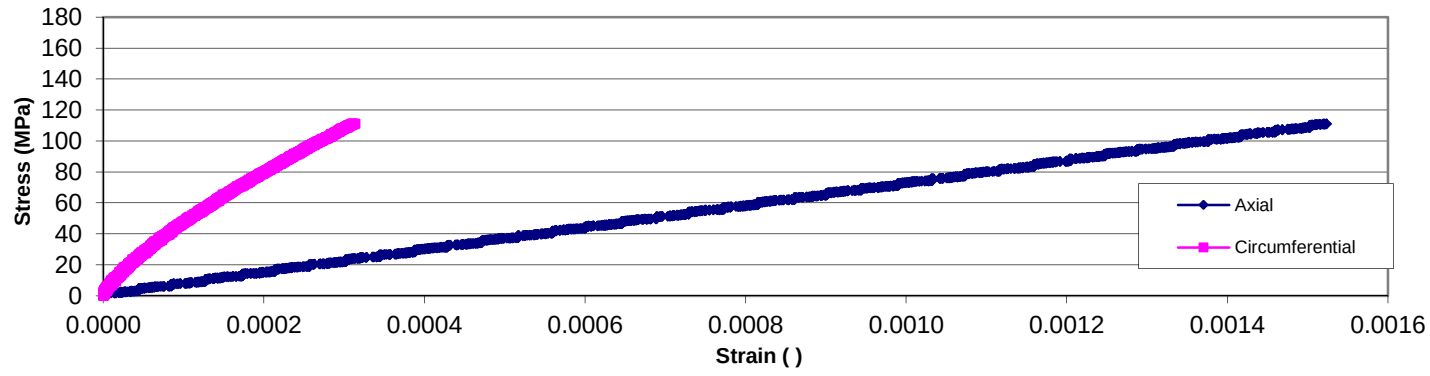


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.38	2863.4	176.34	2.9	484.2	169.1	24,519

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-02
Sample ID	UCS02-04
Depth From (m):	42.35
Depth To (m):	42.63
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**15.75**
Poisson Ratio, ν	**0.36**
Failure Mode:	**Shear**

Before Test

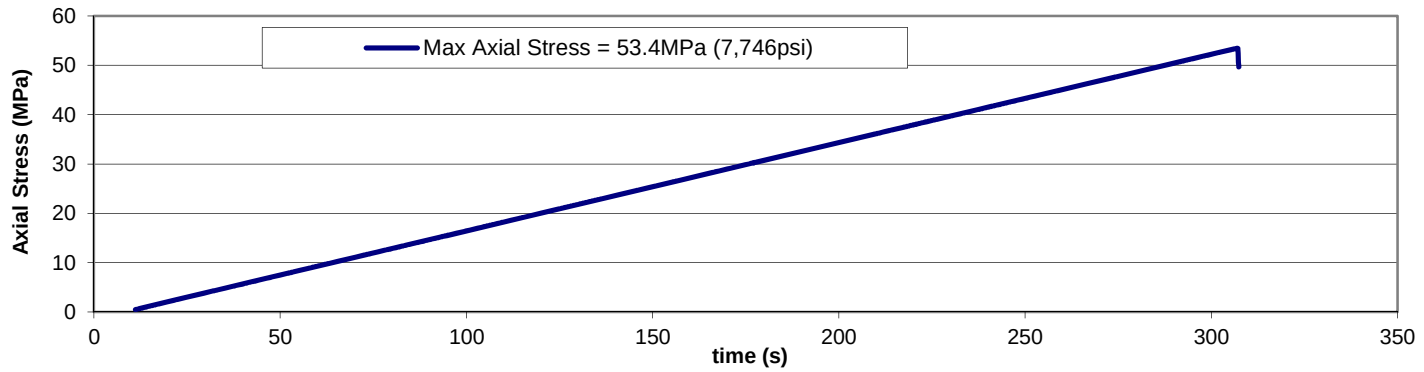


After Test

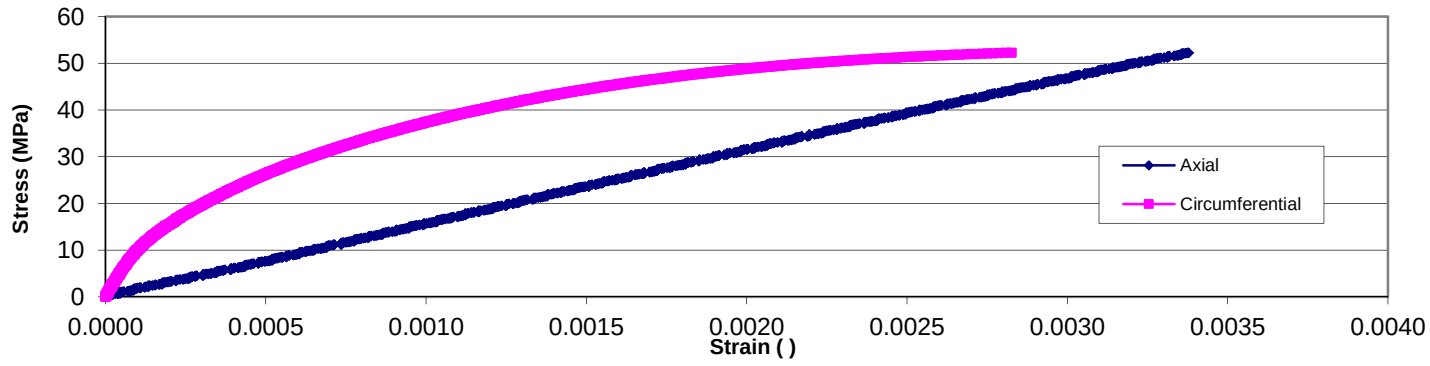


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.64	2793.6	135.85	2.3	149.2	53.4	7,746

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-02
Sample ID	UCS02-05
Depth From (m):	352.64
Depth To (m):	352.82
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**71.74**
Poisson Ratio, ν	**0.25**
Failure Mode:	**Shear**

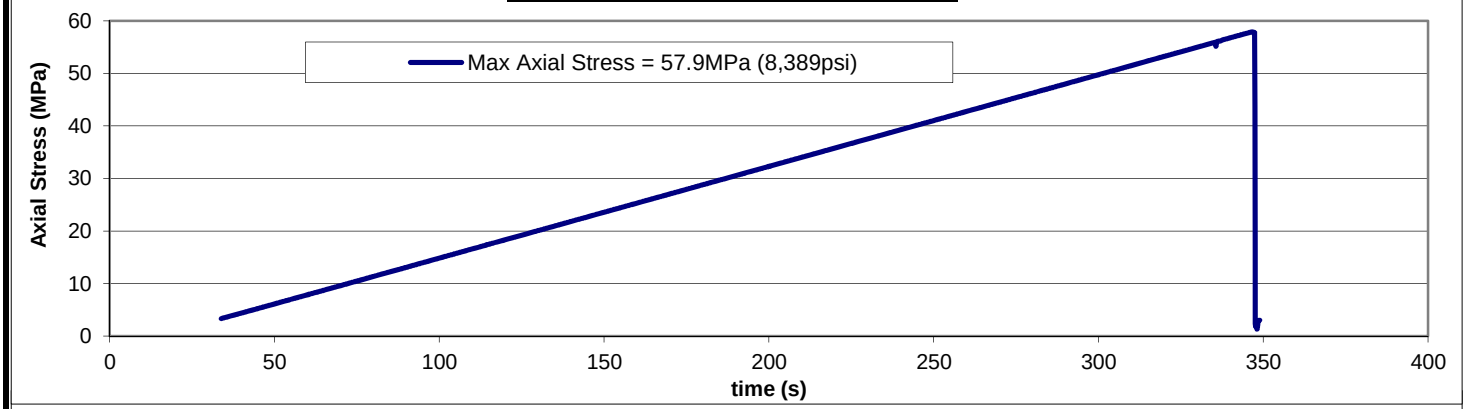
Before Test

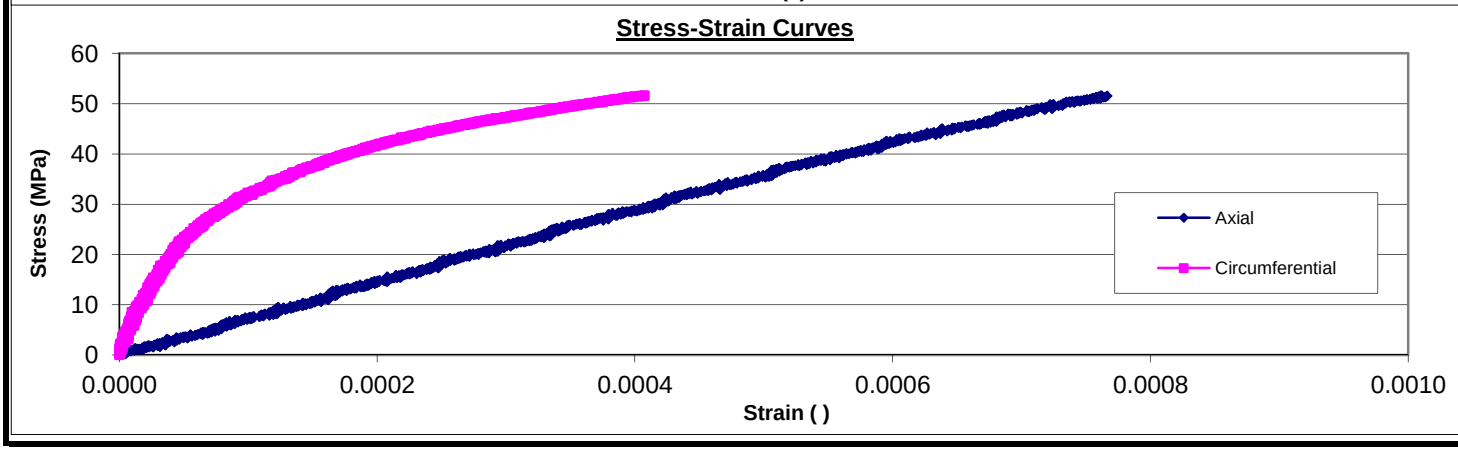


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.41	2866.2	150.49	2.5	165.8	57.9	8,389





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-02
Sample ID	UCS02-08
Depth From (m):	397
Depth To (m):	397.2
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**69.59**
Poisson Ratio, ν	**0.16**
Failure Mode:	**Shear**

Before Test

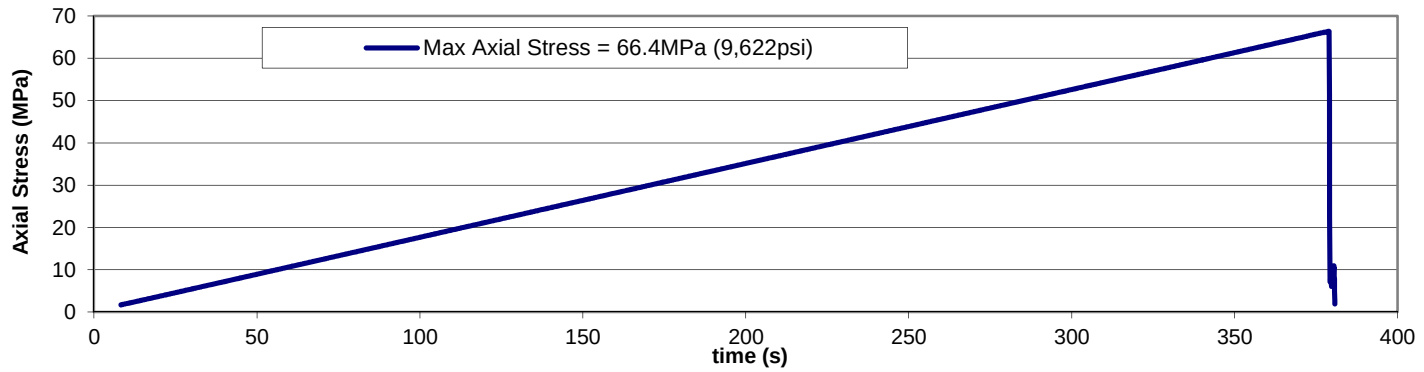


After Test

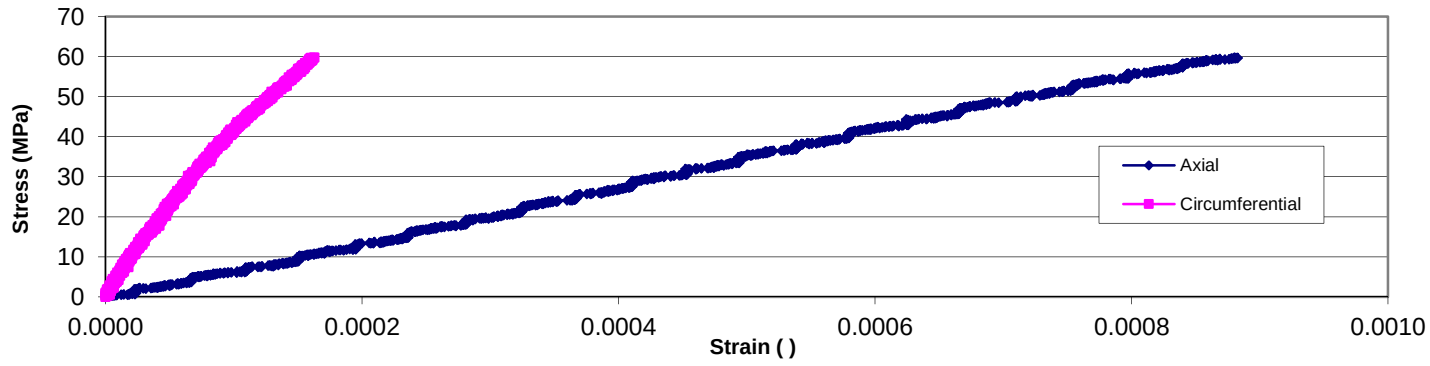


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.37	2862.4	153.85	2.5	189.9	66.4	9,622

Unconfined Compressive Strength Test



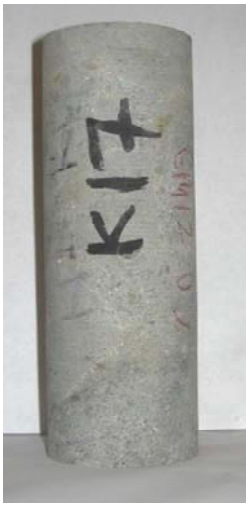
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-03
Sample ID	UCS03-01
Depth From (m):	60.75
Depth To (m):	61
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**17.13**
Poisson Ratio, ν	**0.17**
Failure Mode:	**Pre-existing Feature**

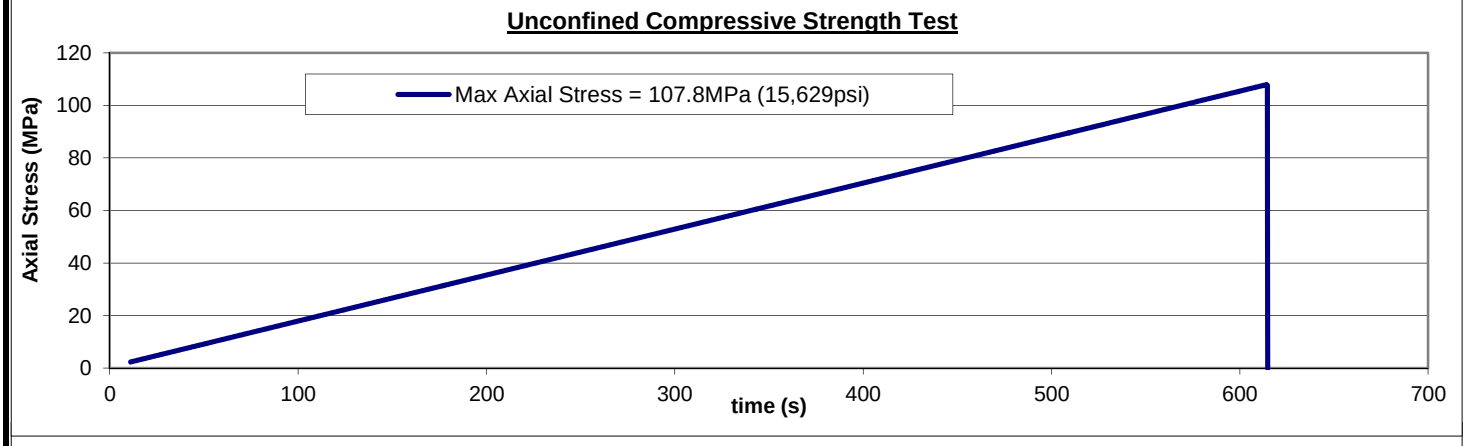
Before Test

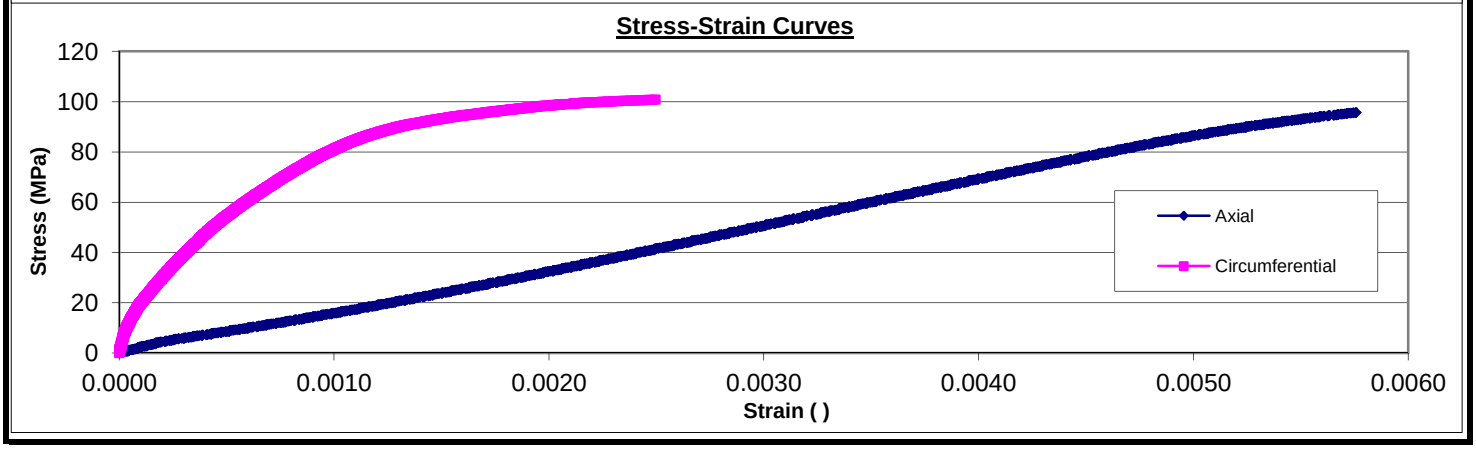


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.32	2857.7	181.35	3.0	308.0	107.8	15,629





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-03
Sample ID	UCS03-05
Depth From (m):	254.75
Depth To (m):	255.02
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**66.51**
Poisson Ratio, ν	**0.14**
Failure Mode:	**Pre-existing Feature**

Before Test

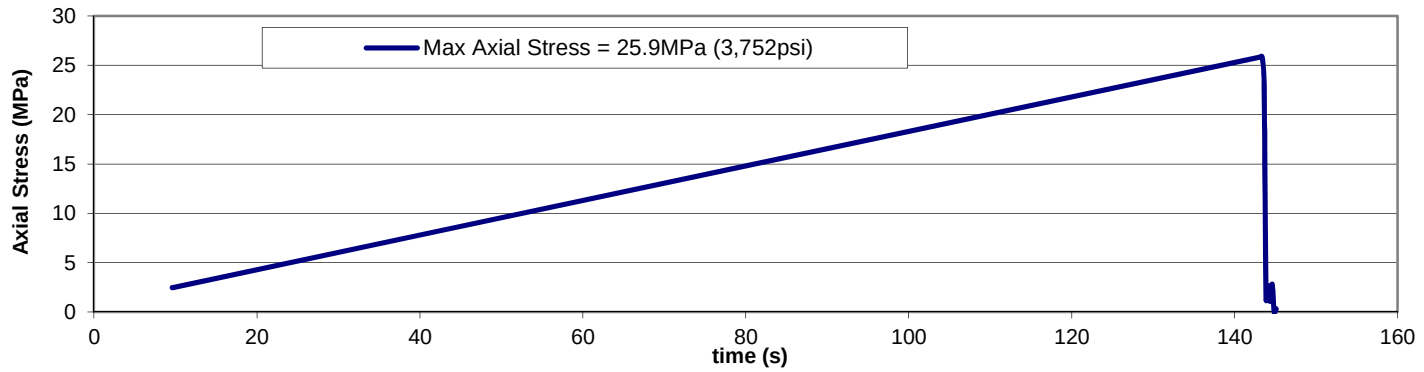


After Test

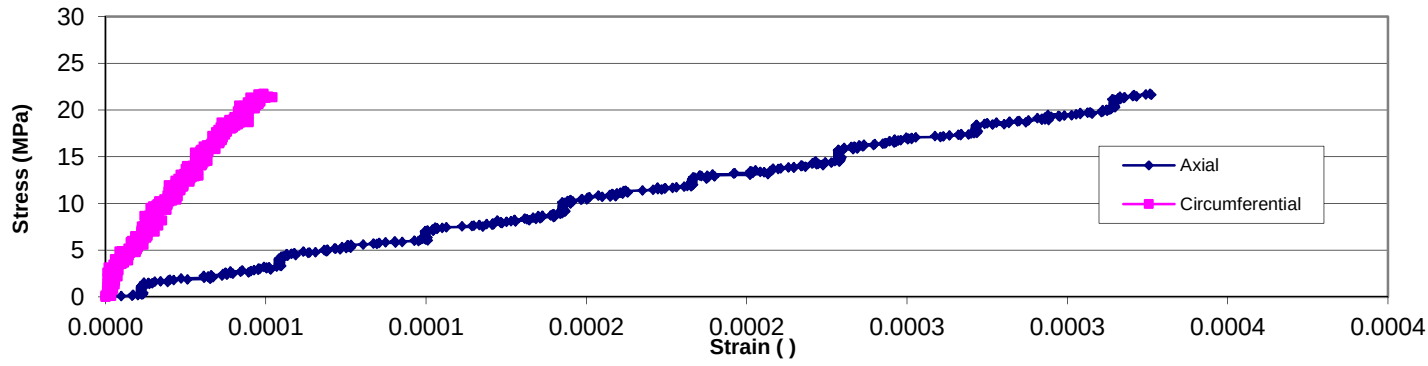


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.34	2859.6	177.95	2.9	74.0	25.9	3,752

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-05
Sample ID	UCS05-02
Depth From (m):	173.11
Depth To (m):	173.38
Lithology	Mafic Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**38.92**
Poisson Ratio, ν	**0.22**
Failure Mode:	**Shear**

Before Test

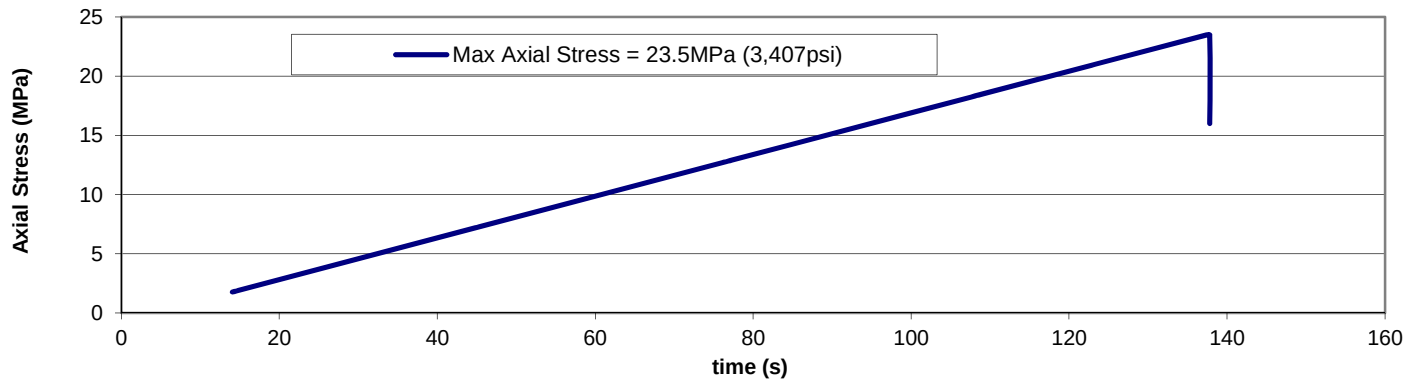


After Test

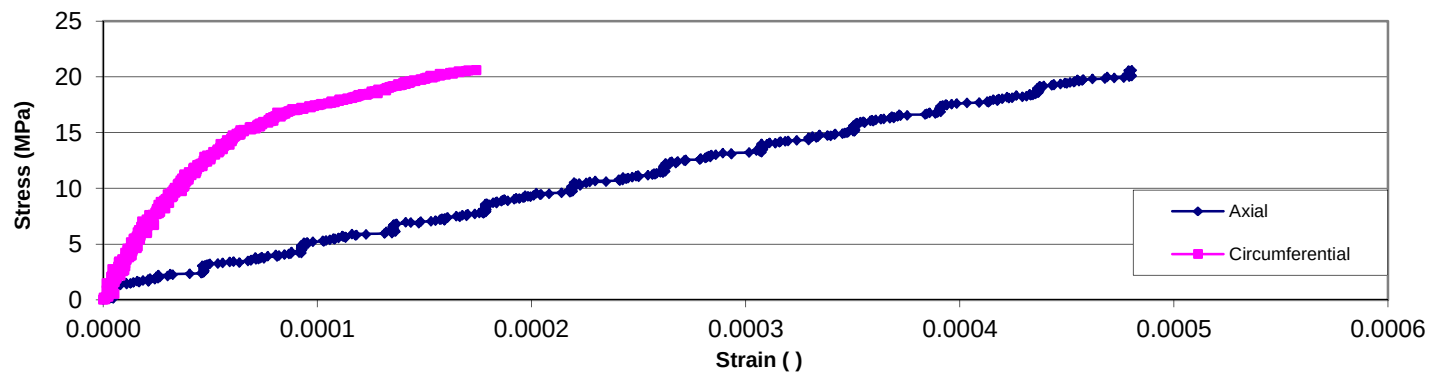


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.14	2840.6	178.58	3.0	66.7	23.5	3,407

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-05
Sample ID	UCS05-03
Depth From (m):	235.25
Depth To (m):	235.52
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**25.69**
Poisson Ratio, ν	**0.16**
Failure Mode:	**Shear**

Before Test

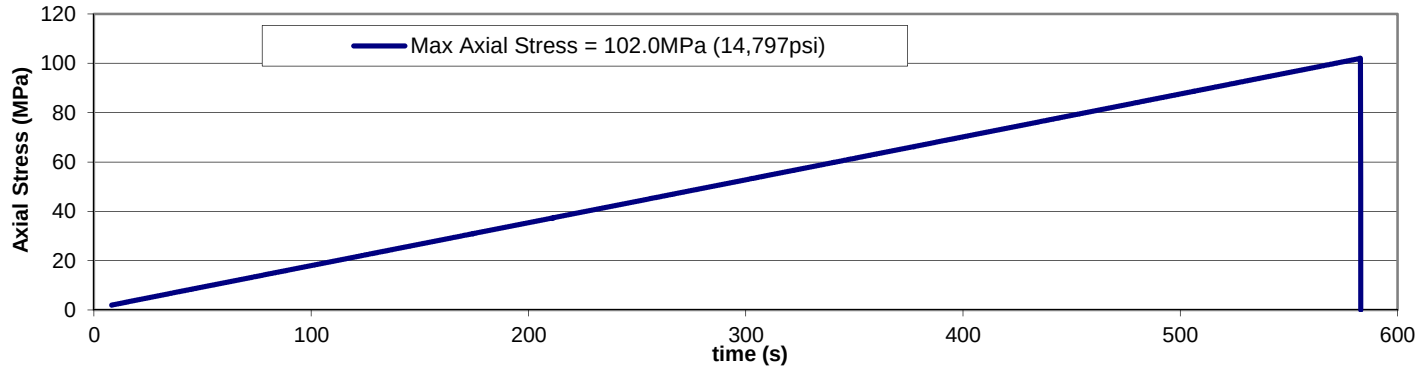


After Test

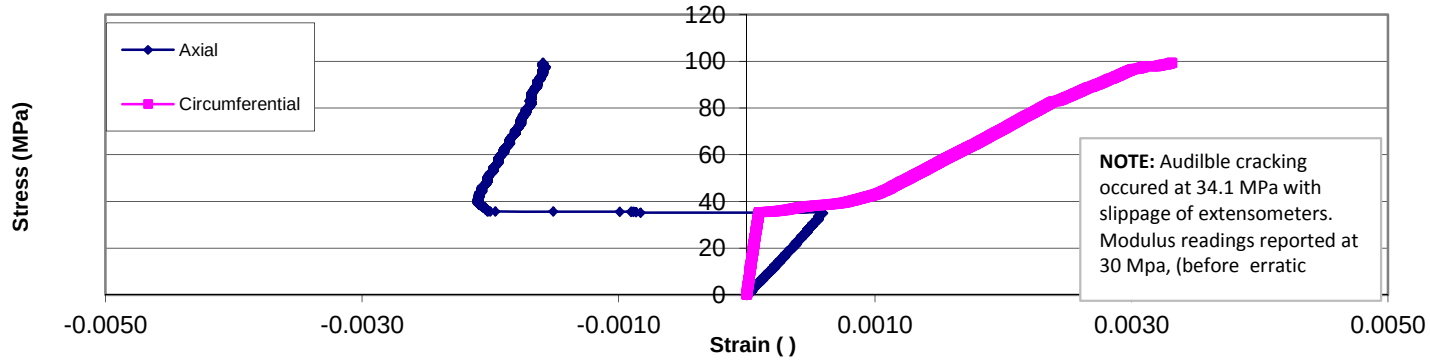


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.50	2874.8	181.04	3.0	293.4	102.0	14,797

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-05
Sample ID	UCS05-04
Depth From (m):	290.63
Depth To (m):	290.94
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**53.59**
Poisson Ratio, ν	**0.21**
Failure Mode:	**Pre-existing Feature**

Before Test

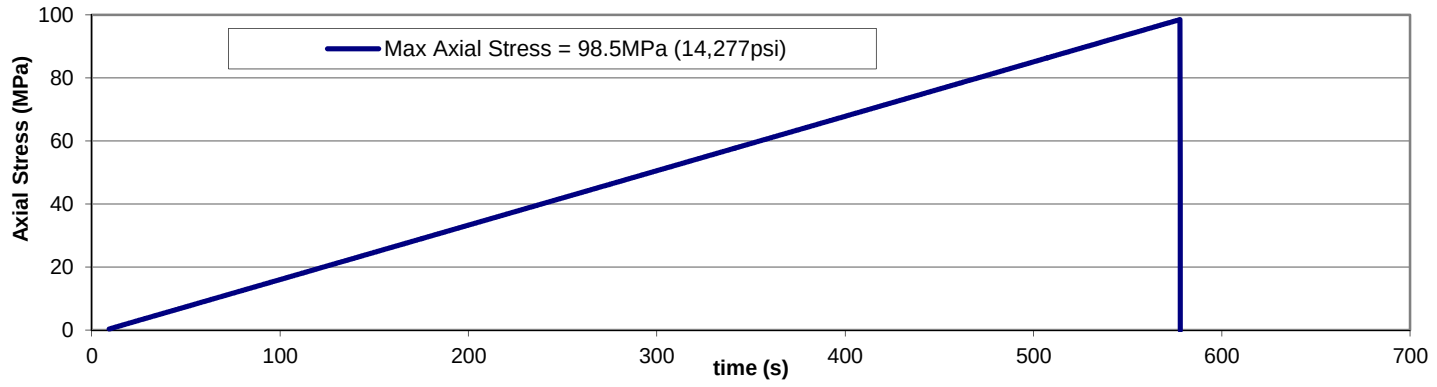


After Test

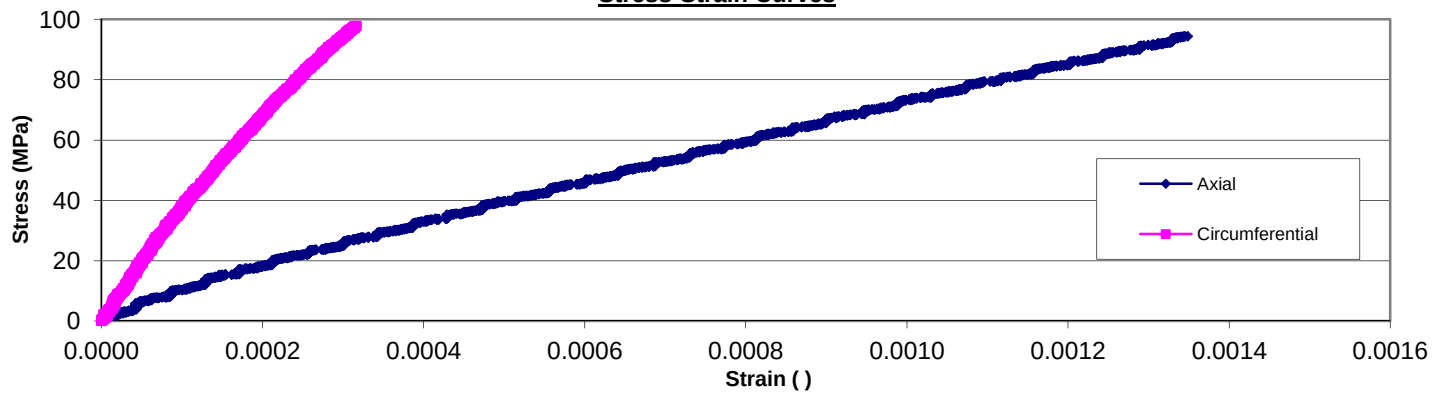


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.74	2897.6	180.73	3.0	285.3	98.5	14,277

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GM12-05
Sample ID	UCS05-05
Depth From (m):	339.74
Depth To (m):	339.94
Lithology	Mafic Intrusive
Tested By:	P.Hughes
Young Modulus, E (GPa)	**63.18**
Poisson Ratio, ν	**0.19**
Failure Mode:	**Shear**

Before Test

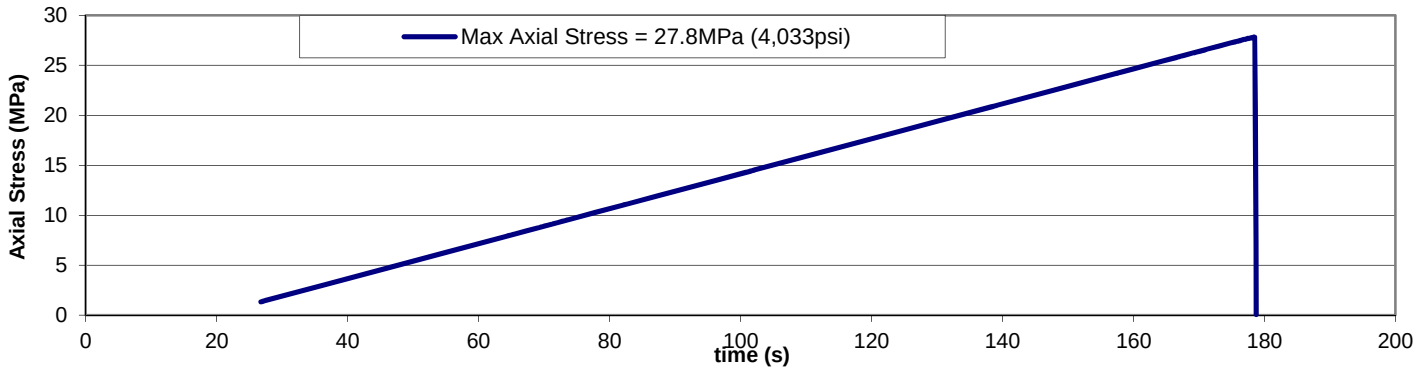


After Test

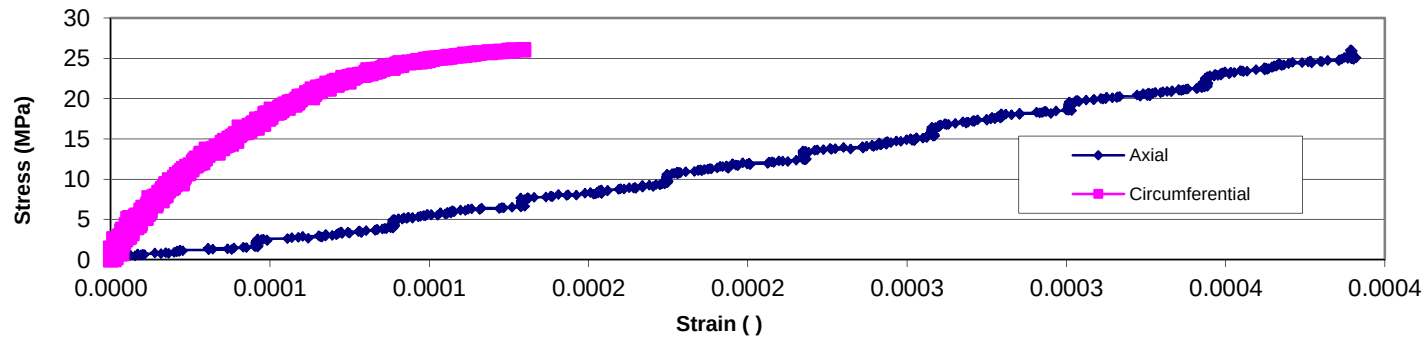


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.34	2859.6	185.53	3.1	79.5	27.8	4,033

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GT12-03
Sample ID	UCS 1
Depth From (m):	71.7
Depth To (m):	72.09
Lithology	Mafic Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**28.33**
Poisson Ratio, ν	**0.20**
Failure Mode:	**Shear**

Before Test

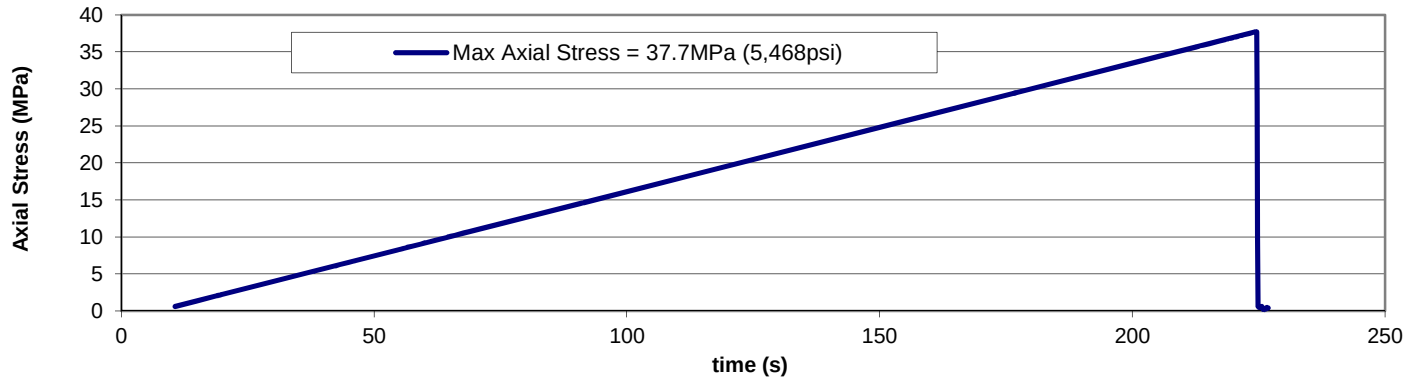


After Test

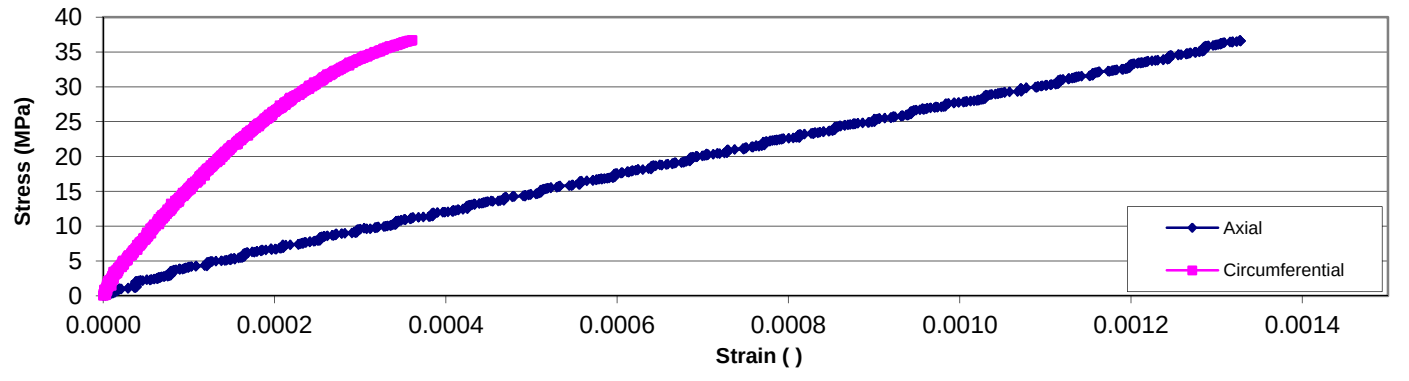


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.55	2879.5	159.55	2.6	108.6	37.7	5,468

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GT12-07
Sample ID	UCS 1
Depth From (m):	21.94
Depth To (m):	22.23
Lithology	Synvolcanic Felsic to Intermediate Intrusives
Tested By:	P.Hughes
Young Modulus, E (GPa)	**29.95**
Poisson Ratio, ν	**0.25**
Failure Mode:	**Shear**

Before Test

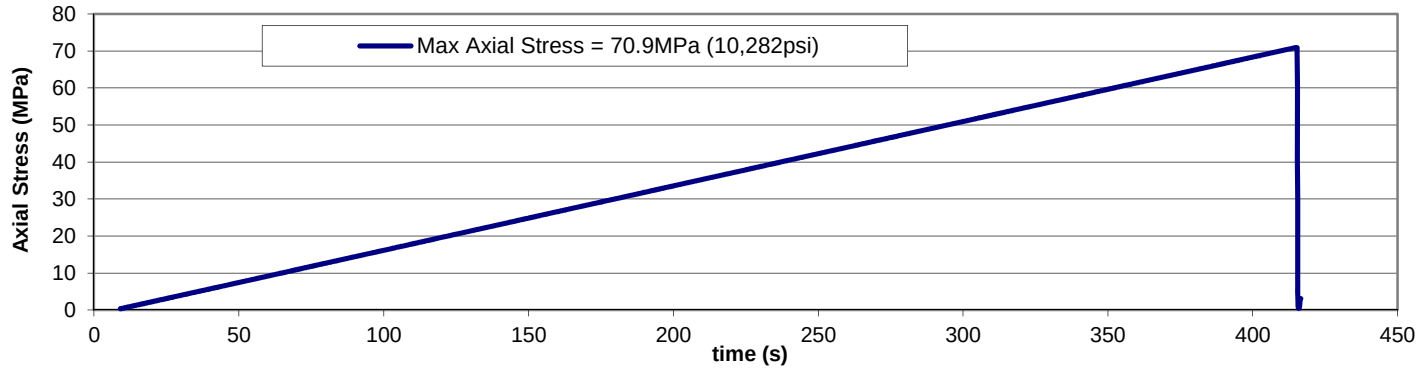


After Test

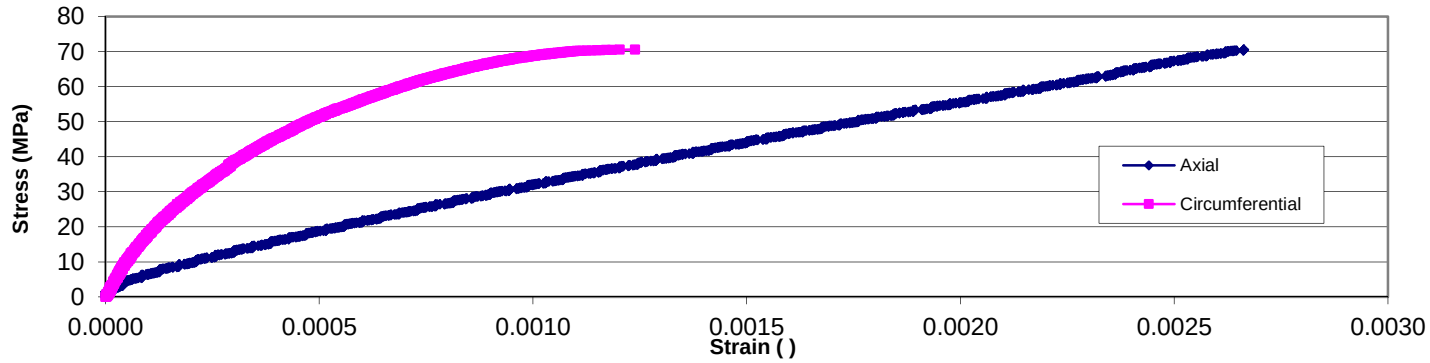


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.48	2872.9	178.93	3.0	203.7	70.9	10,282

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Borehole ID	GT12-07
Sample ID	UCS 2
Depth From (m):	32.48
Depth To (m):	32.99
Lithology	Intermediate Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**23.45**
Poisson Ratio, ν	**0.19**
Failure Mode:	**Shear**

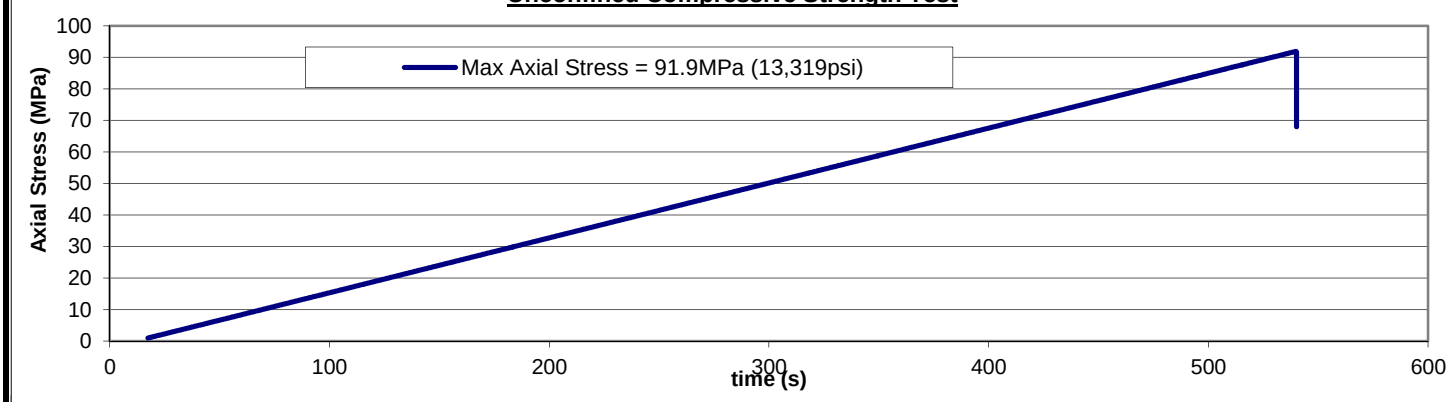
Before Test

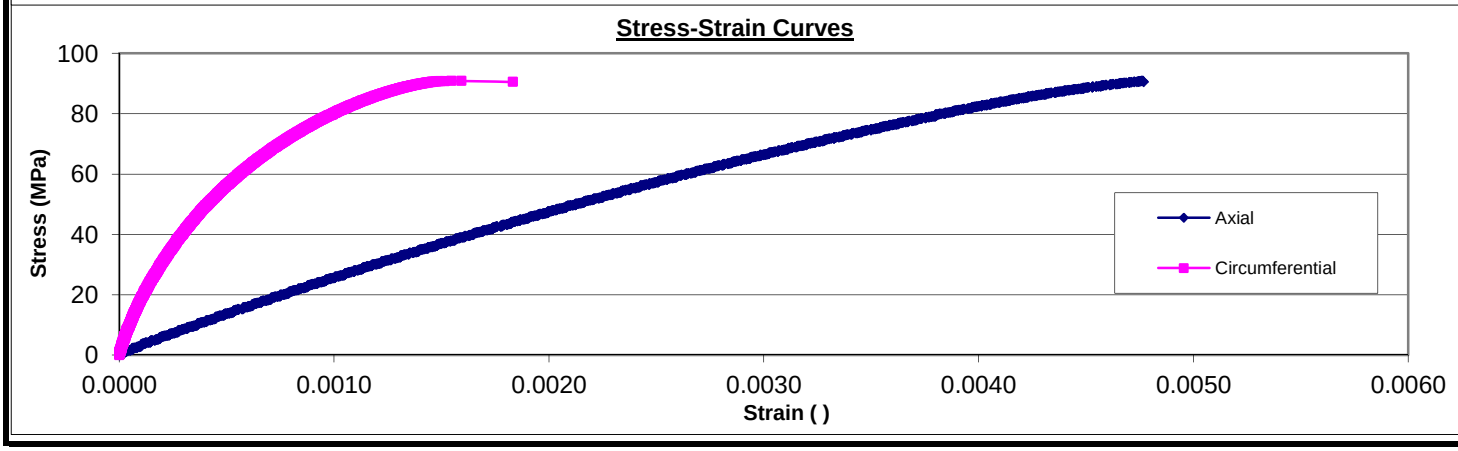


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.49	2873.8	181.34	3.0	264.0	91.9	13,319





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Sample:	GT12-08
Borhehole:	UCS 1
Depth (m):	3.72
Geological Unit:	4.04
Description:	Mafic Intrusive
Tested By:	P.Hughes
Young Modulus, E (GPa)	**67.44**
Poisson Ratio, ν	**0.25**
Failure Mode:	**Shear**

Before Test

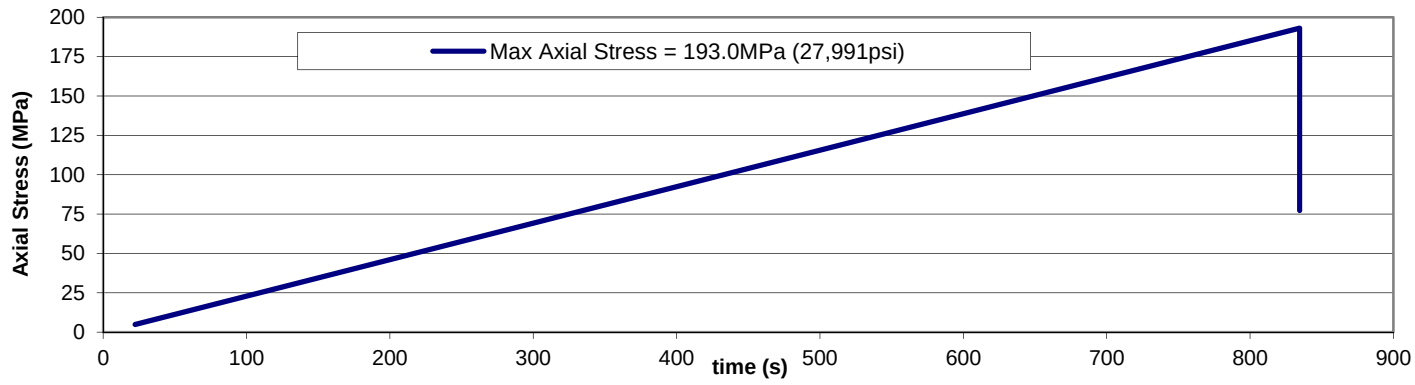


After Test

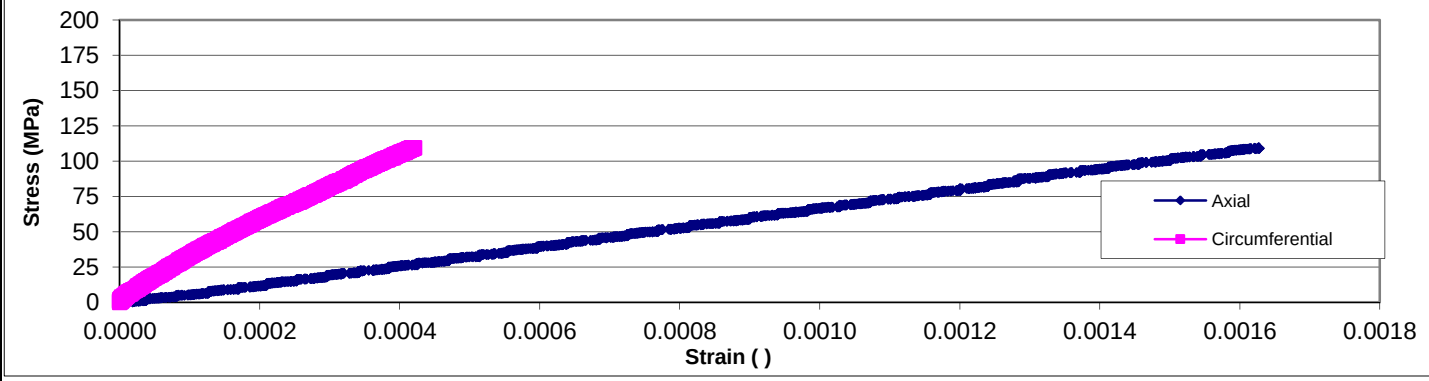


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.55	2879.5	181.96	3.0	555.9	193.0	27,991

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Sample:	GT12-08
Borhehole:	UCS 2
Depth (m):	27.28
Geological Unit:	27.70
Description:	Mafic Metavolcanics
Tested By:	P.Hughes
Young Modulus, E (GPa)	**62.28**
Poisson Ratio, ν	**0.22**
Failure Mode:	**Shear**

Before Test

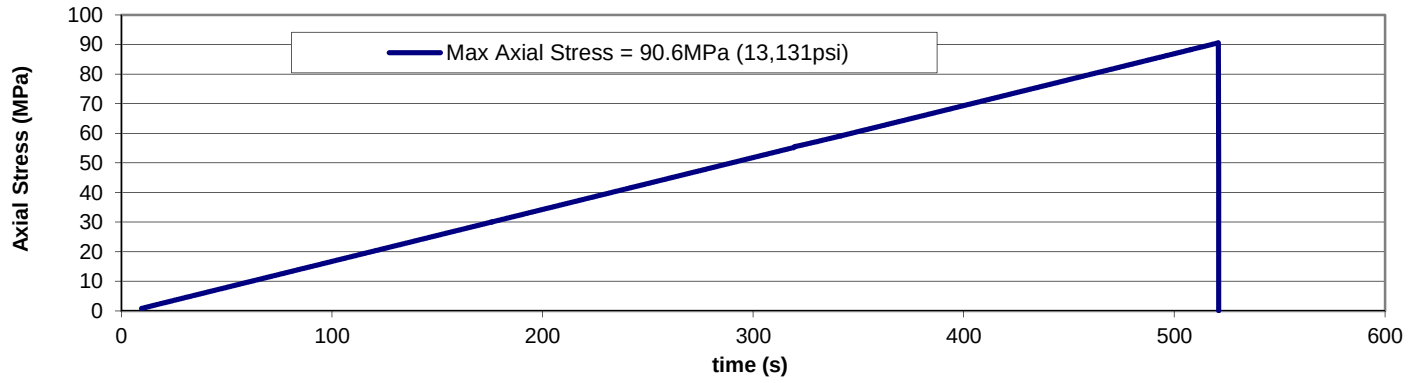


After Test

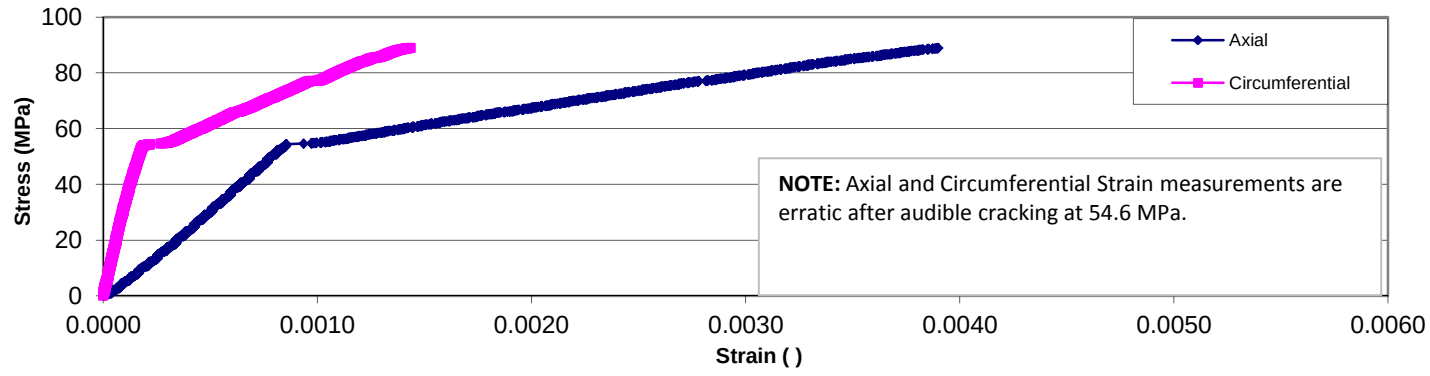


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.24	2850.1	179.62	3.0	258.1	90.6	13,131

Unconfined Compressive Strength Test



Stress-Strain Curves



13-KPL-01

ROCK STRENGTH LABORATORY REPORT

PREPARED FOR:
KNIGHT PIESOLD LTD.

PROJECT:
BLACKWATER GOLD PROJECT –
2012 OPEN PIT SITE INVESTIGATIONS

KNIGHT PIESOLD LTD. PROJECT # VA101-457/6

February 26, 2013

February 26, 2013 13-KPL-01

Knight Piésold Ltd.
750 West Pender Street
Vancouver, BC V6C 2T8

Attention: Ms. Josie Speed

RE: Rock Strength Laboratory Report for Blackwater Gold Project
- 2012 Open Pit Site Investigations

Testing Date: February, 2013

Tested by: Paul Hughes, P.Eng

Tested at: Norman B Keevil Institute of Mining Engineering,
University of British Columbia

Testing Program: Report contains results of fifty-two (52) UCS tests with elastic modulus readings, eight (8) point load tests, and eight (8) base friction direct shear tests.

Equipment: MTS Electro-Hydraulic Testing Machine, UBC Direct Shear Apparatus and RocTest digital Point Load tester.

Method: ISRM-1979 (UCS & Modulus); ISRM-1985 (Point Load) & ISRM ISRM-1974 (Direct Shear)

Comments:

The results of the testing of the fifty-two rock core samples for Unconfined Compressive Strength with elastic modulus, eight point load tests, and eight direct shear tests are presented within. The tests were performed per ISRM standard unless noted.

PB Hughes and Associates
1B-2775 Fir Street, Vancouver, British Columbia V6J 3C2
email phughes@mining.ubc.ca Phone: 604-626-9649

Comments (continued):

Samples were shipped to the laboratory and tested 'as-is'. No measurements were recorded to account for the effect of moisture content within the sample. Rock descriptions were provided by Knight Piésold Ltd.

UCS samples identified as competent were wet cut and tested per ISRM specifications. Samples were loaded with strain readings up to 420 kN. If sample strength exceeded 420 kN, strain gauges were removed and sample was loaded to failure.

Modulus results presented were prepared using data recorded by automated testing software. Calculations of strength and strain were performed in a spreadsheet. Reported modulus and Poisson`s ratio values were interpreted by calculating the slopes of the axial and circumferential strain vs. strain data using a 100 data point average around the 50% of the failure load.

Samples GM12-09/UCS#3/278.5-278.7 m & GM12-13/FM-1/146.55-146.80 m were scheduled for UCS with elastic modulus readings but failed during sample preparation due to the poor competency of the samples.

In cases where sample UCS strength exceeded the 420 kN (nominal 140 MPa stress) limit of the strain gauges, the gauges were removed and the sample was loaded until failure.

Table 1 summarizes the samples that exceeded the 420 kN limit of the strain gauges. The Elastic Modulus and Poisson`s ratio values reported are valid as the 50% of failure load point was within the strain gauge measurement range.

Comments (continued):

Note that samples GM12-07/UCS07-05/339.98-340.20 m; GM12-11/UCS#4/220.50-220.68 m; BWWR13/UCS 2/157.07-157.50 m exceeded the load tolerances of the MTS system. Value reported for these samples is the maximum axial stress sample experienced by the sample. Modulus values are calculated at the 50% value of the maximum axial stress.

Direct Shear test BWWR13/UCS 5 was performed to ISRM standards; however, from experience, the calculated values are considered low for the rock type and surface conditions of the sample. It is recommended that the value reported should be confirmed with an additional test on the same rock type before the value is used in analysis.

Point Load tests were completed per ISRM standards; when a sample failed along foliation, it is noted in the summary table.

Tested samples will be stored at the laboratory for 60 days. Knight Piésold is to make arrangements to collect the samples. Samples will be disposed of after the 60 day period.

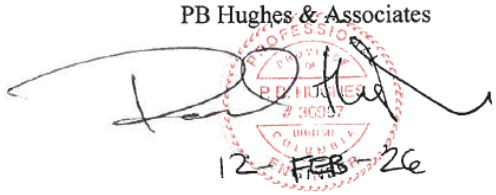
The test results reported are of an experimental and exploratory nature. No particular results can be guaranteed or considered representative of the rock mass as a whole. The use of the values reported must be considered with respect to the rock and rock mass in its entirety and the conditions present at site. Application of the test results provided is subject to judgment of a Professional Engineer. Worksheets and data files are available upon request

Table 1: Summary of Samples that exceeded the strain gauge maximum load of 420kN

Hole ID	Sample ID	Depth (m)
GM12-06	UCS#2	136.00 - 136.26
GM12-08	UCS 08-02	159.69 - 159.89
GM12-06	UCS#3	201.17 - 201.53
GM12-10	UCS10-01	60.45 - 60.64
GM12-10	UCS10-02	107.34 - 107.54
GM12-10	UCS10-03	175.04 - 175.28
GM12-10	UCS10-04	223.27 - 223.50
GM12-10	UCS10-05	266.55 - 266.75
GM12-10	UCS12-06	277.50 - 277.70
GM12-11	UCS#3	197.20 - 197.50
GM12-11	UCS#4	220.50 - 220.68
GM12-06	UCS06-01	237.60 - 237.90
GM12-12	UCS#2	137.65 - 137.97
GM12-12	UCS#3	190.95 - 191.15
GM12-13	UCS 7	353.32 - 353.71
BWWR12	UCS #3	150.40 - 150.90
BWWR12	UCS #3	203.05 - 203.34
BWWR13	UCS 1	77.10 - 77.36
BWWR13	UCS 2	157.07 - 157.50
BWWR13	UCS#4	221.46 - 221.84
GM12-06	UCS#6	324.45 - 324.75
BWWR13	UCS#6	340.50 - 341.04
BWWR14	UCS #2	150.30 - 150.67
GM12-07	UCS 07-01	46.19 - 46.37
GM12-07	UCS 07-05	339.95 - 340.20

In closing, if there are any questions or comments with regards to this project, please do not hesitate to contact the undersigned.

PB Hughes & Associates



12 FEB 26

Paul Hughes, P.Eng, M.A.Sc

"This document represents an electronic version of the original hard copy document, sealed, signed and dated by Paul Hughes, P.Eng and retained on file. The content of the electronically transmitted document can be confirmed by referring to the original hard copy and filed."

Summary

Unconfined Compressive Strength with Elastic Modulus Test Results

Hole ID	Sample ID	Depth (m)	Lithology	Height H (mm)	Diameter d (mm)	Ratio H/d	UCS (MPa)	UCS (psi)	Young Modulus E (GPa)	Poisson Ratio ν ( )
GM12-06	UCS#2	136.00 - 136.26	Andesite	124.78	60.65	2.06	204.5	29654	53.86	0.200
GM12-06	UCS#3	201.17 - 201.53	Andesite	168.25	60.68	2.77	181.1	26257	67.21	0.199
GM12-06	UCS06-01	237.60 - 237.90	Andesite	172.80	60.68	2.85	200.6	29088	59.77	0.225
GM12-06	UCS#5	282.59 - 282.89	Andesite	167.03	60.86	2.74	110.9	16083	63.54	0.152
GM12-06	UCS#6	324.45 - 324.75	Andesite	168.60	60.77	2.77	275.8	39986	58.96	0.238
GM12-07	UCS 07-01	46.19 - 46.37	Volcaniclastic	156.85	60.65	2.59	157.8	22885	32.62	0.159
GM12-07	UCS 07-02	91.16 - 91.42	Volcaniclastic	172.23	60.67	2.84	103.3	14972	47.12	0.226
GM12-07	UCS 07-04	264.18 - 264.52	Andesite	168.63	60.37	2.79	68.9	9994	57.03	0.180
GM12-07	UCS 07-05	339.95 - 340.20	Andesite	167.44	60.72	2.76	276.14*	40,040*	69.34	0.224
GM12-07	FM 07-01	202.95 - 203.15	Andesite	165.22	60.77	2.72	1.2	167	0.19	0.349
GM12-08	UCS 08-02	159.69 - 159.89	Volcaniclastic	164.06	60.65	2.71	209.0	30299	54.45	0.186
GM12-08	UCS 08-05	306.00 - 306.23	Volcaniclastic	168.83	60.33	2.80	109.3	15854	52.54	0.289
GM12-08	UCS 08-06	357.91 - 358.12	Andesite	174.82	60.52	2.89	63.7	9231	59.63	0.216
GM12-08	UCS Sample	399.34 - 399.60	Andesite	168.34	60.38	2.79	98.2	14241	62.22	0.238
GM12-09	UCS 09-01	95.40 - 95.80	Volcaniclastic	166.34	60.35	2.76	132.1	19148	45.60	0.183
GM12-09	UCS#2	232.30 - 232.50	Andesite	158.98	60.33	2.64	25.3	3663	36.38	0.056
GM12-09	UCS#4	316.68 - 317.04	Andesite	171.19	60.06	2.85	44.2	6403	50.20	0.134
GM12-09	UCS#5	375.45 - 375.72	Andesite	105.33	59.65	1.77	73.8	10700	70.29	0.165
GM12-10	UCS10-01	60.45 - 60.64	Volcaniclastic	164.76	60.66	2.72	186.0	26964	45.94	0.180
GM12-10	UCS10-02	107.34 - 107.54	Volcaniclastic	166.22	60.62	2.74	215.0	31174	58.35	0.174
GM12-10	UCS10-03	175.04 - 175.28	Volcaniclastic	169.12	60.63	2.79	173.0	25090	63.78	0.195

* Note: Sample GM12-07/UCS07-05/339.98-340.20 m exceeded the load tolerances of the MTS system. Value reported is the maximum axial stress sample experienced by the sample. Modulus values are calculated at the 50% value of the maximum axial stress. Sample GM12-09/UCS#5/ 375.45-375.72 is below the recommended minimum height to diameter ration of 2.0, value report may not be representative of the ISRM UCS Standard.

Unconfined Compressive Strength with Elastic Modulus Test Results (continued)

Hole ID	Sample ID	Depth (m)	Lithology	Height H (mm)	Diameter d (mm)	Ratio H/d	UCS (MPa)	UCS (psi)	Young Modulus E (GPa)	Poisson Ratio ν ( )
GM12-10	UCS10-04	223.27 - 223.50	Volcaniclastic	167.99	60.97	2.76	172.4	24998	68.91	0.225
GM12-10	UCS10-05	266.55 - 266.75	Volcaniclastic	167.08	60.86	2.75	179.9	26083	68.89	0.183
GM12-10	UCS12-06	277.50 - 277.70	Volcaniclastic	167.36	60.63	2.76	227.1	32924	66.47	0.142
GM12-11	UCS#3	197.20 - 197.50	Volcaniclastic	172.97	61.22	2.83	218.5	31675	61.50	0.165
GM12-11	UCS#4	220.50 - 220.68	Volcaniclastic	155.03	60.63	2.56	277.08*	40,177*	83.74	0.211
GM12-12	UCS#1	21.12 - 21.48	Volcaniclastic	172.78	61.08	2.83	1.3	195	0.28	0.441
GM12-12	UCS#2	118.80 - 119.00	Andesite	124.84	63.00	1.98	25.2	3648	13.38	0.123
GM12-12	UCS#2	137.65 - 137.97	Andesite	168.18	60.73	2.77	219.7	31863	78.23	0.183
GM12-12	UCS#3	190.95 - 191.15	Andesite	169.76	60.42	2.81	266.9	38703	66.65	0.244
GM12-12	UCS#4	261.42 - 261.70	Andesite	168.18	60.73	2.77	84.8	12292	67.76	0.182
GM12-12	UCS#5	345.15 - 345.48	Andesite	170.31	60.38	2.82	111.2	16121	69.86	0.225
GM12-13	UCS-1	190.24 - 190.50	Andesite	168.94	60.52	2.79	46.8	6788	50.06	0.108
GM12-13	UCS-2	213.82 - 214.12	Andesite	165.88	60.69	2.73	20.2	2934	46.34	0.150
GM12-13	UCS-3	241.50 - 241.81	Andesite	168.06	60.46	2.78	45.7	6626	41.34	0.396
GM12-13	UCS-5	273.92 - 274.25	Andesite	169.99	60.47	2.81	114.5	16604	60.75	0.195
GM12-13	UCS-6	339.37 - 339.63	Andesite	169.35	60.53	2.80	117.0	16965	61.17	0.122
GM12-13	UCS 7	353.32 - 353.71	Andesite	169.36	60.57	2.80	189.4	27468	75.00	0.264
GM12-13	UCS13-01	21.80 - 22.00	Andesite	169.91	60.83	2.79	132.1	19159	41.69	0.192
BWWR12	UCS #1	102.47 - 102.80	Volcaniclastic	168.92	59.24	2.85	152.3	22087	78.79	0.211
BWWR12	UCS #3	150.40 - 150.90	Volcaniclastic	170.28	59.00	2.89	193.2	28014	81.85	0.216
BWWR12	UCS #3	203.05 - 203.34	Volcaniclastic	171.09	60.28	2.84	255.9	37099	81.99	0.193
BWWR12	UCS #4	249.00 - 249.25	Volcaniclastic	169.08	60.57	2.79	102.2	14814	62.68	0.105

* Note: Sample GM12-11/UCS#4/220.50-220.68 m exceeded the load tolerances of the MTS system. Value reported is the maximum axial stress sample experienced by the sample. Modulus values are calculated at the 50% value of the maximum axial stress. Sample GM12-12/UCS#2/ 118.80-119.00 m is below the recommended minimum height to diameter ration of 2.0, value report may not be representative of the ISRM UCS Standard.

Unconfined Compressive Strength with Elastic Modulus Test Results (continued)

Hole ID	Sample ID	Depth (m)	Lithology	Height H (mm)	Diameter d (mm)	Ratio H/d	UCS (MPa)	UCS (psi)	Young Modulus E (GPa)	Poisson Ratio ν ( )
BWWR12	UCS #5	296.62 - 296.98	Dacite/Latite Porphyry	172.85	60.33	2.87	85.8	12442	24.14	0.197
BWWR13	UCS 1	77.10 - 77.36	Felsic Lapilli Tuff	168.91	61.01	2.77	273.52*	39,661*	68.18	0.142
BWWR13	UCS 2	157.07 - 157.50	Conglomerate	172.62	60.28	2.86	181.1	26259	71.97	0.229
BWWR13	UCS#4	221.46 - 221.84	Conglomerate	170.85	60.53	2.82	205.7	29827	81.46	0.229
BWWR13	UCS#5	333.90 - 334.24	Conglomerate	169.94	60.67	2.80	114.2	16554	88.44	0.182
BWWR13	UCS#6	340.50 - 341.04	Conglomerate	167.68	60.66	2.76	214.0	31027	89.35	0.175
BWWR14	UCS #1	99.00 - 100.50	Volcaniclastic	158.76	60.47	2.63	98.4	14263	66.68	0.144
BWWR14	UCS #2	150.30 - 150.67	Volcaniclastic	170.36	60.72	2.81	207.5	30090	72.76	0.251
BWWR14	UCS #4	249.84 - 250.04	Volcaniclastic	167.20	60.58	2.76	34.9	5062	13.73	0.431

* Note: Sample BWWR13/UCS 2/157.07-157.50 m exceeded the load tolerances of the MTS system. Value reported is the maximum axial stress sample experienced by the sample. Modulus values are calculated at the 50% value of the maximum axial stress

Direct Shear Test Results

Hole ID	Sample ID	Depth (m)	Lithology	Test Type	Peak Friction Angle	Residual Friction Angle
GM12-06	UCS#1	78.60 - 78.90	Felsic Tuff	Base Friction	29.0	28.3
GM12-07	UCS 07-03	147.23 - 147.47	Andesite	Base Friction	31.1	30.4
GM12-08	UCS 08-03	286.03 - 286.24	Felsic Lapilli Tuff	Base Friction	32.0	29.6
GM12-13	UCS-4	263.50 - 263.91	Andesite	Base Friction	34.3	34.0
BWWR13	UCS 3	207.00 - 207.43	Sediment	Base Friction	17.0	7.7
BWWR14	UCS #3	195.65 - 195.95	Volcaniclastic	Base Friction	23.0	23.0
GM12-07	CS 07-01	187.50 - 187.80	Andesite	Base Friction	23.4	18.0
GM12-07	CS 07-02	294.09 - 294.32	Andesite	Base Friction	31.1	27.3

Point Load Test Results

Hole ID	Sample ID	Depth (m)	Lithology	Test (D/A)	Diameter (mm)	D_e (mm)	Failure Load (lb-f)	Failure Load (kN)	I_s (Mpa)	F	Is_{50} (Mpa)
GM12-07	PLT 07-01	28.01 - 28.06	Felsic Tuff	D	60.74	60.74	1499	6.67	1.81	1.09	1.97
GM12-07	PLT 07-02	30.21 - 30.27	Felsic Tuff	D	60.31	60.31	3942	17.53	4.82	1.09	5.25
GM12-07	PLT 07-03	43.61 - 43.67	Volcaniclastic	D	60.40	60.40	5184	23.06	6.32	1.09	6.88
GM12-07	PLT 07-04	45.70 - 45.77	Volcaniclastic	D	60.71	60.71	5967	26.54	7.20	1.09	7.86
GM12-09	PLT #1	19.88 - 20.00	Felsic Lapilli Tuff	D	63.02	63.02	5886	26.18	6.59	1.11	7.32
BWWR13	PLT #1	246.50 - 246.60	Sediment	D	60.60	60.60	3780	16.81	4.58	1.09	4.99
BWWR13	PLT #2	258.90 - 259.02	Sediment	D	60.74	60.74	6183	27.50	7.45	1.09	8.14
BWWR13	PLT #3	256.40 - 256.50	Sediment	D	60.48	60.48	3267	14.53	3.97	1.09	4.33

ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-06
Sample ID:	UCS#2
Depth (m)	136.00 - 136.26
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**53.86**
Poisson Ratio, ν:	**0.20**
Failure Mode:	**Shear**

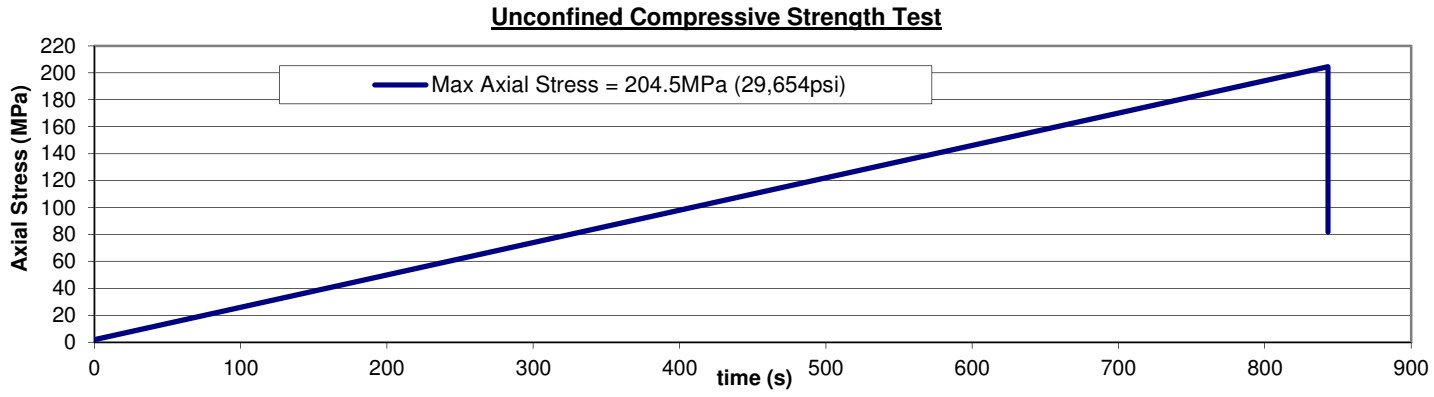
Before Test

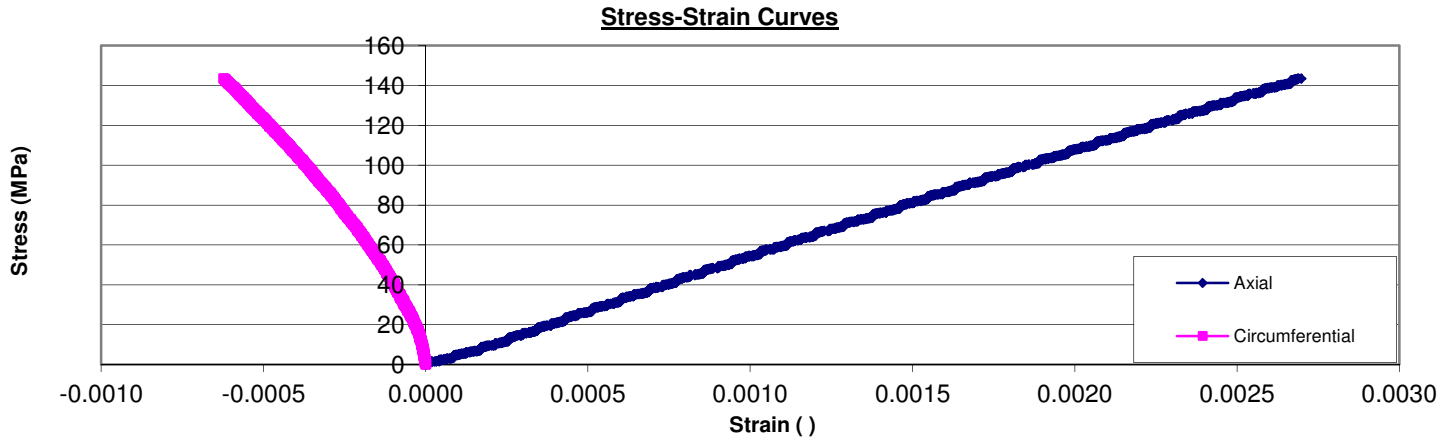


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.65	2889.0	124.78	2.1	590.8	204.5	29,654





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-06
Sample ID:	UCS#3
Depth (m)	201.17 - 201.53
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**67.21**
Poisson Ratio, ν:	**0.20**
Failure Mode:	**Along discontinuity**

Before Test

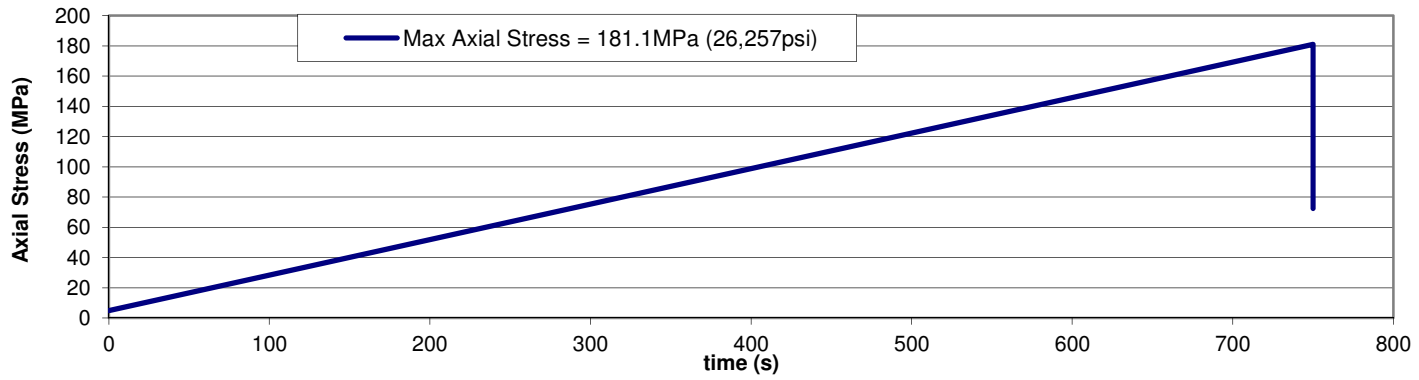


After Test

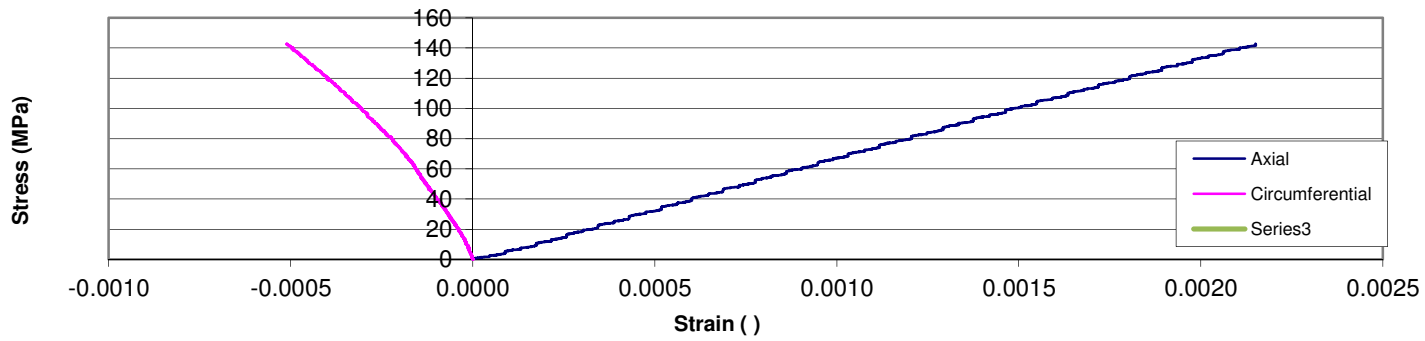


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.68	2891.9	168.25	2.8	523.7	181.1	26,257

Unconfined Compressive Strength Test



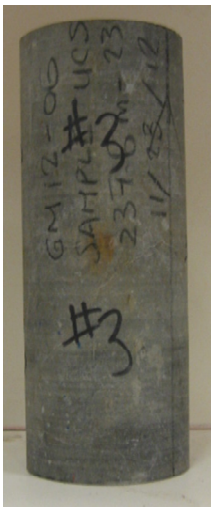
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-06
Sample ID:	UCS06-01
Depth (m)	237.60 - 237.90
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**59.77**
Poisson Ratio, ν:	**0.22**
Failure Mode:	**Shear**

Before Test

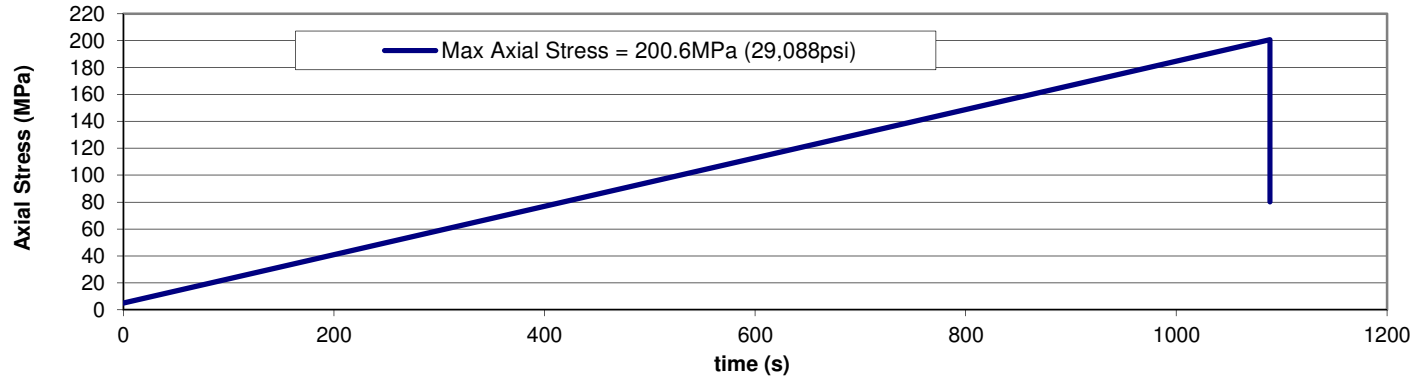


After Test

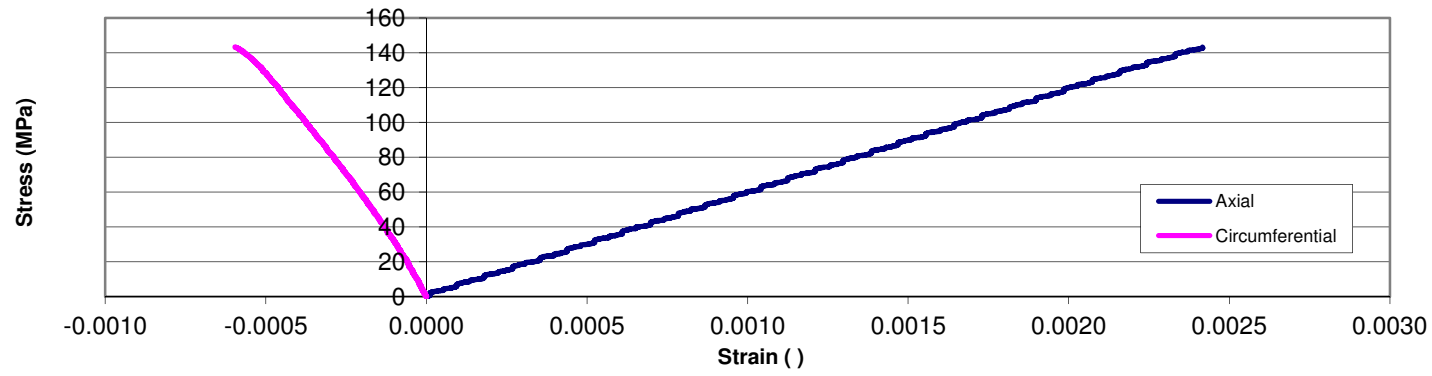


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.68	2891.9	172.80	2.8	580.1	200.6	29,088

Unconfined Compressive Strength Test



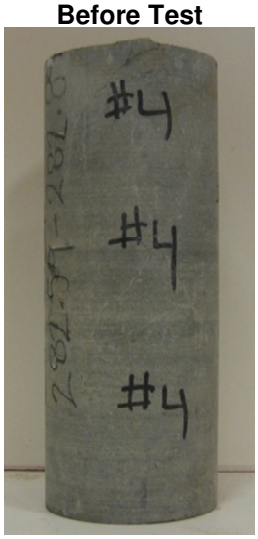
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-06
Sample ID:	UCS#5
Depth (m)	282.59 - 282.89
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**63.54**
Poisson Ratio, ν:	**0.15**
Failure Mode:	**Shear**

Before Test

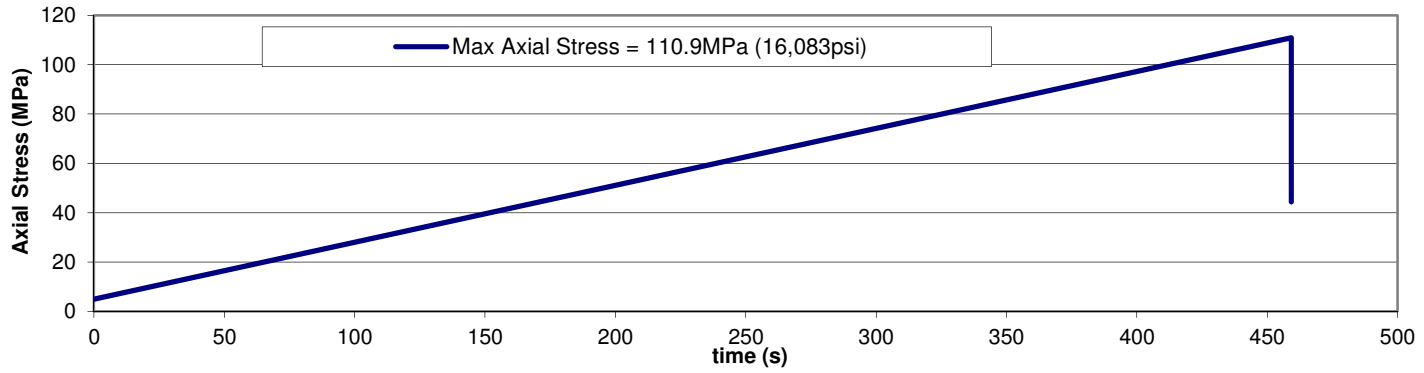


After Test

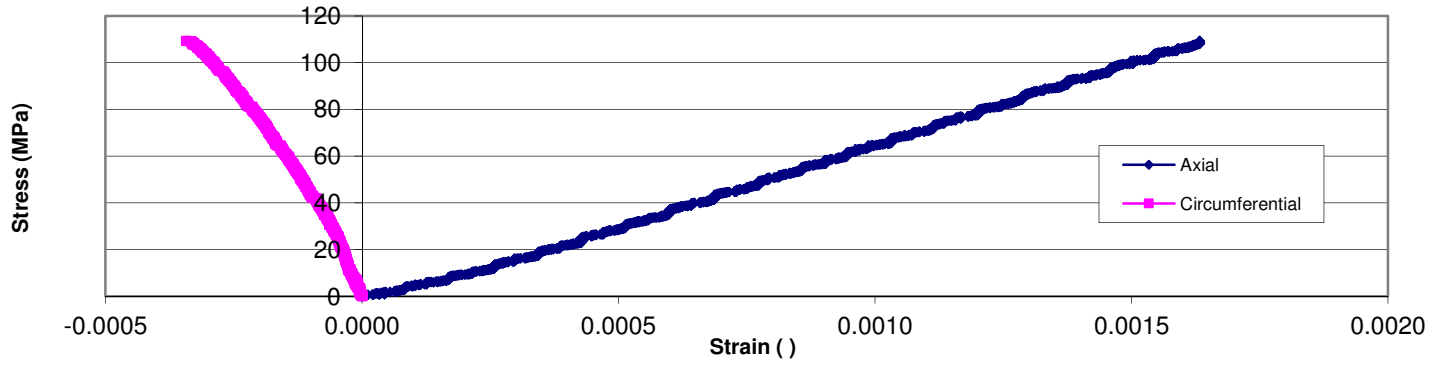


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.86	2909.1	167.03	2.7	322.7	110.9	16,083

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-06
Sample ID:	UCS#6
Depth (m)	324.45 - 324.75
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**58.96**
Poisson Ratio, ν:	**0.24**
Failure Mode:	**Shear**

Before Test

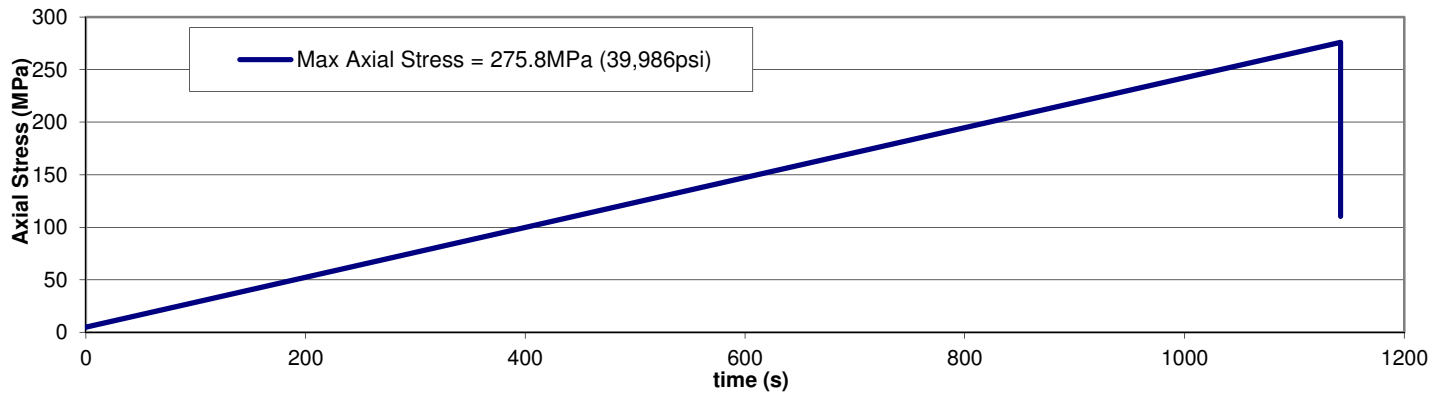


After Test

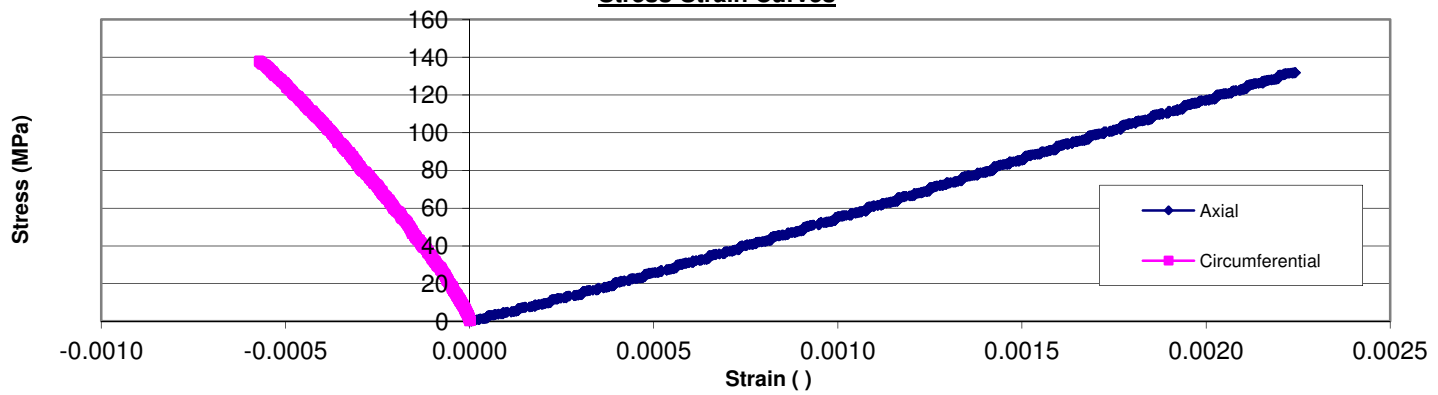


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.77	2900.5	168.60	2.8	799.8	275.8	39,986

Unconfined Compressive Strength Test



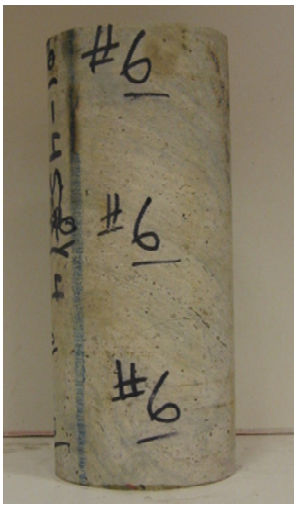
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-07
Sample ID:	UCS 07-01
Depth (m)	46.19 - 46.37
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**32.62**
Poisson Ratio, ν:	**0.16**
Failure Mode:	**Shear**

Before Test

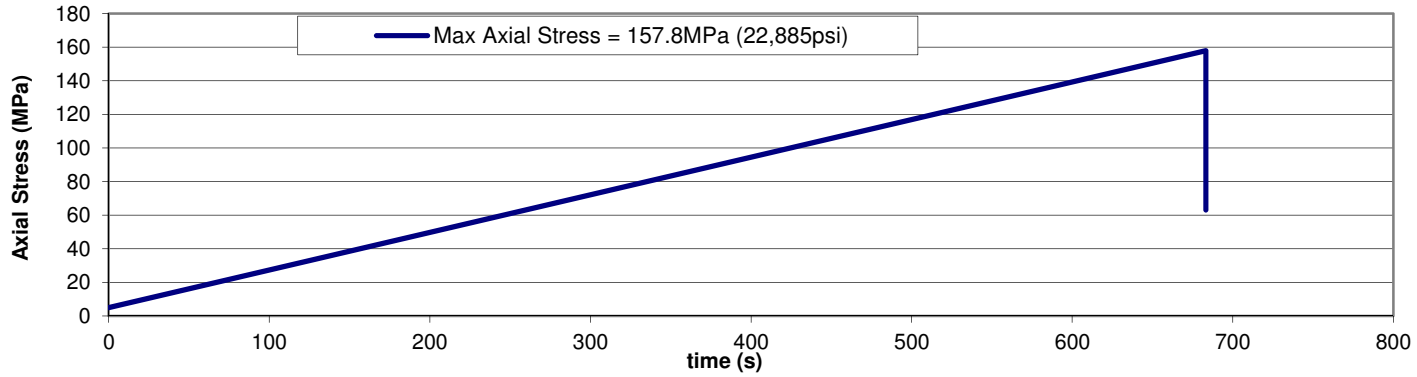


After Test

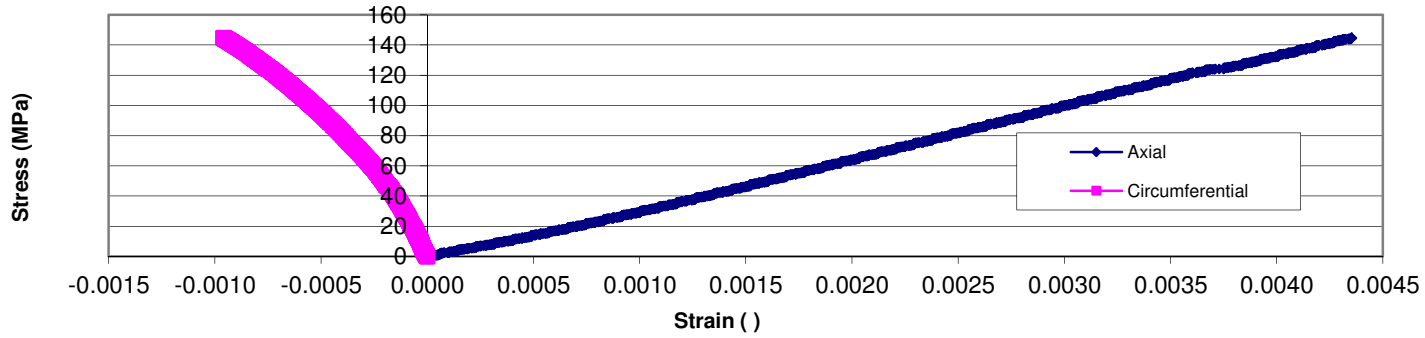


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.65	2889.0	156.85	2.6	456.0	157.8	22,885

Unconfined Compressive Strength Test



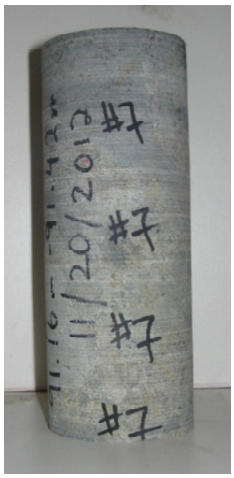
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-07
Sample ID:	UCS 07-02
Depth (m)	91.16 - 91.42
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**47.12**
Poisson Ratio, ν:	**0.23**
Failure Mode:	**Shear**

Before Test

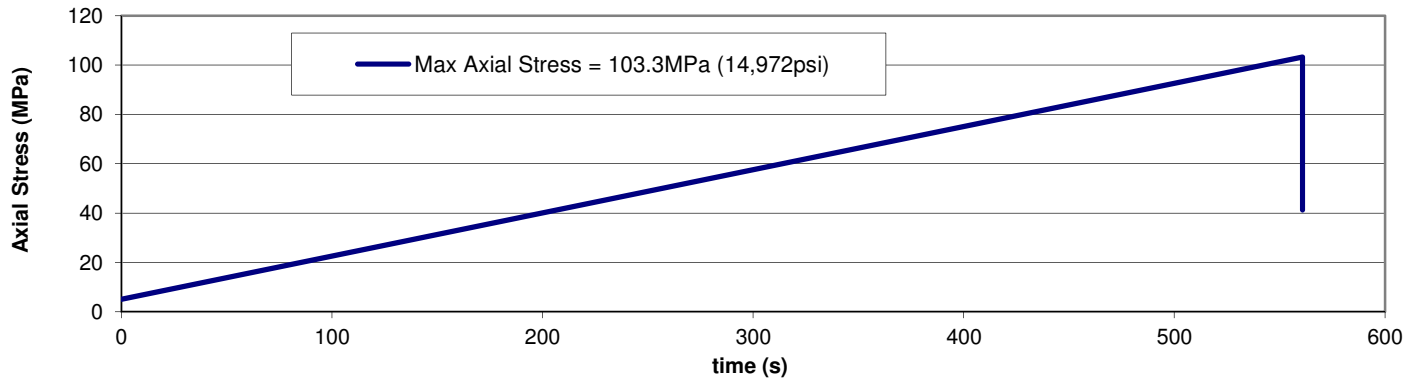


After Test

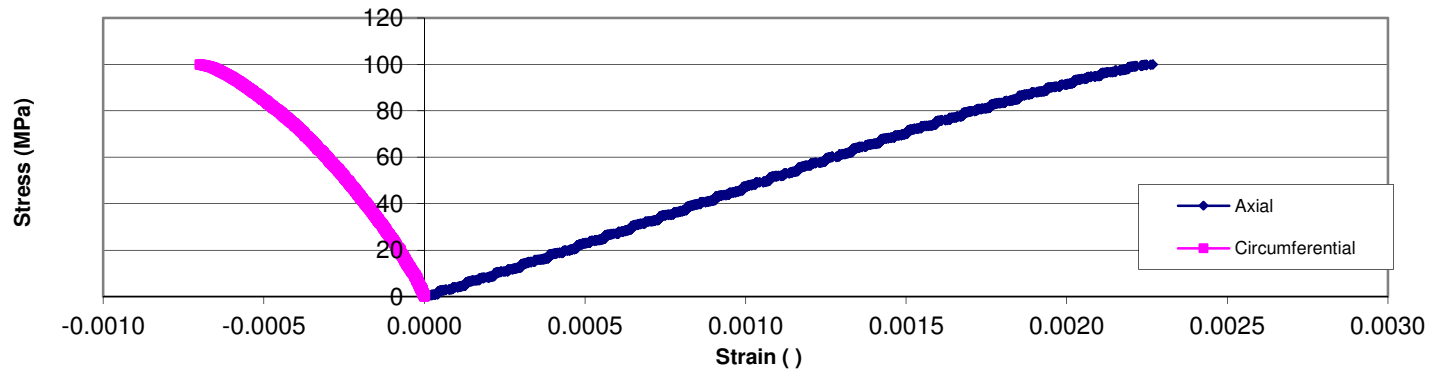


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.67	2890.9	172.23	2.8	298.5	103.3	14,972

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-07
Sample ID:	UCS 07-04
Depth (m)	264.18 - 264.52
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**57.03**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

Before Test

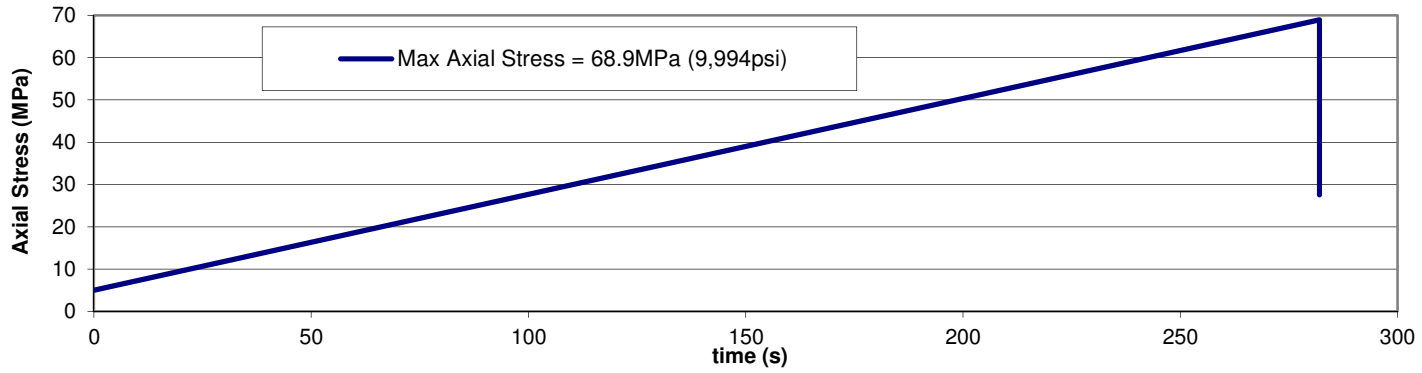


After Test

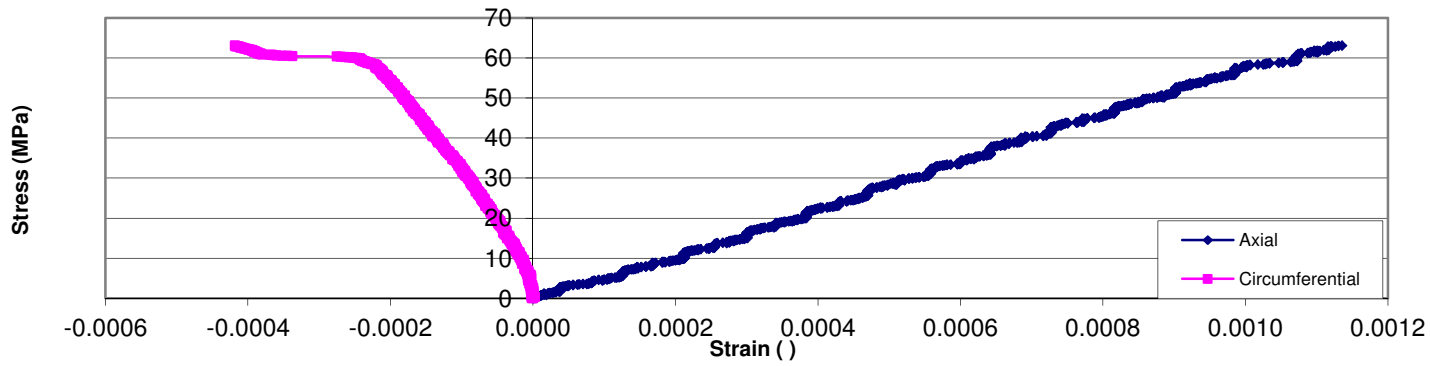


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.37	2862.4	168.63	2.8	197.3	68.9	9,994

Unconfined Compressive Strength Test



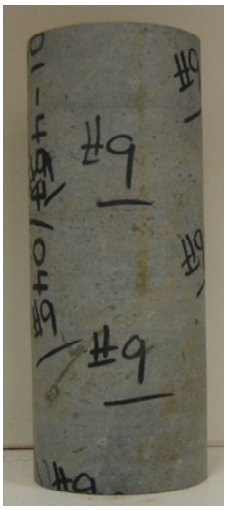
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-07
Sample ID:	UCS 07-05
Depth (m)	339.95 - 340.20
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**69.34**
Poisson Ratio, ν:	**0.22**
Failure Mode:	**No Failure**

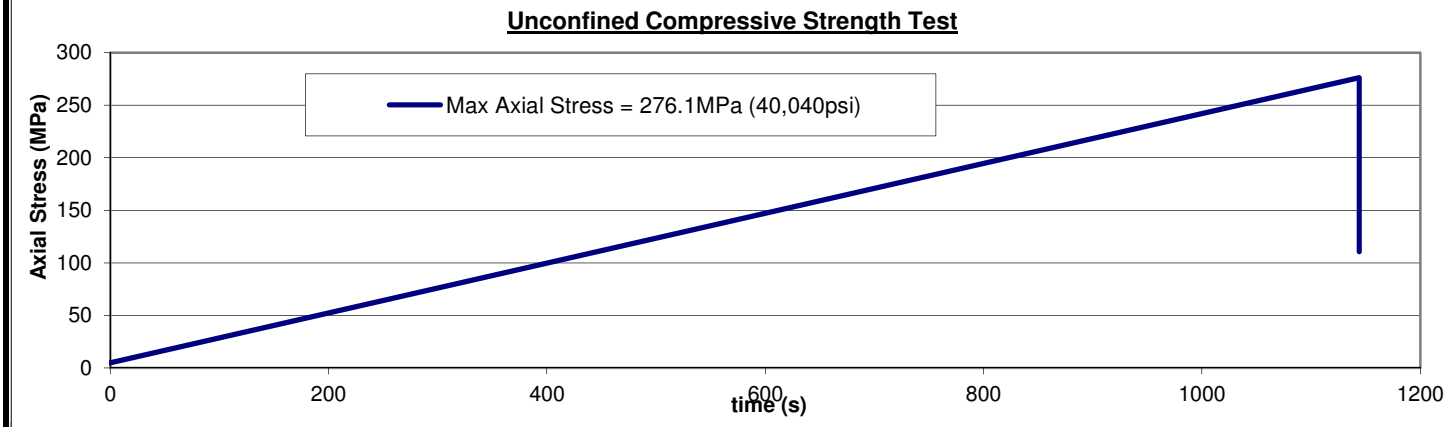
Before Test

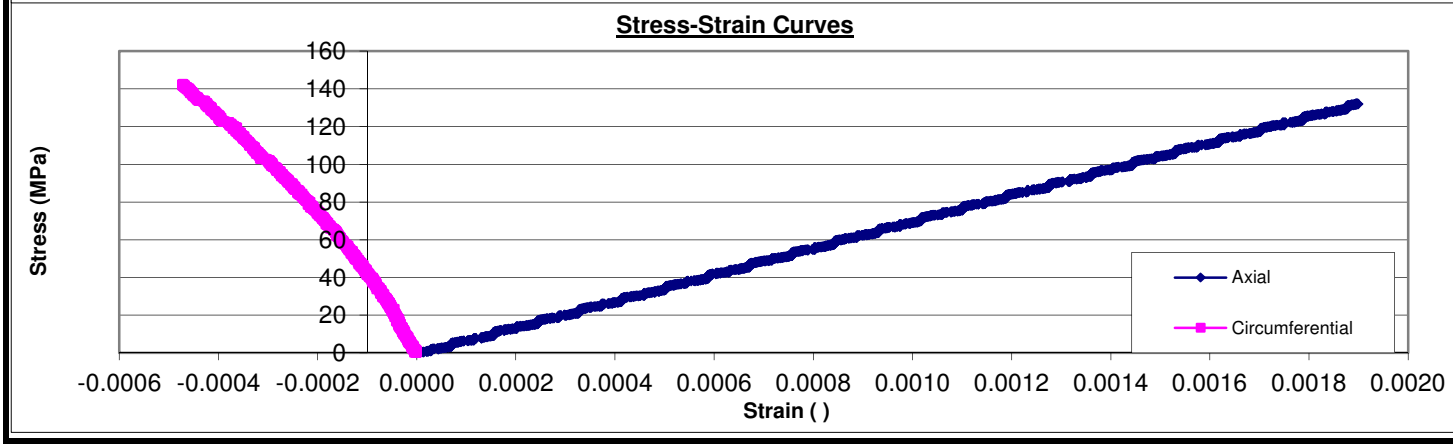


After Test

Sample did not fail at a load of 799.6 kN. As such, the material strength exceeded the load tolerance of the machine. The values reported are not the UCS, rather the maximum axial stress of the sample under loading. The UCS should be considered to be in excess of 276.1 MPa.

Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	Maximum Axial Stress	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.72	2895.7	167.44	2.8	799.6	276.1	40,040





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-07
Sample ID:	FM 07-01
Depth (m)	202.95 - 203.15
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**0.19**
Poisson Ratio, ν:	**0.35**
Failure Mode:	**Along discontinuity**

Before Test

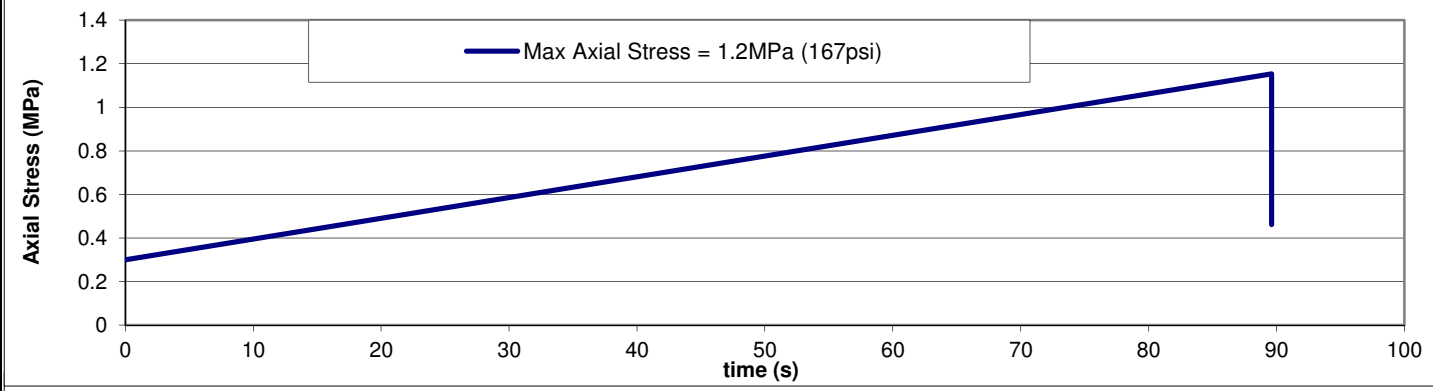


After Test

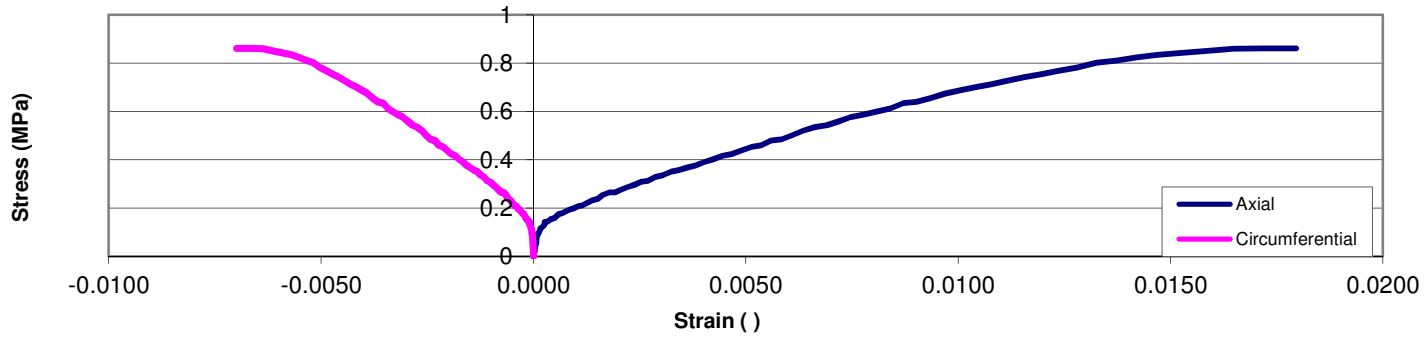


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.77	2900.5	165.22	2.7	3.3	1.2	167

Unconfined Compressive Strength Test



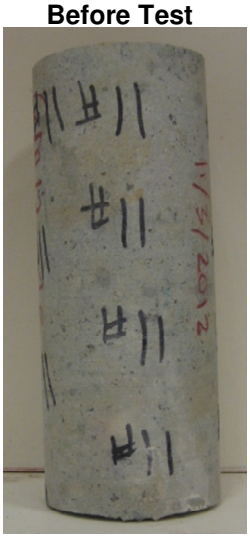
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-08
Sample ID:	UCS 08-02
Depth (m)	159.69 - 159.89
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**54.45**
Poisson Ratio, ν:	**0.19**
Failure Mode:	**Shear**

Before Test

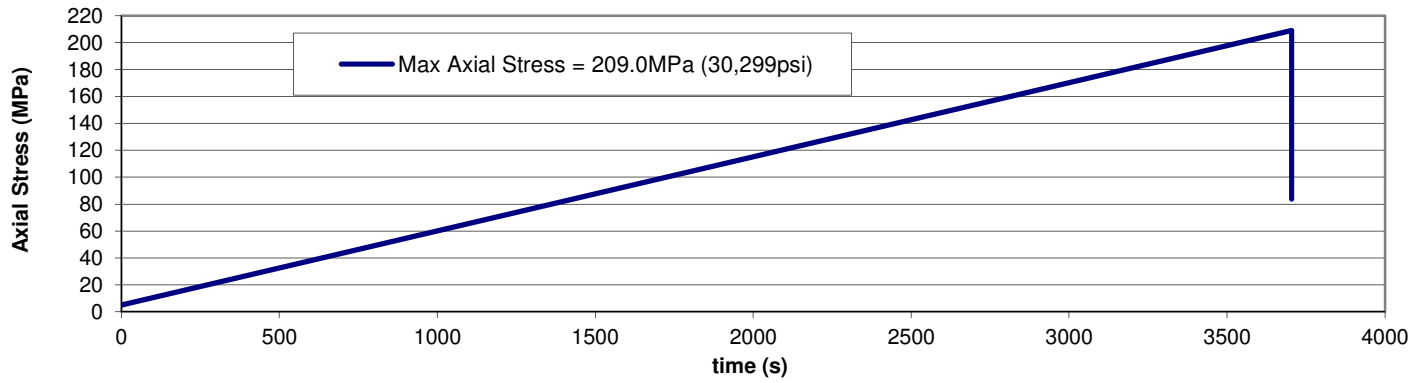


After Test

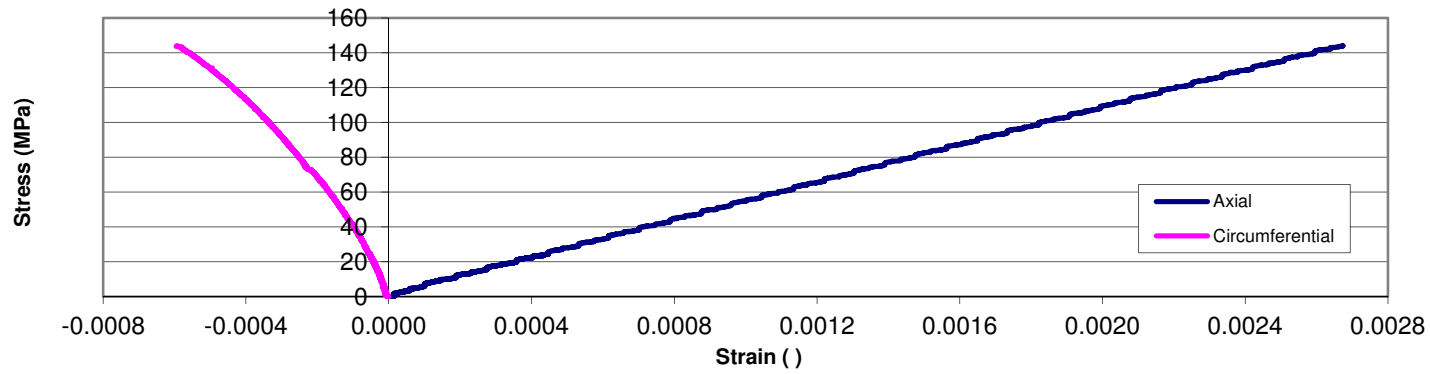


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.65	2889.0	164.06	2.7	603.7	209.0	30,299

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-08
Sample ID:	UCS 08-05
Depth (m)	306.00 - 306.23
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**52.54**
Poisson Ratio, ν:	**0.29**
Failure Mode:	**Shear**

Before Test

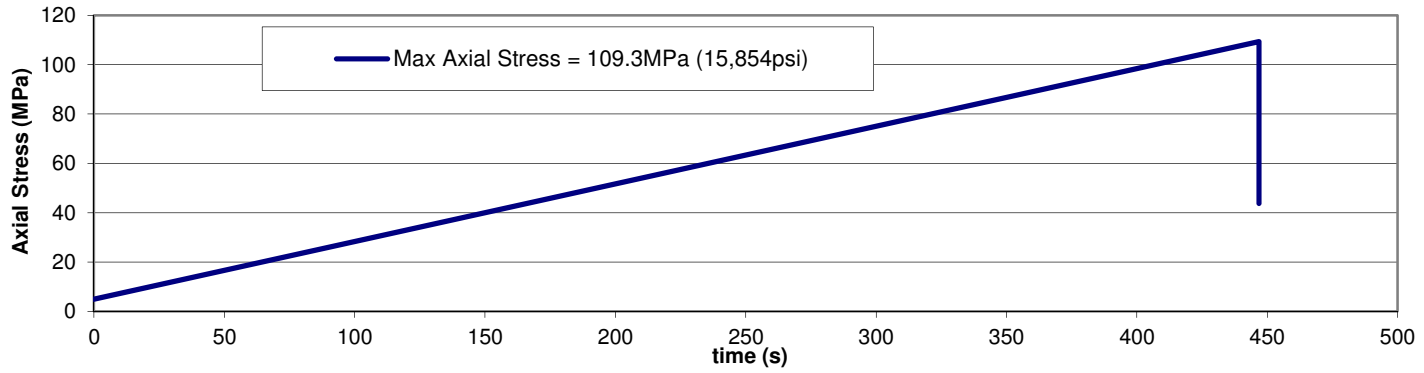


After Test

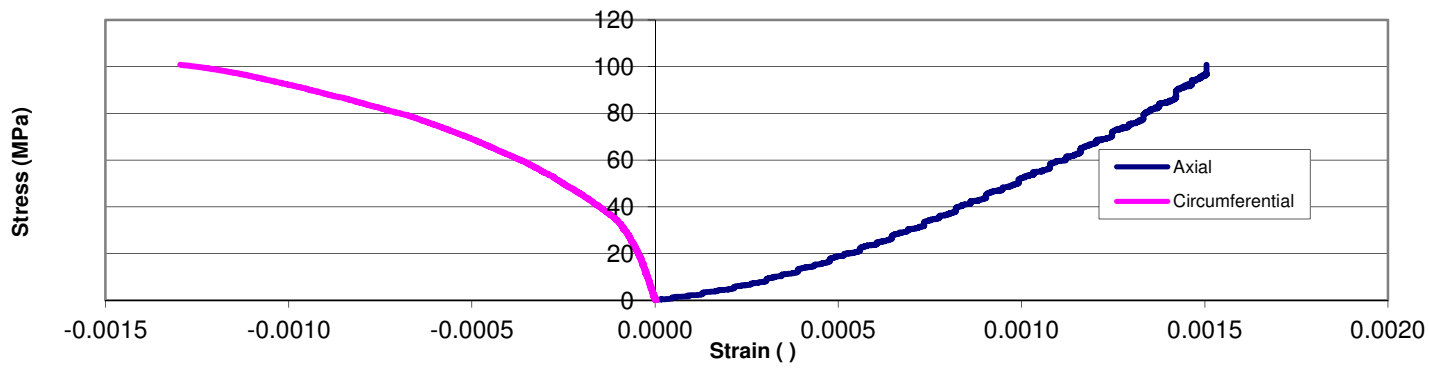


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.33	2858.6	168.83	2.8	312.6	109.3	15,854

Unconfined Compressive Strength Test



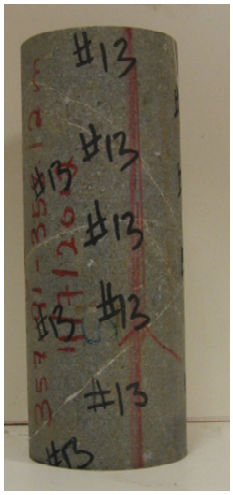
Stress-Strain Curves



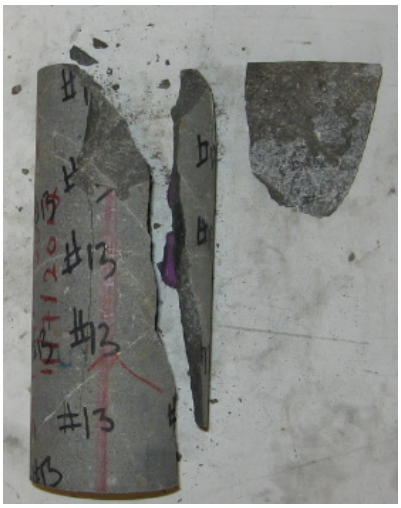
ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-08
Sample ID:	UCS 08-06
Depth (m)	357.91 - 358.12
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**59.63**
Poisson Ratio, ν:	**0.22**
Failure Mode:	**Along discontinuity**

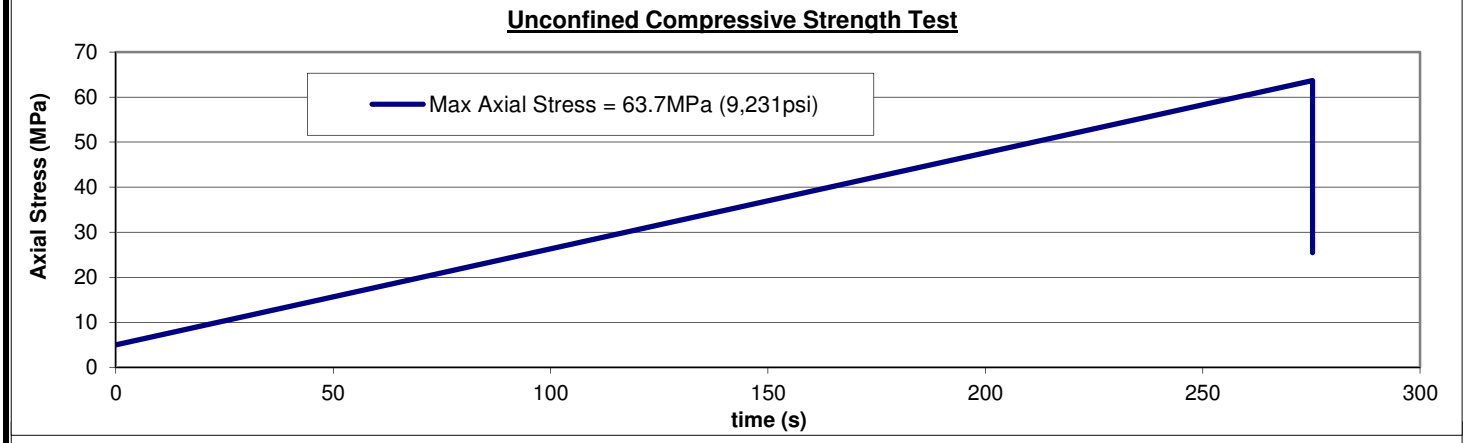
Before Test

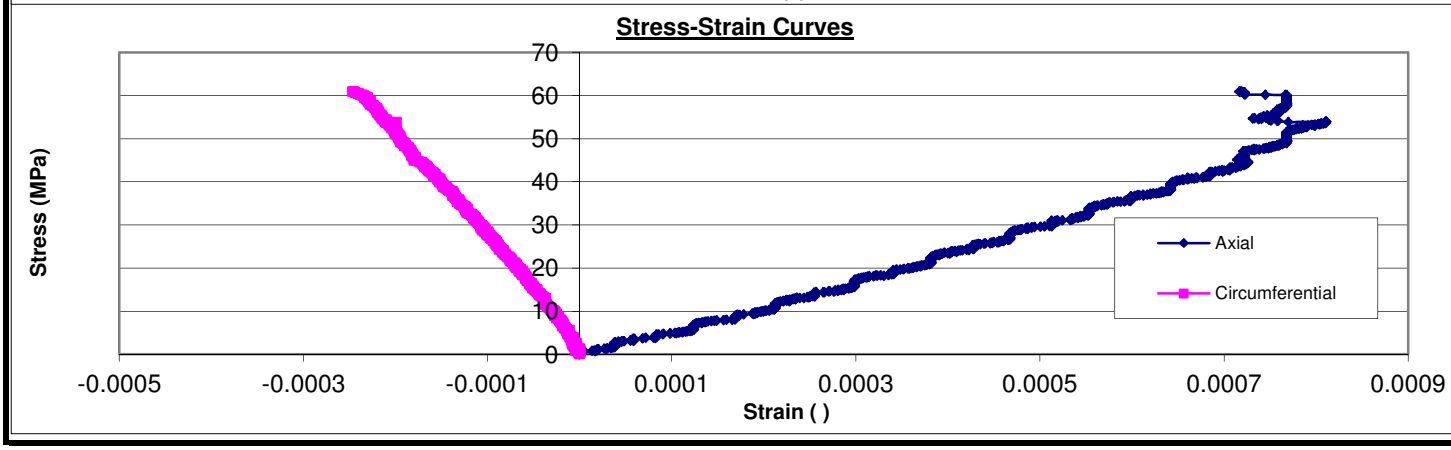


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.52	2876.7	174.82	2.9	183.1	63.7	9,231

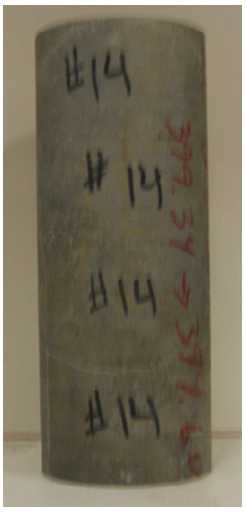




ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-08
Sample ID:	UCS Sample #7
Depth (m)	399.34 - 399.60
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**62.22**
Poisson Ratio, ν:	**0.24**
Failure Mode:	**Along discontinuity**

Before Test

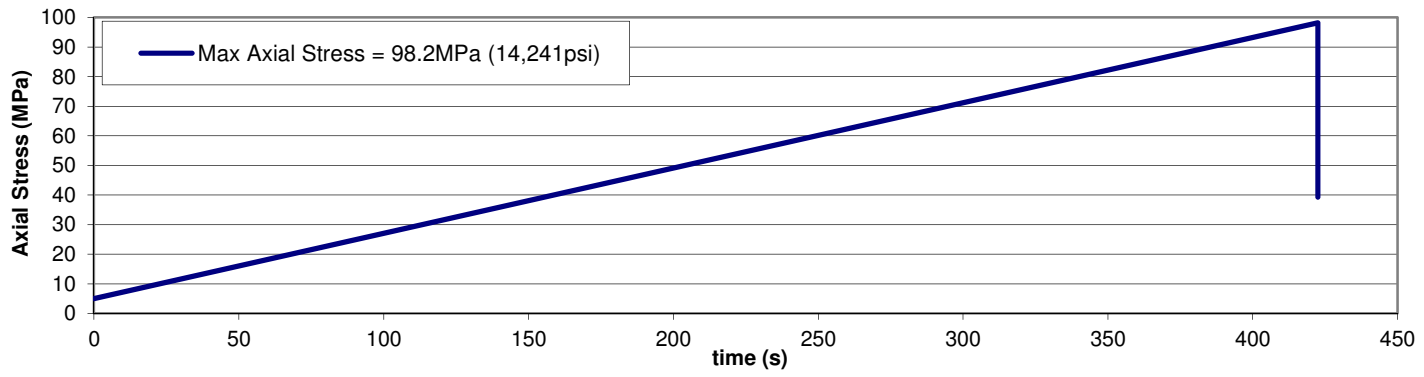


After Test

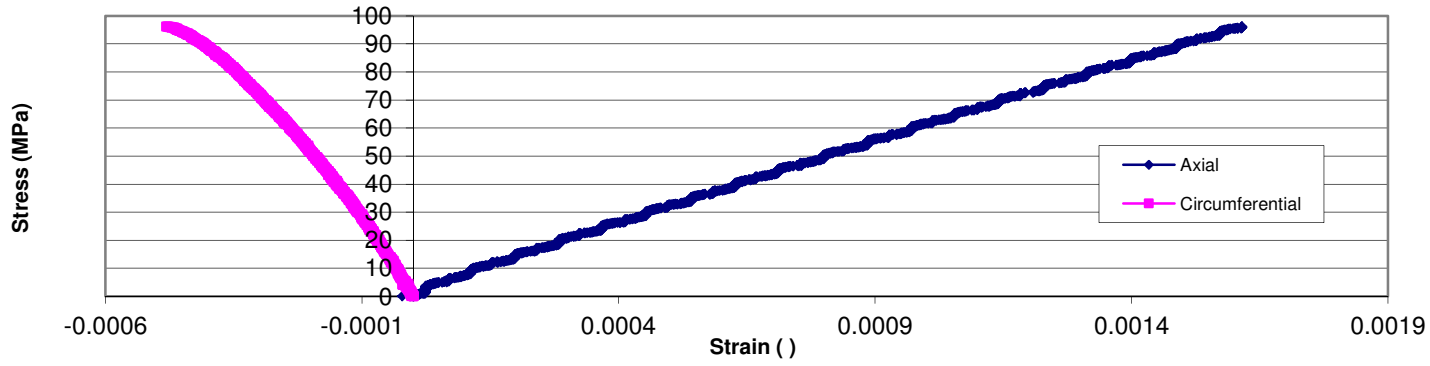


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.38	2863.4	168.34	2.8	281.2	98.2	14,241

Unconfined Compressive Strength Test



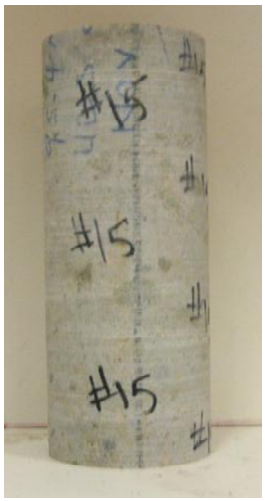
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-09
Sample ID:	UCS 09-01
Depth (m)	95.40 - 95.80
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**45.60**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

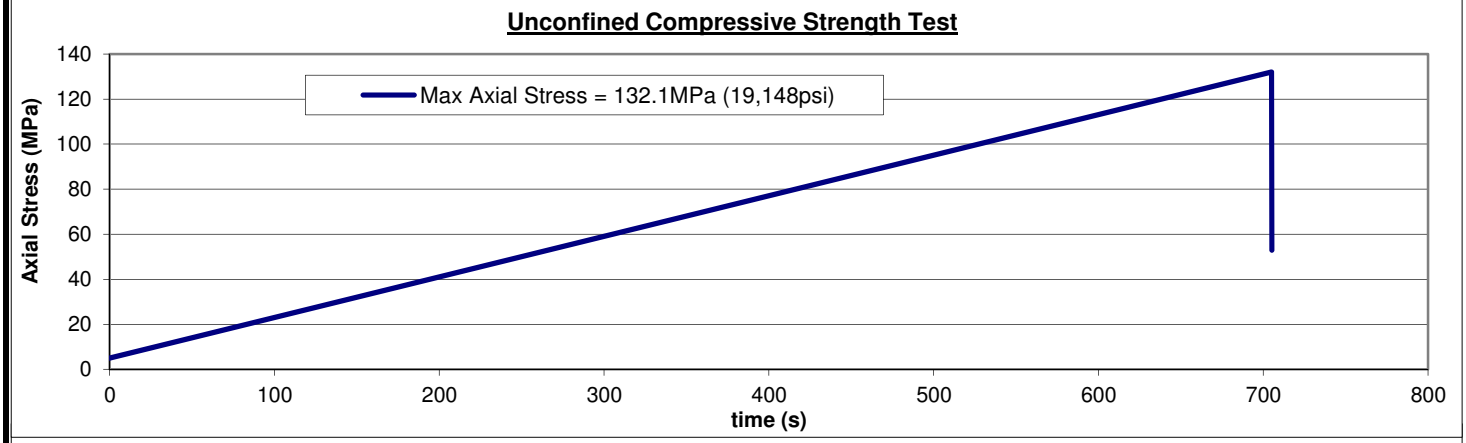
Before Test

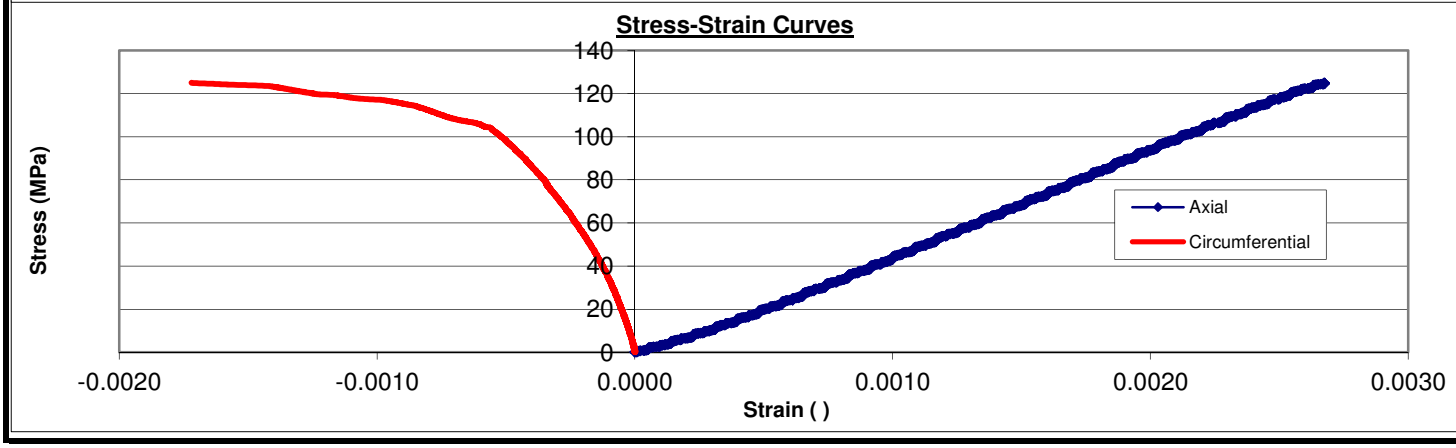


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.35	2860.5	166.34	2.8	377.7	132.1	19,148

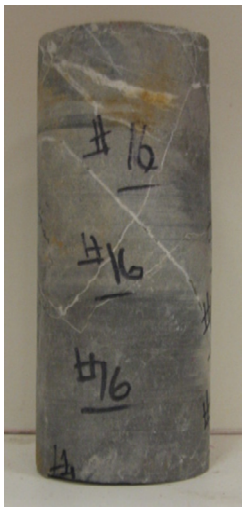




ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-09
Sample ID:	UCS#2
Depth (m)	232.30 - 232.50
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**36.38**
Poisson Ratio, ν:	**0.06**
Failure Mode:	**Shear**

Before Test

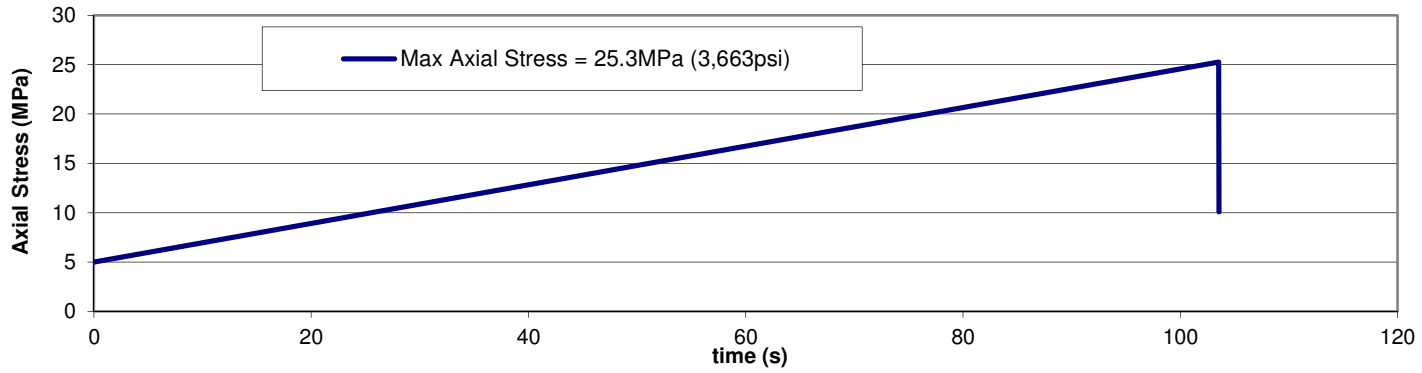


After Test

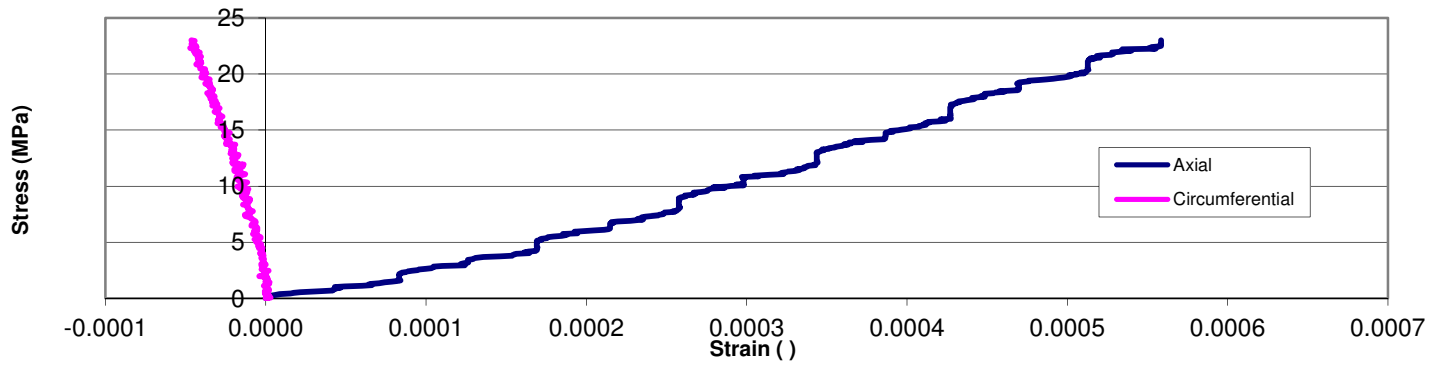


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.33	2858.6	158.98	2.6	72.2	25.3	3,663

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-09
Sample ID:	UCS#4
Depth (m)	316.68 - 317.04
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**50.20**
Poisson Ratio, ν:	**0.13**
Failure Mode:	**Shear**

Before Test

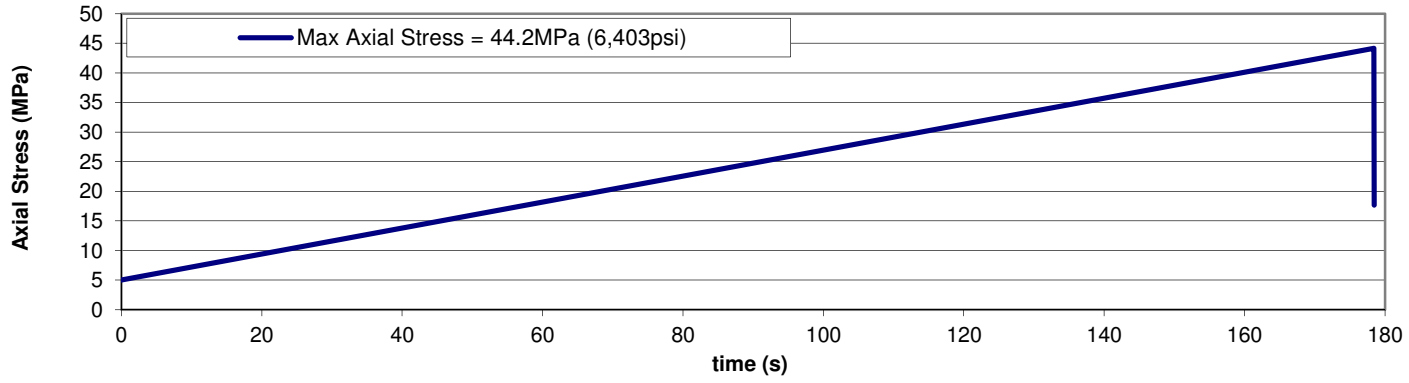


After Test

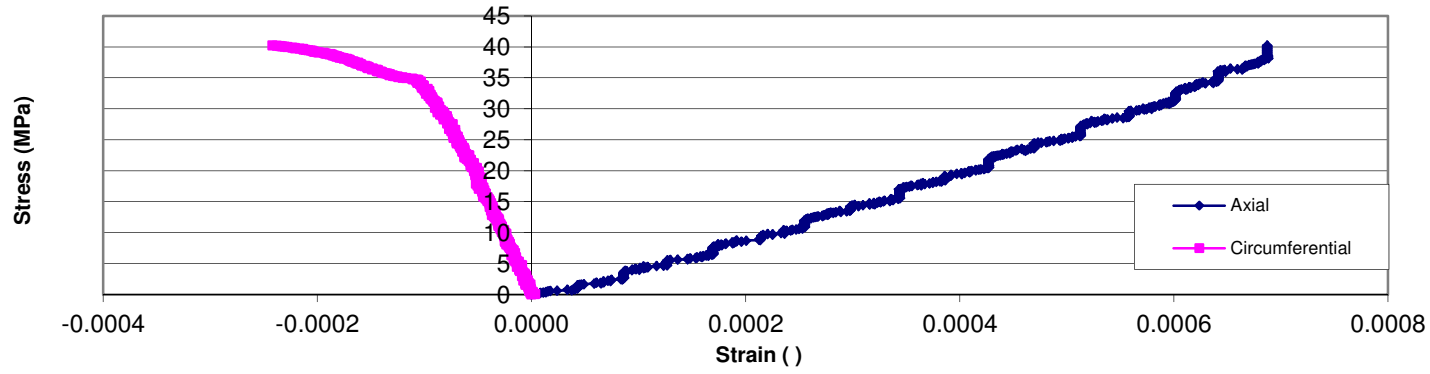


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.06	2833.1	171.19	2.9	125.1	44.2	6,403

Unconfined Compressive Strength Test



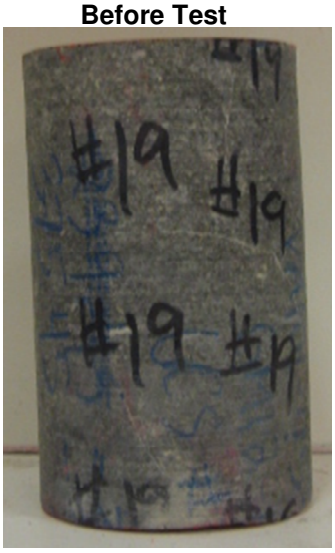
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-09
Sample ID:	UCS#5
Depth (m)	375.45 - 375.72
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**70.29**
Poisson Ratio, ν:	**0.17**
Failure Mode:	**Shear**

Before Test

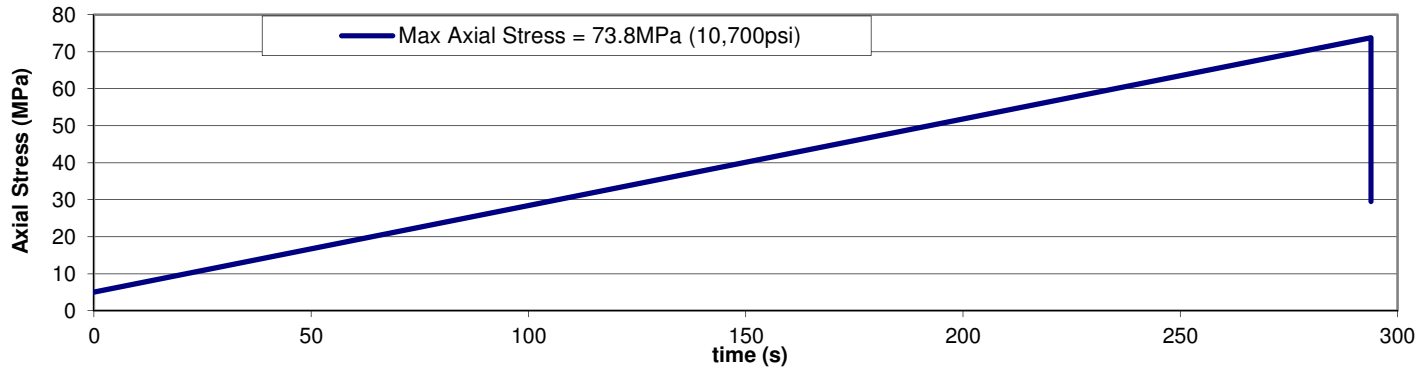


After Test

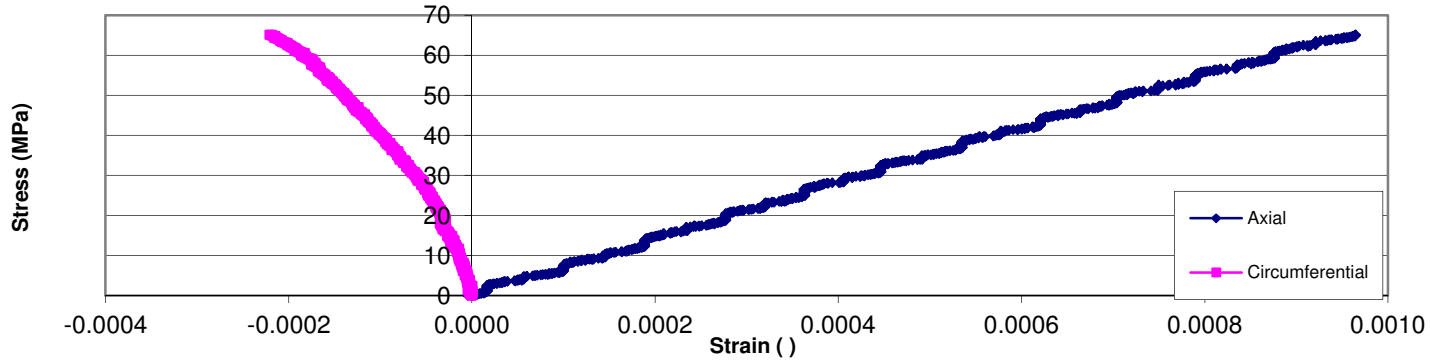


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.65	2794.5	105.33	1.8	206.2	73.8	10,700

Unconfined Compressive Strength Test



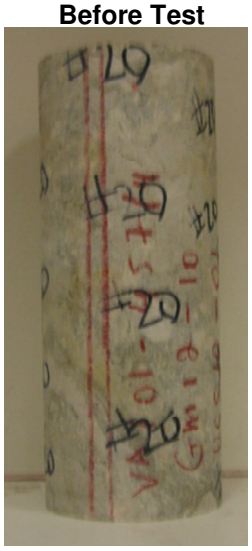
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-10
Sample ID:	UCS10-01
Depth (m)	60.45 - 60.64
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**45.94**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

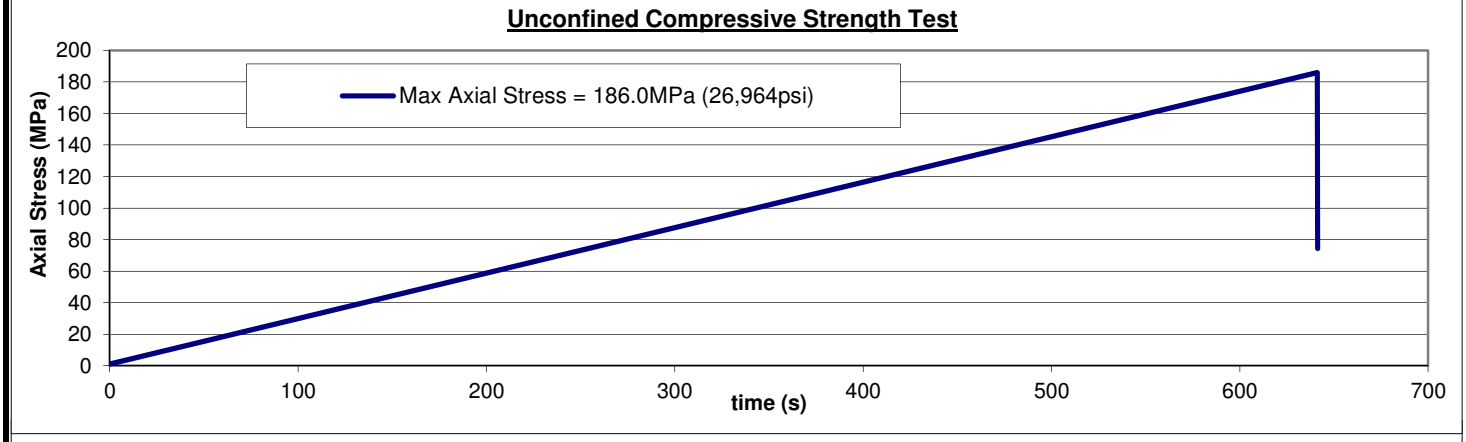
Before Test

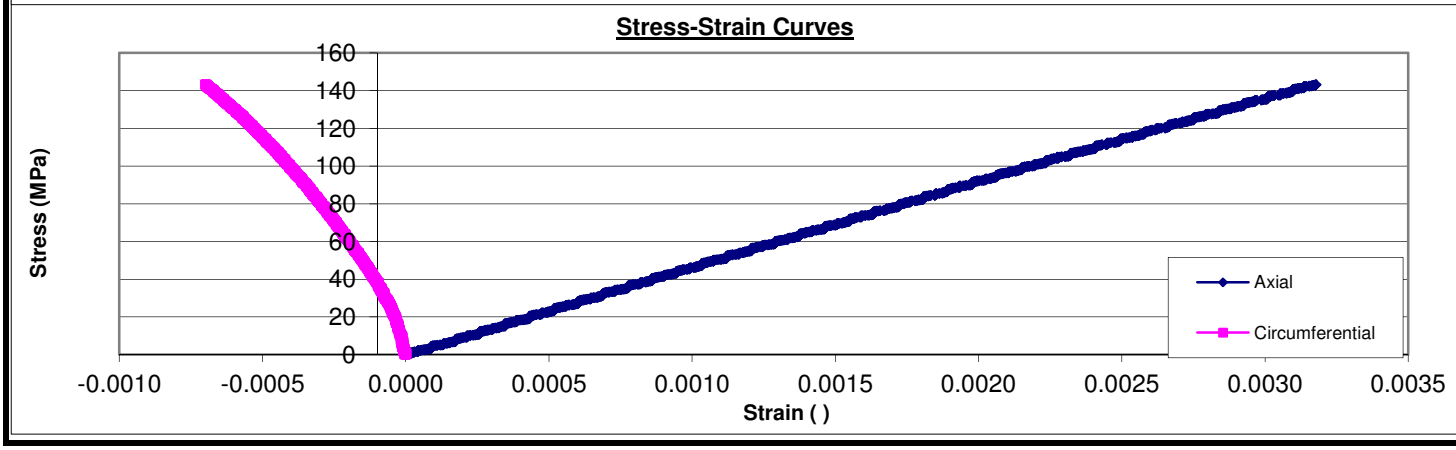


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.66	2890.0	164.76	2.7	537.4	186.0	26,964





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-10
Sample ID:	UCS10-02
Depth (m)	107.34 - 107.54
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**58.35**
Poisson Ratio, ν:	**0.17**
Failure Mode:	**Shear**

Before Test

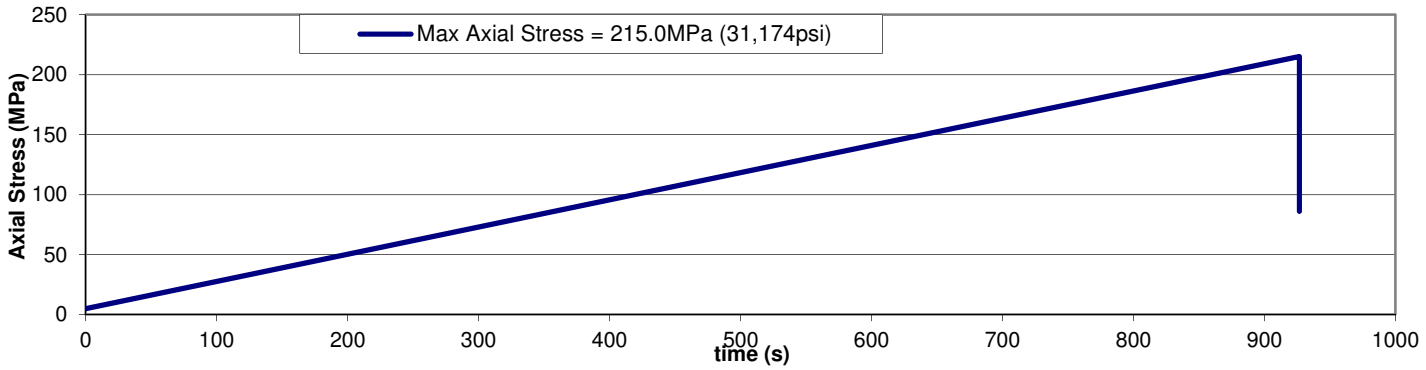


After Test

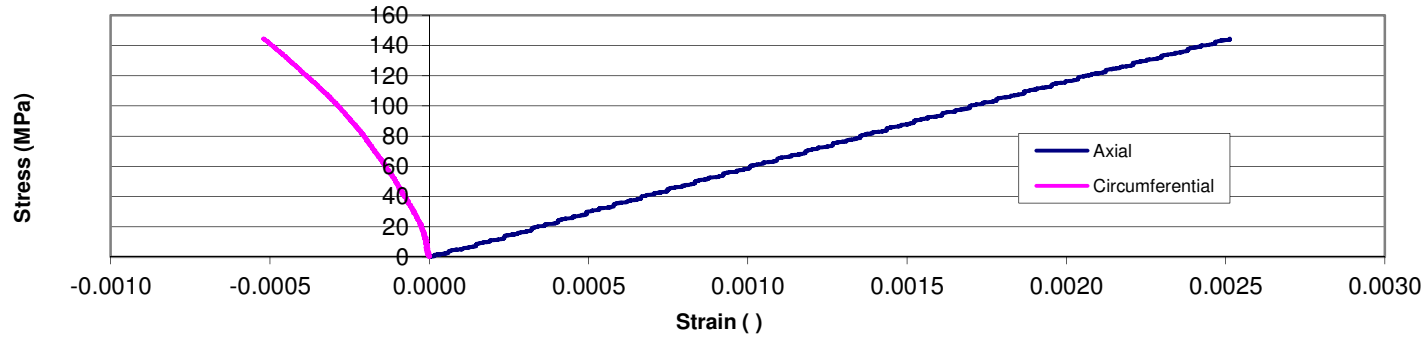


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.62	2886.2	166.22	2.7	620.5	215.0	31,174

Unconfined Compressive Strength Test



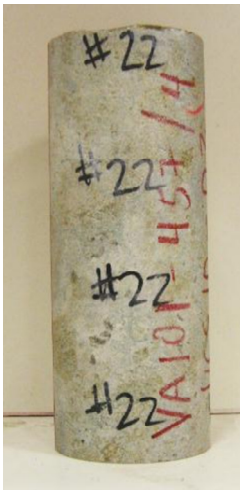
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-10
Sample ID:	UCS10-03
Depth (m)	175.04 - 175.28
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**63.78**
Poisson Ratio, ν:	**0.20**
Failure Mode:	**Shear**

Before Test

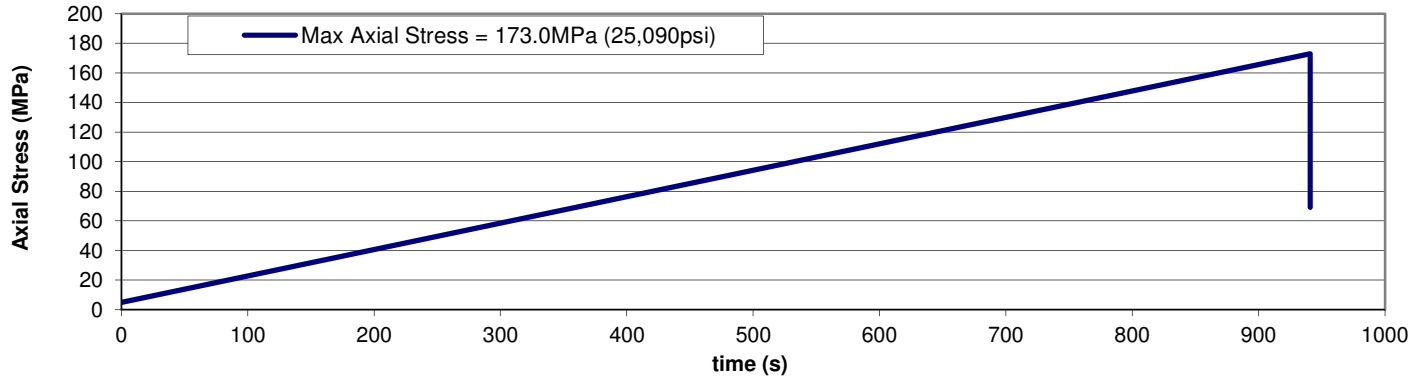


After Test

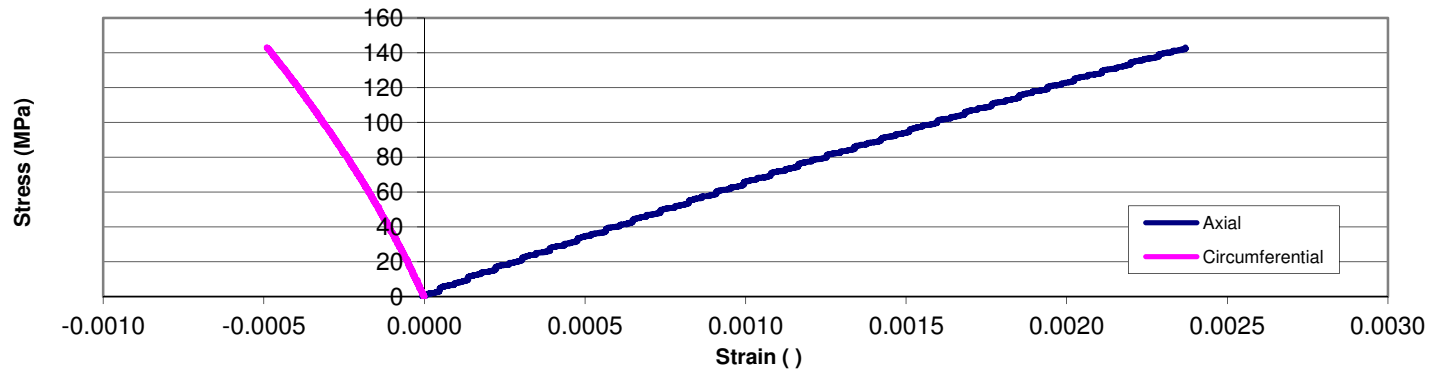


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.63	2887.1	169.12	2.8	499.6	173.0	25,090

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-10
Sample ID:	UCS10-04
Depth (m)	223.27 - 223.50
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**68.91**
Poisson Ratio, ν:	**0.22**
Failure Mode:	**Shear**

Before Test

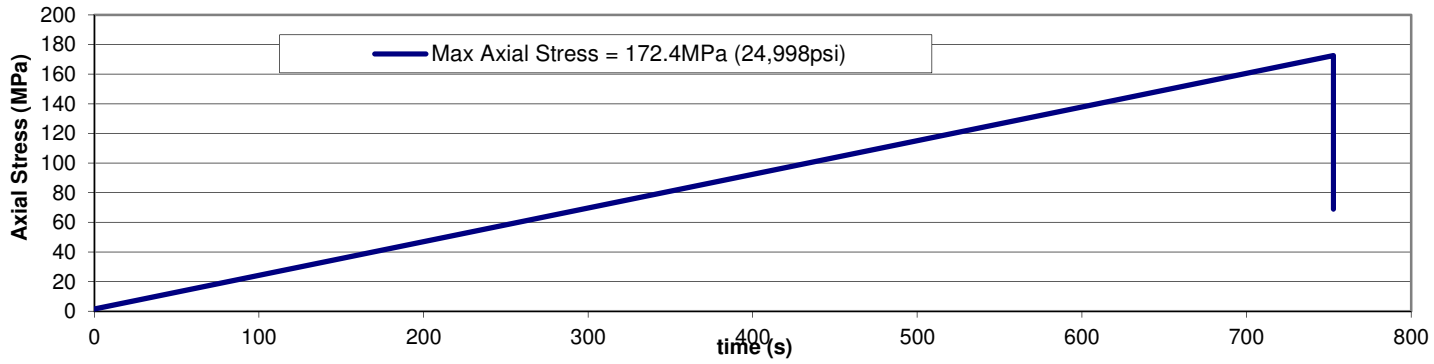


After Test

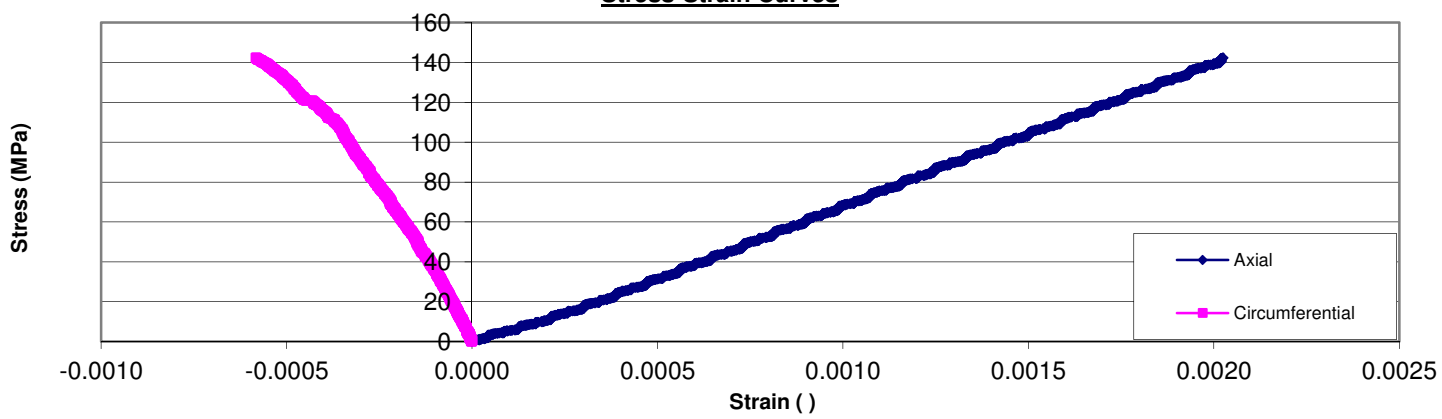


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.97	2919.6	167.99	2.8	503.3	172.4	24,998

Unconfined Compressive Strength Test



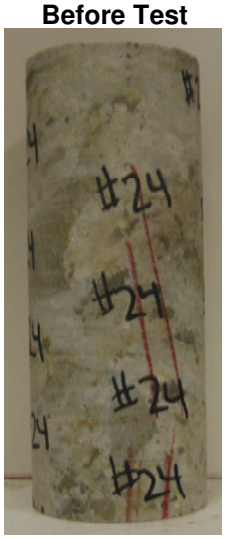
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-10
Sample ID:	UCS10-05
Depth (m)	266.55 - 266.75
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**68.89**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

Before Test

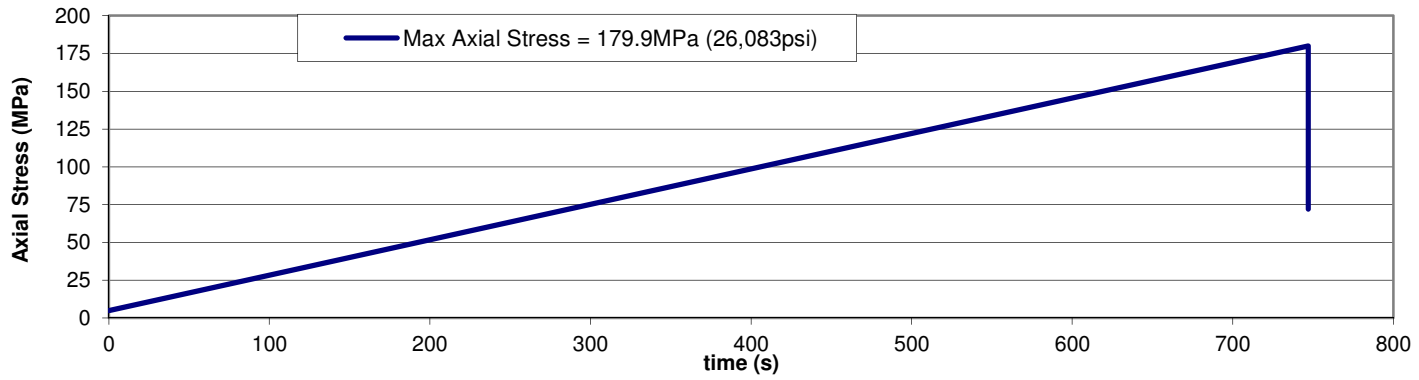


After Test

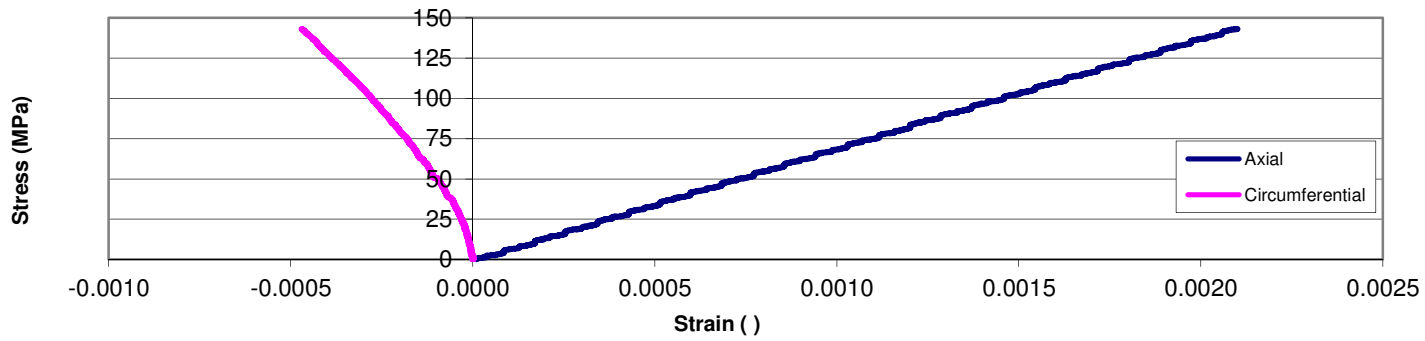


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.86	2909.1	167.08	2.7	523.3	179.9	26,083

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-10
Sample ID:	UCS12-06
Depth (m)	277.50 - 277.70
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**66.47**
Poisson Ratio, ν:	**0.14**
Failure Mode:	**Shear**

Before Test

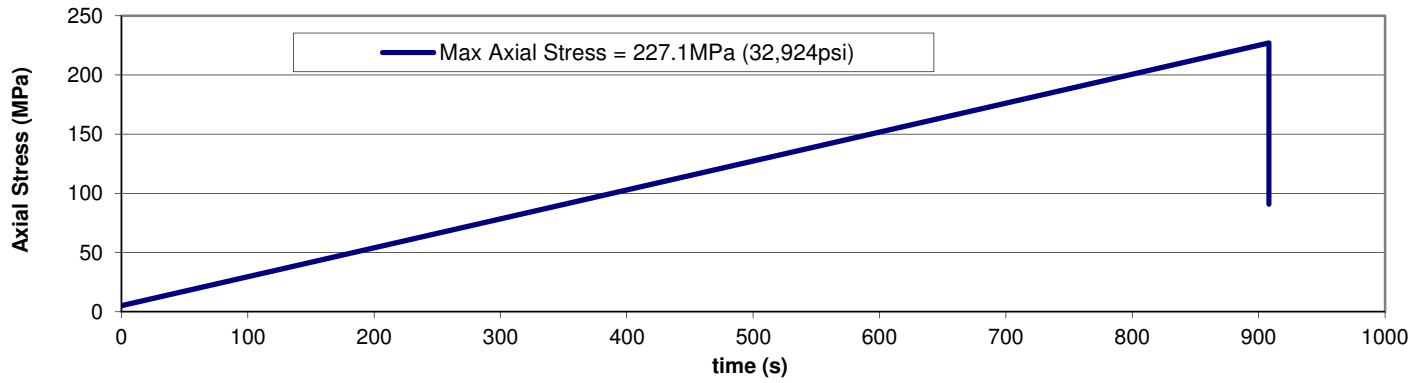


After Test

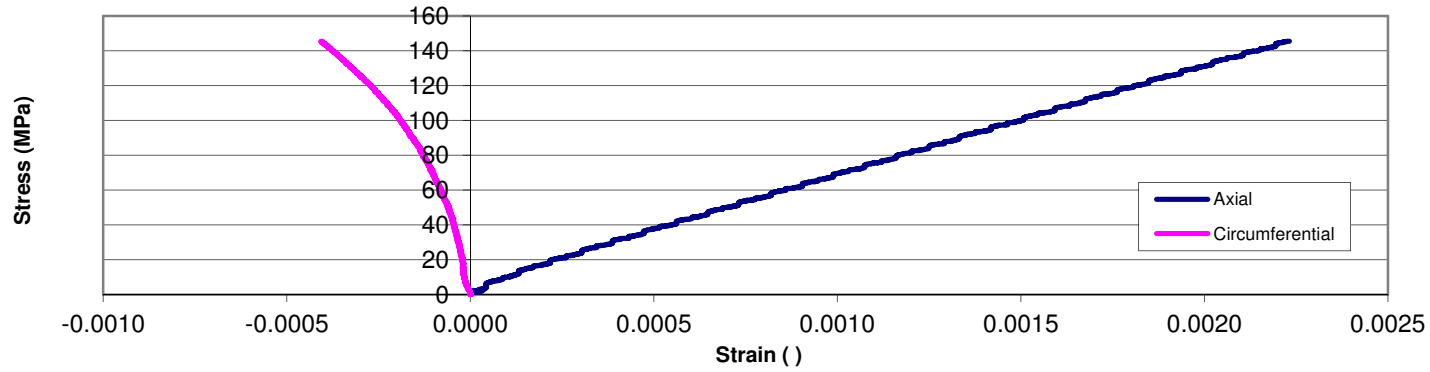


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.63	2887.1	167.36	2.8	655.6	227.1	32,924

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-11
Sample ID:	UCS#3
Depth (m)	197.20 - 197.50
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**61.50**
Poisson Ratio, ν:	**0.16**
Failure Mode:	**Shear**

Before Test

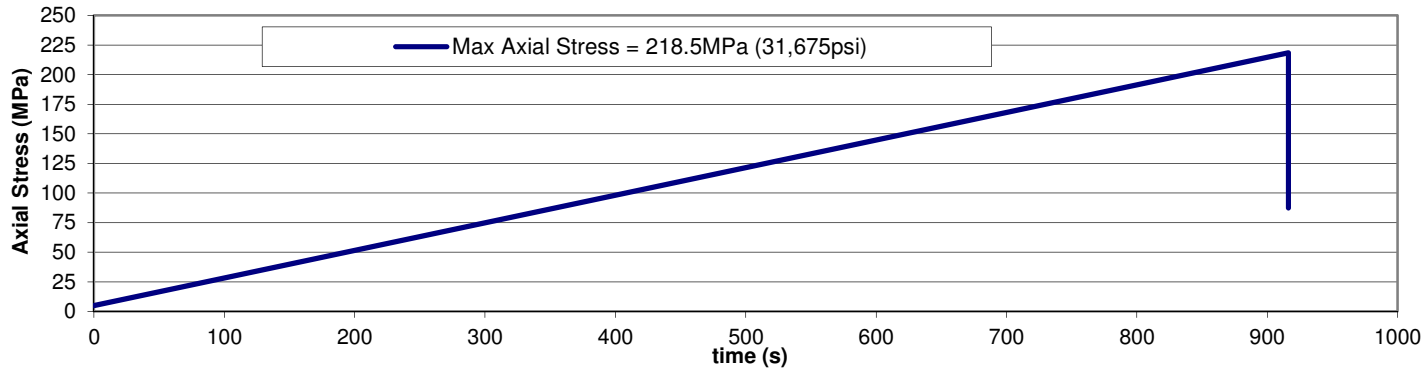


After Test

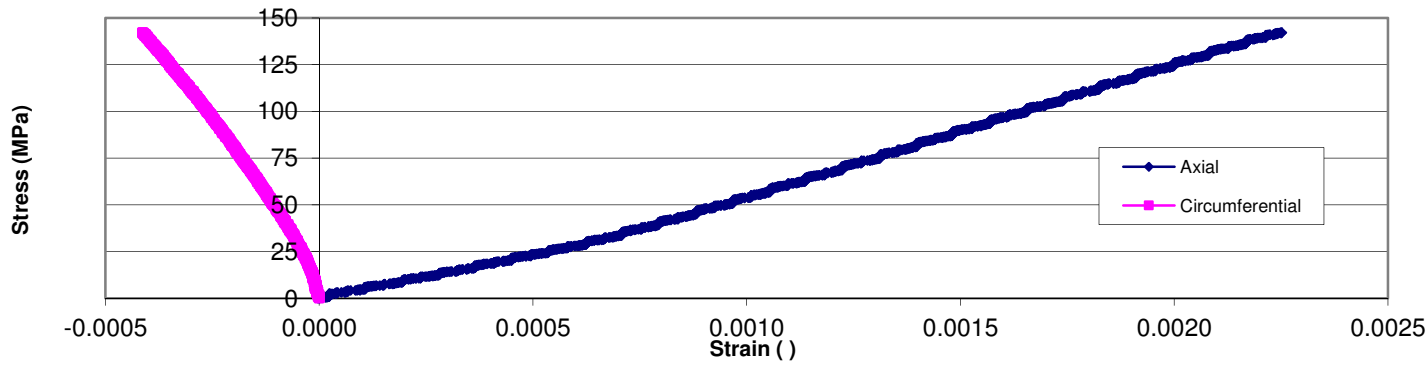


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
61.22	2943.6	172.97	2.8	643.0	218.5	31,675

Unconfined Compressive Strength Test



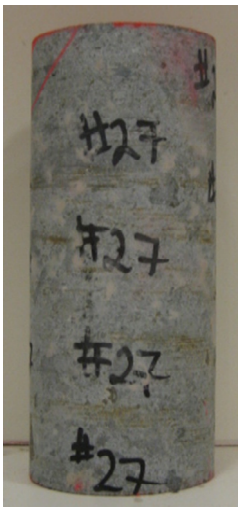
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-11
Sample ID:	UCS#4
Depth (m)	220.50 - 220.68
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**83.74**
Poisson Ratio, ν:	**0.21**
Failure Mode:	**No Failure**

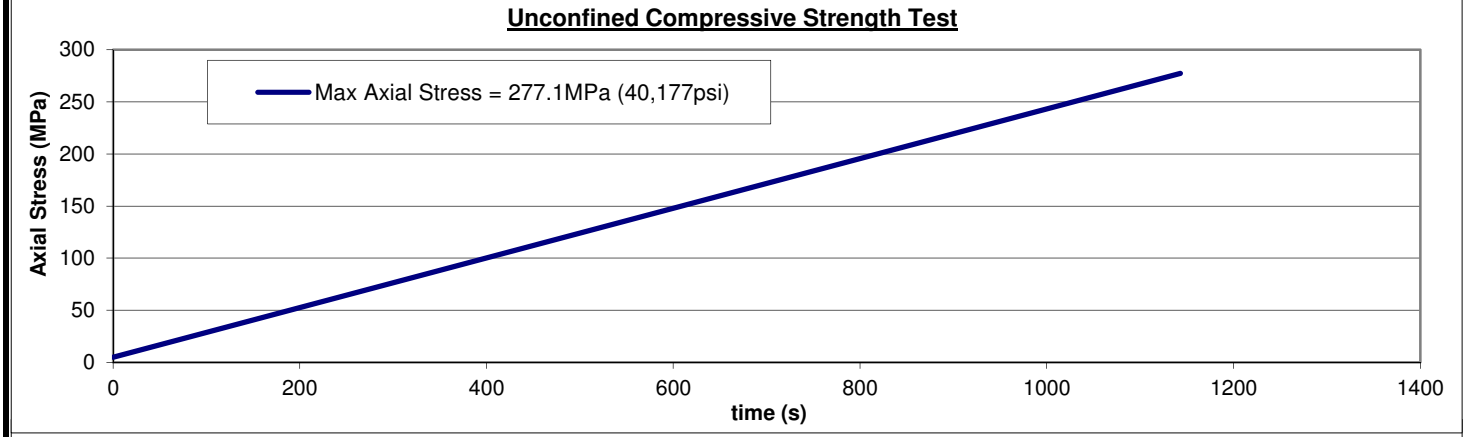
Before Test

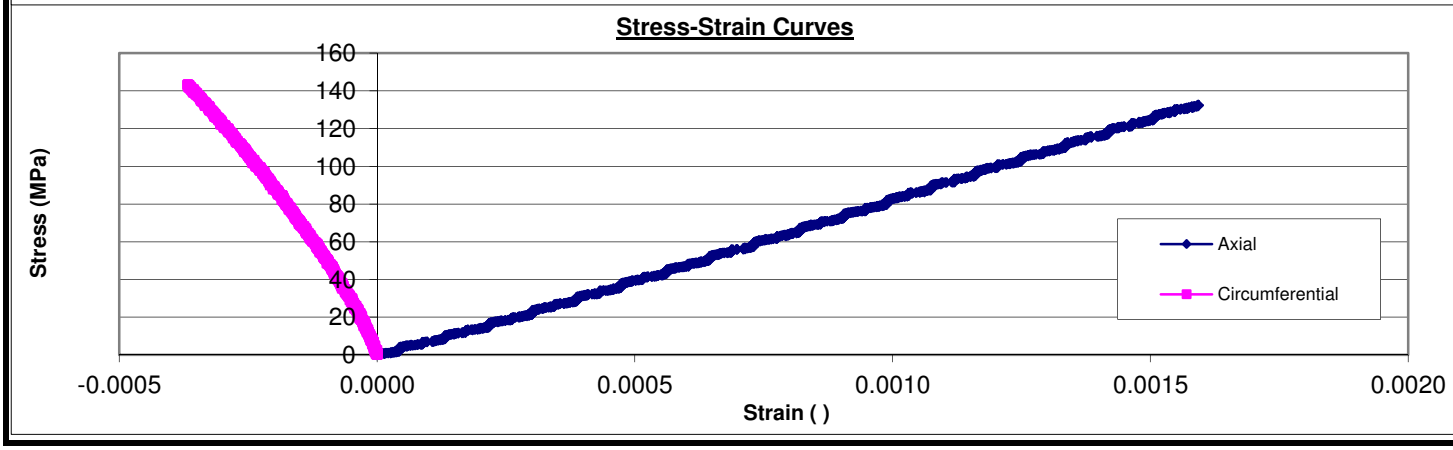


After Test

Sample did not fail at a load of 800.0 kN. As such, the material strength exceeded the load tolerance of the machine. The values reported are not the UCS, rather the maximum axial stress of the sample under loading. The UCS should be considered to be in excess of 277.1 MPa.

Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	Maximum Axial Stress	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.63	2887.1	155.03	2.6	800.0	277.1	40,177





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-12
Sample ID:	UCS#1
Depth (m)	21.12 - 21.48
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**0.28**
Poisson Ratio, ν:	**0.44**
Failure Mode:	**Crumbled**

Before Test

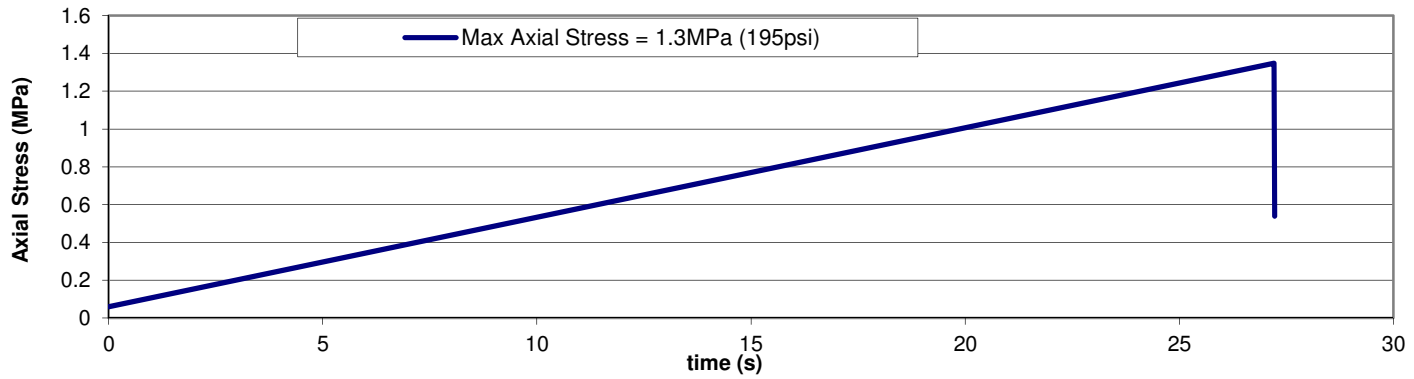


After Test

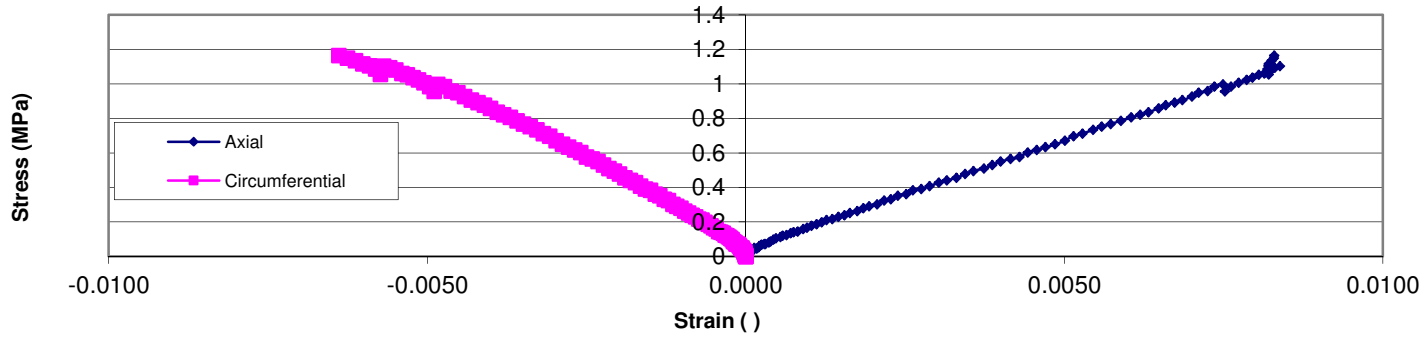


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
61.08	2930.1	172.78	2.8	3.9	1.3	195

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-12
Sample ID:	UCS#2
Depth (m)	118.80 - 119.00
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**13.38**
Poisson Ratio, ν:	**0.12**
Failure Mode:	**Shear**

Before Test

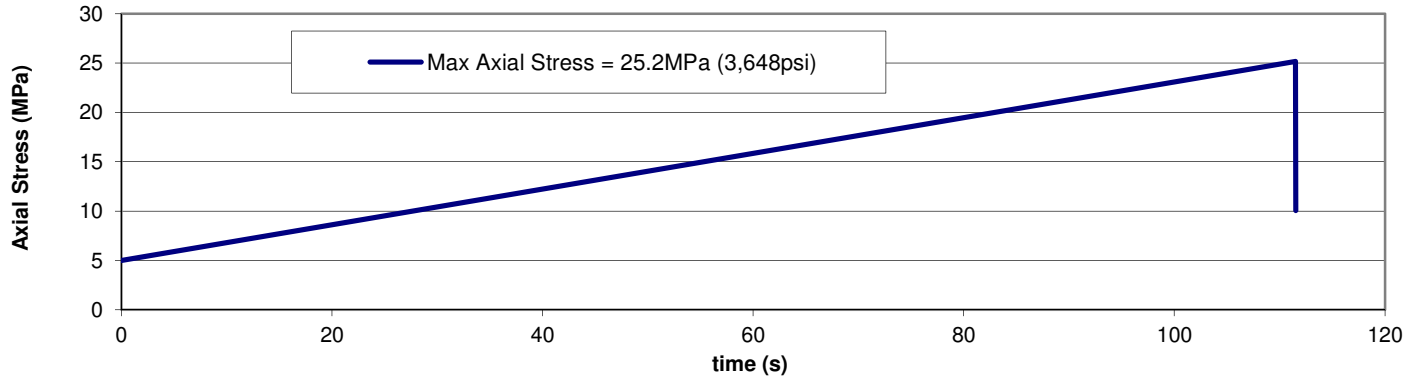


After Test

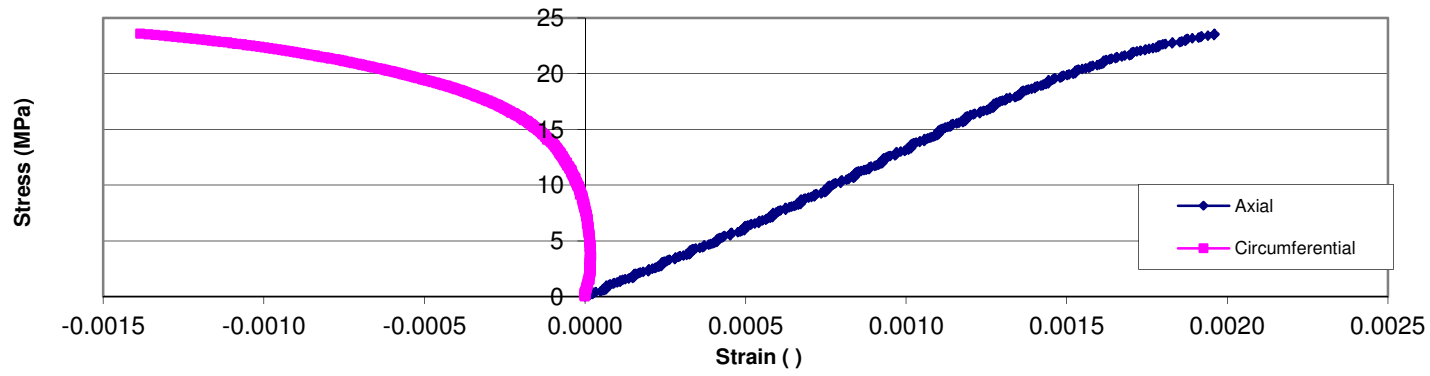


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
63.00	3117.2	124.84	2.0	78.4	25.2	3,648

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-12
Sample ID:	UCS#2
Depth (m)	137.65 - 137.97
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**78.23**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

Before Test

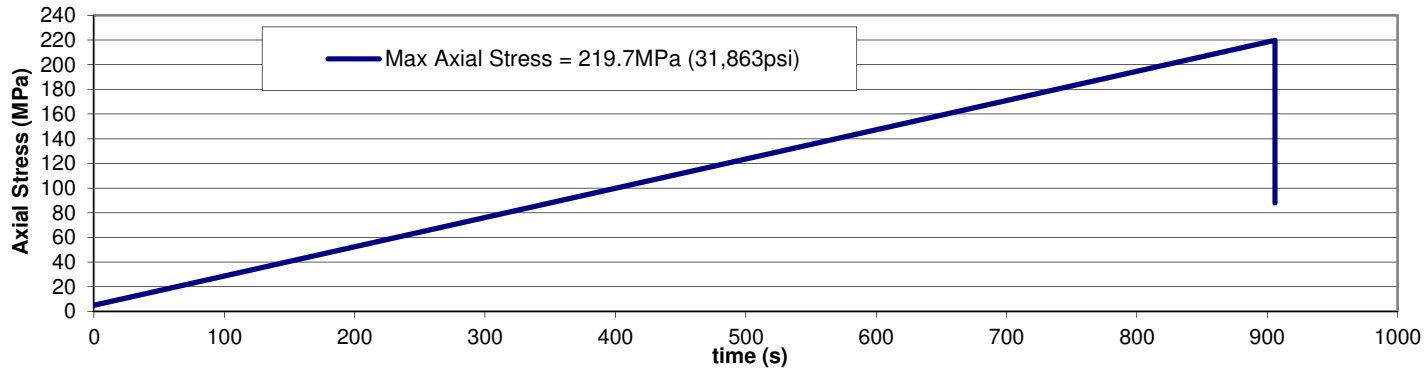


After Test

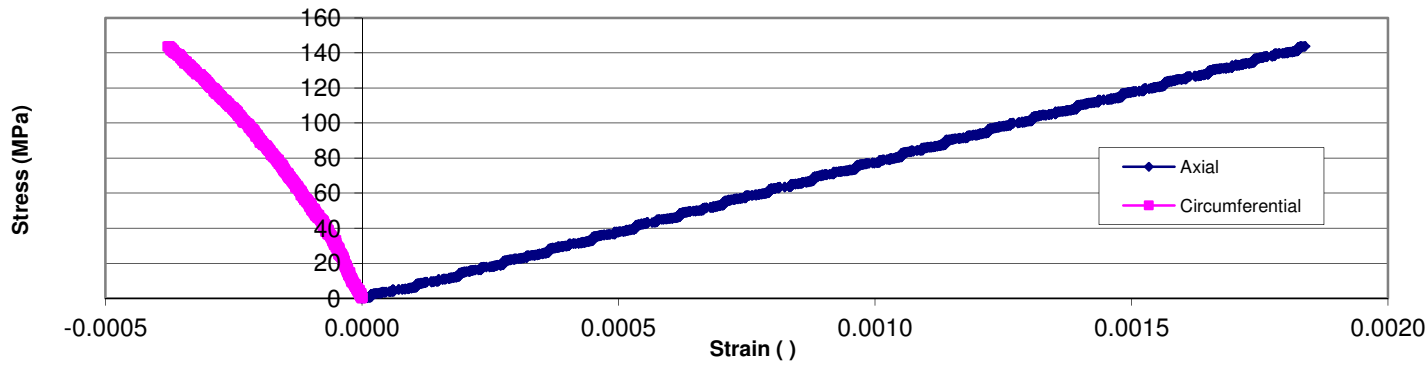


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.73	2896.7	168.18	2.8	636.5	219.7	31,863

Unconfined Compressive Strength Test



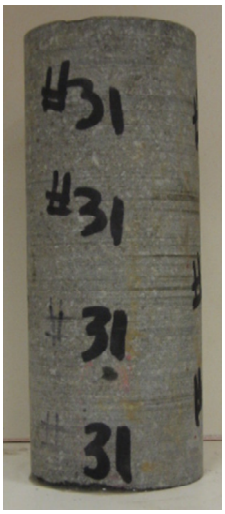
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-12
Sample ID:	UCS#3
Depth (m)	190.95 - 191.15
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**66.65**
Poisson Ratio, ν:	**0.24**
Failure Mode:	**Shear**

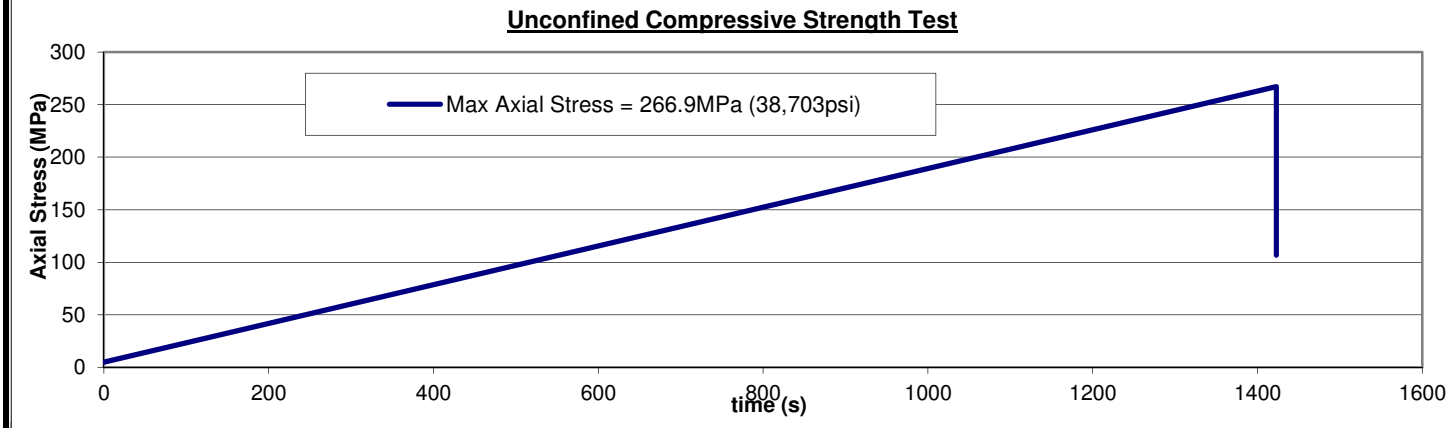
Before Test

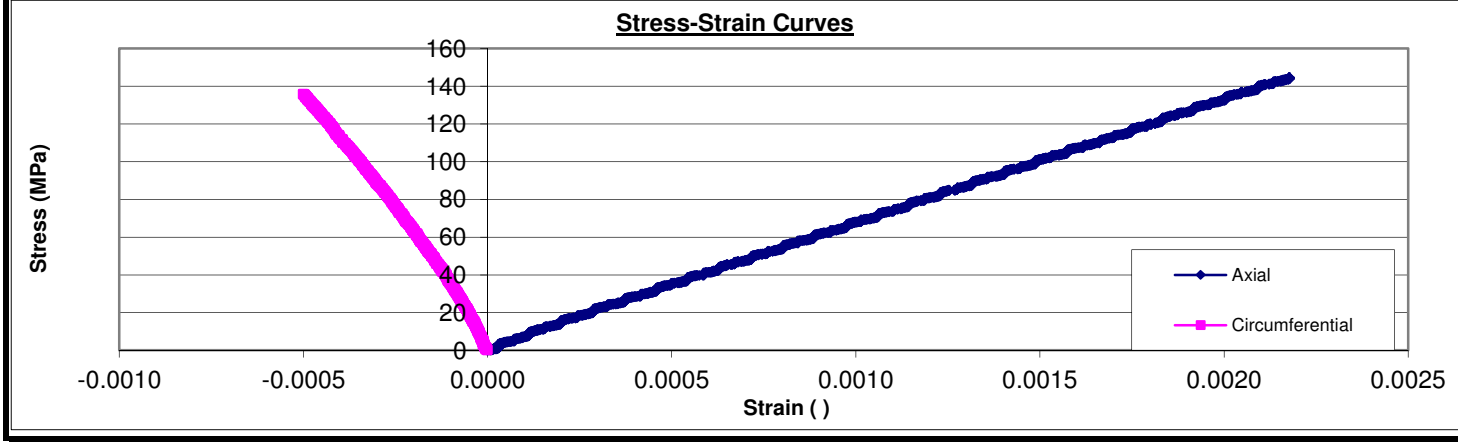


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.42	2867.2	169.76	2.8	765.3	266.9	38,703

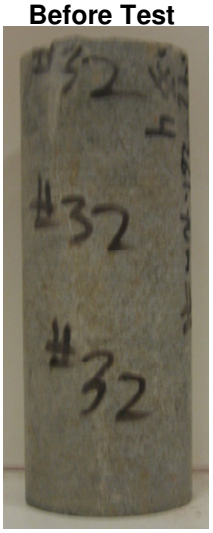




ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-12
Sample ID:	UCS#4
Depth (m)	261.42 - 261.70
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**67.76**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

Before Test

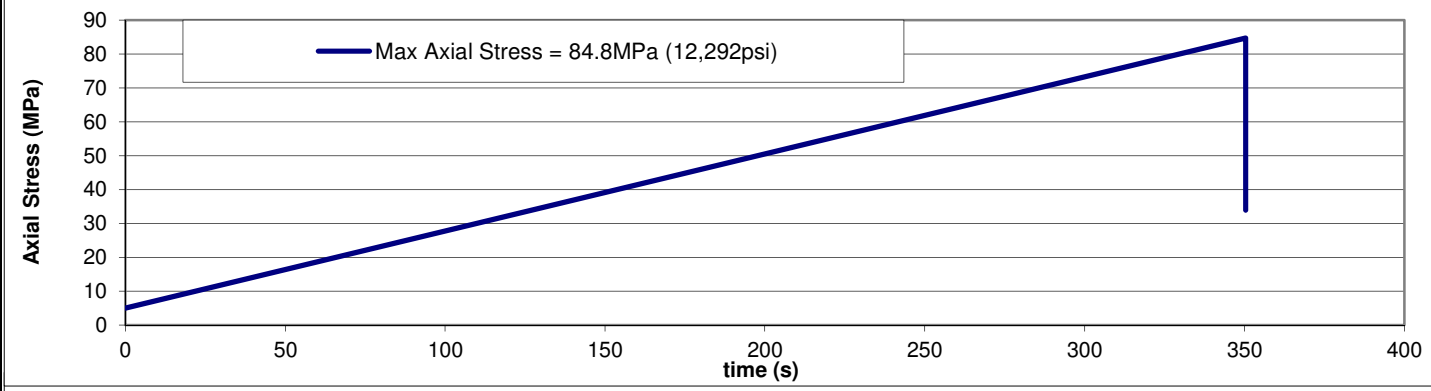


After Test

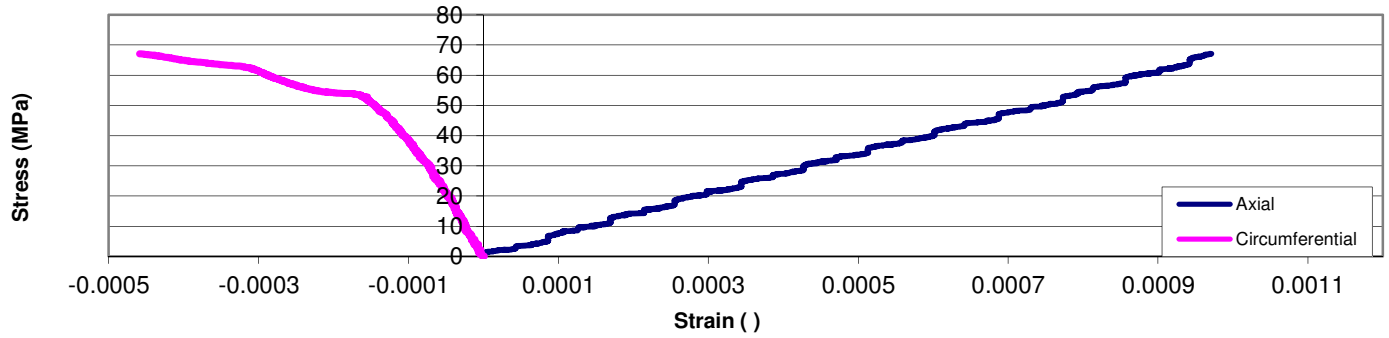


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.73	2896.7	168.18	2.8	245.6	84.8	12,292

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-12
Sample ID:	UCS#5
Depth (m)	345.15 - 345.48
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**69.86**
Poisson Ratio, ν:	**0.22**
Failure Mode:	**Along discontinuity**

Before Test

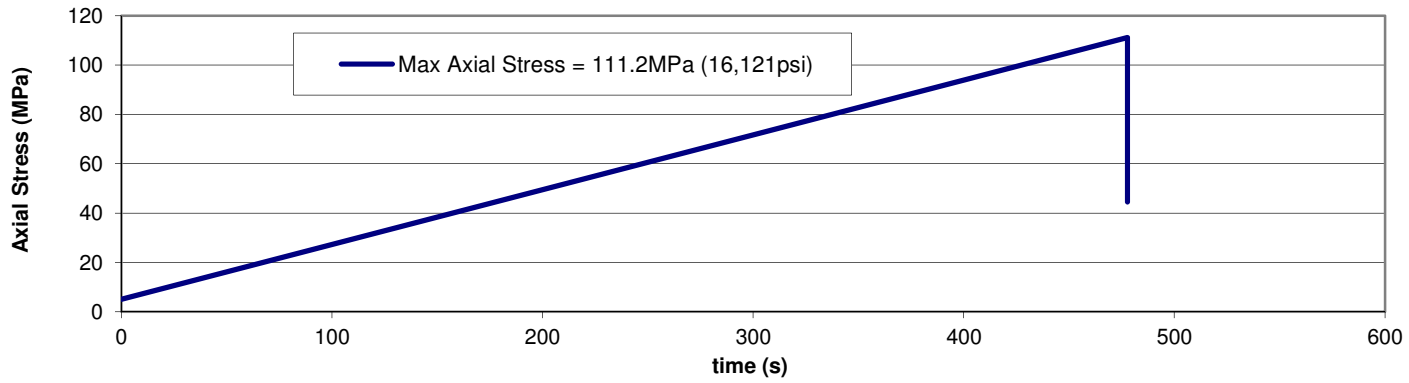


After Test

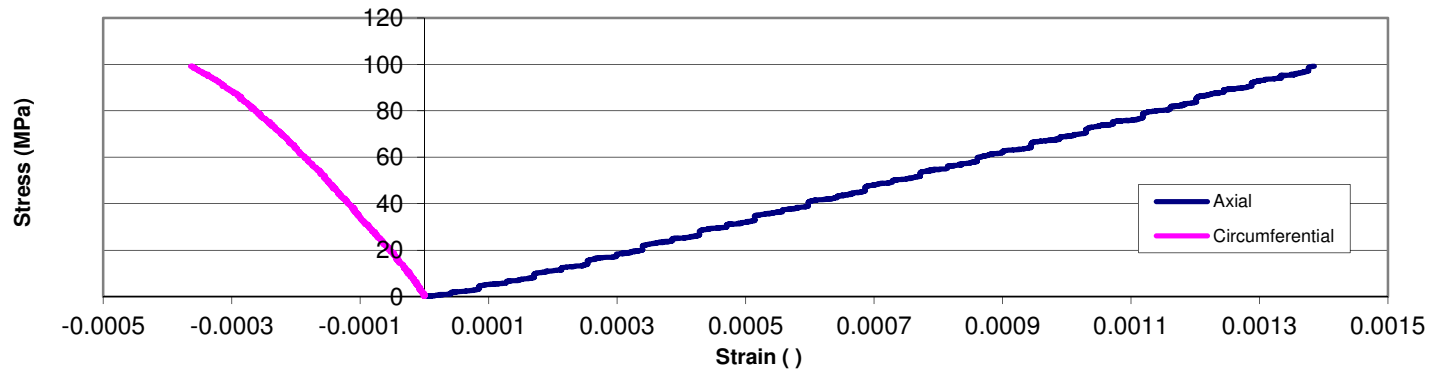


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.38	2863.4	170.31	2.8	318.3	111.2	16,121

Unconfined Compressive Strength Test



Stress-Strain Curves



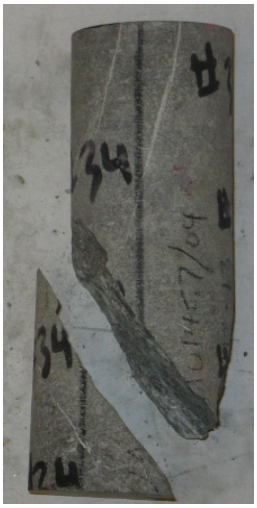
ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS-1
Depth (m)	190.24 - 190.50
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**50.06**
Poisson Ratio, ν:	**0.11**
Failure Mode:	**Along discontinuity**

Before Test

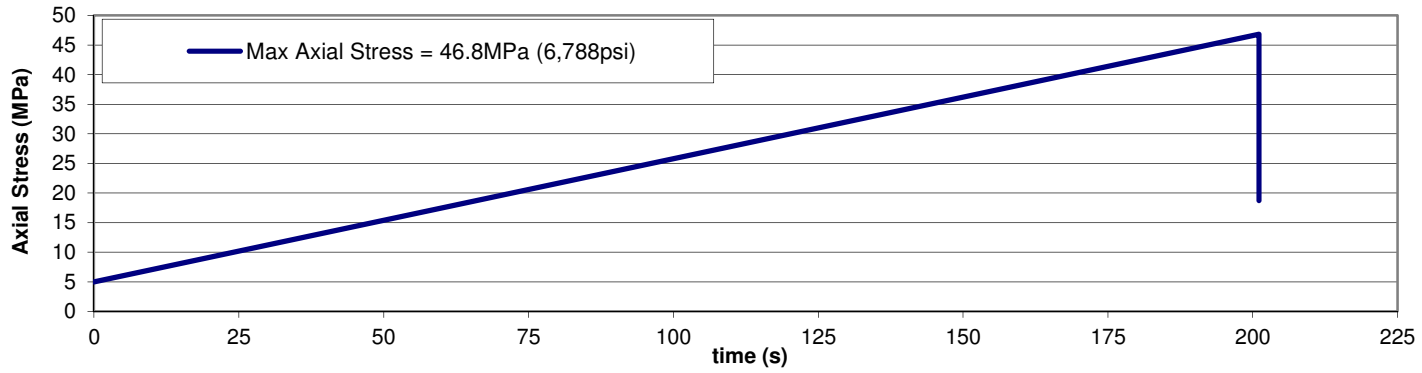


After Test

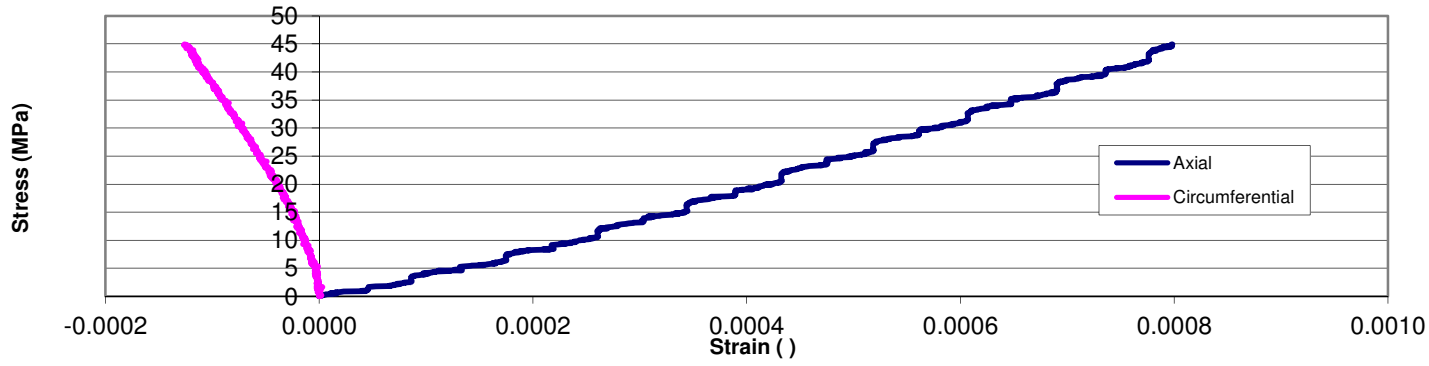


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.52	2876.7	168.94	2.8	134.7	46.8	6,788

Unconfined Compressive Strength Test



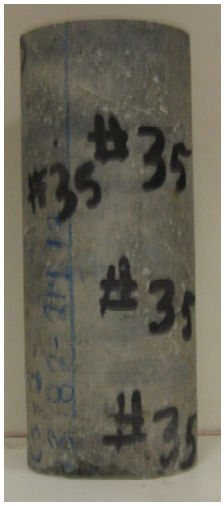
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS-2
Depth (m)	213.82 - 214.12
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**46.34**
Poisson Ratio, ν:	**0.15**
Failure Mode:	**Along discontinuity**

Before Test

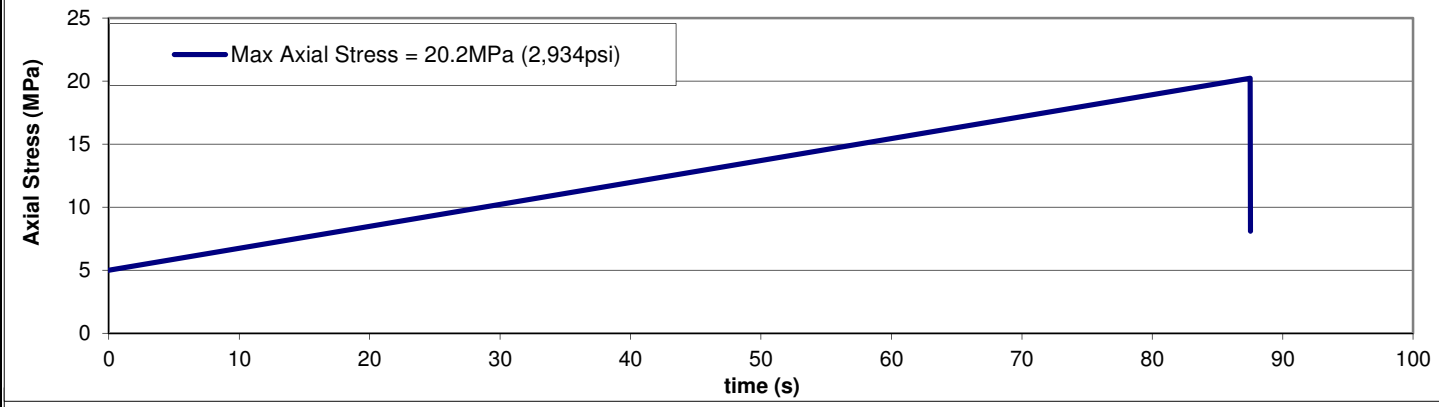


After Test

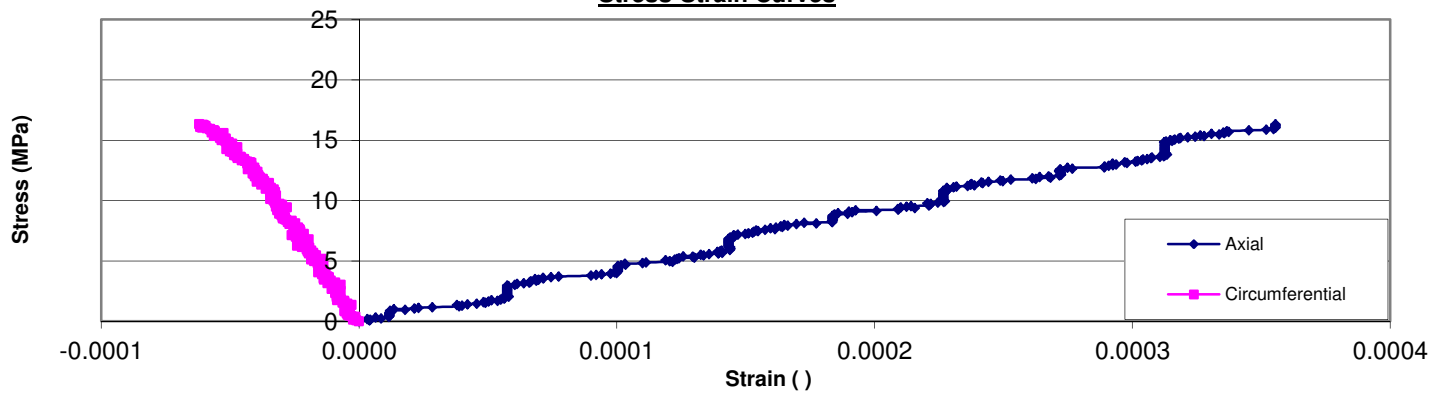


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.69	2892.8	165.88	2.7	58.5	20.2	2,934

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS-3
Depth (m)	241.50 - 241.81
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**41.34**
Poisson Ratio, ν:	**0.40**
Failure Mode:	**Along discontinuity**

Before Test

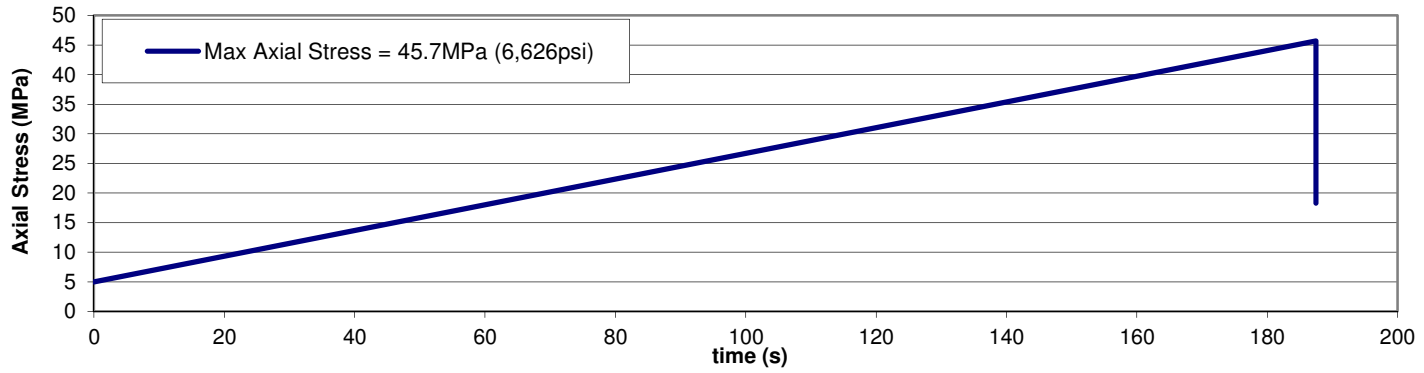


After Test

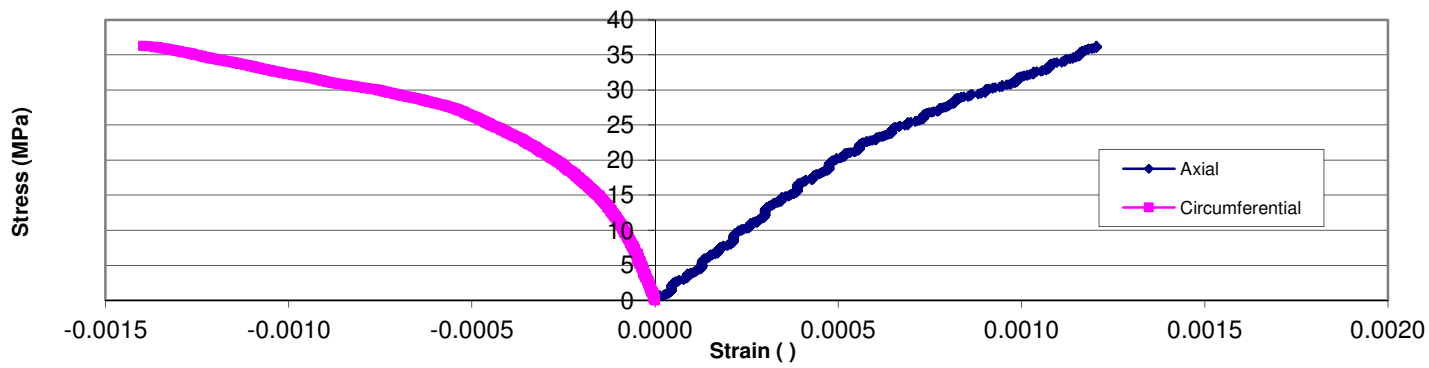


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.46	2871.0	168.06	2.8	131.2	45.7	6,626

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS-5
Depth (m)	273.92 - 274.25
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**60.75**
Poisson Ratio, ν:	**0.20**
Failure Mode:	**Along discontinuity**

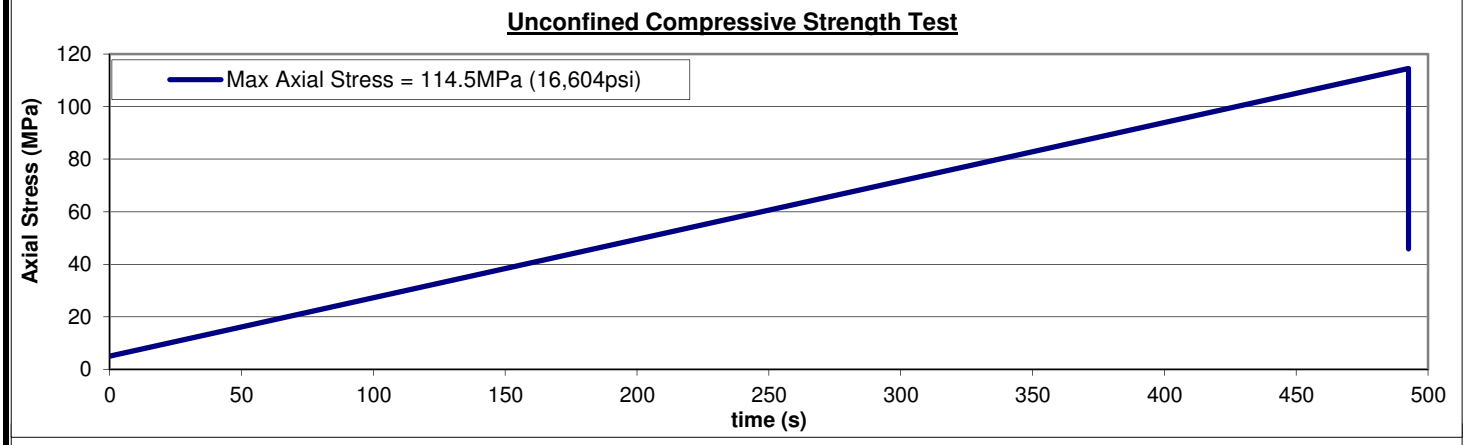
Before Test

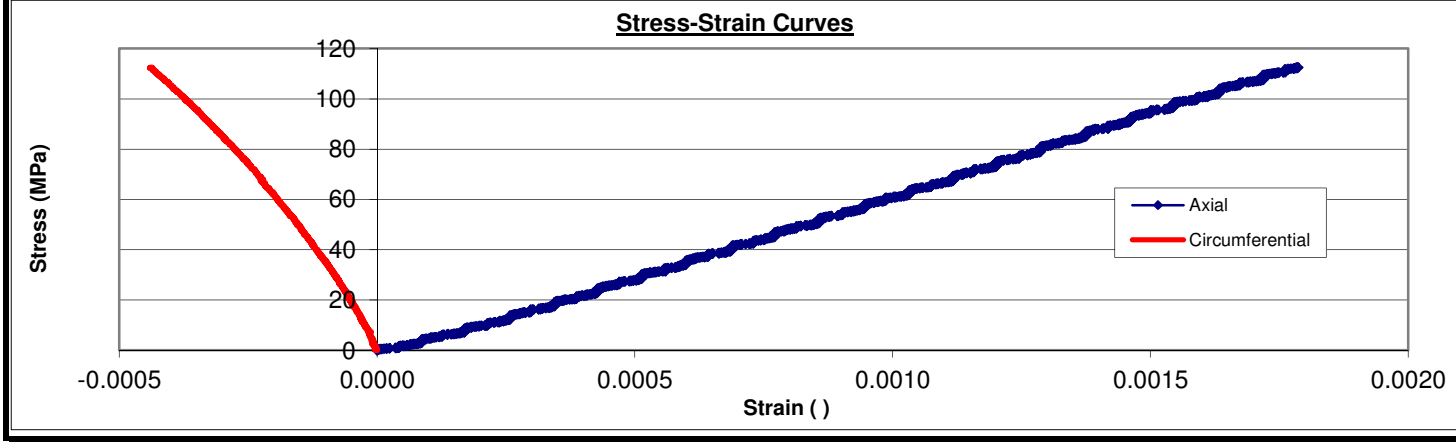


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.47	2871.9	169.99	2.8	328.9	114.5	16,604

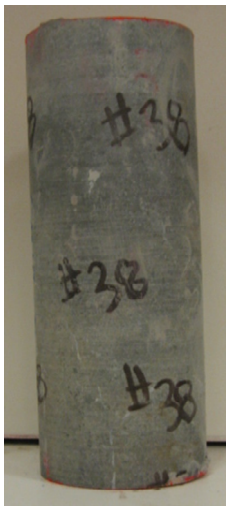




ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS-6
Depth (m)	339.37 - 339.63
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**61.17**
Poisson Ratio, ν:	**0.12**
Failure Mode:	**Shear**

Before Test

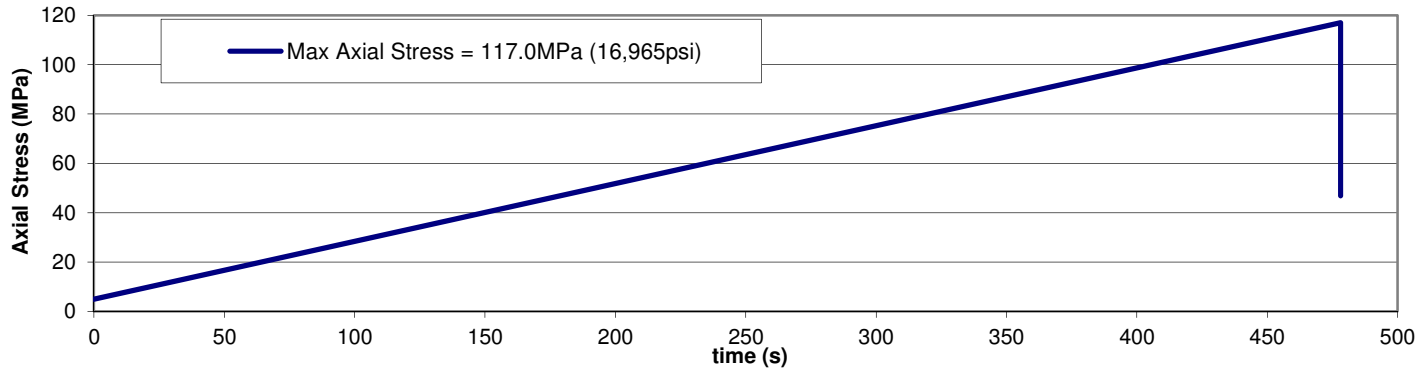


After Test

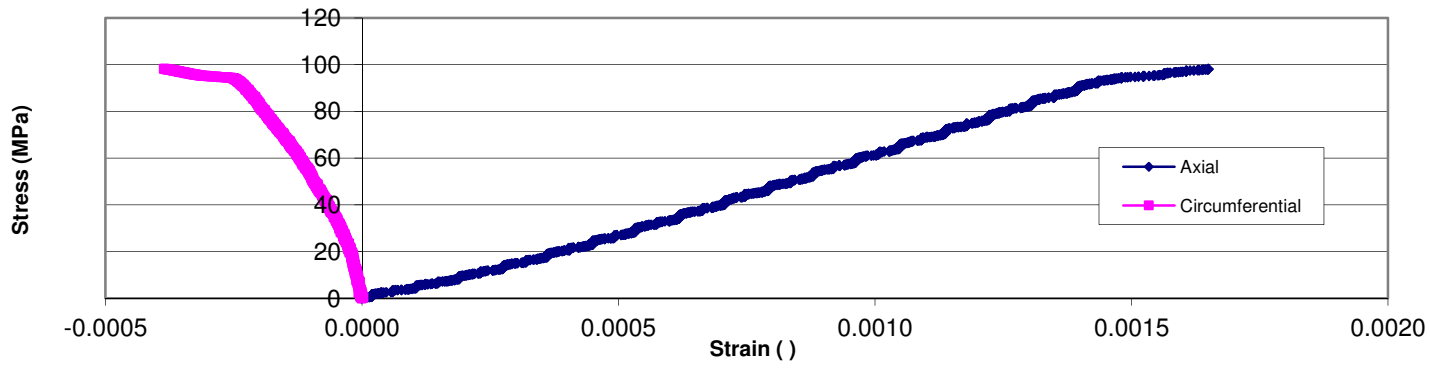


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.53	2877.6	169.35	2.8	336.7	117.0	16,965

Unconfined Compressive Strength Test



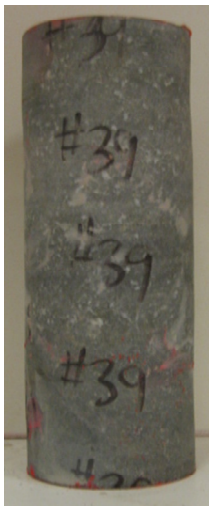
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS 7
Depth (m)	353.32 - 353.71
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**75.00**
Poisson Ratio, ν:	**0.26**
Failure Mode:	**Shear**

Before Test

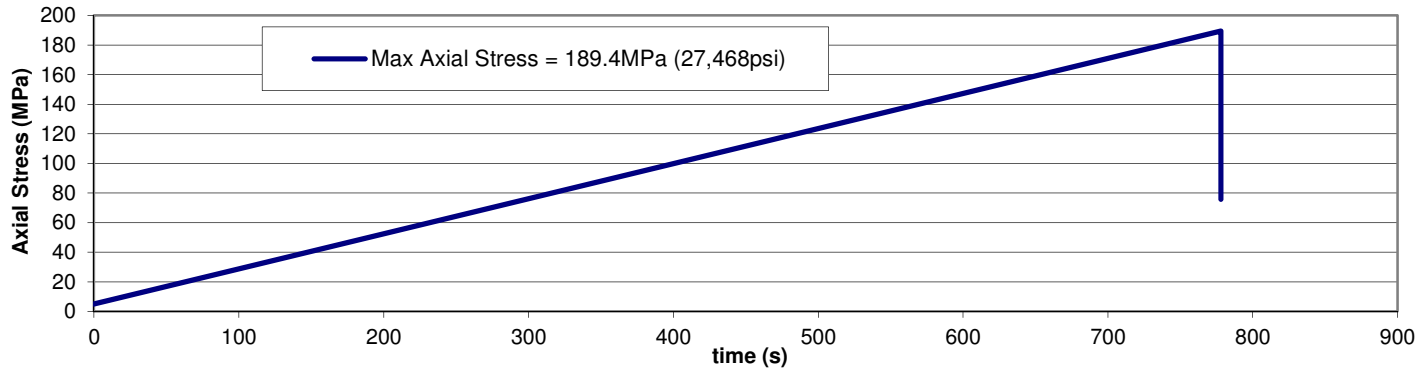


After Test

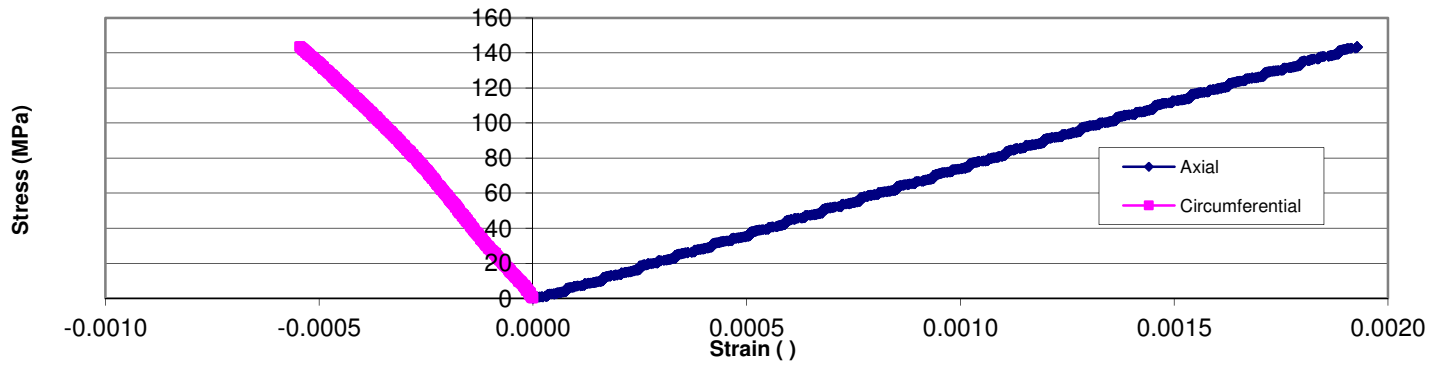


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.57	2881.4	169.36	2.8	545.8	189.4	27,468

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	GM12-13
Sample ID:	UCS13-01
Depth (m)	21.80 - 22.00
Lithology	Andesite
Tested By:	P.Hughes
Young Modulus, E (GPa):	**41.69**
Poisson Ratio, ν:	**0.19**
Failure Mode:	**Shear**

Before Test

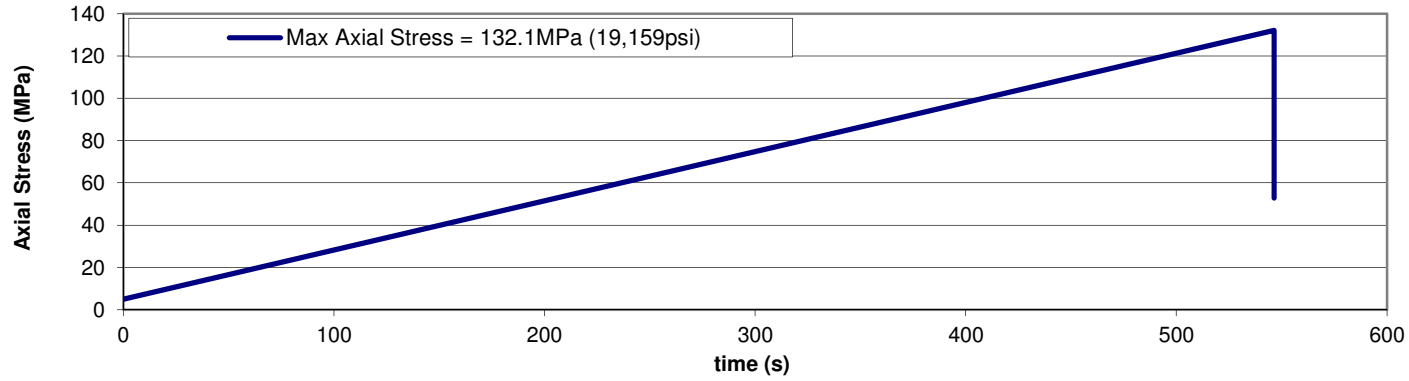


After Test

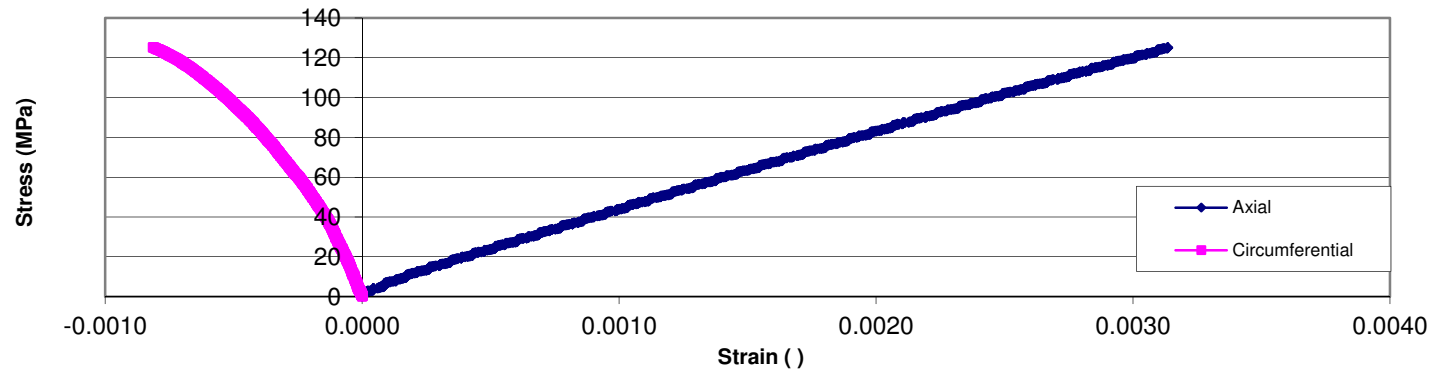


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.83	2906.2	169.91	2.8	384.0	132.1	19,159

Unconfined Compressive Strength Test



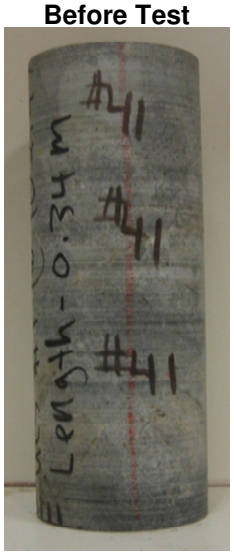
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR12
Sample ID:	UCS #1
Depth (m)	102.47 - 102.80
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**78.79**
Poisson Ratio, ν:	**0.21**
Failure Mode:	**Shear**

Before Test

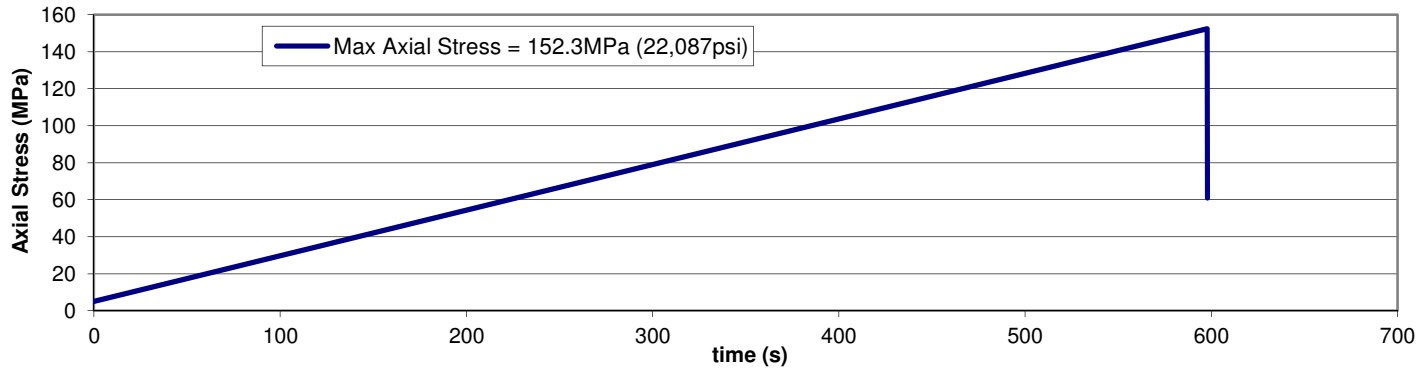


After Test

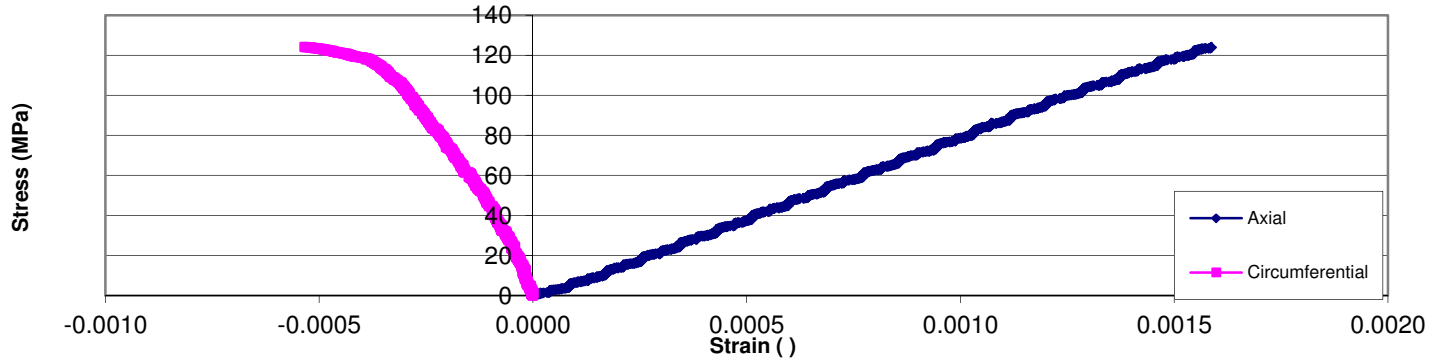


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.24	2756.3	168.92	2.9	419.8	152.3	22,087

Unconfined Compressive Strength Test



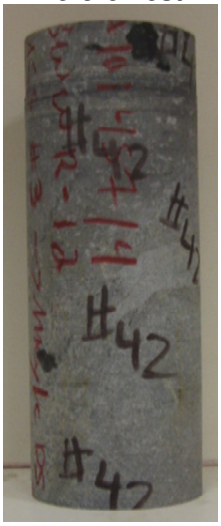
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR12
Sample ID:	UCS #3
Depth (m)	150.40 - 150.90
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**81.85**
Poisson Ratio, ν:	**0.22**
Failure Mode:	**Shear**

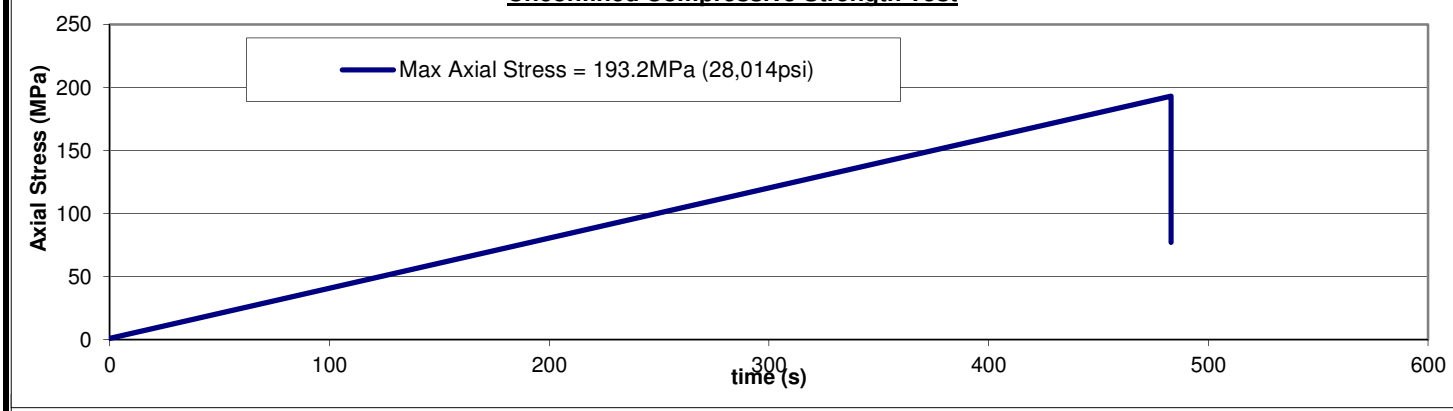
Before Test

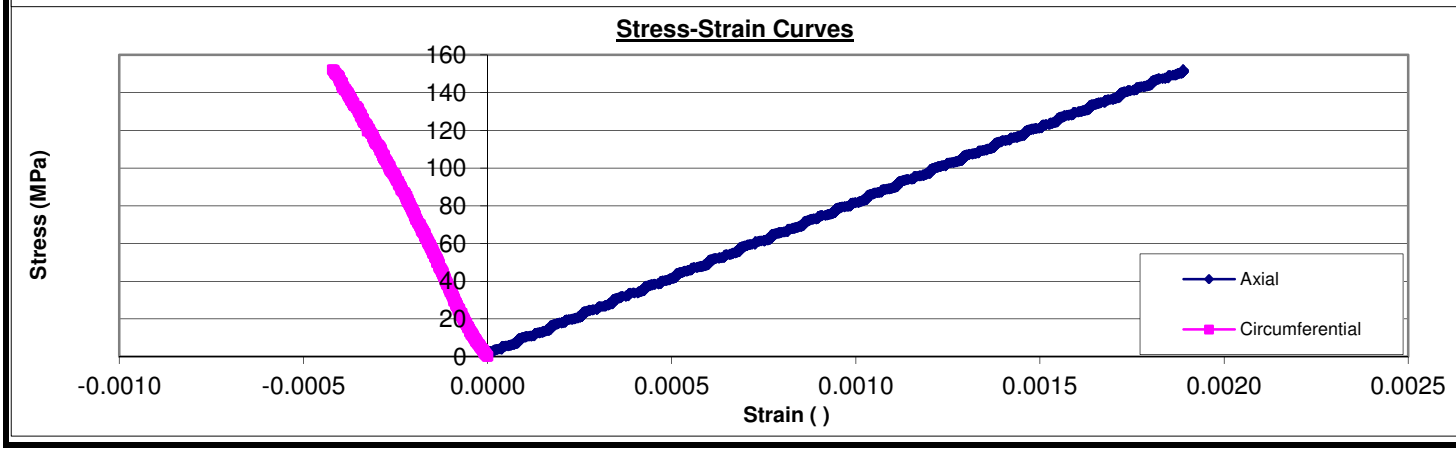


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
59.00	2734.0	170.28	2.9	528.2	193.2	28,014





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR12
Sample ID:	UCS #3
Depth (m)	203.05 - 203.34
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**81.99**
Poisson Ratio, ν:	**0.19**
Failure Mode:	**Shear**

Before Test

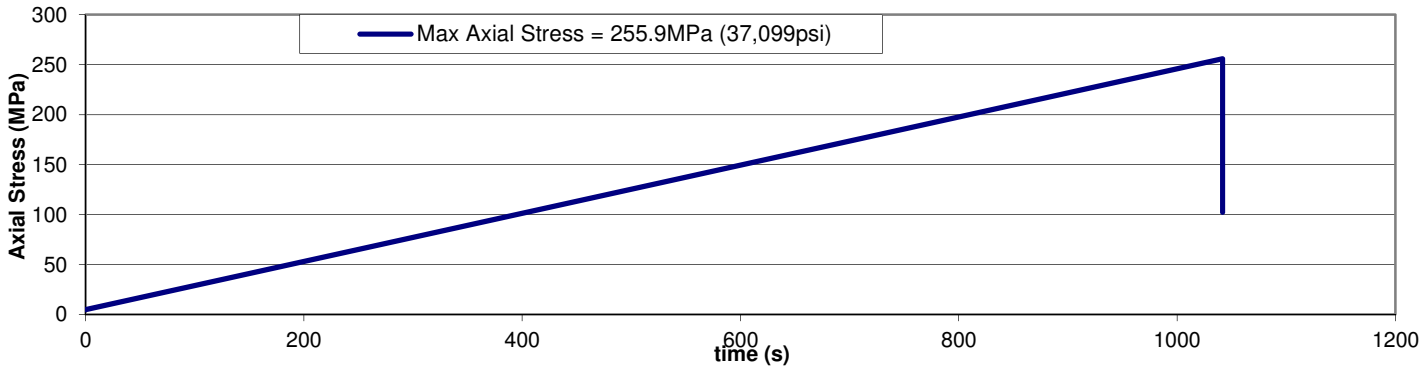


After Test

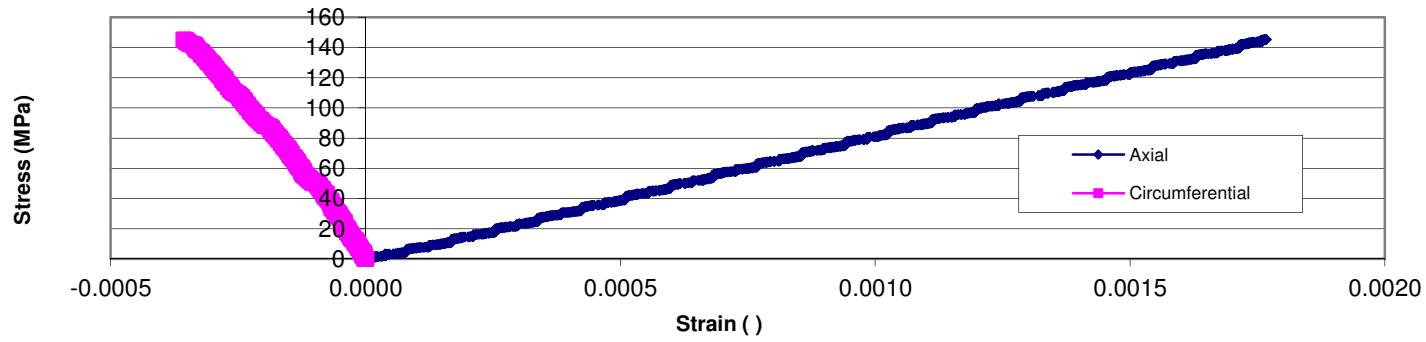


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.28	2853.9	171.09	2.8	730.2	255.9	37,099

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR12
Sample ID:	UCS #4
Depth (m)	249.00 - 249.25
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**62.68**
Poisson Ratio, ν:	**0.11**
Failure Mode:	**Shear**

Before Test

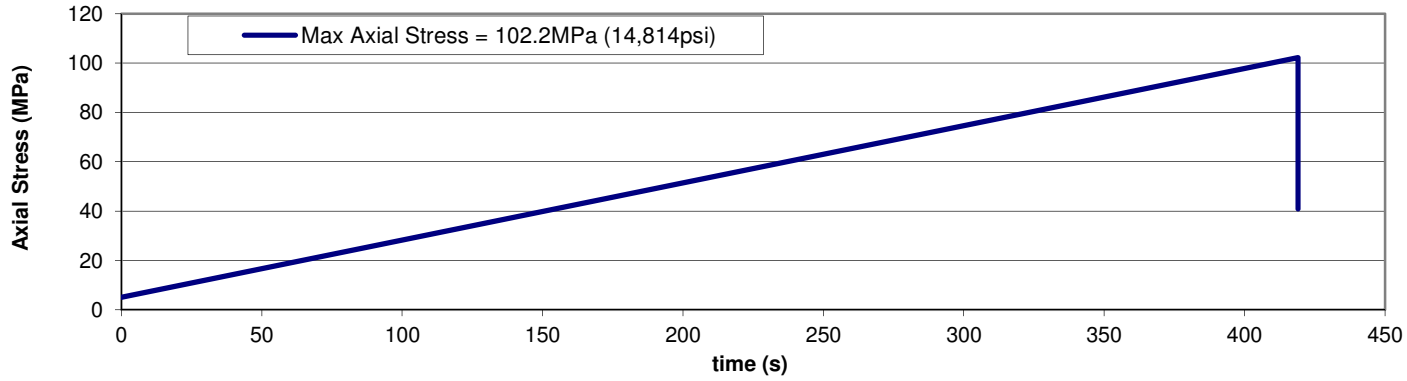


After Test

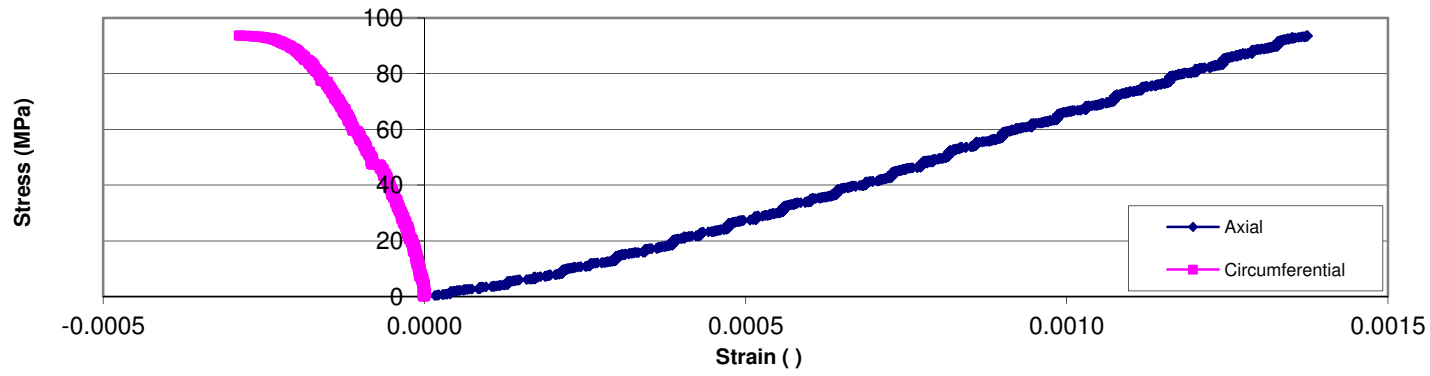


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.57	2881.4	169.08	2.8	294.4	102.2	14,814

Unconfined Compressive Strength Test



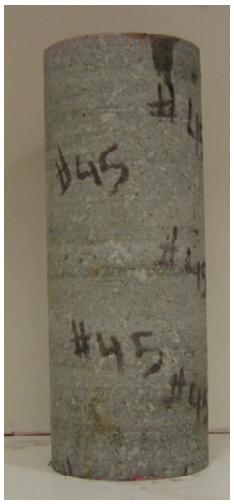
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR12
Sample ID:	UCS #5
Depth (m)	296.62 - 296.98
Lithology	Dacite/Latite Porphyry
Tested By:	P.Hughes
Young Modulus, E (GPa):	**24.14**
Poisson Ratio, ν:	**0.20**
Failure Mode:	**Shear**

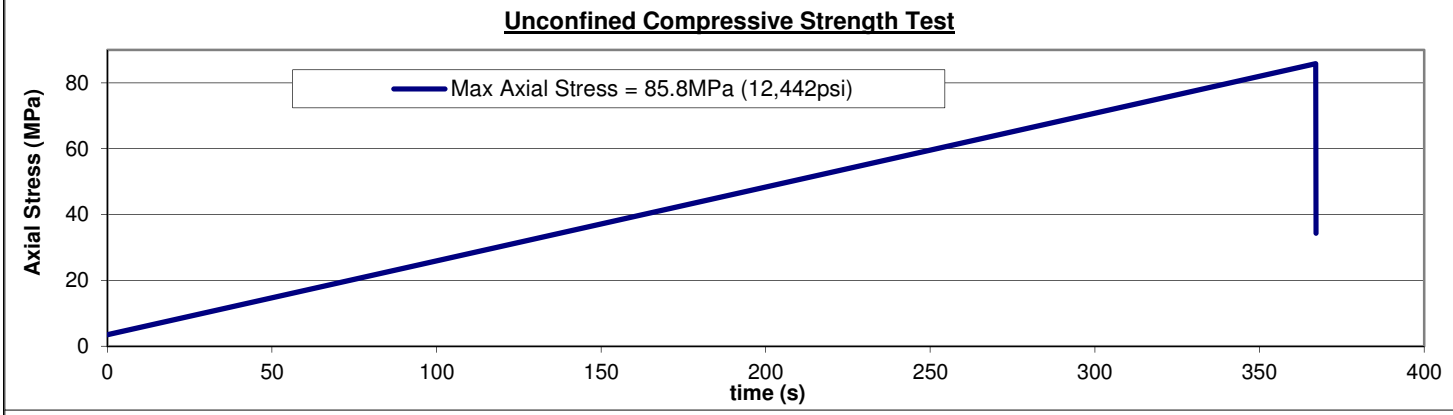
Before Test

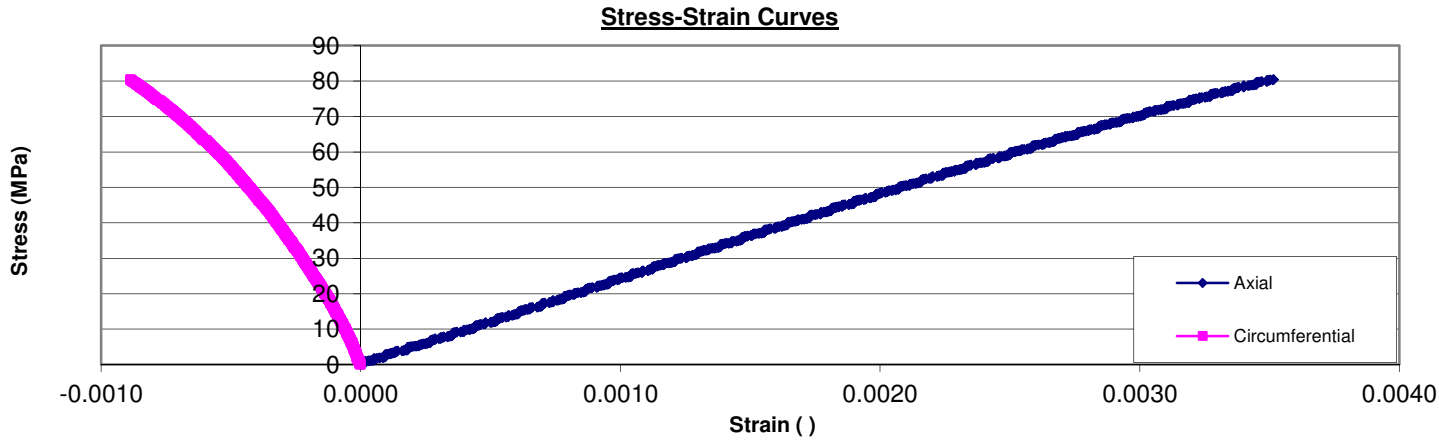


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.33	2858.6	172.85	2.9	245.3	85.8	12,442





ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR13
Sample ID:	UCS 1
Depth (m)	77.10 - 77.36
Lithology	Felsic Lapilli Tuff
Tested By:	P.Hughes
Young Modulus, E (GPa):	**68.18**
Poisson Ratio, ν:	**0.14**
Failure Mode:	**No Failure**

Before Test

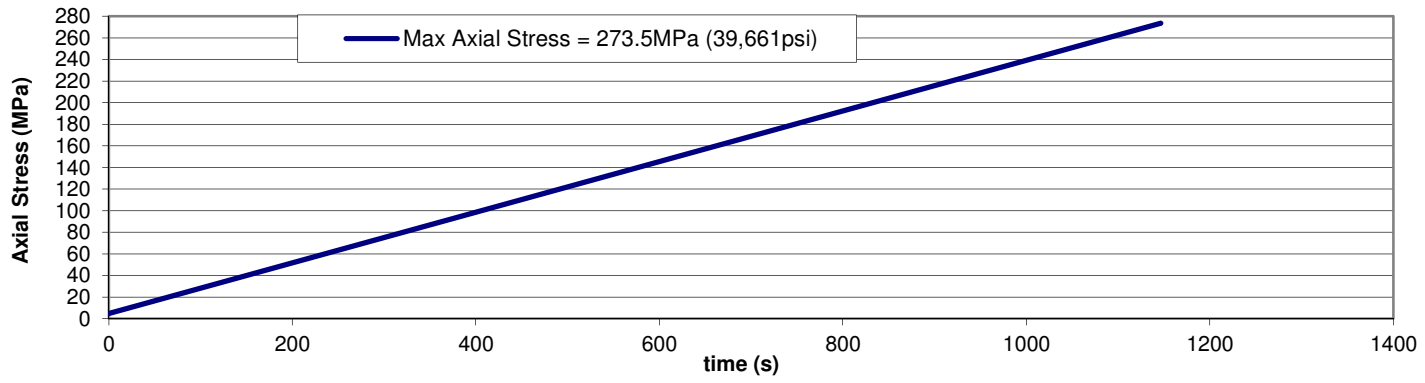


After Test

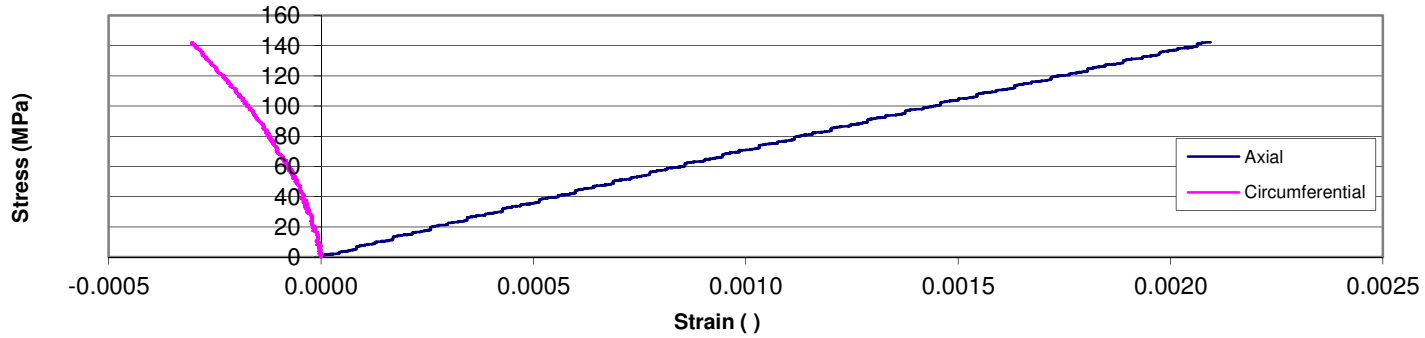
Sample did not fail at a load of 799.6 kN. As such, the material strength exceeded the load tolerance of the machine. The values reported are not the UCS, rather the maximum axial stress of the sample under loading. The UCS should be considered to be in excess of 273.5 MPa.

Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	Maximum Axial Stress	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
61.01	2923.4	168.91	2.8	799.6	273.5	39,661

Unconfined Compressive Strength Test



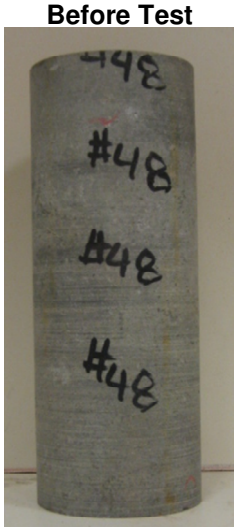
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR13
Sample ID:	UCS 2
Depth (m)	157.07 - 157.50
Lithology	Conglomerate
Tested By:	P.Hughes
Young Modulus, E (GPa):	**71.97**
Poisson Ratio, ν:	**0.23**
Failure Mode:	**Shear**

Before Test

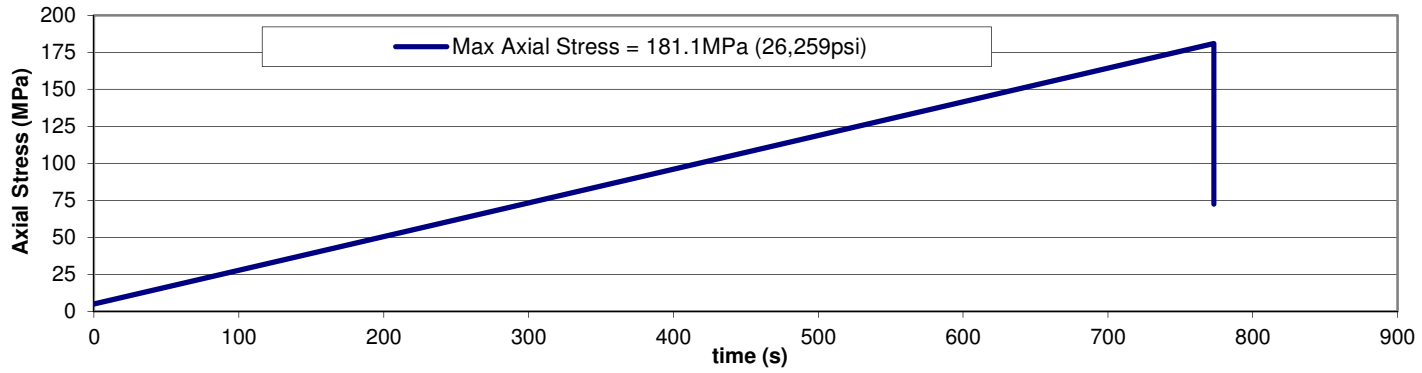


After Test

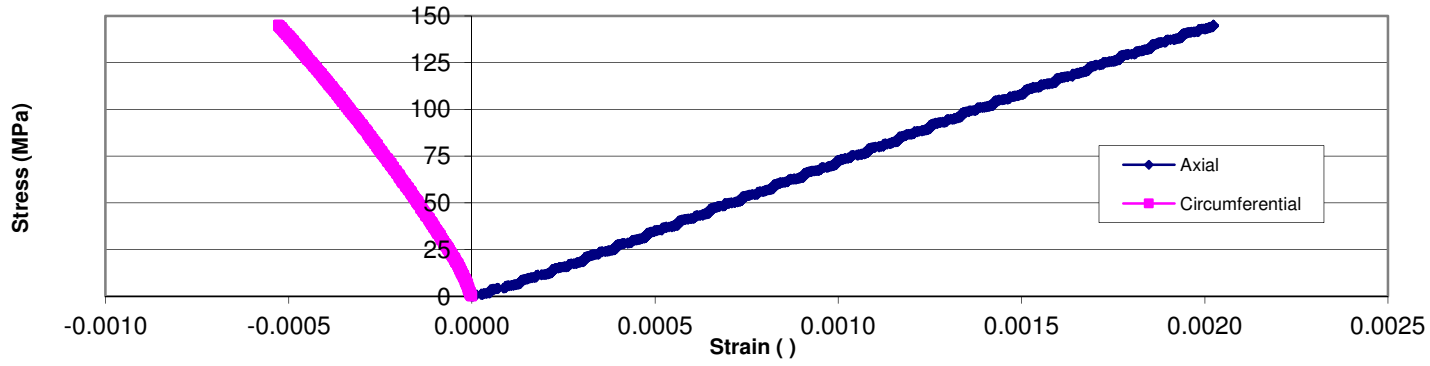


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.28	2853.9	172.62	2.9	516.8	181.1	26,259

Unconfined Compressive Strength Test



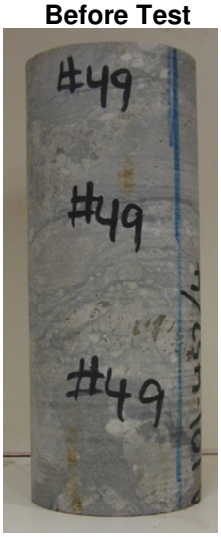
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR13
Sample ID:	UCS#4
Depth (m)	221.46 - 221.84
Lithology	Conglomerate
Tested By:	P.Hughes
Young Modulus, E (GPa):	**81.46**
Poisson Ratio, ν:	**0.23**
Failure Mode:	**Shear**

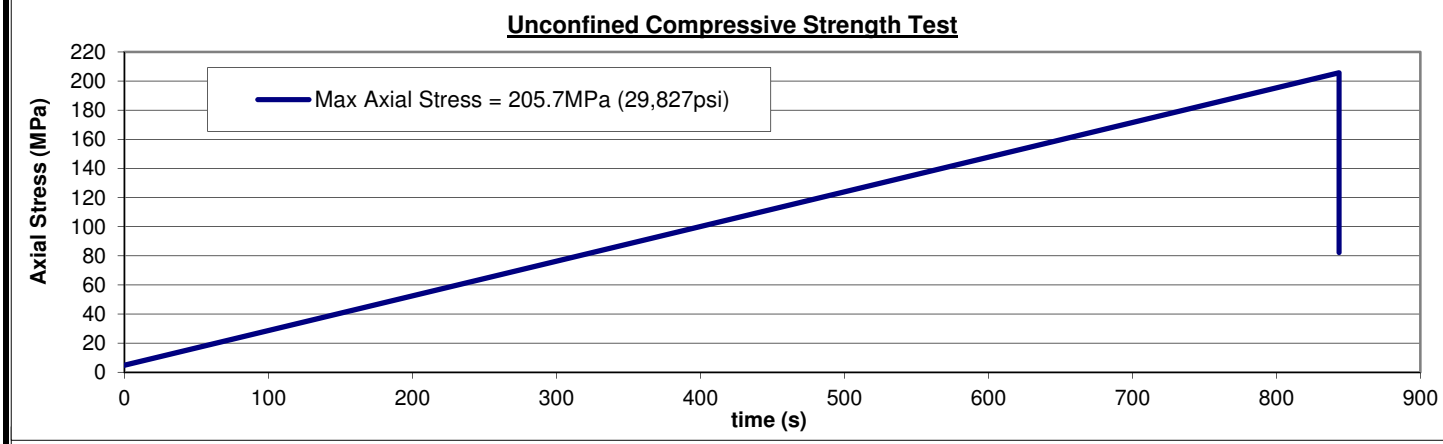
Before Test

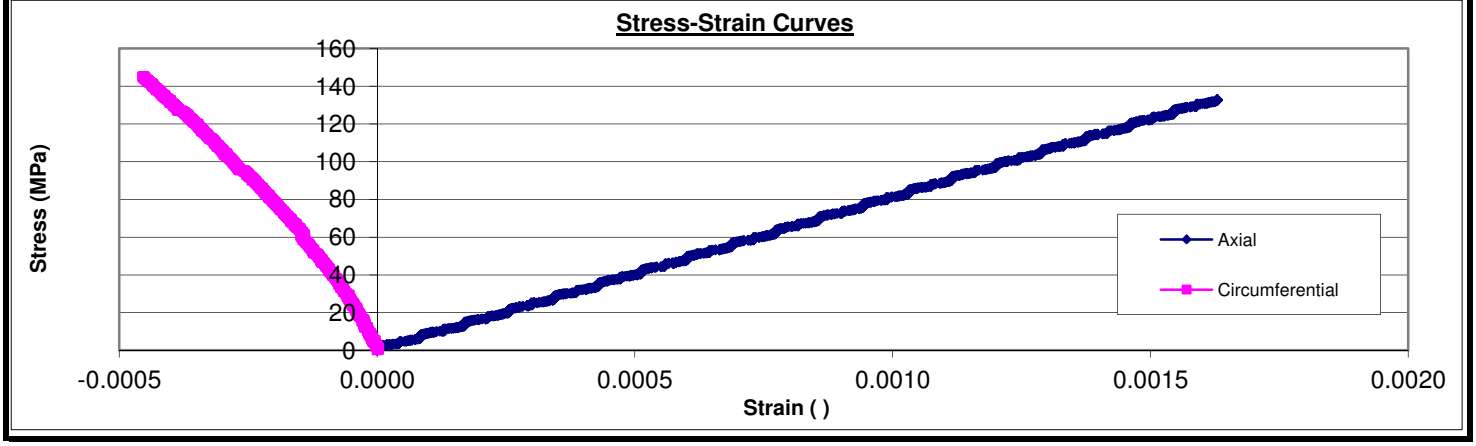


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.53	2877.6	170.85	2.8	591.9	205.7	29,827

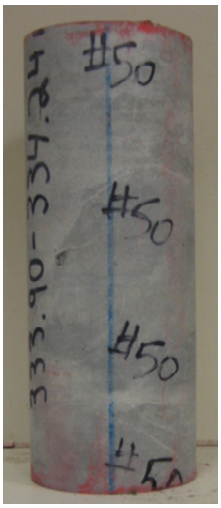




ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR13
Sample ID:	UCS#5
Depth (m)	333.90 - 334.24
Lithology	Conglomerate
Tested By:	P.Hughes
Young Modulus, E (GPa):	**88.44**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

Before Test

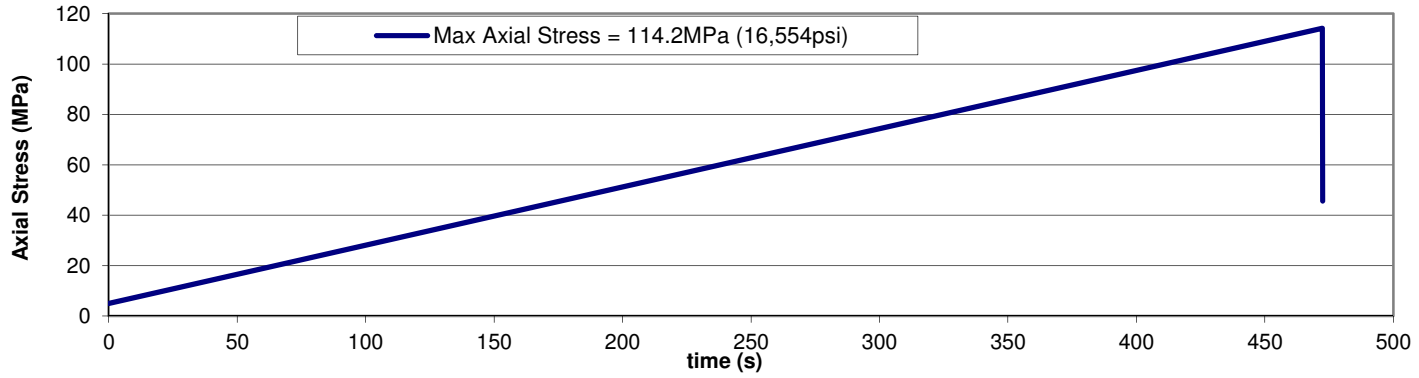


After Test

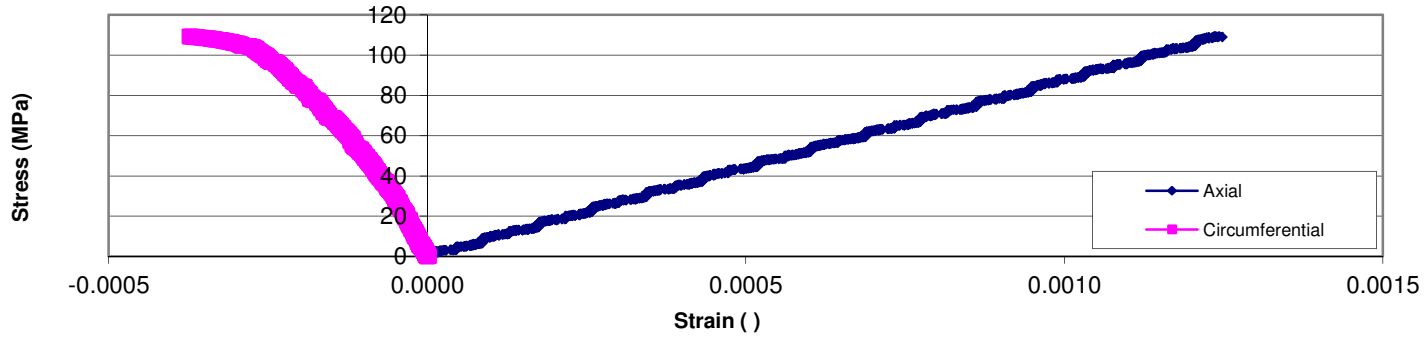


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.67	2890.9	169.94	2.8	330.0	114.2	16,554

Unconfined Compressive Strength Test



Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR13
Sample ID:	UCS#6
Depth (m)	340.50 - 341.04
Lithology	Conglomerate
Tested By:	P.Hughes
Young Modulus, E (GPa):	**89.35**
Poisson Ratio, ν:	**0.18**
Failure Mode:	**Shear**

Before Test

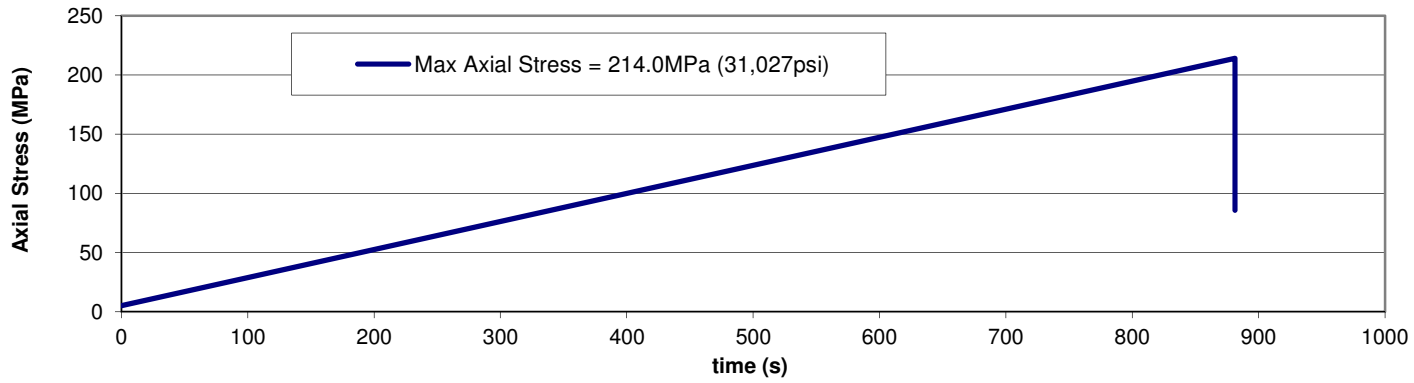


After Test

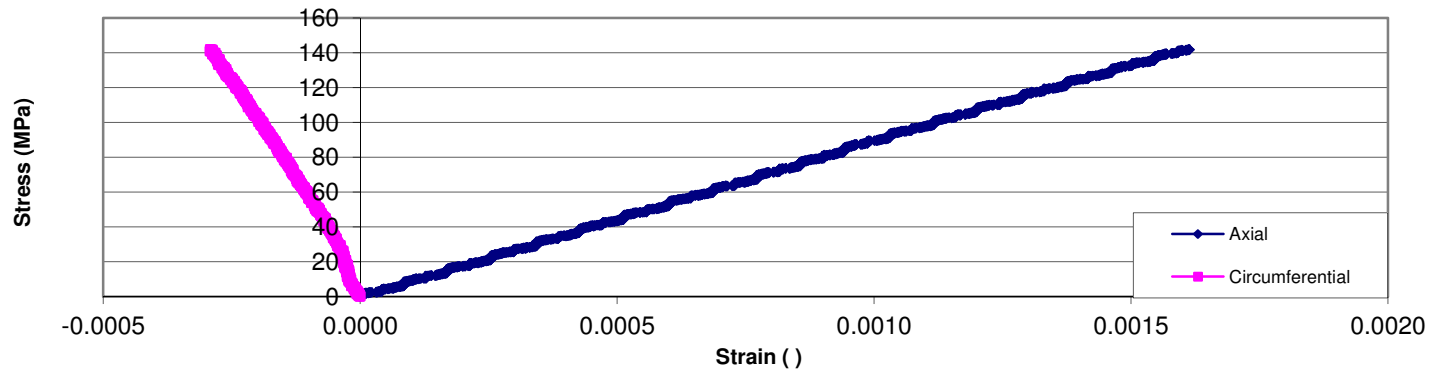


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.66	2890.0	167.68	2.8	618.4	214.0	31,027

Unconfined Compressive Strength Test



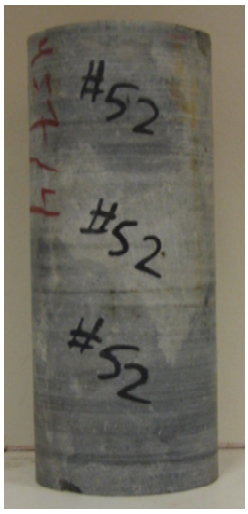
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR14
Sample ID:	UCS #1
Depth (m)	99.00 - 100.50
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**66.68**
Poisson Ratio, ν:	**0.14**
Failure Mode:	**Shear**

Before Test

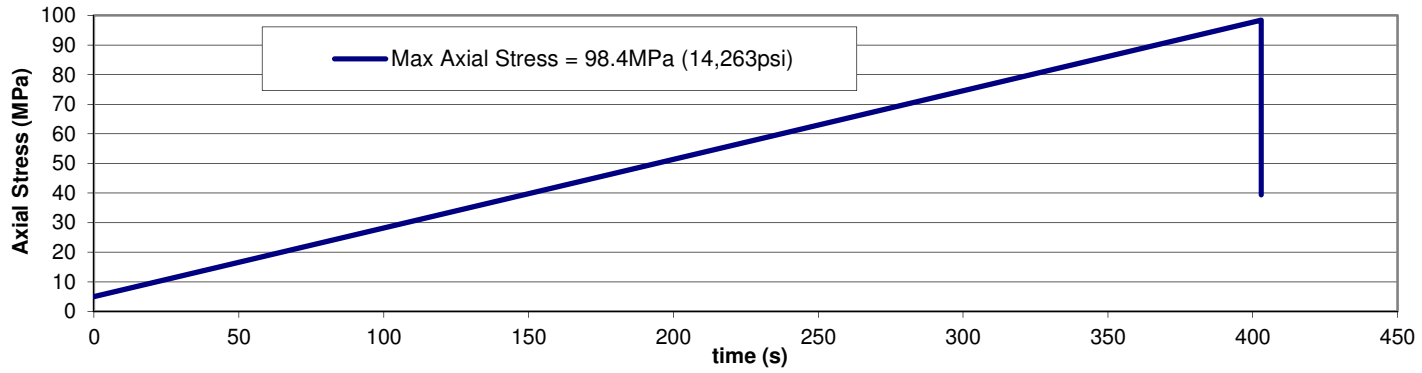


After Test

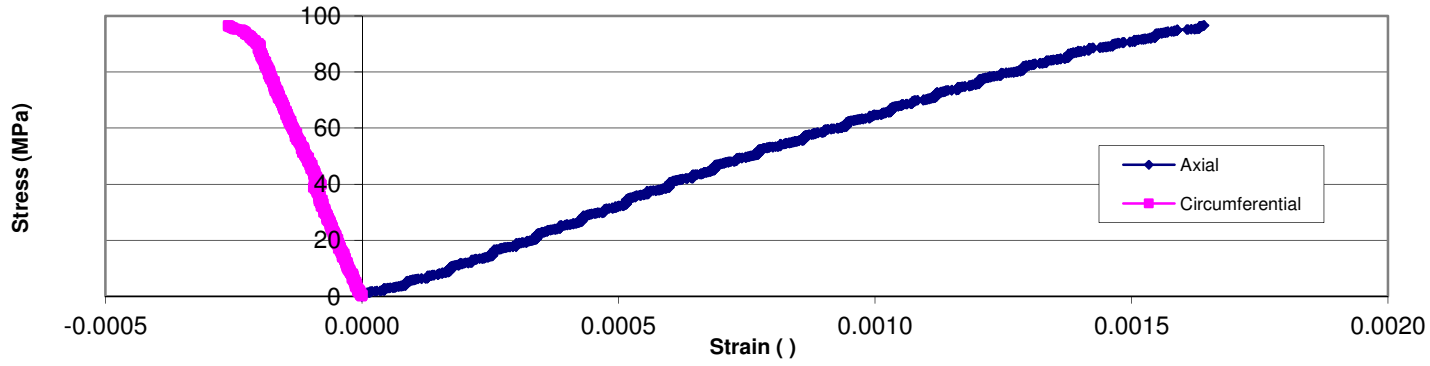


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.47	2871.9	158.76	2.6	282.5	98.4	14,263

Unconfined Compressive Strength Test



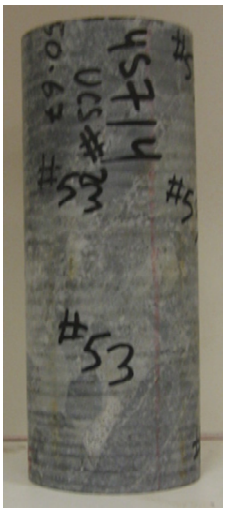
Stress-Strain Curves



ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR14
Sample ID:	UCS #2
Depth (m)	150.30 - 150.67
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**72.76**
Poisson Ratio, ν:	**0.25**
Failure Mode:	**Shear**

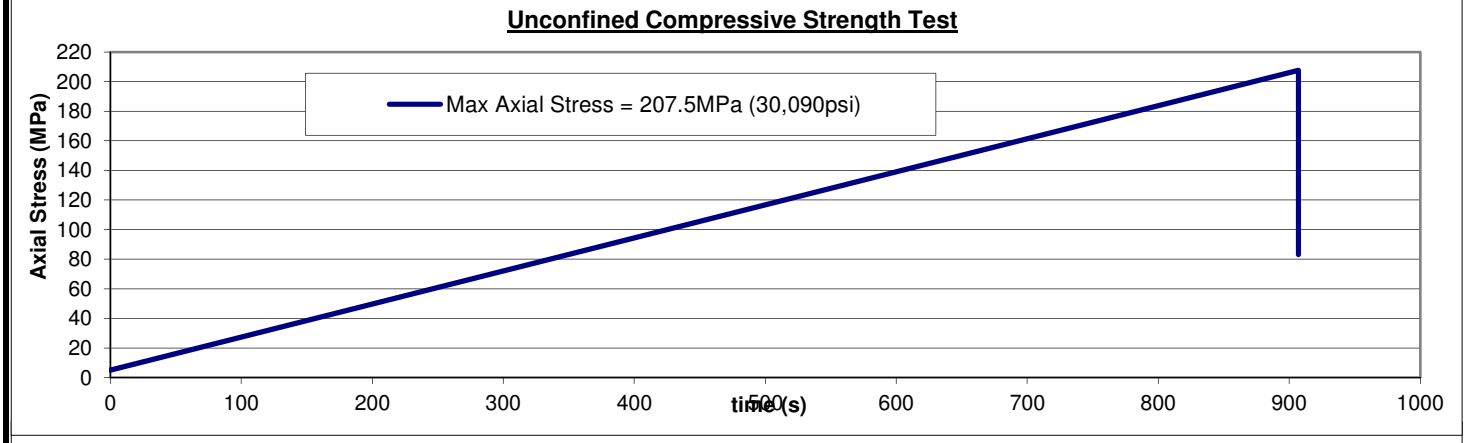
Before Test

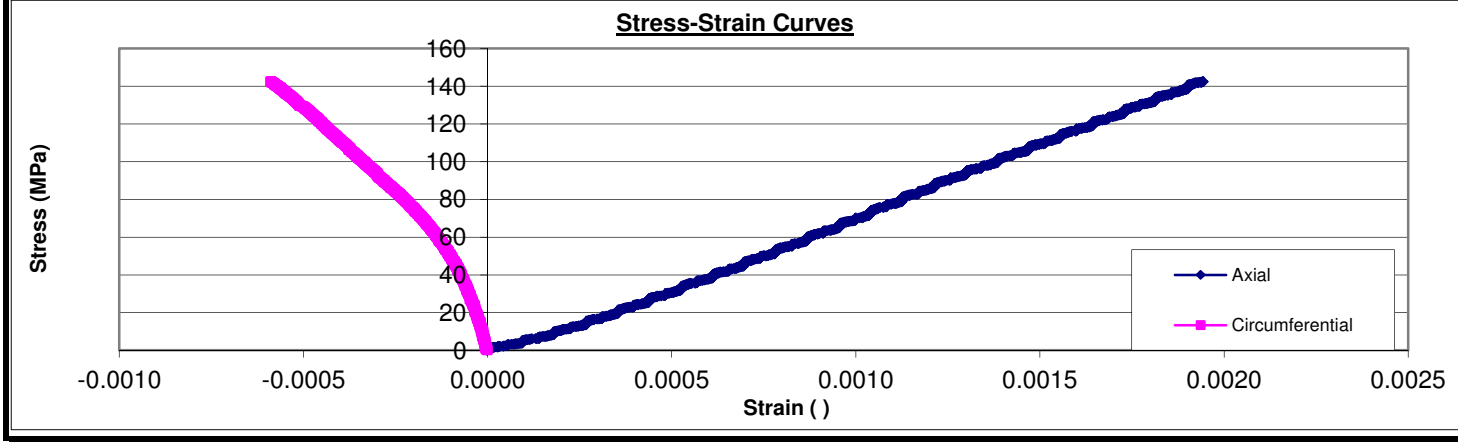


After Test



Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.72	2895.7	170.36	2.8	600.9	207.5	30,090

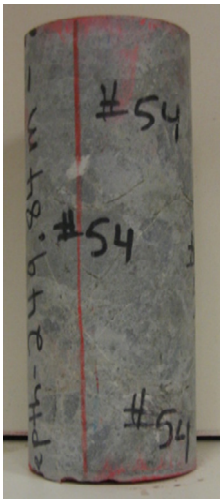




ELASTIC MODULUS AND UNCONFINED COMPRESSIVE STRENGTH TEST
(ISRM-1979)

Hole ID:	BWWR14
Sample ID:	UCS #4
Depth (m)	249.84 - 250.04
Lithology	Volcaniclastic
Tested By:	P.Hughes
Young Modulus, E (GPa):	**13.73**
Poisson Ratio, ν:	**0.43**
Failure Mode:	**Along discontinuity**

Before Test

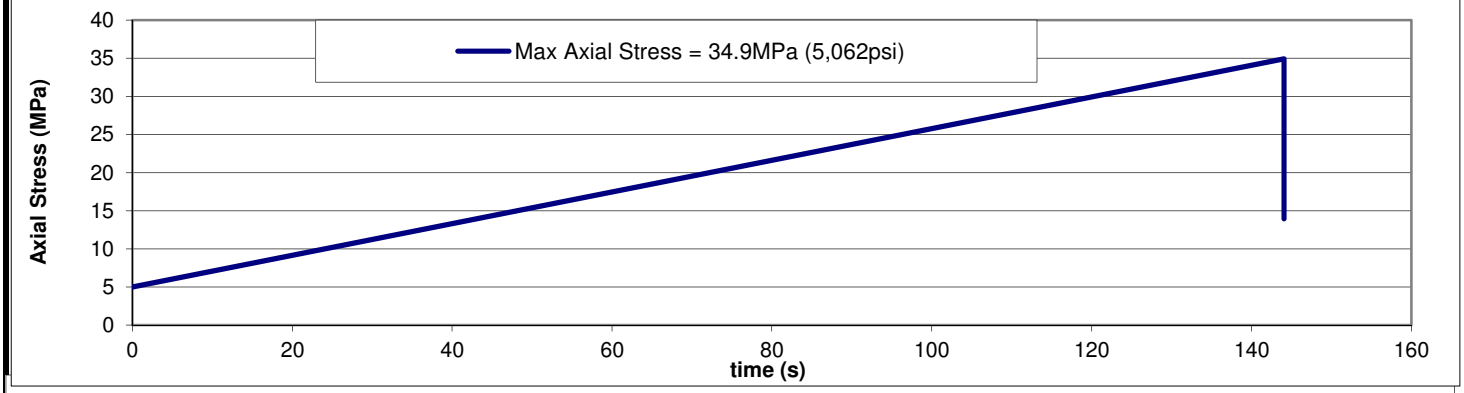


After Test

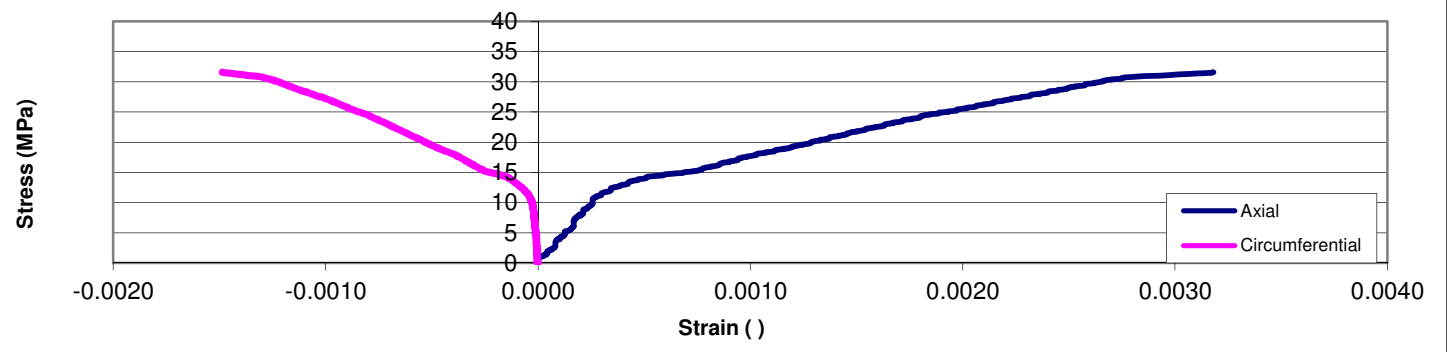


Diameter, (ϕ)	Area, (A)	Height, (h)	Ratio	Peak Load	σ_{UCS}	
(mm)	(mm^2)	(mm)	h/ϕ	(kN)	(MPa)	(psi)
60.58	2882.4	167.20	2.8	100.6	34.9	5,062

Unconfined Compressive Strength Test



Stress-Strain Curves



Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C8

Unconfined Compressive Stress of Cohesive Soils

Reference: ASTM D 2166-06

Client:	Knight Piesold Ltd	**Borehole:**	GM 12-12
Project:	VA101-457/4	**Sample No.:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 - 44.5
Project No.:	11-1447-0001	**Lab ID No:**	22
Sample Type :	UNDISTURBED	**CLASSIFICATION:**	N/A
Remarks	Volcaniclastic		

Sample Data

	Initial	Final
Height (cm):	13.25	12.71
Diameter (cm):	6.24	6.37
Area (cm^2):	30.59	31.88
Volume (cm^3):	405	405
Wet Weight (g):	1006	1005
Dry Weight (g):	980	980
Water content, w (%):	2.6	2.5
γ_{wet} (kN/m^3):	24.33	24.30
γ_{dry} (kN/m^3):	23.71	23.71
Saturation (%):	52	50
Void ratio, e:	0.14	0.14
Specific Gravity (calculated):	2.75	2.75

Equipment

Machine:	Station 4 Load Frame 10 K
Chamber:	N/A
Load Cell:	305670
Axial DCDT:	LP-946
Feed Rate (%/min):	1.00

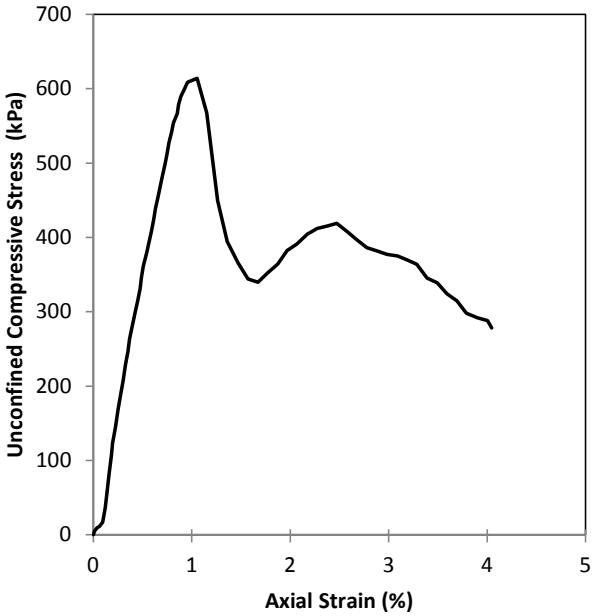
Strength Results

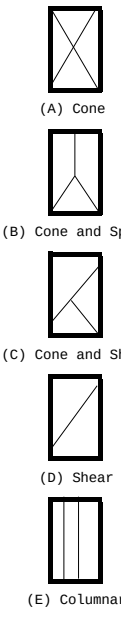
Unconfined Compressive Stress (kPa):	614
Shear Strength, S_u (kPa)	307
Strain at Failure, ε_f:	1.60
Initial Height/Diameter Ratio	2.12

SAMPLE DESCRIPTION

Weathered Fault Gouge

Type C Failure - SHEAR







TM	15-Mar-13	ROB	16-Apr-13
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX C3

ROCK DIRECT SHEAR TESTING RESULTS

(Pages C3-1 to C3-137)

Knight Piésold CONSULTING

APPENDIX TABLE C3.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

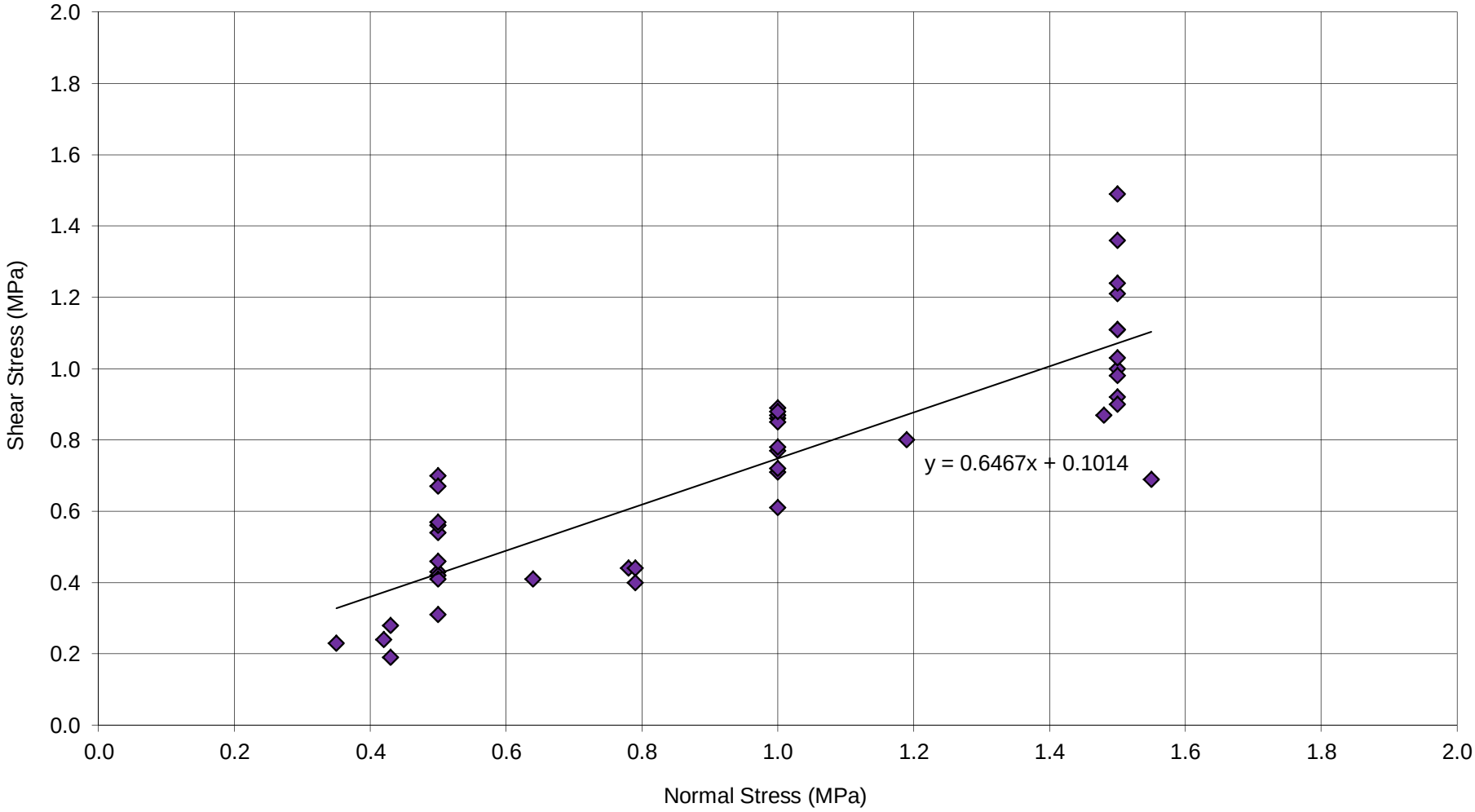
2013 OPEN PIT SLOPE DESIGN
SUMMARY OF DIRECT SHEAR TESTING RESULTS

Borehole	Sample	Depth		Lithology	Test #1		Test #2		Test #3		Ø (Deg)	C (kPa)
		From (m)	To (m)		Normal (MPa)	Shear (MPa)	Normal (MPa)	Shear (MPa)	Normal (MPa)	Shear (MPa)		
PEAK TESTS												
GM 12-06	DS 06-01	252.80	253.20	AND	0.50	0.70	1.00	0.89	1.50	1.36	33	323
GM 12-06	DS 06-02	320.30	321.00	AND	0.50	0.67	1.00	0.86	1.50	1.11	24	440
GM 12-07	DS 07-01	160.60	160.90	AND	0.50	0.54	1.00	0.77	1.50	1.00	25	310
GM 12-07	DS 07-02	201.10	201.40	AND	0.50	0.31	1.00	0.61	1.50	0.98	33	0
GM 12-09	DS #1	141.70	142.10	AND	0.50	0.56	1.00	0.87	1.50	1.11	29	297
GM 12-09	DS #2	255.40	256.10	AND	0.50	0.43	1.00	0.71	1.50	1.21	38	3
GM 12-10	DS 12-01	61.50	61.80	VC	0.50	1.01	1.00	1.47	1.50	1.92	42	557
GM 12-10	DS 10-02	226.70	227.00	VC	0.50	0.43	1.00	0.77	1.50	1.20	38	30
GM 12-10	DS 12-03	275.20	275.60	VC	0.50	0.51	1.00	0.81	1.50	1.28	38	97
GM 12-12	DS #1	288.50	288.90	AND	0.50	0.42	1.00	0.78	1.50	1.03	31	133
GM 12-13	DST 1	145.10	145.50	ABX	0.50	0.46	1.00	0.85	1.50	1.49	43	0
GM 12-13	DST 2	213.30	213.70	AND	0.50	0.57	1.00	0.72	1.50	0.90	18	400
GM 12-13	DST 3	241.80	242.30	AND	0.50	0.41	1.00	0.88	1.50	1.24	40	13
BWWR 12	DS-1	267.70	268.20	VC	0.50	0.43	1.00	0.81	1.50	1.27	40	0
BWWR 13	DS #1	169.50	169.90	CON	0.50	0.65	1.00	0.99	1.50	1.39	37	270
BWWR 13	DS #2	341.60	342.00	CON	0.50	0.51	1.00	0.95	1.50	1.56	45	0
GM12-12	Gouge 3	126.40	126.70	Fault gouge	0.30	0.33	0.60	0.58	0.90	0.80	45	0
GM12-08	#1 Fault	318.24	318.44	Fault gouge	0.30	0.37	0.60	0.58	0.90	0.78	39	90
GM12-09	Fault #1	56.50	56.40	Fault gouge	0.30	0.28	0.60	0.49	0.90	0.70	35	72

NOTES:

1. LITHOLOGY: VC - VOLCANICLASTIC; AND - ANDESITE; CON - CONGLOMERATE; FT - FELSIC TUFF; FTLP - FELSIC LAPILLI TUFF; SED - SEDIMENTRY; INTR - DIORITE DYKE

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
A	08JUL'13	ISSUED FOR REPORT	JS	DAY	KJB



0	13 MAY'13	ISSUED WITH REPORT	ML	JS	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DIRECT SHEAR PEAK TEST RESULTS
ANDESITE

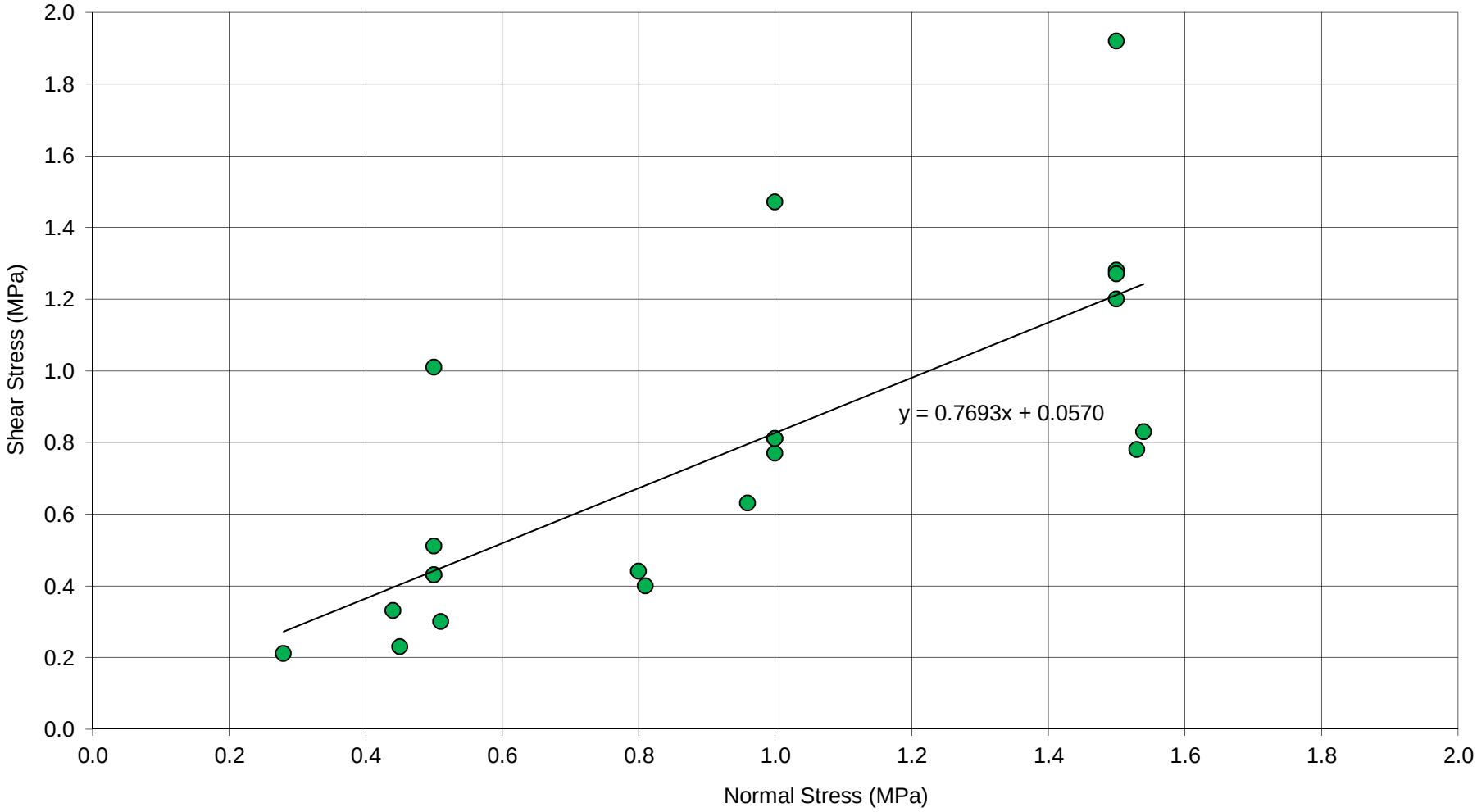
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C3.2

REV 0



0	13 MAY'13	ISSUED WITH REPORT	ML	JS	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DIRECT SHEAR PEAK TEST RESULTS
FRAGMENTALS

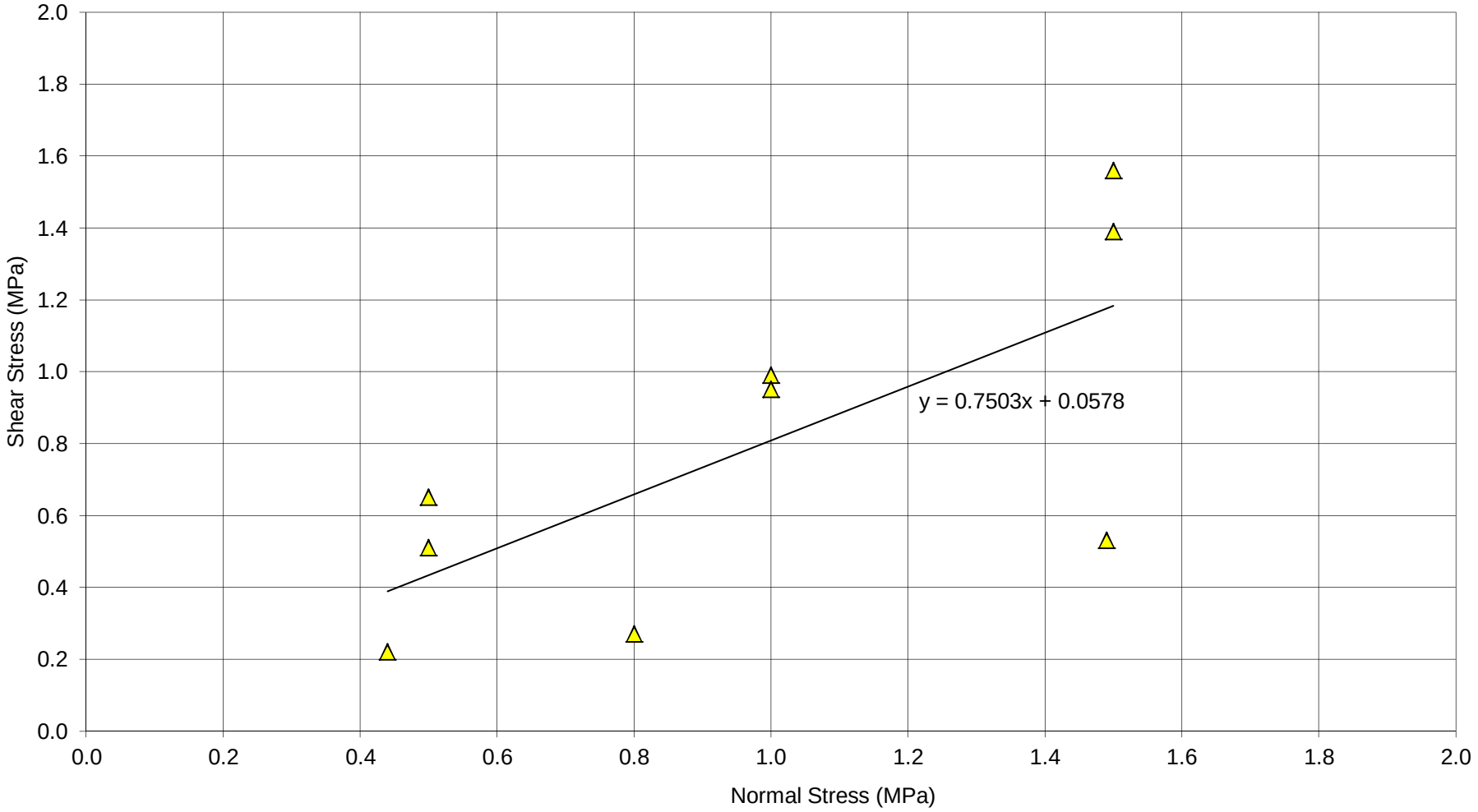
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C3.3

REV 0



NEW GOLD INC.

BLACKWATER GOLD PROJECT

DIRECT SHEAR PEAK TEST RESULTS
SEDIMENTS

Knight Piésold CONSULTING

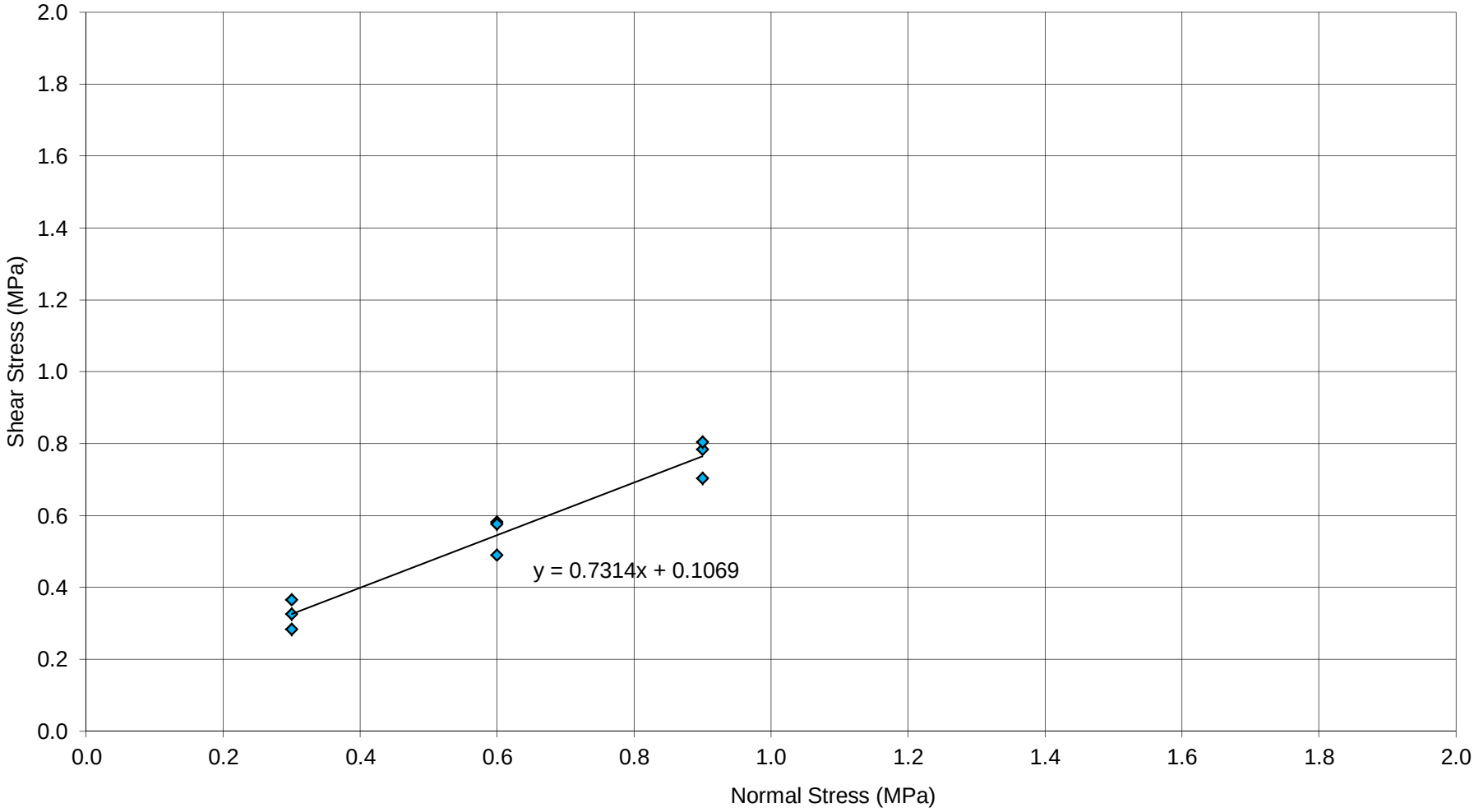
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REF. NO. 2

APPENDIX C3.4

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13 MAY'13	ISSUED WITH REPORT	ML	JS	KJB



NEW GOLD INC.

BLACKWATER GOLD PROJECT

DIRECT SHEAR PEAK TEST RESULTS
FAULT GOUGE

Knight Piésold CONSULTING

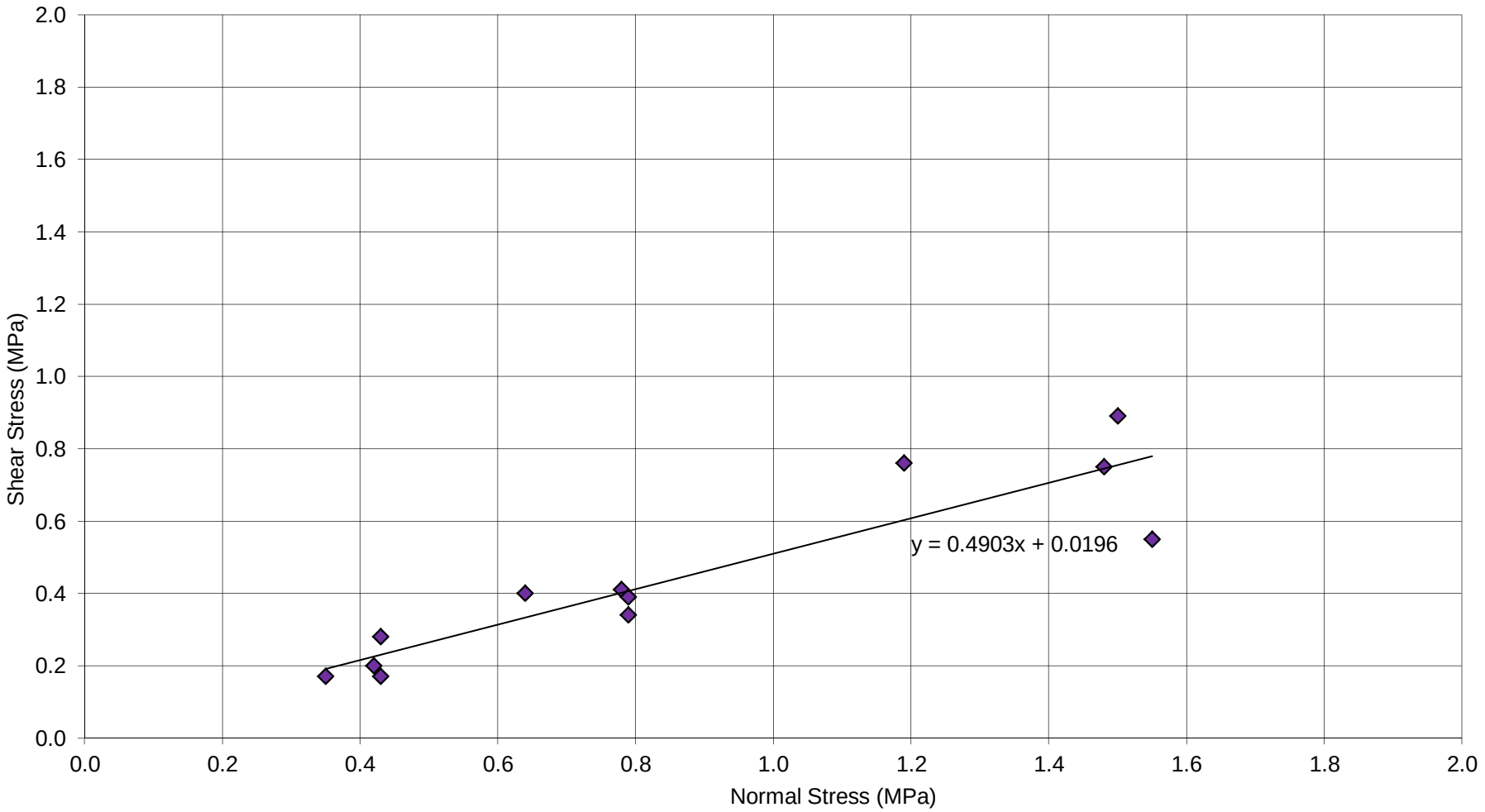
P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C3.5

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	13 MAY'13	ISSUED WITH REPORT	ML	JS	KJB



0	13 MAY'13	ISSUED WITH REPORT	ML	JS	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

NEW GOLD INC.

BLACKWATER GOLD PROJECT

DIRECT SHEAR RESIDUAL TEST RESULTS
ANDESITE

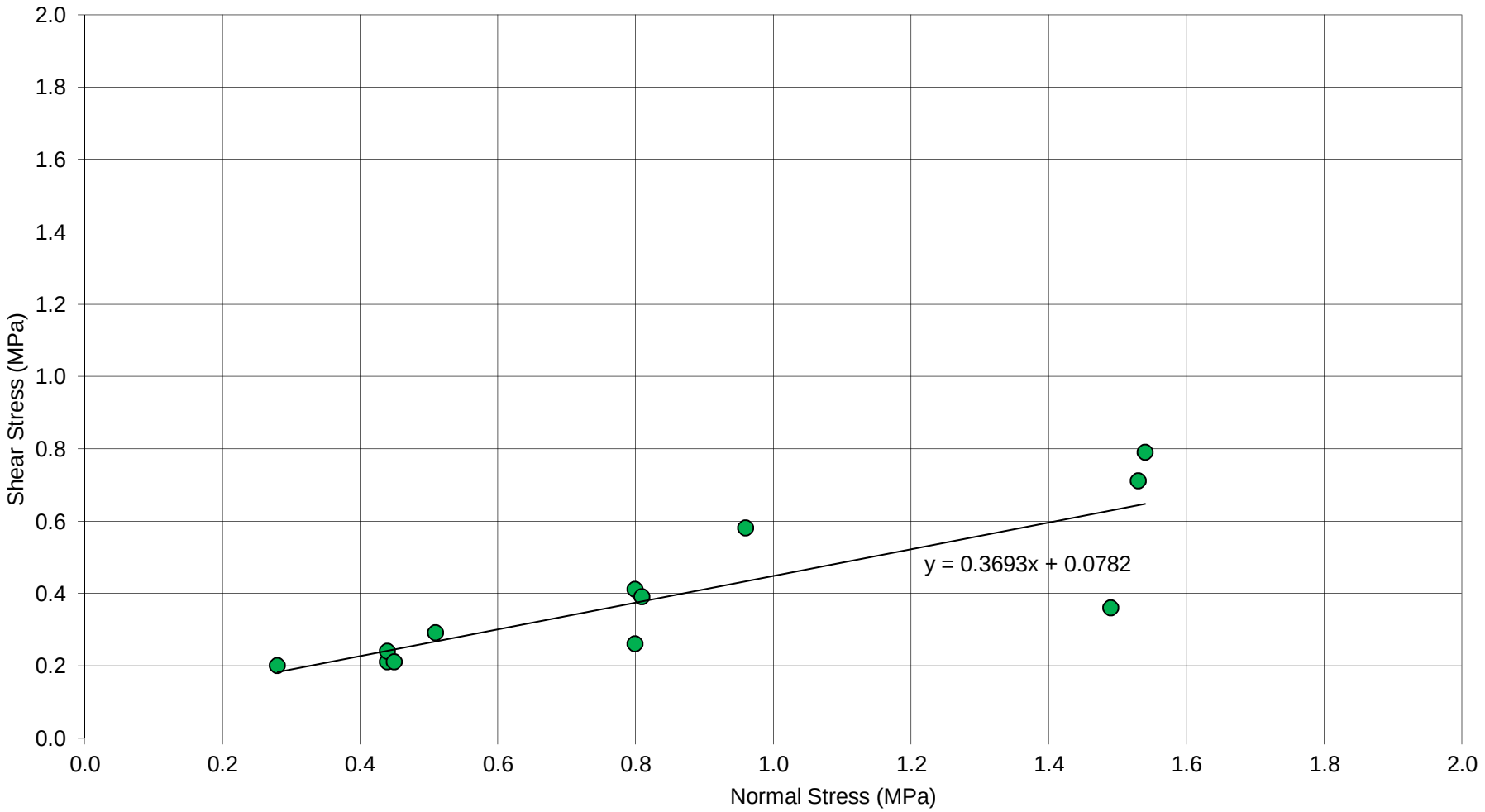
Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C3.6

REV 0



NEW GOLD INC.

BLACKWATER GOLD PROJECT

DIRECT SHEAR RESIDUAL TEST RESULTS
FRAGMENTALS

Knight Piésold CONSULTING

P/A NO. VA101-457/6

REF. NO. 2

APPENDIX C3.7

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
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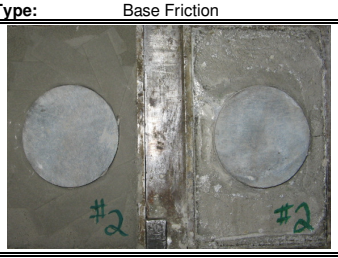
DIRECT SHEAR TEST

Sample Information

Hole ID:	GM12-07			
Sample ID:	UCS 07-03	**Length:**	61.31	mm
Depth (m):	147.23 - 147.47	**Width:**	61.31	mm
Lithology:	Andesite	**Area:**	2952.2	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

Sample Photographs

Before Test

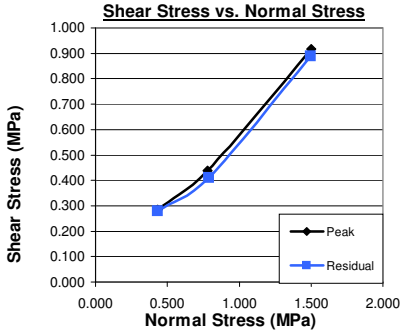


After Test



Direct Shear Test Results

Shear Stress vs. Normal Stress

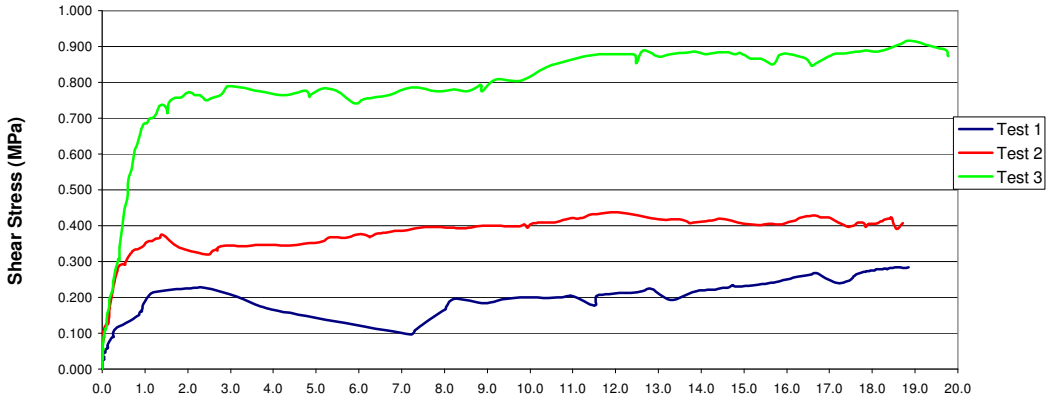


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.43	0.78	1.50
Peak Shear Stress (MPa)	0.28	0.44	0.92
Displacement at Peak Shear (mm)	18.85	12.05	18.89
Residual Normal Stress (MPa)	0.43	0.79	1.50
Residual Shear Stress (MPa)	0.28	0.41	0.89

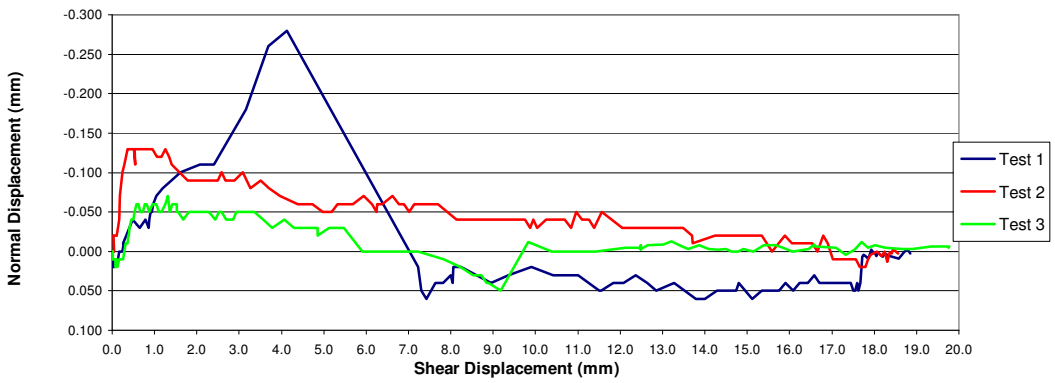
Peak angle of friction **31.1**

Residual angle of friction **30.4**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



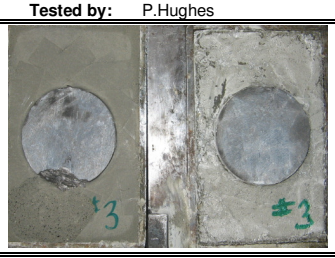
DIRECT SHEAR TEST

Sample Information

Hole ID:	GM12-08			
Sample ID:	UCS 08-03	**Length:**	95.98	mm
Depth (m):	286.03 - 286.24	**Width:**	60.12	mm
Lithology:	Felsic Lapilli Tuff	**Area:**	4532.0	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

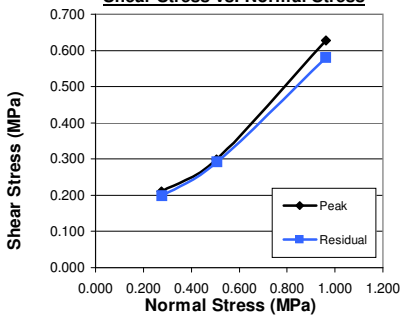
Sample Photographs

Before Test **After Test**



Direct Shear Test Results

Shear Stress vs. Normal Stress

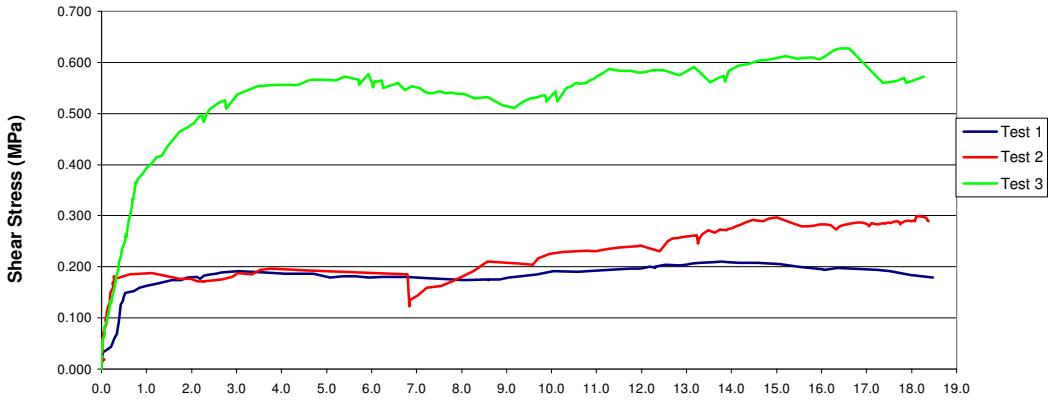


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.28	0.51	0.96
Peak Shear Stress (MPa)	0.21	0.30	0.63
Displacement at Peak Shear (mm)	13.77	18.11	16.41
Residual Normal Stress (MPa)	0.28	0.51	0.96
Residual Shear Stress (MPa)	0.20	0.29	0.58

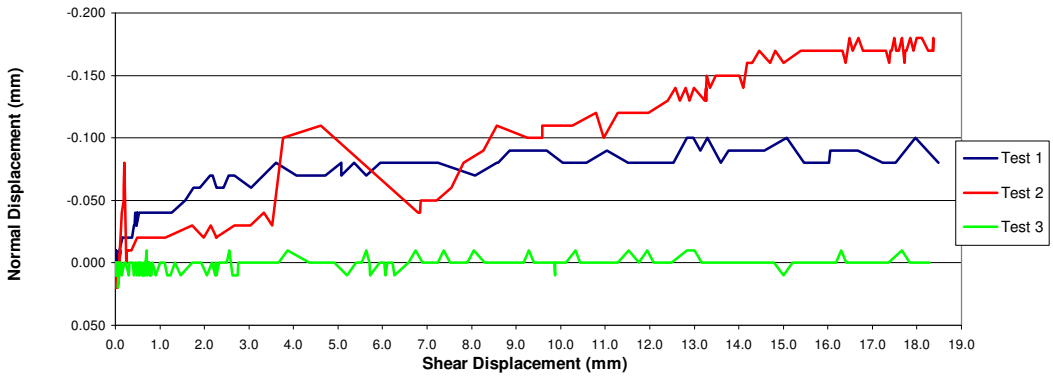
Peak angle of friction **32.0**

Residual angle of friction **29.6**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



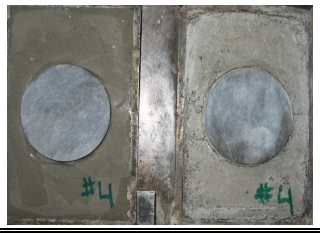
DIRECT SHEAR TEST

Sample Information

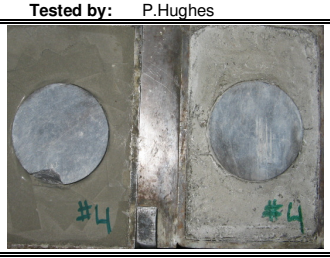
Hole ID:	GM12-13			
Sample ID:	UCS-4	**Length:**	76.53	mm
Depth (m):	263.50 - 263.91	**Width:**	59.66	mm
Lithology:	Andesite	**Area:**	3586.0	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

Sample Photographs

Before Test

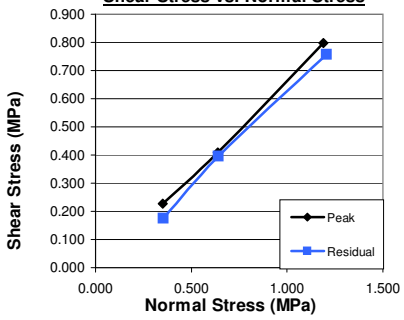


After Test



Direct Shear Test Results

Shear Stress vs. Normal Stress

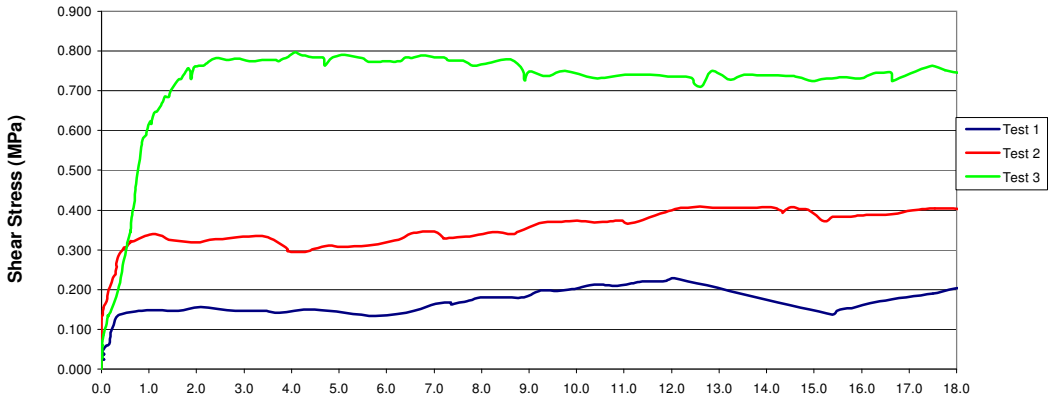


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.35	0.64	1.19
Peak Shear Stress (MPa)	0.23	0.41	0.80
Displacement at Peak Shear (mm)	12.06	12.60	4.07
Residual Normal Stress (MPa)	0.35	0.64	1.21
Residual Shear Stress (MPa)	0.17	0.40	0.76

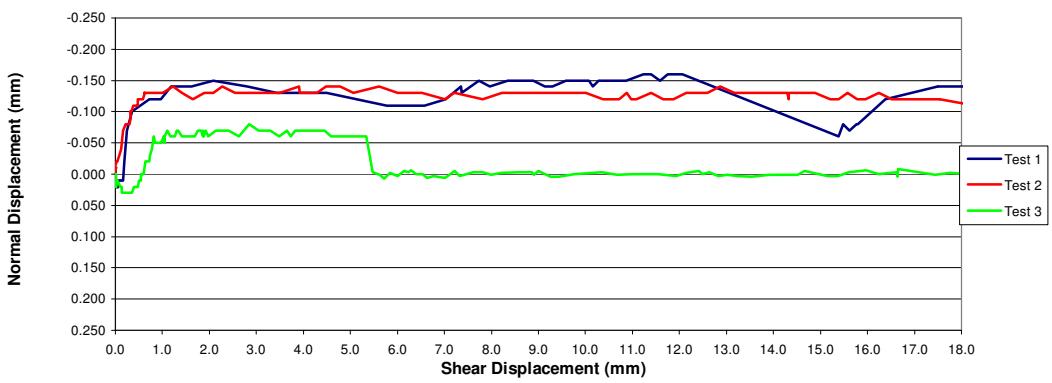
Peak angle of friction **34.3**

Residual angle of friction **34.0**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



DIRECT SHEAR TEST

Sample Information

Hole ID:	BWWR13			
Sample ID:	UCS 3	**Length:**	60.79	mm
Depth (m):	207.00 - 207.43	**Width:**	60.79	mm
Lithology:	Sediment	**Area:**	2902.4	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

Sample Photographs

Before Test

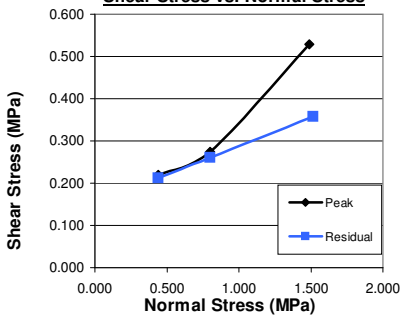


After Test



Direct Shear Test Results

Shear Stress vs. Normal Stress

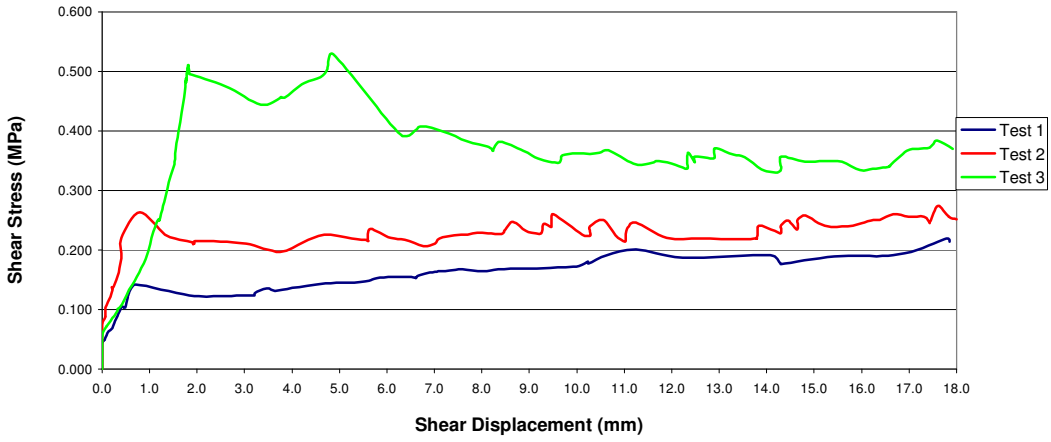


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.44	0.80	1.49
Peak Shear Stress (MPa)	0.22	0.27	0.53
Displacement at Peak Shear (mm)	17.83	17.61	4.87
Residual Normal Stress (MPa)	0.44	0.80	1.51
Residual Shear Stress (MPa)	0.21	0.26	0.36

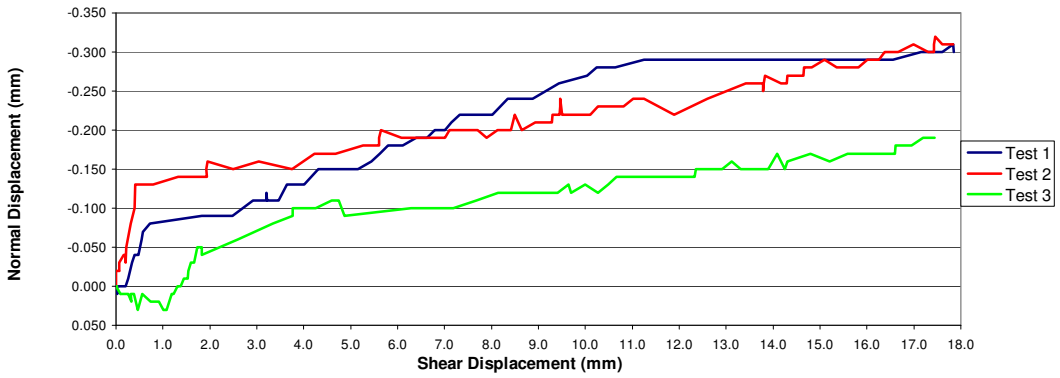
Peak angle of friction **17.0**

Residual angle of friction **7.7**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



DIRECT SHEAR TEST

Sample Information

Hole ID:	BWWR14			
Sample ID:	UCS #3	**Length:**	60.56	mm
Depth (m):	195.65 - 195.95	**Width:**	60.56	mm
Lithology:	Volcaniclastic	**Area:**	2880.5	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

Sample Photographs

Before Test

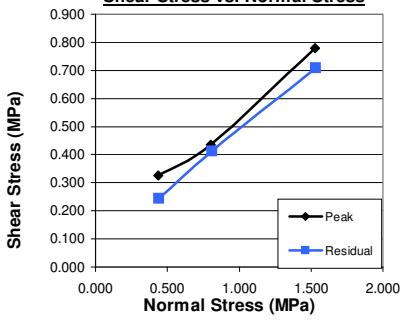


After Test



Direct Shear Test Results

Shear Stress vs. Normal Stress

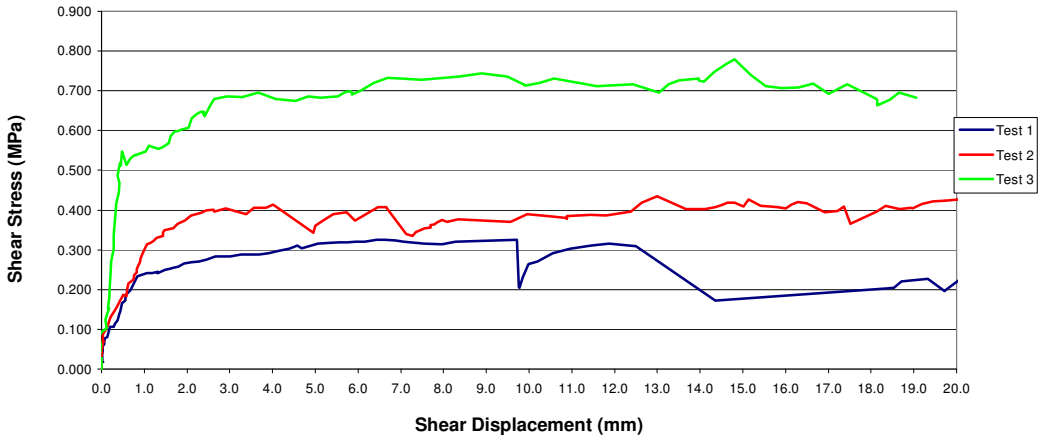


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.44	0.80	1.53
Peak Shear Stress (MPa)	0.33	0.44	0.78
Displacement at Peak Shear (mm)	9.71	13.00	14.81
Residual Normal Stress (MPa)	0.44	0.81	1.53
Residual Shear Stress (MPa)	0.24	0.41	0.71

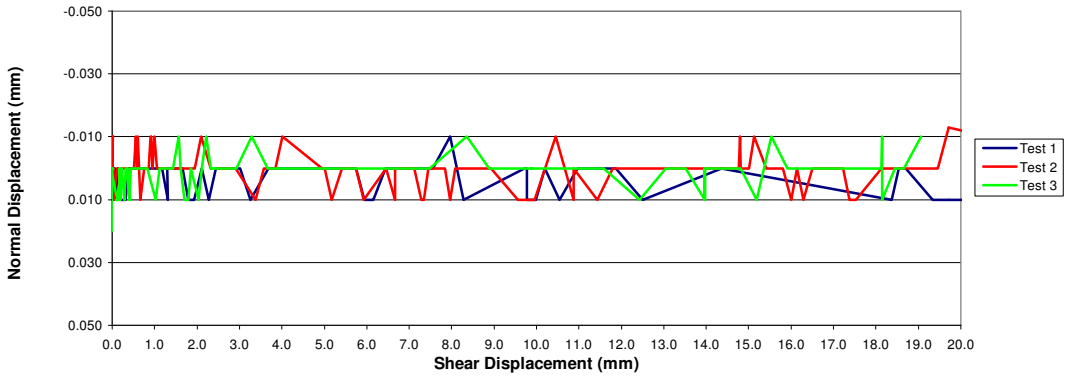
Peak angle of friction **23.0**

Residual angle of friction **23.0**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



DIRECT SHEAR TEST

Sample Information

Hole ID:	GM12-07			
Sample ID:	CS 07-01	**Length:**	60.48	mm
Depth (m):	187.50 - 187.80	**Width:**	60.48	mm
Lithology:	Andesite	**Area:**	2872.9	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

Sample Photographs

Before Test

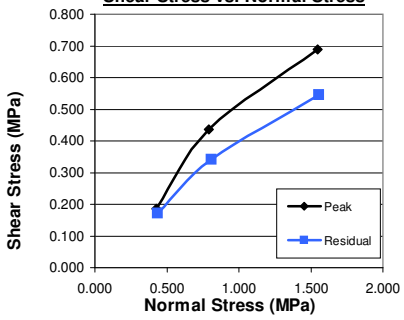


After Test



Direct Shear Test Results

Shear Stress vs. Normal Stress

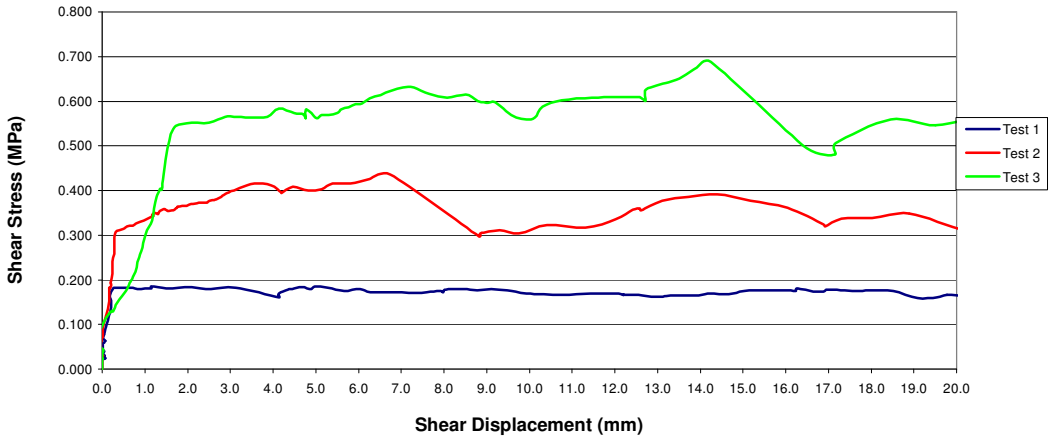


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.43	0.79	1.55
Peak Shear Stress (MPa)	0.19	0.44	0.69
Displacement at Peak Shear (mm)	1.15	6.74	14.24
Residual Normal Stress (MPa)	0.44	0.81	1.55
Residual Shear Stress (MPa)	0.17	0.34	0.55

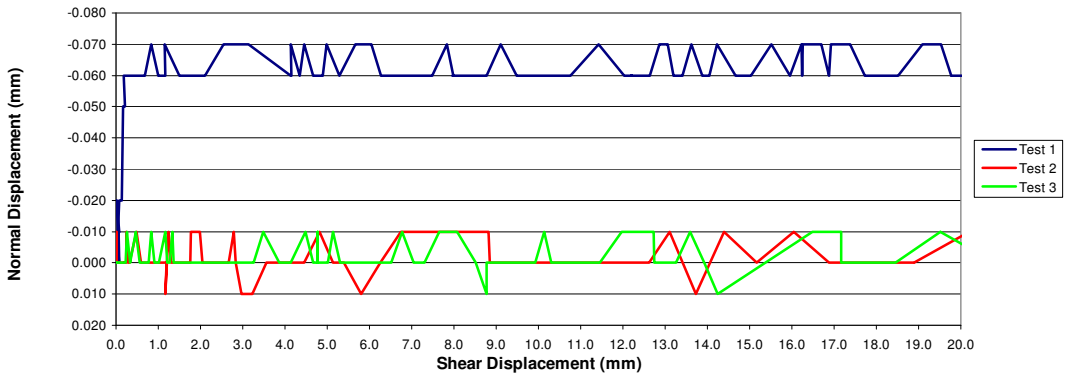
Peak angle of friction **23.4**

Residual angle of friction **18.0**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



DIRECT SHEAR TEST

Sample Information

Hole ID:	GM12-07			
Sample ID:	CS 07-02	**Length:**	61.34	mm
Depth (m):	294.09 - 294.32	**Width:**	61.34	mm
Lithology:	Andesite	**Area:**	2955.1	mm^2
		JRC Value:	0-2	
Test Type:	Base Friction	**Tested by:**	P.Hughes	

Sample Photographs

Before Test

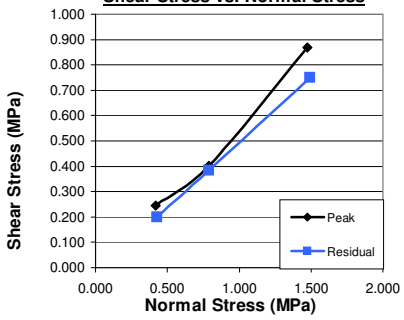


After Test



Direct Shear Test Results

Shear Stress vs. Normal Stress

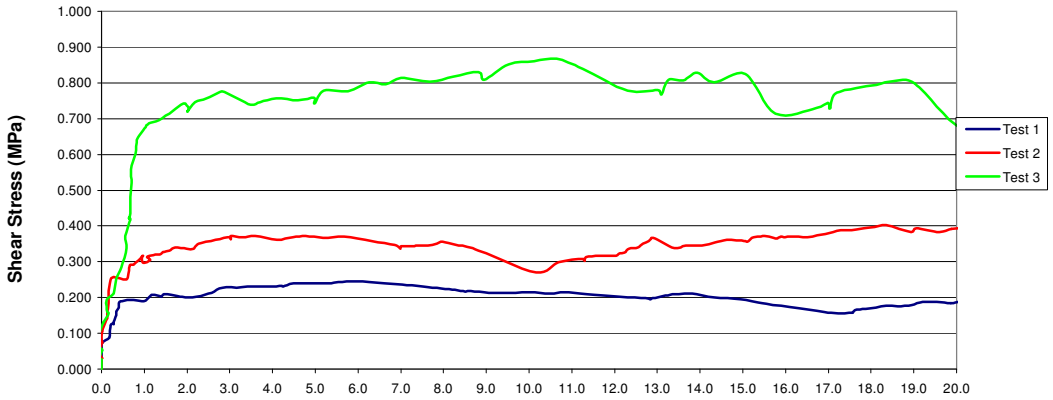


	Test 1	Test 2	Test 3
Peak Normal Stress (MPa)	0.42	0.79	1.48
Peak Shear Stress (MPa)	0.24	0.40	0.87
Displacement at Peak Shear (mm)	5.73	18.35	10.64
Residual Normal Stress (MPa)	0.43	0.79	1.49
Residual Shear Stress (MPa)	0.20	0.39	0.75

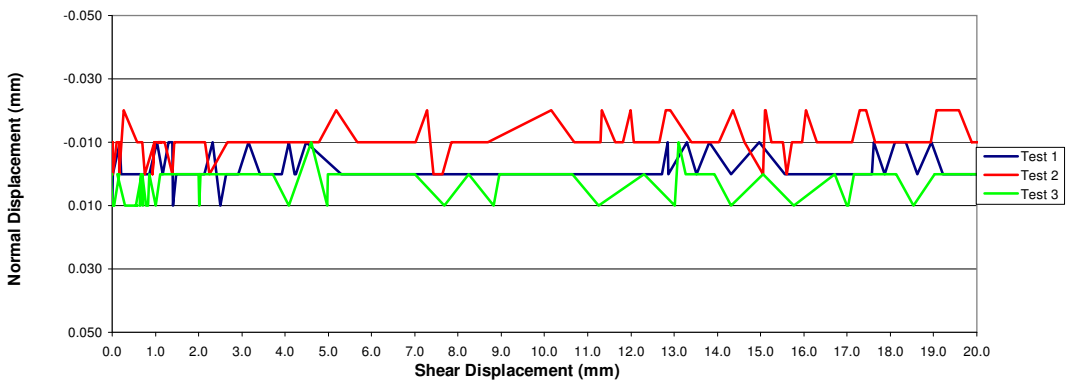
Peak angle of friction **31.1**

Residual angle of friction **27.3**

Shear Stress vs. Shear Displacement



Normal Displacement vs. Shear Displacement



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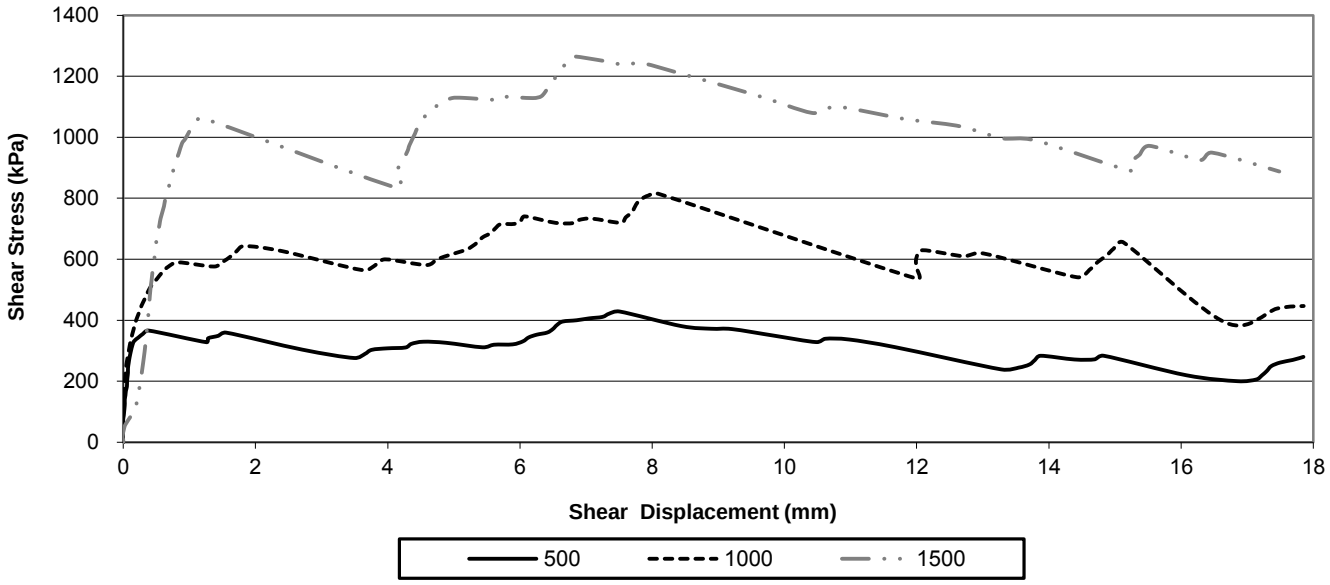
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

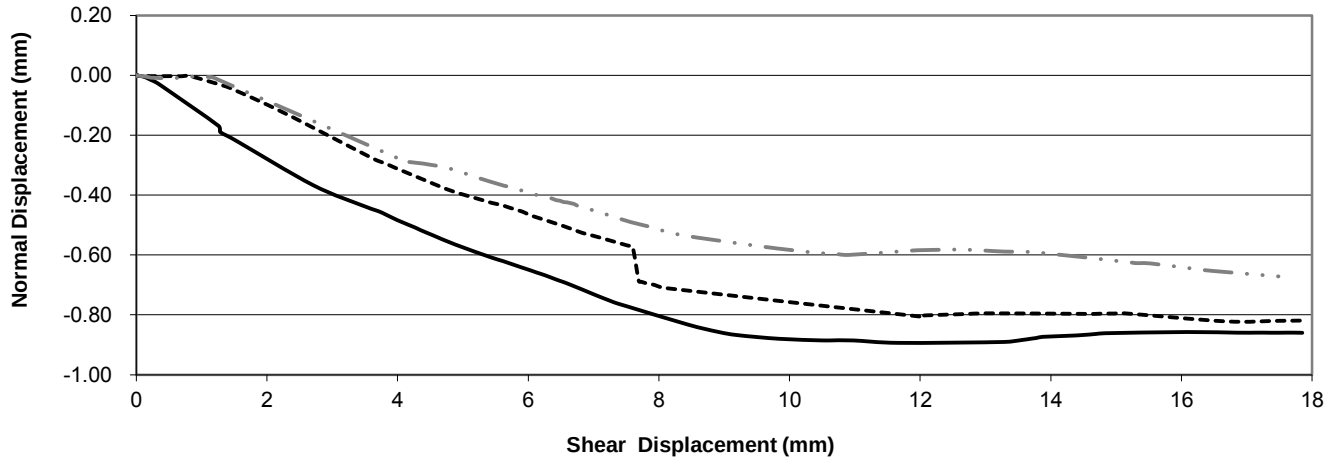
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**BWW R12**
Client:	Knight Piesold	**Sample No.:**	DS-1
Project:	BLACKWATER	**Depth (m.):**	267.7-268.2
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	25	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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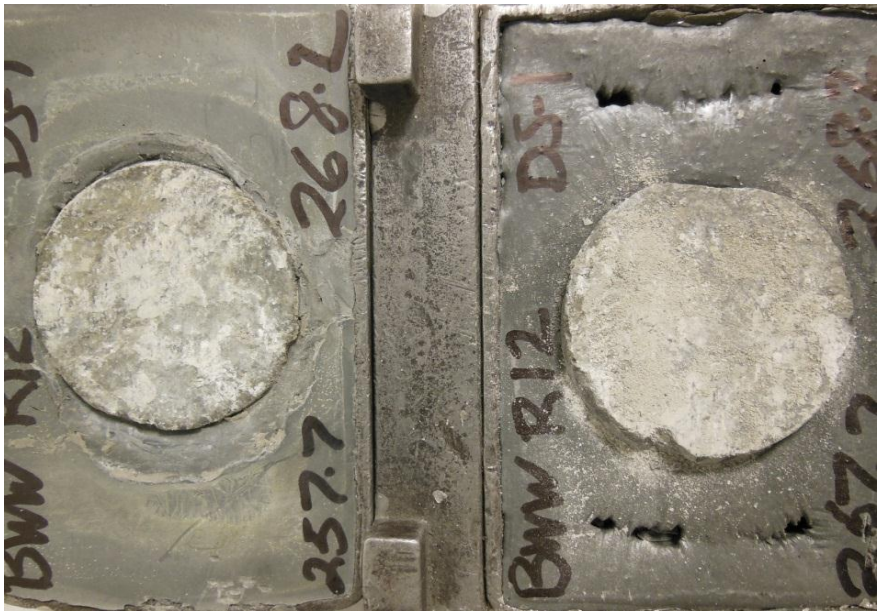
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**BWW R12**
Client:	Knight Piesold	**Sample No.:**	DS-1
Project:	BLACKWATER	**Depth (m.):**	267.7-268.2
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R12**
Project:	BLACKWATER	**Sample No.:**	DS-1
Location:	VA101-457/4	**Depth (m.):**	267.7-268.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	-0.19	0.0002
0.00	2.09	0.0000
-0.01	8.74	0.0002
-0.01	16.34	0.0002
-0.01	23.99	0.0003
-0.01	32.97	0.0001
-0.01	42.64	0.0006
-0.01	53.19	0.0003
0.00	64.35	0.0004
0.00	75.46	0.0005
0.01	87.41	0.0001
0.01	100.24	0.0001
0.02	112.28	-0.0001
0.02	126.58	-0.0005
0.02	140.20	-0.0007
0.03	154.04	-0.0010
0.04	168.27	-0.0017
0.05	182.10	-0.0017
0.06	197.55	-0.0022
0.06	212.10	-0.0023
0.07	227.61	-0.0028
0.07	243.11	-0.0027
0.08	258.12	-0.0030
0.09	272.67	-0.0033
0.10	287.04	-0.0039
0.12	301.65	-0.0051
0.13	316.17	-0.0061
0.16	330.89	-0.0086
0.23	343.14	-0.0157

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	1.96	0.00
-0.01	20.18	0.00
-0.03	41.38	0.00
-0.03	64.96	0.00
-0.03	89.86	0.00
-0.01	115.12	0.00
0.00	141.86	0.00
0.01	170.03	0.00
0.02	198.28	0.00
0.03	227.11	0.00
0.05	256.21	0.00
0.07	286.03	0.00
0.09	313.91	0.00
0.12	341.66	0.00
0.15	369.21	0.00
0.19	396.60	0.00
0.23	422.84	0.00
0.27	447.46	0.00
0.32	469.91	0.00
0.37	493.34	0.00
0.43	515.41	0.00
0.51	536.46	0.00
0.59	557.22	0.00
0.68	575.76	0.00
0.83	589.72	0.00
1.37	575.96	-0.04
1.50	591.33	-0.05
1.62	608.98	-0.06
1.72	627.34	-0.07

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	7.20	0.00
-0.01	18.93	0.00
0.01	43.37	0.00
0.03	58.02	0.00
0.13	89.07	0.00
0.18	105.75	-0.01
0.22	146.52	-0.01
0.24	168.90	-0.01
0.27	213.10	-0.01
0.28	235.83	-0.01
0.31	284.38	-0.01
0.33	309.21	-0.01
0.35	358.77	-0.01
0.36	384.14	-0.01
0.39	431.99	-0.01
0.39	457.01	-0.01
0.41	505.53	-0.01
0.43	530.35	-0.01
0.45	577.54	-0.01
0.47	601.65	-0.01
0.49	647.91	-0.01
0.51	670.73	-0.01
0.55	713.36	-0.01
0.56	733.50	-0.01
0.62	773.58	-0.01
0.63	791.56	-0.01
0.68	827.70	-0.01
0.70	845.13	-0.01
0.74	880.08	-0.01

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R12**
Project:	BLACKWATER	**Sample No.:**	DS-1
Location:	VA101-457/4	**Depth (m.):**	267.7-268.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.30	355.31	-0.02
0.38	365.99	-0.03
1.26	327.84	-0.17
1.28	340.71	-0.19
1.44	348.88	-0.21
1.56	359.26	-0.22
2.71	303.49	-0.37
3.49	276.02	-0.44
3.65	289.17	-0.45
3.76	302.93	-0.46
3.99	307.83	-0.48
4.27	310.48	-0.51
4.36	322.35	-0.52
4.54	329.50	-0.53
4.88	325.88	-0.57
5.43	311.15	-0.61
5.60	319.55	-0.62
5.89	320.70	-0.64
6.04	330.57	-0.65
6.13	343.63	-0.66
6.25	352.54	-0.67
6.41	359.58	-0.68
6.50	370.92	-0.69
6.56	384.13	-0.69
6.65	395.66	-0.70
6.86	399.87	-0.72
7.05	406.11	-0.74
7.25	410.74	-0.75
7.35	421.73	-0.76
7.51	428.49	-0.77

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
1.83	643.31	-0.08
2.40	626.44	-0.14
3.62	564.18	-0.28
3.82	581.37	-0.29
3.96	599.55	-0.31
4.59	580.89	-0.37
4.75	600.28	-0.38
4.97	616.22	-0.40
5.20	632.40	-0.41
5.34	652.77	-0.42
5.43	671.50	-0.43
5.56	685.71	-0.43
5.63	701.76	-0.44
5.71	714.86	-0.44
5.91	715.82	-0.46
6.01	726.48	-0.47
6.07	740.46	-0.47
6.54	719.27	-0.50
6.80	718.40	-0.52
6.90	728.88	-0.53
7.09	733.18	-0.54
7.53	719.31	-0.57
7.60	736.96	-0.57
7.69	753.68	-0.69
7.73	770.44	-0.69
7.78	787.08	-0.69
7.85	799.73	-0.70
7.94	808.58	-0.70
8.09	814.66	-0.71
12.01	535.57	-0.81

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.76	897.62	0.00
0.81	931.35	0.00
0.84	947.93	0.00
0.89	980.09	0.00
0.94	995.52	0.00
1.01	1024.87	0.00
1.06	1038.43	-0.01
1.20	1062.34	-0.01
4.15	833.69	-0.29
4.14	890.38	-0.29
4.20	911.25	-0.29
4.30	953.62	-0.29
4.33	974.45	-0.29
4.41	1012.32	-0.30
4.45	1030.00	-0.30
4.54	1061.50	-0.30
4.59	1077.03	-0.30
4.72	1099.23	-0.31
4.79	1112.01	-0.31
4.97	1128.26	-0.32
5.15	1129.05	-0.34
5.63	1122.83	-0.37
5.72	1132.72	-0.37
6.19	1128.34	-0.40
6.32	1134.52	-0.41
6.43	1162.20	-0.42
6.48	1173.16	-0.42
6.54	1199.64	-0.42
6.59	1210.35	-0.42
6.66	1232.75	-0.43

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R12**
Project:	BLACKWATER	**Sample No.:**	DS-1
Location:	VA101-457/4	**Depth (m.):**	267.7-268.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
8.44	380.78	-0.83	11.99	573.26	-0.80	6.71	1241.55	-0.43			
8.89	372.01	-0.86	12.00	605.41	-0.80	6.78	1258.05	-0.44			
9.21	370.85	-0.87	12.09	629.48	-0.80	6.82	1265.02	-0.44			
9.84	349.38	-0.88	12.72	609.76	-0.80	7.28	1249.72	-0.47			
10.48	328.25	-0.89	13.01	618.84	-0.79	7.57	1237.97	-0.49			
10.62	339.21	-0.89	14.43	540.94	-0.80	7.85	1242.65	-0.51			
10.98	336.60	-0.89	14.61	564.68	-0.80	8.33	1215.21	-0.53			
11.67	311.66	-0.89	14.74	590.70	-0.80	9.55	1139.49	-0.57			
13.28	238.67	-0.89	14.87	612.68	-0.80	10.41	1079.87	-0.59			
13.54	244.44	-0.88	14.98	634.90	-0.80	10.68	1096.65	-0.60			
13.70	254.60	-0.88	15.13	655.12	-0.79	10.91	1097.42	-0.60			
13.79	269.05	-0.88	16.67	391.83	-0.82	11.79	1060.66	-0.59			
13.88	283.41	-0.87	17.46	438.53	-0.82	12.08	1052.69	-0.58			
14.39	271.21	-0.87	17.85	446.60	-0.82	12.68	1034.77	-0.58			
14.70	271.74	-0.86				13.29	996.67	-0.59			
14.83	283.45	-0.86				13.80	989.43	-0.59			
16.08	219.48	-0.86				15.24	890.15	-0.63			
16.85	200.07	-0.86				15.29	925.95	-0.63			
17.13	205.36	-0.86				15.37	942.57	-0.63			
17.22	218.96	-0.86				15.52	971.64	-0.63			
17.30	233.38	-0.86				16.29	925.11	-0.65			
17.37	249.51	-0.86				16.47	949.46	-0.65			
17.50	261.21	-0.86				17.49	887.62	-0.67			
17.69	269.65	-0.86									
17.85	279.70	-0.86									

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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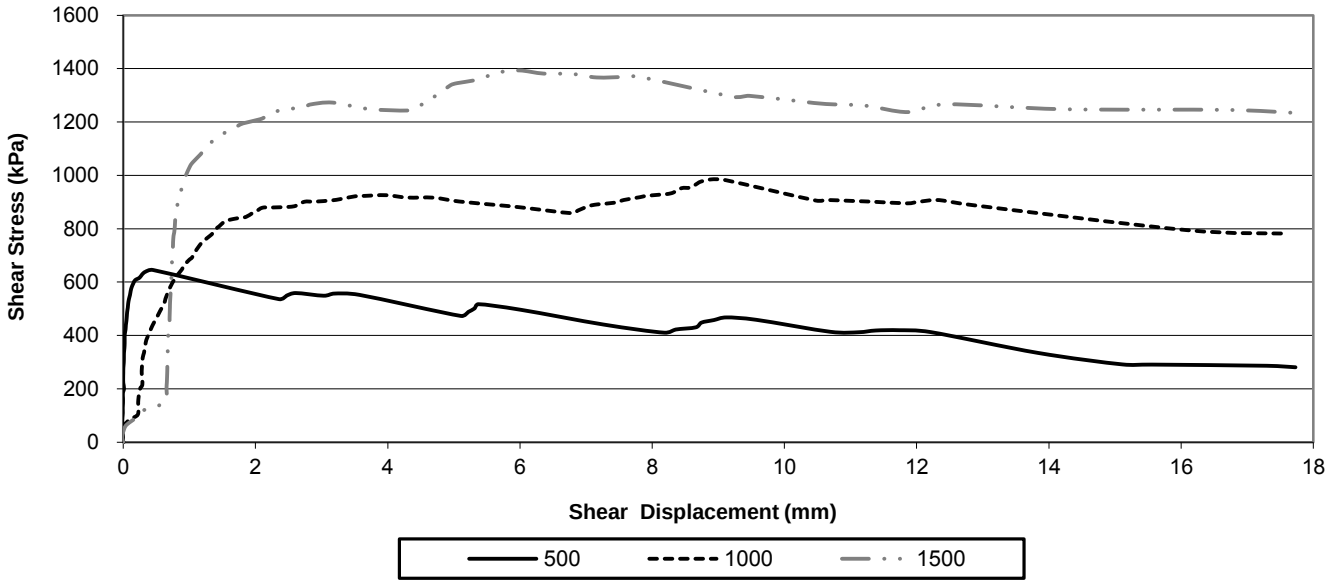
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

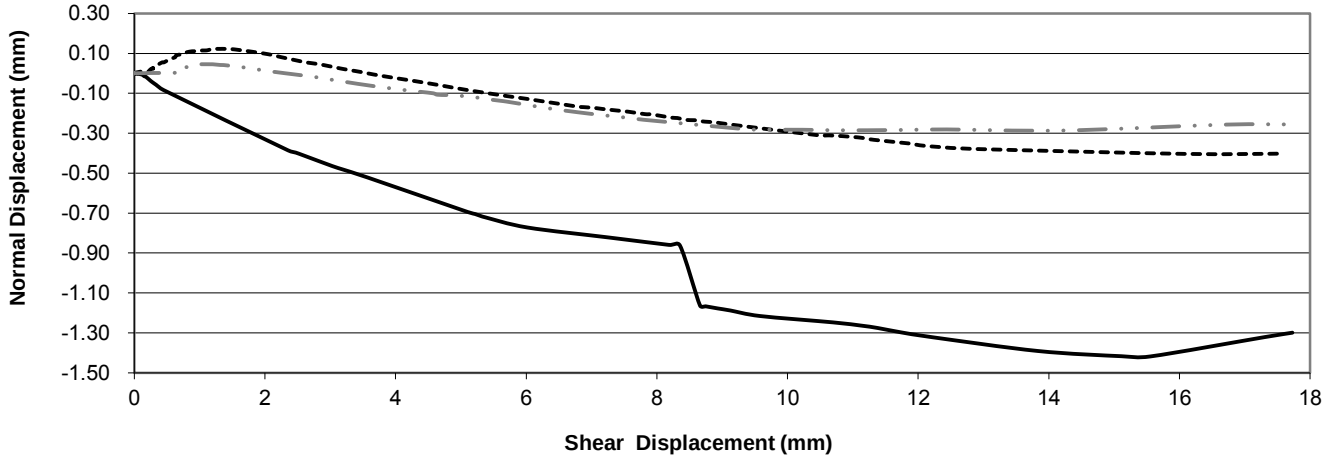
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**BWW R13**
Client:	Knight Piesold	**Sample No.:**	DS #1
Project:	BLACKWATER	**Depth (m.):**	169.5-169.9
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	49	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 24,2012	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**BWW R13**
Client:	Knight Piesold	**Sample No.:**	DS #1
Project:	BLACKWATER	**Depth (m.):**	169.5-169.9
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 24,2012	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R13**
Project:	BLACKWATER	**Sample No.:**	DS #1
Location:	VA101-457/4	**Depth (m.):**	169.5-169.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	-0.54	-0.0001
0.00	5.23	0.0000
-0.01	16.76	-0.0001
-0.02	28.85	-0.0004
-0.02	43.19	-0.0003
-0.02	58.67	-0.0005
-0.02	74.59	-0.0008
-0.02	92.18	-0.0008
-0.01	109.98	-0.0007
-0.01	128.37	-0.0005
-0.01	146.62	-0.0007
0.00	164.65	-0.0008
-0.01	182.61	-0.0009
0.01	201.48	-0.0012
0.00	221.61	-0.0010
0.00	241.11	-0.0009
0.00	259.95	-0.0010
0.00	278.76	-0.0011
0.01	297.75	-0.0012
0.01	316.49	-0.0013
0.01	334.35	-0.0011
0.02	352.72	-0.0013
0.02	370.94	-0.0012
0.02	387.83	-0.0017
0.02	405.44	-0.0014
0.03	422.53	-0.0012
0.04	438.89	-0.0015
0.05	454.76	-0.0025
0.05	471.38	-0.0030

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	6.25	0.00
-0.01	17.69	0.00
0.00	44.26	0.00
-0.01	59.25	0.00
0.10	85.41	0.01
0.22	103.31	0.01
0.23	140.04	0.01
0.23	159.61	0.01
0.25	198.20	0.02
0.29	216.47	0.02
0.28	256.51	0.03
0.28	276.56	0.03
0.29	316.32	0.03
0.31	335.05	0.03
0.34	373.57	0.04
0.36	391.96	0.04
0.42	428.10	0.05
0.46	444.51	0.06
0.52	476.37	0.07
0.56	491.94	0.07
0.62	521.90	0.08
0.64	537.34	0.09
0.68	566.38	0.09
0.71	581.04	0.09
0.77	608.98	0.10
0.80	621.27	0.11
0.88	646.82	0.11
0.91	660.29	0.11
0.99	682.53	0.11

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	10.92	0.00
-0.02	23.51	0.00
0.02	52.21	0.00
0.06	67.26	0.00
0.23	98.24	0.00
0.27	116.23	0.00
0.57	140.98	0.00
0.65	161.54	0.00
0.65	203.03	0.00
0.66	223.53	0.00
0.67	266.29	0.00
0.67	286.89	0.00
0.67	328.50	0.00
0.67	348.35	0.01
0.68	389.08	0.01
0.68	408.96	0.01
0.70	448.22	0.01
0.70	466.30	0.01
0.70	503.84	0.01
0.71	521.42	0.02
0.71	556.63	0.02
0.72	573.44	0.02
0.73	606.51	0.02
0.73	622.66	0.02
0.74	651.43	0.02
0.73	666.66	0.02
0.74	695.64	0.02
0.74	709.53	0.03
0.75	736.39	0.03

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 24,2012	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R13**
Project:	BLACKWATER	**Sample No.:**	DS #1
Location:	VA101-457/4	**Depth (m.):**	169.5-169.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.06	487.99	0.00	1.04	692.73	0.11	0.75	749.30	0.03			
0.07	504.17	0.00	1.09	715.93	0.11	0.76	773.47	0.03			
0.07	519.45	0.00	1.12	726.52	0.12	0.77	786.30	0.03			
0.08	535.78	0.00	1.18	747.44	0.12	0.78	811.23	0.03			
0.10	551.47	0.00	1.22	756.20	0.12	0.78	831.39	0.03			
0.11	566.87	-0.01	1.31	773.97	0.12	0.80	872.47	0.03			
0.13	580.56	-0.01	1.35	783.00	0.12	0.82	891.39	0.03			
0.15	595.17	-0.01	1.41	800.72	0.12	0.85	928.73	0.04			
0.18	607.28	-0.02	1.45	808.42	0.12	0.88	947.37	0.04			
0.25	616.58	-0.04	1.52	824.90	0.12	0.92	982.79	0.04			
0.28	628.65	-0.05	1.57	831.60	0.12	0.95	999.43	0.05			
0.33	638.71	-0.06	1.76	840.59	0.11	1.01	1034.68	0.05			
0.45	645.41	-0.08	1.86	844.28	0.11	1.06	1050.13	0.05			
2.35	536.05	-0.39	1.95	858.12	0.10	1.17	1079.51	0.05			
2.47	549.25	-0.40	2.01	864.58	0.10	1.21	1093.21	0.05			
2.61	558.97	-0.41	2.10	878.66	0.09	1.32	1119.65	0.04			
3.03	548.94	-0.46	2.24	879.52	0.08	1.37	1132.32	0.04			
3.20	557.03	-0.48	2.52	881.96	0.06	1.51	1154.55	0.04			
3.57	552.04	-0.52	2.61	885.89	0.06	1.57	1166.39	0.04			
5.11	473.10	-0.69	2.74	901.11	0.05	1.74	1186.03	0.03			
5.22	488.02	-0.70	2.89	901.46	0.04	1.81	1194.80	0.02			
5.31	501.59	-0.72	3.15	906.23	0.02	2.07	1210.15	0.01			
5.37	517.13	-0.72	3.28	911.11	0.02	2.16	1220.72	0.01			
6.02	495.86	-0.77	3.51	921.46	0.00	2.32	1240.11	0.00			
7.26	440.93	-0.82	3.66	923.09	-0.01	2.45	1247.38	-0.01			
8.18	410.41	-0.86	3.97	925.71	-0.02	2.74	1256.00	-0.02			
8.36	422.23	-0.86	4.30	916.76	-0.04	2.83	1265.51	-0.02			
8.66	430.48	-1.16	4.69	916.34	-0.06	3.17	1272.65	-0.04			
8.74	448.14	-1.17	5.08	902.05	-0.08	3.71	1248.90	-0.07			
8.93	457.66	-1.18	5.70	887.63	-0.11	4.30	1242.97	-0.09			

LP	February 24,2012	E.Kostyukov	March 4,2013
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Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R13**
Project:	BLACKWATER	**Sample No.:**	DS #1
Location:	VA101-457/4	**Depth (m.):**	169.5-169.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
9.13	467.63	-1.19
9.58	458.62	-1.22
10.70	413.63	-1.25
11.12	412.04	-1.26
11.38	418.63	-1.28
11.74	419.57	-1.30
12.21	412.60	-1.32
13.83	334.80	-1.39
15.11	291.46	-1.42
15.56	290.76	-1.42
17.30	286.43	-1.32
17.73	280.75	-1.30

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
6.00	880.23	-0.13
6.79	858.06	-0.17
6.88	868.12	-0.17
7.05	885.32	-0.17
7.17	891.06	-0.18
7.46	898.31	-0.19
7.57	907.49	-0.19
7.82	918.25	-0.20
7.93	923.79	-0.21
8.21	929.65	-0.22
8.32	935.29	-0.22
8.44	951.88	-0.23
8.58	954.24	-0.23
8.69	970.00	-0.24
8.74	976.62	-0.24
8.91	985.16	-0.25
9.12	981.73	-0.26
10.48	905.64	-0.31
10.64	907.70	-0.31
11.08	903.56	-0.32
11.32	901.43	-0.33
11.86	895.08	-0.35
12.02	900.69	-0.36
12.34	907.21	-0.37
12.84	888.56	-0.38
16.08	794.81	-0.40
17.55	782.00	-0.40

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
4.39	1253.57	-0.09
4.57	1271.56	-0.10
4.64	1284.47	-0.11
4.77	1305.67	-0.11
4.83	1315.64	-0.11
4.95	1337.90	-0.11
5.05	1345.62	-0.11
5.30	1355.64	-0.12
5.40	1364.85	-0.13
5.61	1378.54	-0.14
5.69	1386.76	-0.14
5.99	1393.31	-0.16
6.36	1381.32	-0.18
6.78	1380.23	-0.19
7.16	1366.88	-0.21
7.60	1369.01	-0.22
7.80	1369.72	-0.23
9.22	1294.53	-0.28
9.47	1298.00	-0.28
10.23	1277.55	-0.28
10.63	1267.33	-0.28
11.22	1261.22	-0.28
11.87	1237.10	-0.28
12.44	1266.27	-0.28
14.21	1247.90	-0.29
16.70	1245.25	-0.26
17.69	1234.39	-0.26

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 24,2012	E.Kostyukov	March 4,2013
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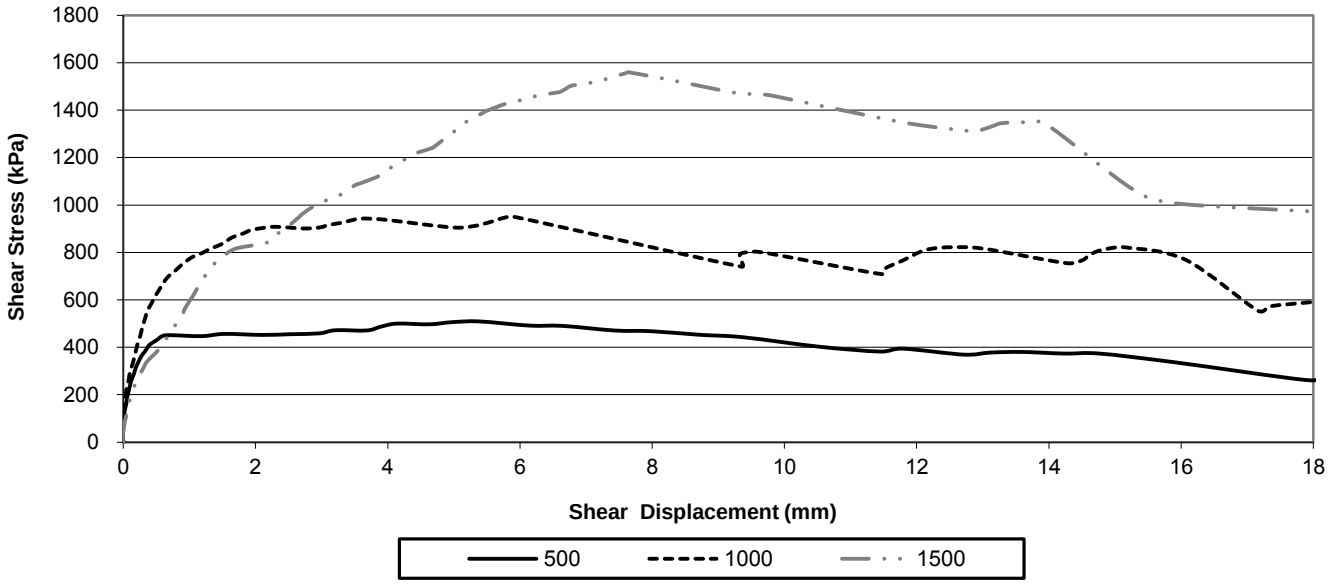
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

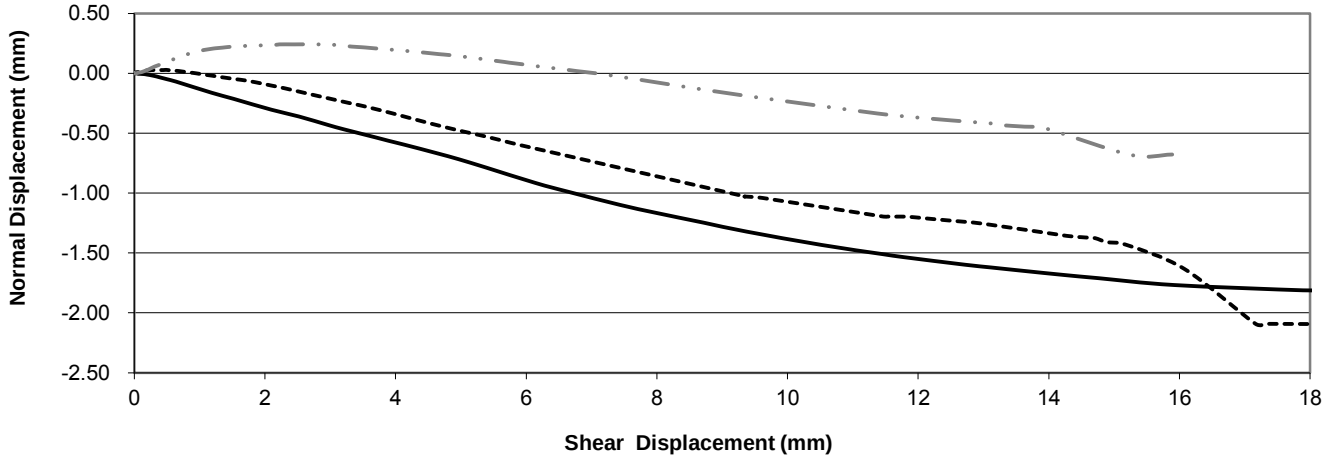
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**BWW R13**
Client:	Knight Piesold	**Sample No.:**	DS#2
Project:	BLACKWATER	**Depth (m.):**	341.6-342.0
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	50	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

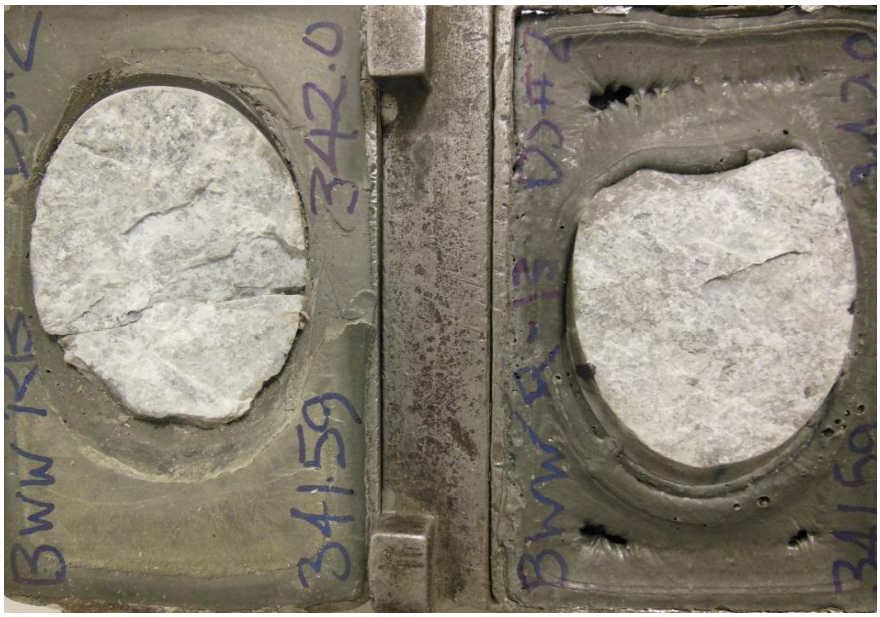
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Burnaby, B.C. Canada V5C 6C6

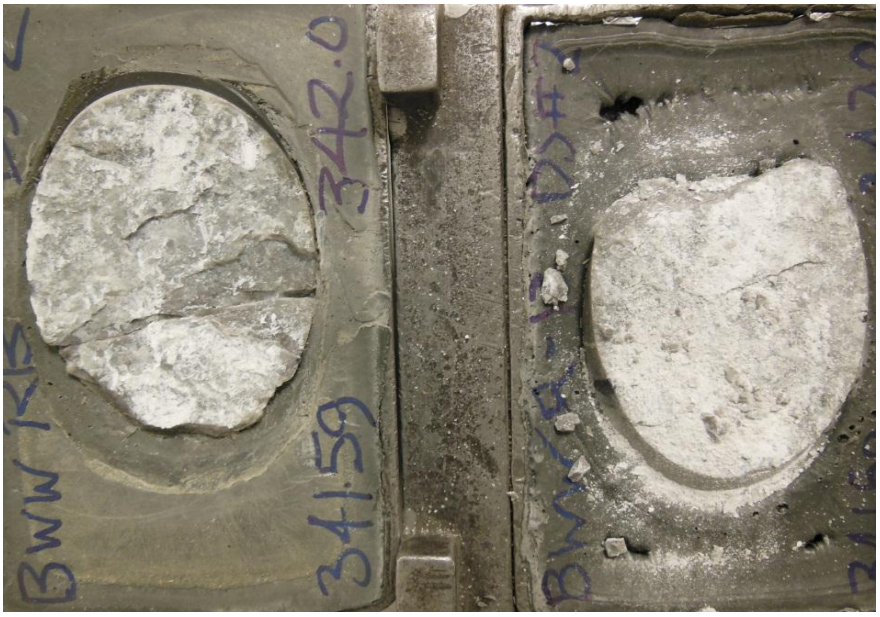
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**BWW R13**
Client:	Knight Piesold	**Sample No.:**	DS#2
Project:	BLACKWATER	**Depth (m.):**	341.6-342.0
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R13**
Project:	BLACKWATER	**Sample No.:**	DS#2
Location:	VA101-457/4	**Depth (m.):**	341.6-342.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	10.00	0.0002
-0.01	31.08	0.0002
0.00	56.37	0.0004
0.00	81.36	0.0003
0.01	107.57	0.0007
0.02	134.15	0.0003
0.04	159.89	0.0000
0.06	186.37	-0.0032
0.08	212.66	-0.0036
0.10	238.16	-0.0043
0.13	263.93	-0.0051
0.16	289.08	-0.0066
0.19	314.46	-0.0093
0.23	339.76	-0.0132
0.27	363.81	-0.0179
0.34	386.41	-0.0254
0.39	409.77	-0.0338
0.51	430.64	-0.0497
0.64	450.61	-0.0684
1.18	446.95	-0.1611
1.52	456.53	-0.2133
2.10	452.14	-0.3039
2.52	455.28	-0.3601
2.96	458.77	-0.4305
3.21	471.96	-0.4672
3.68	471.04	-0.5331
3.89	486.64	-0.5627
4.14	499.89	-0.5960
4.63	497.06	-0.6661

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	3.87	0.00
-0.01	25.87	0.00
-0.02	49.89	0.00
-0.02	75.30	0.00
-0.01	100.38	0.00
0.00	127.13	0.00
0.01	153.07	0.00
0.02	179.39	0.01
0.04	205.97	0.01
0.05	231.53	0.01
0.08	257.79	0.01
0.09	283.37	0.02
0.11	308.89	0.02
0.14	333.84	0.02
0.17	359.57	0.02
0.19	384.63	0.02
0.21	411.33	0.02
0.24	435.59	0.03
0.27	459.01	0.03
0.29	483.36	0.03
0.31	507.13	0.03
0.34	530.66	0.03
0.36	553.66	0.03
0.41	575.40	0.03
0.45	596.78	0.03
0.49	617.96	0.03
0.53	638.96	0.03
0.58	659.02	0.03
0.62	678.81	0.02

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	18.88	0.00
0.00	41.13	0.00
0.03	88.81	0.00
0.05	113.74	0.00
0.09	164.07	0.01
0.11	189.62	0.01
0.17	240.56	0.02
0.21	265.63	0.03
0.31	315.72	0.06
0.36	340.99	0.07
0.53	387.80	0.10
0.58	412.77	0.11
0.72	460.62	0.14
0.77	486.92	0.15
0.89	537.22	0.17
0.93	562.29	0.18
1.04	610.92	0.19
1.09	634.50	0.20
1.19	680.32	0.21
1.24	701.95	0.21
1.36	745.23	0.22
1.42	765.64	0.22
1.60	803.14	0.23
1.73	818.75	0.23
2.16	840.25	0.24
2.22	860.60	0.24
2.42	893.18	0.24
2.50	911.26	0.24
2.65	945.93	0.24

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R13**
Project:	BLACKWATER	**Sample No.:**	DS#2
Location:	VA101-457/4	**Depth (m.):**	341.6-342.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
4.97	505.90	-0.72	0.68	698.96	0.02	2.71	963.71	0.24			
5.39	509.13	-0.79	0.76	716.53	0.01	2.88	995.32	0.24			
6.14	491.60	-0.91	0.83	734.56	0.01	2.98	1009.00	0.24			
6.65	490.17	-0.99	0.90	752.76	0.00	3.20	1035.67	0.23			
7.43	470.88	-1.10	0.98	769.07	0.00	3.33	1048.37	0.22			
7.98	467.95	-1.16	1.07	785.08	-0.01	3.49	1080.41	0.22			
8.72	452.68	-1.25	1.20	797.98	-0.02	3.60	1093.44	0.21			
9.37	442.48	-1.32	1.30	813.48	-0.03	3.84	1119.09	0.20			
10.52	402.68	-1.43	1.42	826.83	-0.04	3.91	1134.04	0.20			
11.45	382.17	-1.51	1.52	840.10	-0.05	4.08	1163.87	0.19			
11.79	394.38	-1.54	1.60	855.36	-0.05	4.16	1178.03	0.19			
12.72	369.10	-1.60	1.69	868.61	-0.06	4.34	1204.21	0.18			
13.11	377.80	-1.62	1.81	880.07	-0.07	4.42	1218.29	0.17			
13.59	380.40	-1.65	1.92	893.31	-0.08	4.66	1239.03	0.16			
14.24	373.55	-1.68	2.09	902.45	-0.10	4.73	1252.14	0.16			
14.76	373.73	-1.71	2.30	908.09	-0.12	4.86	1278.95	0.15			
15.92	336.24	-1.77	2.72	901.06	-0.18	4.92	1292.99	0.15			
17.89	262.08	-1.81	2.97	905.43	-0.21	5.05	1319.15	0.14			
18.32	271.69	-1.81	3.11	916.25	-0.23	5.11	1331.18	0.13			
			3.29	924.32	-0.25	5.21	1356.60	0.13			
			3.43	934.36	-0.26	5.29	1366.28	0.12			
			3.60	942.87	-0.29	5.43	1387.32	0.11			
			3.95	938.16	-0.33	5.50	1397.17	0.11			
			4.53	918.62	-0.42	5.66	1414.52	0.10			
			5.03	904.56	-0.48	5.74	1423.39	0.09			
			5.28	910.16	-0.51	5.93	1437.91	0.08			
			5.44	919.65	-0.54	6.05	1443.47	0.07			
			5.59	931.46	-0.56	6.23	1458.60	0.06			
			5.72	942.87	-0.57	6.34	1465.24	0.05			
			5.93	949.09	-0.60	6.59	1475.46	0.03			

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**BWW R13**
Project:	BLACKWATER	**Sample No.:**	DS#2
Location:	VA101-457/4	**Depth (m.):**	341.6-342.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
			9.35	739.69	-1.03	6.66	1484.96	0.03			
			9.34	769.24	-1.03	6.77	1502.44	0.02			
			9.35	795.72	-1.03	6.88	1506.89	0.01			
			9.62	802.04	-1.04	7.03	1514.06	0.00			
			11.47	708.57	-1.20	7.10	1516.60	0.00			
			11.53	733.53	-1.20	7.24	1526.05	-0.01			
			11.67	751.58	-1.20	7.31	1531.66	-0.02			
			11.81	768.04	-1.20	7.42	1540.90	-0.03			
			11.93	785.74	-1.20	7.48	1546.07	-0.03			
			12.06	803.01	-1.21	7.60	1555.67	-0.04			
			12.24	816.13	-1.22	7.65	1559.58	-0.05			
			12.54	822.04	-1.23	8.38	1521.25	-0.11			
			13.00	816.31	-1.26	9.27	1472.28	-0.18			
			14.27	754.59	-1.36	9.63	1467.95	-0.21			
			14.50	766.78	-1.37	9.84	1459.56	-0.22			
			14.60	785.67	-1.37	11.38	1370.61	-0.33			
			14.71	802.98	-1.38	12.05	1336.84	-0.37			
			14.89	815.70	-1.41	12.87	1310.29	-0.41			
			15.18	820.61	-1.43	13.00	1318.14	-0.41			
			16.07	768.10	-1.63	13.18	1335.78	-0.42			
			17.17	553.76	-2.09	13.28	1344.94	-0.43			
			17.35	573.23	-2.09	13.63	1348.86	-0.44			
			17.96	590.15	-2.09	13.96	1340.40	-0.46			
						15.26	1068.12	-0.68			
						15.89	1008.04	-0.68			
						17.93	973.66	-0.67			

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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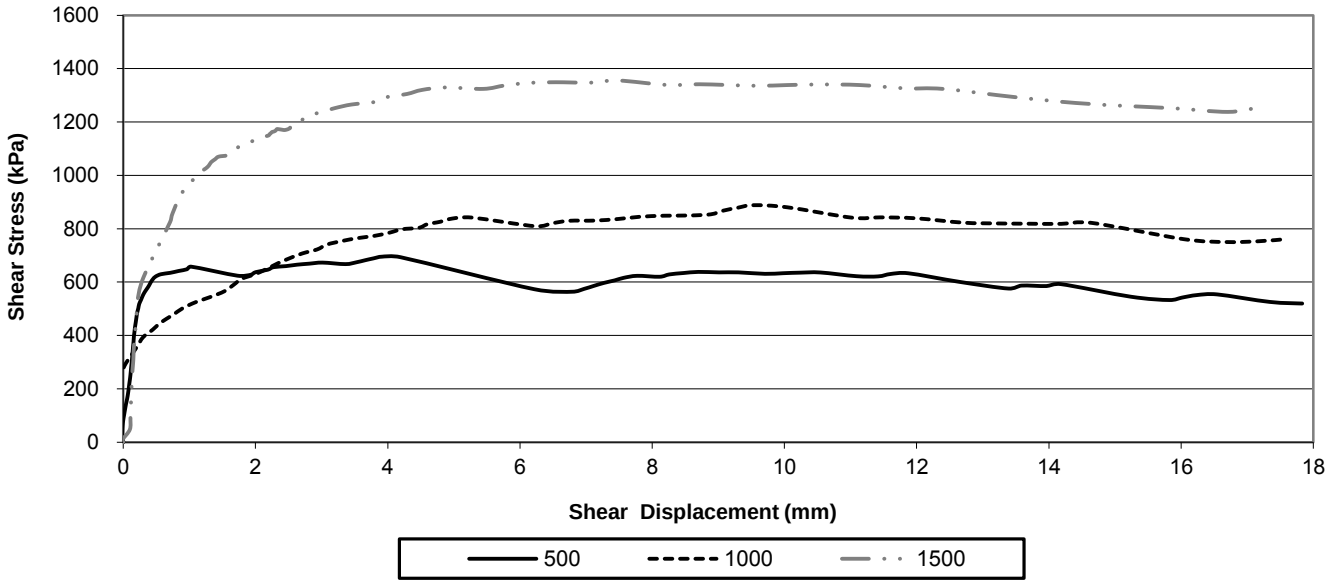
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

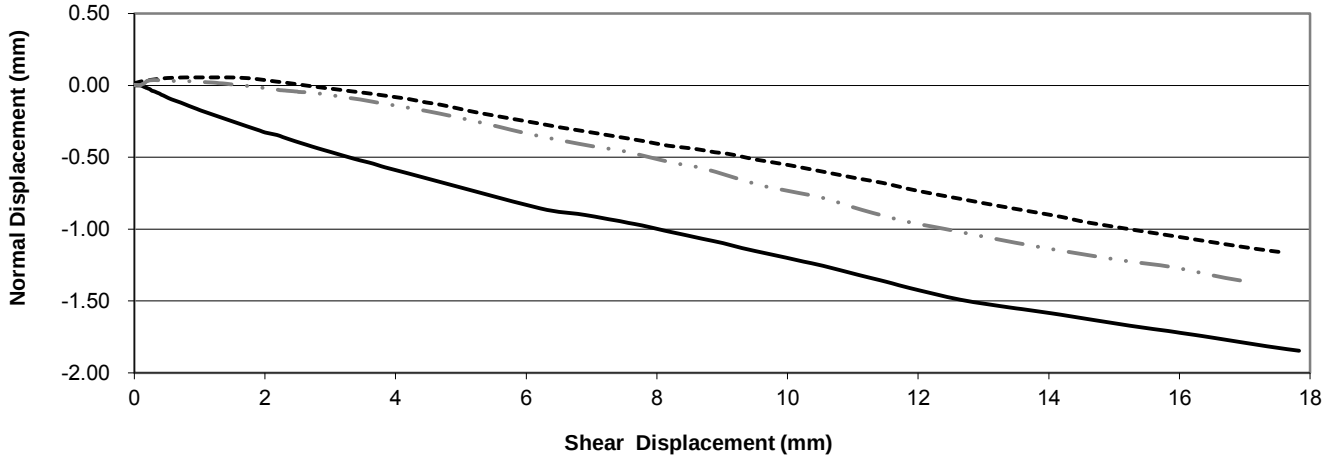
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-06**
Client:	Knight Piesold	**Sample No.:**	DS 06-01
Project:	BLACKWATER	**Depth (m.):**	252.8-253.2
Location:	COAL VALLEY OPEN PIT	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	48	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 20,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-06**
Client:	Knight Piesold	**Sample No.:**	DS 06-01
Project:	BLACKWATER	**Depth (m.):**	252.8-253.2
Location:	COAL VALLEY OPEN PIT	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 20,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-06**
Project:	BLACKWATER	**Sample No.:**	DS 06-01
Location:	COAL VALLEY OPEN PIT	**Depth (m.):**	252.8-253.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	1.16	-0.0001
-0.01	8.27	-0.0001
-0.01	22.37	-0.0001
-0.01	41.18	-0.0002
-0.01	62.10	0.0000
0.00	82.33	-0.0001
0.01	102.67	-0.0002
0.03	123.30	0.0001
0.04	143.39	-0.0002
0.06	162.88	-0.0001
0.07	182.79	-0.0003
0.08	202.39	-0.0003
0.09	222.56	-0.0005
0.10	242.56	-0.0005
0.11	262.02	-0.0005
0.12	281.54	-0.0040
0.13	301.51	-0.0046
0.13	320.78	-0.0053
0.14	340.34	-0.0098
0.15	359.08	-0.0103
0.16	377.26	-0.0114
0.16	395.34	-0.0125
0.17	413.26	-0.0137
0.18	431.15	-0.0162
0.19	449.15	-0.0177
0.20	466.91	-0.0193
0.21	484.50	-0.0218
0.23	501.49	-0.0246
0.24	517.86	-0.0272

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	14.38	0.00
-0.04	57.21	0.00
-0.08	98.59	0.00
-0.11	139.99	0.00
-0.12	180.93	0.00
-0.08	219.43	0.00
-0.03	257.47	0.01
0.04	294.36	0.02
0.13	328.29	0.03
0.21	358.83	0.04
0.30	393.06	0.04
0.44	421.61	0.05
0.57	449.58	0.05
0.75	476.33	0.05
0.90	502.71	0.06
1.09	524.75	0.06
1.32	544.50	0.06
1.53	565.94	0.05
1.67	589.80	0.05
1.79	611.92	0.05
1.99	629.08	0.04
2.17	649.23	0.03
2.34	670.23	0.02
2.52	689.62	0.01
2.71	707.47	-0.01
2.93	722.21	-0.02
3.08	740.64	-0.03
3.31	754.07	-0.04
3.55	764.89	-0.05

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	10.57	0.00
0.10	48.11	0.00
0.11	92.35	0.00
0.12	138.21	0.01
0.12	181.27	0.01
0.13	224.00	0.01
0.14	265.30	0.01
0.15	305.63	0.01
0.16	345.06	0.02
0.17	383.58	0.02
0.18	419.98	0.03
0.19	454.07	0.03
0.20	489.54	0.03
0.21	522.51	0.03
0.30	616.95	0.04
0.71	824.23	0.03
0.73	848.36	0.03
0.77	870.68	0.03
0.80	890.63	0.03
0.83	906.82	0.03
0.86	923.94	0.03
0.91	940.74	0.03
0.95	959.07	0.03
1.01	975.41	0.02
1.08	988.15	0.02
1.13	1001.86	0.02
1.17	1014.06	0.02
1.25	1025.73	0.02
1.29	1037.01	0.02

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 20,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-06**
Project:	BLACKWATER	**Sample No.:**	DS 06-01
Location:	COAL VALLEY OPEN PIT	**Depth (m.):**	252.8-253.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.27	532.80	-0.04
0.29	547.07	-0.04
0.32	561.01	-0.04
0.35	573.41	-0.05
0.39	586.23	-0.06
0.41	598.72	-0.07
0.45	610.36	-0.07
0.49	620.82	-0.08
0.57	629.49	-0.10
0.71	634.70	-0.12
0.84	641.56	-0.14
0.96	648.21	-0.17
1.03	657.84	-0.18
1.73	624.01	-0.29
1.92	627.11	-0.31
2.00	637.22	-0.33
2.18	646.30	-0.35
2.27	655.91	-0.36
2.46	659.82	-0.39
2.63	665.24	-0.41
2.81	669.03	-0.44
3.01	673.04	-0.46
3.36	667.31	-0.51
3.52	674.00	-0.53
3.66	681.91	-0.54
3.78	688.82	-0.56
3.92	695.32	-0.58
4.19	693.23	-0.61
6.22	573.31	-0.86
6.79	563.83	-0.89

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
3.81	773.61	-0.07
4.03	785.33	-0.08
4.21	797.87	-0.10
4.47	803.46	-0.12
4.60	817.29	-0.13
4.79	825.91	-0.14
4.98	838.12	-0.16
5.27	841.79	-0.19
6.24	809.13	-0.27
6.49	820.68	-0.29
6.74	829.79	-0.31
7.13	830.43	-0.34
7.48	836.39	-0.36
7.81	844.69	-0.39
8.17	848.69	-0.42
8.57	849.59	-0.44
8.89	854.07	-0.47
9.08	867.78	-0.48
9.30	878.95	-0.50
9.53	888.20	-0.52
10.05	880.13	-0.56
11.03	841.14	-0.64
11.45	842.57	-0.68
11.99	839.01	-0.73
12.71	822.63	-0.79
13.22	819.89	-0.84
13.71	818.70	-0.88
14.19	818.22	-0.92
14.64	822.07	-0.96
16.04	760.93	-1.06

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
1.33	1049.29	0.01
1.39	1060.11	0.01
1.44	1070.03	0.01
1.57	1074.71	0.00
1.61	1085.11	0.00
1.65	1091.68	0.00
1.70	1097.15	0.00
1.74	1105.87	0.00
1.82	1110.40	-0.01
1.86	1114.96	-0.01
1.89	1119.90	-0.01
1.92	1125.12	-0.01
1.97	1130.11	-0.02
2.01	1135.68	-0.02
2.06	1138.21	-0.02
2.09	1142.18	-0.03
2.13	1144.13	-0.03
2.16	1147.17	-0.03
2.20	1149.94	-0.03
2.21	1154.68	-0.03
2.23	1157.16	-0.03
2.24	1160.42	-0.03
2.25	1162.79	-0.03
2.27	1163.59	-0.03
2.29	1165.22	-0.04
2.29	1166.18	-0.04
2.30	1167.90	-0.04
2.31	1171.00	-0.04
2.33	1173.76	-0.04
2.43	1169.92	-0.04

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 20,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-06**
Project:	BLACKWATER	**Sample No.:**	DS 06-01
Location:	COAL VALLEY OPEN PIT	**Depth (m.):**	252.8-253.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
6.97	574.49	-0.91
7.12	585.78	-0.92
7.27	596.94	-0.93
7.43	606.35	-0.94
7.57	615.85	-0.96
7.77	623.46	-0.97
8.11	619.95	-1.01
8.26	628.73	-1.02
8.47	633.92	-1.05
8.70	638.12	-1.07
9.01	636.39	-1.10
9.30	636.48	-1.13
9.71	630.86	-1.17
9.98	633.31	-1.20
10.24	635.39	-1.23
10.55	635.95	-1.26
11.09	622.03	-1.32
11.42	621.36	-1.36
11.61	630.48	-1.38
11.87	633.08	-1.41
12.65	600.83	-1.49
13.39	575.85	-1.55
13.59	586.89	-1.56
13.96	585.10	-1.58
14.18	592.35	-1.60
15.24	545.24	-1.67
15.82	532.72	-1.71
16.01	541.86	-1.72
16.24	551.46	-1.74
16.55	553.78	-1.76

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
16.69	750.09	-1.10
17.18	753.17	-1.14
17.58	761.03	-1.16

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
2.45	1170.23	-0.04
2.47	1171.63	-0.04
2.49	1173.16	-0.04
2.51	1175.04	-0.05
2.52	1176.23	-0.05
2.52	1178.26	-0.05
2.53	1179.71	-0.05
2.53	1181.02	-0.05
2.54	1183.09	-0.05
2.54	1185.38	-0.05
2.55	1187.37	-0.05
2.55	1190.47	-0.05
2.57	1193.85	-0.05
2.61	1195.60	-0.05
2.64	1197.72	-0.05
2.67	1200.15	-0.05
2.78	1221.18	-0.06
2.98	1236.42	-0.07
3.20	1251.94	-0.08
3.45	1265.45	-0.10
3.79	1274.42	-0.13
3.98	1293.13	-0.14
4.29	1304.92	-0.16
4.52	1320.16	-0.18
4.87	1329.41	-0.22
5.44	1323.96	-0.27
5.77	1336.79	-0.31
6.11	1345.96	-0.34
6.54	1348.96	-0.38
7.07	1347.39	-0.43

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 20,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-06**
Project:	BLACKWATER	**Sample No.:**	DS 06-01
Location:	COAL VALLEY OPEN PIT	**Depth (m.):**	252.8-253.2
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
17.34	525.60	-1.82				7.49	1355.40	-0.46			
17.83	519.66	-1.85				8.22	1338.70	-0.54			
						8.72	1341.43	-0.58			
						9.54	1335.83	-0.69			
						10.04	1338.39	-0.74			
						10.55	1340.56	-0.78			
						11.14	1338.44	-0.87			
						11.83	1326.06	-0.95			
						12.41	1323.83	-1.00			
						13.48	1293.20	-1.09			
						14.41	1271.22	-1.17			
						15.17	1259.93	-1.22			
						15.89	1251.29	-1.27			
						16.71	1237.79	-1.34			
						17.13	1252.58	-1.37			

LP	February 20,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

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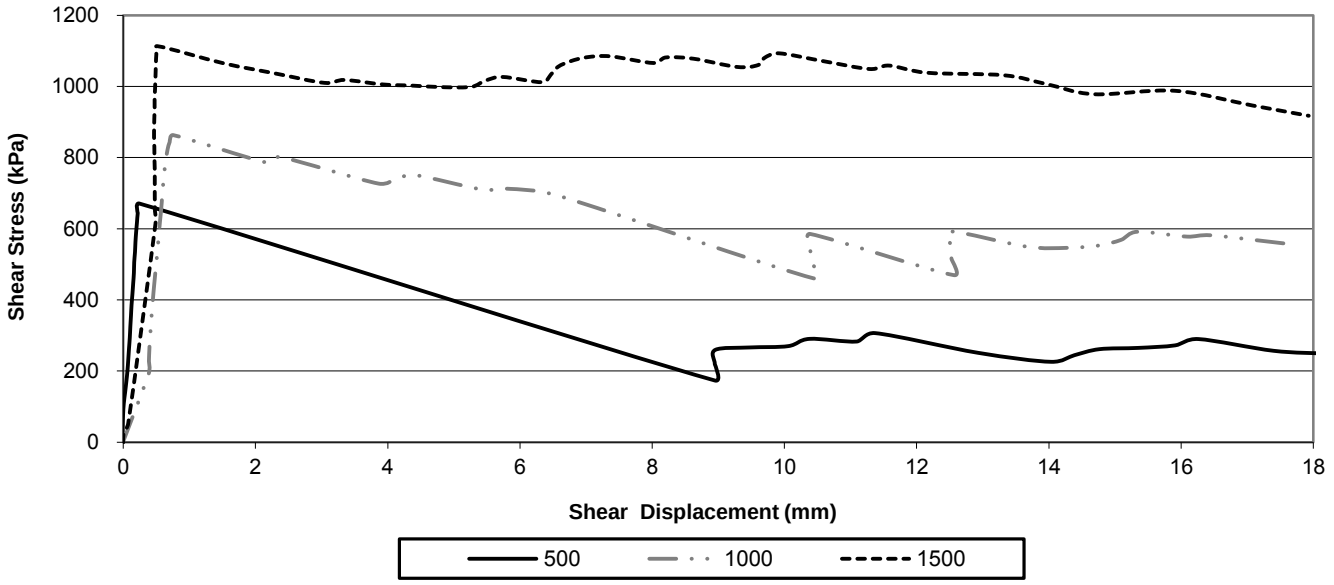
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

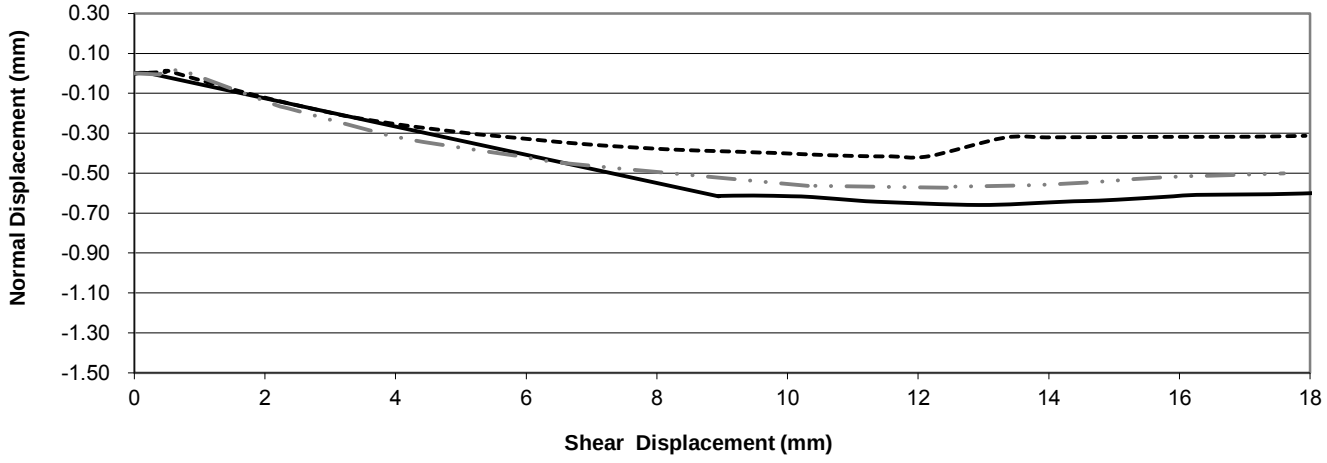
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-06**
Client:	Knight Piesold	**Sample No.:**	DS 06-02
Project:	BLACKWATER	**Depth (m.):**	320.3-321.0
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	43	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



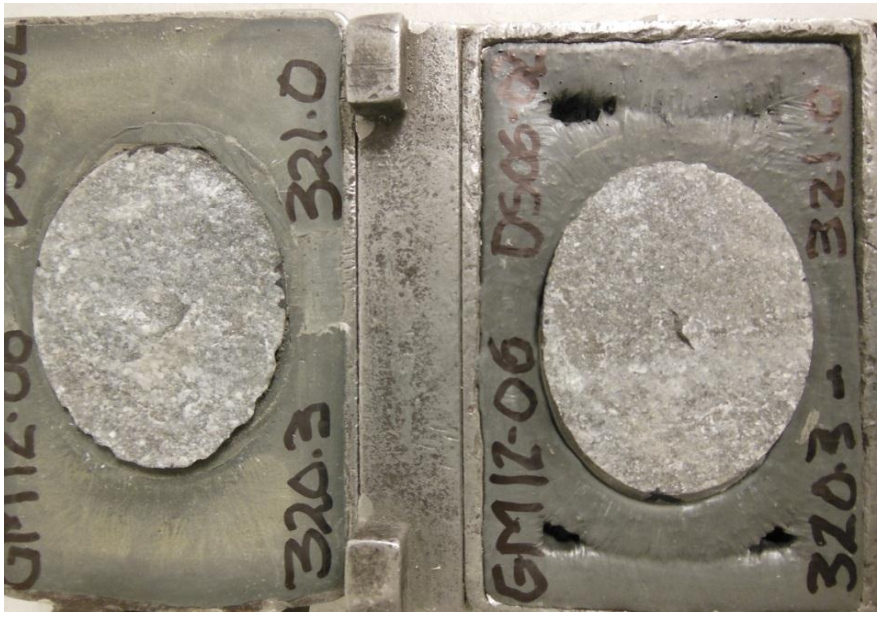
LP	February 20,2013	E.Kostyukov	March1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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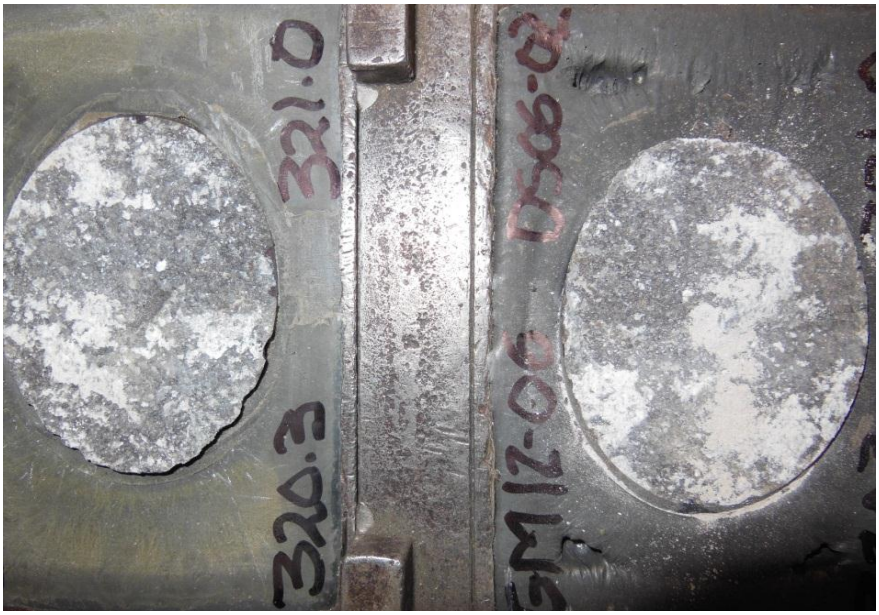
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-06**
Client:	Knight Piesold	**Sample No.:**	DS 06-02
Project:	BLACKWATER	**Depth (m.):**	320.3-321.0
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 20,2013	E.Kostyukov	March1,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-06**
Project:	BLACKWATER	**Sample No.:**	DS 06-02
Location:	VA101-457/4	**Depth (m.):**	320.3-321.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	2.53	-0.0005
-0.01	23.58	-0.0027
-0.01	49.55	-0.0024
0.00	78.32	-0.0024
0.01	108.98	-0.0018
0.03	139.28	-0.0006
0.05	170.19	0.0008
0.06	200.66	0.0014
0.07	230.95	0.0026
0.09	262.05	0.0028
0.10	293.48	0.0030
0.11	324.25	0.0028
0.12	356.05	0.0030
0.12	386.30	0.0028
0.14	416.20	0.0028
0.15	446.15	0.0028
0.16	475.69	0.0026
0.16	505.71	0.0025
0.18	534.20	0.0025
0.18	562.27	0.0023
0.19	590.28	0.0021
0.21	617.42	0.0017
0.22	644.03	0.0014
0.24	670.77	-0.0006
8.95	173.38	-0.6164
8.95	219.21	-0.6147
8.95	259.58	-0.6141
9.48	266.27	-0.6121
10.06	270.05	-0.6158

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	1.55	0.00
0.38	192.87	-0.01
0.39	227.45	0.00
0.39	260.84	0.00
0.40	293.65	0.00
0.42	326.44	0.00
0.43	359.21	0.00
0.44	390.10	0.00
0.46	420.61	0.00
0.47	450.67	0.01
0.49	480.62	0.01
0.50	509.82	0.01
0.52	537.88	0.01
0.53	565.15	0.01
0.54	592.99	0.01
0.55	620.40	0.01
0.57	647.84	0.01
0.58	674.20	0.02
0.59	700.56	0.02
0.60	726.25	0.02
0.62	751.92	0.02
0.63	776.11	0.02
0.65	800.04	0.02
0.67	822.50	0.02
0.70	843.84	0.02
0.76	863.05	0.01
2.17	785.80	-0.16
2.38	801.56	-0.18
3.86	726.76	-0.31

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	5.52	0.00
0.01	27.67	0.00
0.07	53.32	0.00
0.49	614.56	0.01
0.48	648.21	0.01
0.48	678.79	0.01
0.48	711.08	0.01
0.48	742.20	0.01
0.47	772.00	0.01
0.47	801.99	0.01
0.47	829.27	0.01
0.46	856.73	0.01
0.47	884.16	0.01
0.47	911.45	0.01
0.47	939.43	0.01
0.47	966.91	0.01
0.48	992.60	0.01
0.48	1017.46	0.01
0.49	1043.15	0.01
0.49	1066.91	0.01
0.50	1091.22	0.01
0.51	1113.15	0.01
1.51	1065.21	-0.08
2.30	1036.47	-0.14
3.04	1009.96	-0.20
3.34	1018.13	-0.22
3.93	1005.42	-0.25
4.37	1002.24	-0.27
4.86	997.66	-0.29

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 20,2013	E.Kostyukov	March1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-06**
Project:	BLACKWATER	**Sample No.:**	DS 06-02
Location:	VA101-457/4	**Depth (m.):**	320.3-321.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
10.38	290.41	-0.62
11.09	282.90	-0.64
11.37	306.58	-0.64
12.93	251.15	-0.66
14.04	225.91	-0.65
14.39	244.51	-0.64
14.77	261.49	-0.64
15.35	265.00	-0.63
15.91	272.13	-0.62
16.26	289.87	-0.61
17.40	256.90	-0.61
18.18	249.25	-0.60

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
4.13	740.19	-0.33
4.41	750.61	-0.34
5.42	710.74	-0.39
5.86	711.85	-0.41
6.58	692.56	-0.45
10.45	460.17	-0.57
10.41	509.38	-0.56
10.39	548.46	-0.56
10.39	585.23	-0.56
12.56	469.53	-0.57
12.53	515.09	-0.57
12.51	554.78	-0.57
12.52	592.43	-0.57
13.66	549.83	-0.56
14.28	546.28	-0.55
14.75	552.68	-0.54
15.09	568.72	-0.54
15.34	591.40	-0.53
16.09	577.81	-0.52
16.45	581.52	-0.51
17.60	557.67	-0.50

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
5.27	998.91	-0.31
5.47	1015.96	-0.31
5.74	1026.51	-0.32
6.34	1011.88	-0.34
6.47	1033.25	-0.34
6.58	1055.39	-0.35
6.76	1070.73	-0.35
7.01	1081.90	-0.36
7.37	1084.49	-0.37
8.02	1065.79	-0.38
8.20	1081.30	-0.38
8.62	1077.81	-0.39
9.28	1054.69	-0.39
9.60	1060.10	-0.40
9.70	1080.75	-0.40
9.92	1093.10	-0.40
10.61	1070.18	-0.41
11.29	1048.87	-0.42
11.59	1058.51	-0.42
12.16	1038.33	-0.42
13.32	1031.40	-0.32
13.96	1006.76	-0.32
14.68	978.05	-0.32
15.91	987.59	-0.32
17.08	946.32	-0.32
17.93	917.46	-0.31

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 20,2013	E.Kostyukov	March1,2013
TESTED BY	DATE	CHECKED BY	DATE

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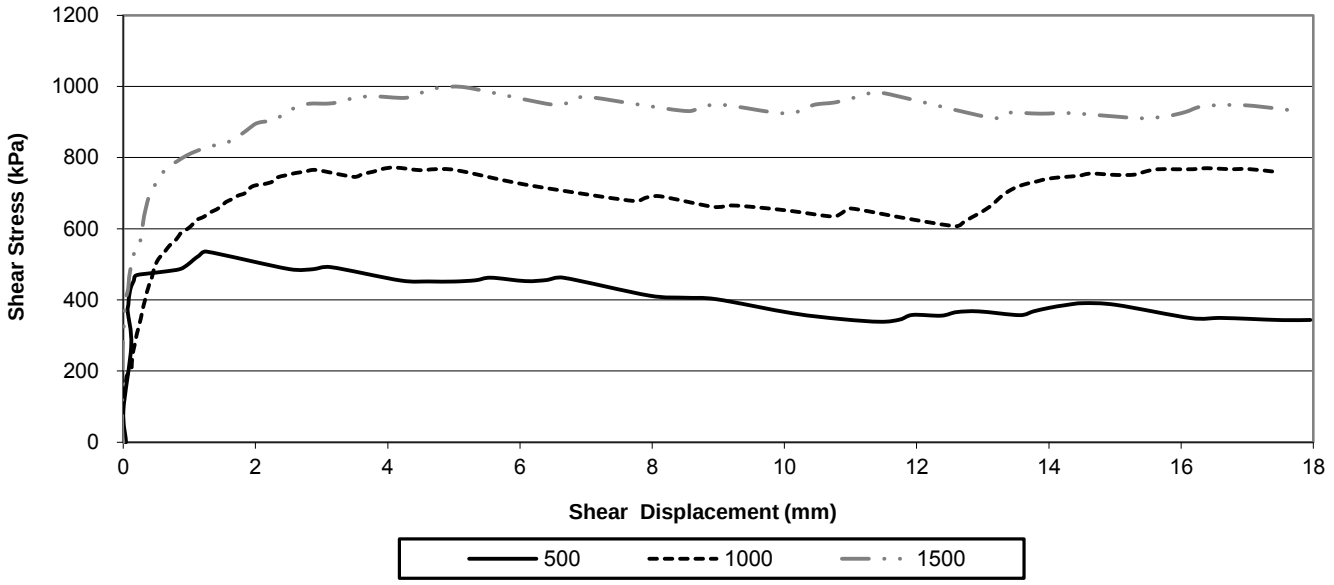
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

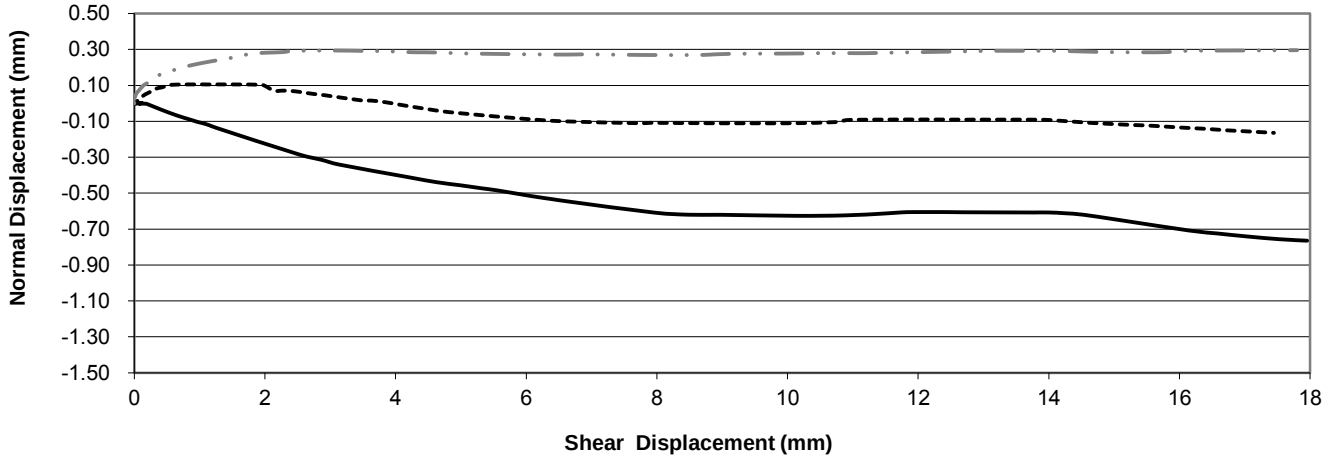
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-07**
Client:	Knight Piesold	**Sample No.:**	DS 07-01
Project:	BLACKWATER	**Depth (m.):**	160.6-160.9
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	50	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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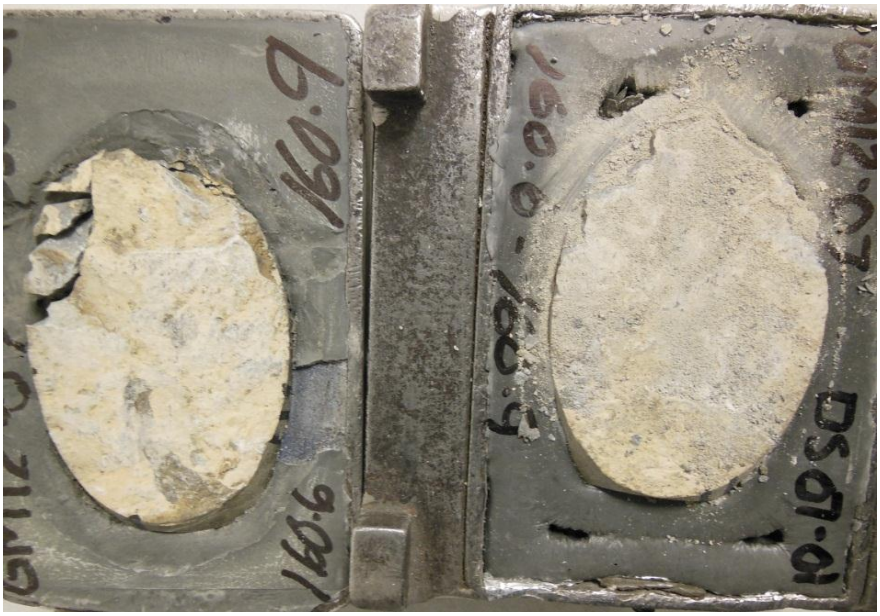
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-07**
Client:	Knight Piesold	**Sample No.:**	DS 07-01
Project:	BLACKWATER	**Depth (m.):**	160.6-160.9
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS 07-01
Location:	VA101-457/4	**Depth (m.):**	160.6-160.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.04	0.97	0.0001
0.00	90.12	0.0001
0.12	270.77	0.0009
0.07	369.02	-0.0014
0.08	386.58	-0.0014
0.08	403.94	-0.0012
0.10	420.90	-0.0011
0.12	437.24	-0.0014
0.16	453.32	-0.0023
0.19	468.63	-0.0035
0.40	474.48	-0.0330
0.64	479.97	-0.0664
0.86	486.51	-0.0911
0.97	498.69	-0.1040
1.06	511.99	-0.1117
1.15	524.63	-0.1222
1.25	535.80	-0.1367
2.51	486.44	-0.2837
2.87	486.28	-0.3152
3.14	492.06	-0.3415
4.20	454.42	-0.4114
4.62	451.81	-0.4388
5.00	451.60	-0.4569
5.33	455.09	-0.4739
5.56	462.36	-0.4850
6.08	452.74	-0.5168
6.41	455.84	-0.5342
6.66	462.28	-0.5474
7.96	411.99	-0.6084

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	2.86	0.00
-0.02	20.00	0.00
-0.03	40.25	0.00
-0.02	59.50	0.00
-0.02	79.38	0.00
-0.01	98.35	0.00
0.00	116.88	0.00
0.01	134.89	0.00
0.02	153.41	0.01
0.04	171.25	0.01
0.06	188.62	0.02
0.12	204.35	0.04
0.13	221.34	0.04
0.14	238.80	0.04
0.15	256.19	0.05
0.17	272.55	0.05
0.19	289.92	0.05
0.21	306.43	0.06
0.23	321.71	0.06
0.25	338.09	0.06
0.27	354.87	0.07
0.29	370.18	0.07
0.31	386.50	0.08
0.33	401.83	0.08
0.35	417.28	0.08
0.37	431.56	0.09
0.40	445.73	0.09
0.43	459.86	0.09
0.45	473.67	0.09

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	17.74	0.00
-0.02	59.96	0.00
-0.02	101.23	0.00
-0.02	140.51	0.00
-0.02	180.20	0.01
-0.01	218.04	0.01
-0.01	256.50	0.02
0.00	293.68	0.03
0.01	329.86	0.03
0.02	365.43	0.04
0.03	399.70	0.06
0.07	431.30	0.07
0.09	463.22	0.08
0.12	493.26	0.09
0.14	523.62	0.10
0.24	549.85	0.12
0.26	579.91	0.13
0.29	608.74	0.14
0.31	635.70	0.15
0.35	662.35	0.15
0.38	687.90	0.16
0.44	711.75	0.17
0.52	732.22	0.18
0.58	753.89	0.18
0.67	772.99	0.19
0.82	789.65	0.21
0.95	805.31	0.22
1.12	819.09	0.23
1.31	831.56	0.24

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS 07-01
Location:	VA101-457/4	**Depth (m.):**	160.6-160.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
8.50	406.03	-0.62
8.97	401.84	-0.62
10.12	362.43	-0.63
10.87	345.80	-0.62
11.46	338.45	-0.61
11.75	344.77	-0.61
11.94	357.83	-0.61
12.37	355.56	-0.61
12.60	365.61	-0.61
12.94	367.62	-0.61
13.56	357.09	-0.61
13.77	367.64	-0.61
14.00	377.57	-0.61
14.25	385.12	-0.61
14.53	390.77	-0.62
15.02	385.92	-0.65
16.15	348.75	-0.71
16.58	349.30	-0.72
17.04	346.58	-0.74
17.53	343.08	-0.76
17.96	343.53	-0.76

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.46	487.11	0.09
0.49	499.99	0.10
0.52	512.35	0.10
0.57	524.28	0.10
0.62	534.60	0.10
0.67	546.14	0.10
0.72	557.22	0.10
0.79	568.17	0.11
0.84	579.11	0.11
0.89	591.09	0.11
0.98	600.65	0.11
1.05	612.98	0.11
1.11	624.74	0.10
1.22	633.81	0.11
1.30	644.96	0.11
1.41	654.05	0.11
1.49	664.39	0.11
1.55	675.18	0.11
1.65	683.55	0.10
1.73	692.52	0.10
1.84	699.75	0.10
1.89	711.06	0.10
1.98	720.75	0.10
2.14	725.73	0.07
2.26	732.59	0.07
2.32	743.68	0.07
2.46	750.14	0.07
2.60	756.21	0.06
2.75	760.37	0.05
2.91	765.14	0.05

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
1.55	840.31	0.26
1.67	855.04	0.27
1.80	867.89	0.28
1.91	883.11	0.28
2.03	897.46	0.28
2.27	905.01	0.29
2.39	917.86	0.29
2.49	931.35	0.29
2.63	941.48	0.29
2.81	951.26	0.29
3.11	951.80	0.29
3.33	958.21	0.29
3.50	968.64	0.29
3.80	972.02	0.29
4.25	967.68	0.28
4.45	978.31	0.28
4.63	990.20	0.28
4.85	998.12	0.28
5.19	996.82	0.28
6.49	948.55	0.27
6.78	957.22	0.27
6.98	971.26	0.27
7.82	948.41	0.27
8.55	930.58	0.27
8.76	944.39	0.27
9.11	947.45	0.28
9.93	924.94	0.28
10.26	931.70	0.28
10.45	948.34	0.28
10.76	954.77	0.28

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS 07-01
Location:	VA101-457/4	**Depth (m.):**	160.6-160.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
			3.49	745.72	0.02	10.99	964.94	0.28			
			3.62	753.71	0.02	11.19	975.34	0.28			
			3.78	760.29	0.01	11.45	983.05	0.28			
			3.92	768.04	0.00	13.15	910.63	0.29			
			4.11	771.93	-0.01	13.36	925.95	0.29			
			4.49	764.46	-0.03	13.87	923.36	0.29			
			4.71	767.26	-0.04	14.30	925.02	0.29			
			5.03	764.92	-0.06	14.83	917.96	0.29			
			5.90	730.54	-0.08	15.41	910.34	0.28			
			6.57	709.19	-0.10	15.79	916.65	0.29			
			7.74	677.58	-0.11	16.06	927.93	0.29			
			7.90	686.74	-0.11	16.29	942.65	0.29			
			8.12	691.29	-0.11	16.63	947.63	0.29			
			8.92	661.56	-0.11	17.10	945.27	0.29			
			9.19	665.42	-0.11	17.80	929.28	0.30			
			9.60	659.92	-0.11						
			10.10	649.85	-0.11						
			10.73	634.39	-0.10						
			10.88	645.52	-0.09						
			11.00	657.04	-0.09						
			11.83	629.34	-0.09						
			12.59	607.15	-0.09						
			12.72	619.87	-0.09						
			12.84	632.21	-0.09						
			12.95	643.70	-0.09						
			13.05	655.48	-0.09						
			13.15	667.67	-0.09						
			13.22	681.66	-0.09						
			13.31	695.28	-0.09						
			13.41	707.75	-0.09						

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS 07-01
Location:	VA101-457/4	**Depth (m.):**	160.6-160.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
			13.53	718.36	-0.09						
			13.66	726.33	-0.09						
			13.82	733.03	-0.09						
			14.00	740.91	-0.09						
			14.24	745.44	-0.10						
			14.45	748.85	-0.10						
			14.64	754.94	-0.11						
			15.02	751.09	-0.12						
			15.29	751.96	-0.12						
			15.44	759.80	-0.12						
			15.62	766.93	-0.13						
			15.91	767.14	-0.13						
			16.18	767.25	-0.14						
			16.40	770.09	-0.14						
			16.73	767.26	-0.15						
			17.02	767.71	-0.16						
			17.45	759.45	-0.16						

LP	February 21,2013	E.Kostyukov	March 1,2013
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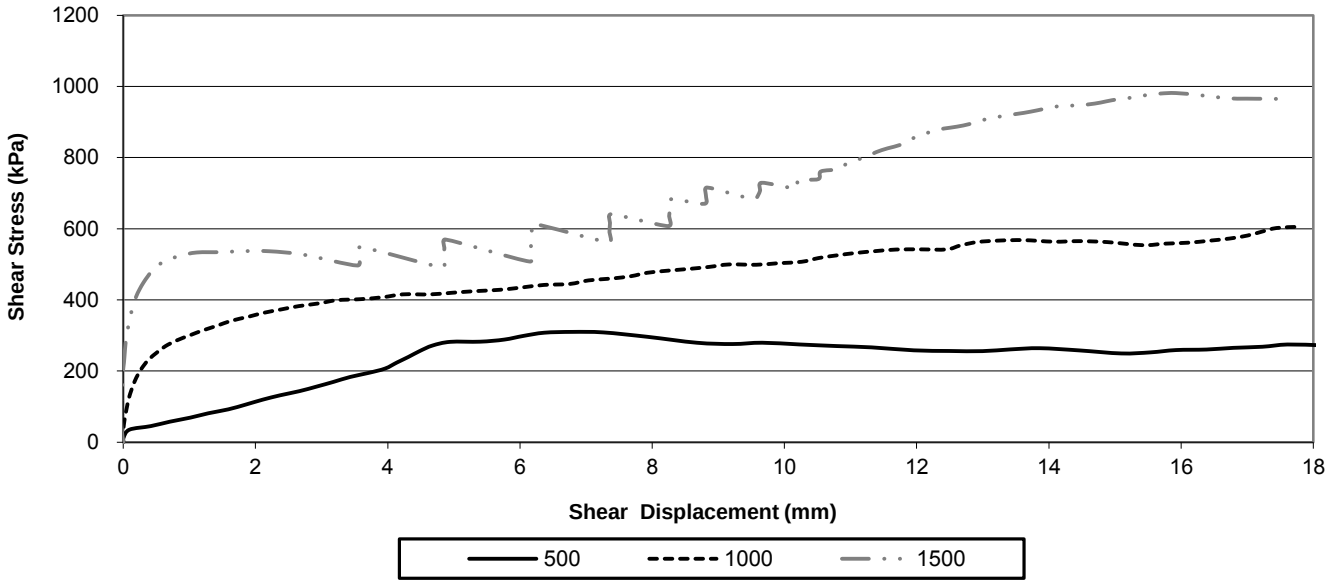
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

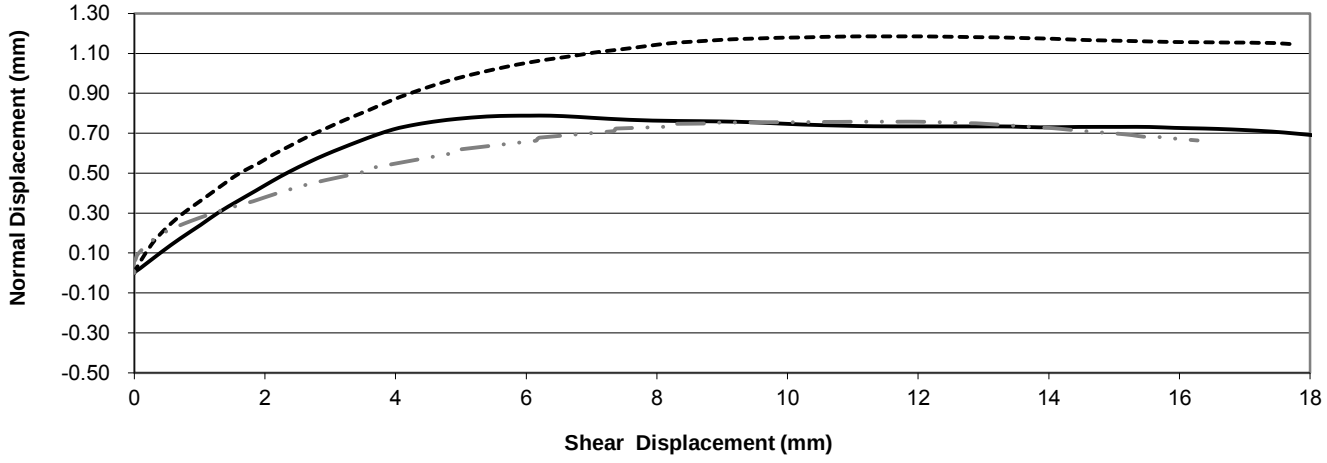
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-07**
Client:	Knight Piesold	**Sample No.:**	DS07-02
Project:	BLACKWATER	**Depth (m.):**	201.1-201.4
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	43	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



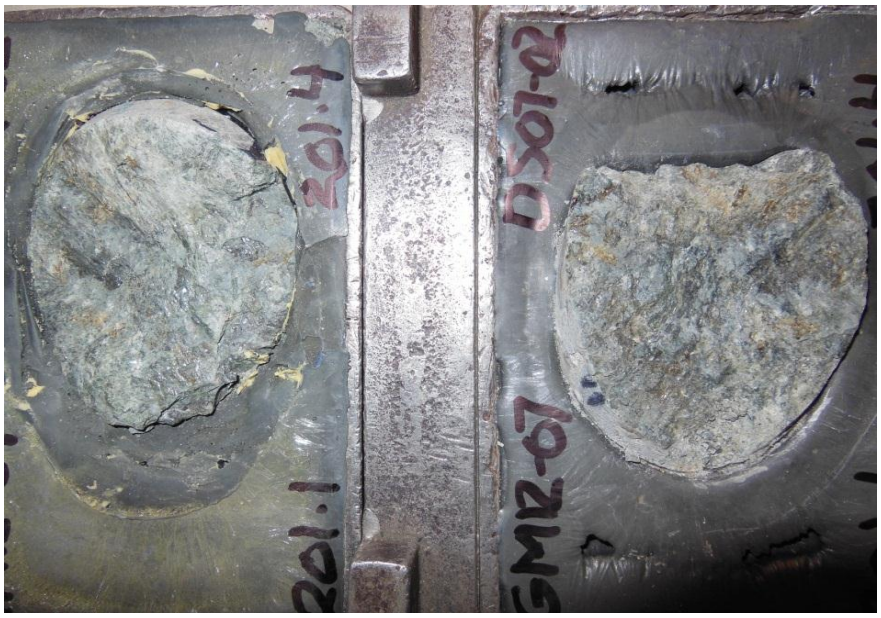
LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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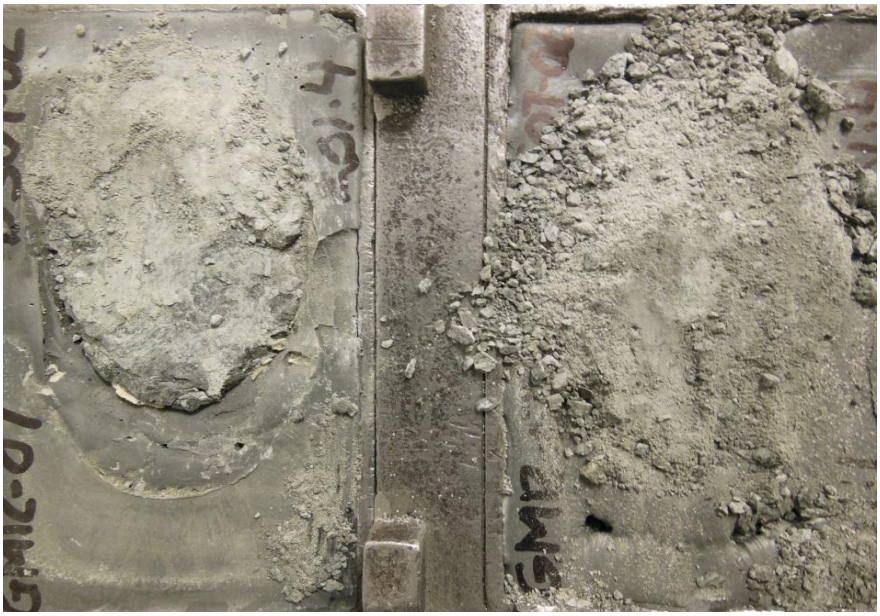
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-07**
Client:	Knight Piesold	**Sample No.:**	DS07-02
Project:	BLACKWATER	**Depth (m.):**	201.1-201.4
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS07-02
Location:	VA101-457/4	**Depth (m.):**	201.1-201.4
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	-0.16	0.0021
0.00	13.19	0.0045
0.09	35.22	0.0242
0.41	45.18	0.1047
0.70	57.61	0.1730
1.01	69.06	0.2404
1.29	81.31	0.3023
1.59	92.37	0.3613
1.85	105.85	0.4111
2.11	119.51	0.4597
2.37	131.80	0.5069
2.66	143.41	0.5539
2.93	156.56	0.5931
3.18	169.61	0.6266
3.43	183.42	0.6590
3.71	194.69	0.6924
3.96	206.98	0.7189
4.14	223.72	0.7326
4.31	239.61	0.7438
4.48	256.17	0.7532
4.68	271.58	0.7621
4.94	282.03	0.7722
5.40	282.46	0.7839
5.76	288.37	0.7875
6.05	298.77	0.7881
6.37	307.72	0.7880
6.79	310.02	0.7820
7.26	308.57	0.7724
7.93	296.04	0.7635

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	0.52	0.00
0.00	21.76	0.01
0.01	47.74	0.01
0.03	73.59	0.02
0.06	99.05	0.04
0.08	123.76	0.05
0.12	146.90	0.07
0.17	169.98	0.10
0.23	191.88	0.12
0.30	212.65	0.16
0.39	233.67	0.19
0.51	251.83	0.23
0.64	269.89	0.27
0.81	286.02	0.31
1.01	300.64	0.36
1.21	314.51	0.41
1.42	327.50	0.46
1.63	340.97	0.50
1.89	352.74	0.55
2.12	363.66	0.59
2.39	373.38	0.64
2.65	382.48	0.68
2.96	390.00	0.73
3.23	399.05	0.77
3.59	402.06	0.82
3.93	407.56	0.86
4.23	415.50	0.90
4.63	415.39	0.95
4.97	419.97	0.98

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	-0.74	0.01
-0.01	19.04	0.01
-0.03	45.79	0.02
-0.04	71.62	0.02
-0.03	97.52	0.02
-0.03	122.97	0.03
-0.02	147.92	0.03
-0.01	173.19	0.04
-0.01	198.53	0.06
0.01	223.00	0.06
0.02	248.18	0.07
0.03	272.16	0.08
0.05	296.53	0.09
0.07	320.06	0.10
0.09	343.20	0.11
0.12	365.91	0.12
0.16	388.01	0.13
0.19	409.46	0.14
0.25	429.38	0.16
0.30	448.29	0.17
0.37	466.51	0.19
0.45	484.72	0.20
0.55	500.86	0.22
0.70	513.46	0.24
0.86	524.64	0.26
1.11	533.24	0.29
1.47	534.20	0.33
1.82	536.94	0.36
2.21	536.72	0.40

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

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TESTED BY	DATE	CHECKED BY	DATE

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4280 Still Creek Drive
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS07-02
Location:	VA101-457/4	**Depth (m.):**	201.1-201.4
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
8.67	279.56	0.76
9.22	275.86	0.76
9.66	279.56	0.75
10.23	274.67	0.74
10.79	270.17	0.74
11.32	266.50	0.73
11.96	258.23	0.73
12.49	256.39	0.73
13.00	255.95	0.73
13.42	260.82	0.73
13.86	264.22	0.73
14.45	258.02	0.73
15.10	249.44	0.73
15.54	252.47	0.73
15.92	258.97	0.73
16.38	260.43	0.72
16.79	265.18	0.72
17.23	268.24	0.71
17.61	274.57	0.70
18.10	272.40	0.69

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
5.32	424.56	1.01
5.70	428.33	1.03
6.03	434.86	1.05
6.36	441.96	1.07
6.75	444.70	1.09
7.04	454.78	1.10
7.38	459.91	1.12
7.68	466.56	1.13
7.92	476.13	1.14
8.23	482.04	1.15
8.56	487.16	1.16
8.87	492.76	1.17
9.16	499.62	1.17
9.58	498.68	1.18
9.91	503.20	1.18
10.26	507.01	1.18
10.52	517.49	1.18
10.79	525.11	1.18
11.07	531.73	1.19
11.37	536.98	1.19
11.69	541.52	1.19
12.06	541.94	1.19
12.45	541.80	1.18
12.67	553.25	1.18
12.92	562.61	1.18
13.24	566.59	1.18
13.62	567.95	1.18
14.08	563.53	1.17
14.46	565.11	1.17
14.88	562.40	1.16

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
2.73	526.90	0.45
3.54	496.60	0.51
3.56	523.13	0.52
3.59	548.26	0.52
4.82	492.09	0.60
4.84	519.90	0.60
4.86	546.19	0.61
4.87	569.71	0.61
6.15	507.76	0.66
6.16	535.98	0.67
6.17	563.05	0.67
6.18	589.89	0.67
6.20	613.54	0.68
7.34	562.57	0.71
7.35	590.46	0.71
7.36	616.44	0.72
7.38	640.64	0.72
8.24	607.31	0.73
8.26	635.37	0.74
8.27	660.54	0.75
8.28	682.97	0.75
8.79	670.03	0.75
8.81	694.07	0.75
8.83	715.78	0.75
9.52	684.22	0.75
9.63	705.70	0.75
9.65	729.12	0.76
10.17	713.68	0.76
10.21	736.58	0.76
10.51	739.35	0.76

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS07-02
Location:	VA101-457/4	**Depth (m.):**	201.1-201.4
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
			15.42	553.71	1.16	10.55	760.97	0.76			
			15.75	558.03	1.16	10.81	767.18	0.76			
			16.11	560.74	1.16	10.93	781.03	0.76			
			16.43	566.28	1.16	11.09	793.04	0.76			
			16.73	572.42	1.15	11.26	803.17	0.76			
			17.01	580.86	1.15	11.39	815.29	0.76			
			17.22	591.66	1.15	11.56	826.02	0.76			
			17.44	601.97	1.15	11.75	835.53	0.76			
			17.76	605.12	1.15	11.88	848.78	0.76			
						12.02	860.44	0.76			
						12.17	870.04	0.76			
						12.33	878.75	0.76			
						12.52	884.21	0.75			
						12.71	890.16	0.75			
						12.88	898.50	0.75			
						13.03	907.08	0.75			
						13.21	913.72	0.74			
						13.41	920.01	0.74			
						13.62	925.58	0.73			
						13.83	932.71	0.73			
						13.99	939.36	0.73			
						14.17	944.71	0.72			
						14.44	946.66	0.71			
						14.69	951.68	0.71			
						14.86	957.77	0.70			
						15.05	964.17	0.70			
						15.28	968.87	0.69			
						15.46	975.13	0.68			
						15.68	979.87	0.68			
						15.92	981.34	0.67			

LP	February 21,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

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4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-07**
Project:	BLACKWATER	**Sample No.:**	DS07-02
Location:	VA101-457/4	**Depth (m.):**	201.1-201.4
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
						16.28	975.46	0.66			
						16.69	966.77	0.65			
						16.99	965.57	0.65			
						17.30	965.22	0.64			
						17.60	964.61	0.64			

TESTED BY	DATE	CHECKED BY	DATE
LP	February 21,2013	E.Kostyukov	March 1,2013

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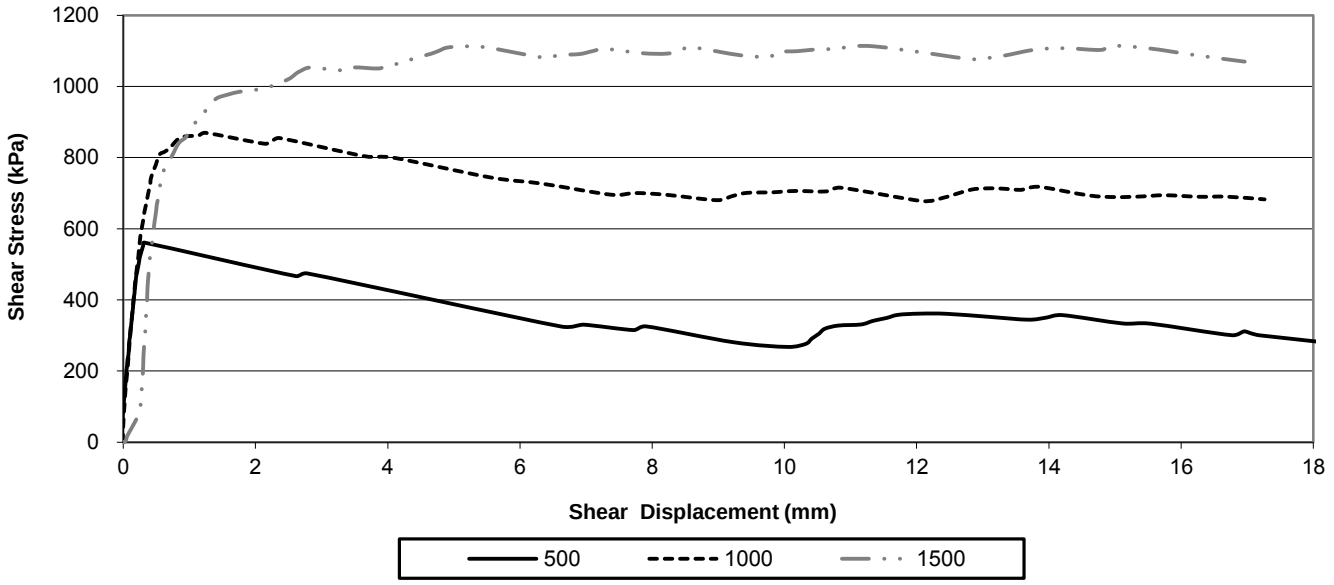
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

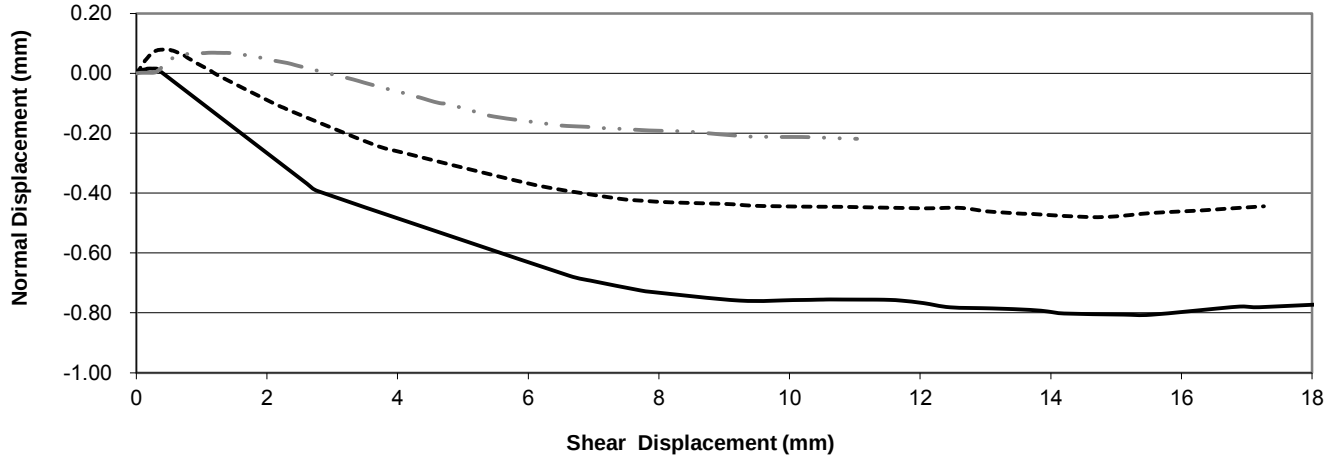
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-09**
Client:	Knight Piesold	**Sample No.:**	DS#1
Project:	BLACKWATER	**Depth (m.):**	141.7-142.1
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	64	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



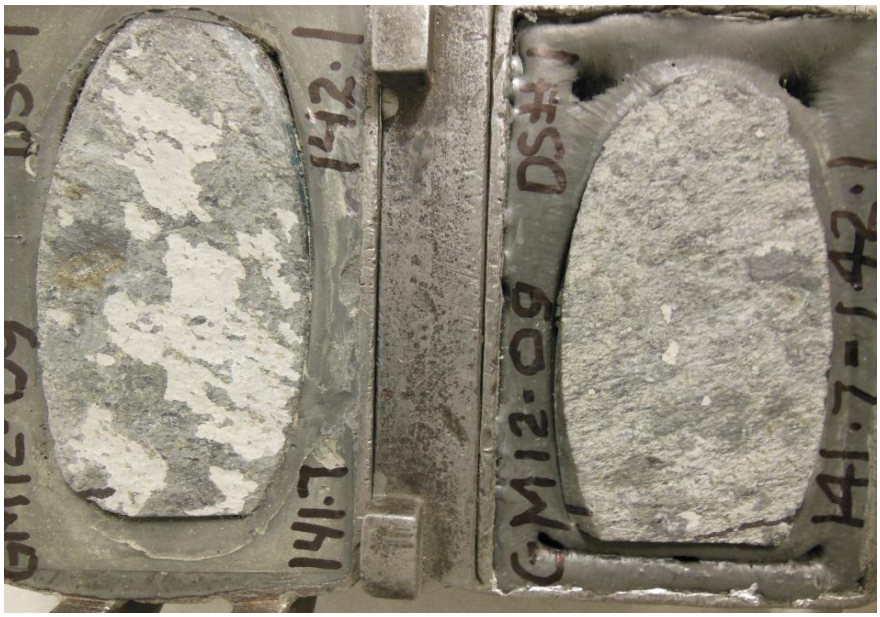
LP	February 22,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-09**
Client:	Knight Piesold	**Sample No.:**	DS#1
Project:	BLACKWATER	**Depth (m.):**	141.7-142.1
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 22,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
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Direct Shear Strength Testing Under Constant Normal Force

Reference: ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	141.7-142.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00			
0.00	0.83	-0.0001	-0.01	10.68	0.00	0.04	3.44	0.00			
-0.02	14.11	-0.0001	0.00	44.07	0.00	0.06	18.16	0.00			
-0.02	30.23	0.0000	0.01	77.96	0.01	0.13	40.49	0.00			
-0.02	46.59	0.0001	0.02	111.30	0.01	0.24	82.62	0.00			
-0.01	62.78	-0.0001	0.03	144.03	0.01	0.26	108.57	0.00			
-0.01	78.40	0.0003	0.05	177.43	0.01	0.27	134.44	0.00			
0.00	94.64	0.0023	0.07	209.64	0.02	0.28	160.13	0.00			
0.01	110.56	0.0030	0.08	240.49	0.02	0.29	185.03	0.00			
0.02	126.08	0.0042	0.09	271.69	0.03	0.30	210.84	0.00			
0.02	141.08	0.0043	0.10	301.61	0.03	0.30	236.71	0.01			
0.03	156.38	0.0050	0.12	330.07	0.04	0.31	261.64	0.01			
0.04	171.21	0.0061	0.13	356.47	0.04	0.32	286.53	0.01			
0.04	186.11	0.0066	0.15	383.13	0.05	0.33	310.99	0.01			
0.05	201.16	0.0079	0.16	408.55	0.05	0.34	335.11	0.01			
0.06	215.62	0.0082	0.17	432.91	0.05	0.35	358.89	0.01			
0.06	229.94	0.0088	0.18	456.70	0.06	0.36	382.64	0.01			
0.08	244.18	0.0090	0.20	479.56	0.06	0.36	405.21	0.01			
0.08	258.06	0.0095	0.21	501.44	0.06	0.36	427.34	0.01			
0.09	272.08	0.0104	0.23	522.51	0.06	0.37	449.09	0.02			
0.09	285.41	0.0106	0.24	543.67	0.07	0.38	469.79	0.02			
0.10	298.28	0.0116	0.25	562.10	0.07	0.39	490.11	0.02			
0.11	311.15	0.0118	0.26	578.46	0.07	0.40	509.92	0.03			
0.12	323.67	0.0129	0.27	594.99	0.07	0.41	529.15	0.03			
0.12	335.56	0.0128	0.29	612.83	0.07	0.43	547.78	0.03			
0.13	347.82	0.0132	0.31	629.73	0.08	0.44	565.68	0.03			
0.13	358.99	0.0132	0.32	644.49	0.08	0.45	583.67	0.03			
0.14	370.35	0.0133	0.33	658.89	0.08	0.46	601.34	0.04			
0.15	382.16	0.0139	0.35	673.15	0.08	0.47	618.54	0.04			
0.15	393.28	0.0140	0.36	688.10	0.08	0.49	635.26	0.04			

LP	February 22,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	141.7-142.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.16	405.11	0.02	0.38	701.46	0.08	0.50	651.61	0.04			
0.17	416.79	0.02	0.39	713.18	0.08	0.51	668.57	0.05			
0.17	430.05	0.02	0.41	724.46	0.08	0.53	684.76	0.05			
0.18	441.80	0.02	0.41	736.84	0.08	0.54	700.63	0.05			
0.19	454.29	0.02	0.43	749.04	0.08	0.55	715.66	0.05			
0.19	466.06	0.02	0.45	759.38	0.08	0.56	730.01	0.05			
0.21	477.33	0.02	0.47	770.62	0.08	0.58	744.41	0.05			
0.22	489.07	0.02	0.49	780.93	0.08	0.60	758.68	0.05			
0.23	500.20	0.02	0.51	790.17	0.08	0.64	771.41	0.06			
0.24	511.30	0.02	0.54	800.05	0.08	0.69	784.04	0.06			
0.25	522.16	0.02	0.56	810.37	0.08	0.71	796.80	0.06			
0.27	532.50	0.02	0.63	816.62	0.07	0.76	812.49	0.06			
0.28	542.76	0.02	0.69	825.24	0.06	0.80	828.46	0.07			
0.30	552.70	0.02	0.74	833.33	0.06	0.85	843.73	0.07			
0.32	561.06	0.02	0.77	842.15	0.05	0.94	856.66	0.07			
2.61	466.74	-0.37	0.83	851.22	0.05	0.99	871.79	0.07			
2.78	474.31	-0.39	0.93	859.29	0.03	1.05	886.50	0.07			
6.63	325.09	-0.68	1.14	862.16	0.01	1.11	902.18	0.07			
6.95	330.43	-0.69	1.25	869.48	-0.01	1.20	915.24	0.07			
7.72	315.18	-0.73	2.14	838.85	-0.10	1.24	929.66	0.07			
7.91	325.41	-0.73	2.26	847.84	-0.12	1.28	943.06	0.07			
9.23	280.88	-0.76	2.37	854.79	-0.13	1.35	956.08	0.07			
10.05	267.75	-0.76	3.65	804.01	-0.24	1.43	968.31	0.07			
10.32	276.37	-0.76	4.08	799.66	-0.26	1.58	977.04	0.06			
10.41	291.02	-0.76	5.55	744.35	-0.34	1.76	984.88	0.06			
10.52	304.40	-0.76	6.32	727.04	-0.38	1.98	989.56	0.05			
10.61	319.05	-0.76	7.38	695.53	-0.42	2.13	996.99	0.04			
10.82	327.88	-0.76	7.73	700.31	-0.43	2.31	1003.68	0.03			
11.16	330.87	-0.76	8.23	695.09	-0.43	2.42	1013.79	0.03			
11.34	341.19	-0.76	8.98	680.21	-0.44	2.53	1023.31	0.02			

LP	February 22,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	141.7-142.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
11.54	349.11	-0.76
11.72	358.00	-0.76
12.05	361.35	-0.77
12.46	360.82	-0.78
13.10	352.27	-0.79
13.69	344.34	-0.79
13.96	350.09	-0.80
14.20	357.19	-0.80
15.11	333.74	-0.81
15.54	333.06	-0.81
16.77	300.66	-0.78
16.96	311.79	-0.78
17.19	300.31	-0.78
18.77	269.32	-0.76

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
9.20	691.29	-0.44
9.43	700.73	-0.44
9.82	702.38	-0.44
10.16	706.11	-0.45
10.63	704.79	-0.45
10.85	715.24	-0.45
12.09	677.74	-0.45
12.38	685.94	-0.45
12.58	696.77	-0.45
12.72	704.47	-0.45
12.85	710.67	-0.46
13.02	713.31	-0.46
13.27	712.92	-0.46
13.57	709.18	-0.47
13.69	714.87	-0.47
13.88	717.36	-0.47
14.59	693.89	-0.48
15.00	688.96	-0.48
15.39	690.57	-0.47
15.75	694.14	-0.46
16.27	689.81	-0.46
16.69	690.05	-0.45
17.26	682.50	-0.44

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
2.60	1034.76	0.02
2.69	1044.17	0.01
2.83	1052.84	0.01
3.32	1045.06	-0.02
3.48	1053.35	-0.03
3.87	1050.40	-0.05
4.00	1060.20	-0.06
4.22	1065.10	-0.07
4.34	1074.66	-0.08
4.48	1083.06	-0.09
4.64	1091.06	-0.10
4.77	1099.56	-0.10
4.89	1108.82	-0.11
5.13	1112.39	-0.12
5.48	1109.95	-0.14
6.37	1080.81	-0.17
6.59	1088.47	-0.18
6.89	1090.77	-0.18
7.10	1099.21	-0.18
7.28	1105.37	-0.18
7.85	1093.35	-0.19
8.22	1092.12	-0.19
8.42	1100.73	-0.19
8.58	1110.53	-0.20
9.34	1087.41	-0.21
9.78	1083.42	-0.21
9.88	1096.90	-0.21
10.19	1098.99	-0.21
10.48	1103.93	-0.21
10.79	1105.75	-0.22

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 22,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	141.7-142.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
						11.03	1113.00	-0.22			
						11.38	1112.21	-0.22			
						12.07	1096.00	-0.22			
						12.83	1076.56	-0.22			
						13.15	1081.94	-0.22			
						13.41	1089.57	-0.22			
						13.64	1098.59	-0.22			
						13.90	1105.53	-0.22			
						14.28	1107.10	-0.22			
						14.79	1102.53	-0.22			
						14.97	1114.22	-0.22			
						15.51	1107.06	-0.22			
						16.20	1088.30	-0.22			
						16.96	1069.61	-0.22			

LP	February 22,2013	E.Kostyukov	March 1,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Lab
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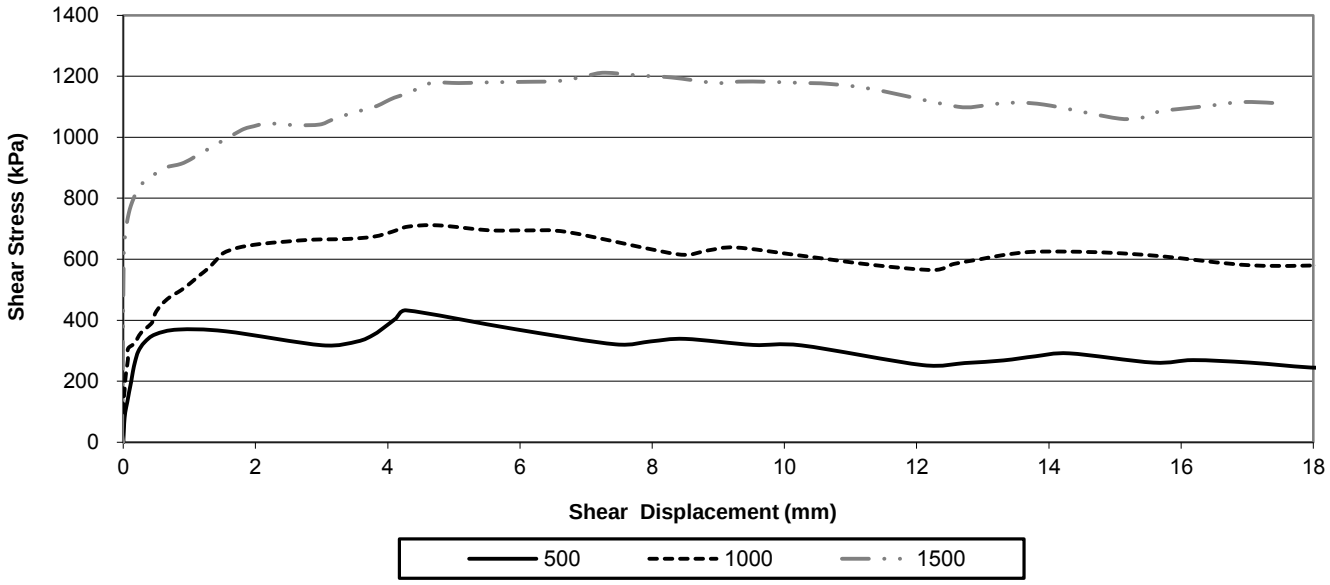
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

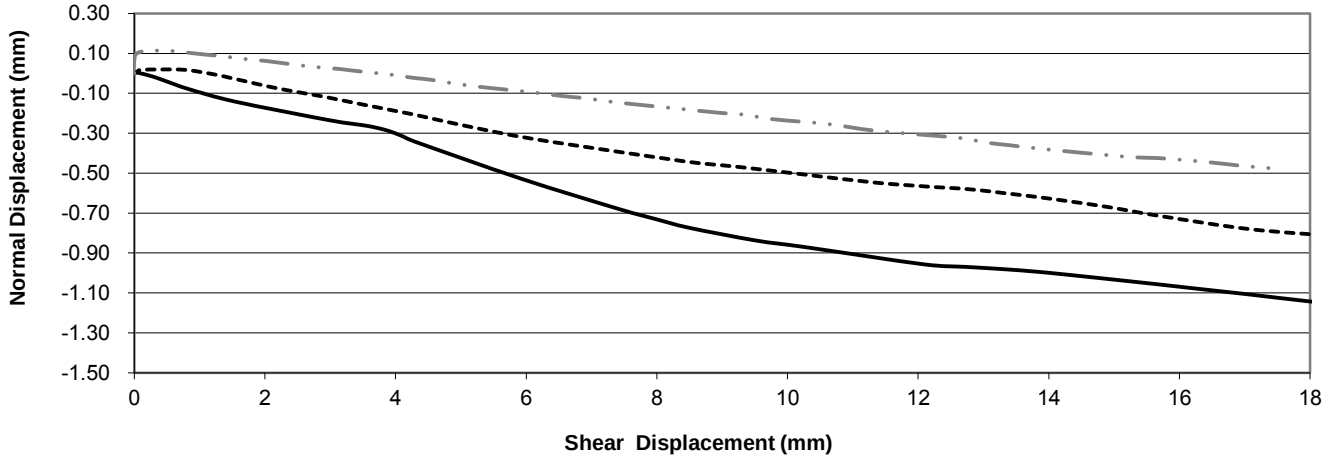
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-09**
Client:	Knight Piesold	**Sample No.:**	DS#2
Project:	BLACKWATER	**Depth (m.):**	255.4-256.1
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	50	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



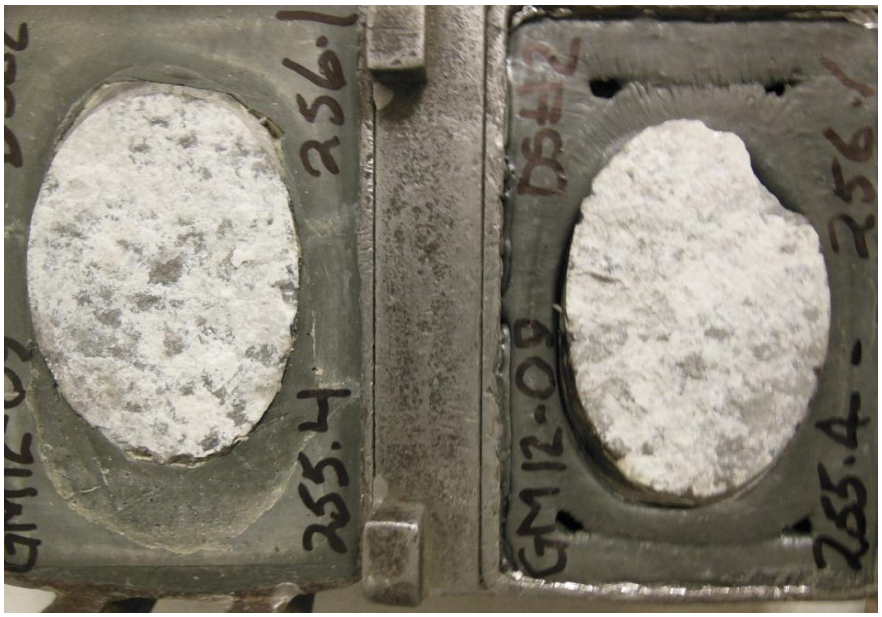
LP	February 22,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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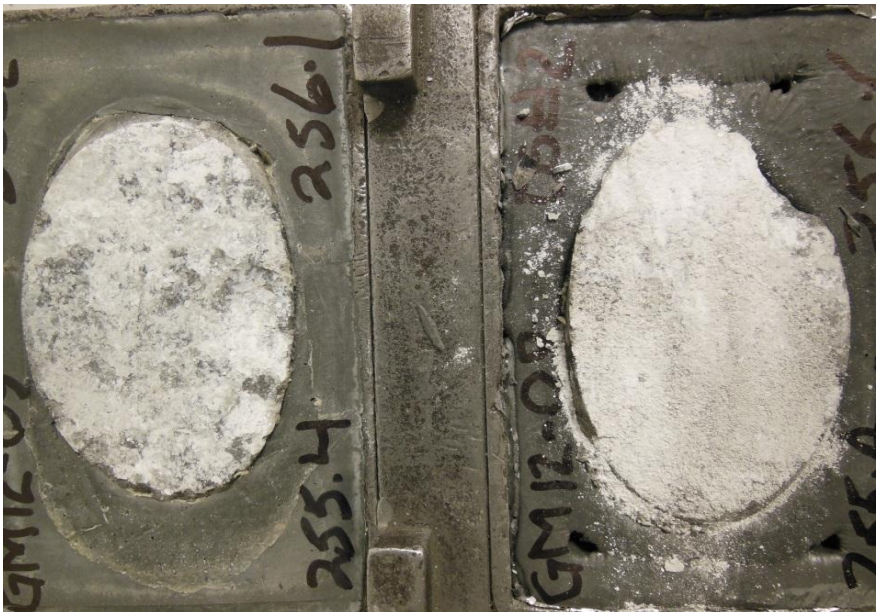
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-09**
Client:	Knight Piesold	**Sample No.:**	DS#2
Project:	BLACKWATER	**Depth (m.):**	255.4-256.1
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 22,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#2
Location:	VA101-457/4	**Depth (m.):**	255.4-256.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00			
0.01	50.56	0.0013	0.00	0.56	0.00	0.00	3.98	0.00			
0.01	65.54	0.0026	-0.01	30.88	0.00	-0.02	32.51	0.00			
0.03	98.28	0.0036	-0.01	65.77	0.00	0.00	578.08	0.08			
0.06	131.96	0.0028	0.00	99.51	0.00	0.00	608.82	0.09			
0.09	164.81	0.0007	0.00	134.45	0.00	0.01	638.69	0.09			
0.12	198.46	-0.0016	0.02	169.45	0.00	0.02	668.05	0.10			
0.15	231.84	-0.0034	0.03	203.77	0.01	0.04	697.53	0.10			
0.18	264.55	-0.0063	0.05	237.77	0.01	0.06	725.01	0.10			
0.23	297.58	-0.0107	0.07	272.54	0.01	0.08	751.11	0.11			
0.32	327.35	-0.0197	0.07	306.26	0.02	0.12	776.15	0.11			
0.48	353.48	-0.0388	0.17	324.07	0.02	0.16	800.73	0.11			
0.83	369.34	-0.0788	0.27	358.99	0.02	0.21	824.30	0.11			
1.55	363.59	-0.1421	0.43	391.57	0.02	0.28	846.64	0.11			
3.01	317.72	-0.2362	0.48	422.09	0.02	0.38	866.26	0.11			
3.53	330.09	-0.2615	0.57	450.11	0.02	0.51	883.65	0.11			
3.79	352.51	-0.2787	0.70	475.38	0.02	0.65	901.07	0.11			
3.97	380.49	-0.2971	0.87	498.44	0.01	0.87	912.55	0.10			
4.13	406.84	-0.3184	1.02	521.64	0.01	1.02	928.39	0.10			
4.28	432.37	-0.3400	1.15	546.62	0.00	1.15	945.48	0.09			
5.93	370.57	-0.5282	1.28	569.59	-0.01	1.29	961.53	0.09			
7.45	320.82	-0.6826	1.40	595.36	-0.02	1.79	1023.42	0.07			
7.98	330.56	-0.7297	1.51	619.67	-0.03	1.97	1035.88	0.06			
8.50	338.70	-0.7743	1.73	637.54	-0.04	2.18	1044.98	0.06			
9.53	318.89	-0.8382	2.06	649.67	-0.07	2.62	1039.54	0.04			
10.26	317.45	-0.8700	2.46	657.77	-0.09	2.97	1041.57	0.03			
12.09	252.67	-0.9571	2.88	664.20	-0.12	3.14	1055.65	0.02			
12.73	259.55	-0.9696	3.38	666.36	-0.15	3.31	1068.36	0.02			
13.31	268.21	-0.9812	3.79	674.05	-0.17	3.47	1080.63	0.01			
13.80	281.64	-0.9933	4.07	690.10	-0.19	3.67	1091.34	0.00			

LP	February 22,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#2
Location:	VA101-457/4	**Depth (m.):**	255.4-256.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
14.31	291.33	-1.01
15.58	260.97	-1.05
16.18	269.20	-1.08
17.04	260.93	-1.11
18.07	244.00	-1.15
18.62	254.84	-1.16

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
4.31	706.96	-0.21
4.76	711.02	-0.24
5.53	694.88	-0.29
6.09	694.34	-0.33
6.72	688.91	-0.36
8.40	615.71	-0.44
8.82	628.13	-0.46
9.26	638.54	-0.47
10.23	612.29	-0.51
11.34	581.02	-0.55
12.27	564.73	-0.57
12.56	584.42	-0.58
12.94	599.01	-0.59
13.30	613.22	-0.60
13.72	623.91	-0.62
14.30	624.88	-0.64
14.94	621.12	-0.67
15.70	609.69	-0.71
17.07	579.79	-0.78
18.39	580.95	-0.81

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
3.84	1102.57	0.00
3.97	1116.40	-0.01
4.10	1129.71	-0.01
4.26	1141.11	-0.02
4.39	1153.81	-0.03
4.55	1165.38	-0.03
4.68	1179.49	-0.04
5.07	1177.68	-0.06
5.43	1179.55	-0.07
5.81	1180.90	-0.09
6.18	1181.96	-0.10
6.55	1183.75	-0.11
6.81	1191.88	-0.12
7.04	1202.90	-0.13
7.29	1211.46	-0.14
7.81	1202.31	-0.16
8.29	1196.08	-0.18
8.96	1178.02	-0.20
9.31	1182.41	-0.21
9.75	1181.79	-0.23
10.22	1178.32	-0.24
10.68	1174.75	-0.26
11.36	1156.71	-0.29
12.62	1099.99	-0.32
13.04	1104.49	-0.35
13.38	1112.79	-0.36
13.92	1107.18	-0.38
15.07	1060.82	-0.41
15.46	1066.91	-0.42
15.67	1084.92	-0.42

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 22,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-09**
Project:	BLACKWATER	**Sample No.:**	DS#2
Location:	VA101-457/4	**Depth (m.):**	255.4-256.1
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
						15.96	1092.40	-0.43			
						16.25	1098.89	-0.44			
						16.53	1105.90	-0.45			
						16.75	1112.51	-0.46			
						17.07	1115.62	-0.47			
						17.47	1111.04	-0.48			

TESTED BY	DATE	CHECKED BY	DATE
LP	February 22,2013	E.Kostyukov	March 4,2013

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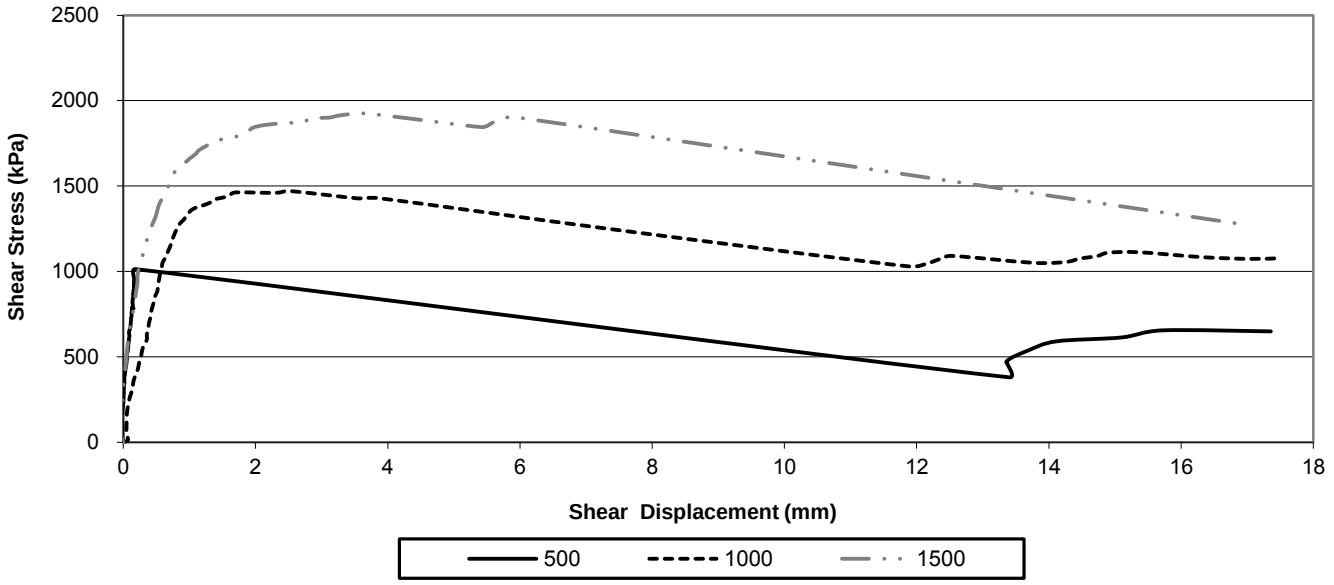
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

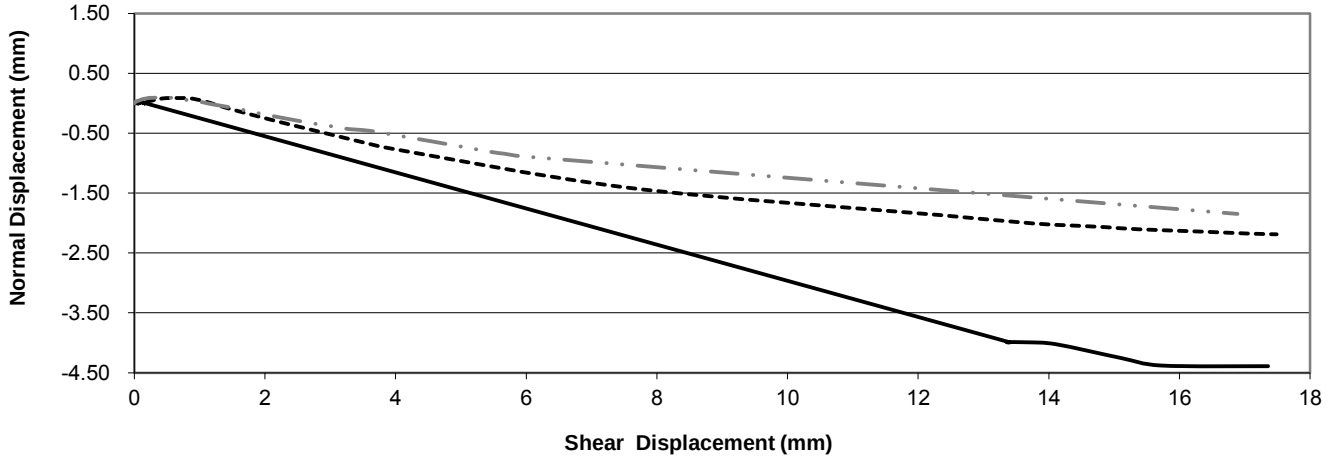
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Client:	Knight Piesold	**Sample No.:**	DS12-01
Project:	BLACKWATER	**Depth (m.):**	61.5-61.8
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	48	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



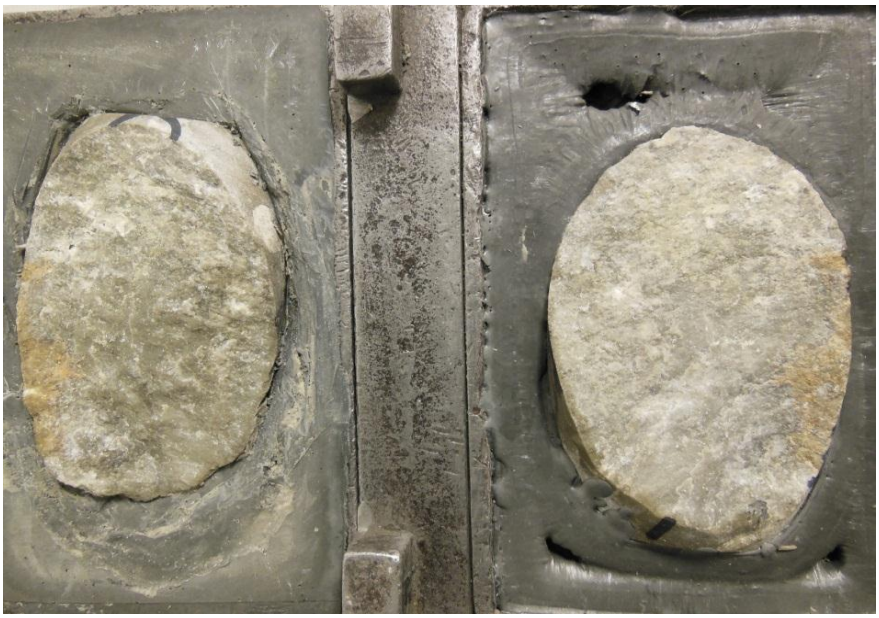
TESTED BY	DATE	CHECKED BY:	DATE
LP	February 23,2013	E.Kostyukov	March 4,2013

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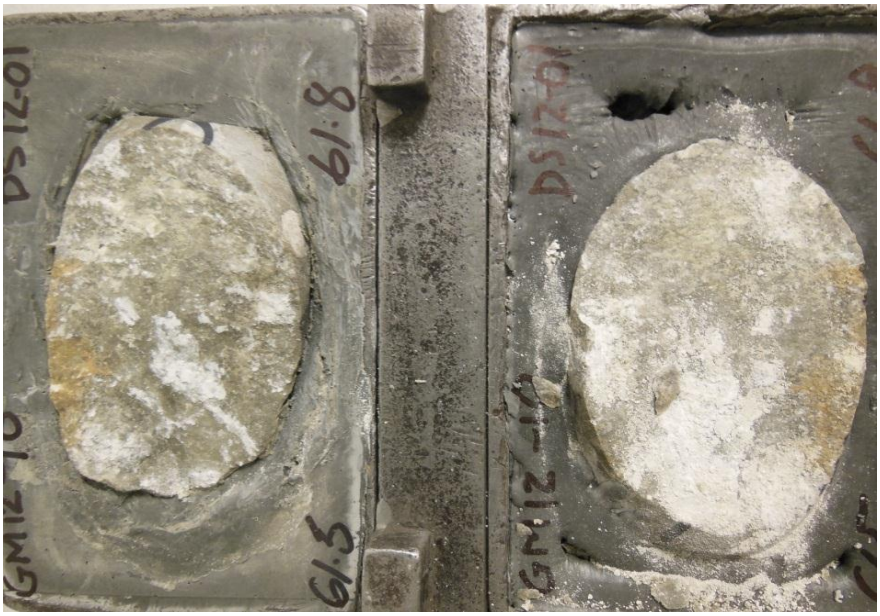
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-10**
Client:	Knight Piesold	**Sample No.:**	DS12-01
Project:	BLACKWATER	**Depth (m.):**	61.5-61.8
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS12-01
Location:	VA101-457/4	**Depth (m.):**	61.5-61.8
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00			
-0.01	27.25	-0.0001	0.07	12.94	0.00	-0.04	41.94	0.00			
-0.01	65.23	0.0000	0.05	48.11	0.00	-0.03	112.92	0.00			
-0.01	101.37	0.0001	0.05	84.10	0.00	-0.02	183.29	0.00			
-0.02	135.45	0.0003	0.05	120.54	0.00	-0.01	252.73	0.01			
-0.01	167.41	0.0006	0.05	156.06	0.00	0.00	322.12	0.02			
-0.01	198.91	0.0002	0.06	190.72	0.00	0.02	391.15	0.03			
0.00	230.01	0.0004	0.08	225.33	0.00	0.04	459.74	0.04			
0.00	260.58	0.0007	0.10	259.80	0.00	0.05	526.45	0.04			
0.01	291.28	0.0059	0.13	294.42	0.00	0.07	592.60	0.05			
0.01	320.91	0.0057	0.14	328.20	0.01	0.09	655.71	0.05			
0.02	347.86	0.0060	0.16	362.27	0.01	0.13	715.49	0.07			
0.01	373.81	0.0055	0.19	396.94	0.03	0.15	773.67	0.07			
0.03	400.34	0.0057	0.22	430.82	0.03	0.18	830.32	0.08			
0.03	425.63	0.0059	0.24	465.78	0.04	0.19	884.23	0.08			
0.04	449.12	0.0092	0.27	500.25	0.05	0.21	934.97	0.09			
0.05	471.81	0.0094	0.28	534.20	0.05	0.22	984.51	0.09			
0.06	493.14	0.0096	0.31	567.74	0.06	0.25	1031.92	0.09			
0.05	512.98	0.0103	0.35	599.67	0.06	0.28	1078.36	0.09			
0.07	532.11	0.0121	0.36	632.95	0.07	0.31	1123.29	0.09			
0.07	551.17	0.0136	0.38	666.37	0.07	0.34	1164.55	0.09			
0.08	569.45	0.0137	0.39	699.51	0.07	0.37	1205.24	0.10			
0.08	588.33	0.0140	0.41	731.07	0.08	0.41	1244.20	0.10			
0.09	605.21	0.0135	0.42	763.33	0.08	0.45	1281.73	0.10			
0.09	622.76	0.0145	0.44	794.17	0.08	0.49	1317.62	0.10			
0.09	641.08	0.0145	0.47	824.90	0.09	0.51	1353.46	0.09			
0.09	657.79	0.0152	0.48	854.88	0.09	0.54	1389.11	0.09			
0.11	673.67	0.0153	0.52	884.55	0.09	0.58	1420.38	0.09			
0.11	690.09	0.0151	0.52	913.28	0.09	0.61	1451.11	0.08			
0.11	703.32	0.0153	0.54	941.90	0.09	0.66	1480.94	0.08			

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS12-01
Location:	VA101-457/4	**Depth (m.):**	61.5-61.8
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.12	715.23	0.02	0.55	969.74	0.09	0.70	1513.64	0.07			
0.12	725.89	0.02	0.56	997.54	0.09	0.73	1547.25	0.07			
0.12	736.91	0.02	0.58	1024.38	0.09	0.77	1580.49	0.06			
0.13	746.67	0.02	0.59	1049.78	0.09	0.85	1608.39	0.05			
0.13	759.12	0.02	0.63	1074.86	0.09	0.93	1635.35	0.03			
0.13	768.83	0.02	0.66	1100.46	0.09	1.01	1662.25	0.03			
0.13	778.45	0.01	0.68	1124.03	0.09	1.09	1686.13	0.01			
0.14	786.15	0.01	0.71	1147.45	0.09	1.15	1711.32	-0.01			
0.13	788.16	0.02	0.73	1170.51	0.09	1.26	1735.73	-0.03			
0.14	785.98	0.01	0.75	1193.37	0.09	1.36	1761.15	-0.05			
0.14	783.80	0.01	0.77	1216.57	0.09	1.55	1777.30	-0.08			
0.16	783.47	0.01	0.80	1238.42	0.09	1.77	1794.74	-0.13			
0.15	786.38	0.01	0.83	1259.47	0.09	1.88	1818.21	-0.16			
0.14	791.36	0.01	0.86	1281.25	0.08	1.97	1842.43	-0.18			
0.15	799.58	0.01	0.91	1302.03	0.07	2.13	1856.90	-0.22			
0.14	810.07	0.01	0.95	1322.75	0.06	2.40	1867.19	-0.27			
0.14	819.68	0.01	0.99	1342.49	0.06	2.73	1875.27	-0.34			
0.14	827.66	0.01	1.03	1360.91	0.04	2.83	1896.78	-0.35			
0.14	836.17	0.01	1.12	1376.38	0.02	3.11	1900.82	-0.40			
0.14	843.04	0.01	1.24	1390.72	-0.02	3.28	1913.56	-0.43			
0.15	846.68	0.01	1.33	1406.37	-0.05	3.69	1923.84	-0.47			
0.16	851.30	0.00	1.39	1422.85	-0.07	5.42	1845.03	-0.80			
0.15	856.03	0.00	1.53	1434.82	-0.11	5.57	1867.37	-0.83			
0.15	858.01	0.00	1.61	1448.86	-0.14	5.68	1888.37	-0.84			
0.15	862.33	0.00	1.70	1462.83	-0.16	5.94	1902.84	-0.89			
0.15	864.68	0.00	2.04	1460.93	-0.26	16.89	1278.38	-1.85			
0.16	866.27	0.00	2.35	1461.11	-0.35						
0.16	870.27	0.00	2.52	1470.58	-0.39						
0.15	874.36	0.00	3.56	1427.32	-0.67						
0.16	879.53	0.00	3.87	1428.39	-0.74						

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS12-01
Location:	VA101-457/4	**Depth (m.):**	61.5-61.8
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.15	886.01	0.00	7.54	1239.17	-1.41						
0.16	893.89	0.00	11.89	1028.83	-1.83						
0.16	902.25	0.00	12.17	1047.53	-1.85						
0.16	912.71	0.00	12.34	1070.28	-1.87						
0.17	921.37	0.00	12.52	1090.97	-1.89						
0.16	927.46	0.00	13.77	1050.24	-2.01						
0.17	959.96	0.00	14.26	1055.46	-2.04						
0.18	1013.30	0.00	14.47	1074.90	-2.05						
13.40	379.80	-3.99	14.73	1089.73	-2.06						
13.35	469.66	-3.99	14.90	1109.44	-2.07						
13.68	536.64	-3.99	15.36	1112.17	-2.10						
14.11	590.58	-4.02	16.33	1083.24	-2.14						
15.10	613.44	-4.25	17.05	1073.26	-2.17						
15.72	654.81	-4.38	17.49	1077.44	-2.19						
17.36	648.80	-4.39									

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

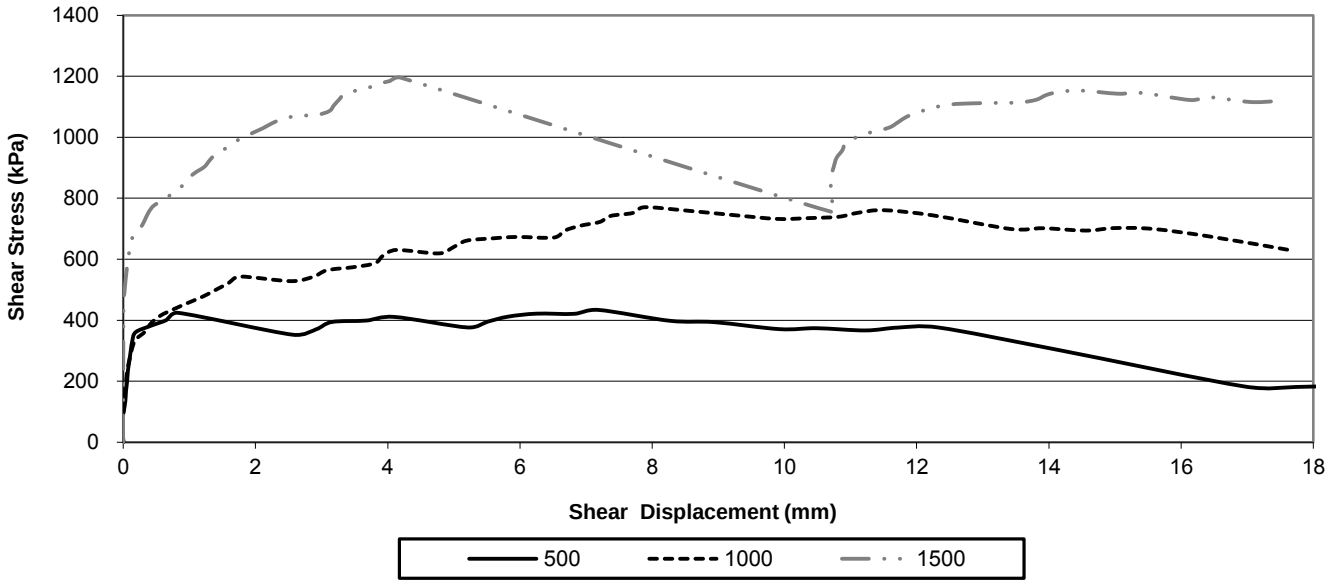
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

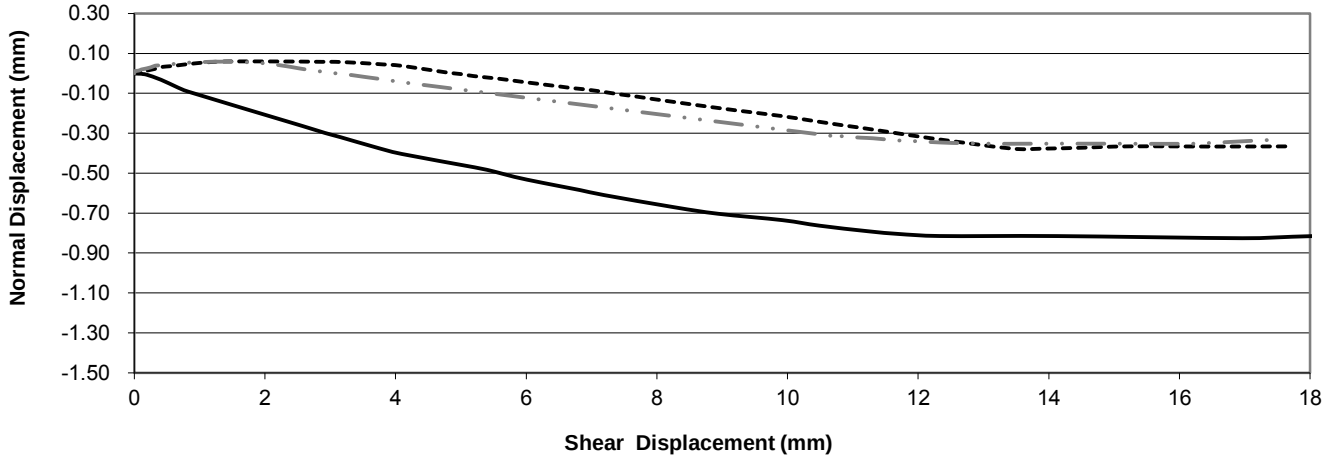
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-10**
Client:	Knight Piesold	**Sample No.:**	DS10-02
Project:	BLACKWATER	**Depth (m.):**	226.7-227.0
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	41	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-10**
Client:	Knight Piesold	**Sample No.:**	DS10-02
Project:	BLACKWATER	**Depth (m.):**	226.7-227.0
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
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Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS10-02
Location:	VA101-457/4	**Depth (m.):**	226.7-227.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	1.30	-0.0005
-0.02	34.11	-0.0003
-0.02	68.55	-0.0005
0.01	102.03	-0.0004
0.03	134.47	-0.0011
0.04	167.95	-0.0012
0.06	200.96	-0.0014
0.07	233.99	-0.0016
0.09	266.48	-0.0017
0.11	298.36	-0.0022
0.13	330.83	-0.0036
0.19	360.51	-0.0061
0.41	381.03	-0.0319
0.65	400.59	-0.0688
0.83	424.28	-0.0917
2.57	352.29	-0.2631
2.92	370.20	-0.2983
3.16	394.28	-0.3197
3.67	398.80	-0.3685
4.10	410.90	-0.4038
5.21	376.20	-0.4709
5.51	395.10	-0.4921
5.82	411.73	-0.5188
6.25	421.46	-0.5483
6.82	420.90	-0.5846
7.19	433.69	-0.6096
8.27	398.14	-0.6708
8.94	393.53	-0.7036
9.92	370.78	-0.7355

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	2.14	0.00
-0.01	34.24	0.00
0.00	69.83	0.00
0.01	104.35	0.01
0.02	138.82	0.01
0.03	173.99	0.01
0.05	207.20	0.01
0.06	240.48	0.01
0.10	272.80	0.01
0.13	305.23	0.01
0.19	336.39	0.01
0.33	362.31	0.02
0.42	390.57	0.03
0.57	415.62	0.04
0.77	437.25	0.04
0.99	457.88	0.05
1.21	478.21	0.06
1.40	499.78	0.06
1.59	521.44	0.06
1.77	542.99	0.06
2.54	528.07	0.06
2.88	542.66	0.06
3.08	564.04	0.06
3.48	573.97	0.05
3.81	586.86	0.04
3.93	610.77	0.04
4.13	630.36	0.04
4.78	619.08	0.00
4.99	639.50	0.00

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	1.03	0.00
0.00	455.31	0.01
0.02	488.95	0.01
0.03	522.18	0.01
0.05	554.23	0.01
0.06	585.33	0.01
0.08	615.57	0.02
0.11	645.59	0.02
0.15	673.92	0.02
0.25	699.04	0.03
0.32	725.05	0.04
0.38	751.97	0.04
0.46	775.90	0.04
0.62	795.40	0.05
0.74	816.36	0.05
0.88	838.08	0.05
0.96	861.68	0.06
1.09	883.36	0.06
1.23	902.92	0.06
1.31	924.94	0.06
1.40	946.15	0.06
1.55	963.07	0.06
1.66	982.54	0.06
1.82	999.00	0.05
1.96	1014.98	0.05
2.12	1030.00	0.05
2.25	1045.39	0.04
2.41	1059.94	0.03
2.63	1069.77	0.02

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS10-02
Location:	VA101-457/4	**Depth (m.):**	226.7-227.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
10.49	373.77	-0.76
11.22	366.46	-0.79
11.71	375.76	-0.80
12.33	376.03	-0.81
14.14	302.71	-0.82
16.96	182.61	-0.83
17.72	181.02	-0.82
18.41	185.51	-0.81

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
5.19	660.91	-0.01
5.58	668.27	-0.03
5.96	673.03	-0.04
6.51	671.09	-0.07
6.68	694.11	-0.07
6.91	709.85	-0.08
7.21	722.09	-0.09
7.37	741.97	-0.10
7.70	751.53	-0.12
7.88	770.42	-0.13
8.50	759.92	-0.15
9.19	745.39	-0.18
9.89	732.17	-0.21
10.36	734.72	-0.24
10.82	739.04	-0.26
11.12	752.59	-0.27
11.51	760.71	-0.29
12.25	743.72	-0.33
13.43	698.80	-0.38
13.90	701.62	-0.38
14.56	693.97	-0.37
14.99	702.06	-0.37
15.57	699.40	-0.37
16.43	674.79	-0.37
17.65	629.53	-0.37

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
2.93	1073.14	0.01
3.12	1085.77	0.00
3.19	1105.12	0.00
3.26	1123.27	-0.01
3.34	1141.90	-0.01
3.52	1152.61	-0.02
3.70	1161.83	-0.03
3.85	1174.84	-0.03
4.03	1184.31	-0.04
4.19	1195.39	-0.05
10.73	753.98	-0.32
10.71	797.57	-0.31
10.70	835.80	-0.31
10.71	870.45	-0.31
10.74	902.08	-0.31
10.79	932.01	-0.31
10.88	957.85	-0.32
10.93	984.41	-0.32
11.12	1001.92	-0.32
11.31	1016.45	-0.33
11.58	1031.16	-0.33
11.72	1049.92	-0.34
11.86	1068.28	-0.34
12.04	1082.72	-0.34
12.22	1095.84	-0.34
12.51	1107.50	-0.35
12.84	1111.02	-0.35
13.21	1112.62	-0.35
13.56	1113.82	-0.35
13.81	1122.90	-0.35

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS10-02
Location:	VA101-457/4	**Depth (m.):**	226.7-227.0
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
						13.97	1139.12	-0.35			
						14.18	1149.52	-0.35			
						14.50	1152.95	-0.35			
						15.04	1142.69	-0.35			
						15.42	1145.06	-0.35			
						16.14	1122.08	-0.35			
						16.42	1131.16	-0.35			
						17.04	1115.57	-0.34			
						17.42	1118.14	-0.33			

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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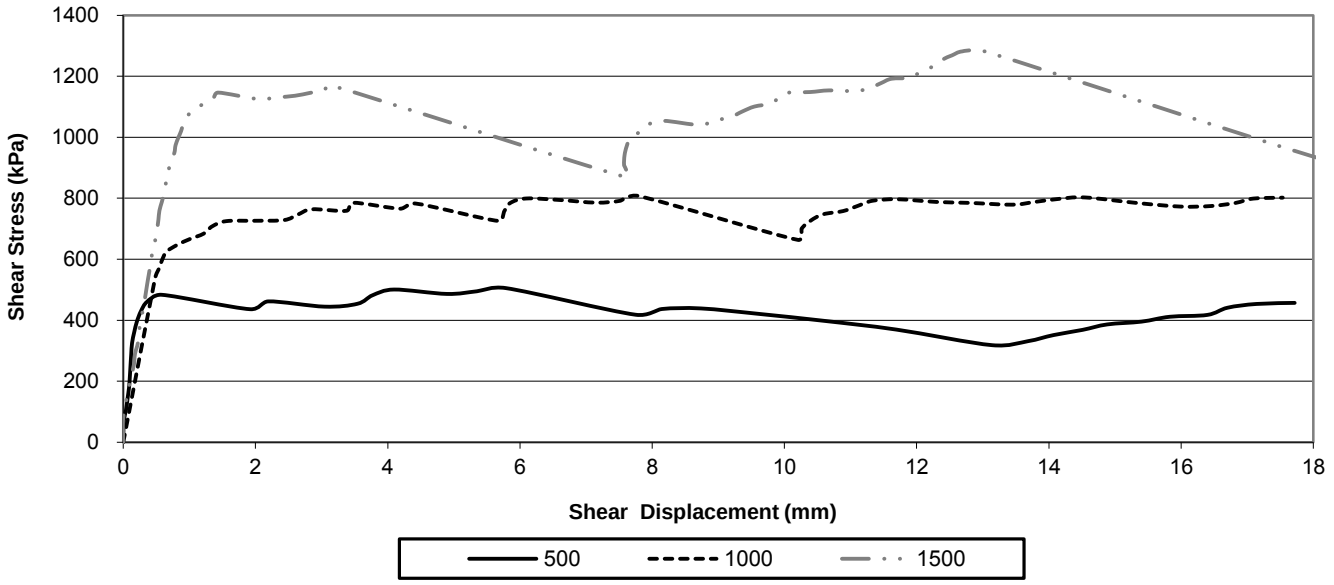
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

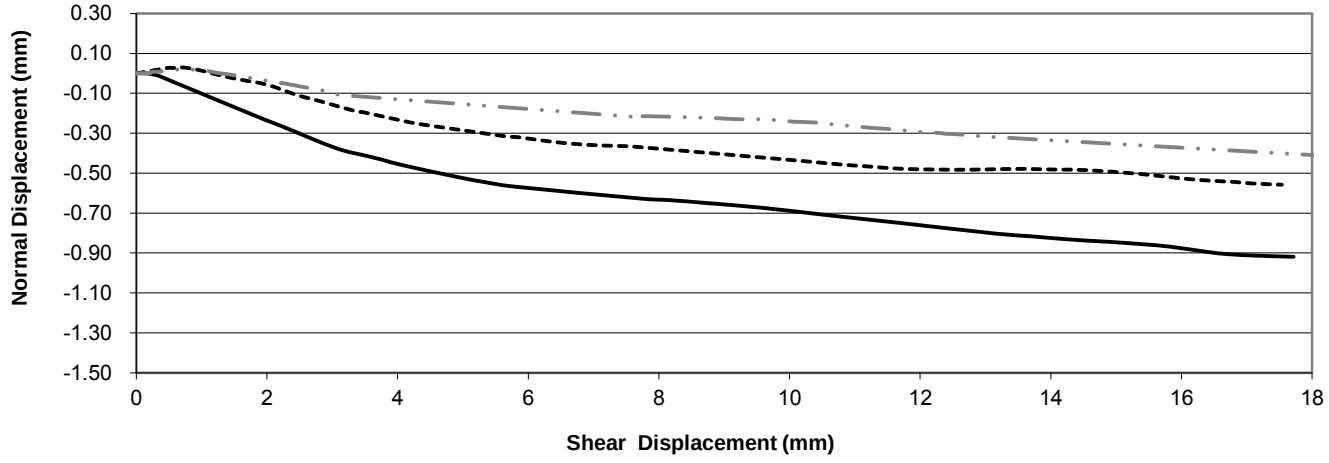
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-10**
Client:	Knight Piesold	**Sample No.:**	DS12-03
Project:	BLACKWATER	**Depth (m.):**	275.2-275.6
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	35	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-10**
Client:	Knight Piesold	**Sample No.:**	DS12-03
Project:	BLACKWATER	**Depth (m.):**	275.2-275.6
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS12-03
Location:	VA101-457/4	**Depth (m.):**	275.2-275.6
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	3.46	0.0014
0.00	34.85	0.0016
0.01	71.83	0.0016
0.04	106.79	0.0014
0.06	143.07	0.0005
0.09	179.55	0.0005
0.10	216.09	0.0002
0.11	252.39	0.0005
0.12	289.03	0.0001
0.13	325.28	-0.0001
0.17	361.02	-0.0005
0.21	395.45	-0.0019
0.27	429.50	-0.0058
0.36	460.51	-0.0141
0.58	483.34	-0.0444
1.92	436.09	-0.2259
2.19	461.65	-0.2604
3.04	444.46	-0.3732
3.54	453.92	-0.4147
3.77	482.08	-0.4338
4.09	500.59	-0.4614
4.89	486.18	-0.5178
5.35	494.85	-0.5458
5.79	505.36	-0.5674
7.75	417.99	-0.6280
8.14	436.68	-0.6347
8.74	438.60	-0.6499
9.63	420.32	-0.6752
10.61	397.76	-0.7115

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.48	537.01	0.03
0.54	567.36	0.03
0.59	597.78	0.03
0.66	625.18	0.03
0.82	647.50	0.03
1.01	666.03	0.01
1.21	683.73	0.00
1.34	707.73	-0.01
1.56	724.80	-0.03
2.00	726.08	-0.06
2.43	728.35	-0.11
2.64	746.23	-0.12
2.85	763.70	-0.14
3.38	758.87	-0.19
3.48	785.05	-0.19
4.19	765.75	-0.25
4.42	782.54	-0.26
5.67	725.55	-0.32
5.76	755.41	-0.32
5.85	784.11	-0.32
6.09	799.13	-0.33
6.60	794.15	-0.35
7.15	785.46	-0.36
7.51	791.40	-0.36
7.79	807.30	-0.37
10.20	663.29	-0.44
10.26	699.40	-0.44
10.40	726.51	-0.44
10.59	747.30	-0.45

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	1.63	0.00
0.00	34.10	0.00
0.00	72.26	0.00
0.02	109.45	0.00
0.05	145.12	0.00
0.09	181.79	0.00
0.12	217.33	0.00
0.16	253.07	0.00
0.18	289.46	0.00
0.22	325.28	0.00
0.24	360.41	0.01
0.26	396.52	0.01
0.29	431.04	0.01
0.32	465.70	0.01
0.35	500.40	0.01
0.37	535.41	0.01
0.40	568.98	0.01
0.42	602.25	0.01
0.46	634.43	0.01
0.49	667.52	0.02
0.51	699.54	0.02
0.53	730.03	0.02
0.55	759.47	0.02
0.58	788.04	0.02
0.61	815.46	0.02
0.64	844.12	0.02
0.66	871.05	0.02
0.69	897.27	0.02
0.72	923.22	0.02

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS12-03
Location:	VA101-457/4	**Depth (m.):**	275.2-275.6
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
11.69	369.27	-0.75
13.14	318.13	-0.80
13.68	331.25	-0.82
14.07	351.28	-0.83
14.51	368.41	-0.84
14.88	386.22	-0.84
15.40	395.36	-0.86
15.83	411.35	-0.87
16.40	417.42	-0.89
16.70	440.97	-0.91
17.14	453.28	-0.91
17.72	456.78	-0.92

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
10.89	757.84	-0.46
11.11	774.88	-0.46
11.34	791.83	-0.47
11.71	796.55	-0.48
12.30	787.85	-0.48
12.80	784.69	-0.48
13.44	778.85	-0.48
13.80	788.11	-0.48
14.13	797.35	-0.48
14.54	802.53	-0.48
15.35	784.12	-0.50
15.99	772.67	-0.53
16.45	774.42	-0.54
16.82	784.35	-0.54
17.09	798.82	-0.55
17.54	801.81	-0.56

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.77	948.85	0.02
0.79	973.80	0.02
0.83	997.68	0.02
0.87	1020.03	0.02
0.90	1041.45	0.02
0.95	1063.33	0.02
1.03	1082.69	0.02
1.14	1099.57	0.01
1.25	1114.54	0.00
1.36	1128.63	0.00
1.43	1146.34	-0.01
2.04	1125.42	-0.04
2.33	1130.65	-0.05
2.60	1136.04	-0.07
2.82	1145.32	-0.08
3.04	1154.26	-0.10
3.15	1169.63	-0.11
7.60	869.11	-0.22
7.57	907.71	-0.22
7.58	940.90	-0.22
7.61	969.96	-0.21
7.67	998.07	-0.21
7.82	1019.15	-0.21
7.93	1040.92	-0.22
8.17	1053.81	-0.22
8.72	1040.05	-0.22
8.94	1054.45	-0.23
9.18	1065.63	-0.23
9.36	1084.14	-0.23
9.55	1100.69	-0.23

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
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Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-10**
Project:	BLACKWATER	**Sample No.:**	DS12-03
Location:	VA101-457/4	**Depth (m.):**	275.2-275.6
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
						9.80	1110.29	-0.23			
						9.92	1129.64	-0.24			
						10.06	1146.15	-0.24			
						10.39	1148.18	-0.25			
						10.68	1153.62	-0.26			
						11.09	1151.51	-0.27			
						11.31	1163.77	-0.27			
						11.46	1177.74	-0.28			
						11.62	1191.84	-0.28			
						11.90	1194.80	-0.29			
						12.03	1210.15	-0.29			
						12.17	1224.35	-0.30			
						12.30	1238.69	-0.30			
						12.40	1255.17	-0.30			
						12.54	1268.64	-0.30			
						12.69	1281.50	-0.31			
						13.03	1281.34	-0.32			
						18.14	927.42	-0.41			
						18.13	968.94	-0.41			
						18.12	1006.51	-0.41			
						18.12	1041.91	-0.41			
						18.13	1076.09	-0.41			

LP	February 23,2013	E.Kostyukov	March 4,2013
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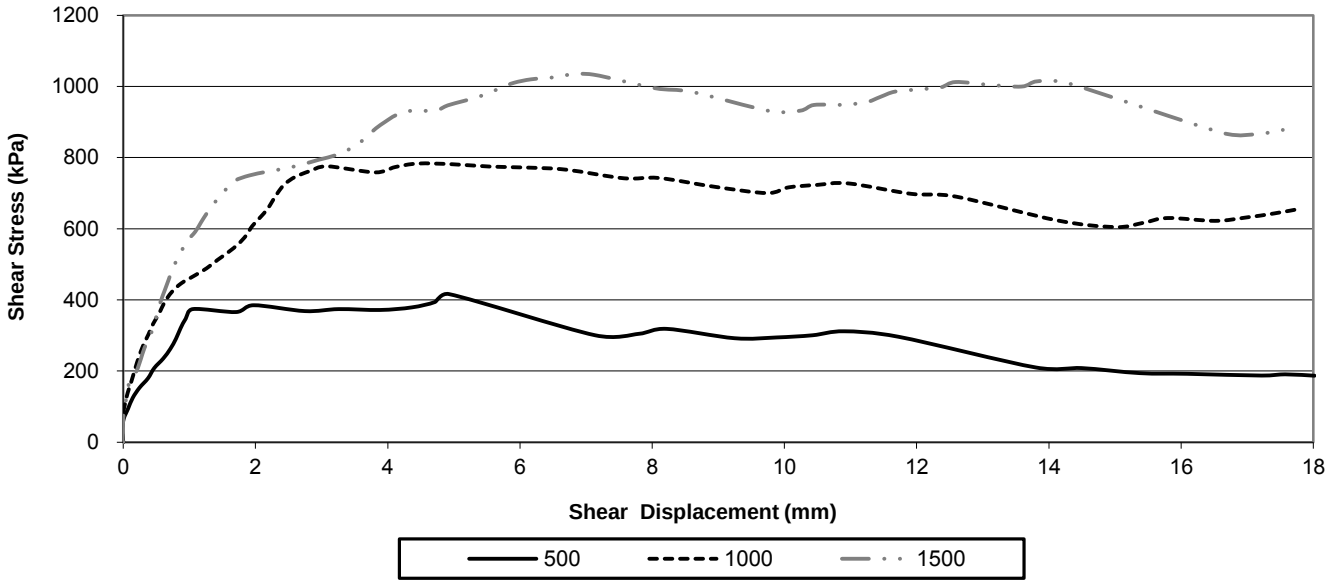
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

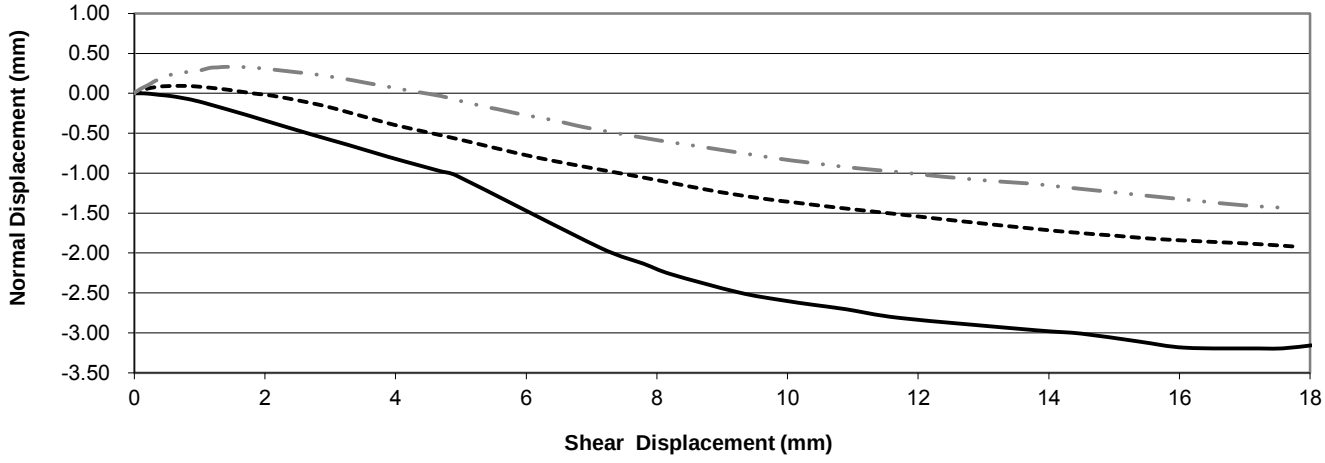
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-12**
Client:	Knight Piesold	**Sample No.:**	DS#1
Project:	BLACKWATER	**Depth (m.):**	288.5-288.9
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	41	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

O:\Active_2011\1415\11-1415-0001 Knight Piesold\Phase 3000 - BLACKWATER - VA101-457_4\DIRECT SHEARS\GM12-12 DS#1 288.5-288.9\GM12-12 DS#1 288.5-288.9 Rev. 0.01

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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-12**
Client:	Knight Piesold	**Sample No.:**	DS#1
Project:	BLACKWATER	**Depth (m.):**	288.5-288.9
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-12**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	288.5-288.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	3.42	-0.0001
-0.01	32.94	0.0000
0.01	64.86	0.0002
0.07	94.31	0.0004
0.14	124.82	-0.0003
0.24	152.87	-0.0062
0.37	179.50	-0.0184
0.47	208.38	-0.0255
0.60	234.91	-0.0391
0.71	262.19	-0.0546
0.80	290.50	-0.0671
0.87	320.02	-0.0782
0.94	347.15	-0.0934
1.05	374.16	-0.1155
1.71	365.86	-0.2686
1.97	384.93	-0.3341
2.75	368.46	-0.5235
3.26	374.08	-0.6425
3.88	371.63	-0.7942
4.36	378.86	-0.9031
4.71	393.99	-0.9813
4.92	416.36	-1.0278
7.14	300.57	-1.9361
7.80	304.60	-2.1346
8.22	318.57	-2.2663
9.25	292.19	-2.4926
9.88	294.40	-2.5873
10.42	300.50	-2.6522
10.90	311.68	-2.7054

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	2.71	0.00
-0.02	35.33	0.00
-0.01	71.13	0.00
0.02	105.61	0.01
0.07	139.36	0.03
0.12	172.44	0.04
0.18	205.95	0.05
0.23	238.51	0.07
0.30	271.24	0.07
0.38	302.77	0.08
0.45	332.83	0.09
0.54	362.88	0.09
0.63	393.77	0.09
0.73	421.56	0.09
0.87	446.03	0.09
1.07	467.18	0.08
1.26	488.79	0.06
1.42	512.17	0.05
1.59	534.07	0.03
1.74	557.02	0.01
1.86	581.24	0.00
1.95	607.22	-0.01
2.07	631.47	-0.02
2.18	654.43	-0.04
2.26	677.74	-0.05
2.34	702.39	-0.06
2.44	725.48	-0.08
2.60	745.69	-0.10
2.81	761.46	-0.14

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.01	1.57	0.00
-0.01	33.94	0.00
0.00	68.95	0.01
0.03	103.00	0.02
0.06	136.37	0.04
0.10	170.35	0.06
0.20	200.40	0.10
0.26	233.21	0.13
0.32	264.72	0.16
0.40	297.51	0.18
0.46	329.32	0.20
0.51	361.61	0.22
0.56	393.62	0.23
0.62	425.18	0.24
0.68	455.11	0.25
0.74	483.49	0.26
0.81	512.02	0.27
0.89	539.43	0.27
0.97	566.57	0.28
1.09	591.44	0.30
1.18	617.81	0.32
1.26	643.93	0.32
1.36	668.69	0.33
1.47	692.14	0.33
1.57	714.73	0.33
1.69	735.41	0.33
1.90	749.60	0.32
2.18	760.45	0.29
2.46	769.78	0.27

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

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TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-12**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	288.5-288.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
11.73	296.30	-2.81
13.80	209.93	-2.97
14.49	208.39	-3.01
15.37	194.09	-3.11
16.09	192.23	-3.19
17.22	187.29	-3.20
17.57	190.76	-3.20
18.02	186.86	-3.16

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
3.08	775.43	-0.19
3.81	758.33	-0.36
4.11	773.31	-0.42
4.46	783.22	-0.48
4.97	781.36	-0.58
5.55	774.60	-0.69
6.11	771.89	-0.79
6.70	765.80	-0.89
7.57	741.73	-1.02
8.10	742.53	-1.10
8.95	717.66	-1.24
9.74	700.18	-1.33
10.06	716.24	-1.36
10.50	723.19	-1.41
10.97	727.40	-1.45
11.91	698.11	-1.53
12.60	689.96	-1.60
14.13	623.28	-1.73
15.01	604.62	-1.78
15.43	616.51	-1.81
15.80	630.06	-1.83
16.51	622.11	-1.86
16.98	631.50	-1.88
17.41	643.06	-1.90
17.81	656.33	-1.92

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
2.72	781.23	0.24
2.96	794.00	0.21
3.22	806.96	0.18
3.42	823.37	0.15
3.58	841.89	0.13
3.70	861.36	0.11
3.82	882.06	0.09
3.96	900.81	0.07
4.12	918.42	0.05
4.31	930.76	0.02
4.71	932.35	-0.04
4.91	946.76	-0.08
5.13	958.23	-0.12
5.36	970.23	-0.17
5.56	983.72	-0.20
5.73	997.33	-0.23
5.91	1010.31	-0.26
6.17	1019.88	-0.30
6.47	1024.66	-0.35
6.74	1032.69	-0.40
7.11	1032.93	-0.46
8.03	995.30	-0.59
8.61	983.93	-0.66
9.77	930.95	-0.81
10.24	931.72	-0.86
10.45	947.88	-0.88
10.86	948.18	-0.92
11.23	954.91	-0.95
11.45	970.36	-0.97
11.67	985.40	-0.98

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

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Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-12**
Project:	BLACKWATER	**Sample No.:**	DS#1
Location:	VA101-457/4	**Depth (m.):**	288.5-288.9
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
						12.02	991.44	-1.01			
						12.36	997.22	-1.04			
						12.59	1012.30	-1.06			
						13.09	1004.45	-1.10			
						13.59	999.57	-1.12			
						13.83	1014.29	-1.14			
						14.29	1009.06	-1.18			
						16.64	868.93	-1.38			
						17.17	866.68	-1.41			
						17.54	877.63	-1.43			

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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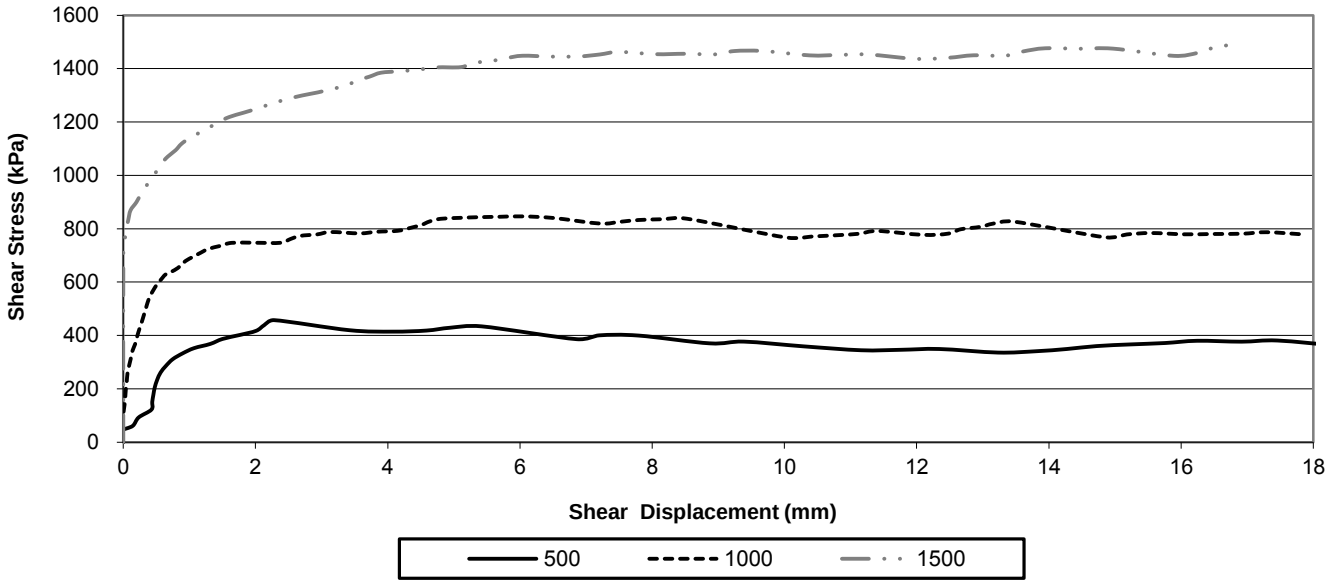
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

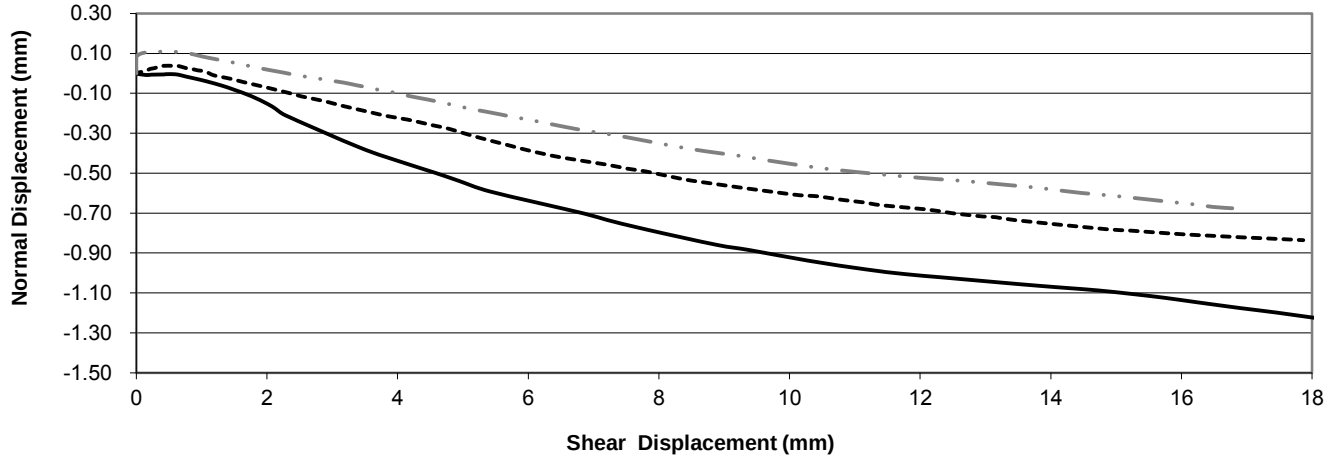
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-13**
Client:	Knight Piesold	**Sample No.:**	DST 1
Project:	BLACKWATER	**Depth (m.):**	145.1-145.5
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	51	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

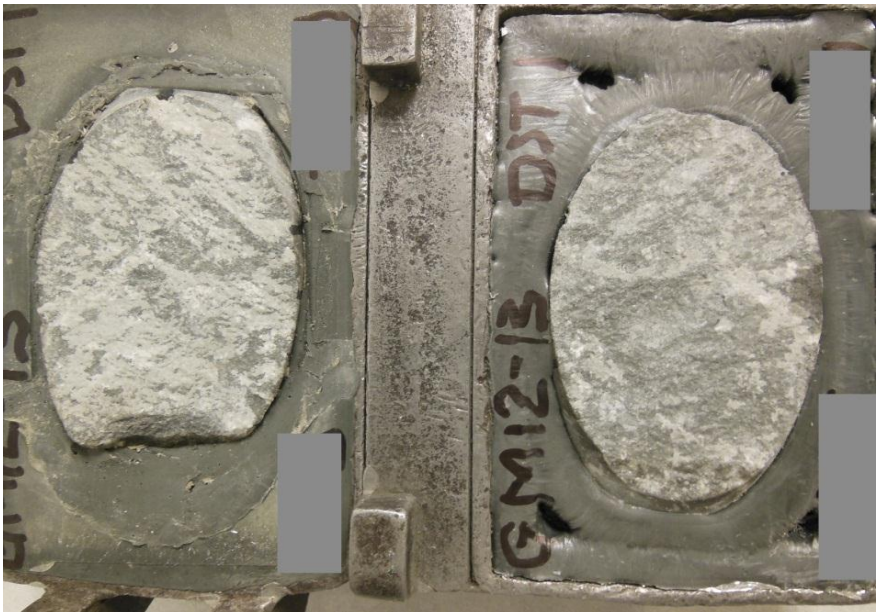
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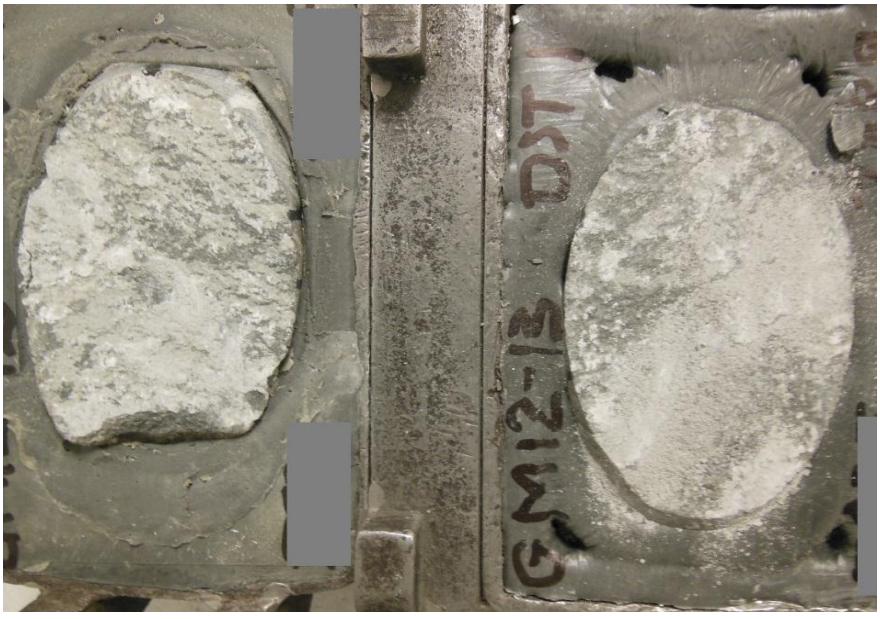
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-13**
Client:	Knight Piesold	**Sample No.:**	DST 1
Project:	BLACKWATER	**Depth (m.):**	145.1-145.5
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 1
Location:	VA101-457/4	**Depth (m.):**	145.1-145.5
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000
0.00	0.13	0.0002
-0.02	17.46	0.0000
-0.03	43.24	0.0002
0.14	60.98	-0.0080
0.23	92.77	-0.0065
0.43	122.07	-0.0053
0.44	150.72	-0.0045
0.46	178.61	-0.0040
0.48	205.05	-0.0038
0.51	233.30	-0.0038
0.56	260.97	-0.0040
0.64	285.86	-0.0066
0.75	310.97	-0.0149
0.90	332.71	-0.0258
1.07	352.28	-0.0393
1.32	368.27	-0.0619
1.50	386.88	-0.0823
1.76	401.74	-0.1141
2.01	417.40	-0.1532
2.13	438.65	-0.1773
2.28	457.35	-0.2098
3.42	419.73	-0.3714
4.08	414.33	-0.4462
4.58	418.34	-0.4992
4.95	429.00	-0.5396
5.42	434.07	-0.5923
6.86	386.07	-0.7027
7.20	400.47	-0.7338
7.80	399.48	-0.7816

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
-0.02	24.12	0.00
-0.01	53.16	0.00
0.00	82.01	0.00
0.00	112.53	0.00
0.02	138.56	0.00
0.03	169.17	0.00
0.04	199.27	0.01
0.05	227.89	0.01
0.06	257.04	0.01
0.09	286.35	0.01
0.11	313.71	0.01
0.14	341.08	0.01
0.18	367.70	0.02
0.21	393.68	0.02
0.24	420.51	0.02
0.27	447.04	0.03
0.31	472.93	0.03
0.34	498.77	0.03
0.37	523.95	0.04
0.40	547.23	0.04
0.46	570.12	0.04
0.51	590.56	0.04
0.57	610.10	0.04
0.64	629.35	0.04
0.77	644.83	0.03
0.87	661.17	0.02
0.94	679.46	0.01
1.06	694.82	0.01
1.17	710.48	-0.01

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.00
0.00	716.37	0.09
0.02	756.54	0.09
0.04	795.33	0.10
0.07	832.51	0.10
0.11	869.01	0.10
0.20	899.75	0.11
0.27	930.91	0.11
0.35	960.76	0.11
0.43	988.90	0.11
0.51	1017.59	0.11
0.58	1045.35	0.11
0.67	1070.32	0.11
0.79	1094.04	0.10
0.88	1118.09	0.10
1.00	1140.09	0.08
1.15	1159.20	0.08
1.30	1179.05	0.07
1.43	1199.02	0.06
1.60	1218.62	0.05
1.82	1234.45	0.03
2.04	1251.67	0.02
2.26	1269.75	0.00
2.48	1285.84	-0.01
2.71	1299.45	-0.02
2.94	1310.76	-0.03
3.17	1324.26	-0.05
3.38	1337.61	-0.06
3.53	1354.93	-0.07
3.72	1369.85	-0.08

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

TESTED BY	DATE	CHECKED BY	DATE
LP	February 23,2013	E.Kostyukov	March 4,2013

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 1
Location:	VA101-457/4	**Depth (m.):**	145.1-145.5
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
8.87	370.41	-0.86
9.39	376.95	-0.89
10.29	359.17	-0.94
11.16	344.58	-0.98
11.76	346.25	-1.01
12.34	349.27	-1.02
13.23	335.91	-1.05
13.80	340.76	-1.06
14.27	349.30	-1.08
14.72	360.18	-1.09
15.23	366.46	-1.11
15.76	371.69	-1.13
16.24	380.00	-1.15
16.92	376.78	-1.18
17.46	381.00	-1.20
18.37	361.40	-1.24

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
1.29	724.94	-0.02
1.46	735.48	-0.03
1.64	747.06	-0.04
1.99	747.36	-0.07
2.38	747.29	-0.10
2.53	761.36	-0.12
2.67	773.12	-0.12
2.93	778.89	-0.14
3.14	787.64	-0.16
3.57	782.55	-0.19
3.84	788.75	-0.21
4.15	792.09	-0.23
4.34	802.88	-0.24
4.51	814.55	-0.26
4.63	827.13	-0.27
4.80	837.11	-0.28
5.08	840.65	-0.31
5.39	843.33	-0.33
5.71	844.80	-0.36
6.04	846.26	-0.39
6.51	840.25	-0.42
7.21	819.27	-0.46
7.51	825.87	-0.48
7.79	832.59	-0.49
8.15	835.58	-0.52
8.53	837.46	-0.54
10.03	767.08	-0.61
10.43	771.18	-0.62
10.80	775.78	-0.63
11.13	781.15	-0.65

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
3.90	1384.70	-0.09
4.18	1390.19	-0.11
4.46	1396.20	-0.13
4.74	1404.67	-0.15
5.11	1405.55	-0.18
5.31	1421.72	-0.19
5.57	1428.50	-0.21
5.79	1439.15	-0.22
6.04	1448.20	-0.23
6.46	1445.06	-0.26
6.89	1445.69	-0.29
7.21	1453.06	-0.30
7.50	1462.43	-0.32
8.05	1454.08	-0.35
8.50	1455.61	-0.38
8.97	1453.48	-0.40
9.24	1465.81	-0.41
9.68	1465.97	-0.44
10.38	1449.58	-0.47
10.82	1451.23	-0.49
11.26	1453.07	-0.50
11.99	1436.53	-0.52
12.48	1440.60	-0.53
12.86	1449.91	-0.54
13.33	1448.29	-0.56
13.61	1464.26	-0.57
13.94	1476.24	-0.58
14.48	1474.49	-0.60
14.97	1474.79	-0.61
15.89	1447.87	-0.65

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 1
Location:	VA101-457/4	**Depth (m.):**	145.1-145.5
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
			11.41	791.68	-0.66	16.24	1458.25	-0.66			
			12.09	777.03	-0.68	16.48	1477.58	-0.67			
			12.48	781.69	-0.70	16.78	1490.31	-0.68			
			12.67	797.92	-0.71						
			12.96	806.98	-0.72						
			13.16	819.12	-0.72						
			13.46	826.91	-0.74						
			14.86	767.78	-0.78						
			15.18	778.57	-0.79						
			15.54	783.87	-0.80						
			16.05	779.11	-0.81						
			16.48	780.29	-0.81						
			16.93	781.25	-0.82						
			17.30	786.97	-0.83						
			17.87	778.29	-0.84						

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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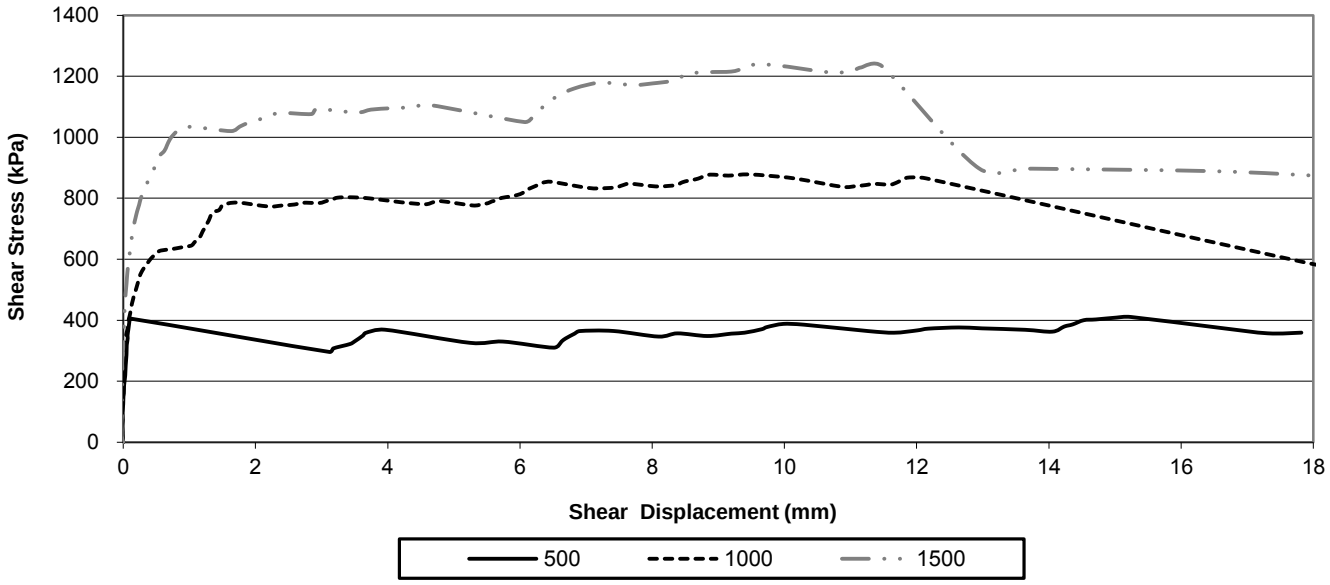
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

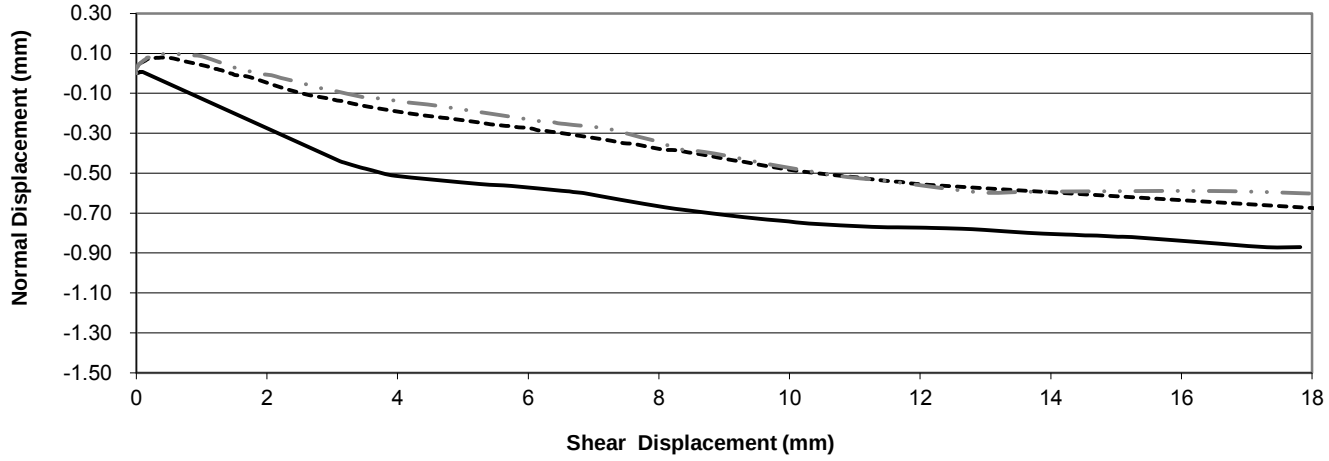
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-13**
Client:	Knight Piesold	**Sample No.:**	DST 3
Project:	BLACKWATER	**Depth (m.):**	241.8-242.3
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	55	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-13**
Client:	Knight Piesold	**Sample No.:**	DST 3
Project:	BLACKWATER	**Depth (m.):**	241.8-242.3
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 3
Location:	VA101-457/4	**Depth (m.):**	241.8-242.3
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00			
0.00	0.68	-0.0001	-0.01	6.06	0.00	0.00	3.98	0.00			
0.00	3.93	-0.0002	-0.01	19.90	0.00	-0.02	19.80	0.00			
-0.01	11.58	-0.0002	-0.02	35.35	0.00	-0.02	39.91	0.00			
-0.01	16.65	-0.0001	-0.02	52.61	0.00	-0.03	61.51	0.00			
-0.01	28.36	-0.0001	-0.02	70.64	0.01	-0.02	83.26	0.00			
-0.01	34.18	-0.0002	-0.02	89.06	0.01	-0.02	106.58	0.00			
-0.01	46.98	-0.0002	-0.01	108.67	0.01	-0.02	130.63	0.00			
-0.01	53.84	-0.0002	-0.01	129.71	0.01	-0.02	155.06	0.01			
-0.01	68.84	-0.0003	-0.01	150.23	0.01	-0.02	180.16	0.01			
-0.01	76.34	-0.0004	-0.01	172.05	0.02	-0.02	205.88	0.01			
-0.01	92.02	-0.0004	-0.01	193.01	0.02	-0.01	231.82	0.01			
-0.01	101.11	-0.0004	-0.01	212.34	0.02	-0.02	258.32	0.01			
0.00	120.44	0.0009	-0.01	232.13	0.02	-0.01	284.55	0.02			
0.00	129.16	0.0014	0.00	253.45	0.03	0.00	311.06	0.02			
0.00	149.88	0.0027	0.00	274.37	0.03	0.00	337.86	0.02			
0.01	160.31	0.0027	0.01	293.94	0.03	0.01	364.64	0.03			
0.01	181.72	0.0033	0.02	315.02	0.04	0.01	391.15	0.03			
0.01	192.49	0.0031	0.03	335.40	0.04	0.02	417.69	0.03			
0.03	214.99	0.0035	0.05	356.23	0.05	0.02	443.43	0.03			
0.03	226.17	0.0040	0.07	375.23	0.05	0.03	468.59	0.04			
0.04	248.35	0.0038	0.07	394.34	0.05	0.04	494.80	0.04			
0.04	259.16	0.0042	0.10	413.75	0.06	0.05	520.29	0.05			
0.05	280.90	0.0055	0.11	432.62	0.06	0.06	544.72	0.05			
0.05	291.12	0.0055	0.13	450.17	0.06	0.07	570.21	0.05			
0.05	311.69	0.0056	0.15	466.68	0.07	0.08	594.72	0.06			
0.05	321.22	0.0054	0.17	483.63	0.07	0.10	618.78	0.06			
0.07	340.30	0.0074	0.19	498.86	0.07	0.11	642.72	0.06			
0.06	350.22	0.0072	0.21	514.73	0.08	0.12	666.16	0.07			
0.08	368.94	0.0075	0.23	529.57	0.08	0.14	689.94	0.07			

LP	February 23,2013	E.Kostyukov	March 4,2013
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Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 3
Location:	VA101-457/4	**Depth (m.):**	241.8-242.3
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.08	378.78	0.01	0.25	543.54	0.08	0.16	712.46	0.08			
0.09	397.09	0.01	0.27	557.09	0.08	0.18	735.10	0.08			
0.10	405.61	0.01	0.31	568.93	0.08	0.21	757.04	0.08			
3.12	295.81	-0.44	0.35	581.08	0.08	0.24	778.77	0.09			
3.17	307.19	-0.45	0.38	592.84	0.08	0.26	799.40	0.09			
3.43	321.96	-0.47	0.42	602.90	0.08	0.30	819.94	0.10			
3.50	330.78	-0.48	0.46	611.09	0.08	0.34	840.68	0.10			
3.62	349.50	-0.49	0.50	620.32	0.08	0.38	860.64	0.10			
3.67	358.63	-0.49	0.57	628.51	0.07	0.43	879.61	0.10			
3.96	368.80	-0.51	0.72	632.71	0.06	0.47	899.11	0.10			
5.25	325.77	-0.55	0.88	638.75	0.05	0.51	918.80	0.10			
5.74	330.02	-0.56	1.02	644.29	0.04	0.54	938.27	0.10			
6.51	309.99	-0.59	1.08	655.89	0.04	0.62	954.90	0.10			
6.63	330.13	-0.59	1.12	664.61	0.03	0.66	973.57	0.10			
6.69	340.04	-0.59	1.16	673.46	0.03	0.70	992.46	0.10			
6.83	356.02	-0.60	1.18	683.69	0.03	0.76	1009.25	0.09			
6.91	364.41	-0.60	1.21	693.80	0.02	0.85	1024.48	0.09			
7.41	364.61	-0.63	1.24	703.80	0.02	1.02	1034.20	0.08			
8.10	346.35	-0.67	1.26	714.91	0.02	1.63	1020.08	0.02			
8.38	356.85	-0.68	1.29	725.78	0.02	1.76	1035.03	0.01			
8.83	348.17	-0.70	1.31	736.71	0.02	1.90	1048.04	0.00			
9.20	355.98	-0.72	1.33	746.64	0.01	2.07	1059.07	-0.01			
9.40	359.05	-0.72	1.36	755.25	0.01	2.21	1072.10	-0.02			
9.66	370.51	-0.73	1.45	760.52	0.00	2.40	1079.80	-0.04			
9.74	377.60	-0.73	1.48	769.06	0.00	2.85	1076.05	-0.08			
9.99	387.93	-0.74	1.51	778.69	-0.01	2.93	1092.47	-0.08			
10.30	385.26	-0.75	1.73	785.64	-0.02	3.53	1080.89	-0.12			
11.26	364.48	-0.77	2.20	772.89	-0.07	3.75	1090.60	-0.13			
11.66	358.92	-0.77	2.40	776.08	-0.09	4.06	1095.08	-0.14			
12.01	366.69	-0.77	2.59	779.32	-0.10	4.37	1098.55	-0.15			

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 3
Location:	VA101-457/4	**Depth (m.):**	241.8-242.3
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
12.18	372.32	-0.77
12.64	376.29	-0.78
12.99	373.32	-0.78
13.64	368.59	-0.80
14.05	362.42	-0.81
14.23	379.19	-0.81
14.36	386.13	-0.81
14.53	400.08	-0.81
14.71	402.46	-0.81
15.03	408.70	-0.82
15.24	410.59	-0.82
16.59	374.76	-0.85
17.31	357.01	-0.87
17.82	359.19	-0.87

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
2.71	785.13	-0.11
2.97	784.38	-0.13
3.07	790.94	-0.14
3.16	795.63	-0.14
3.24	801.85	-0.15
3.43	803.11	-0.16
3.73	799.50	-0.18
4.21	786.55	-0.20
4.57	780.27	-0.22
4.69	786.94	-0.22
4.80	790.53	-0.23
5.29	776.13	-0.25
5.42	780.08	-0.26
5.52	783.91	-0.26
5.57	789.46	-0.26
5.66	793.96	-0.26
5.72	801.00	-0.26
5.85	805.50	-0.27
5.96	810.55	-0.27
6.04	817.31	-0.28
6.09	826.44	-0.28
6.15	832.38	-0.29
6.22	839.09	-0.29
6.29	845.12	-0.29
6.35	851.40	-0.29
6.47	853.98	-0.30
7.04	833.63	-0.33
7.27	832.79	-0.34
7.46	836.05	-0.35
7.55	842.41	-0.35

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
4.63	1105.79	-0.16
6.07	1049.81	-0.23
6.20	1067.36	-0.24
6.29	1086.11	-0.24
6.36	1104.17	-0.24
6.45	1119.89	-0.25
6.57	1134.35	-0.25
6.69	1148.43	-0.26
6.83	1160.29	-0.26
7.02	1172.02	-0.27
7.25	1179.21	-0.28
7.72	1171.26	-0.32
8.01	1176.51	-0.34
8.27	1183.83	-0.38
8.42	1196.43	-0.38
8.57	1209.34	-0.39
8.86	1213.49	-0.40
9.19	1215.29	-0.42
9.38	1225.28	-0.44
9.51	1237.42	-0.44
9.88	1235.75	-0.47
10.69	1212.51	-0.51
11.01	1216.52	-0.52
11.16	1228.99	-0.53
11.48	1232.46	-0.54
12.94	898.70	-0.60
13.75	896.91	-0.59
16.49	888.65	-0.59
18.16	872.41	-0.60

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 3
Location:	VA101-457/4	**Depth (m.):**	241.8-242.3
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1		Residual 1		Residual 2		Residual 3	
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
			7.66	847.65	-0.36						
			8.05	838.74	-0.38						
			8.24	840.35	-0.38						
			8.37	843.79	-0.39						
			8.46	852.17	-0.40						
			8.55	857.37	-0.40						
			8.65	861.87	-0.41						
			8.72	866.56	-0.41						
			8.78	871.51	-0.41						
			8.88	877.36	-0.42						
			9.15	874.14	-0.44						
			9.31	876.66	-0.44						
			9.47	878.21	-0.45						
			9.79	873.13	-0.47						
			10.18	864.07	-0.49						
			10.88	837.06	-0.52						
			11.08	839.66	-0.52						
			11.23	843.12	-0.53						
			11.36	847.12	-0.53						
			11.60	844.64	-0.54						
			11.71	852.22	-0.54						
			11.78	860.48	-0.55						
			11.87	867.67	-0.55						
			12.15	864.97	-0.56						
			18.33	569.00	-0.68						
			18.30	600.06	-0.68						

LP	February 23,2013	E.Kostyukov	March 4,2013
TESTED BY	DATE	CHECKED BY	DATE

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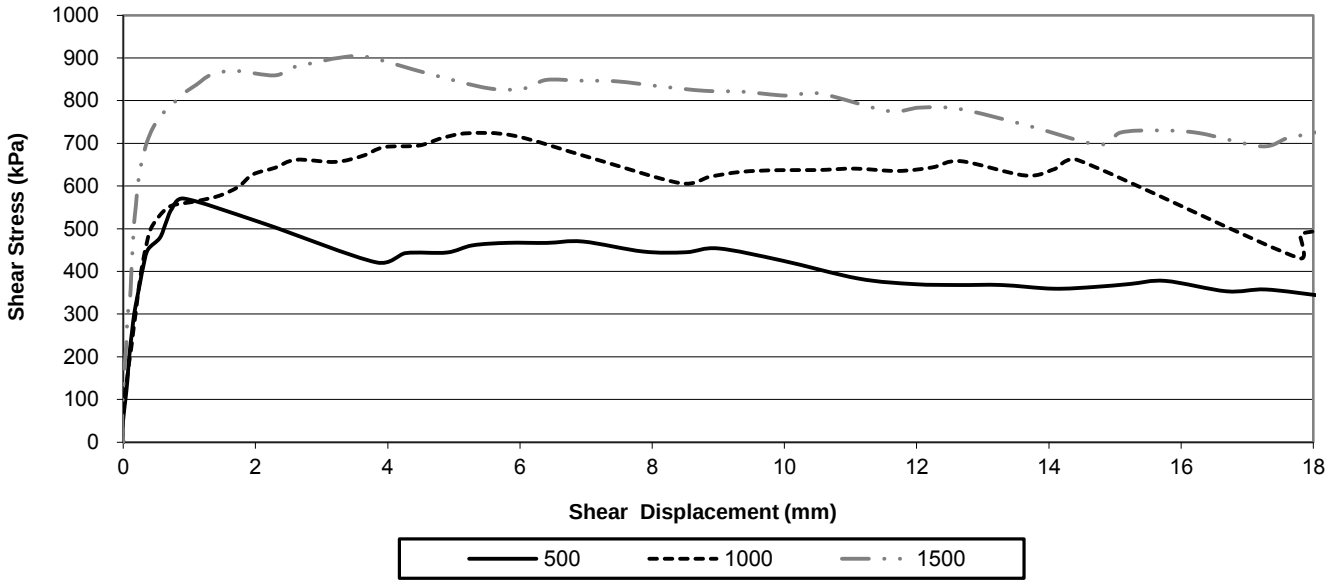
Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

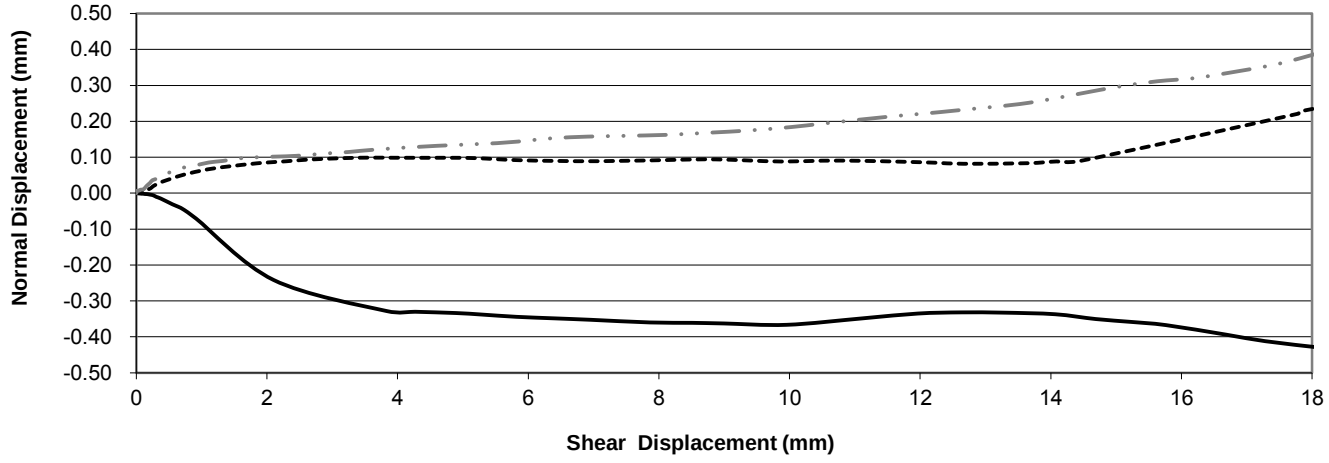
Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-13**
Client:	Knight Piesold	**Sample No.:**	DST 2
Project:	BLACKWATER	**Depth (m.):**	213.3-213.7
Location:	VA101-457/4	**Lab ID No:**	22

Specimen		Machine ID's	
Joint Type	OPEN FACE	Pressure Transducer	PT0001
Shape	Elliptical	Horizontal LVDT	ID0002
Joint Angle	31	Vertical LVDT	ID0003

Shear Displacement vs. Shear Stress



Shear Displacement vs. Normal Displacement



LP	February 22,2013	E.Kostyukov	March 3,2013
TESTED BY	DATE	CHECKED BY:	DATE

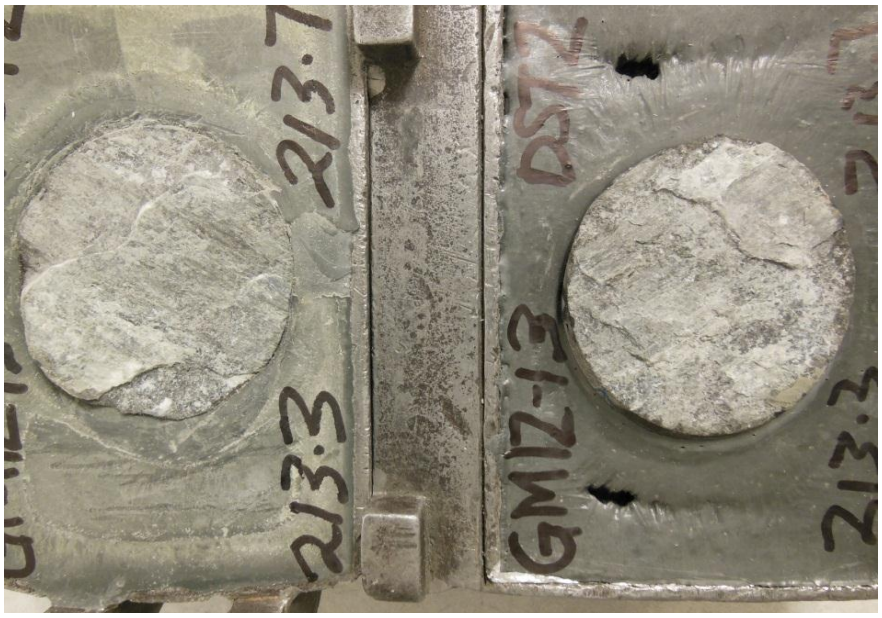
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Direct Shear Strength Testing Under Constant Normal Force

Reference
ASTM D5607-08

Project No.:	11-1415-0001 Phase 3000	**Borehole:**	**GM12-13**
Client:	Knight Piesold	**Sample No.:**	DST 2
Project:	BLACKWATER	**Depth (m.):**	213.3-213.7
Location:	VA101-457/4	**Lab ID No:**	22



BEFORE TEST



AFTER TEST

LP	February 22,2013	E.Kostyukov	March 3,2013
TESTED BY	DATE	CHECKED BY:	DATE

Golder Associates Ltd. - Burnaby Laboratory
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Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 2
Location:	VA101-457/4	**Depth (m.):**	213.3-213.7
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Residual 1	
Normal Stress , kPa	1000

Residual 2	
Normal Stress , kPa	1500

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00			
0.00	2.53	-0.0002	0.00	0.05	0.00	0.00	5.09	0.00			
-0.01	31.23	-0.0003	-0.01	30.53	0.00	-0.01	38.41	0.00			
0.01	66.68	-0.0003	0.00	68.89	0.00	-0.01	79.62	0.00			
0.03	103.92	-0.0009	0.02	107.56	0.00	0.00	121.83	0.01			
0.06	143.44	-0.0012	0.06	146.90	0.00	0.01	163.73	0.01			
0.08	182.31	-0.0017	0.09	185.83	0.00	0.03	207.07	0.01			
0.10	222.23	-0.0017	0.12	225.51	0.01	0.05	250.70	0.01			
0.13	260.94	-0.0025	0.15	265.12	0.01	0.06	293.67	0.01			
0.16	299.73	-0.0027	0.19	304.65	0.01	0.10	337.30	0.01			
0.21	339.13	-0.0042	0.22	345.94	0.01	0.12	381.36	0.01			
0.26	377.32	-0.0060	0.25	383.63	0.02	0.13	424.68	0.01			
0.31	415.42	-0.0105	0.30	422.40	0.02	0.15	467.44	0.02			
0.37	451.28	-0.0150	0.35	460.37	0.03	0.16	509.43	0.02			
0.55	478.56	-0.0311	0.41	497.32	0.03	0.19	551.51	0.03			
0.64	512.81	-0.0379	0.54	528.56	0.04	0.21	591.92	0.03			
0.73	546.15	-0.0468	0.72	553.53	0.05	0.25	630.97	0.04			
0.91	570.69	-0.0709	1.09	564.04	0.07	0.30	668.21	0.04			
2.10	513.48	-0.2417	1.46	577.49	0.08	0.36	703.41	0.05			
3.83	421.09	-0.3282	1.74	598.70	0.08	0.45	736.94	0.05			
4.27	442.80	-0.3303	1.96	627.04	0.08	0.58	767.02	0.06			
4.89	444.26	-0.3338	2.30	642.76	0.09	0.73	789.54	0.07			
5.28	461.09	-0.3380	2.61	661.50	0.09	0.90	815.40	0.08			
5.82	466.94	-0.3443	3.20	656.49	0.10	1.11	837.75	0.09			
6.41	466.75	-0.3487	3.62	670.55	0.10	1.33	860.18	0.09			
6.95	470.00	-0.3526	3.95	691.10	0.10	1.68	869.64	0.10			
7.86	446.55	-0.3600	4.47	694.65	0.10	2.29	859.12	0.10			
8.51	444.89	-0.3611	4.82	712.04	0.10	2.56	877.85	0.11			
9.00	453.85	-0.3629	5.22	723.67	0.10	2.91	889.20	0.11			
9.96	425.65	-0.3666	5.92	717.57	0.09	3.26	900.03	0.11			

LP	February 22,2013	E.Kostyukov	March 3,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Strength Testing Under Constant Normal Force

Reference ASTM D5607-08

Client:	Knight Piesold	**Borehole:**	**GM12-13**
Project:	BLACKWATER	**Sample No.:**	DST 2
Location:	VA101-457/4	**Depth (m.):**	213.3-213.7
Project No.:	11-1415-0001 Phase 3000	**Lab ID No:**	22

Peak 1	
Normal Stress , kPa	500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
11.12	383.26	-0.35
11.96	370.19	-0.34
12.63	368.14	-0.33
13.29	368.10	-0.33
14.07	359.53	-0.34
14.69	363.55	-0.35
15.23	370.62	-0.36
15.76	377.74	-0.37
16.69	353.46	-0.39
17.28	357.69	-0.41
18.10	343.34	-0.43

Residual 1	
Normal Stress , kPa	1000

Horz Disp mm	Shear Stress kPa	Vert Disp mm
7.06	666.35	0.09
8.44	606.42	0.09
8.87	621.50	0.09
9.34	633.09	0.09
9.90	637.15	0.09
10.50	637.39	0.09
11.07	640.74	0.09
11.71	635.22	0.09
12.23	643.52	0.08
12.66	658.29	0.08
13.64	624.63	0.08
14.09	639.87	0.09
14.44	660.77	0.09
17.79	431.08	0.22
17.80	486.10	0.23
18.36	495.55	0.25

Residual 2	
Normal Stress , kPa	1500

Horz Disp mm	Shear Stress kPa	Vert Disp mm
3.68	902.52	0.12
4.60	863.68	0.13
5.53	828.86	0.14
6.06	828.71	0.15
6.40	848.47	0.15
6.91	846.75	0.16
7.45	845.28	0.16
8.14	833.12	0.16
8.79	823.02	0.17
9.36	820.95	0.17
10.03	811.69	0.18
10.54	816.49	0.19
11.56	775.79	0.21
12.05	783.68	0.22
12.65	780.40	0.23
13.66	742.51	0.25
14.76	696.81	0.29
15.08	725.21	0.30
15.63	730.26	0.31
16.26	724.26	0.32
17.22	692.93	0.35
17.60	711.74	0.36
18.04	725.51	0.39
18.44	740.12	0.41

Residual 3	
Normal Stress , kPa	-

Horz Disp mm	Shear Stress kPa	Vert Disp mm

LP	February 22,2013	E.Kostyukov	March 3,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-12
Project:	VA101-457/4	**Sample :**	Gouge #3
Location:	Blackwater	**Depth (m):**	126.4-126.7
Project No.:	11-1415-0001	**Lab Sch No:**	22

Test Condition:	Unsaturated - tested at natural moisture content
Sample Description:	Fault Material - Broken rock and clay
Soil Charateristics:	Compacted Sample
Type of test	Peak and Residual
Remarks:	Area correction not applied to normal and shear stress calculation

Initial Sample Dimensions

Test No.	1	2	3			
Shear box geometry	Circle	Circle	Circle			
Diameter (mm)	62.63	62.63	63.52			
Height (mm)	26.16	26.16	26.36			
Area (cm^2)	30.81	30.81	31.69			
Volume (cm^3)	80.59	80.59	83.53			

Weight Volume Relationships

Sample Type	Disturbed					
Dry Mass (g)	141.4	135.8	136.8			
Initial γ_{wet} (kN/m^3)	18.63	18.00	17.49			
Final γ_{wet} (kN/m^3)	18.06	17.97	17.52			
Initial γ_{dry} (kN/m^3)	17.21	16.53	16.06			
Final γ_{dry} (kN/m^3)	17.33	16.74	16.34			
Initial water content (%)	8.2	8.9	8.9			
Final water content (%)	4.2	7.4	7.2			

Consolidation Results

Normal Stress (kPa)	300	600	900			
t_{90} (Taylor Method) (min)	N/A	N/A	N/A			
Calculated t_{50} (min)	N/A	N/A	N/A			
Change in height ΔH_c (mm)	0.18	0.32	0.45			

Equipment Description:	Dtest-1	Dtest-2	Dtest-3
Normal Load Cell Serial No:	221643	227408	697437
Shear Load Cell Serial No:	266562	219231	410702
Vertical LPT Serial No:	LP-621	LP-567	LP-985

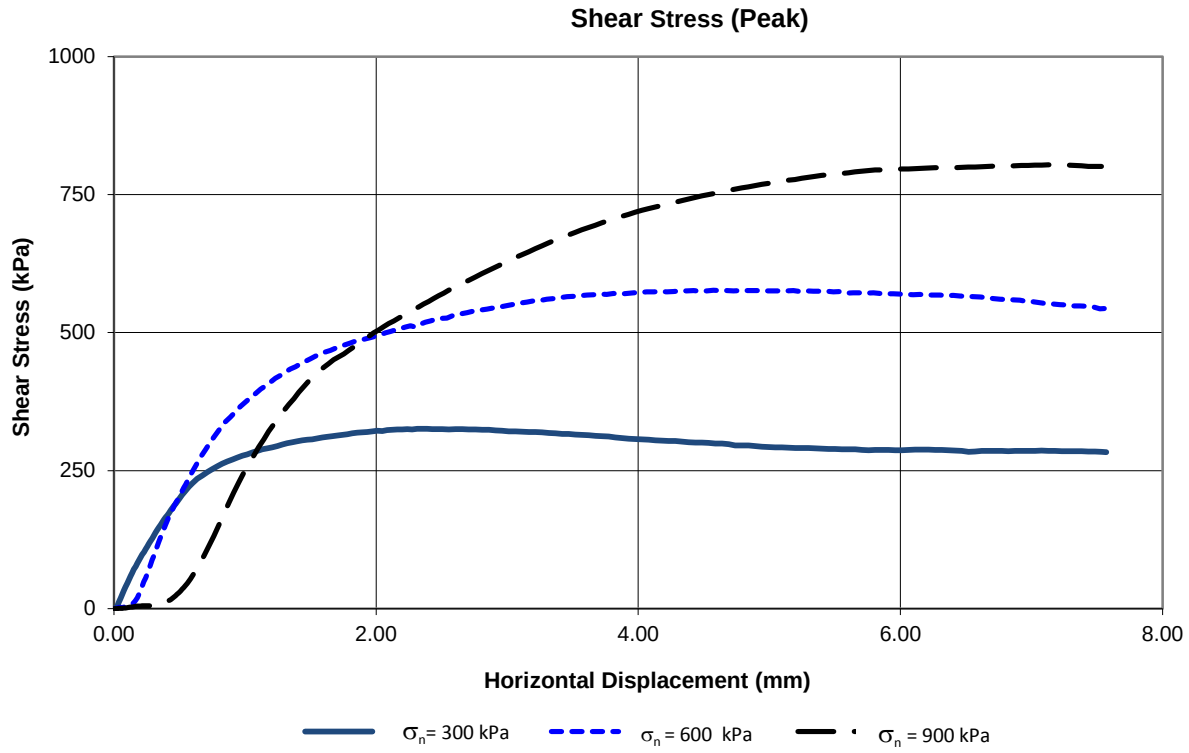
TM	April 2, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

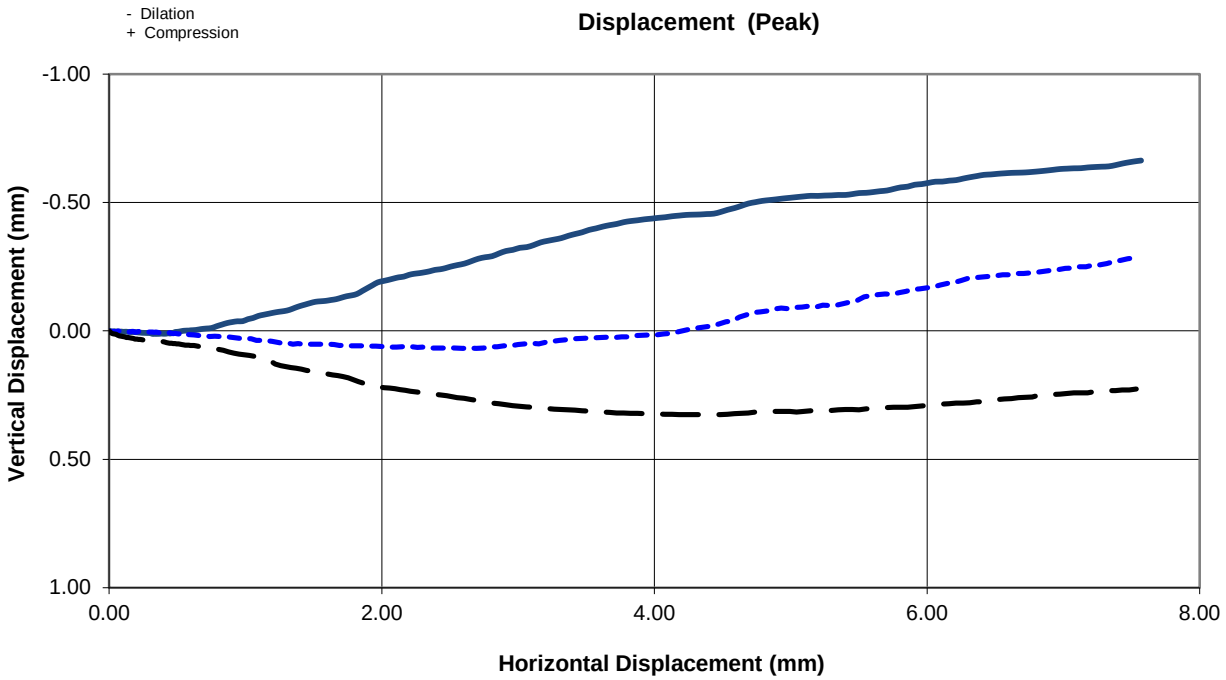
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4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference: ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-12
Project:	VA101-457/4	**Sample :**	Gouge #3
Location:	Blackwater	**Depth (m):**	126.4-126.7
Project No.:	11-1415-0001	**Lab Sch No:**	22





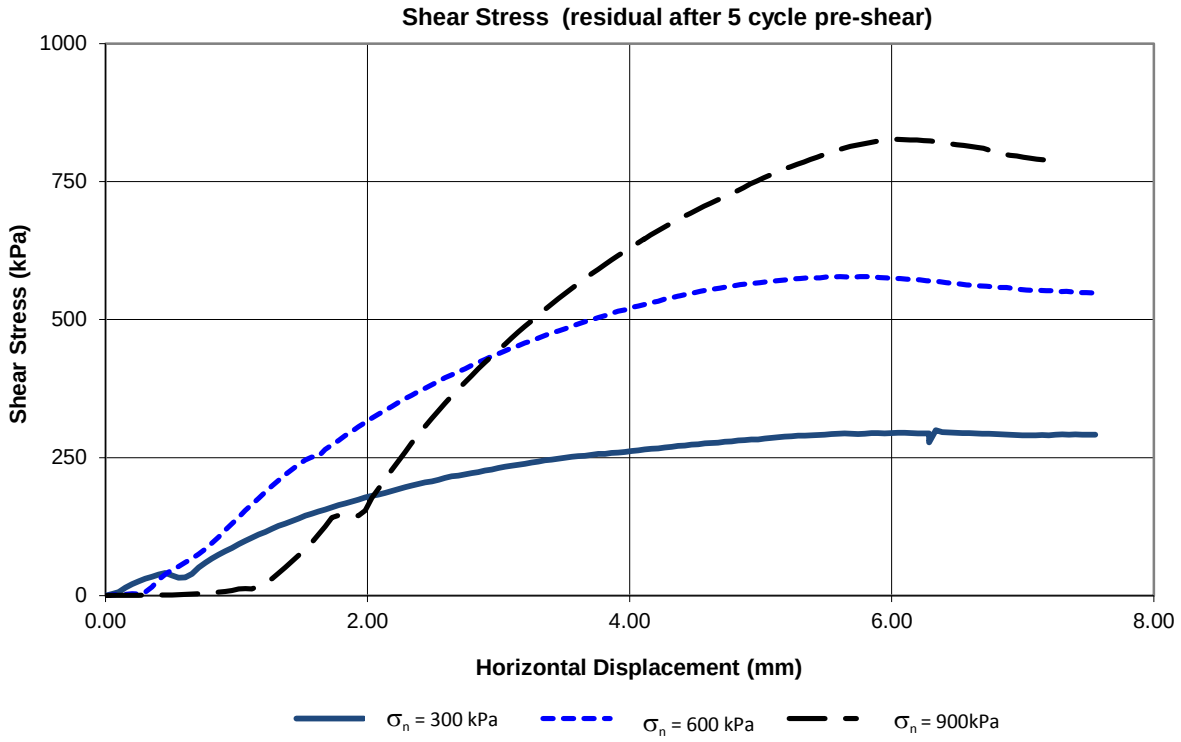
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TESTED BY	DATE	CHECKED BY	DATE

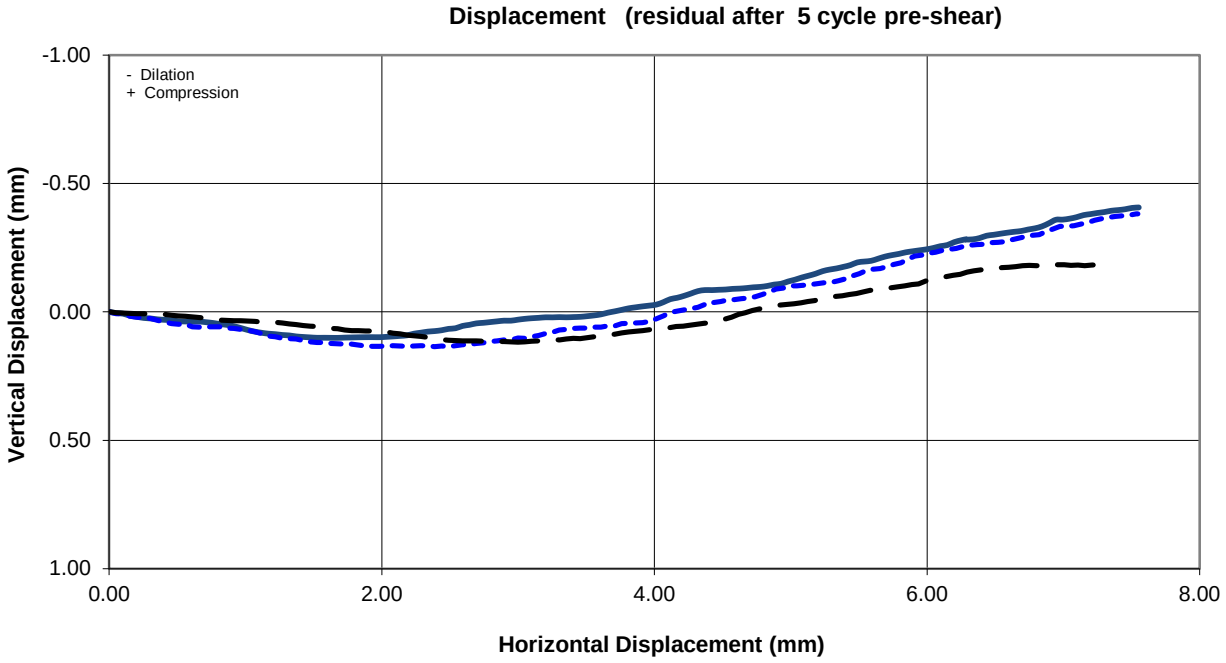
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4280 Still Creek Drive
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Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference: ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-12
Project:	VA101-457/4	**Sample :**	Gouge #3
Location:	Blackwater	**Depth (m):**	126.4-126.7
Project No.:	11-1415-0001	**Lab Sch No:**	22





TM/LL	April 2, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
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Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

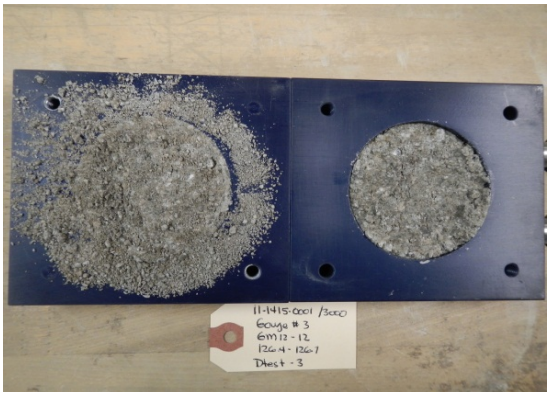
Client:	Knight Piesold Ltd	**Borehole:**	GM12-12
Project:	VA101-457/4	**Sample :**	Gouge #3
Location:	Blackwater	**Depth (m):**	126.4-126.7
Project No.:	11-1415-0001	**Lab Sch No:**	22



Test 1 (After Shear)



Test 2 (After Shear)



Test 3 (After Shear)

Remarks:

Peak and residual plus additional residual point at 300, 600 and 900 kPa

Residual strength was measured after 5 pre-shear cycles

TM/LL	April 2, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-12
Project:	VA101-457/4	**Sample :**	Gouge #3
Location:	Blackwater	**Depth (m):**	126.4-126.7
Project No.:	11-1415-0001	**Lab Sch No:**	22

Peak 1	
Normal Stress , kPa	300
Disp Rate, mm/min	0.015

Peak 2	
Normal Stress , kPa	600
Disp Rate, mm/min	0.015

Peak 3	
Normal Stress , kPa	900
Disp Rate, mm/min	0.015

Normal Stress , kPa	
Disp Rate, mm/min	

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.0	0.000	0.00	0.0	0.000	0.00	0.0	0.000			
0.01	0.3	0.001	0.01	0.5	0.002	0.01	0.0	0.006			
0.03	3.8	0.002	0.03	1.1	0.002	0.02	0.1	0.010			
0.04	11.5	0.001	0.04	2.0	0.002	0.04	0.4	0.012			
0.05	19.2	0.002	0.05	2.4	0.003	0.05	0.6	0.014			
0.06	26.2	0.002	0.06	1.8	0.001	0.06	0.7	0.017			
0.08	33.0	0.003	0.08	2.9	0.000	0.08	0.9	0.019			
0.09	39.5	0.002	0.09	4.4	0.002	0.09	1.3	0.020			
0.10	46.3	0.003	0.10	6.3	0.001	0.10	1.8	0.022			
0.11	52.8	0.003	0.11	6.9	0.003	0.11	2.2	0.022			
0.13	59.1	0.003	0.13	6.6	0.003	0.13	2.5	0.025			
0.14	65.1	0.004	0.14	8.1	0.003	0.14	2.9	0.026			
0.15	71.0	0.004	0.15	11.1	0.005	0.15	3.2	0.027			
0.17	76.6	0.004	0.17	14.6	0.002	0.16	3.7	0.028			
0.18	81.9	0.004	0.18	19.5	0.002	0.18	4.3	0.030			
0.19	87.2	0.005	0.19	25.8	0.005	0.19	4.7	0.031			
0.20	92.5	0.005	0.20	32.7	0.004	0.20	4.8	0.032			
0.22	97.7	0.006	0.22	40.5	0.002	0.22	4.9	0.033			
0.23	102.7	0.007	0.23	48.4	0.005	0.23	4.9	0.033			
0.24	107.4	0.007	0.24	55.3	0.005	0.24	5.0	0.034			
0.25	112.4	0.007	0.25	62.8	0.005	0.25	5.1	0.035			
0.27	117.5	0.008	0.27	71.4	0.004	0.27	5.2	0.035			
0.28	122.3	0.008	0.28	79.4	0.004	0.28	5.2	0.035			
0.29	127.4	0.008	0.29	88.1	0.004	0.29	5.7	0.036			
0.31	132.5	0.009	0.30	96.3	0.004	0.30	6.2	0.036			
0.32	137.8	0.012	0.32	104.6	0.005	0.32	6.8	0.036			
0.33	142.7	0.011	0.33	112.7	0.006	0.33	7.4	0.036			
0.34	147.7	0.012	0.34	120.8	0.005	0.34	8.1	0.037			
0.36	152.1	0.011	0.36	128.7	0.006	0.36	8.8	0.038			
0.37	156.3	0.011	0.37	136.7	0.007	0.37	9.6	0.040			
0.38	160.8	0.010	0.38	144.4	0.005	0.38	10.5	0.041			
0.39	165.1	0.011	0.39	151.6	0.007	0.39	11.5	0.042			
0.41	169.4	0.011	0.41	158.7	0.005	0.41	12.8	0.043			
0.42	173.5	0.011	0.42	165.6	0.006	0.42	14.4	0.045			
0.43	177.6	0.009	0.43	172.4	0.008	0.43	16.2	0.047			

0.45	181.7	0.010	0.44	178.7	0.007	0.44	18.3	0.047			
0.46	185.9	0.009	0.46	185.0	0.009	0.46	20.8	0.048			
0.47	189.9	0.007	0.47	190.8	0.011	0.47	23.3	0.049			
0.48	194.2	0.004	0.48	196.5	0.009	0.48	26.1	0.050			
0.50	198.1	0.004	0.50	202.1	0.011	0.50	28.9	0.051			
0.51	202.4	0.003	0.51	207.6	0.011	0.51	31.9	0.051			
0.52	206.5	0.002	0.52	213.3	0.011	0.52	35.0	0.052			
0.53	210.2	0.000	0.53	219.0	0.009	0.53	38.4	0.053			
0.55	213.9	-0.001	0.55	224.9	0.015	0.55	41.8	0.055			
0.56	217.5	-0.001	0.56	230.6	0.013	0.56	45.6	0.055			
0.57	220.8	-0.001	0.57	236.4	0.013	0.57	49.7	0.055			
0.59	224.0	-0.001	0.58	241.9	0.014	0.58	54.0	0.056			
0.60	227.1	-0.002	0.62	258.5	0.016	0.60	58.5	0.057			
0.64	235.3	-0.004	0.66	273.8	0.018	0.61	63.2	0.056			
0.67	241.1	-0.007	0.70	288.2	0.018	0.62	68.1	0.057			
0.71	247.3	-0.009	0.74	302.2	0.021	0.64	73.2	0.058			
0.75	252.7	-0.011	0.78	314.8	0.021	0.65	78.5	0.059			
0.79	257.9	-0.018	0.81	327.2	0.022	0.69	95.5	0.062			
0.83	262.6	-0.025	0.85	338.2	0.022	0.72	113.1	0.063			
0.87	266.3	-0.031	0.89	347.2	0.025	0.76	131.3	0.067			
0.90	270.1	-0.035	0.93	357.2	0.027	0.80	150.4	0.072			
0.94	273.6	-0.038	0.97	366.1	0.029	0.84	171.3	0.076			
0.98	277.0	-0.038	1.00	374.3	0.030	0.88	191.6	0.082			
1.02	279.3	-0.046	1.04	382.0	0.030	0.91	210.3	0.087			
1.06	282.8	-0.050	1.08	389.3	0.036	0.95	228.7	0.090			
1.09	285.8	-0.058	1.12	397.4	0.037	0.99	245.7	0.093			
1.13	288.3	-0.063	1.16	403.2	0.039	1.03	262.1	0.095			
1.17	290.5	-0.067	1.19	410.1	0.041	1.07	277.7	0.099			
1.21	292.1	-0.071	1.23	417.1	0.044	1.11	292.5	0.104			
1.25	294.6	-0.075	1.27	422.3	0.048	1.14	306.7	0.109			
1.28	297.2	-0.077	1.31	428.7	0.046	1.18	320.8	0.116			
1.32	299.5	-0.082	1.35	433.8	0.052	1.22	333.9	0.128			
1.36	301.2	-0.090	1.38	438.4	0.049	1.26	345.9	0.135			
1.40	303.0	-0.097	1.42	443.4	0.052	1.30	358.0	0.139			
1.44	304.6	-0.103	1.46	448.1	0.052	1.33	369.7	0.142			
1.48	305.8	-0.109	1.50	452.6	0.052	1.37	380.5	0.145			
1.51	306.4	-0.114	1.54	457.0	0.051	1.41	391.5	0.149			
1.55	308.4	-0.116	1.58	461.5	0.052	1.45	402.1	0.154			
1.59	310.0	-0.117	1.61	464.9	0.052	1.49	411.8	0.156			
1.63	311.4	-0.121	1.65	468.0	0.053	1.52	420.8	0.161			
1.67	312.5	-0.124	1.69	471.6	0.056	1.56	429.4	0.163			
1.70	313.8	-0.130	1.73	475.5	0.055	1.60	436.9	0.168			
1.74	314.9	-0.135	1.77	478.2	0.058	1.64	444.1	0.171			
1.78	316.1	-0.139	1.80	481.0	0.058	1.68	451.1	0.174			
1.82	317.5	-0.144	1.84	484.3	0.057	1.72	456.2	0.178			
1.86	318.5	-0.156	1.88	486.3	0.058	1.75	461.5	0.183			
1.89	319.2	-0.167	1.92	488.9	0.059	1.79	467.7	0.190			
1.93	320.1	-0.178	1.96	491.0	0.059	1.83	474.3	0.197			
1.97	321.1	-0.189	1.99	493.5	0.060	1.87	480.8	0.203			
2.01	322.3	-0.194	2.03	496.3	0.062	1.91	487.3	0.209			
2.05	321.6	-0.199	2.07	499.8	0.062	1.94	493.3	0.217			
2.08	323.5	-0.204	2.11	501.8	0.063	1.98	499.3	0.219			
2.12	324.0	-0.209	2.15	504.6	0.062	2.02	505.0	0.221			

2.16	324.4	-0.212	2.19	507.2	0.060	2.06	510.8	0.223			
2.20	324.4	-0.219	2.22	510.1	0.061	2.10	516.2	0.225			
2.24	325.1	-0.223	2.26	512.4	0.064	2.13	521.2	0.228			
2.28	324.7	-0.225	2.30	510.3	0.063	2.17	526.5	0.232			
2.31	325.6	-0.228	2.34	515.5	0.066	2.21	531.7	0.235			
2.35	325.7	-0.232	2.38	518.7	0.066	2.25	536.6	0.238			
2.39	325.7	-0.238	2.41	521.3	0.066	2.29	541.8	0.240			
2.43	325.1	-0.240	2.45	523.9	0.067	2.32	546.8	0.243			
2.47	325.3	-0.245	2.49	525.8	0.066	2.36	552.0	0.246			
2.50	325.3	-0.251	2.54	526.1	0.066	2.40	556.6	0.248			
2.56	324.6	-0.257	2.59	531.4	0.068	2.44	561.9	0.250			
2.61	325.3	-0.262	2.64	533.8	0.067	2.48	566.8	0.253			
2.66	325.2	-0.272	2.69	536.0	0.067	2.52	571.4	0.256			
2.71	324.5	-0.281	2.74	538.8	0.066	2.55	576.4	0.260			
2.76	324.3	-0.287	2.80	541.0	0.062	2.60	582.6	0.263			
2.81	324.0	-0.291	2.85	542.7	0.062	2.66	588.6	0.267			
2.86	323.7	-0.302	2.90	545.0	0.058	2.71	594.8	0.271			
2.91	323.1	-0.311	2.95	546.8	0.058	2.76	600.7	0.276			
2.96	322.5	-0.316	3.00	549.1	0.053	2.81	606.7	0.281			
3.01	321.1	-0.324	3.05	551.3	0.050	2.86	612.5	0.284			
3.06	320.8	-0.327	3.10	553.4	0.048	2.91	618.5	0.287			
3.11	320.4	-0.335	3.15	555.5	0.051	2.96	624.5	0.291			
3.16	320.1	-0.345	3.20	557.5	0.044	3.01	629.9	0.294			
3.22	319.7	-0.351	3.25	558.4	0.041	3.06	635.6	0.296			
3.27	319.1	-0.356	3.30	560.5	0.037	3.11	641.1	0.298			
3.32	318.3	-0.362	3.35	561.9	0.034	3.16	646.2	0.301			
3.37	317.5	-0.371	3.40	563.2	0.031	3.21	651.9	0.303			
3.42	316.4	-0.378	3.46	565.0	0.029	3.26	657.3	0.304			
3.47	316.2	-0.384	3.51	565.8	0.028	3.32	662.6	0.306			
3.52	315.5	-0.394	3.56	567.0	0.027	3.37	667.8	0.307			
3.57	314.7	-0.399	3.61	568.1	0.026	3.42	672.7	0.309			
3.62	314.2	-0.407	3.66	568.4	0.024	3.47	677.3	0.311			
3.67	313.1	-0.412	3.71	569.6	0.025	3.52	681.7	0.312			
3.72	312.2	-0.417	3.76	569.4	0.023	3.57	686.2	0.315			
3.77	311.8	-0.424	3.81	570.7	0.023	3.62	690.4	0.316			
3.83	310.2	-0.428	3.86	570.0	0.018	3.67	694.5	0.317			
3.88	308.8	-0.431	3.91	571.1	0.017	3.72	699.0	0.320			
3.93	307.7	-0.435	3.96	572.0	0.016	3.77	703.2	0.320			
3.98	307.3	-0.438	4.01	572.4	0.015	3.82	706.9	0.321			
4.03	306.6	-0.441	4.07	573.8	0.012	3.87	710.7	0.321			
4.08	306.0	-0.443	4.12	574.0	0.010	3.93	714.3	0.322			
4.13	305.0	-0.447	4.17	574.3	0.004	3.98	718.2	0.323			
4.18	304.2	-0.449	4.22	573.9	-0.001	4.03	721.7	0.324			
4.23	303.9	-0.452	4.27	574.4	-0.008	4.08	724.8	0.324			
4.28	303.4	-0.453	4.32	575.5	-0.012	4.13	727.7	0.325			
4.33	302.7	-0.454	4.37	575.3	-0.016	4.18	730.3	0.326			
4.38	301.6	-0.455	4.42	575.8	-0.019	4.23	733.3	0.326			
4.44	300.8	-0.457	4.47	575.2	-0.027	4.28	736.1	0.326			
4.49	300.6	-0.464	4.52	575.3	-0.035	4.33	739.2	0.326			
4.54	300.0	-0.472	4.57	576.6	-0.040	4.38	742.2	0.326			
4.59	299.2	-0.479	4.62	576.3	-0.054	4.43	744.7	0.326			
4.64	298.8	-0.487	4.68	575.9	-0.063	4.48	747.5	0.326			
4.69	297.6	-0.496	4.73	575.7	-0.071	4.54	749.9	0.324			

4.74	295.8	-0.502	4.78	575.9	-0.075	4.59	752.6	0.323			
4.79	295.4	-0.507	4.83	576.2	-0.078	4.64	755.2	0.321			
4.84	295.3	-0.510	4.88	576.3	-0.085	4.69	757.7	0.319			
4.89	294.2	-0.513	4.93	576.0	-0.089	4.74	760.0	0.316			
4.94	293.4	-0.516	4.98	575.4	-0.087	4.79	761.9	0.314			
4.99	292.7	-0.519	5.03	575.5	-0.092	4.84	763.7	0.314			
5.04	292.1	-0.522	5.08	575.6	-0.093	4.89	766.2	0.314			
5.10	292.0	-0.524	5.13	575.7	-0.096	4.94	768.4	0.313			
5.15	291.5	-0.526	5.18	576.3	-0.093	4.99	770.3	0.314			
5.20	290.9	-0.526	5.23	574.5	-0.100	5.04	772.1	0.316			
5.25	290.8	-0.527	5.29	575.5	-0.099	5.09	774.0	0.313			
5.30	290.8	-0.528	5.34	574.9	-0.100	5.15	776.2	0.311			
5.35	290.6	-0.530	5.39	574.7	-0.106	5.20	777.5	0.313			
5.40	289.9	-0.530	5.44	575.1	-0.113	5.25	779.6	0.308			
5.45	289.4	-0.533	5.49	574.1	-0.119	5.30	781.3	0.310			
5.50	289.0	-0.537	5.54	574.3	-0.133	5.35	782.9	0.308			
5.55	288.6	-0.538	5.59	571.4	-0.137	5.40	784.8	0.306			
5.60	288.6	-0.541	5.64	572.3	-0.141	5.45	785.8	0.306			
5.65	288.4	-0.544	5.69	572.0	-0.144	5.50	787.3	0.308			
5.71	287.5	-0.547	5.74	571.6	-0.143	5.55	788.2	0.304			
5.76	287.1	-0.553	5.79	571.9	-0.148	5.60	789.4	0.302			
5.81	287.3	-0.559	5.84	570.9	-0.155	5.65	791.0	0.300			
5.86	287.6	-0.562	5.89	570.2	-0.161	5.70	792.2	0.298			
5.91	287.3	-0.570	5.95	570.1	-0.163	5.75	793.6	0.298			
5.96	286.9	-0.572	6.00	569.8	-0.168	5.81	794.6	0.297			
6.01	287.0	-0.577	6.05	569.3	-0.172	5.86	794.5	0.297			
6.06	287.3	-0.581	6.10	568.6	-0.178	5.91	795.5	0.295			
6.11	287.9	-0.582	6.15	569.4	-0.185	5.96	795.9	0.293			
6.16	287.9	-0.586	6.20	568.3	-0.189	6.01	796.3	0.290			
6.21	287.8	-0.588	6.25	567.9	-0.196	6.06	796.4	0.287			
6.26	287.6	-0.594	6.30	567.8	-0.205	6.11	797.0	0.285			
6.32	287.4	-0.599	6.35	566.8	-0.207	6.16	797.6	0.283			
6.37	287.0	-0.604	6.40	567.3	-0.210	6.21	797.9	0.282			
6.42	286.3	-0.608	6.45	566.4	-0.213	6.26	798.6	0.281			
6.47	285.5	-0.610	6.50	565.9	-0.215	6.31	798.5	0.280			
6.52	284.1	-0.612	6.56	565.4	-0.219	6.36	798.8	0.277			
6.57	284.8	-0.614	6.61	564.4	-0.219	6.42	798.6	0.276			
6.62	285.5	-0.616	6.66	563.3	-0.224	6.47	799.1	0.274			
6.67	285.8	-0.617	6.71	561.7	-0.224	6.52	799.9	0.267			
6.72	285.8	-0.618	6.76	560.6	-0.226	6.57	800.0	0.265			
6.77	285.7	-0.620	6.81	560.1	-0.229	6.62	800.6	0.264			
6.82	285.3	-0.622	6.86	559.2	-0.233	6.67	801.3	0.260			
6.87	286.0	-0.625	6.91	559.0	-0.237	6.72	801.8	0.259			
6.93	285.8	-0.628	6.96	556.7	-0.238	6.77	802.4	0.257			
6.98	285.9	-0.631	7.01	555.9	-0.243	6.82	801.9	0.250			
7.03	285.8	-0.632	7.06	553.9	-0.245	6.87	802.5	0.249			
7.08	286.2	-0.634	7.11	552.5	-0.250	6.92	802.6	0.248			
7.13	285.9	-0.634	7.17	551.9	-0.250	6.97	803.0	0.246			
7.18	285.5	-0.637	7.22	550.5	-0.257	7.03	803.5	0.244			
7.23	285.0	-0.639	7.27	550.2	-0.258	7.08	803.4	0.242			
7.28	285.2	-0.640	7.32	548.3	-0.262	7.13	803.7	0.241			
7.33	285.0	-0.641	7.37	548.1	-0.269	7.18	803.7	0.241			
7.38	285.0	-0.646	7.42	547.8	-0.275	7.23	803.9	0.236			

7.43	284.5	-0.652	7.47	546.3	-0.281	7.28	803.6	0.234			
7.48	284.4	-0.657	7.52	543.3	-0.285	7.33	802.9	0.232			
7.53	283.9	-0.662	7.56	543.6	-0.2862	7.38	802.0	0.233			
7.57	283.6	-0.7				7.43	801.33	0.2298			
						7.48	801.02	0.2301			
						7.53	801.15	0.2265			
						7.58	801.27	0.2246			
						7.62	801.08	0.2237			

TM	April 2, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-12
Project:	VA101-457/4	**Sample :**	Gouge #3
Location:	Blackwater	**Depth (m):**	126.4-126.7
Project No.:	11-1415-0001	**Lab Sch No:**	22

Residual 1	
Normal Stress , kPa	300
Disp Rate, mm/min	0.015

Residual 2	
Normal Stress , kPa	600
Disp Rate, mm/min	0.015

Residual 3	
Normal Stress , kPa	900
Disp Rate, mm/min	0.015

Normal Stress , kPa	
Disp Rate, mm/min	

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.0	0.000	0.00	0.0	0.000	0.00	0.0	0.000			
0.05	3.0	0.004	0.05	1.0	0.006	0.05	0.3	0.003			
0.10	6.3	0.007	0.10	2.0	0.007	0.10	0.5	0.004			
0.15	14.4	0.015	0.15	2.3	0.016	0.15	0.6	0.006			
0.20	21.0	0.019	0.20	3.2	0.020	0.20	0.6	0.007			
0.25	26.2	0.023	0.25	2.6	0.023	0.25	0.8	0.007			
0.30	30.7	0.025	0.30	6.2	0.026	0.30	0.8	0.008			
0.36	34.2	0.029	0.36	15.7	0.033	0.36	0.9	0.010			
0.41	38.1	0.031	0.41	28.6	0.039	0.41	1.0	0.009			
0.46	41.2	0.032	0.46	38.6	0.045	0.46	1.0	0.013			
0.51	36.3	0.036	0.51	46.7	0.048	0.51	1.3	0.016			
0.56	32.6	0.037	0.56	52.7	0.048	0.56	1.7	0.017			
0.61	32.9	0.038	0.61	59.9	0.057	0.61	2.1	0.020			
0.66	39.4	0.038	0.66	67.2	0.059	0.66	2.8	0.022			
0.71	51.1	0.040	0.71	75.1	0.058	0.71	3.3	0.025			
0.76	59.6	0.043	0.76	84.4	0.058	0.76	3.9	0.028			
0.81	67.3	0.047	0.81	94.7	0.058	0.81	4.8	0.032			
0.86	73.9	0.050	0.86	106.1	0.062	0.86	6.0	0.033			
0.91	80.4	0.056	0.91	118.7	0.064	0.91	7.3	0.034			
0.97	86.4	0.063	0.97	130.4	0.068	0.97	9.2	0.034			
1.02	93.1	0.070	1.02	142.2	0.072	1.02	11.9	0.035			
1.07	98.9	0.077	1.07	154.3	0.077	1.07	12.5	0.036			
1.12	104.8	0.081	1.12	165.3	0.084	1.12	12.2	0.039			
1.17	110.3	0.085	1.17	176.1	0.094	1.17	17.4	0.040			
1.22	115.5	0.087	1.22	187.6	0.097	1.22	24.0	0.041			
1.27	121.0	0.090	1.27	198.5	0.103	1.27	30.6	0.043			
1.32	126.4	0.092	1.32	208.6	0.104	1.32	40.5	0.047			
1.37	130.4	0.095	1.37	218.8	0.106	1.37	51.1	0.050			
1.42	135.1	0.097	1.42	228.5	0.111	1.42	62.1	0.052			
1.47	139.7	0.099	1.47	237.6	0.117	1.47	72.9	0.055			
1.52	144.6	0.101	1.52	245.8	0.119	1.52	84.4	0.057			
1.58	148.5	0.101	1.58	251.1	0.118	1.58	96.5	0.062			
1.63	152.4	0.101	1.63	252.0	0.123	1.63	110.5	0.064			
1.68	155.9	0.101	1.68	264.7	0.124	1.68	125.3	0.066			
1.73	159.7	0.100	1.73	273.1	0.125	1.73	141.6	0.070			

1.78	163.7	0.099	1.78	281.2	0.126	1.78	145.2	0.073			
1.83	167.1	0.099	1.83	289.5	0.130	1.83	143.5	0.073			
1.88	170.4	0.098	1.88	297.5	0.133	1.88	143.4	0.074			
1.93	173.9	0.098	1.93	305.7	0.134	1.93	144.9	0.074			
1.98	177.6	0.098	1.98	313.6	0.134	1.98	154.2	0.076			
2.03	180.6	0.097	2.03	321.9	0.132	2.03	177.2	0.078			
2.08	183.2	0.095	2.08	328.7	0.132	2.08	194.1	0.083			
2.13	186.1	0.093	2.13	335.5	0.133	2.13	210.7	0.086			
2.19	189.5	0.091	2.19	342.6	0.134	2.19	227.5	0.090			
2.24	192.9	0.085	2.24	349.9	0.132	2.24	243.9	0.093			
2.29	196.3	0.081	2.29	356.8	0.132	2.29	260.3	0.095			
2.34	199.3	0.077	2.34	362.7	0.133	2.34	276.2	0.099			
2.39	202.4	0.075	2.39	369.7	0.135	2.39	291.7	0.104			
2.44	204.9	0.071	2.44	375.6	0.133	2.44	306.8	0.107			
2.49	206.7	0.066	2.49	382.1	0.135	2.49	321.0	0.110			
2.54	209.7	0.064	2.54	388.4	0.131	2.54	334.8	0.111			
2.59	213.0	0.055	2.59	394.9	0.127	2.59	348.2	0.113			
2.64	215.9	0.050	2.64	399.9	0.127	2.64	361.7	0.113			
2.69	217.4	0.045	2.69	405.5	0.123	2.69	374.2	0.113			
2.74	219.8	0.042	2.74	411.1	0.120	2.74	386.7	0.114			
2.79	221.8	0.040	2.79	417.1	0.116	2.80	398.9	0.114			
2.85	223.9	0.037	2.85	422.8	0.113	2.85	410.6	0.115			
2.90	226.5	0.034	2.90	427.7	0.110	2.90	422.6	0.115			
2.95	228.1	0.034	2.95	433.3	0.110	2.95	433.8	0.116			
3.00	231.2	0.030	3.00	438.1	0.102	3.00	444.8	0.118			
3.05	233.4	0.027	3.05	443.3	0.103	3.05	455.8	0.117			
3.10	235.5	0.025	3.10	448.5	0.096	3.10	466.6	0.114			
3.15	236.9	0.023	3.15	452.5	0.092	3.15	477.6	0.113			
3.20	238.6	0.021	3.20	457.8	0.084	3.20	487.8	0.109			
3.25	240.8	0.021	3.25	461.3	0.080	3.25	498.1	0.108			
3.30	242.9	0.020	3.30	466.5	0.070	3.30	508.1	0.109			
3.35	245.0	0.021	3.35	471.2	0.068	3.35	518.2	0.106			
3.40	246.3	0.020	3.40	475.8	0.064	3.40	528.1	0.103			
3.46	248.1	0.019	3.46	479.4	0.063	3.46	537.7	0.104			
3.51	249.7	0.017	3.51	483.5	0.063	3.51	547.2	0.100			
3.56	251.2	0.014	3.56	488.1	0.059	3.56	556.2	0.097			
3.61	252.7	0.009	3.61	492.0	0.059	3.61	565.1	0.093			
3.66	253.0	0.003	3.66	495.9	0.055	3.66	574.2	0.090			
3.71	255.2	-0.002	3.71	499.8	0.055	3.71	582.9	0.086			
3.76	256.5	-0.008	3.76	503.8	0.045	3.76	591.4	0.081			
3.81	256.8	-0.014	3.81	507.4	0.044	3.81	599.7	0.078			
3.86	258.6	-0.018	3.86	511.4	0.044	3.86	607.9	0.076			
3.91	259.2	-0.022	3.91	515.4	0.041	3.91	616.1	0.073			
3.96	260.2	-0.025	3.96	517.8	0.037	3.96	623.9	0.070			
4.01	261.6	-0.029	4.01	522.1	0.027	4.01	632.0	0.068			
4.07	263.2	-0.038	4.07	524.5	0.015	4.07	639.5	0.063			
4.12	264.9	-0.050	4.12	527.7	0.002	4.11	645.6	0.061			
4.17	266.1	-0.055	4.17	530.9	-0.003	4.11	645.4	0.061			
4.22	266.6	-0.063	4.22	533.4	-0.009	4.16	653.1	0.056			
4.27	268.4	-0.072	4.27	537.2	-0.013	4.21	660.2	0.055			
4.32	269.6	-0.081	4.32	539.6	-0.018	4.26	666.9	0.052			
4.37	270.9	-0.085	4.37	542.7	-0.029	4.31	674.0	0.048			
4.42	271.5	-0.085	4.38	543.3	-0.030	4.36	680.7	0.045			

4.47	273.4	-0.086	4.38	543.0	-0.033	4.41	686.7	0.041			
4.52	274.3	-0.087	4.44	545.9	-0.036	4.46	692.9	0.036			
4.57	275.7	-0.090	4.49	548.0	-0.041	4.52	699.1	0.028			
4.62	276.6	-0.091	4.54	551.1	-0.047	4.57	705.2	0.020			
4.68	276.9	-0.093	4.59	553.3	-0.048	4.62	710.6	0.009			
4.73	278.5	-0.096	4.64	555.5	-0.052	4.67	716.7	0.003			
4.78	279.5	-0.098	4.69	557.1	-0.054	4.72	721.8	-0.005			
4.83	280.9	-0.101	4.74	559.1	-0.059	4.77	727.3	-0.012			
4.88	281.8	-0.107	4.79	560.8	-0.067	4.82	733.2	-0.016			
4.93	282.5	-0.110	4.84	563.2	-0.078	4.87	739.2	-0.022			
4.98	283.1	-0.119	4.89	564.7	-0.089	4.92	745.9	-0.027			
5.03	284.5	-0.126	4.94	565.5	-0.092	4.97	751.3	-0.029			
5.08	285.7	-0.134	4.99	567.0	-0.102	5.02	757.2	-0.032			
5.13	286.6	-0.141	5.05	568.6	-0.102	5.07	762.5	-0.036			
5.18	287.8	-0.149	5.10	569.9	-0.104	5.12	767.4	-0.040			
5.23	288.7	-0.159	5.15	571.1	-0.107	5.18	772.6	-0.044			
5.28	289.6	-0.165	5.20	571.8	-0.110	5.23	777.0	-0.053			
5.34	289.5	-0.169	5.25	573.5	-0.114	5.28	781.4	-0.058			
5.39	290.5	-0.176	5.30	574.5	-0.115	5.33	785.4	-0.061			
5.44	291.0	-0.182	5.35	575.6	-0.122	5.38	790.1	-0.063			
5.49	291.7	-0.193	5.40	575.8	-0.129	5.43	794.2	-0.067			
5.54	292.4	-0.196	5.45	575.7	-0.140	5.48	798.7	-0.072			
5.59	293.5	-0.199	5.50	577.1	-0.149	5.53	802.9	-0.077			
5.64	293.8	-0.207	5.55	577.3	-0.161	5.58	806.8	-0.084			
5.69	293.0	-0.216	5.60	577.6	-0.166	5.63	810.3	-0.086			
5.74	292.8	-0.221	5.66	577.3	-0.169	5.68	813.6	-0.093			
5.79	293.4	-0.226	5.71	576.9	-0.176	5.73	816.0	-0.094			
5.84	294.2	-0.232	5.76	578.1	-0.186	5.79	818.4	-0.098			
5.89	294.5	-0.236	5.81	577.7	-0.191	5.84	821.0	-0.101			
5.95	293.7	-0.240	5.86	577.5	-0.205	5.89	823.2	-0.106			
6.00	294.2	-0.244	5.91	576.2	-0.218	5.94	824.9	-0.109			
6.05	294.7	-0.249	5.96	575.3	-0.222	5.99	825.6	-0.120			
6.10	295.2	-0.256	6.01	574.2	-0.229	6.04	826.3	-0.129			
6.15	294.6	-0.261	6.06	574.3	-0.232	6.09	826.2	-0.132			
6.20	294.0	-0.272	6.11	573.3	-0.239	6.14	825.5	-0.138			
6.25	293.7	-0.279	6.16	572.8	-0.243	6.19	825.2	-0.142			
6.28	293.7	-0.283	6.21	572.1	-0.247	6.24	824.2	-0.147			
6.28	277.3	-0.282	6.26	570.2	-0.255	6.29	823.7	-0.155			
6.33	299.3	-0.283	6.32	569.7	-0.260	6.34	821.8	-0.160			
6.39	296.1	-0.288	6.37	568.5	-0.262	6.40	819.8	-0.164			
6.44	295.8	-0.297	6.42	566.9	-0.263	6.45	818.7	-0.163			
6.49	294.9	-0.301	6.47	565.5	-0.270	6.50	817.0	-0.165			
6.54	294.2	-0.305	6.52	564.4	-0.271	6.55	815.4	-0.173			
6.59	294.1	-0.309	6.57	562.8	-0.274	6.60	813.7	-0.174			
6.64	293.7	-0.312	6.62	562.4	-0.282	6.65	811.8	-0.177			
6.69	293.3	-0.315	6.67	561.0	-0.287	6.70	810.1	-0.180			
6.74	293.0	-0.321	6.72	560.3	-0.293	6.75	806.4	-0.181			
6.79	292.7	-0.326	6.77	559.1	-0.298	6.80	803.8	-0.180			
6.84	292.2	-0.333	6.82	557.9	-0.301	6.85	800.2	-0.182			
6.89	291.4	-0.346	6.87	557.9	-0.314	6.90	797.6	-0.179			
6.94	290.7	-0.359	6.93	556.6	-0.323	6.95	796.2	-0.183			
7.00	290.4	-0.360	6.98	554.9	-0.333	7.01	794.2	-0.184			
7.05	290.1	-0.363	7.03	553.8	-0.334	7.06	792.3	-0.182			

7.10	290.1	-0.369	7.08	552.9	-0.335	7.11	790.9	-0.183			
7.15	290.9	-0.377	7.13	552.9	-0.342	7.16	789.4	-0.180			
7.20	290.6	-0.381	7.18	552.6	-0.349	7.21	788.2	-0.182			
7.25	291.7	-0.386	7.23	552.1	-0.358	7.26	785.9	-0.184			
7.30	292.2	-0.389	7.28	550.5	-0.363	7.30	785.1	-0.184			
7.35	291.5	-0.394	7.33	551.0	-0.368						
7.40	291.9	-0.397	7.38	550.0	-0.372						
7.45	291.4	-0.400	7.43	548.9	-0.375						
7.50	291.5	-0.405	7.48	549.1	-0.377						
7.55	291.5	-0.407	7.54	548.4	-0.382						
			7.55	548.6	-0.382						

TM	April 2, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-08
Project:	VA101-457/4	**Sample :**	Sample #1 Fault
Location:	Blackwater	**Depth (m):**	318.24-318.44
Project No.:	11-1415-0001	**Lab Sch No:**	22

Test Condition:	Unsaturated - tested at natural moisture content
Sample Description:	Fault Material - Broken rock and clay
Soil Charateristics:	Material passing #10 seive was compacted to a dense state at natural moisture content
Type of test	Peak and Residual
Remarks:	Area correction not applied to normal and shear stress calculation

Initial Sample Dimensions

Test No.	1	2	3			
Shear box geometry	Circle	Circle	Circle			
Diameter (mm)	63.52	63.63	63.52			
Height (mm)	26.36	26.06	26.36			
Area (cm^2)	31.69	31.80	31.69			
Volume (cm^3)	83.53	82.87	83.53			

Weight Volume Relationships

Sample Type	Compacted Sample					
Dry Mass (g)	144.2	139.3	140.3			
Initial γ_{wet} (kN/m^3)	17.98	17.51	17.49			
Final γ_{wet} (kN/m^3)	17.95	17.73	17.65			
Initial γ_{dry} (kN/m^3)	16.94	16.49	16.48			
Final γ_{dry} (kN/m^3)	17.07	16.80	16.72			
Initial water content (%)	6.2	6.2	6.2			
Final water content (%)	5.2	5.5	5.5			

Consolidation Results

Normal Stress (kPa)	300	600	900			
t_{90} (Taylor Method) (min)	N/A	N/A	N/A			
Calculated t_{50} (min)	N/A	N/A	N/A			
Change in height ΔH_c (mm)	0.20	0.48	0.38			

Equipment Description:	Dtest-1	Dtest-2	Dtest-3
Normal Load Cell Serial No:	697437	221643	697437
Shear Load Cell Serial No:	410702	266562	410702
Vertical LPT Serial No:	LP-985	LP-621	LP-985

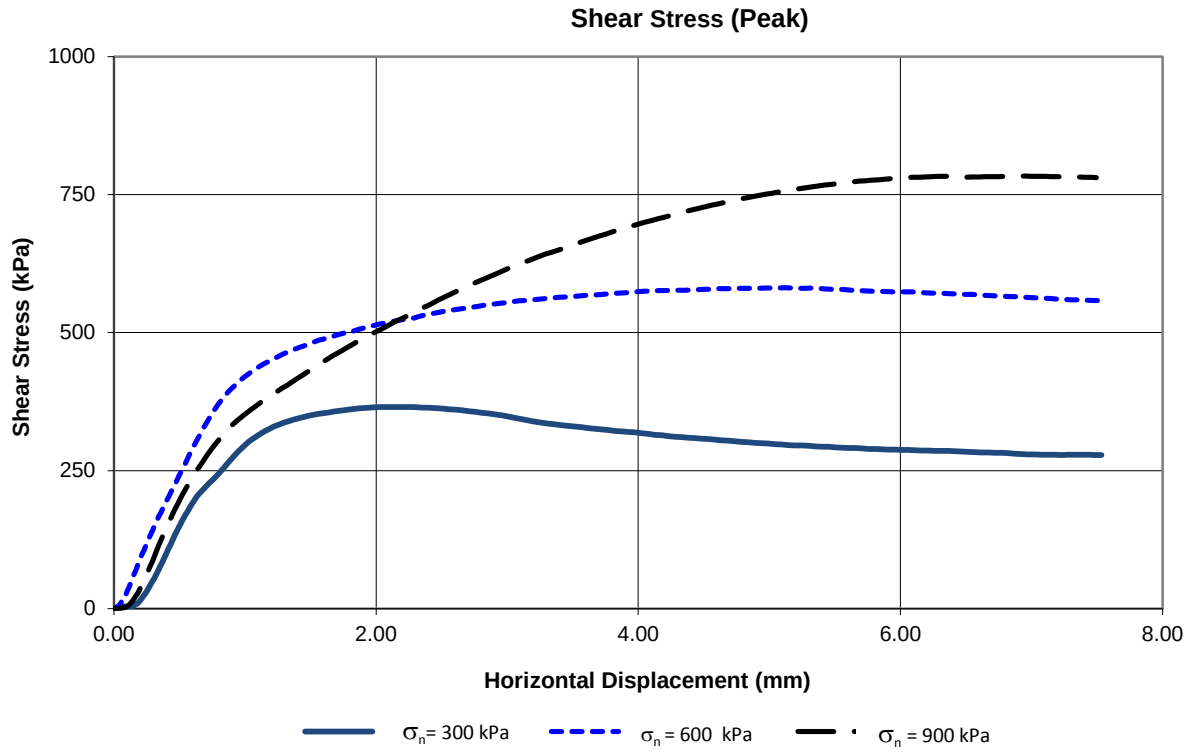
TM	March 20, 2013	ROB	April 16, 2013
TESTED BY	DATE	CHECKED BY	DATE

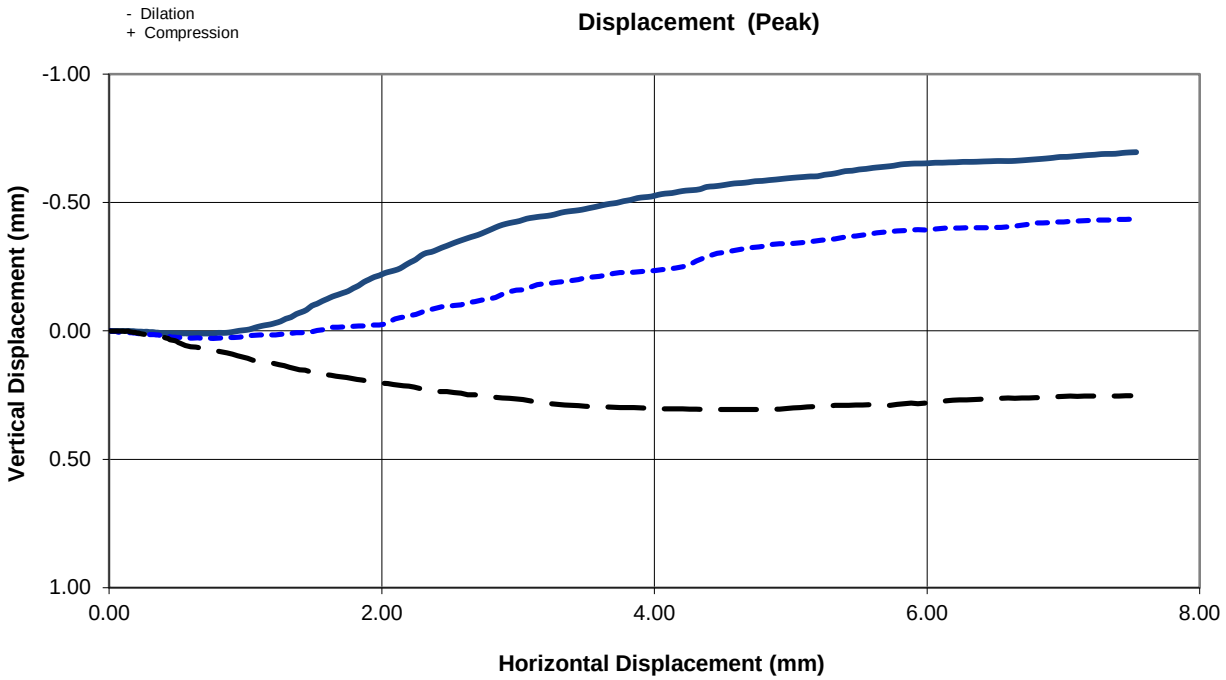
Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-08
Project:	VA101-457/4	**Sample :**	Sample #1 Fault
Location:	Blackwater	**Depth (m):**	318.24-318.44
Project No.:	11-1415-0001	**Lab Sch No:**	22





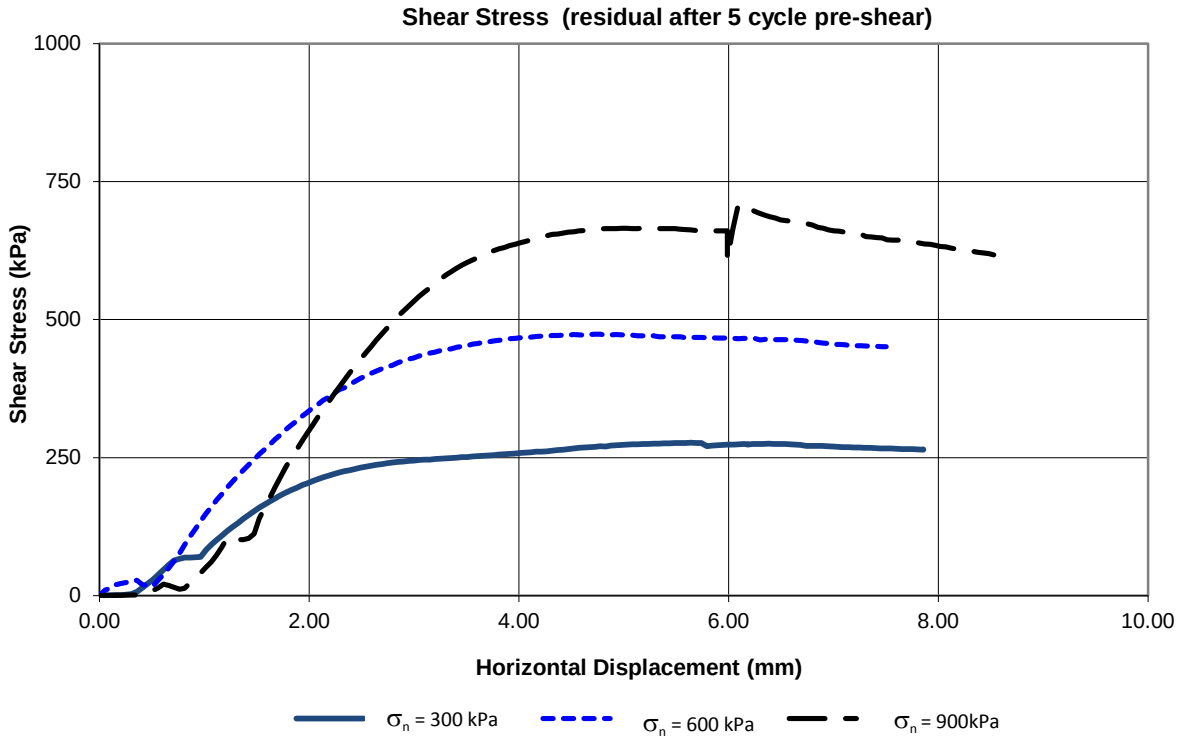
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TESTED BY	DATE	CHECKED BY	DATE

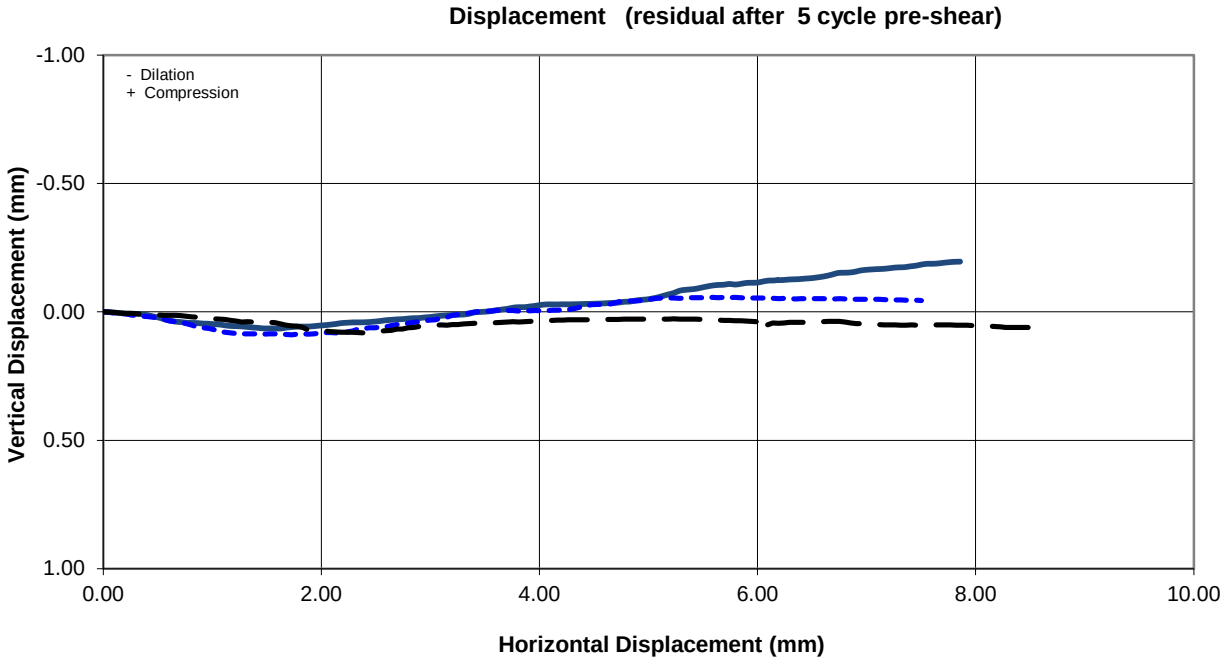
Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference: ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-08
Project:	VA101-457/4	**Sample :**	Sample #1 Fault
Location:	Blackwater	**Depth (m):**	318.24-318.44
Project No.:	11-1415-0001	**Lab Sch No:**	22





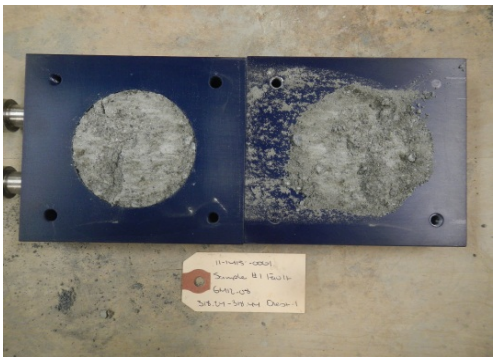
TM/LL	March 20, 2013	ROB	April 16, 2013
TESTED BY	DATE	CHECKED BY	DATE

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Burnaby, B.C. Canada V5C 6C6

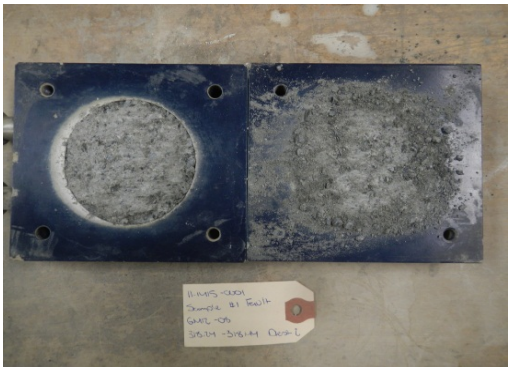
Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

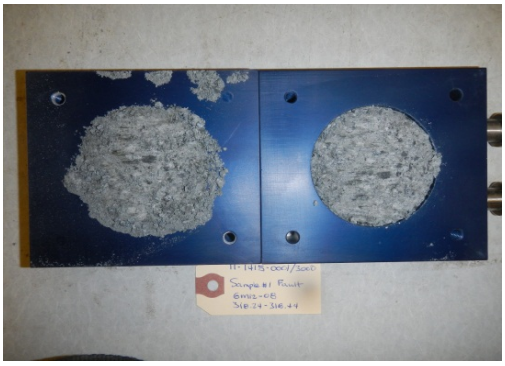
Client:	Knight Piesold Ltd	**Borehole:**	GM12-08
Project:	VA101-457/4	**Sample :**	Sample #1 Fault
Location:	Blackwater	**Depth (m):**	318.24-318.44
Project No.:	11-1415-0001	**Lab Sch No:**	22



Test 1 (After Shear)



Test 2 (After Shear)



Test 3 (After Shear)

Remarks:

Residual strength was measured after 5 pre-shear cycles

TM/LL	March 20, 2013	ROB	April 16, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-08
Project:	VA101-457/4	**Sample :**	Sample #1 Fault
Location:	Blackwater	**Depth (m):**	318.24-318.44
Project No.:	11-1415-0001	**Lab Sch No:**	22

Peak 1	
Normal Stress , kPa	300
Disp Rate, mm/min	0.015

Peak 2	
Normal Stress , kPa	600
Disp Rate, mm/min	0.015

Peak 3	
Normal Stress , kPa	900
Disp Rate, mm/min	0.015

Normal Stress , kPa	
Disp Rate, mm/min	

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.0	0.000	0.00	0.0	0.000	0.00	0.0	0.000			
0.01	1.2	0.000	0.01	0.5	0.000	0.01	0.0	0.000			
0.02	1.2	0.000	0.03	3.4	0.001	0.03	0.2	0.001			
0.04	1.4	0.000	0.04	5.6	0.001	0.04	0.5	0.000			
0.05	1.7	0.000	0.05	9.3	0.001	0.05	0.8	0.000			
0.06	3.5	0.000	0.06	16.1	0.005	0.06	1.2	0.001			
0.08	4.0	0.000	0.08	16.8	0.005	0.08	1.6	0.001			
0.09	4.1	0.000	0.09	23.9	0.006	0.09	2.4	0.001			
0.10	4.1	0.000	0.10	31.3	0.005	0.10	4.0	0.001			
0.11	4.1	0.000	0.11	38.7	0.005	0.11	6.4	0.001			
0.13	4.1	0.000	0.13	46.4	0.006	0.13	9.6	0.001			
0.14	4.1	0.000	0.14	54.0	0.005	0.14	13.3	0.001			
0.15	5.2	0.000	0.15	61.5	0.007	0.15	17.6	0.004			
0.16	7.2	0.001	0.17	69.1	0.007	0.17	22.1	0.004			
0.18	9.4	0.001	0.18	76.8	0.008	0.18	26.6	0.005			
0.19	12.1	0.002	0.19	84.4	0.008	0.19	32.0	0.005			
0.20	15.4	0.002	0.20	91.8	0.010	0.20	37.9	0.008			
0.22	19.4	0.003	0.22	99.0	0.010	0.22	44.1	0.008			
0.23	23.9	0.003	0.23	106.2	0.011	0.23	50.6	0.011			
0.24	28.4	0.003	0.24	113.2	0.013	0.24	57.4	0.012			
0.25	33.1	0.004	0.25	119.9	0.013	0.25	64.1	0.013			
0.27	38.1	0.003	0.27	127.1	0.014	0.27	71.1	0.013			
0.28	43.1	0.003	0.28	133.8	0.014	0.28	78.1	0.013			
0.29	48.4	0.004	0.29	140.5	0.014	0.29	85.1	0.013			
0.30	53.8	0.004	0.31	147.5	0.014	0.31	92.4	0.014			
0.32	59.5	0.004	0.32	154.3	0.015	0.32	100.1	0.015			
0.33	65.3	0.005	0.33	160.7	0.014	0.33	107.9	0.017			
0.34	71.3	0.006	0.34	167.3	0.015	0.34	115.3	0.020			
0.36	77.6	0.006	0.36	173.5	0.015	0.36	122.6	0.021			
0.37	84.0	0.007	0.37	179.5	0.017	0.37	129.7	0.022			
0.38	90.2	0.008	0.38	186.0	0.016	0.38	136.8	0.023			
0.39	96.6	0.008	0.39	192.2	0.017	0.39	143.8	0.024			
0.41	103.1	0.009	0.41	198.4	0.019	0.41	150.5	0.026			
0.42	109.5	0.009	0.42	204.0	0.020	0.42	157.1	0.028			
0.43	116.0	0.009	0.43	209.7	0.021	0.43	163.5	0.030			

0.44	122.6	0.010	0.45	215.9	0.022	0.45	169.7	0.034			
0.46	129.1	0.009	0.46	221.7	0.024	0.46	175.8	0.036			
0.47	135.4	0.009	0.47	227.7	0.024	0.47	182.0	0.036			
0.48	141.6	0.010	0.48	234.1	0.025	0.48	188.2	0.038			
0.50	147.6	0.009	0.50	240.4	0.025	0.50	194.3	0.040			
0.51	153.4	0.010	0.51	246.3	0.025	0.51	200.0	0.045			
0.52	159.1	0.009	0.52	252.1	0.026	0.52	205.8	0.048			
0.53	164.5	0.009	0.53	258.2	0.027	0.56	222.1	0.057			
0.55	169.9	0.010	0.55	264.3	0.026	0.60	237.7	0.062			
0.56	175.2	0.009	0.56	270.6	0.027	0.64	251.4	0.063			
0.57	180.4	0.010	0.57	277.2	0.028	0.67	265.0	0.067			
0.58	185.5	0.010	0.61	295.4	0.027	0.71	278.2	0.070			
0.60	190.3	0.011	0.65	312.3	0.027	0.75	290.7	0.075			
0.61	195.0	0.011	0.69	328.6	0.029	0.79	302.2	0.078			
0.62	199.6	0.011	0.73	344.0	0.028	0.83	313.2	0.081			
0.64	203.8	0.011	0.76	358.6	0.029	0.86	323.5	0.085			
0.65	207.6	0.010	0.80	371.8	0.028	0.90	332.6	0.091			
0.69	217.2	0.010	0.84	383.6	0.027	0.94	340.6	0.096			
0.72	226.5	0.010	0.88	393.8	0.026	0.98	348.2	0.102			
0.76	235.4	0.010	0.92	402.9	0.026	1.02	355.3	0.106			
0.80	245.0	0.007	0.95	411.3	0.025	1.06	362.1	0.114			
0.84	255.2	0.008	0.99	418.9	0.022	1.09	368.9	0.116			
0.88	265.8	0.006	1.03	426.1	0.019	1.13	375.4	0.119			
0.91	276.0	0.003	1.07	432.5	0.017	1.17	381.6	0.122			
0.95	285.8	-0.001	1.11	438.0	0.015	1.21	387.9	0.127			
0.99	294.5	-0.003	1.14	443.3	0.016	1.25	393.4	0.131			
1.03	302.3	-0.006	1.18	448.2	0.016	1.28	399.1	0.136			
1.07	309.1	-0.012	1.22	452.7	0.015	1.32	404.6	0.142			
1.11	314.9	-0.018	1.26	457.2	0.013	1.36	410.7	0.147			
1.14	320.4	-0.022	1.30	461.7	0.012	1.40	416.8	0.152			
1.18	325.2	-0.025	1.33	465.7	0.009	1.44	422.7	0.153			
1.22	329.7	-0.031	1.37	469.2	0.007	1.47	428.6	0.159			
1.26	333.4	-0.037	1.41	472.8	0.007	1.51	434.1	0.164			
1.30	336.8	-0.047	1.45	476.0	0.005	1.55	439.9	0.166			
1.33	339.8	-0.054	1.49	479.4	0.003	1.59	446.1	0.171			
1.37	342.5	-0.066	1.53	482.9	-0.002	1.63	451.6	0.173			
1.41	344.8	-0.073	1.56	486.0	-0.005	1.66	457.1	0.176			
1.45	347.2	-0.082	1.60	488.8	-0.012	1.70	462.6	0.179			
1.49	349.3	-0.098	1.64	491.5	-0.014	1.74	468.0	0.182			
1.52	351.1	-0.106	1.68	494.0	-0.014	1.78	473.2	0.185			
1.56	352.8	-0.116	1.72	496.6	-0.016	1.82	478.3	0.189			
1.60	354.3	-0.125	1.75	499.0	-0.016	1.86	483.3	0.192			
1.64	355.4	-0.134	1.79	498.4	-0.018	1.89	488.2	0.195			
1.68	356.8	-0.141	1.83	503.1	-0.019	1.93	492.8	0.198			
1.72	358.3	-0.148	1.87	505.9	-0.019	1.97	497.7	0.202			
1.75	359.4	-0.155	1.91	508.4	-0.021	2.01	502.5	0.204			
1.79	360.6	-0.167	1.94	510.7	-0.023	2.05	507.3	0.205			
1.83	361.7	-0.176	1.98	512.8	-0.023	2.08	511.8	0.209			
1.87	362.6	-0.190	2.02	515.0	-0.027	2.12	516.8	0.211			
1.91	363.4	-0.200	2.06	517.1	-0.036	2.16	521.4	0.213			
1.94	363.9	-0.210	2.10	518.7	-0.047	2.20	525.7	0.216			
1.98	364.8	-0.216	2.14	520.7	-0.051	2.24	530.5	0.219			
2.02	365.0	-0.225	2.17	522.0	-0.056	2.27	534.9	0.224			

2.06	365.2	-0.231	2.21	523.8	-0.061	2.31	539.2	0.227			
2.10	365.4	-0.236	2.25	526.1	-0.064	2.35	544.1	0.231			
2.13	365.2	-0.244	2.29	526.2	-0.072	2.39	548.6	0.233			
2.17	365.2	-0.256	2.33	529.2	-0.080	2.43	553.1	0.236			
2.21	365.0	-0.268	2.36	531.4	-0.085	2.48	559.3	0.237			
2.25	365.0	-0.278	2.40	533.1	-0.089	2.53	565.2	0.240			
2.29	364.9	-0.293	2.44	534.9	-0.094	2.58	571.0	0.243			
2.33	364.7	-0.304	2.48	536.8	-0.096	2.63	576.9	0.248			
2.36	364.2	-0.308	2.53	539.1	-0.099	2.68	582.4	0.249			
2.40	363.9	-0.315	2.58	540.9	-0.102	2.73	587.8	0.252			
2.44	363.2	-0.324	2.63	542.7	-0.110	2.78	592.9	0.255			
2.48	362.8	-0.332	2.68	544.4	-0.114	2.83	597.9	0.259			
2.52	361.9	-0.340	2.73	545.7	-0.121	2.88	603.5	0.261			
2.55	361.3	-0.348	2.78	547.9	-0.124	2.94	608.7	0.263			
2.60	360.2	-0.357	2.83	550.2	-0.131	2.99	613.9	0.265			
2.66	359.2	-0.366	2.88	551.4	-0.143	3.04	618.8	0.267			
2.71	357.8	-0.374	2.94	552.9	-0.152	3.09	623.7	0.273			
2.76	356.4	-0.385	2.99	554.1	-0.158	3.14	628.4	0.278			
2.81	354.7	-0.397	3.04	555.9	-0.161	3.19	633.0	0.280			
2.86	353.5	-0.409	3.09	557.8	-0.170	3.24	637.8	0.283			
2.91	351.7	-0.417	3.14	558.4	-0.180	3.29	642.3	0.286			
2.96	350.2	-0.423	3.19	559.5	-0.183	3.34	645.7	0.288			
3.01	347.9	-0.428	3.24	560.7	-0.186	3.39	650.0	0.290			
3.06	345.7	-0.437	3.29	561.8	-0.191	3.44	654.1	0.291			
3.11	343.3	-0.442	3.34	562.6	-0.193	3.49	658.2	0.293			
3.16	340.9	-0.446	3.39	563.7	-0.196	3.55	662.4	0.294			
3.21	338.7	-0.448	3.44	564.5	-0.200	3.60	666.4	0.296			
3.27	336.8	-0.453	3.49	565.4	-0.207	3.65	670.6	0.297			
3.32	335.1	-0.461	3.55	566.3	-0.210	3.70	674.4	0.297			
3.37	333.7	-0.466	3.60	567.5	-0.213	3.75	678.4	0.298			
3.42	332.3	-0.469	3.65	568.1	-0.218	3.80	682.0	0.298			
3.47	330.9	-0.472	3.70	568.8	-0.224	3.85	686.0	0.299			
3.52	329.7	-0.478	3.75	569.8	-0.227	3.90	689.9	0.300			
3.57	328.3	-0.484	3.80	570.7	-0.228	3.95	693.3	0.301			
3.62	327.1	-0.490	3.85	571.7	-0.229	4.00	696.6	0.302			
3.67	325.8	-0.495	3.90	571.9	-0.231	4.05	700.0	0.303			
3.72	324.4	-0.499	3.95	573.4	-0.234	4.10	703.1	0.304			
3.77	323.2	-0.506	4.00	574.1	-0.235	4.16	706.6	0.304			
3.82	321.8	-0.510	4.05	574.7	-0.239	4.21	709.6	0.304			
3.88	320.9	-0.518	4.10	575.6	-0.241	4.26	712.8	0.305			
3.93	320.0	-0.521	4.16	575.8	-0.245	4.31	716.1	0.305			
3.98	319.1	-0.524	4.21	576.0	-0.250	4.36	719.1	0.306			
4.03	317.7	-0.530	4.26	576.5	-0.257	4.41	722.3	0.306			
4.08	316.2	-0.535	4.31	576.7	-0.272	4.46	725.0	0.307			
4.13	314.9	-0.537	4.36	576.9	-0.284	4.51	727.9	0.306			
4.18	313.9	-0.543	4.41	577.3	-0.294	4.56	730.7	0.306			
4.23	312.6	-0.547	4.46	577.9	-0.303	4.61	733.3	0.306			
4.28	311.4	-0.549	4.51	578.3	-0.306	4.66	736.2	0.306			
4.33	310.4	-0.552	4.56	578.7	-0.311	4.71	738.6	0.306			
4.38	309.6	-0.561	4.61	579.7	-0.316	4.76	741.2	0.306			
4.43	308.9	-0.563	4.66	579.4	-0.321	4.82	743.8	0.306			
4.48	307.8	-0.566	4.71	579.8	-0.324	4.87	746.1	0.305			
4.54	307.0	-0.571	4.76	580.1	-0.327	4.92	748.5	0.304			

4.59	306.0	-0.575	4.82	580.3	-0.332	4.97	750.4	0.303			
4.64	304.8	-0.576	4.87	580.3	-0.337	5.02	752.6	0.300			
4.69	304.2	-0.579	4.92	580.3	-0.340	5.07	754.8	0.298			
4.74	303.2	-0.583	4.97	580.6	-0.340	5.12	756.6	0.296			
4.79	302.0	-0.584	5.02	580.9	-0.341	5.17	758.6	0.295			
4.84	301.1	-0.588	5.07	581.0	-0.344	5.22	760.4	0.294			
4.89	300.3	-0.590	5.12	581.2	-0.346	5.27	762.4	0.293			
4.94	299.5	-0.593	5.17	580.7	-0.349	5.32	763.9	0.290			
4.99	298.9	-0.596	5.22	580.4	-0.353	5.37	765.7	0.291			
5.04	297.9	-0.598	5.27	580.4	-0.355	5.43	767.5	0.289			
5.09	297.0	-0.600	5.32	580.5	-0.358	5.48	768.9	0.289			
5.15	296.0	-0.602	5.37	580.2	-0.364	5.53	770.2	0.288			
5.20	295.5	-0.603	5.43	579.2	-0.368	5.58	771.6	0.287			
5.25	295.3	-0.608	5.48	578.5	-0.370	5.63	772.7	0.289			
5.30	294.8	-0.611	5.53	578.3	-0.373	5.68	774.2	0.291			
5.35	293.8	-0.616	5.58	578.1	-0.377	5.73	775.1	0.290			
5.40	293.2	-0.623	5.63	577.0	-0.382	5.78	775.9	0.286			
5.45	293.0	-0.624	5.68	576.2	-0.385	5.83	776.8	0.284			
5.50	292.3	-0.629	5.73	575.8	-0.387	5.88	777.8	0.282			
5.55	291.7	-0.631	5.78	575.0	-0.390	5.93	779.0	0.283			
5.60	291.1	-0.635	5.83	575.1	-0.390	5.98	779.7	0.281			
5.65	290.7	-0.638	5.88	574.7	-0.394	6.04	780.4	0.278			
5.70	290.3	-0.641	5.93	574.1	-0.395	6.09	781.1	0.279			
5.76	289.2	-0.644	5.98	573.6	-0.394	6.14	781.4	0.272			
5.81	289.0	-0.649	6.04	573.6	-0.396	6.19	782.0	0.270			
5.86	288.6	-0.651	6.09	573.5	-0.398	6.24	782.4	0.269			
5.91	288.1	-0.652	6.14	573.0	-0.400	6.29	782.9	0.268			
5.96	287.8	-0.652	6.19	572.3	-0.401	6.34	783.1	0.267			
6.01	287.3	-0.653	6.24	571.7	-0.401	6.39	783.4	0.266			
6.06	287.2	-0.655	6.29	571.2	-0.402	6.44	783.6	0.264			
6.11	286.7	-0.655	6.34	571.2	-0.402	6.49	781.3	0.263			
6.16	286.4	-0.657	6.39	570.5	-0.402	6.54	782.0	0.262			
6.21	286.3	-0.657	6.44	569.7	-0.402	6.59	782.2	0.262			
6.26	285.9	-0.659	6.49	569.0	-0.403	6.65	782.3	0.262			
6.31	285.9	-0.659	6.54	568.9	-0.404	6.70	782.5	0.261			
6.37	285.5	-0.659	6.59	568.5	-0.406	6.75	782.7	0.261			
6.42	285.2	-0.660	6.64	567.4	-0.408	6.80	783.2	0.260			
6.47	284.6	-0.661	6.70	566.8	-0.412	6.85	783.3	0.260			
6.52	284.2	-0.662	6.75	566.1	-0.416	6.90	783.3	0.258			
6.57	283.5	-0.662	6.80	565.5	-0.420	6.95	783.4	0.257			
6.62	282.9	-0.662	6.85	565.3	-0.421	7.00	783.2	0.254			
6.67	282.7	-0.664	6.90	565.1	-0.422	7.05	783.3	0.254			
6.72	282.5	-0.665	6.95	564.2	-0.424	7.10	782.9	0.254			
6.77	281.9	-0.668	7.00	563.4	-0.425	7.15	782.6	0.254			
6.82	281.4	-0.670	7.05	562.8	-0.427	7.20	782.5	0.254			
6.87	280.5	-0.672	7.10	562.4	-0.428	7.25	782.1	0.254			
6.92	279.9	-0.675	7.15	561.7	-0.429	7.31	782.2	0.254			
6.97	279.5	-0.678	7.20	560.5	-0.431	7.36	781.8	0.254			
7.03	279.2	-0.678	7.25	559.9	-0.432	7.41	781.3	0.253			
7.08	278.8	-0.680	7.31	559.6	-0.432	7.46	781.1	0.253			
7.13	278.7	-0.683	7.36	559.4	-0.432	7.49	780.7	0.253			
7.18	278.6	-0.685	7.41	558.8	-0.434						
7.23	278.4	-0.686	7.46	558.2	-0.434						

7.28	278.5	-0.689	7.51	557.9	-0.435						
7.33	278.6	-0.690	7.55	557.8	-0.436						
7.38	278.6	-0.690									
7.43	278.5	-0.7									
7.48	278.1	-0.7									
7.53	277.9	-0.697									
7.58	277.7	-0.703									
7.62	277.38	-0.7034									

TM	March 20, 2013	ROB	April 16, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-08
Project:	VA101-457/4	**Sample :**	Sample #1 Fault
Location:	Blackwater	**Depth (m):**	318.24-318.44
Project No.:	11-1415-0001	**Lab Sch No:**	22

Residual 1	
Normal Stress , kPa	300
Disp Rate, mm/min	0.015

Residual 2	
Normal Stress , kPa	600
Disp Rate, mm/min	0.015

Residual 3	
Normal Stress , kPa	900
Disp Rate, mm/min	0.015

Normal Stress , kPa	
Disp Rate, mm/min	

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.0	0.000	0.00	0.0	0.000	0.00	0.0	0.000			
0.05	0.3	0.001	0.05	9.5	0.001	0.05	0.3	0.001			
0.10	0.4	0.003	0.10	13.1	0.004	0.10	0.5	0.002			
0.15	0.8	0.004	0.15	19.9	0.007	0.15	0.5	0.004			
0.20	1.1	0.007	0.20	21.7	0.007	0.20	0.7	0.005			
0.25	1.6	0.007	0.25	23.8	0.011	0.25	0.9	0.006			
0.30	2.9	0.007	0.30	26.6	0.014	0.30	1.1	0.007			
0.36	6.8	0.009	0.36	27.5	0.017	0.36	1.2	0.008			
0.41	13.6	0.012	0.41	20.3	0.018	0.41	2.2	0.010			
0.46	21.3	0.018	0.46	17.6	0.021	0.46	6.6	0.010			
0.51	29.0	0.022	0.51	17.1	0.024	0.51	9.3	0.012			
0.56	37.8	0.028	0.56	27.4	0.029	0.56	13.8	0.013			
0.61	46.8	0.033	0.61	38.2	0.035	0.61	20.5	0.014			
0.66	55.4	0.038	0.66	49.8	0.037	0.66	18.5	0.014			
0.71	63.4	0.039	0.71	62.7	0.041	0.71	15.1	0.015			
0.76	66.5	0.042	0.76	76.6	0.046	0.76	11.7	0.017			
0.81	68.7	0.043	0.81	92.0	0.051	0.81	13.2	0.019			
0.86	69.1	0.043	0.86	106.9	0.059	0.86	23.2	0.021			
0.91	69.6	0.045	0.91	121.1	0.061	0.91	31.9	0.022			
0.97	70.2	0.046	0.97	135.0	0.064	0.97	41.0	0.024			
1.02	83.1	0.048	1.02	148.7	0.069	1.02	51.3	0.027			
1.07	92.5	0.049	1.07	161.3	0.077	1.07	61.2	0.028			
1.12	101.0	0.052	1.12	173.2	0.080	1.12	73.3	0.030			
1.17	108.8	0.055	1.17	184.5	0.082	1.17	88.7	0.032			
1.22	116.8	0.055	1.22	195.9	0.085	1.22	105.1	0.035			
1.27	124.3	0.056	1.27	207.0	0.086	1.27	101.3	0.039			
1.32	131.7	0.059	1.32	217.3	0.085	1.32	101.1	0.038			
1.37	139.1	0.061	1.37	227.0	0.085	1.37	101.4	0.039			
1.42	145.9	0.062	1.42	236.7	0.085	1.42	103.8	0.040			
1.47	152.8	0.064	1.47	246.3	0.086	1.47	111.7	0.041			
1.52	159.1	0.064	1.52	256.0	0.085	1.52	139.6	0.040			
1.58	165.2	0.064	1.58	265.1	0.085	1.58	159.2	0.042			
1.63	170.9	0.065	1.63	274.0	0.086	1.63	178.2	0.047			
1.68	176.4	0.061	1.68	283.1	0.087	1.68	197.1	0.051			
1.73	181.6	0.059	1.73	291.8	0.089	1.73	215.6	0.054			

1.78	186.4	0.057	1.78	300.6	0.086	1.78	233.2	0.055			
1.83	191.0	0.057	1.83	308.8	0.085	1.83	249.0	0.060			
1.88	195.5	0.057	1.88	316.7	0.086	1.88	264.4	0.070			
1.93	199.7	0.056	1.93	324.5	0.085	1.93	279.4	0.072			
1.98	203.6	0.053	1.98	332.0	0.083	1.98	294.2	0.073			
2.03	207.4	0.052	2.03	339.9	0.081	2.03	309.0	0.074			
2.08	211.1	0.049	2.08	346.0	0.081	2.08	323.2	0.077			
2.13	214.6	0.047	2.13	353.9	0.081	2.13	337.4	0.078			
2.19	217.6	0.043	2.18	359.2	0.080	2.18	351.2	0.079			
2.24	220.4	0.042	2.24	366.3	0.078	2.24	364.6	0.079			
2.29	223.0	0.041	2.29	372.9	0.074	2.29	377.7	0.079			
2.34	225.2	0.041	2.34	376.7	0.067	2.34	390.8	0.081			
2.39	227.4	0.040	2.39	382.7	0.066	2.39	403.8	0.082			
2.44	229.4	0.039	2.44	388.2	0.061	2.44	416.2	0.080			
2.49	231.5	0.038	2.49	393.4	0.062	2.49	428.3	0.077			
2.54	233.3	0.035	2.54	398.0	0.060	2.54	440.0	0.075			
2.59	235.1	0.032	2.59	402.8	0.059	2.59	451.5	0.073			
2.64	237.0	0.031	2.64	407.0	0.054	2.64	463.0	0.072			
2.69	238.4	0.029	2.69	410.9	0.050	2.69	474.0	0.067			
2.74	239.8	0.028	2.74	414.5	0.047	2.74	484.9	0.066			
2.79	240.8	0.026	2.79	417.5	0.044	2.79	495.7	0.062			
2.85	241.9	0.024	2.85	421.9	0.041	2.85	505.8	0.061			
2.90	242.6	0.024	2.90	425.3	0.038	2.90	515.2	0.057			
2.95	243.7	0.021	2.95	428.4	0.034	2.95	524.2	0.057			
3.00	244.5	0.020	3.00	430.4	0.032	3.00	533.2	0.055			
3.05	245.5	0.017	3.05	434.1	0.030	3.05	541.8	0.052			
3.10	246.2	0.015	3.10	436.6	0.023	3.10	549.8	0.051			
3.15	246.5	0.013	3.15	439.4	0.020	3.15	557.6	0.051			
3.20	247.3	0.012	3.20	441.2	0.013	3.20	565.2	0.049			
3.25	247.8	0.011	3.25	444.0	0.010	3.25	573.4	0.049			
3.30	248.4	0.010	3.30	446.4	0.007	3.30	580.6	0.046			
3.35	249.3	0.007	3.35	446.8	0.004	3.35	586.8	0.045			
3.40	249.9	0.002	3.40	449.5	0.001	3.40	593.0	0.045			
3.46	250.7	0.000	3.46	451.4	-0.002	3.46	598.7	0.046			
3.51	251.1	-0.001	3.51	452.5	-0.003	3.51	603.4	0.042			
3.56	251.8	-0.003	3.56	455.3	-0.003	3.56	608.2	0.044			
3.61	252.4	-0.007	3.61	456.8	-0.006	3.61	612.2	0.041			
3.66	253.2	-0.010	3.66	458.8	-0.002	3.66	616.7	0.040			
3.71	253.8	-0.012	3.71	459.7	-0.006	3.71	620.7	0.039			
3.76	254.6	-0.017	3.76	461.3	-0.005	3.76	624.6	0.038			
3.81	255.4	-0.019	3.81	462.5	-0.003	3.81	628.2	0.039			
3.86	256.2	-0.019	3.86	463.7	-0.005	3.86	630.9	0.038			
3.91	256.8	-0.021	3.91	465.2	-0.004	3.91	633.8	0.036			
3.96	257.5	-0.024	3.96	465.8	-0.005	3.96	636.7	0.035			
4.01	258.5	-0.027	4.01	467.0	-0.005	4.01	639.6	0.033			
4.07	258.8	-0.029	4.07	467.3	-0.004	4.06	641.9	0.033			
4.12	259.7	-0.029	4.12	468.2	-0.007	4.12	644.4	0.032			
4.17	260.5	-0.029	4.17	469.2	-0.007	4.17	647.2	0.032			
4.22	261.0	-0.030	4.22	469.9	-0.008	4.22	650.0	0.032			
4.27	261.4	-0.030	4.27	469.8	-0.010	4.27	652.3	0.031			
4.32	262.7	-0.030	4.32	470.9	-0.013	4.32	654.2	0.031			
4.37	263.7	-0.030	4.37	471.4	-0.018	4.37	655.2	0.030			
4.42	264.3	-0.031	4.42	471.8	-0.022	4.42	656.7	0.030			

4.47	265.4	-0.032	4.47	471.8	-0.028	4.47	658.2	0.030			
4.52	266.4	-0.032	4.52	473.0	-0.029	4.52	659.0	0.030			
4.57	267.4	-0.033	4.57	472.5	-0.030	4.57	660.6	0.030			
4.62	268.1	-0.034	4.62	472.1	-0.030	4.62	661.5	0.029			
4.67	269.0	-0.035	4.68	472.9	-0.034	4.67	663.0	0.029			
4.73	269.6	-0.036	4.73	473.5	-0.039	4.73	663.6	0.029			
4.78	270.4	-0.040	4.78	473.3	-0.043	4.78	664.2	0.028			
4.83	270.2	-0.040	4.83	471.8	-0.043	4.83	664.6	0.028			
4.88	271.6	-0.044	4.88	472.2	-0.043	4.88	665.1	0.028			
4.93	272.5	-0.047	4.93	472.8	-0.044	4.93	664.8	0.028			
4.98	272.9	-0.049	4.98	472.3	-0.047	4.98	665.3	0.028			
5.03	273.5	-0.052	5.03	472.5	-0.051	5.03	665.6	0.028			
5.08	273.9	-0.056	5.08	471.6	-0.053	5.08	665.1	0.028			
5.13	274.3	-0.062	5.13	470.4	-0.054	5.13	664.7	0.028			
5.18	274.7	-0.068	5.18	470.7	-0.054	5.18	665.8	0.028			
5.23	274.9	-0.074	5.23	471.0	-0.054	5.23	666.0	0.027			
5.28	275.1	-0.083	5.28	470.5	-0.053	5.28	665.1	0.028			
5.34	275.5	-0.086	5.34	469.0	-0.055	5.34	664.9	0.028			
5.39	275.6	-0.088	5.39	469.0	-0.056	5.39	664.7	0.028			
5.44	276.0	-0.090	5.44	468.8	-0.056	5.44	665.1	0.028			
5.49	276.2	-0.095	5.49	468.9	-0.056	5.49	665.1	0.029			
5.54	276.6	-0.099	5.54	469.1	-0.056	5.54	663.5	0.029			
5.59	276.7	-0.103	5.59	467.1	-0.056	5.59	663.4	0.030			
5.64	276.7	-0.105	5.64	467.9	-0.056	5.64	662.7	0.032			
5.69	276.2	-0.106	5.69	467.9	-0.057	5.69	661.3	0.032			
5.74	276.3	-0.109	5.69	467.5	-0.056	5.74	660.9	0.034			
5.79	270.5	-0.107	5.74	467.8	-0.056	5.79	660.9	0.034			
5.84	271.7	-0.109	5.79	467.3	-0.056	5.84	660.8	0.035			
5.89	272.4	-0.113	5.84	467.2	-0.055	5.89	660.7	0.036			
5.95	272.7	-0.114	5.89	466.6	-0.055	5.94	660.5	0.037			
6.00	273.2	-0.114	5.94	466.8	-0.054	5.99	660.5	0.038			
6.05	273.5	-0.118	5.99	466.7	-0.054	5.99	609.4	0.068			
6.10	273.9	-0.122	6.04	466.2	-0.054	6.04	663.4	0.052			
6.15	274.4	-0.123	6.10	465.4	-0.054	6.09	705.4	0.050			
6.18	274.3	-0.124	6.15	465.8	-0.053	6.14	709.8	0.043			
6.18	273.7	-0.124	6.20	465.8	-0.052	6.19	703.8	0.044			
6.23	274.6	-0.124	6.25	465.7	-0.052	6.24	696.9	0.043			
6.28	274.7	-0.126	6.30	463.0	-0.052	6.29	692.9	0.041			
6.33	274.9	-0.127	6.35	464.0	-0.051	6.34	689.0	0.041			
6.38	275.1	-0.128	6.40	464.1	-0.052	6.40	686.5	0.041			
6.43	274.9	-0.130	6.45	463.5	-0.052	6.45	683.8	0.041			
6.48	274.9	-0.131	6.50	463.8	-0.052	6.50	680.7	0.041			
6.54	274.7	-0.134	6.55	463.8	-0.052	6.55	679.4	0.040			
6.59	273.9	-0.137	6.60	463.0	-0.052	6.60	677.9	0.038			
6.64	273.3	-0.141	6.65	462.7	-0.051	6.65	676.4	0.037			
6.69	272.8	-0.146	6.70	461.9	-0.050	6.70	674.6	0.037			
6.74	271.4	-0.152	6.76	460.5	-0.052	6.75	673.3	0.037			
6.79	271.4	-0.153	6.81	460.2	-0.050	6.80	671.4	0.040			
6.84	271.0	-0.153	6.86	458.5	-0.049	6.85	667.4	0.042			
6.89	270.9	-0.156	6.91	457.4	-0.050	6.90	665.2	0.045			
6.94	270.7	-0.161	6.96	456.6	-0.050	6.95	662.5	0.046			
6.99	269.9	-0.164	7.01	455.2	-0.049	7.01	660.7	0.048			
7.04	269.5	-0.165	7.06	454.7	-0.049	7.06	660.0	0.049			

7.09	268.9	-0.167	7.11	454.1	-0.049	7.11	658.6	0.049			
7.14	268.7	-0.168	7.16	452.8	-0.047	7.16	657.0	0.050			
7.20	268.6	-0.170	7.21	452.9	-0.047	7.21	656.8	0.051			
7.25	268.4	-0.172	7.26	452.6	-0.046	7.26	655.2	0.051			
7.30	268.0	-0.174	7.31	452.3	-0.046	7.31	650.4	0.052			
7.35	267.8	-0.174	7.37	451.9	-0.046	7.36	649.9	0.052			
7.40	267.3	-0.178	7.42	451.6	-0.045	7.41	648.9	0.050			
7.45	266.7	-0.180	7.47	451.0	-0.045	7.46	648.2	0.051			
7.50	266.5	-0.184	7.50	451.2	-0.045	7.51	644.5	0.051			
7.55	266.5	-0.187				7.56	643.7	0.051			
7.60	266.2	-0.188				7.62	643.7	0.050			
7.65	265.7	-0.189				7.67	642.6	0.050			
7.70	265.6	-0.191				7.72	642.1	0.051			
7.75	265.4	-0.194				7.77	640.8	0.050			
7.81	264.9	-0.195				7.82	638.9	0.052			
7.86	264.5	-0.196				7.87	637.0	0.052			
7.86	264.6	-0.196				7.92	636.3	0.052			
						7.97	634.6	0.052			
						8.02	632.6	0.053			
						8.07	631.7	0.055			
						8.12	629.6	0.055			
						8.17	627.4	0.056			
						8.22	626.5	0.058			
						8.28	625.4	0.060			
						8.33	623.5	0.061			
						8.38	622.2	0.061			
						8.43	620.7	0.061			
						8.48	619.5	0.061			
						8.53	617.3	0.064			

TM	March 20, 2013	ROB	April 16, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

SPECIFIC GRAVITY OF SOIL SOLIDS

Reference
ASTM C 127-07
ASTM D 854-10 Method B

Project No.:	11-1415-0001/3000	**Borehole**	**GM12-08**
Client:	Knight Piesold	**Sample No.:**	Sample #1 Fault
Project:	Proj VA101-457/4	**Depth (m):**	318
Location:	Blackwater	**Lab Sch No:**	22

Specific Gravity of Fine Fraction (ASTM D 854-06)

Percentage Passing #4 sieve		93.5		
Test Number		1		2
Flask Number		3		6
Air Removal Method		Vacuum		Vacuum
Mass of Flask (g)		173.95		173.35
Mass of Flask + Dry Soil (g)	M_P	339.49		332.74
Mass of Dry Soil (g)		165.48		159.52
Mass of Flask + Soil + Water (g)	$M_{\rho ws,t}$	780.17		775.30
Test Temperature (g)	T_t	22.30		22.20
Mass of Flask + Water (g)	$M_{\rho w,t}$	672.15		671.41
Mass of Dish + Dry Soil (g)		518.88		529.41
Mass of Dish (g)		353.40		369.89
Mass of Oven Dry Soil (g)	M_S	165.48		159.52
Temperature Coefficient	K	1.00		1.00
Density of Solids (g/cm3)	ρ_s	2.88		2.87
Specific Gravity at Test Temperature	G_t	2.89		2.87
Specific Gravity at 20ºC	$G_{20ºC}$	2.89		2.87
AVERAGE SPECIFIC GRAVITY		**2.88**		

Specific Gravity of Coarse Fraction (ASTM C 127-07)

Percentage Retained on #4 sieve		6.5
Mass of Sample in Water (g)	A	64.25
Mass of Sample @ SSD (g)	B	100.74
Mass of Oven Dryed Sample (g)	C	98.66
Bulk G (Oven Dry)	C/(B-A)	2.70
Bulk G (SSD)	B/(B-A)	2.76
Apparent	C/(C-A)	2.87
Absorbtion (%)	(B-C)/C	2.11

Combined Specific Gravity

COMBINED SPECIFIC GRAVITY	Gavg @20°C	2.88

** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

EB	April 3, 2013	LL	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-09
Project:	VA101-457/4	**Sample :**	Fault Gouge#1
Location:	Blackwater	**Depth (m):**	56.3-56.4
Project No.:	11-1415-0001	**Lab Sch No:**	22

Test Condition:	Unsaturated - tested at natural moisture content
Sample Description:	Fault Material - Broken rock and clay
Soil Charateristics:	Compacted Sample
Type of test	Peak and Residual
Remarks:	Area correction not applied to normal and shear stress calculation

Initial Sample Dimensions

Test No.	1	2	3			
Shear box geometry	Circle	Circle	Circle			
Diameter (mm)	63.58	63.50	63.58			
Height (mm)	25.93	26.34	25.93			
Area (cm^2)	31.75	31.67	31.75			
Volume (cm^3)	82.33	83.42	82.33			

Weight Volume Relationships

Sample Type	Disturbed					
Dry Mass (g)	143.7	139.2	140.1			
Initial γ_{wet} (kN/m^3)	18.24	17.39	17.75			
Final γ_{wet} (kN/m^3)	18.41	17.65	18.12			
Initial γ_{dry} (kN/m^3)	17.13	16.37	16.69			
Final γ_{dry} (kN/m^3)	17.28	16.61	17.04			
Initial water content (%)	6.5	6.3	6.3			
Final water content (%)	6.5	6.3	6.3			

Consolidation Results

Normal Stress (kPa)	300	600	900			
t_{90} (Taylor Method) (min)	N/A	N/A	N/A			
Calculated t_{50} (min)	N/A	N/A	N/A			
Change in height ΔH_c (mm)	0.23	0.38	0.53			

Equipment Description:	Dtest-1	Dtest-2	Dtest-3
Normal Load Cell Serial No:	697437	697437	227408
Shear Load Cell Serial No:	410702	410702	219231
Vertical LPT Serial No:	LP-985	LP-985	LP-567

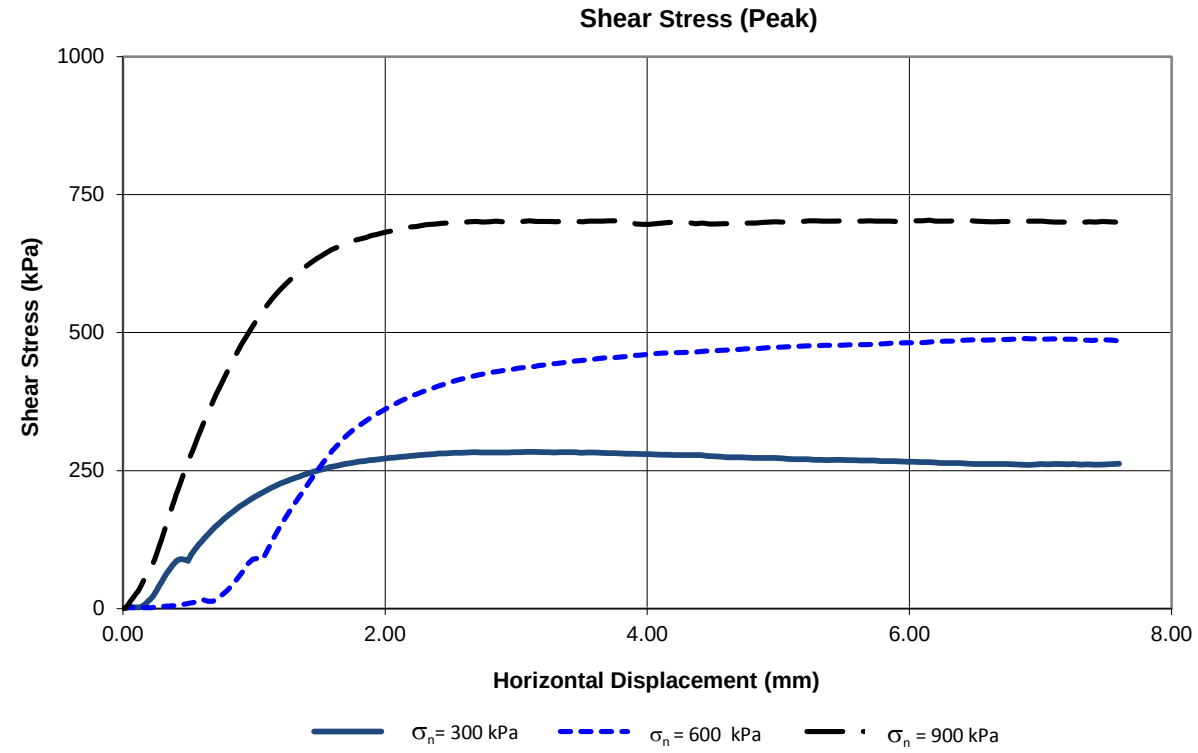
TM	April 9, 2013	ROB	April 17, 2013
TESTED BY	DATE	CHECKED BY	DATE

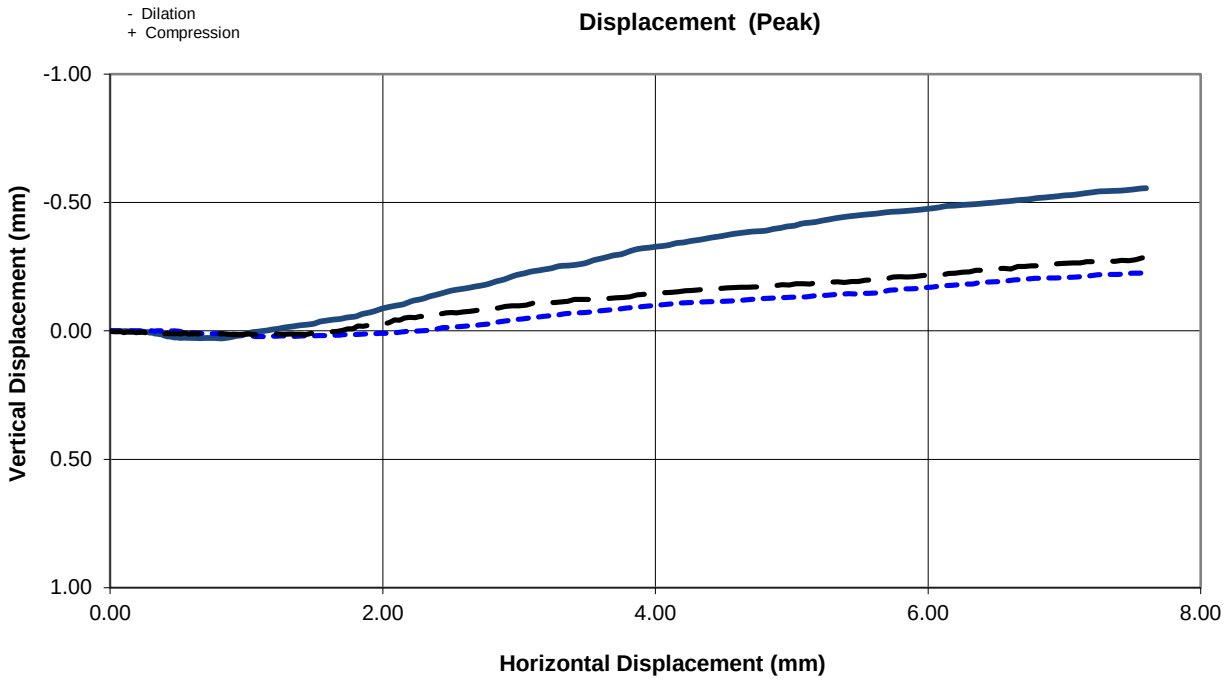
Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-09
Project:	VA101-457/4	**Sample :**	Fault Gouge#1
Location:	Blackwater	**Depth (m):**	56.3-56.4
Project No.:	11-1415-0001	**Lab Sch No:**	22





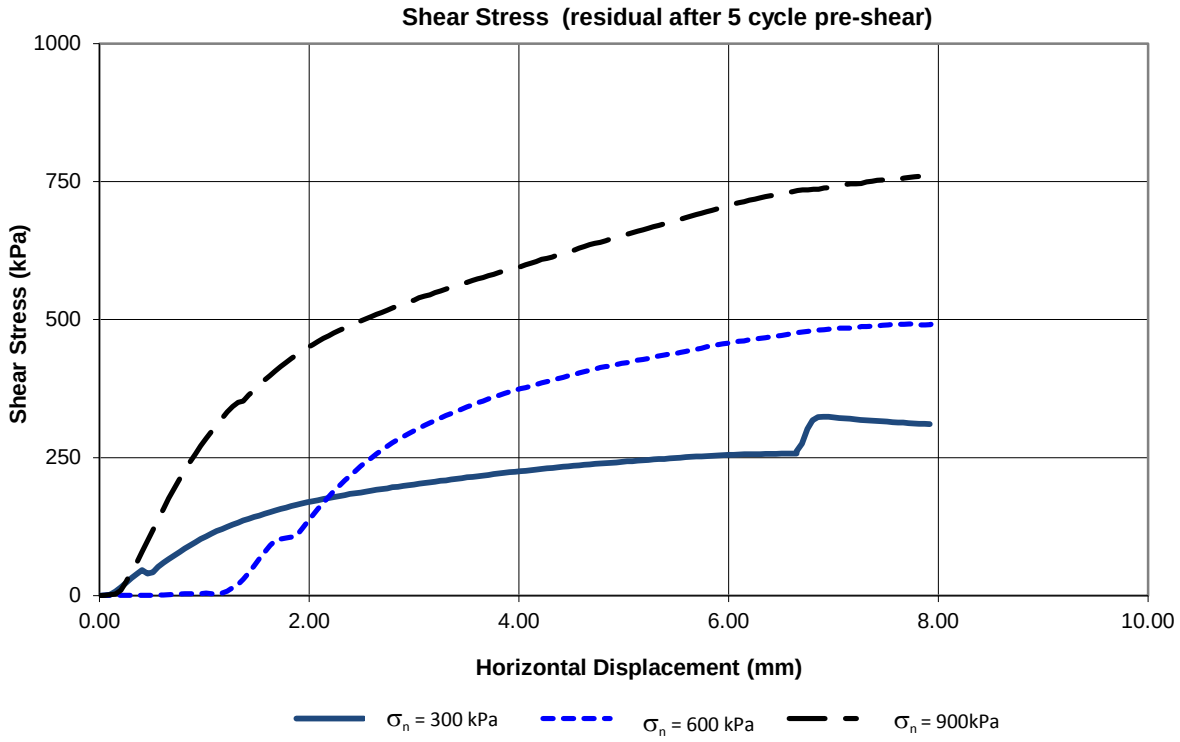
TM/LL	April 9, 2013	ROB	April 17, 2013
TESTED BY	DATE	CHECKED BY	DATE

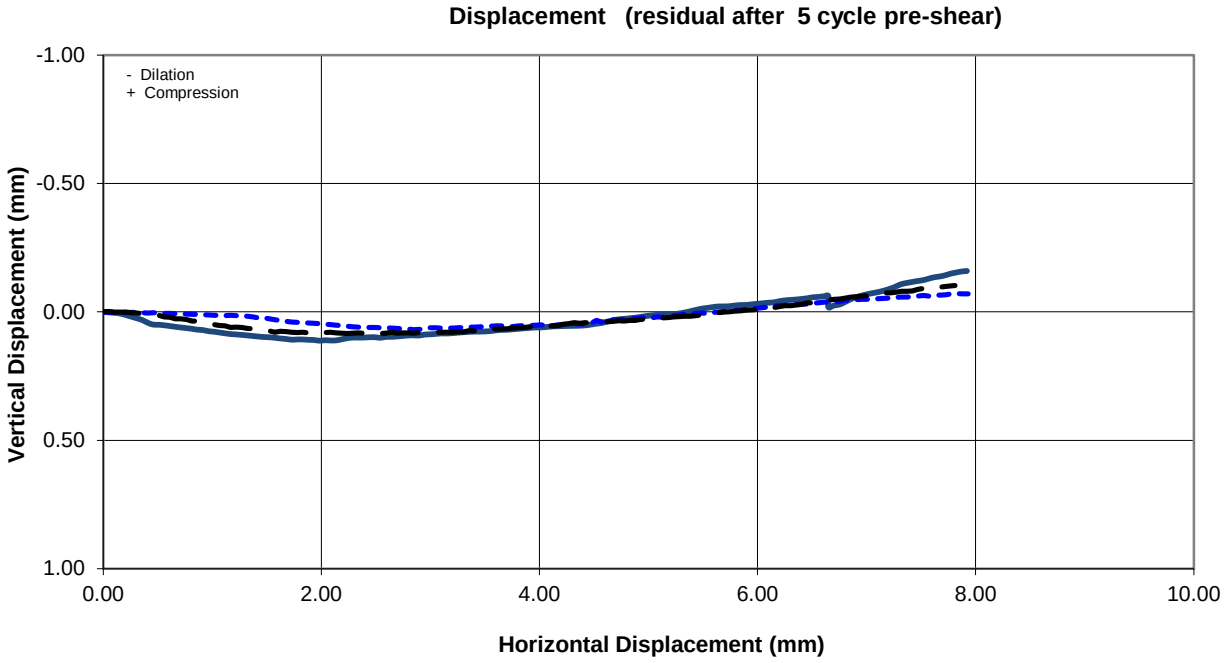
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4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference: ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-09
Project:	VA101-457/4	**Sample :**	Fault Gouge#1
Location:	Blackwater	**Depth (m):**	56.3-56.4
Project No.:	11-1415-0001	**Lab Sch No:**	22





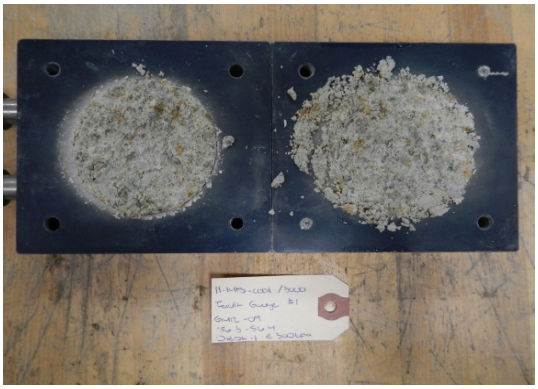
TM/LL	April 9, 2013	ROB	April 17, 2013
TESTED BY	DATE	CHECKED BY	DATE

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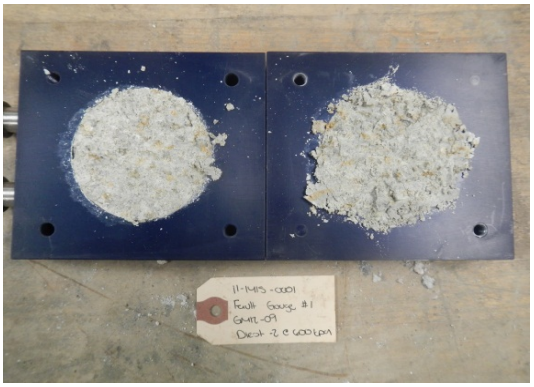
Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

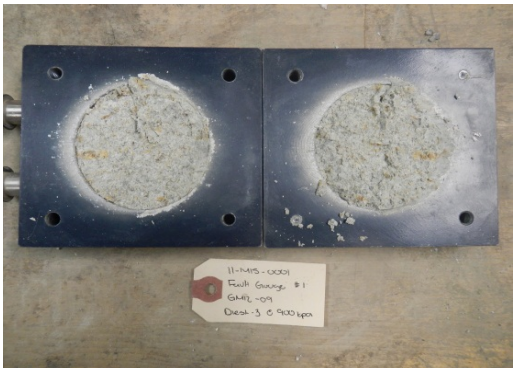
Client:	Knight Piesold Ltd	**Borehole:**	GM12-09
Project:	VA101-457/4	**Sample :**	Fault Gouge#1
Location:	Blackwater	**Depth (m):**	56.3-56.4
Project No.:	11-1415-0001	**Lab Sch No:**	22



Test 1 (After Shear)



Test 2 (After Shear)



Test 3 (After Shear)

Remarks:

Residual strength was measured after 5 pre-shear cycles

TM/LL	April 9, 2013	ROB	April 17, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-09
Project:	VA101-457/4	**Sample :**	Fault Gouge#1
Location:	Blackwater	**Depth (m):**	56.3-56.4
Project No.:	11-1415-0001	**Lab Sch No:**	22

Peak 1	
Normal Stress , kPa	300
Disp Rate, mm/min	0.015

Peak 2	
Normal Stress , kPa	600
Disp Rate, mm/min	0.015

Peak 3	
Normal Stress , kPa	900
Disp Rate, mm/min	0.015

Normal Stress , kPa	
Disp Rate, mm/min	

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.0	0.001	0.00	0.0	0.000	0.00	0.0	0.000			
0.01	1.3	0.001	0.01	0.7	0.000	0.01	0.6	0.002			
0.03	2.2	0.000	0.03	1.4	0.000	0.03	1.4	0.004			
0.04	2.5	0.000	0.04	1.7	-0.001	0.04	6.1	0.003			
0.05	2.5	0.001	0.05	1.6	-0.001	0.05	11.3	0.003			
0.06	2.5	0.001	0.06	1.6	-0.001	0.06	15.4	0.003			
0.08	2.5	0.001	0.08	1.7	-0.001	0.08	19.1	0.002			
0.09	2.5	0.001	0.09	1.7	-0.001	0.09	23.0	0.004			
0.10	2.4	0.001	0.10	1.6	-0.001	0.10	27.0	0.006			
0.11	2.4	0.001	0.11	1.6	-0.001	0.11	31.4	0.004			
0.13	2.5	0.001	0.13	1.7	-0.001	0.13	36.5	0.005			
0.14	2.8	0.002	0.14	1.7	0.000	0.14	42.1	0.005			
0.15	4.8	0.002	0.15	1.8	-0.001	0.15	47.9	0.004			
0.17	7.1	0.002	0.17	1.8	0.000	0.17	53.8	0.005			
0.18	10.0	0.003	0.18	1.8	-0.001	0.18	59.5	0.005			
0.19	13.0	0.003	0.19	1.8	0.000	0.19	63.5	0.007			
0.20	15.5	0.003	0.20	1.5	0.000	0.20	69.2	0.005			
0.22	18.7	0.004	0.22	1.9	-0.001	0.22	75.6	0.005			
0.23	22.5	0.004	0.23	2.0	0.000	0.23	82.3	0.004			
0.24	26.9	0.003	0.24	2.3	-0.001	0.24	89.4	0.003			
0.25	31.9	0.004	0.25	2.6	-0.001	0.25	97.1	0.007			
0.27	37.1	0.004	0.27	2.9	-0.001	0.27	105.9	0.004			
0.28	42.3	0.005	0.28	3.2	-0.001	0.28	114.7	0.006			
0.29	47.6	0.007	0.29	3.6	0.000	0.29	124.0	0.006			
0.31	52.6	0.007	0.31	3.8	0.000	0.31	133.3	0.008			
0.32	57.6	0.008	0.32	4.0	0.000	0.32	142.6	0.008			
0.33	62.2	0.011	0.33	4.3	0.000	0.33	151.9	0.006			
0.34	66.6	0.011	0.34	4.5	-0.001	0.34	161.5	0.009			
0.36	71.0	0.012	0.36	4.6	0.000	0.36	171.0	0.007			
0.37	75.1	0.013	0.37	4.9	0.000	0.37	180.1	0.008			
0.38	79.1	0.014	0.38	5.1	-0.001	0.38	189.1	0.009			
0.39	82.5	0.018	0.39	5.3	0.000	0.39	196.9	0.010			
0.41	85.4	0.019	0.41	5.6	0.000	0.41	206.8	0.011			
0.42	87.8	0.021	0.42	5.9	-0.001	0.42	215.4	0.010			
0.43	89.3	0.022	0.43	6.4	0.000	0.43	223.7	0.010			

0.45	89.5	0.022	0.45	6.9	-0.001	0.45	232.0	0.010			
0.46	89.3	0.024	0.46	7.5	0.000	0.46	240.2	0.009			
0.47	88.4	0.026	0.47	8.2	-0.001	0.47	248.7	0.012			
0.48	87.7	0.025	0.48	8.8	0.001	0.48	256.9	0.010			
0.50	86.4	0.026	0.50	9.3	0.000	0.50	265.1	0.010			
0.51	91.9	0.027	0.51	9.8	0.002	0.51	272.8	0.010			
0.52	97.8	0.027	0.52	10.4	0.003	0.52	280.0	0.012			
0.53	102.2	0.027	0.53	11.0	0.004	0.53	288.1	0.009			
0.55	106.5	0.026	0.55	11.7	0.004	0.55	295.8	0.009			
0.56	110.3	0.027	0.56	12.4	0.005	0.56	303.2	0.010			
0.57	113.9	0.027	0.57	13.1	0.006	0.57	311.1	0.012			
0.59	117.6	0.027	0.59	14.0	0.006	0.59	318.2	0.012			
0.60	121.1	0.027	0.60	15.0	0.006	0.60	326.5	0.011			
0.61	124.6	0.028	0.61	16.2	0.007	0.61	333.9	0.011			
0.62	128.0	0.027	0.65	13.2	0.009	0.62	341.0	0.009			
0.66	138.0	0.028	0.69	13.2	0.010	0.64	347.8	0.012			
0.70	147.0	0.027	0.72	19.3	0.010	0.67	368.6	0.010			
0.74	155.4	0.027	0.76	26.1	0.010	0.71	388.1	0.010			
0.78	163.3	0.028	0.80	34.1	0.011	0.75	407.1	0.011			
0.81	171.0	0.029	0.84	44.1	0.011	0.79	425.7	0.012			
0.85	177.9	0.027	0.88	55.4	0.012	0.83	443.9	0.011			
0.89	184.7	0.024	0.92	67.8	0.013	0.86	461.3	0.013			
0.93	190.8	0.019	0.95	81.0	0.015	0.90	477.4	0.014			
0.97	196.5	0.017	0.99	89.6	0.017	0.94	492.6	0.014			
1.00	202.1	0.010	1.03	90.7	0.019	0.98	507.6	0.013			
1.04	207.4	0.005	1.07	89.6	0.022	1.02	521.4	0.012			
1.08	212.3	0.003	1.11	107.5	0.022	1.06	534.5	0.014			
1.12	217.0	0.000	1.14	125.1	0.022	1.09	547.5	0.015			
1.16	221.6	-0.002	1.18	141.6	0.021	1.13	559.1	0.015			
1.19	226.0	-0.006	1.22	156.8	0.020	1.17	570.3	0.016			
1.23	229.4	-0.008	1.26	171.4	0.020	1.21	579.4	0.012			
1.27	233.0	-0.013	1.30	185.7	0.020	1.25	589.0	0.013			
1.31	236.5	-0.016	1.33	199.0	0.021	1.28	597.8	0.013			
1.35	239.4	-0.018	1.37	212.1	0.020	1.32	605.4	0.012			
1.39	242.9	-0.021	1.41	226.0	0.020	1.36	613.4	0.013			
1.42	245.8	-0.023	1.45	238.9	0.019	1.40	620.4	0.013			
1.46	248.4	-0.026	1.49	251.6	0.020	1.44	627.1	0.014			
1.50	251.0	-0.029	1.53	263.9	0.018	1.47	633.7	0.009			
1.54	253.5	-0.036	1.56	275.6	0.018	1.51	638.8	0.007			
1.58	256.0	-0.039	1.60	286.6	0.018	1.55	644.3	0.007			
1.61	258.1	-0.043	1.64	297.0	0.017	1.59	649.6	0.005			
1.65	259.9	-0.045	1.68	307.0	0.017	1.63	653.7	0.003			
1.69	261.7	-0.047	1.72	315.5	0.015	1.67	657.9	0.002			
1.73	263.1	-0.051	1.75	323.3	0.014	1.70	661.7	-0.002			
1.77	264.7	-0.054	1.79	330.0	0.015	1.74	665.0	-0.009			
1.80	266.5	-0.057	1.83	336.3	0.013	1.78	668.0	-0.008			
1.84	267.4	-0.065	1.87	342.2	0.012	1.82	670.1	-0.019			
1.88	268.6	-0.069	1.91	348.1	0.011	1.86	672.6	-0.018			
1.92	269.6	-0.074	1.94	353.6	0.010	1.89	675.7	-0.022			
1.96	270.6	-0.080	1.98	358.8	0.010	1.93	677.4	-0.027			
2.00	271.9	-0.087	2.02	363.9	0.009	1.97	680.1	-0.026			
2.03	272.9	-0.092	2.06	368.7	0.007	2.01	682.3	-0.028			
2.07	273.7	-0.096	2.10	373.1	0.007	2.05	684.1	-0.032			

2.11	274.5	-0.100	2.14	377.7	0.005	2.08	685.7	-0.043			
2.15	275.5	-0.103	2.17	381.9	0.002	2.12	688.0	-0.042			
2.19	276.7	-0.111	2.21	385.7	0.000	2.16	689.7	-0.050			
2.22	277.1	-0.118	2.25	389.5	0.001	2.20	691.8	-0.053			
2.26	277.9	-0.122	2.29	393.2	-0.001	2.24	692.3	-0.052			
2.30	278.8	-0.126	2.33	396.4	-0.002	2.28	694.0	-0.057			
2.34	279.4	-0.134	2.36	399.6	-0.006	2.31	695.4	-0.054			
2.38	280.2	-0.139	2.40	403.0	-0.008	2.35	696.3	-0.062			
2.41	280.9	-0.144	2.44	405.6	-0.014	2.39	696.8	-0.061			
2.45	281.3	-0.150	2.48	408.3	-0.014	2.43	697.9	-0.067			
2.49	281.6	-0.155	2.52	411.3	-0.015	2.47	698.2	-0.070			
2.53	282.0	-0.160	2.57	414.8	-0.017	2.50	699.0	-0.072			
2.58	282.4	-0.164	2.62	417.8	-0.020	2.54	699.4	-0.070			
2.63	282.5	-0.168	2.67	420.9	-0.020	2.59	699.7	-0.074			
2.68	283.1	-0.173	2.72	423.8	-0.024	2.64	700.9	-0.077			
2.73	282.6	-0.178	2.77	425.8	-0.027	2.69	701.2	-0.081			
2.78	282.8	-0.184	2.82	428.1	-0.033	2.75	700.2	-0.082			
2.83	282.8	-0.193	2.87	429.9	-0.037	2.80	700.6	-0.088			
2.88	282.7	-0.200	2.92	432.3	-0.041	2.85	701.9	-0.089			
2.94	283.0	-0.210	2.97	433.7	-0.044	2.90	700.8	-0.095			
2.99	283.1	-0.219	3.02	435.5	-0.046	2.95	701.3	-0.098			
3.04	283.4	-0.224	3.08	436.9	-0.051	3.00	700.3	-0.098			
3.09	283.7	-0.231	3.13	438.3	-0.053	3.05	701.4	-0.100			
3.14	283.7	-0.235	3.18	440.2	-0.057	3.10	702.2	-0.108			
3.19	283.4	-0.240	3.23	441.7	-0.059	3.15	701.5	-0.107			
3.24	283.1	-0.244	3.28	443.2	-0.062	3.20	701.5	-0.114			
3.29	282.9	-0.252	3.33	444.7	-0.067	3.25	701.4	-0.110			
3.34	283.1	-0.254	3.38	446.4	-0.069	3.30	700.6	-0.113			
3.39	283.1	-0.256	3.43	447.9	-0.071	3.35	701.9	-0.115			
3.44	283.1	-0.260	3.48	449.3	-0.072	3.41	702.0	-0.122			
3.49	282.5	-0.265	3.53	450.6	-0.075	3.46	701.3	-0.122			
3.55	282.7	-0.275	3.58	451.7	-0.078	3.51	700.7	-0.123			
3.60	282.8	-0.281	3.63	453.4	-0.081	3.56	701.8	-0.122			
3.65	282.2	-0.288	3.69	454.2	-0.083	3.61	702.1	-0.126			
3.70	281.7	-0.295	3.74	454.5	-0.086	3.66	702.0	-0.127			
3.75	281.5	-0.299	3.79	455.8	-0.090	3.71	702.4	-0.130			
3.80	281.1	-0.308	3.84	456.9	-0.092	3.76	702.5	-0.130			
3.85	280.6	-0.317	3.89	458.2	-0.095	3.81	702.3	-0.133			
3.90	280.5	-0.322	3.94	458.9	-0.097	3.86	702.0	-0.141			
3.95	280.1	-0.324	3.99	460.1	-0.099	3.91	696.7	-0.143			
4.00	280.0	-0.328	4.04	461.3	-0.102	3.96	696.2	-0.142			
4.05	279.5	-0.331	4.09	462.4	-0.104	4.02	696.4	-0.146			
4.10	278.8	-0.335	4.14	463.2	-0.107	4.07	697.4	-0.149			
4.16	278.5	-0.342	4.19	463.5	-0.109	4.12	698.6	-0.150			
4.21	278.4	-0.345	4.24	463.6	-0.110	4.17	699.6	-0.152			
4.26	278.4	-0.350	4.30	464.3	-0.111	4.22	699.7	-0.156			
4.31	278.2	-0.354	4.35	464.3	-0.113	4.27	698.9	-0.158			
4.36	278.4	-0.358	4.40	465.3	-0.114	4.32	699.0	-0.160			
4.41	277.9	-0.364	4.45	466.6	-0.114	4.37	697.3	-0.162			
4.46	276.5	-0.367	4.50	466.8	-0.115	4.42	698.2	-0.164			
4.51	275.6	-0.372	4.55	467.8	-0.116	4.47	696.8	-0.165			
4.56	275.0	-0.377	4.60	468.1	-0.118	4.52	697.0	-0.168			
4.61	274.2	-0.381	4.65	469.0	-0.121	4.57	697.1	-0.169			

4.66	274.1	-0.384	4.70	469.7	-0.123	4.63	697.1	-0.170			
4.71	274.0	-0.387	4.75	470.4	-0.125	4.68	698.6	-0.170			
4.76	273.7	-0.389	4.80	471.2	-0.127	4.73	697.9	-0.172			
4.82	273.2	-0.391	4.85	471.5	-0.127	4.78	698.2	-0.172			
4.87	272.9	-0.398	4.90	472.3	-0.128	4.83	698.7	-0.176			
4.92	273.0	-0.401	4.96	473.7	-0.130	4.88	699.9	-0.177			
4.97	272.8	-0.407	5.01	473.7	-0.132	4.93	700.3	-0.180			
5.02	272.3	-0.410	5.06	474.4	-0.132	4.98	700.8	-0.179			
5.07	271.3	-0.418	5.11	474.4	-0.133	5.03	700.3	-0.184			
5.12	270.8	-0.421	5.16	475.1	-0.136	5.08	700.9	-0.184			
5.17	270.8	-0.424	5.21	475.8	-0.138	5.13	701.3	-0.182			
5.22	270.4	-0.430	5.26	476.2	-0.139	5.18	701.4	-0.188			
5.27	269.5	-0.434	5.31	476.6	-0.141	5.24	702.2	-0.190			
5.32	269.2	-0.439	5.36	477.0	-0.143	5.29	702.6	-0.190			
5.37	269.1	-0.443	5.41	477.3	-0.145	5.34	702.2	-0.191			
5.43	269.3	-0.447	5.46	476.7	-0.144	5.39	702.1	-0.189			
5.48	269.2	-0.450	5.51	477.3	-0.146	5.44	701.7	-0.193			
5.53	269.0	-0.453	5.57	478.0	-0.146	5.49	702.6	-0.193			
5.58	268.9	-0.455	5.62	478.4	-0.148	5.54	702.2	-0.198			
5.63	268.5	-0.458	5.67	478.1	-0.153	5.59	702.0	-0.198			
5.68	268.3	-0.461	5.72	478.5	-0.159	5.64	702.1	-0.202			
5.73	268.2	-0.464	5.77	479.1	-0.161	5.69	702.6	-0.203			
5.78	267.4	-0.465	5.82	479.9	-0.164	5.74	702.1	-0.210			
5.83	267.3	-0.467	5.87	480.8	-0.164	5.79	702.1	-0.211			
5.88	266.9	-0.470	5.92	481.0	-0.165	5.84	702.0	-0.210			
5.93	266.4	-0.472	5.97	481.8	-0.168	5.90	701.6	-0.212			
5.98	266.0	-0.475	6.02	481.4	-0.171	5.95	702.4	-0.216			
6.04	265.7	-0.478	6.07	481.9	-0.173	6.00	701.7	-0.218			
6.09	265.5	-0.482	6.12	482.5	-0.176	6.05	702.2	-0.219			
6.14	265.3	-0.487	6.18	483.2	-0.178	6.10	702.5	-0.217			
6.19	264.6	-0.488	6.23	483.7	-0.181	6.15	703.5	-0.224			
6.24	263.9	-0.490	6.28	484.3	-0.182	6.20	702.1	-0.225			
6.29	263.7	-0.492	6.33	484.8	-0.183	6.25	702.0	-0.229			
6.34	263.9	-0.494	6.38	485.6	-0.189	6.30	702.1	-0.230			
6.39	263.5	-0.496	6.43	486.4	-0.190	6.35	702.7	-0.236			
6.44	262.7	-0.499	6.48	486.8	-0.192	6.40	702.8	-0.236			
6.49	262.1	-0.501	6.53	487.1	-0.192	6.45	703.2	-0.239			
6.54	262.2	-0.504	6.58	486.3	-0.195	6.51	702.2	-0.242			
6.59	262.1	-0.505	6.63	487.1	-0.199	6.56	701.1	-0.243			
6.65	262.0	-0.509	6.68	487.3	-0.200	6.61	700.8	-0.242			
6.70	261.8	-0.511	6.73	487.6	-0.202	6.66	701.0	-0.251			
6.75	262.0	-0.513	6.79	487.9	-0.205	6.71	701.2	-0.252			
6.80	261.3	-0.518	6.84	488.5	-0.205	6.76	701.1	-0.254			
6.85	260.6	-0.519	6.89	489.1	-0.206	6.81	700.9	-0.254			
6.90	260.2	-0.522	6.94	488.6	-0.206	6.86	700.8	-0.259			
6.95	261.0	-0.525	6.99	489.3	-0.208	6.91	701.9	-0.260			
7.00	261.6	-0.528	7.04	488.3	-0.209	6.96	702.2	-0.263			
7.05	261.3	-0.529	7.09	488.3	-0.210	7.01	701.7	-0.263			
7.10	261.8	-0.533	7.14	488.7	-0.213	7.06	700.5	-0.265			
7.15	261.6	-0.537	7.19	488.0	-0.215	7.12	700.3	-0.265			
7.20	261.3	-0.540	7.24	487.9	-0.218	7.17	699.9	-0.270			
7.25	261.7	-0.544	7.29	487.3	-0.220	7.22	700.2	-0.270			
7.31	261.0	-0.544	7.34	486.3	-0.220	7.27	700.2	-0.271			

7.36	261.1	-0.546	7.39	485.8	-0.221	7.32	699.7	-0.272			
7.41	260.8	-0.546	7.45	486.6	-0.222	7.37	700.5	-0.271			
7.46	260.9	-0.549	7.50	487.0	-0.2250	7.42	700.5	-0.275			
7.51	261.3	-0.6	7.55	486.0	-0.2247	7.47	701.39	-0.2741			
7.56	261.7	-0.6	7.59	485.1	-0.2259	7.52	700.98	-0.2774			
7.60	262.3	-0.556				7.57	699.98	-0.2854			
						7.61	701.29	-0.2846			

TM	April 9, 2013	ROB	April 17, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080-11

Client:	Knight Piesold Ltd	**Borehole:**	GM12-09
Project:	VA101-457/4	**Sample :**	Fault Gouge#1
Location:	Blackwater	**Depth (m):**	56.3-56.4
Project No.:	11-1415-0001	**Lab Sch No:**	22

Residual 1	
Normal Stress , kPa	300
Disp Rate, mm/min	0.015

Residual 2	
Normal Stress , kPa	600
Disp Rate, mm/min	0.015

Residual 3	
Normal Stress , kPa	900
Disp Rate, mm/min	0.015

Normal Stress , kPa	
Disp Rate, mm/min	

Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm	Horz Disp mm	Shear Stress kPa	Vert Disp mm
0.00	0.0	0.000	0.00	0.0	0.000	0.00	0.0	0.000			
0.05	0.7	0.002	0.05	0.3	0.001	0.05	0.5	-0.002			
0.10	1.4	0.003	0.10	0.7	0.001	0.10	1.3	0.001			
0.15	7.2	0.006	0.15	0.4	0.002	0.15	2.5	0.001			
0.20	15.2	0.012	0.20	0.3	0.002	0.20	9.7	0.001			
0.25	23.4	0.018	0.25	0.3	0.002	0.25	25.0	0.003			
0.30	31.5	0.024	0.30	0.3	0.002	0.30	44.2	0.005			
0.36	39.4	0.031	0.36	0.3	0.003	0.36	60.3	0.007			
0.41	46.5	0.042	0.41	0.3	0.004	0.41	79.3	0.011			
0.46	39.7	0.049	0.46	0.3	0.003	0.46	99.0	0.010			
0.51	42.1	0.050	0.51	0.7	0.005	0.51	118.6	0.013			
0.56	52.2	0.052	0.56	0.9	0.006	0.56	138.1	0.020			
0.61	59.5	0.055	0.61	1.2	0.005	0.61	156.8	0.021			
0.66	65.8	0.058	0.66	1.5	0.007	0.66	175.8	0.027			
0.71	72.6	0.061	0.71	2.0	0.008	0.71	193.4	0.027			
0.76	78.8	0.063	0.76	2.8	0.008	0.76	210.9	0.029			
0.81	85.0	0.066	0.81	3.4	0.009	0.81	227.6	0.035			
0.86	91.0	0.069	0.86	3.5	0.009	0.86	242.5	0.035			
0.91	96.6	0.071	0.91	3.5	0.010	0.91	256.7	0.040			
0.97	102.4	0.075	0.97	3.6	0.012	0.97	271.0	0.044			
1.02	107.4	0.077	1.02	4.3	0.014	1.02	284.2	0.049			
1.07	112.2	0.080	1.07	3.5	0.014	1.07	297.5	0.053			
1.12	116.7	0.083	1.12	2.9	0.014	1.12	309.8	0.055			
1.17	120.7	0.086	1.17	4.7	0.014	1.17	321.3	0.061			
1.22	124.7	0.088	1.22	8.0	0.014	1.22	332.5	0.060			
1.27	128.5	0.089	1.27	14.4	0.015	1.27	342.4	0.060			
1.32	132.2	0.092	1.32	20.4	0.017	1.32	349.9	0.064			
1.37	135.9	0.094	1.37	29.7	0.019	1.37	352.5	0.066			
1.42	139.1	0.096	1.42	41.1	0.023	1.42	363.2	0.068			
1.47	142.3	0.098	1.47	53.7	0.024	1.47	372.3	0.072			
1.52	145.1	0.099	1.52	66.6	0.026	1.52	382.1	0.075			
1.58	148.4	0.101	1.58	78.7	0.031	1.58	390.4	0.080			
1.63	151.4	0.103	1.63	90.8	0.033	1.63	398.8	0.076			
1.68	154.2	0.105	1.68	99.5	0.037	1.68	406.9	0.077			
1.73	156.8	0.108	1.73	102.5	0.039	1.73	414.7	0.079			

1.78	159.3	0.107	1.78	104.5	0.040	1.78	422.1	0.080			
1.83	162.1	0.107	1.83	106.1	0.042	1.83	429.4	0.079			
1.88	164.5	0.109	1.88	108.9	0.043	1.88	436.7	0.081			
1.93	166.7	0.109	1.93	120.6	0.044	1.93	442.8	0.077			
1.98	169.0	0.112	1.98	133.2	0.046	1.98	449.2	0.081			
2.03	171.2	0.110	2.03	145.3	0.048	2.03	454.5	0.080			
2.08	172.9	0.111	2.08	157.0	0.050	2.08	460.3	0.080			
2.13	175.1	0.111	2.13	168.1	0.051	2.13	466.0	0.082			
2.19	176.9	0.107	2.18	178.8	0.053	2.18	470.9	0.083			
2.24	178.6	0.102	2.24	189.2	0.056	2.24	476.0	0.084			
2.29	180.2	0.100	2.29	198.9	0.058	2.29	480.5	0.083			
2.34	182.1	0.100	2.34	208.4	0.059	2.34	484.7	0.082			
2.39	184.1	0.100	2.39	217.0	0.060	2.39	489.6	0.083			
2.44	185.5	0.099	2.44	225.6	0.060	2.44	494.0	0.083			
2.49	186.7	0.098	2.49	234.1	0.061	2.49	497.3	0.084			
2.54	188.6	0.101	2.54	242.4	0.062	2.54	501.4	0.084			
2.59	189.9	0.097	2.59	249.5	0.062	2.59	505.1	0.083			
2.64	191.5	0.097	2.64	256.8	0.063	2.64	509.4	0.079			
2.69	192.7	0.096	2.69	263.5	0.064	2.69	512.9	0.083			
2.74	194.4	0.094	2.74	270.3	0.066	2.74	516.7	0.081			
2.80	196.1	0.092	2.79	276.7	0.067	2.79	520.8	0.082			
2.85	197.2	0.091	2.85	282.6	0.069	2.85	525.3	0.083			
2.90	198.7	0.092	2.90	288.0	0.069	2.90	528.8	0.080			
2.95	200.1	0.088	2.95	293.4	0.066	2.95	532.4	0.079			
3.00	201.2	0.087	3.00	298.7	0.062	3.00	535.1	0.079			
3.05	202.5	0.086	3.05	303.3	0.062	3.05	539.5	0.080			
3.10	203.8	0.084	3.10	308.2	0.063	3.10	542.5	0.080			
3.15	205.0	0.084	3.15	312.7	0.063	3.15	545.1	0.079			
3.20	206.5	0.083	3.20	317.2	0.063	3.20	548.7	0.079			
3.25	207.9	0.081	3.25	321.7	0.062	3.25	552.0	0.078			
3.30	208.8	0.079	3.30	326.2	0.061	3.30	555.1	0.078			
3.35	210.3	0.078	3.35	329.9	0.059	3.35	558.7	0.073			
3.40	211.6	0.077	3.40	334.0	0.059	3.40	561.8	0.074			
3.46	212.9	0.077	3.46	337.7	0.058	3.46	563.8	0.070			
3.51	214.3	0.076	3.51	341.9	0.057	3.51	567.6	0.069			
3.56	215.2	0.074	3.56	345.3	0.055	3.56	570.8	0.067			
3.61	216.1	0.071	3.61	349.4	0.055	3.61	573.6	0.067			
3.66	217.1	0.070	3.66	352.6	0.054	3.66	576.0	0.067			
3.71	218.6	0.069	3.71	356.5	0.060	3.71	579.4	0.066			
3.76	219.9	0.067	3.76	359.7	0.057	3.76	581.6	0.062			
3.81	221.1	0.066	3.81	362.6	0.054	3.81	585.2	0.062			
3.86	222.3	0.064	3.86	366.1	0.053	3.86	588.4	0.060			
3.91	223.4	0.062	3.91	369.0	0.053	3.91	591.3	0.058			
3.96	224.4	0.061	3.96	371.9	0.051	3.96	592.8	0.056			
4.01	225.3	0.060	4.01	374.8	0.051	4.01	595.9	0.055			
4.07	226.1	0.059	4.07	376.9	0.053	4.06	599.1	0.055			
4.12	227.4	0.057	4.12	379.8	0.055	4.12	602.5	0.054			
4.17	228.3	0.056	4.17	382.4	0.050	4.17	605.1	0.053			
4.22	229.4	0.055	4.22	385.4	0.049	4.22	609.0	0.048			
4.27	230.4	0.055	4.27	387.6	0.046	4.27	610.9	0.046			
4.32	231.5	0.054	4.32	390.1	0.045	4.32	613.4	0.042			
4.37	232.4	0.054	4.37	393.1	0.047	4.37	617.1	0.045			
4.42	233.4	0.052	4.42	395.4	0.047	4.42	619.4	0.042			

4.47	234.3	0.049	4.47	398.2	0.044	4.47	622.3	0.041			
4.52	235.3	0.046	4.52	400.1	0.033	4.52	625.7	0.039			
4.57	235.9	0.043	4.57	403.3	0.039	4.57	629.7	0.039			
4.62	236.8	0.037	4.62	405.6	0.034	4.62	632.6	0.039			
4.68	237.7	0.032	4.67	408.0	0.031	4.67	635.8	0.037			
4.73	238.5	0.029	4.73	410.3	0.031	4.73	638.2	0.034			
4.78	239.3	0.027	4.78	413.5	0.028	4.78	640.1	0.035			
4.83	239.8	0.025	4.83	415.1	0.027	4.83	642.8	0.033			
4.88	240.5	0.022	4.88	415.6	0.025	4.88	646.1	0.033			
4.93	241.3	0.019	4.93	418.2	0.023	4.93	648.8	0.029			
4.98	242.2	0.016	4.98	420.6	0.022	4.98	651.7	0.028			
5.03	243.2	0.013	5.03	422.1	0.023	5.03	654.2	0.026			
5.08	243.5	0.011	5.08	424.3	0.019	5.08	657.4	0.025			
5.13	244.4	0.010	5.13	426.5	0.021	5.13	660.2	0.023			
5.18	245.3	0.009	5.18	427.8	0.020	5.18	662.3	0.022			
5.23	245.9	0.008	5.23	429.7	0.014	5.23	665.4	0.019			
5.29	246.8	0.006	5.28	432.2	0.012	5.28	668.1	0.017			
5.34	247.2	0.002	5.34	434.3	0.008	5.34	670.7	0.017			
5.39	247.6	-0.003	5.39	435.7	0.007	5.39	673.8	0.016			
5.44	248.5	-0.008	5.44	437.5	0.005	5.44	677.3	0.014			
5.49	249.2	-0.013	5.49	438.4	0.005	5.49	679.5	0.011			
5.54	249.8	-0.016	5.54	440.6	0.005	5.54	681.7	0.006			
5.59	250.6	-0.019	5.59	442.4	0.001	5.59	684.7	0.006			
5.64	251.2	-0.021	5.64	444.4	0.001	5.64	687.6	0.003			
5.69	251.9	-0.022	5.69	446.0	-0.002	5.69	690.1	0.001			
5.74	252.3	-0.022	5.74	448.1	-0.004	5.74	692.7	0.000			
5.79	252.6	-0.025	5.79	450.9	-0.006	5.79	695.6	-0.004			
5.84	253.1	-0.027	5.84	452.3	-0.007	5.84	698.1	-0.005			
5.89	253.8	-0.027	5.89	454.2	-0.010	5.89	701.0	-0.007			
5.95	254.3	-0.030	5.95	455.9	-0.012	5.95	704.5	-0.008			
6.00	254.9	-0.032	6.00	457.4	-0.014	6.00	706.4	-0.009			
6.05	255.2	-0.034	6.05	459.1	-0.017	6.05	709.2	-0.013			
6.10	255.5	-0.036	6.10	460.5	-0.019	6.10	711.7	-0.014			
6.15	255.9	-0.037	6.15	461.4	-0.022	6.15	713.7	-0.017			
6.20	256.1	-0.042	6.20	463.6	-0.024	6.20	716.3	-0.021			
6.25	256.4	-0.045	6.25	464.7	-0.026	6.25	718.1	-0.024			
6.30	256.1	-0.047	6.30	465.9	-0.029	6.30	720.4	-0.025			
6.35	256.6	-0.048	6.35	467.3	-0.030	6.35	722.8	-0.027			
6.40	256.5	-0.051	6.40	469.0	-0.031	6.40	724.5	-0.029			
6.45	256.7	-0.053	6.45	470.3	-0.031	6.45	725.2	-0.035			
6.50	257.2	-0.057	6.50	471.4	-0.034	6.50	727.1	-0.036			
6.56	257.4	-0.059	6.56	473.0	-0.035	6.55	730.2	-0.040			
6.61	257.3	-0.061	6.61	474.6	-0.037	6.61	731.7	-0.041			
6.65	257.4	-0.062	6.66	476.3	-0.039	6.66	734.0	-0.047			
6.65	261.1	-0.018	6.71	477.5	-0.041	6.71	735.1	-0.050			
6.70	275.0	-0.025	6.76	478.5	-0.042	6.76	735.0	-0.050			
6.75	301.9	-0.029	6.81	480.4	-0.046	6.81	736.1	-0.054			
6.80	317.6	-0.038	6.86	481.3	-0.047	6.86	736.1	-0.058			
6.85	323.2	-0.049	6.91	481.8	-0.048	6.91	738.4	-0.059			
6.90	324.2	-0.058	6.96	482.8	-0.050	6.96	739.2	-0.062			
6.95	324.0	-0.063	7.01	483.4	-0.050	7.01	740.6	-0.063			
7.00	322.6	-0.069	7.06	484.3	-0.051	7.06	742.6	-0.066			
7.06	321.7	-0.073	7.11	484.4	-0.052	7.11	744.7	-0.073			

7.11	321.2	-0.077	7.17	484.7	-0.053	7.16	745.8	-0.075			
7.16	320.3	-0.083	7.22	485.3	-0.054	7.22	746.0	-0.075			
7.21	319.1	-0.089	7.27	487.2	-0.056	7.27	746.8	-0.076			
7.26	318.4	-0.097	7.32	487.4	-0.057	7.32	749.4	-0.080			
7.31	317.8	-0.107	7.37	488.3	-0.058	7.37	750.8	-0.080			
7.36	317.0	-0.112	7.42	488.7	-0.060	7.42	752.1	-0.082			
7.41	316.6	-0.116	7.47	489.8	-0.062	7.47	752.9	-0.088			
7.46	315.7	-0.120	7.52	490.5	-0.064	7.52	754.7	-0.091			
7.51	315.3	-0.123	7.57	491.5	-0.062	7.57	752.4	-0.098			
7.56	314.4	-0.129	7.62	491.4	-0.066	7.62	754.3	-0.095			
7.61	313.6	-0.135	7.67	491.5	-0.066	7.67	756.2	-0.097			
7.67	313.3	-0.138	7.72	492.3	-0.066	7.72	757.7	-0.099			
7.72	312.5	-0.142	7.77	492.1	-0.070	7.77	758.9	-0.102			
7.77	311.5	-0.149	7.83	490.3	-0.072	7.81	759.2	-0.103			
7.82	311.0	-0.153	7.88	490.5	-0.071						
7.87	311.0	-0.157	7.93	491.2	-0.071						
7.92	310.5	-0.160	7.93	491.3	-0.071						
7.92	310.6	-0.159									

TM	April 9, 2013	ROB	April 17, 2013
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX C4

FAULT GOUGE TRIAXIAL TESTING RESULTS

(Pages C4-1 to C4-12)

Golder Associates Ltd -Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

Consolidated Undrained Triaxial Compression Test for Soils

Reference: ASTM D4767

Client:	Knight Piesold Ltd	**Drillhole:**	GM12-12
Project:	VA101-457/4	**Sample:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 -44.5
Project No.:	11-1415-0001	**Lab ID No:**	22

Test	CIU1	CIU2	CIU3		
Sample	Multi-Stage Test				
Initial Dimensions					
H_o (cm)	13.09				
D_o (cm)	6.22				
Gs (calculated)	2.75				
w (%)	2.9				
$\gamma_{o\ dry}$ (kN/m^3)	24.05				
Sat. (%)	100				
e_o	0.15				
B_{Value}	0.95				
Consolidation Results					
σ_{CELL} (kPa)	1066	1366	1859		
OCR	n/a	n/a	n/a		
$\sigma_{3c'}$ (kPa)	220	508	1011		
ΔV_c (cc)	-5.6	-2.8	-2.2		
t_{50} (min)	1.6	3.4	3.7		
After Consolidation Dimensions					
H_c (cm)	13.21	12.78	12.53		
D_c (cm)	6.25	6.33	6.37		
A_c (cm^2)	30.66	31.46	31.90		
V_c (cm^3)	404.9	402.1	399.8		
$\gamma_{c\ dry}$ (kN/m^3)	23.64	23.81	23.94		
e_c	0.14	0.13	0.13		
w (%)	5.1	4.8	4.6		
Sat (%)	100	100	100		
Failure At Maximum Deviator Stress $\sigma_1'-\sigma_3'$:					
$\sigma_1'-\sigma_3'$ (kPa) :	701	1323	3767		
ε_f (%)	2.84	1.64	15.06		
u (kPa)	-43	-15	-591		
σ_3' (kPa)	245	523	1598		
σ_1' (kPa)	946	1846	5365		

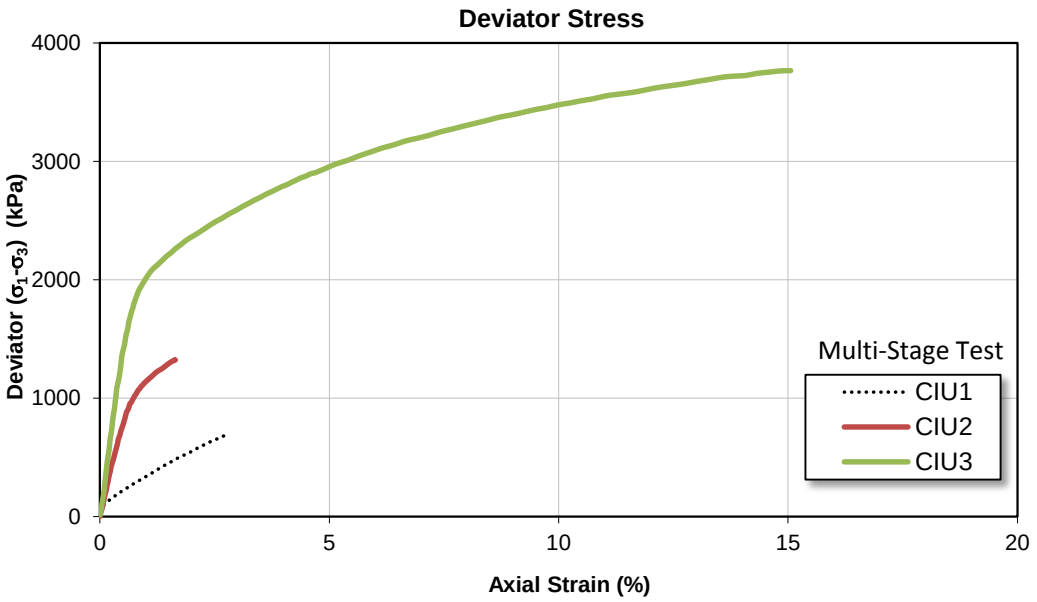
TM	March 15, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

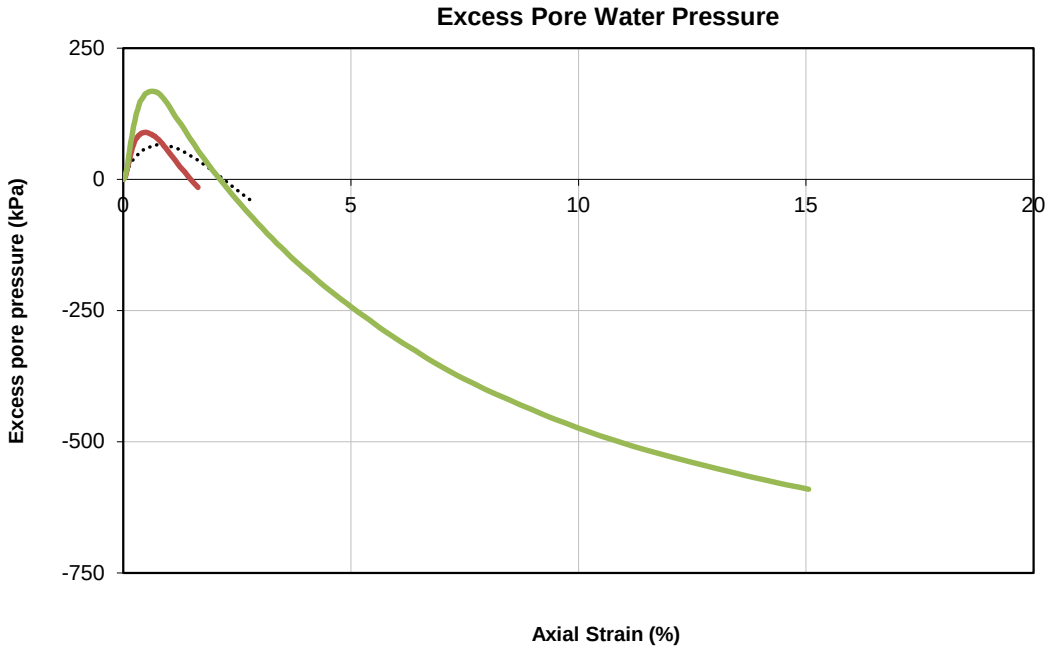
Golder Associates Ltd -Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

Consolidated Undrained Triaxial Compression Test for Soils

Reference ASTM D4767

Client:	Knight Piesold Ltd	**Drillhole:**	GM12-12
Project:	VA101-457/4	**Sample:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 -44.5
Project No.:	11-1415-0001	**Lab ID No:**	22





TM	March 15, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

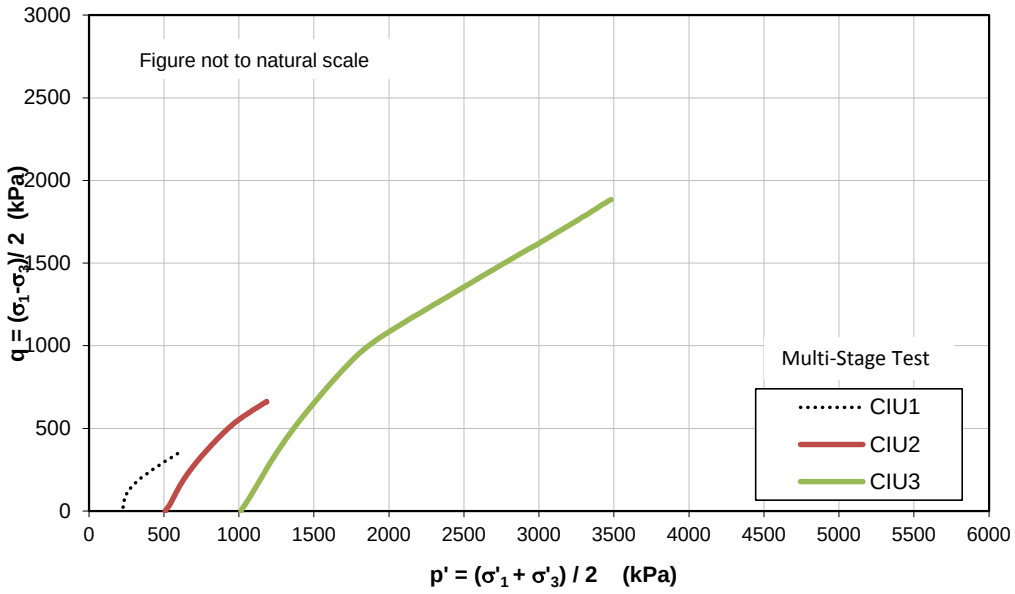
Golder Associates Ltd -Burnaby Laboratory
4280 Still Creek Drive
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Consolidated Undrained Triaxial Compression Test for Soils

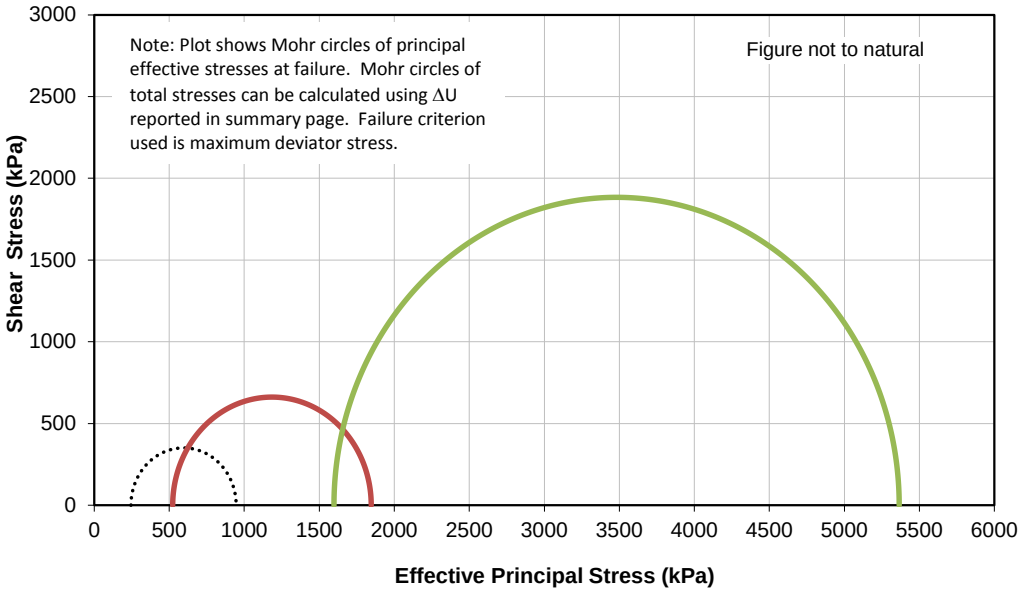
Reference ASTM D4767

Client:	Knight Piesold Ltd	**Drillhole:**	GM12-12
Project:	VA101-457/4	**Sample:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 -44.5
Project No.:	11-1415-0001	**Lab ID No:**	22

Stress Paths



Mohr Circles Deviator Stress



TM	March 15, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd -Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

Consolidated Undrained Triaxial Compression Test for Soils

Reference: ASTM D4767

Client:	Knight Piesold Ltd	**Drillhole:**	GM12-12
Project:	VA101-457/4	**Sample:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 -44.5
Project No.:	11-1415-0001	**Lab ID No:**	22

Type :	Undisturbed	**Soil Classification:**	N/A
Saturation Method:	Wet	**Material Type**	Volcaniclastic
Visual Description	Weathered Fault Gouge		
Other Remarks:	MULTI-STAGE TEST		

Sample Data

	Before Consolidation	After Consolidation
Height (cm):	13.09	13.21
Diameter (cm):	6.22	6.25
Area (cm^2):	30.40	30.66
Volume (cm^3):	398	405
γ_{dry} (kN/m^3):	24.05	23.64
γ_{sat} (kN/m^3):	25.33	24.85
Water content, w (%):	2.9	5.1
Saturation (%):	100	100
Void ratio, e:	0.15	0.14
Gs (calculated):	2.75	2.75

Consolidation Results

$\sigma'_{eff} = \sigma_{cell} - \sigma_{pwp}$ (kPa)	220
σ_{pwp} (kPa):	861
B value:	0.95
Volume Change (cc):	-5.6
t_{50} (min):	1.6

Strength Results

$\sigma_1' - \sigma_3'_{MAX}$:	701
Strain, ε_f:	2.84
u (kPa):	-43
σ_1' (kPa):	946
σ_3' (kPa):	245

Equipment

Machine:	Truepath Load Frame - Stn. 5
Chamber:	KW
Load Cell:	468925
Axial DCDT:	LP-828
Cell Pressure:	PS-3373
Back Pressure:	PS-3359
Pore Pressure:	PS-2272
Feed Rate (%/hr):	1.00

PHOTO AT END OF TEST

NA

TESTED BY	DATE	CHECKED BY	DATE
TM	March 15, 2013	ROB	April 10, 2013

Golder Associates Ltd -Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

Consolidated Undrained Triaxial Compression Test for Soils

Reference: ASTM D4767

Client:	Knight Piesold Ltd	**Drillhole:**	GM12-12
Project:	VA101-457/4	**Sample:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 -44.5
Project No.:	11-1415-0001	**Lab ID No:**	22

Type :	Undisturbed	**Soil Classification:**	N/A
Saturation Method:	Wet	**Material Type**	Volcaniclastic
Visual Description	Weathered Fault Gouge		
Other Remarks:	MULTI-STAGE TEST		

Sample Data

	Before Consolidation	After Consolidation
Height (cm):	12.83	12.78
Diameter (cm):	6.34	6.33
Area (cm^2):	31.57	31.46
Volume (cm^3):	405	402
γ_{dry} (kN/m^3):	23.64	23.81
γ_{sat} (kN/m^3):	24.85	24.96
Water content, w (%):	5.1	4.8
Saturation (%):	100	100
Void ratio, e:	0.14	0.13
Specific Gravity (calculated):	2.75	2.75

Consolidation Results

$\sigma'_{eff} = \sigma_{cell} - \sigma_{pwp}$ (kPa)	508
σ_{pwp} (kPa):	858
B value:	0.95
Volume Change (cc):	-2.8
t_{50} (min):	3.4

Strength Results

$\sigma_1' - \sigma_3'_{MAX}$:	1323
Strain, ε_f:	1.64
u (kPa):	-15
σ_1' (kPa):	1846
σ_3' (kPa):	523

Equipment

Machine:	Truepath Load Frame - Stn. 5
Chamber:	KW
Load Cell:	468925
Axial DCDT:	LP-828
Cell Pressure:	PS-3373
Back Pressure:	PS-3359
Pore Pressure:	PS-2272
Feed Rate (%/hr):	1.00

PHOTO AT END OF TEST

NA

TM	March 15, 2013	ROB	April 10, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd -Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

Consolidated Undrained Triaxial Compression Test for Soils

Reference ASTM D4767

Client:	Knight Piesold Ltd	**Drillhole:**	GM12-12
Project:	VA101-457/4	**Sample:**	Gouge #1
Location:	Blackwater	**Depth (m):**	44.2 -44.5
Project No.:	11-1415-0001	**Lab ID No:**	22

Type :	Undisturbed	**Soil Classification:**	N/A
Saturation Method:	Wet	**Material Type**	Volcaniclastic
Visual Description	Weathered Fault Gouge		
Other Remarks:	MULTI-STAGE TEST		

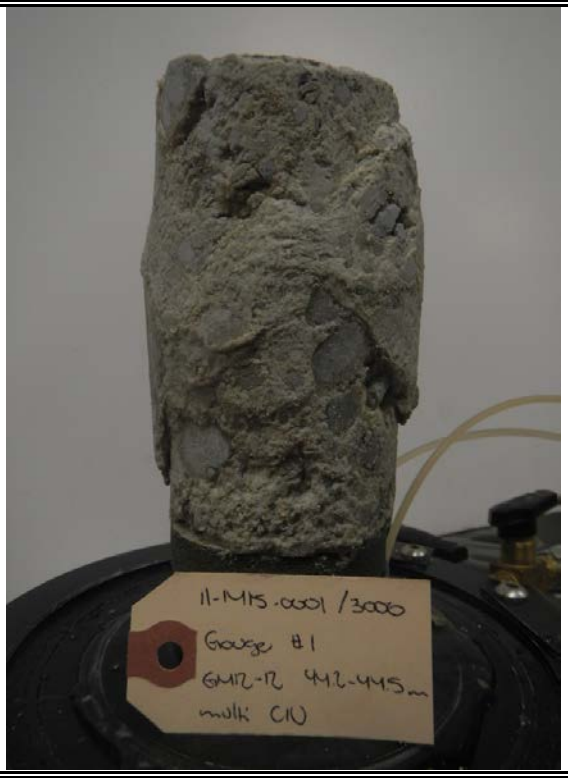
Sample Data

	Before Consolidation	After Consolidation
Height (cm):	12.57	12.53
Diameter (cm):	6.38	6.37
Area (cm^2):	31.99	31.90
Volume (cm^3):	402	400
γ_{dry} (kN/m^3):	23.81	23.94
γ_{sat} (kN/m^3):	24.96	25.05
Water content, w (%):	4.8	4.6
Saturation (%):	100	100
Void ratio, e:	0.13	0.13
Specific Gravity (calculated):	2.75	2.75

Equipment

Machine:	Truepath Load Frame - Stn. 5
Chamber:	KW
Load Cell:	468925
Axial DCDT:	LP-828
Cell Pressure:	PS-3373
Back Pressure:	PS-3359
Pore Pressure:	PS-2272
Feed Rate (%/hr):	1.00

PHOTO AT END OF TEST



Consolidation Results

$\sigma'_{eff} = \sigma_{cell} - \sigma_{pwp}$ (kPa)	1011
σ_{pwp} (kPa):	852
B value:	0.95
Volume Change (cc):	-2.2
t_{50} (min):	3.7

Strength Results

$\sigma_1' - \sigma_3'_{MAX}$:	3767
Strain, ε_f:	15.06
u (kPa):	-591
σ_1' (kPa):	5365
σ_3' (kPa):	1598

TESTED BY	DATE	CHECKED BY	DATE
TM	March 15, 2013	ROB	April 10, 2013

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby,B.C. Canada V5C 6C8

SPECIFIC GRAVITY OF SOIL SOLIDS

Reference
ASTM C 127-07
ASTM D 854-10 Method B

Project No.:	11-1415-0001/3000	**Borehole**	**GM12-12**
Client:	Knight Piesold	**Sample No.:**	Gouge #1
Project:	Proj VA101-457/4	**Depth (m):**	44.2-44.5
Location:	Blackwater	**Lab Sch No:**	22

Specific Gravity of Fine Fraction (ASTM D 854-06)

Percentage Passing #4 sieve		66.37		
Test Number		1		2
Flask Number		3		6
Air Removal Method		Vacuum		Vacuum
Mass of Flask (g)		173.96		173.28
Mass of Flask + Dry Soil (g)	M_P	374.83		368.36
Mass of Dry Soil (g)		200.69		194.75
Mass of Flask + Soil + Water (g)	$M_{\rho ws,t}$	800.05		795.34
Test Temperature (g)	T_t	19.80		19.80
Mass of Flask + Water (g)	$M_{\rho w,t}$	672.44		671.69
Mass of Dish + Dry Soil (g)		559.80		542.43
Mass of Dish (g)		359.11		347.68
Mass of Oven Dry Soil (g)	M_S	200.69		194.75
Temperature Coefficient	K	1.00		1.00
Density of Solids (g/cm3)	ρ_s	2.75		2.74
Specific Gravity at Test Temperature	G_t	2.75		2.74
Specific Gravity at 20ºC	$G_{20ºC}$	2.75		2.74
AVERAGE SPECIFIC GRAVITY		**2.75**		

Specific Gravity of Coarse Fraction (ASTM C 127-07)

Percentage Retained on #4 sieve		33.63
Mass of Sample in Water (g)	A	188.11
Mass of Sample @ SSD (g)	B	300.43
Mass of Oven Dryed Sample (g)	C	295.52
Bulk G (Oven Dry)	C/(B-A)	2.63
Bulk G (SSD)	B/(B-A)	2.67
Apparent	C/(C-A)	2.75
Absorbtion (%)	(B-C)/C	1.66

Combined Specific Gravity

COMBINED SPECIFIC GRAVITY	$G_{avg\ @20ºC}$	2.75

** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

EB	March 22, 2013	LP	March 25,2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Laboratory
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C8

Triaxial Compressive Strength of Undrained Rock Core Specimens

Reference
ASTM D7012-07 Method A

Project No.:	11-1415-0001/3000
Project:	Black Water
Client:	Knight Piesold
Location:	Not Provided
Lab ID	22

Failure Mode

(1) Diagonal shear plane(s) (5) Conical
(2) Multi-vertical fracture (6) Spalling
(3) Vertical splitting (7) Other
(4) Shear along foliation / discontir Note: (deg) measured from core axis

									Wet		Dry	Stress	Stress			
No.	**Borehole**	**Sample**	**Depth**	**Dia**	**Ht**	**A**	**V**	**Mass**	**Density**	**W**	**Density**	**σ_1**	**σ_3**	**Rock Type**	**Failure Mode**	
	#	#	(m)	(mm)	(mm)	(cm^2)	(cm^3)	(g)	(Kg/M^3)	(%)	(Kg/M^3)	(MPa)	(MPa)		Type	(deg)
1	GM12-09	TRI-1A	229.60-229.90	Sample Broken - Not Testable												
2	GM12-09	TRI-1B	230.00-230.40	Sample Broken - Not Testable												
3	GM12-09	TRI-1C	230.40-230.80	60.46	125.74	28.71	360.99	977.90	2709	0.30	2701	146.33	1.50	Andesite	4	~15
4	GM12-13	TRI-1A	160.90-161.20	60.98	125.62	29.21	366.88	985.00	2685	0.39	2674	157.57	0.50	Andesite	4	8
5	GM12-13	TRI-1B	152.20-162.60	61.00	126.00	29.22	368.23	987.50	2682	0.32	2673	44.55	1.00	Andesite	4	27
6	GM12-13	TRI-1C	162.60-162.90	61.10	125.16	29.32	366.98	978.60	2667	0.37	2657	156.51	1.50	Andesite	4/2	N/A

G. Patton	March 5, 2013	E. Kostyukov	March 6, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Triaxial Compressive Strength of Undrained Rock Core Specimens

Reference
ASTM D7012-07 Method A

Project No.:	11-1415-0001/3000	**Borehole:**	**GM12-09**
Project:	Black Water	**Sample Number:**	TRI-1C
Location:	Not Provided	**Depth (m):**	230.40-230.80
Client:	Knight Piesold	**Lab ID No:**	22

Testing Results

Max Load (kN)	**420.10**
Stress σ1 (MPa)	**146.3**
Stress σ3 (MPa)	1.5
Lithology	Andesite

Sample Measurements

Diameter (mm)	60.46
Height (mm)	125.74
Area (cm^2)	28.71
Volume (cm^3)	360.99
Mass (g)	977.9
Moisture Content (%)	0.30
Wet Density (Kg/m^3)	2709
Dry Density (Kg/m^3)	2701

Failure Mode

Type: **4**

Degrees:* **~15**

* Degrees measured with respect to core axis.

Notes

- Water content as received

Mode:

(1) Diagonal shear plane(s)
(2) Vertical fracture(s)
(3) Vertical splitting
(4) Shear along foliation /discontinuity
(5) Conical
(6) Spalling
(7) Other

Comments

** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data given here may be provided upon request.*



BEFORE TEST



AFTER TEST

G. Patton	March 5, 2013	E. Kostyukov	March 6, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Triaxial Compressive Strength of Undrained Rock Core Specimens

Reference
ASTM D7012-07 Method A

Project No.:	11-1415-0001/3000	**Borehole:**	**GM12-13**
Project:	Black Water	**Sample Number:**	TRI-1A
Location:	Not Provided	**Depth (m):**	160.90-161.20
Client:	Knight Piesold	**Lab ID No:**	22

Testing Results		Sample Measurements	
Max Load (kN)	**460.20**	Diameter (mm)	60.98
		Height (mm)	125.62
Stress σ1 (MPa)	**157.6**	Area (cm^2)	29.21
		Volume (cm^3)	366.88
Stress σ3 (MPa)	0.5	Mass (g)	985.0
		Moisture Content (%)	0.39
Lithology	Andesite	Wet Density (Kg/m^3)	2685
		Dry Density (Kg/m^3)	2674

Failure Mode		Notes
		- Water content as received
Type:	**4**	**Mode:**
		(1) Diagonal shear plane(s)
Degrees:*	**8**	(2) Vertical fracture(s)
		(3) Vertical splitting
		(4) Shear along foliation /discontinuity
		(5) Conical
* Degrees measured with respect to core axis.		(6) Spalling
		(7) Other

Comments

** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data given here may be provided upon request.*



BEFORE TEST



AFTER TEST

G. Patton	March 5, 2013	E. Kostyukov	March-06-13
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Triaxial Compressive Strength of Undrained Rock Core Specimens

Reference
ASTM D7012-07 Method A

Project No.:	11-1415-0001/3000	**Borehole:**	**GM12-13**
Project:	Black Water	**Sample Number:**	TRI-1B
Location:	Not Provided	**Depth (m):**	152.20-162.60
Client:	Knight Piesold	**Lab ID No:**	22

Testing Results		Sample Measurements	
Max Load (kN)	**130.20**	Diameter (mm)	61.00
		Height (mm)	126.00
Stress σ1 (MPa)	**44.6**	Area (cm^2)	29.22
		Volume (cm^3)	368.23
Stress σ3 (MPa)	1.0	Mass (g)	987.5
		Moisture Content (%)	0.32
Lithology	Andesite	Wet Density (Kg/m^3)	2682
		Dry Density (Kg/m^3)	2673

Failure Mode		Notes
		- Water content as received
Type:	**4**	**Mode:**
		(1) Diagonal shear plane(s)
Degrees:*	**27**	(2) Vertical fracture(s)
		(3) Vertical splitting
		(4) Shear along foliation /discontinuity
		(5) Conical
* Degrees measured with respect to core axis.		(6) Spalling
		(7) Other

Comments

** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data given here may be provided upon request.*



BEFORE TEST



AFTER TEST

G. Patton	March 5, 2013	E. Kostyukov	March 6, 2013
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. - Burnaby Lab
4280 Still Creek Drive
Burnaby, B.C. Canada V5C 6C6

Triaxial Compressive Strength of Undrained Rock Core Specimens

Reference
ASTM D7012-07 Method A

Project No.:	11-1415-0001/3000	**Borehole:**	**GM12-13**
Project:	Black Water	**Sample Number:**	TRI-1C
Location:	Not Provided	**Depth (m):**	162.60-162.90
Client:	Knight Piesold	**Lab ID No:**	22

Testing Results		Sample Measurements	
Max Load (kN)	**458.90**	Diameter (mm)	61.10
		Height (mm)	125.16
Stress σ1 (MPa)	**156.5**	Area (cm^2)	29.32
		Volume (cm^3)	366.98
Stress σ3 (MPa)	1.5	Mass (g)	978.6
		Moisture Content (%)	0.37
Lithology	Andesite	Wet Density (Kg/m^3)	2667
		Dry Density (Kg/m^3)	2657

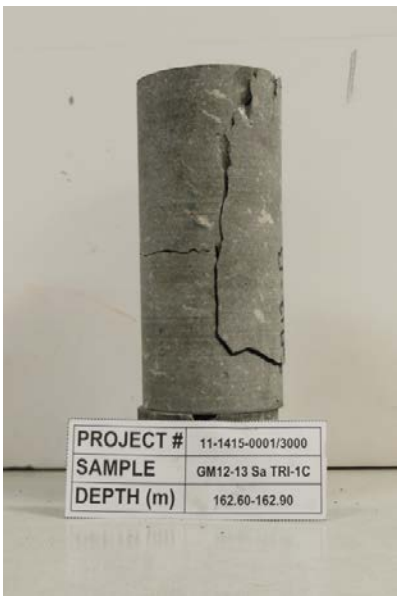
Failure Mode		Notes
		- Water content as received
Type:	**4/2**	**Mode:**
		(1) Diagonal shear plane(s)
Degrees:*	**N/A**	(2) Vertical fracture(s)
		(3) Vertical splitting
		(4) Shear along foliation /discontinuity
		(5) Conical
* Degrees measured with respect to core axis.		(6) Spalling
		(7) Other

Comments

** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data given here may be provided upon request.*



BEFORE TEST



AFTER TEST

G. Patton	March 5, 2013	E. Kostyukov	March-06-13
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX C5

FAULT GOUGE XRD TESTING RESULTS

(Page C5-1)

Knight Piésold CONSULTING

APPENDIX TABLE C5.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

2013 OPEN PIT SLOPE DESIGN
2µm FRACTION X - RAY DIFFRACTION ANALYTICAL RESULTS

Drillhole	Sample ID	Depth		Approximate Wt %							
		From (m)	To (m)	Quartz	Mica/illite	Plagioclase feldspar	Smectite	Kaolinite	Barrerite	Calcite	Unidentified
BWWR 13	S1	228.0	288.2	<5	21	-	33	38	<3?	<3?	<5
GM12-07	XRD 10-01	389.6	389.8	11	74	-	12	<5	-	-	<5
GM12-10	XRD 07-01	297.7	297.8	<5	62	-	23	11	-	-	<5

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Tables\[Tables Open Pit Report Master - 10 April 2013.xlsx]Appendix C3_Direct Shear (NEW)

NOTES:

1. ANALYSIS WAS PERFORMED BY THE MINERAL LAB INC.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	9 MAY'13	ISSUED WITH REPORT	ML	JS	KJB

APPENDIX D

KINEMATIC STABILITY ANALYSIS

(Pages D-1 to D-23)

Knight Piésold CONSULTING

TABLE D.1

NEW GOLD INC.
BLACKWATER GOLD PROJECT

STABILITY ANALYSES
KINEMATIC SUMMARY TABLE

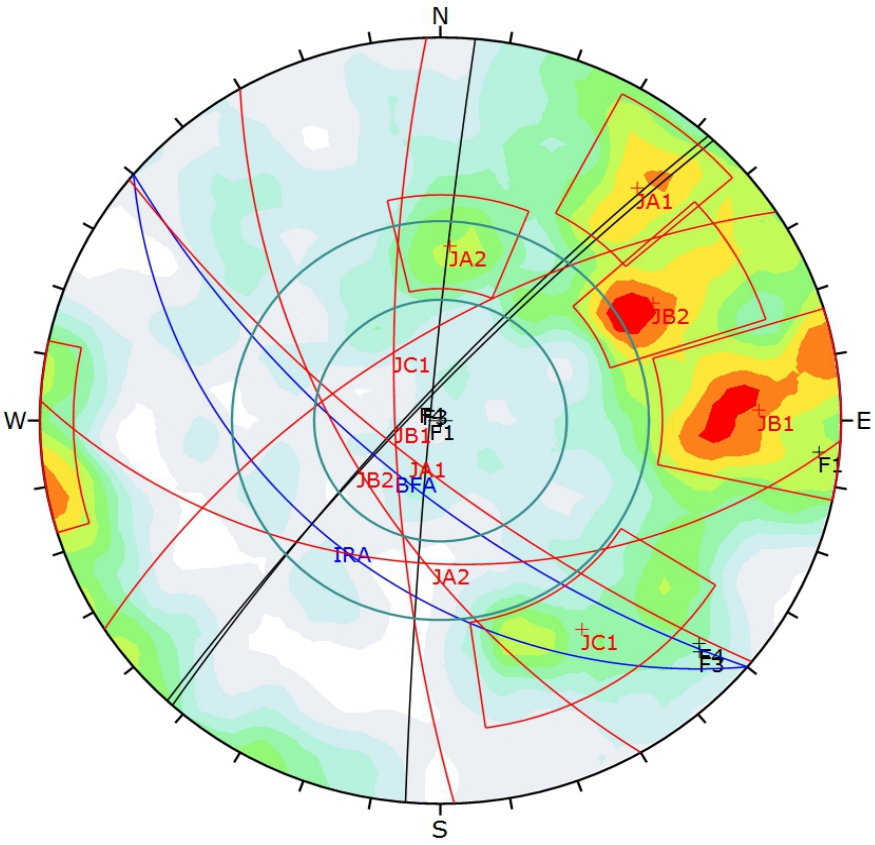
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Design Sector	Joint Sets (Dip/Dip Direc)	Faults (Dip/Dip Direc)	Wall Orientation (Dip/Dip Dir) *Inter-ramp* [Bench Face]	Kinematically Possible Failure Modes					
				Inter-ramp Scale			Bench Scale		
				Planar	Wedge	Topple	Planar	Wedge	Topple
NORTHEAST	JA1 76/219 JA2 49/183 JB1 77/268 JB2 63/240 JC1 66/327	F1 87/275 F3 83/313 F4 82/312	*45/220* [70/220]				JB2, JA2 JA1 (minor)	JB1/JA2 JB2/JA2 JB1/JB2	
			45/250 [70/250]		F3/JA2 F4/JA2		JB2 JB1 (minor)	JB1/JA2 JA1/JC1 JB2/JA1	JB1 (minor)
			45/270 [70/270]				JB2 JB1 (minor)	JA1/JC1 JB2/JC1 JA1/JB2	JB1 (minor)
SOUTHEAST	JB1 62/293 JC1 84/331 JC2 88/033 JD1 48/106	F1 87/275 F5 76/335 F6 75/350 F7 47/060	*39/000* [70/000]		F7/F1 F7/JB1 F1/JB1			JD1/JC1	
			39/280 [70/280]				JB1	JB1/JC2 JB1/F6 JB1/F5 JB1/JC1	JD1 (minor)
			39/300 [70/300]				JB1	JB1/JC2 JB1/JC1	JD1 (minor)
			39/330 [70/330]		JB1/F7 JB1/F1 F7/F1			JC2/JB1	JC1 (minor)
SOUTH	JA1 90/161 JA2 51/211	F4 82/312 F5 76/335 F6 75/350 F7 47/060 F8 43/058	*46/000* [70/000]						JA1
			46/020 [70/020]		JA1/F6 F4/F7 F4/F8				JA2 (minor)
			46/340 [70/340]						JA1
SOUTHWEST	JA1 61/212 JB1 88/269 JB2 15/279 JC1 89/335	F3 83/313 F4 82/312 F5 76/335 F6 75/350 F8 43/058	*46/000* [70/000]		JB1/F8			F8/F3 F8/F4 F8/F5 F8/F6 F8/JC1 F6/JC1	JA1 (minor) JC1 (minor)
			43/060 [70/060]	F8	F6/F8 JC1/F8				JB1 JA1 (minor)
			43/090 [70/090]						JB1
WEST	JA1 89/165 JB1 88/269 JB2 39/262	F2 69/155 F3 83/313 F8 43/058	*46/090* [70/090]		F2/F8 F2/JA1 F8/JA1				JB1
			43/150 [70/150]			F3			JA1 (minor)
NORTHWEST	JA1 69/173 JB1 38/224 JD1 90/131	F2 69/155 F7 47/060	*39/140* [70/140]				JA1		JD1 (minor)
			39/180 [70/180]				JA1 JB1 (minor)	JB1/JD1 JA1/JB1 JA1/JD1	
			39/230 [70/230]		F2/JB1		JB1	JA1/JD1 JB1/JD1 JA1/JB1	
NORTH (INTERIM PITS)	JA1 46/186 JB1 89/266 JB2 57/241 JB3 32/278	F1 87/275 F2 69/155 F3 83/313 F7 47/060	*39/140* [70/140]		JA1/F7	F3		JA1/JB1 JA1/JB2	
			39/180 [70/180]		F3/JB3 F2/JB3		JA1	JA1/JB2 JA1/JB1 JA1/JB3	
			39/220 [70/220]		F2/F3 F2/JB3 F2/JA1 F3/JA1 F3/JB3		JB2	JB1/JA1 JB2/JA1 JB2/JB1	
			39/270 [70/270]		F2/JB3 F3/JB3		JB2 JB3		JB1

M:\1\01\00457\06\A\Report\2 - 2012 Open Pit Slope Design Report\Appendices\Appendix D - Kinematic\[Kinematic Summary Table_table D.1.xlsx]VA Table

NOTES:
1. MINOR INDICATES MINOR POTENTIAL DUE TO INCLUSION ON SET, BUT NOT HIGHEST STRUCTURAL CONTOUR OF SET.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
A	22MAY'13	ISSUED WITH REPORT	MF	DY	KJB



NAME DIP / DIP DIRECTION

JA1	76 / 219	
JA2	49 / 183	
JB1	77 / 268	
JB2	63 / 240	
JC1	66 / 327	
F1	87 / 275	(B.W. FAULT NAME 'N')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F4	82 / 312	(B.W. FAULT NAME 'EW-N')

INTER-RAMP KINEMATICS (45 / 220)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 220)

PLANAR	WEDGE	TOPPLE
JB2	JB1 / JA2	None
JA2	JB2 / JA2	
JA1 (M)	JB1 / JB2	

Color	Density Concentrations
	0.00 - 0.31
	0.31 - 0.62
	0.62 - 0.93
	0.93 - 1.24
	1.24 - 1.55
	1.55 - 1.86
	1.86 - 2.17
	2.17 - 2.48
	2.48 - 2.79
	2.79 - 3.10

Maximum Density	3.04%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1079 (1079 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-07, GM12-06, GM12-08, GM12-13

NEW GOLD INC.

BLACKWATER GOLD PROJECT

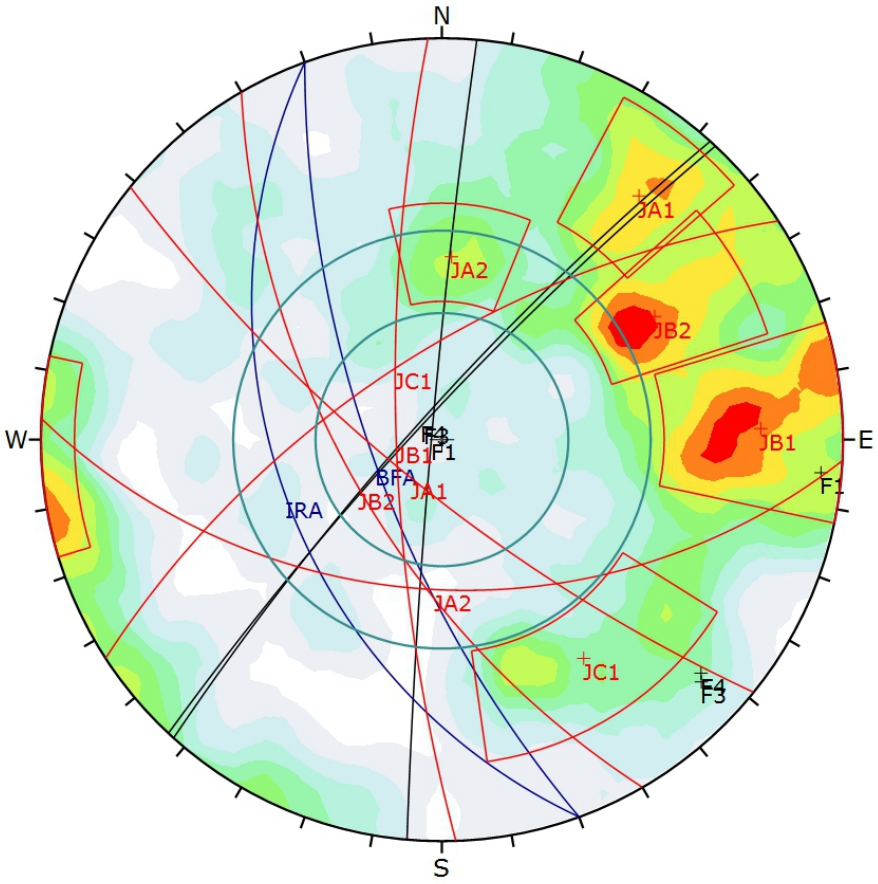
KINEMATIC ANALYSES
NORTHEAST SECTOR - 220°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.1 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	76 / 219	
JA2	49 / 183	
JB1	77 / 268	
JB2	63 / 240	
JC1	66 / 327	
F1	87 / 275	(B.W. FAULT NAME 'N')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F4	82 / 312	(B.W. FAULT NAME 'EW-N')

INTER-RAMP KINEMATICS (45 / 250)

PLANAR	WEDGE	TOPPLE
None	F3 / JA2	None
	F4 / JA2	

BENCH KINEMATICS (70 / 250)

PLANAR	WEDGE	TOPPLE
JB2	JB1 / JA2	JB1 (M)
JB1 (M)	JA1 / JC1	
	JB2 / JA1	

Color	Density Concentrations
	0.00 - 0.31
	0.31 - 0.62
	0.62 - 0.93
	0.93 - 1.24
	1.24 - 1.55
	1.55 - 1.86
	1.86 - 2.17
	2.17 - 2.48
	2.48 - 2.79
	2.79 - 3.10

Maximum Density	3.04%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1079 (1079 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-07, GM12-06, GM12-08, GM12-13

NEW GOLD INC.

BLACKWATER GOLD PROJECT

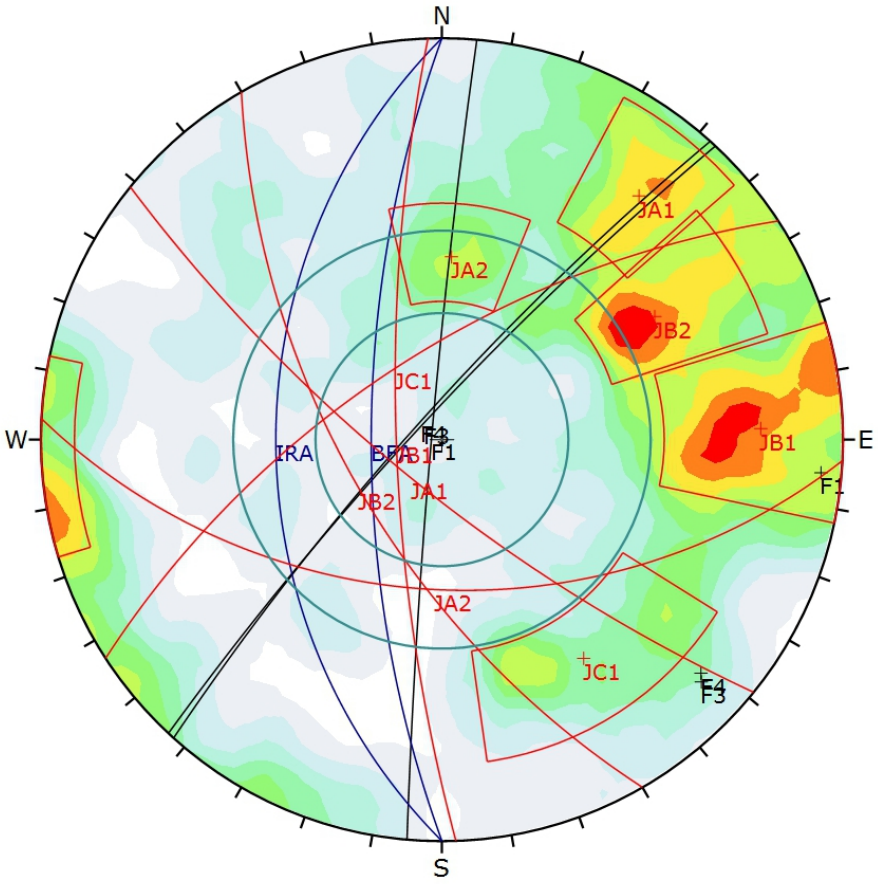
KINEMATIC ANALYSES
NORTHEAST SECTOR - 250°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.2 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	76 / 219	
JA2	49 / 183	
JB1	77 / 268	
JB2	63 / 240	
JC1	66 / 327	
F1	87 / 275	(B.W. FAULT NAME 'N')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F4	82 / 312	(B.W. FAULT NAME 'EW-N')

INTER-RAMP KINEMATICS (45 / 270)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 270)

PLANAR	WEDGE	TOPPLE
JB2	JA1 / JC1	JB1 (M)
JB1 (M)	JB2 / JC1	
	JA1 / JB2	

Color	Density Concentrations
	0.00 - 0.31
	0.31 - 0.62
	0.62 - 0.93
	0.93 - 1.24
	1.24 - 1.55
	1.55 - 1.86
	1.86 - 2.17
	2.17 - 2.48
	2.48 - 2.79
	2.79 - 3.10

Maximum Density	3.04%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1079 (1079 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-07, GM12-06, GM12-08, GM12-13

NEW GOLD INC.

BLACKWATER GOLD PROJECT

KINEMATIC ANALYSES
NORTHEAST SECTOR - 270°

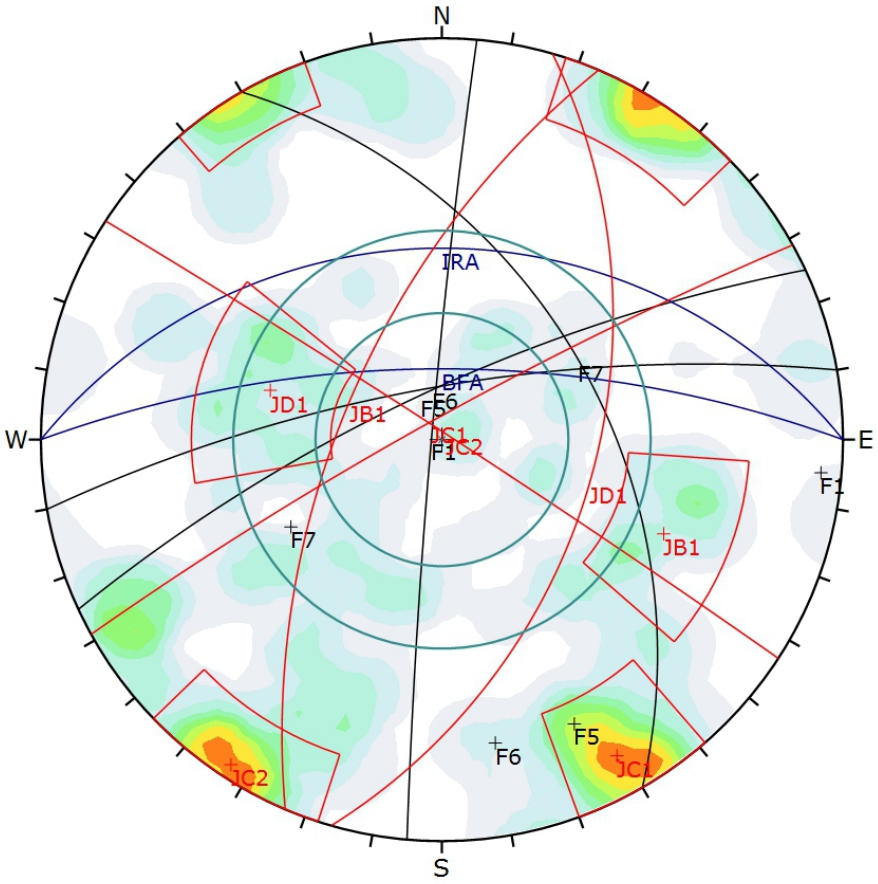
Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.3

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JB1	62 / 293	
JC1	84 / 331	
JC2	88 / 033	
JD1	48 / 106	
F1	87 / 275	(B.W. FAULT NAME 'N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 000)

PLANAR	WEDGE	TOPPLE
None	F7 / F1	None
	F7 / JB1	
	F1 / JB1	

BENCH KINEMATICS (70 / 000)

PLANAR	WEDGE	TOPPLE
None	JD1 / JC1	None

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.43%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	144 (144 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-04, GM12-05, GM12-03

NEW GOLD INC.

BLACKWATER GOLD PROJECT

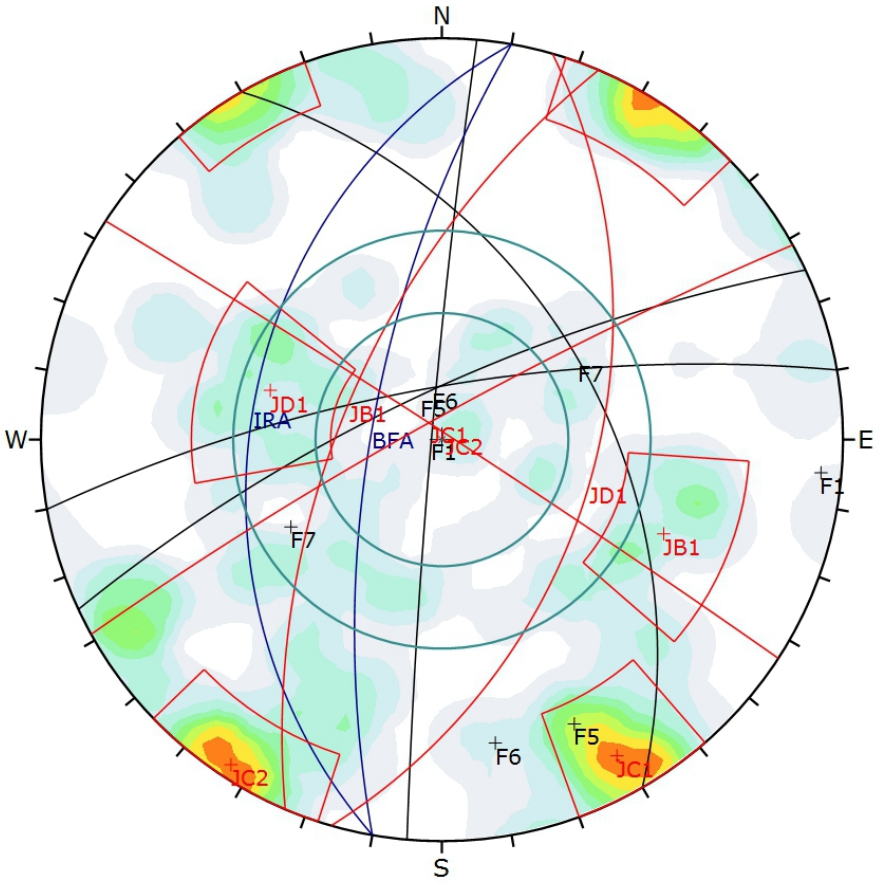
KINEMATIC ANALYSES
SOUTHEAST SECTOR - 000°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.4 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JB1	62 / 293	
JC1	84 / 331	
JC2	88 / 033	
JD1	48 / 106	
F1	87 / 275	(B.W. FAULT NAME 'N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 280)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 280)

PLANAR	WEDGE	TOPPLE
JB1	JB1 / JC2 JB1 / F6 JB1 / F5 JB1 / JC1	JD1 (M)

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.43%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	144 (144 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-04, GM12-05, GM12-03

NEW GOLD INC.

BLACKWATER GOLD PROJECT

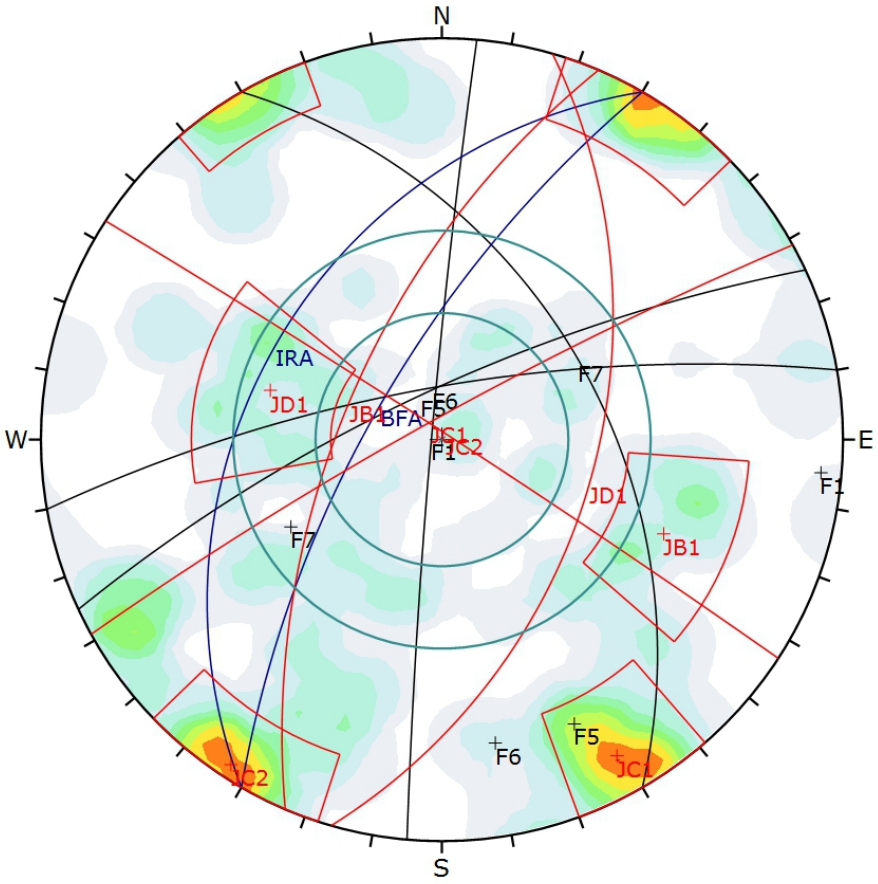
KINEMATIC ANALYSES
SOUTHEAST SECTOR - 280°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.5 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JB1	62 / 293	
JC1	84 / 331	
JC2	88 / 033	
JD1	48 / 106	
F1	87 / 275	(B.W. FAULT NAME 'N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 300)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 300)

PLANAR	WEDGE	TOPPLE
JB1	JB1 / JC2 JB1 / JC1	JD1 (M)

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.43%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	144 (144 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-04, GM12-05, GM12-03

NEW GOLD INC.

BLACKWATER GOLD PROJECT

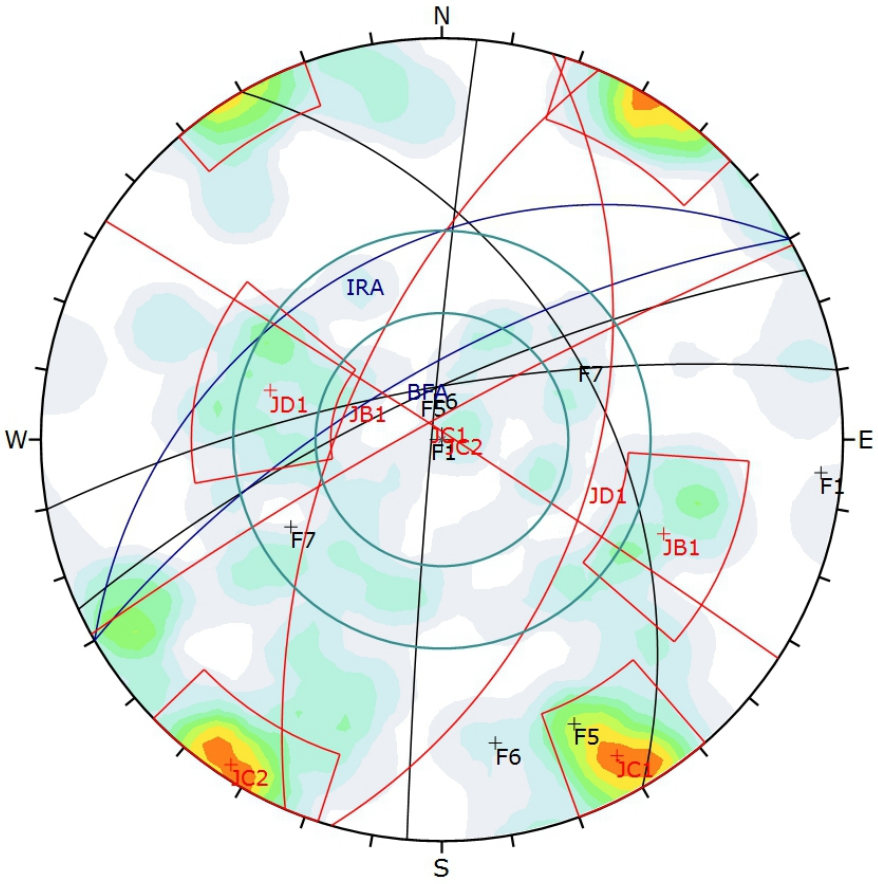
KINEMATIC ANALYSES
SOUTHEAST SECTOR - 300°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.6 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JB1	62 / 293	
JC1	84 / 331	
JC2	88 / 033	
JD1	48 / 106	
F1	87 / 275	(B.W. FAULT NAME 'N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 330)

PLANAR	WEDGE	TOPPLE
None	JB1 / F7 JB1 / F1 F7 / F1	None

BENCH KINEMATICS (70 / 330)

PLANAR	WEDGE	TOPPLE
None	JC2 / JB1	JC1 (M)

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.43%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	144 (144 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-04, GM12-05, GM12-03

NEW GOLD INC.

BLACKWATER GOLD PROJECT

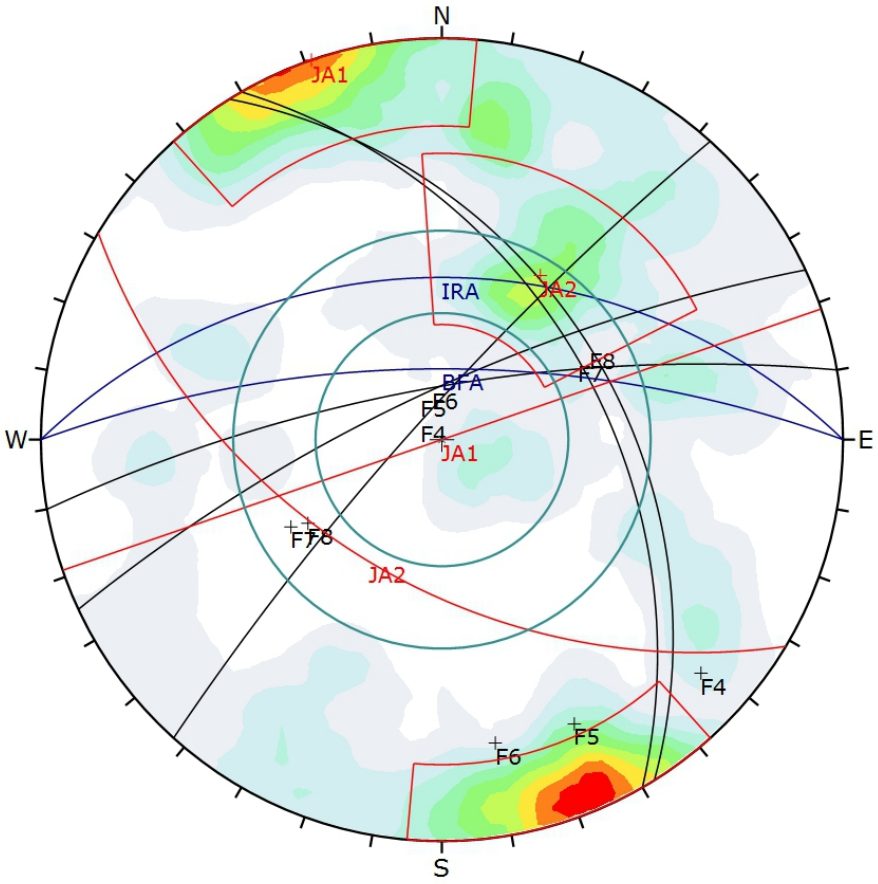
KINEMATIC ANALYSES
SOUTHEAST SECTOR - 330°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.7 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	90 / 161	
JA2	51 / 211	
F4	83 / 312	(B.W. FAULT NAME 'EW-N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (46 / 000)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 000)

PLANAR	WEDGE	TOPPLE
None	None	JA1

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	515 (515 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-01, GM12-02, GM12-04, BWWR12

NEW GOLD INC.

BLACKWATER GOLD PROJECT

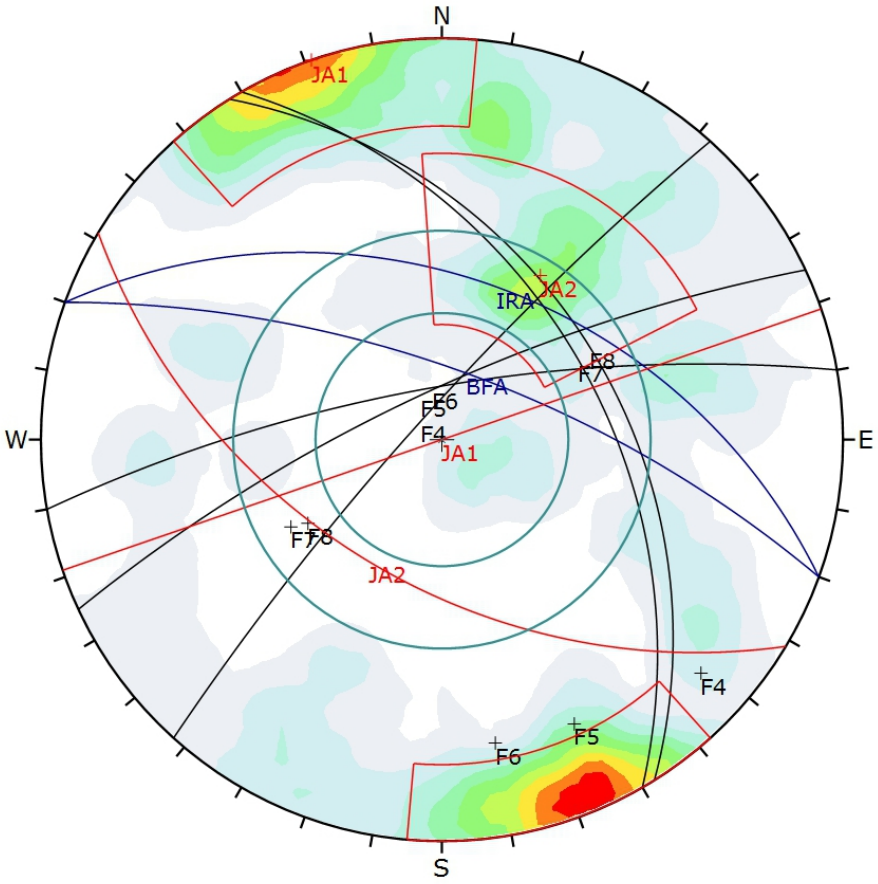
KINEMATIC ANALYSES
SOUTH SECTOR - 000°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.8 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	90 / 161	
JA2	51 / 211	
F4	83 / 312	(B.W. FAULT NAME 'EW-N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (46 / 020)

PLANAR	WEDGE	TOPPLE
None	JA1 / F6 F4 / F7 F4 / F8	None

BENCH KINEMATICS (70 / 020)

PLANAR	WEDGE	TOPPLE
None	None	JA2 (M)

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	515 (515 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-01, GM12-02, GM12-04, BWWR12

NEW GOLD INC.

BLACKWATER GOLD PROJECT

KINEMATIC ANALYSES
SOUTH SECTOR - 020°

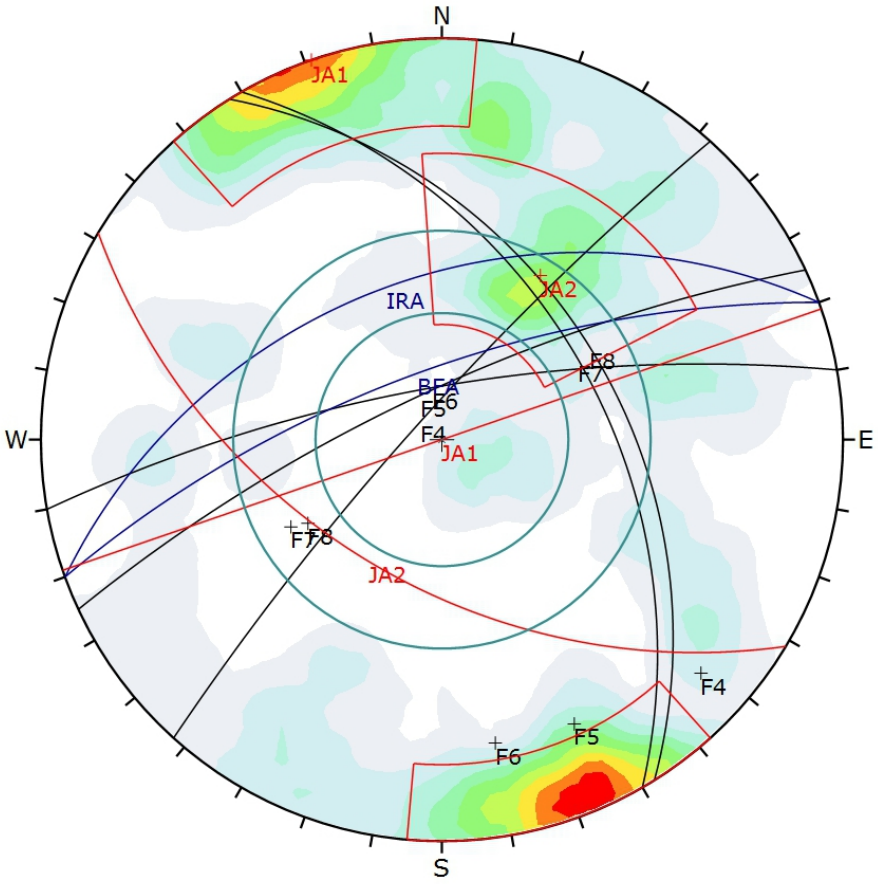
Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.9

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	90 / 161	
JA2	51 / 211	
F4	83 / 312	(B.W. FAULT NAME 'EW-N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (46 / 340)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 340)

PLANAR	WEDGE	TOPPLE
None	None	JA1

Color	Density Concentrations
	0.00 - 0.60
	0.60 - 1.20
	1.20 - 1.80
	1.80 - 2.40
	2.40 - 3.00
	3.00 - 3.60
	3.60 - 4.20
	4.20 - 4.80
	4.80 - 5.40
	5.40 - 6.00

Maximum Density	5.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	515 (515 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-01, GM12-02, GM12-04, BWWR12

NEW GOLD INC.

BLACKWATER GOLD PROJECT

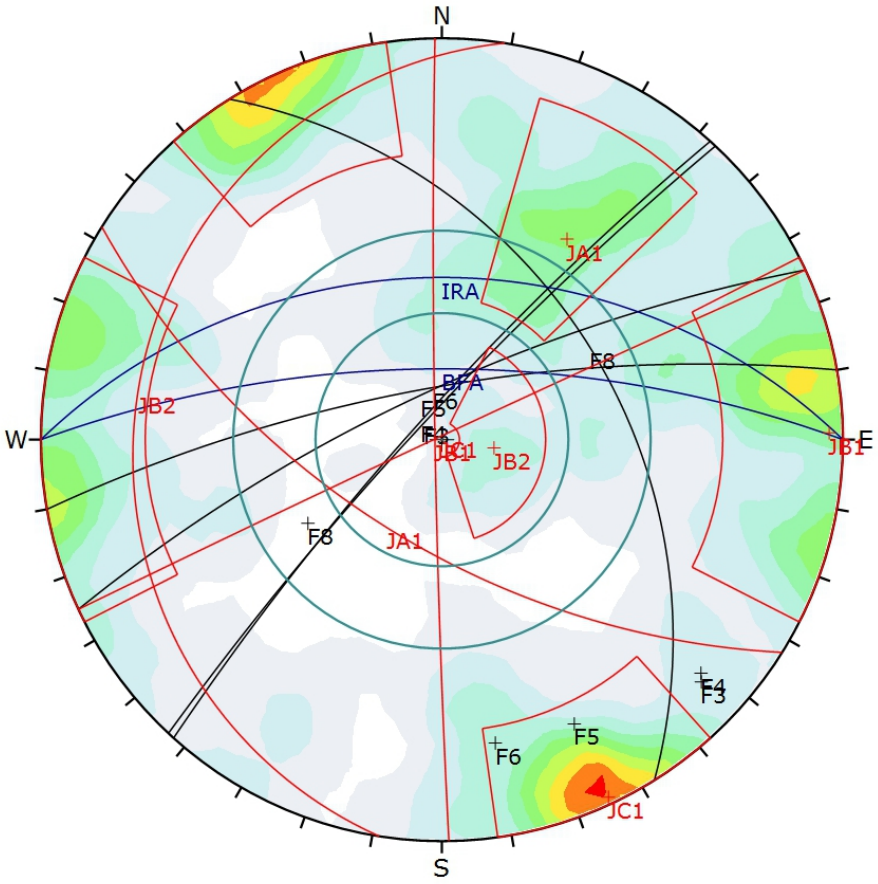
KINEMATIC ANALYSES
SOUTH SECTOR - 340°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.10 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIR

JA1	61 / 212	
JB1	88 / 269	
JB2	15 / 279	
JC1	89 / 335	
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F4	82 / 312	(B.W. FAULT NAME 'EW-N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (46 / 000)

PLANAR	WEDGE	TOPPLE
None	JB1 / F8	None

BENCH KINEMATICS (70 / 000)

PLANAR	WEDGE	TOPPLE
None	F8 / F3	JA1 (M)
	F8 / F4	JC1 (M)
	F8 / F5	
	F8 / F6	
	F8 / JC1	
	F6 / JC1	

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.14%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1213 (1213 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: BWWR14, BWWR13, BWWR12, GM12-11, GM12-01

NEW GOLD INC.

BLACKWATER GOLD PROJECT

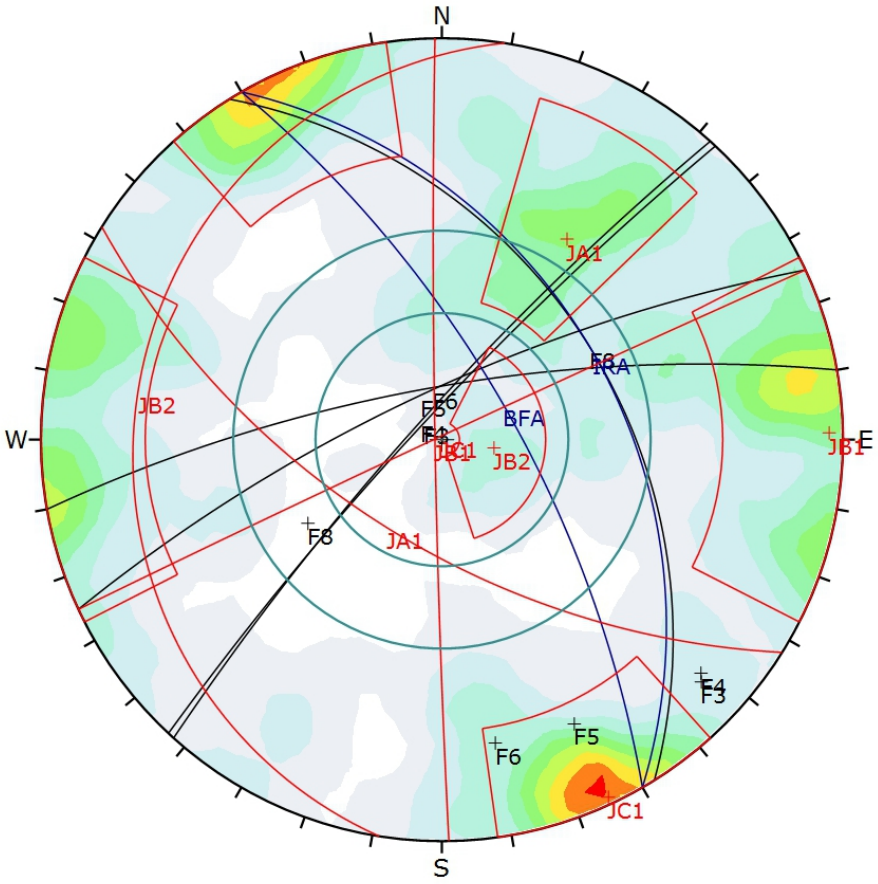
KINEMATIC ANALYSES
SOUTHWEST SECTOR - 000°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.11 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	61 / 212	
JB1	88 / 269	
JB2	15 / 279	
JC1	89 / 335	
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F4	82 / 312	(B.W. FAULT NAME 'EW-N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (43 / 060)

PLANAR	WEDGE	TOPPLE
F8	F6 / F8 JC1 / F8	None

BENCH KINEMATICS (70 / 060)

PLANAR	WEDGE	TOPPLE
None	None	JB1 JA1 (M)

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.14%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1213 (1213 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: BWWR14, BWWR13, BWWR12, GM12-11, GM12-01

NEW GOLD INC.

BLACKWATER GOLD PROJECT

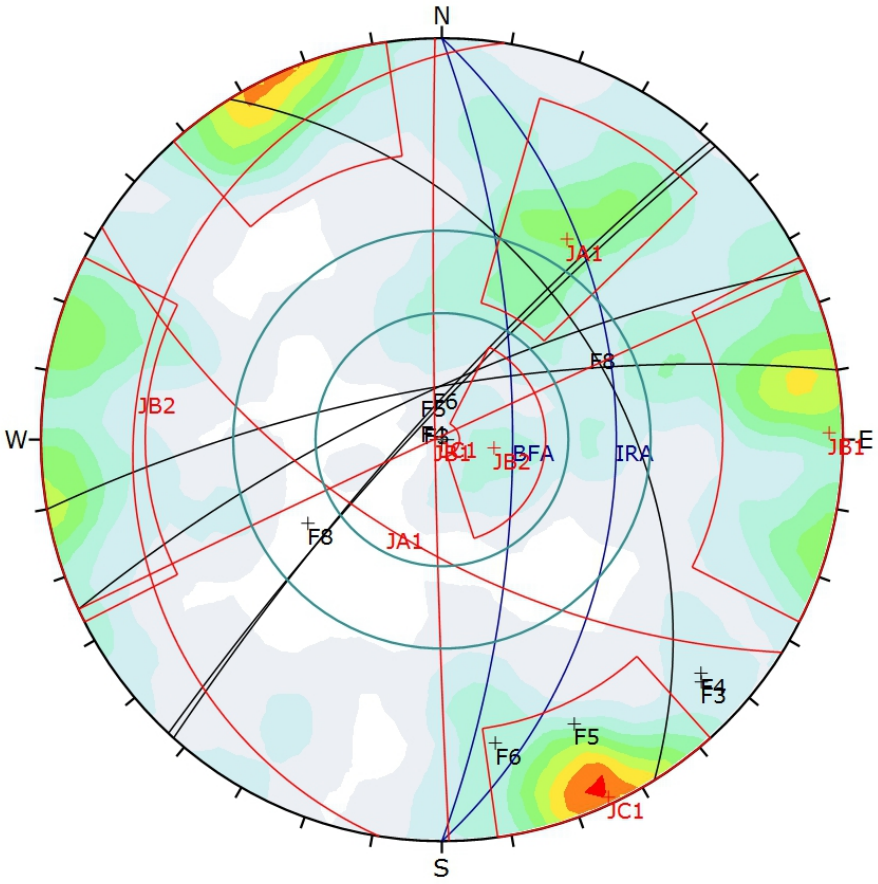
KINEMATIC ANALYSES
SOUTHWEST SECTOR - 060°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.12 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	61 / 212	
JB1	88 / 269	
JB2	15 / 279	
JC1	89 / 335	
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F4	82 / 312	(B.W. FAULT NAME 'EW-N')
F5	76 / 335	(B.W. FAULT NAME 'P-WEST')
F6	75 / 350	(B.W. FAULT NAME 'P-EAST')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (43 / 090)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 090)

PLANAR	WEDGE	TOPPLE
None	None	JB1

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.14%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1213 (1213 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: BWWR14, BWWR13, BWWR12, GM12-11, GM12-01

NEW GOLD INC.

BLACKWATER GOLD PROJECT

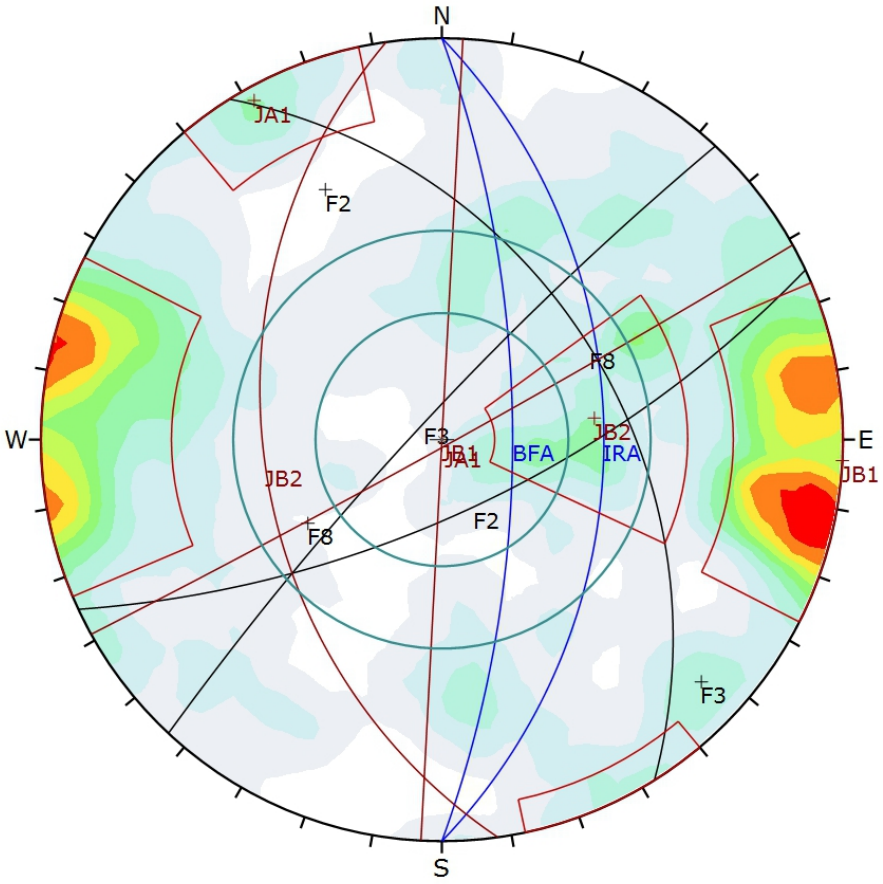
KINEMATIC ANALYSES
SOUTHWEST SECTOR - 090°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.13 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	89 / 165	
JB1	88 / 269	
JB2	39 / 262	
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (46 / 090)

PLANAR	WEDGE	TOPPLE
None	F2 / F8 F2 / JA1 F8 / JA1	None

BENCH KINEMATICS (70 / 090)

PLANAR	WEDGE	TOPPLE
None	None	JB1

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.33%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	997 (997 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-11, GM12-10, BWWR13

NEW GOLD INC.

BLACKWATER GOLD PROJECT

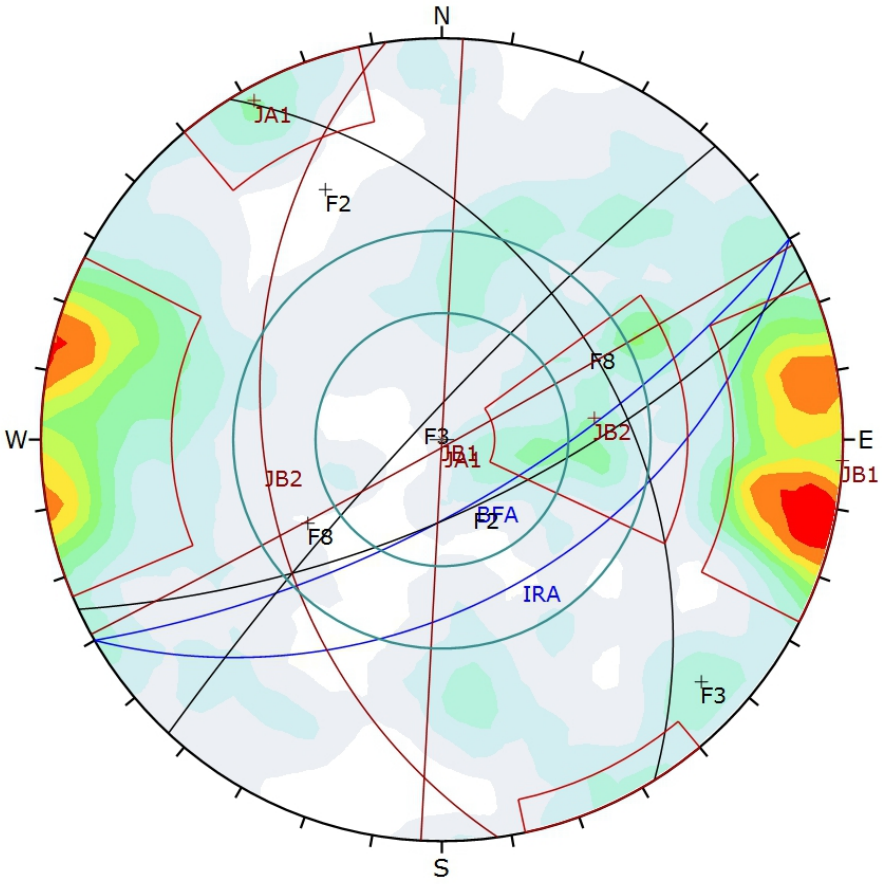
KINEMATIC ANALYSES
WEST SECTOR - 090°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.14 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	89 / 165	
JB1	88 / 269	
JB2	39 / 262	
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F8	43 / 058	(B.W. FAULT NAME 'B-EW')

INTER-RAMP KINEMATICS (43 / 150)

PLANAR	WEDGE	TOPPLE
None	None	F3

BENCH KINEMATICS (70 / 150)

PLANAR	WEDGE	TOPPLE
None	None	JA1 (M)

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.33%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	997 (997 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-11, GM12-10, BWWR13

NEW GOLD INC.

BLACKWATER GOLD PROJECT

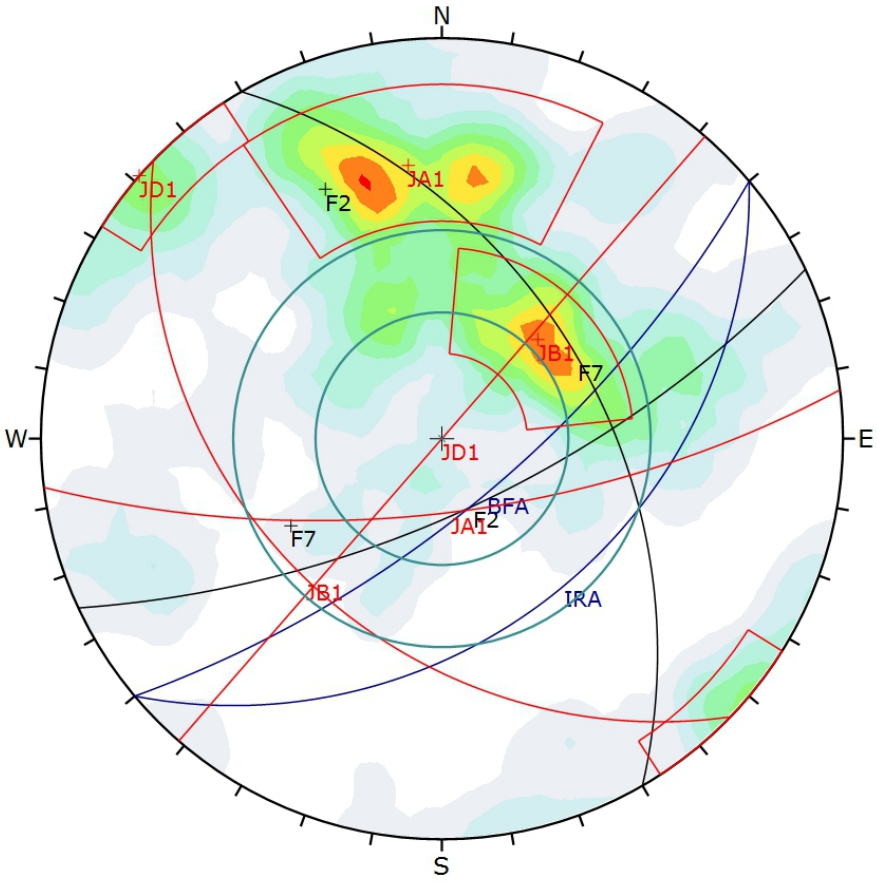
KINEMATIC ANALYSES
WEST SECTOR - 150°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.15 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	69 / 173	
JB1	38 / 224	
JD1	90 / 131	
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 140)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 140)

PLANAR	WEDGE	TOPPLE
JA1	None	JD1 (M)

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.08%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	616 (616 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-12, GM12-09

NEW GOLD INC.

BLACKWATER GOLD PROJECT

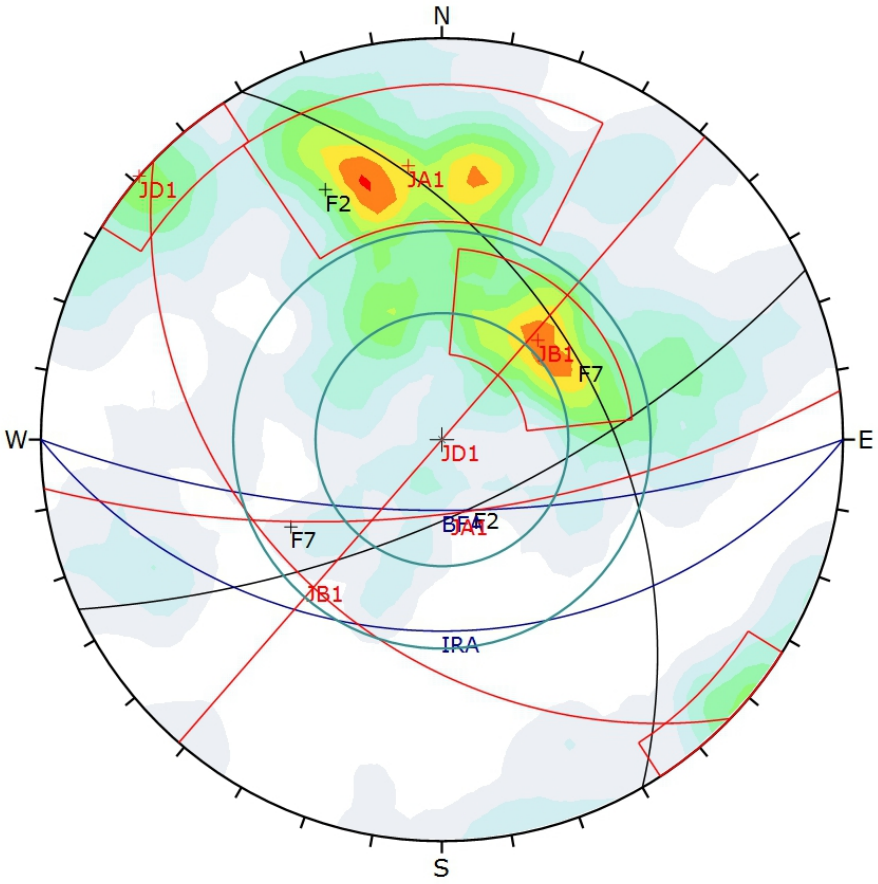
KINEMATIC ANALYSES
NORTHWEST SECTOR - 140°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.16 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	69 / 173	
JB1	38 / 224	
JD1	90 / 131	
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 180)

PLANAR	WEDGE	TOPPLE
None	None	None

BENCH KINEMATICS (70 / 180)

PLANAR	WEDGE	TOPPLE
JA1	JB1 / JD1	None
JB1 (M)	JA1 / JB1	
	JA1 / JD1	

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.08%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	616 (616 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-12, GM12-09

NEW GOLD INC.

BLACKWATER GOLD PROJECT

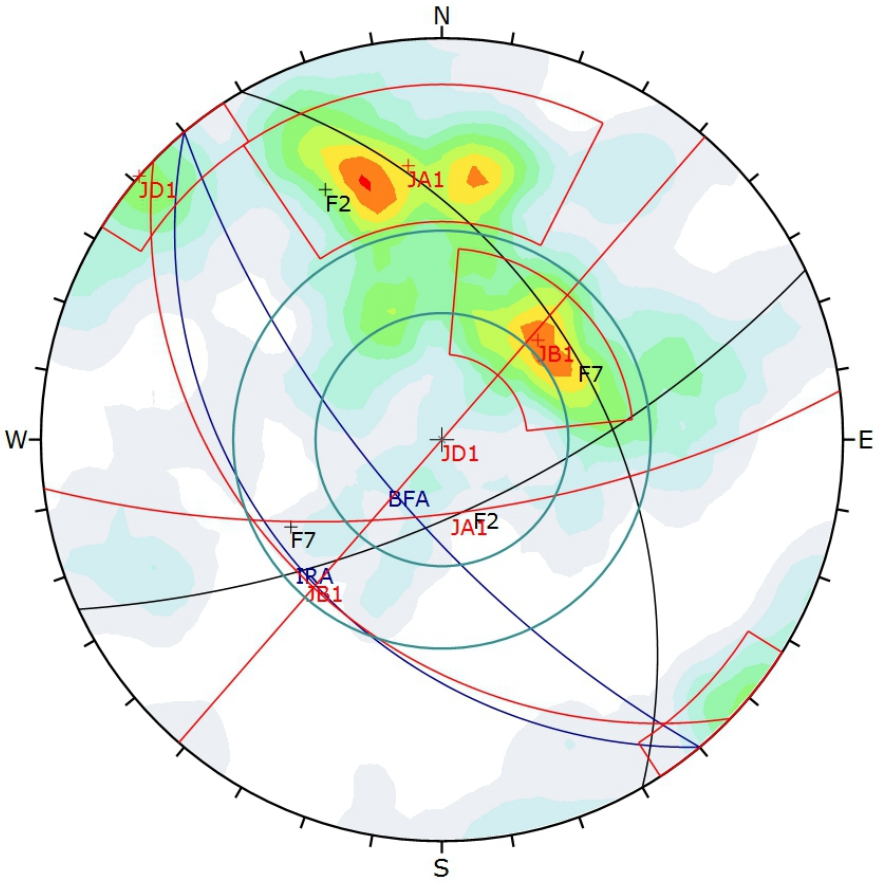
KINEMATIC ANALYSES
NORTHWEST SECTOR - 180°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.17 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	69 / 173	
JB1	38 / 224	
JD1	90 / 131	
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 230)

PLANAR	WEDGE	TOPPLE
None	F2 / JB1	None

BENCH KINEMATICS (70 / 230)

PLANAR	WEDGE	TOPPLE
JB1	JA1 / JD1 JB1 / JD1 JA1 / JB1	None

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.08%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	616 (616 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-12, GM12-09

NEW GOLD INC.

BLACKWATER GOLD PROJECT

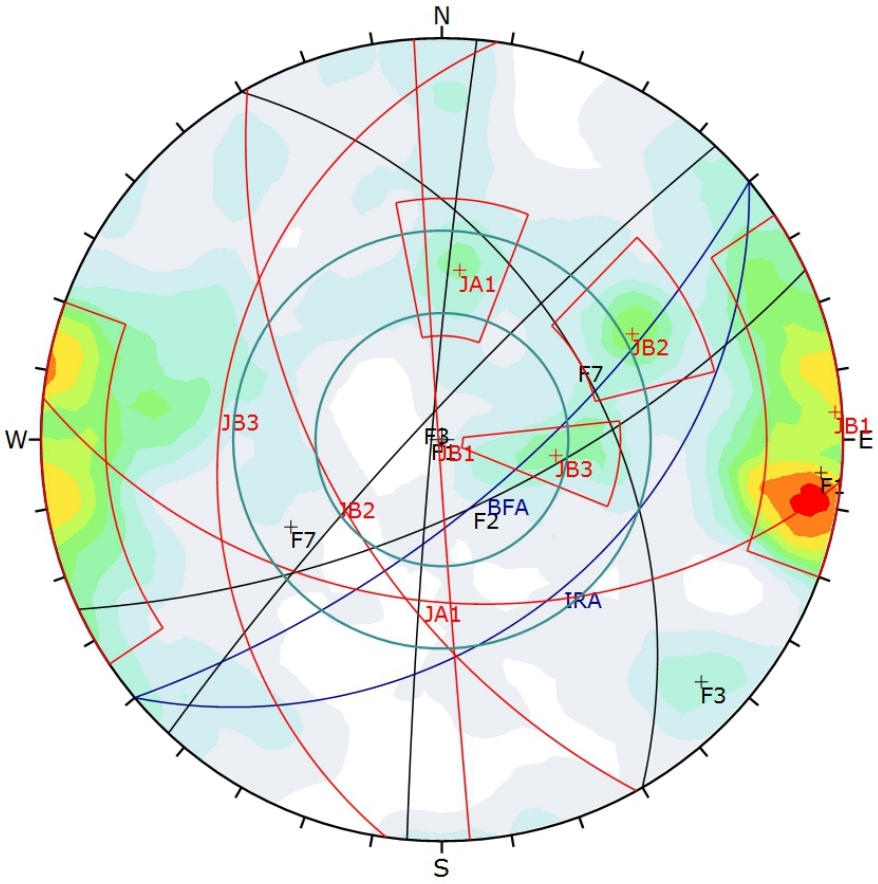
KINEMATIC ANALYSES
NORTHWEST SECTOR - 230°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.18 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	46 / 186	
JB1	89 / 266	
JB2	57 / 241	
JB3	32 / 278	
F1	87 / 275	(B.W. FAULT NAME "N")
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 140)

PLANAR	WEDGE	TOPPLE
None	JA1 / F7	F3

BENCH KINEMATICS (70 / 140)

PLANAR	WEDGE	TOPPLE
None	JA1 / JB1 JA1 / JB2	None

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.21%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1111 (1111 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-08, GM12-10, GM12-11

NEW GOLD INC.

BLACKWATER GOLD PROJECT

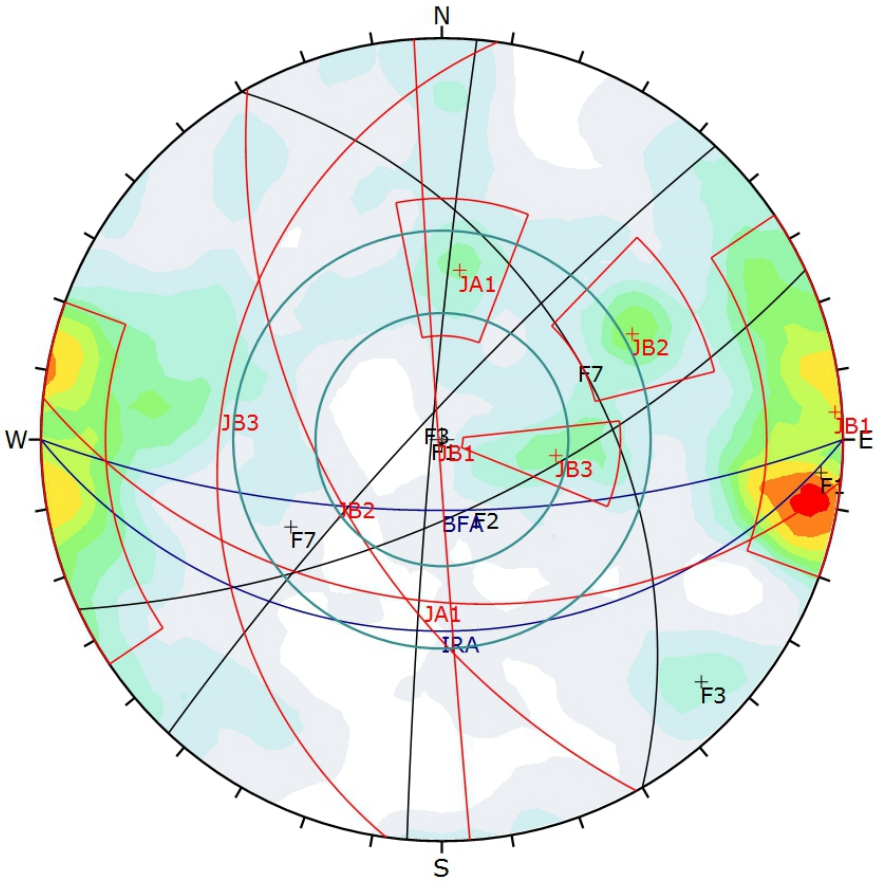
KINEMATIC ANALYSES
NORTH SECTOR (INTERIM PITS) - 140°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.19 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	46 / 186	
JB1	89 / 266	
JB2	57 / 241	
JB3	32 / 278	
F1	87 / 275	(B.W. FAULT NAME "N')
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 180)

PLANAR	WEDGE	TOPPLE
None	F3 / JB3 F2 / JB3	None

BENCH KINEMATICS (70 / 180)

PLANAR	WEDGE	TOPPLE
JA1	JA1 / JB2 JA1 / JB1 JA1 / JB3	None

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.21%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1111 (1111 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-08, GM12-10, GM12-11

NEW GOLD INC.

BLACKWATER GOLD PROJECT

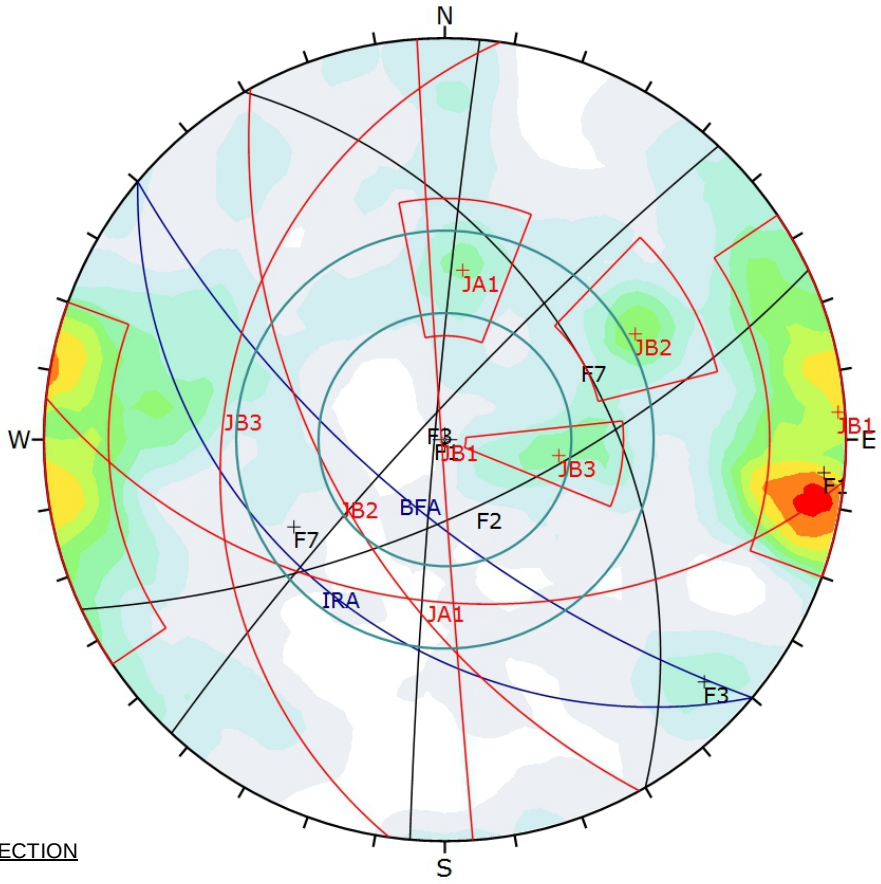
KINEMATIC ANALYSES
NORTH SECTOR (INTERIM PITS) - 180°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.20 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	46 / 186	
JB1	89 / 266	
JB2	57 / 241	
JB3	32 / 278	
F1	87 / 275	(B.W. FAULT NAME "N')
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.21%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1111 (1111 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

INTER-RAMP KINEMATICS (39 / 220)

PLANAR	WEDGE	TOPPLE
None	F2 / F3	None
	F2 / JB3	
	F2 / JA1	
	F3 / JA1	
	F3 / JB3	

BENCH KINEMATICS (70 / 220)

PLANAR	WEDGE	TOPPLE
JB2	JB1 / JA1	None
	JB2 / JA1	
	JB2 / JB1	

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-08, GM12-10, GM12-11

NEW GOLD INC.

BLACKWATER GOLD PROJECT

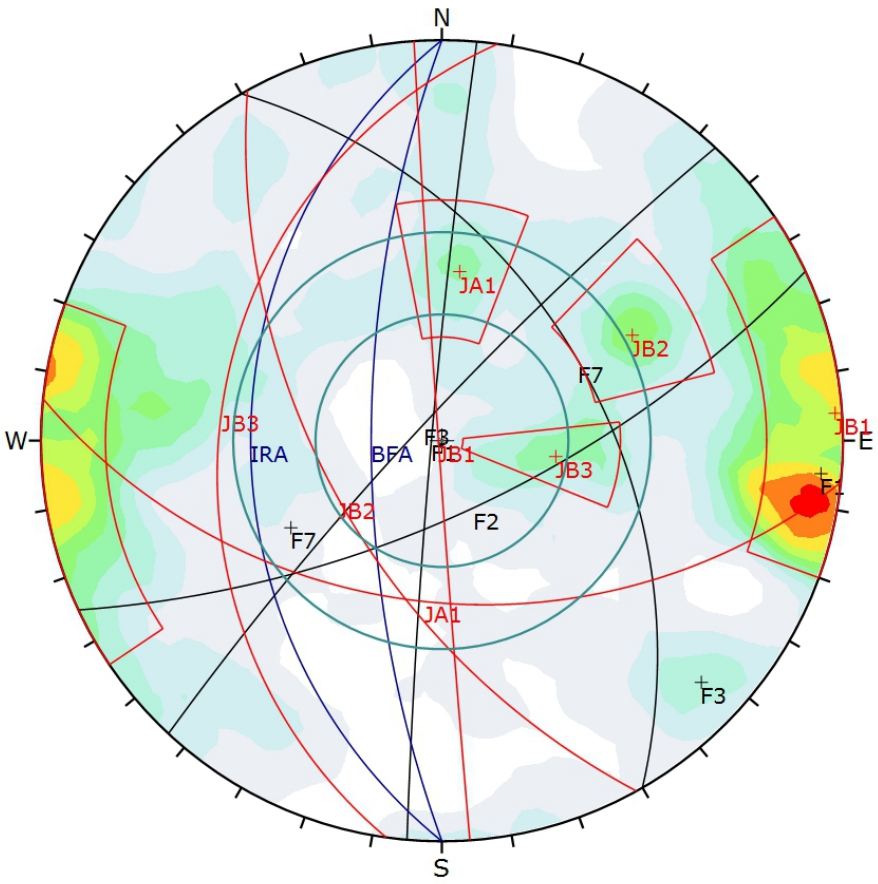
KINEMATIC ANALYSES
NORTH SECTOR (INTERIM PITS) - 220°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE D.21 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB



NAME DIP / DIP DIRECTION

JA1	46 / 186	
JB1	89 / 266	
JB2	57 / 241	
JB3	32 / 278	
F1	87 / 275	(B.W. FAULT NAME "N")
F2	69 / 155	(B.W. FAULT NAME 'E-NS')
F3	83 / 313	(B.W. FAULT NAME 'EW-A')
F7	47 / 060	(B.W. FAULT NAME 'NL-EW')

INTER-RAMP KINEMATICS (39 / 270)

PLANAR	WEDGE	TOPPLE
None	JB3 / F2 JB3 / F3	NONE

BENCH KINEMATICS (70 / 270)

PLANAR	WEDGE	TOPPLE
JB2 JB3	None	JB1

Color	Density Concentrations
	0.00 - 0.45
	0.45 - 0.90
	0.90 - 1.35
	1.35 - 1.80
	1.80 - 2.25
	2.25 - 2.70
	2.70 - 3.15
	3.15 - 3.60
	3.60 - 4.05
	4.05 - 4.50

Maximum Density	4.21%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	1111 (1111 Entries)
Terzaghi Weighting	Minimum Bias Angle 15°
Hemisphere	Lower
Projection	Equal Angle

NOTES:
1. DIPS 6.0 SOFTWARE USED FOR THE STEREOGRAPHIC ANALYSIS.
2. BENCH SCALE AND INTER-RAMP KINEMATICS USE DIFFERENT FRICTIONAL PROPERTIES. BENCH SCALE FRICTION CONES DISPLAYED.
3. (M) INDICATES MINOR SUSCEPTABILITY.
4. DRILL HOLES INCLUDED: GM12-08, GM12-10, GM12-11

NEW GOLD INC.

BLACKWATER GOLD PROJECT

KINEMATIC ANALYSES
NORTH SECTOR (INTERIM PITS) - 270°

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

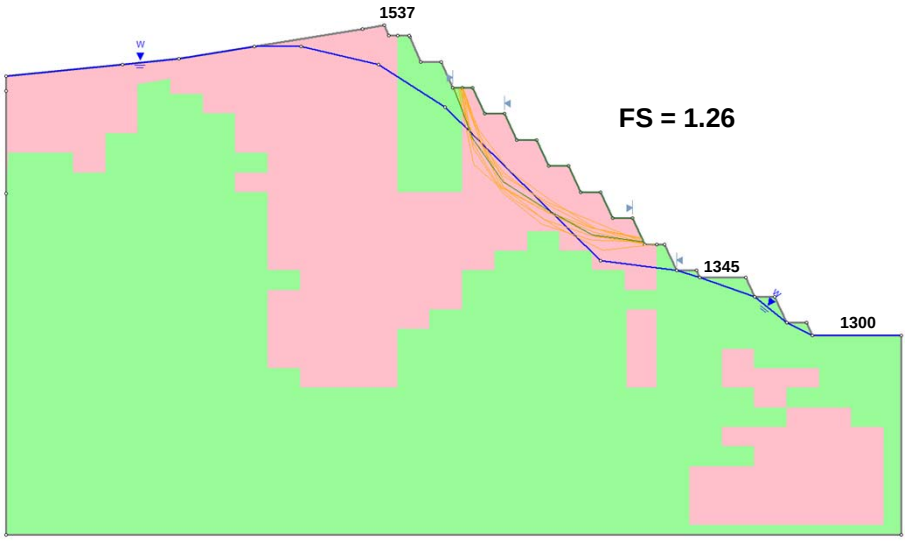
FIGURE D.22 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	22MAY'13	ISSUED WITH REPORT	JS	DAY	KJB

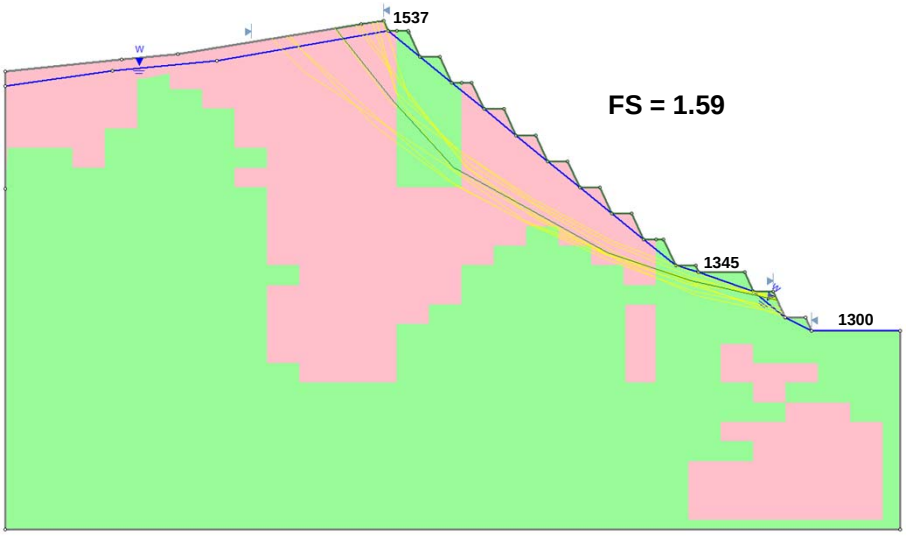
APPENDIX E

ROCK MASS LIMIT EQUILIBRIUM STABILITY ANALYSIS

(Pages E-1 to E-12)



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

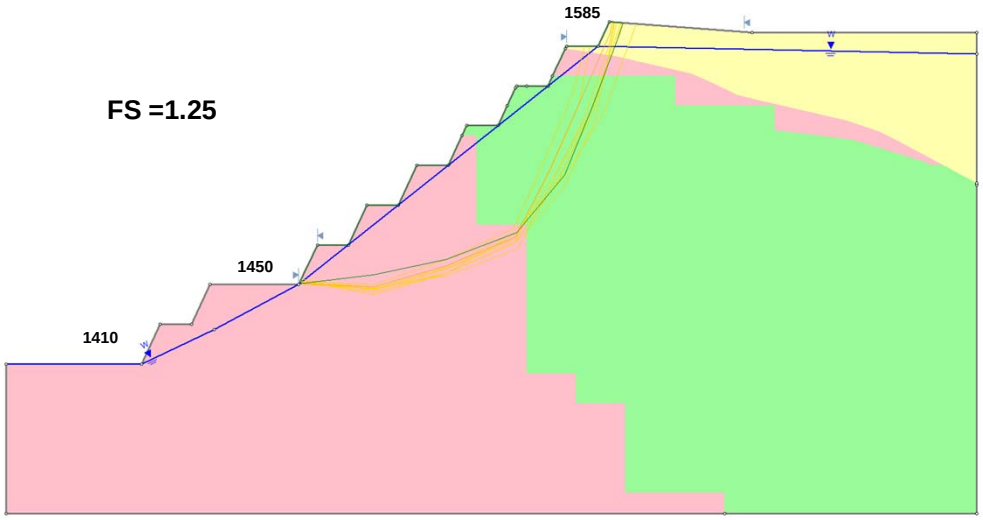
PHASE 2 - NORTH (S2)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

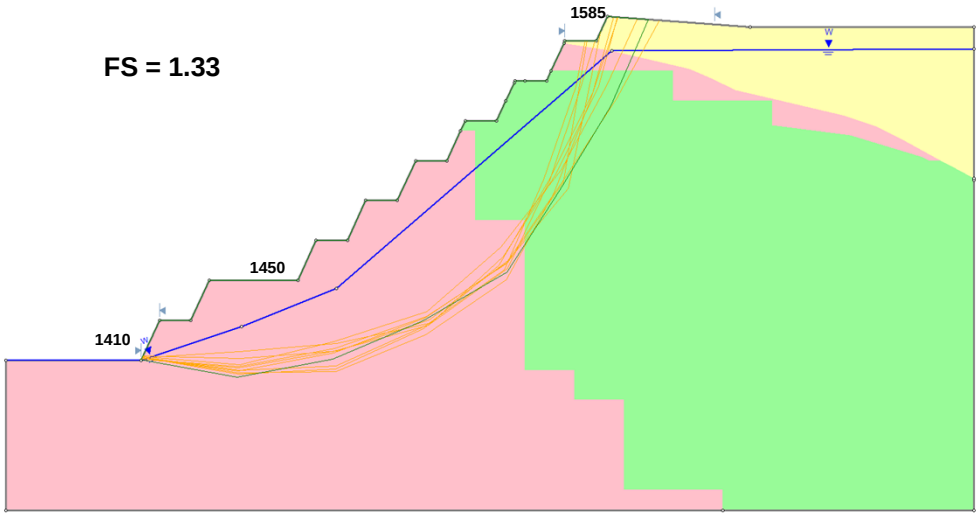
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.1 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

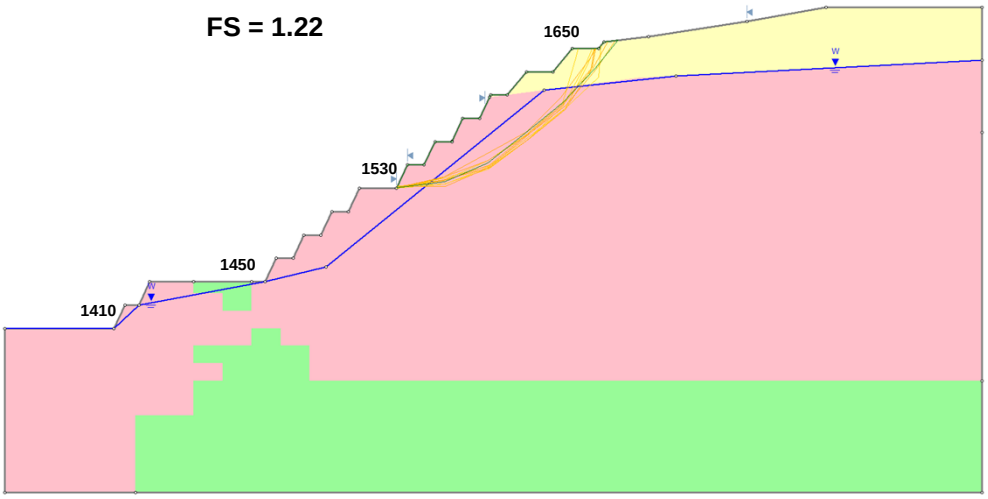
PHASE 2 - EAST (E1)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

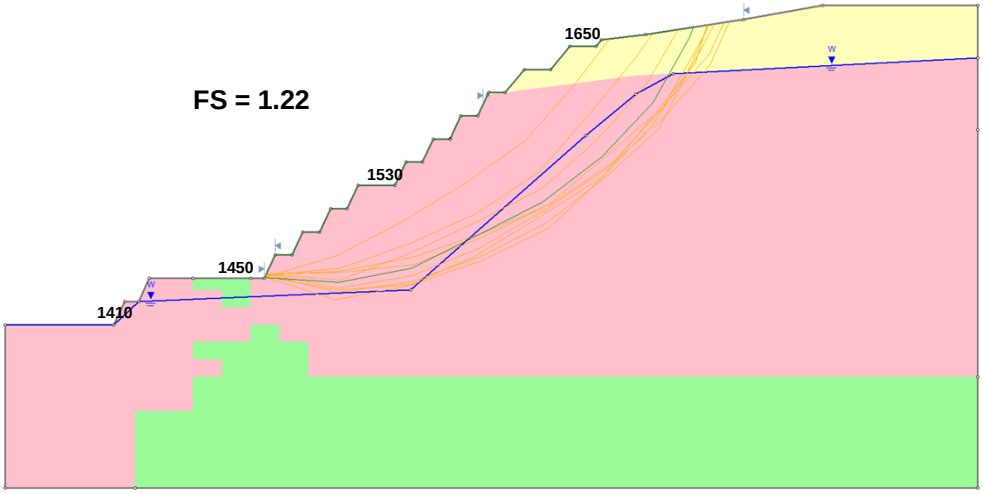
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.2 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

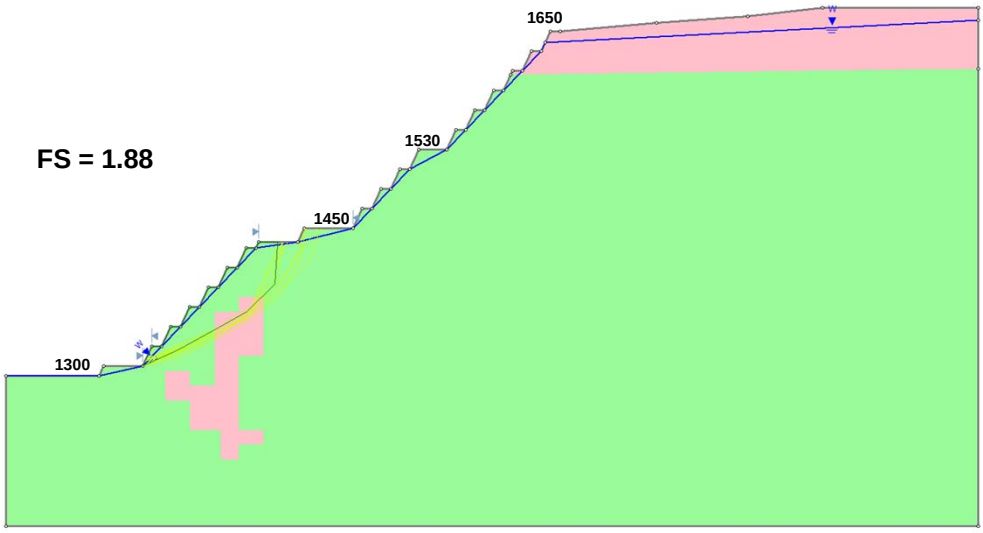
PHASE 2 - SOUTHEAST (SE3)
LIMIT EQUILIBRIUM ANALYSES

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB

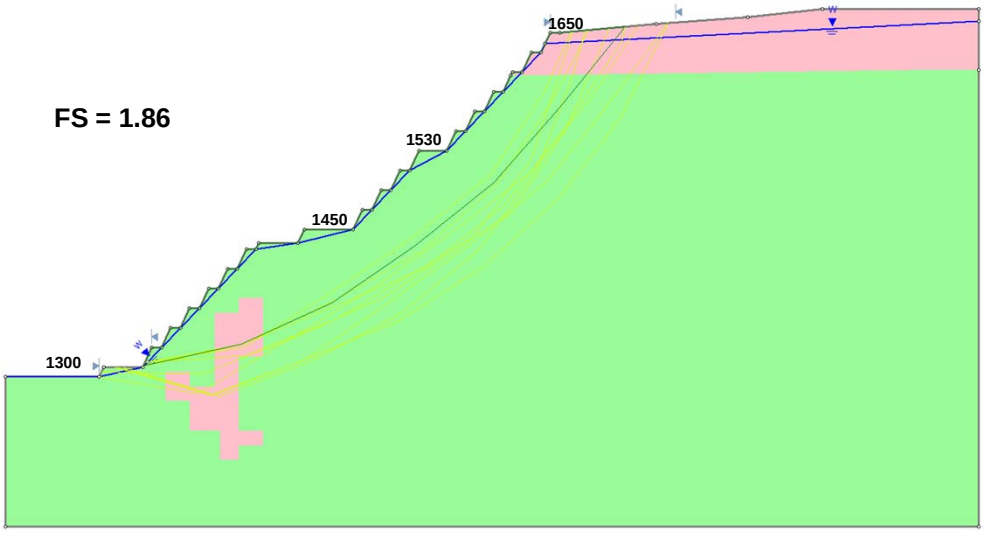
Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.3 | REV 0



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 15 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

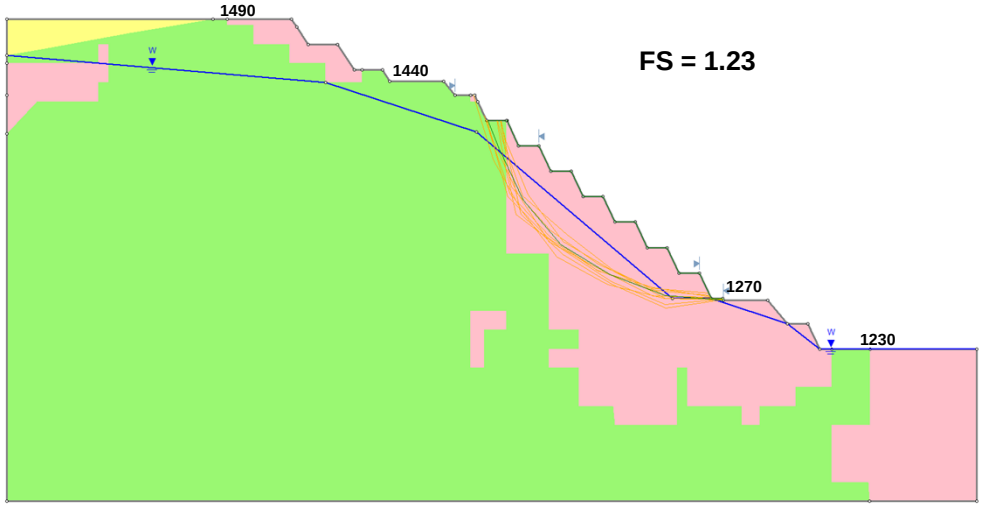
PHASE 2 - SOUTH (S2)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

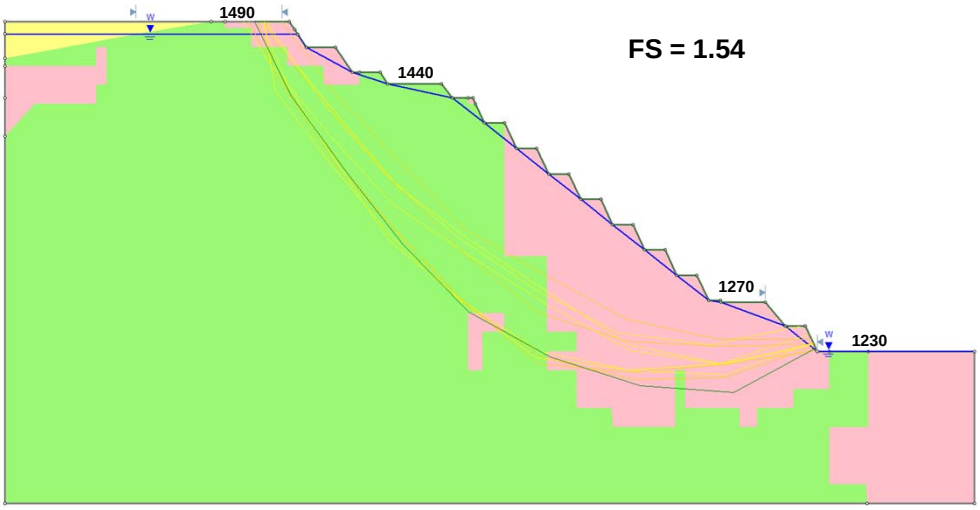
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.4 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

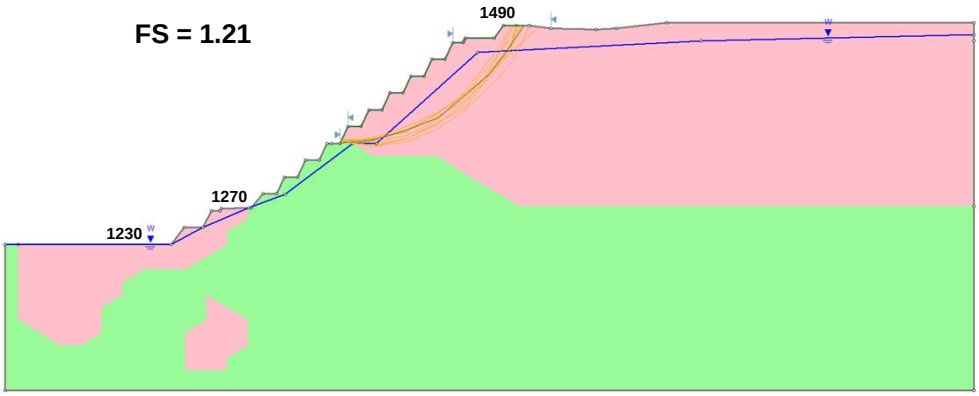
PHASE 3 - NORTH (N1)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

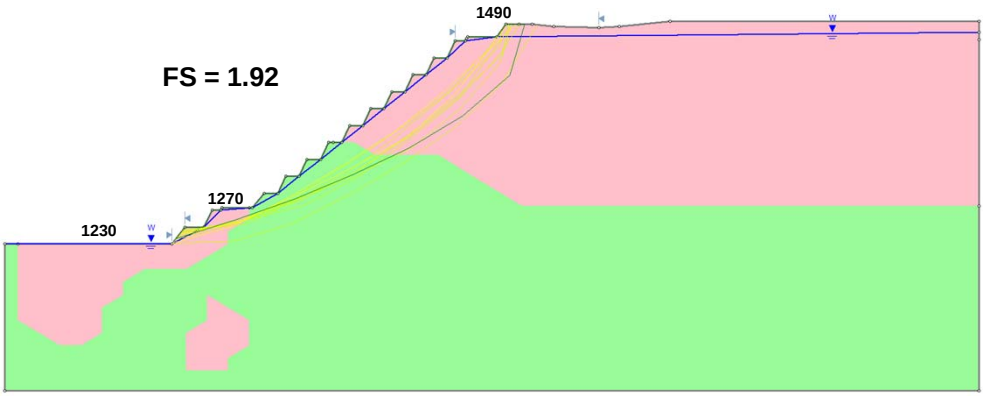
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.5 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

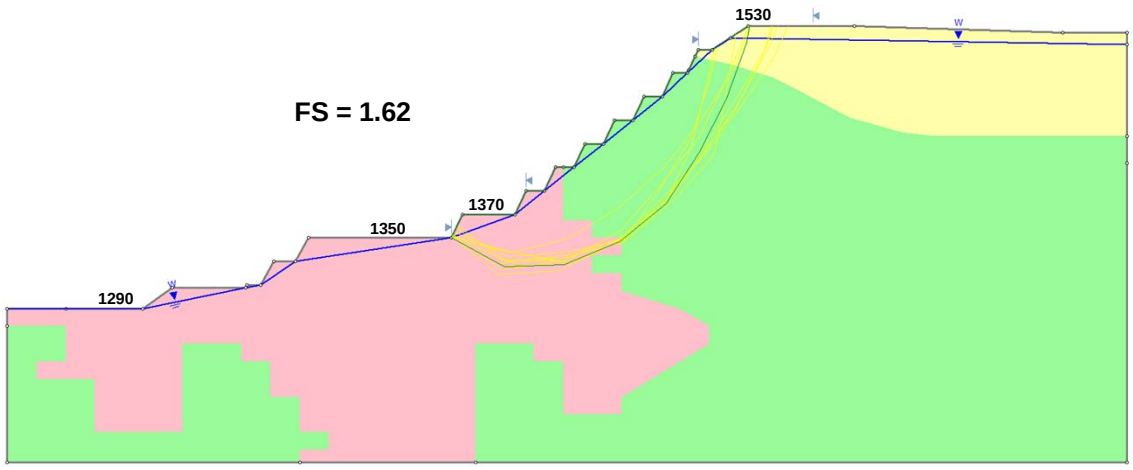
PHASE 3 - NORTH (N2)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

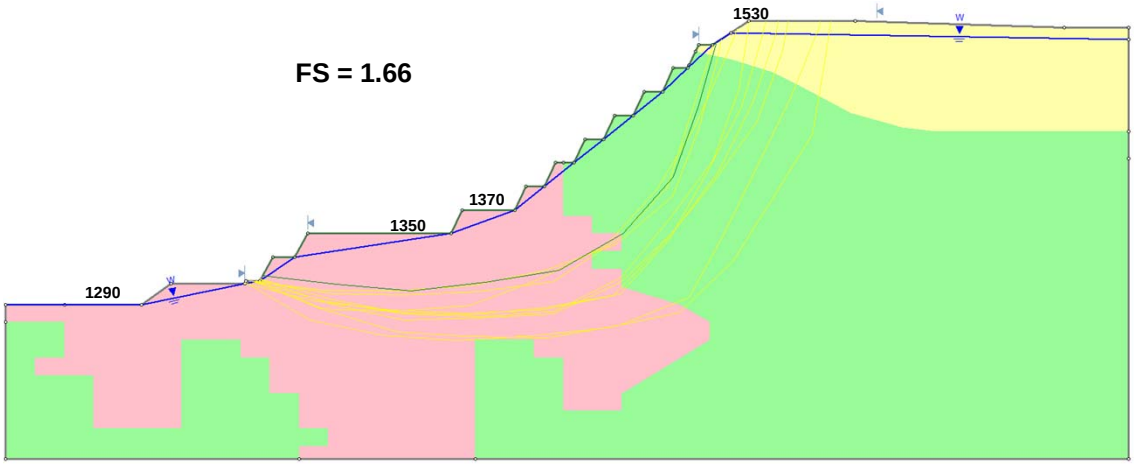
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.6 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

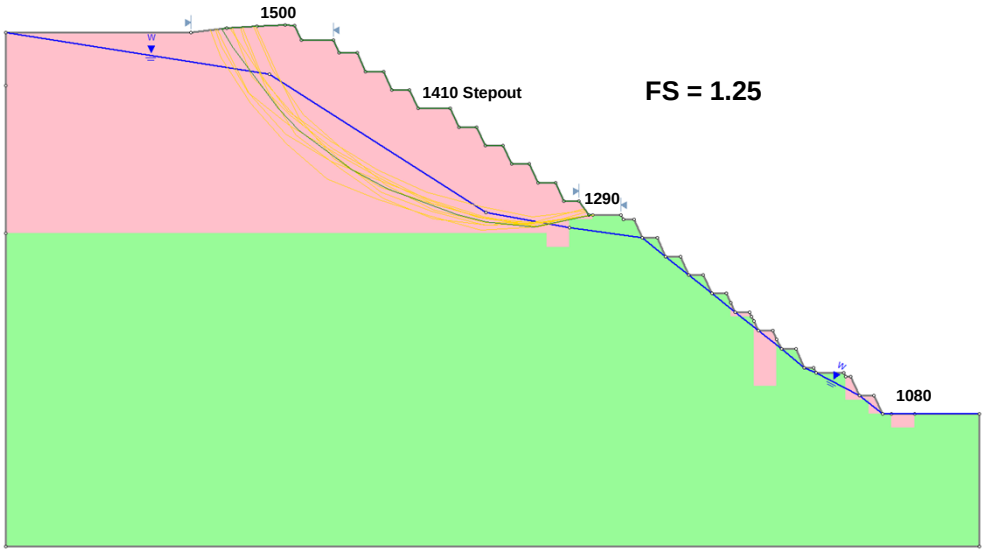
PHASE 3 - EAST (E1)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

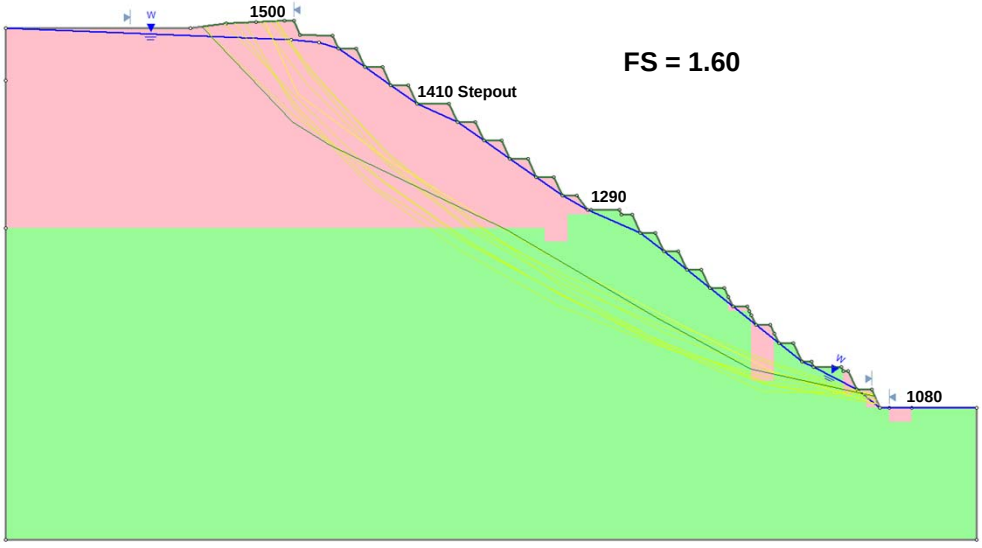
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.7 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

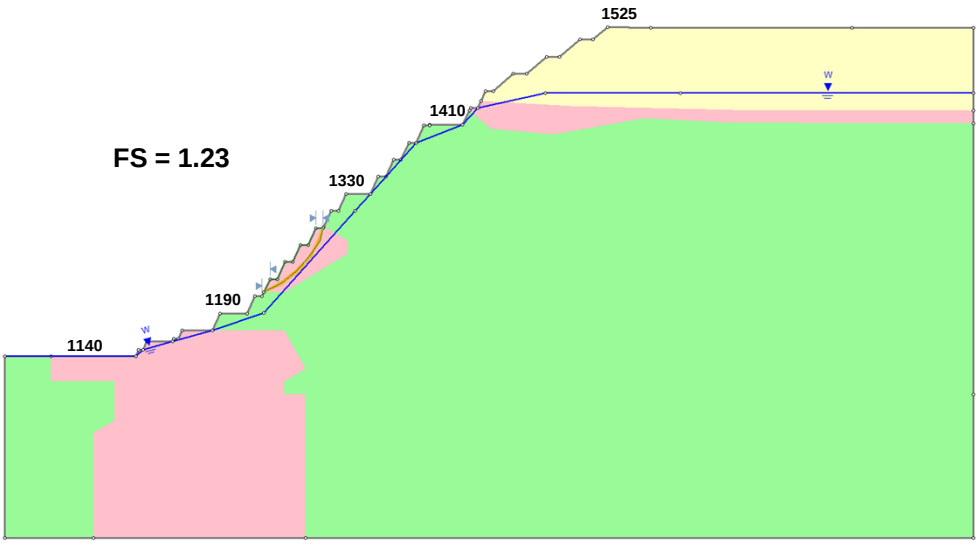
PHASE 4 - NORTH (N2)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

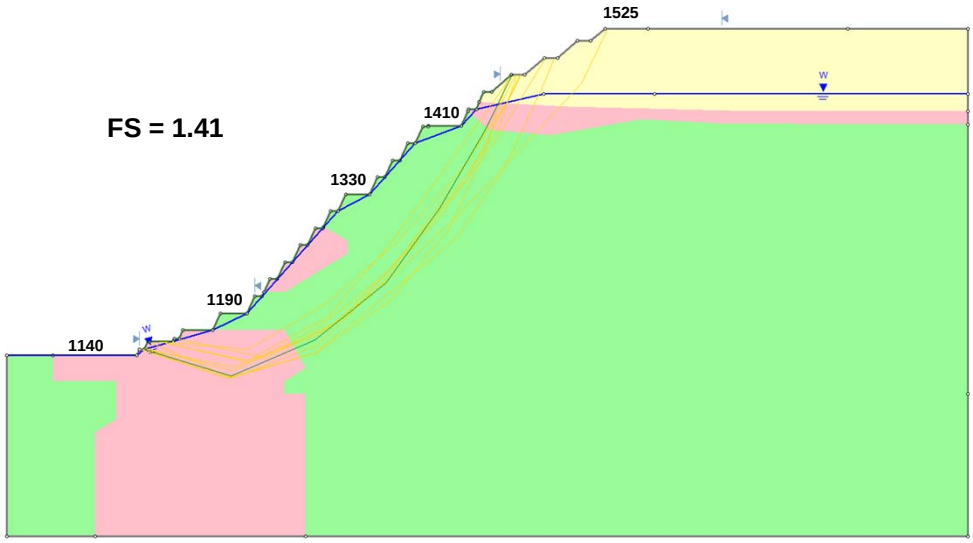
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.8 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

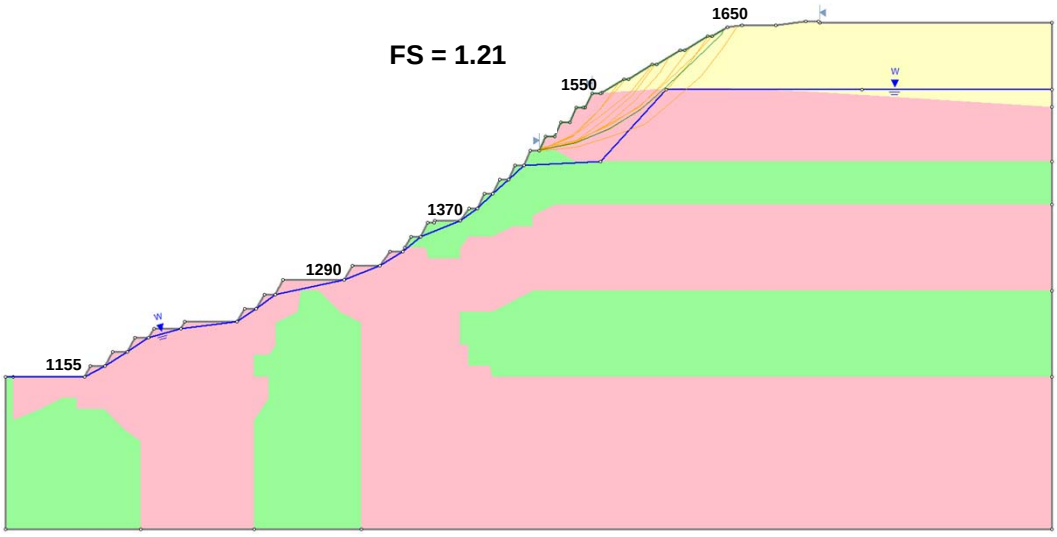
PHASE 4 - EAST (E1)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

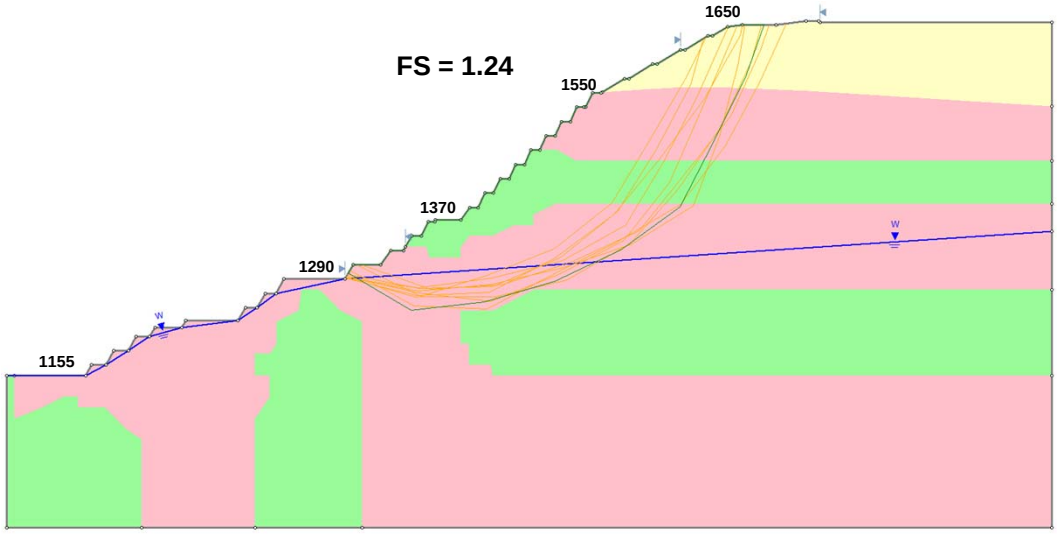
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.9 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

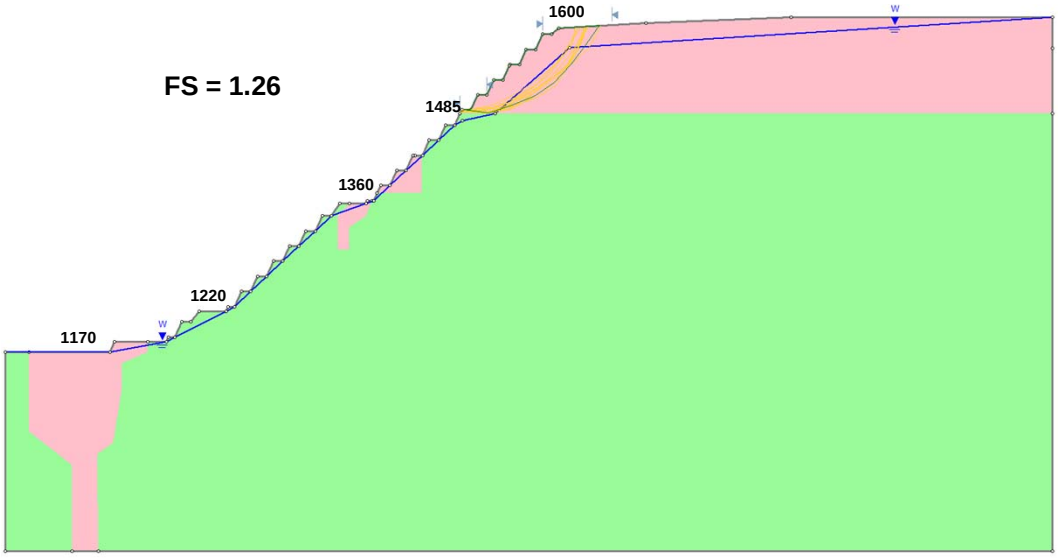
PHASE 4 - SOUTHEAST (SE2)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

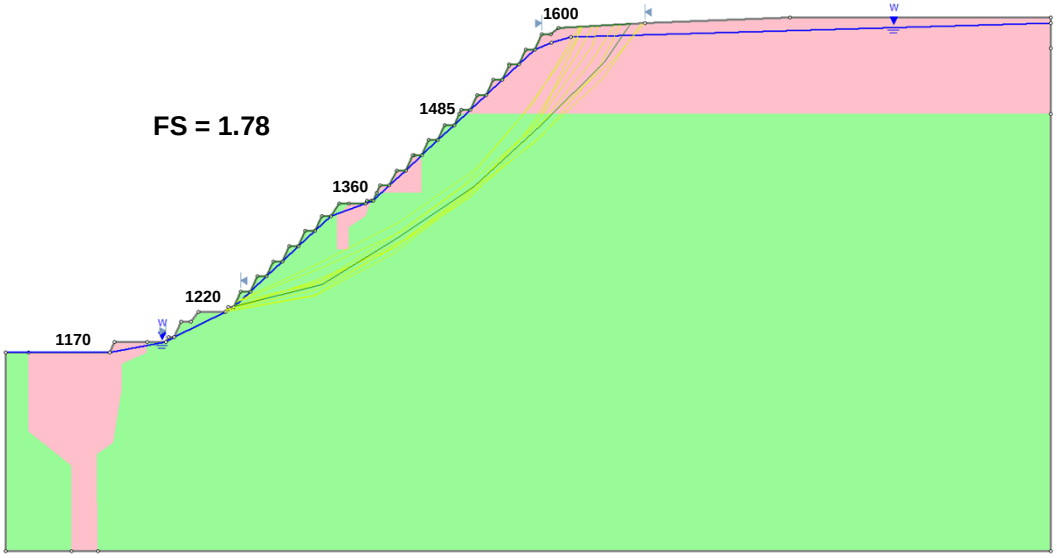
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.10 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

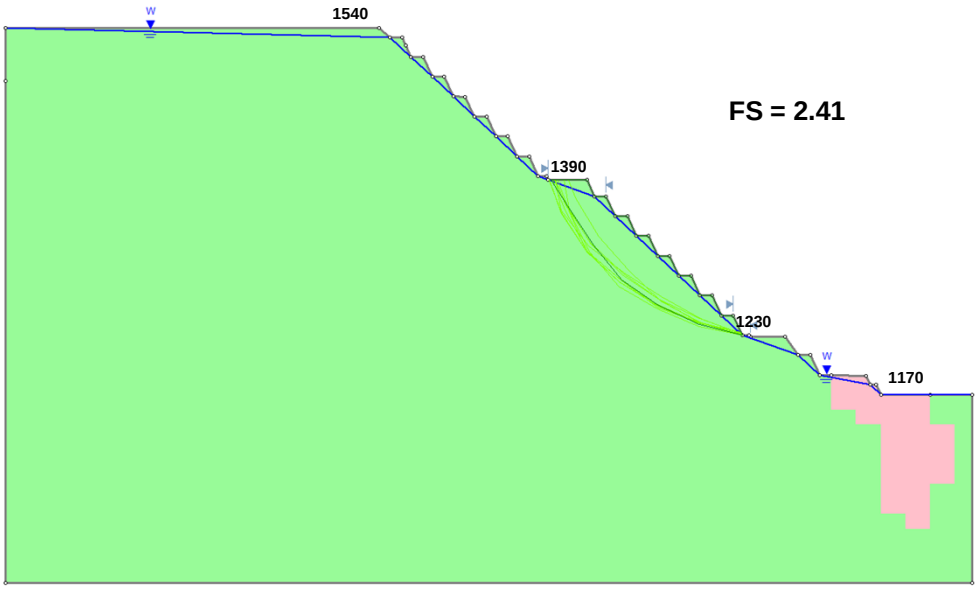
PHASE 4 - SOUTHWEST (SW1)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

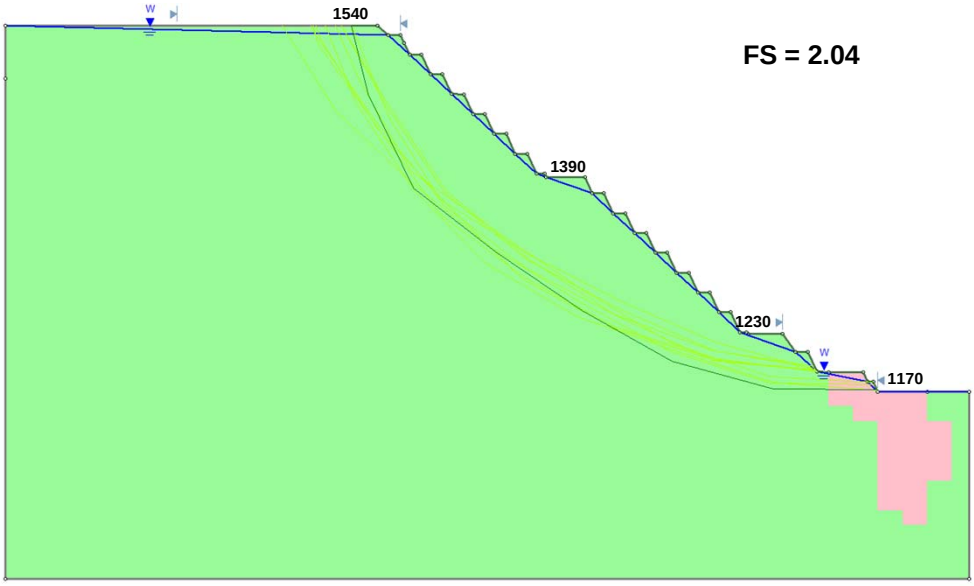
P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.11 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB



Critical Inter-Ramp



Overall

NOTES:
1. SLIDE 6.0 SOFTWARE USED WITH THE MORGENSTERN-PRICE METHOD.
2. HAUL ROAD ELEVATIONS ARE APPROXIMATE.
3. 20 m BENCH HEIGHT.

NEW GOLD INC.

BLACKWATER GOLD PROJECT

PHASE 4 - SOUTHWEST (W1)
LIMIT EQUILIBRIUM ANALYSES

Knight Piésold CONSULTING

P/A NO. VA101-457/6 | REF. NO. 2

FIGURE E.12 | REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	16MAY'13	ISSUED WITH REPORT	MF	DAY	KJB

APPENDIX F

CORE PHOTOGRAPHS

(Pages F-1 to F-210)



PHOTO 1 - GM12-06 BX 1-3 0.00-20.30m

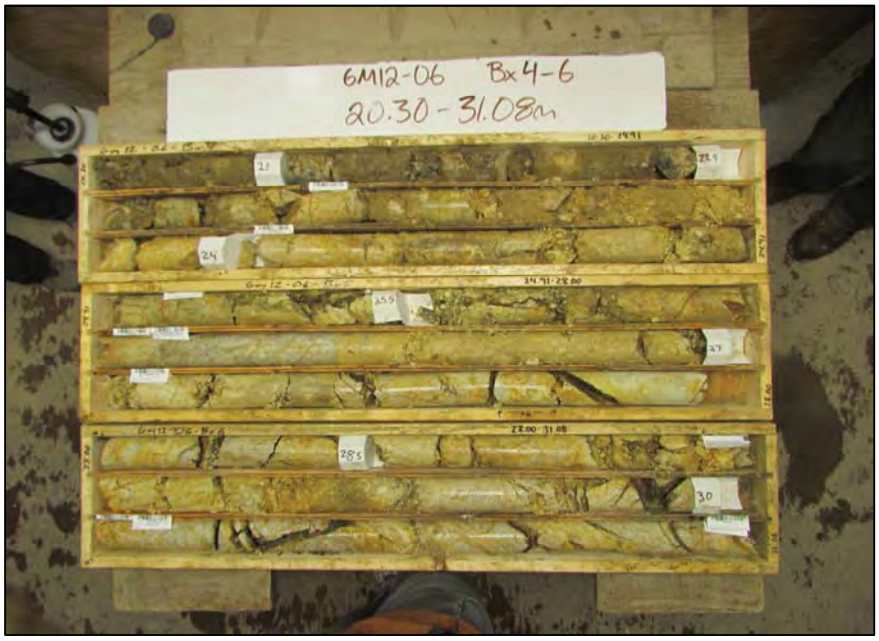


PHOTO 2 - GM12-06 BX 4-6 20.30-31.08m



PHOTO 3 - GM12-06 BX 7-9 31.08-40.20m



PHOTO 4 - GM12-06 BX 10-12 40.20-50.10m



PHOTO 5 - GM12-06 BX 13-15 50.10-59.60m



PHOTO 6 - GM12-06 BX 16-18 59.60-69.00m



PHOTO 7 - GM12-06 BX 19-21 69.00-79.80m



PHOTO 8 - GM12-06 BX 22-24 78.90-88.40m



PHOTO 9 - GM12-06 BX 25-27 88.40-97.76m

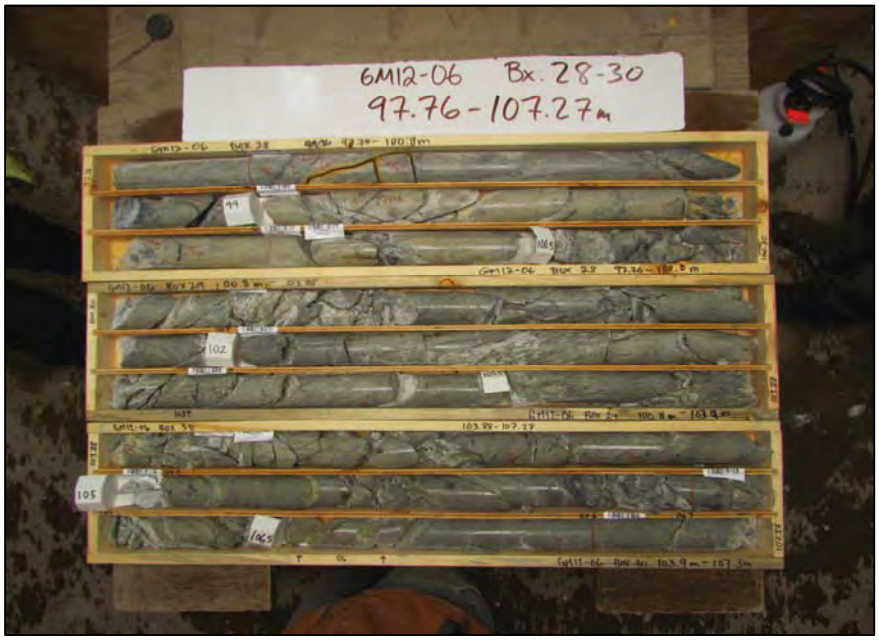


PHOTO 10 - GM12-06 BX 28-30 97.76-107.27m



PHOTO 11 - GM12-06 BX 31-33 107.27-116.50m



PHOTO 12 - GM12-06 BX 34-36 116.53-125.85m

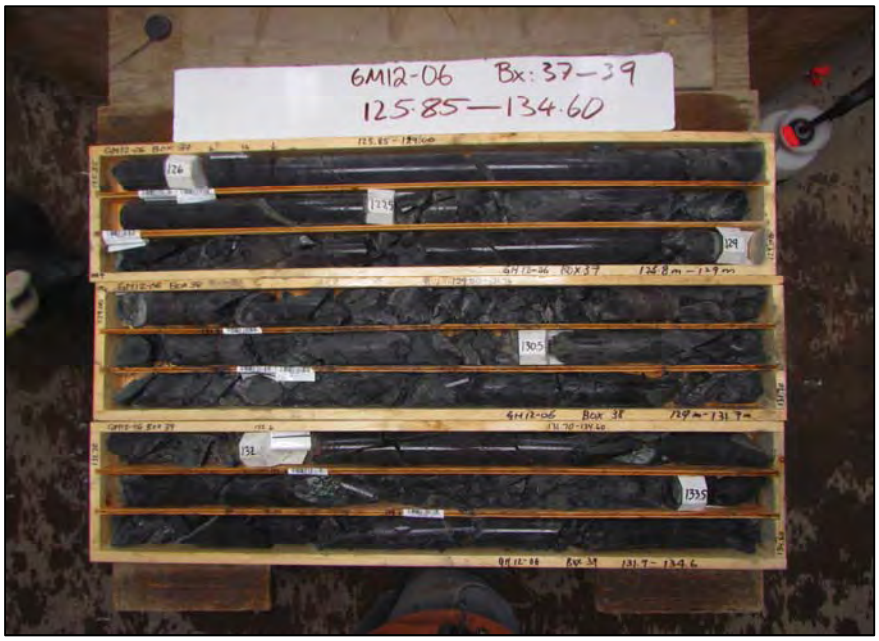


PHOTO 13 - GM12-06 BX 37-39 125.85-134.60m



PHOTO 14 - GM12-06 BX 40-42 134.60-143.90m



PHOTO 15 - GM12-06 BX 43-45 143.90-152.95m



PHOTO 16 - GM12-06 BX 46-48 152.95-161.88m



PHOTO 17 - GM12-06 BX 49-51 161.88-171.85m



PHOTO 18 - GM12-06 BX 52-54 171.85-181.40m



PHOTO 19 - GM12-06 BX 55-57 181.40-190.70m



PHOTO 20 - GM12-06 BX 58-60 190.70-200.10m



PHOTO 21 - GM12-06 BX 61-63 200.10-209.57m



PHOTO 22 - GM12-06 BX 64-66 209.57-218.90m



PHOTO 23 - GM12-06 BX 67-69 218.90-228.30m



PHOTO 24 - GM12-06 BX 70-72 228.30-238.00m



PHOTO 25 - GM12-06 BX 73-75 238.00-247.90m



PHOTO 26 - GM12-06 BX 76-78 247.90-257.60m



PHOTO 27 - GM12-06 BX 79-81 257.60-267.00m



PHOTO 28 - GM12-06 BX 82-84 267.00-276.00m



PHOTO 29 - GM12-06 BX 85-87 276.00-285.20m



PHOTO 30 - GM12-06 BX 88-90 285.20-294.76m



PHOTO 31 - GM12-06 BX 91-93 294.76-304.50m



PHOTO 32 - GM12-06 BX 94-96 304.50-314.40m



PHOTO 33 - GM12-06 BX 97-99 314.00-324.12m



PHOTO 34 - GM12-06 BX 100-102 324.12-333.82m



PHOTO 35 - GM12-06 BX 103-105 333.82-343.64m



PHOTO 36 - GM12-06 BX 106-108 343.68-335.40m



PHOTO 37 - GM12-06 BX 109-111 353.40-363.16m



PHOTO 38 - GM12-06 BX 112-114 363.16-372.76m



PHOTO 39 - GM12-06 BX 115-117 372.76-382.50m



PHOTO 40 - GM12-06 BX 118-120 382.50-392.48m



PHOTO 41 - GM12-06 BX 121-123 392.48-400.50m EOH



PHOTO 42 - GM12-07 BX 1-3 0.00-16.03m



PHOTO 43 - GM12-07 BX 4-6 16.03-26.39m



PHOTO 44 - GM12-07 BX 7-9 26.39-37.20m



PHOTO 45 - GM12-07 BX 10-12 37.20-47.20m



PHOTO 46 - GM12-07 BX 13-15 47.02-56.58m



PHOTO 47 - GM12-07 BX 16-18 56.58-66.0m

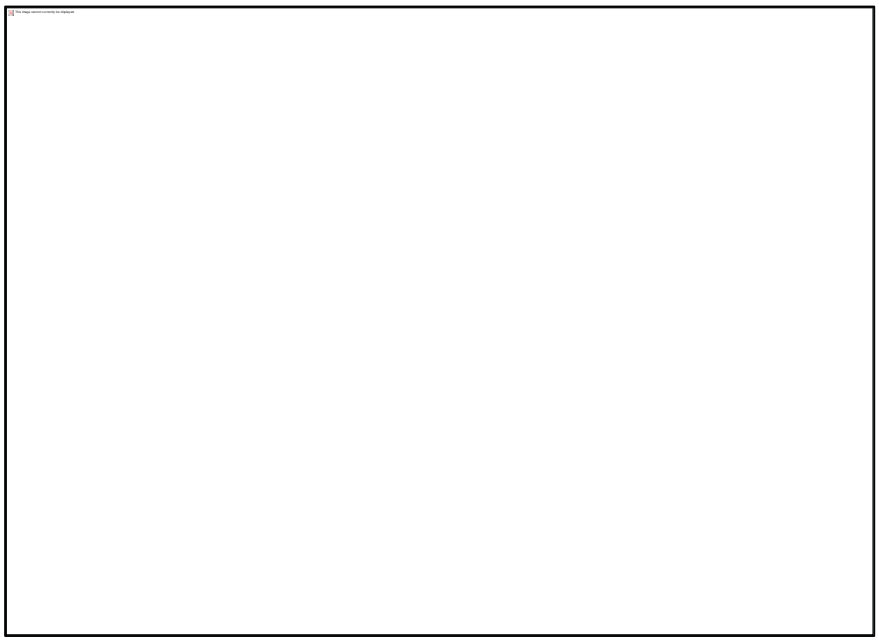


PHOTO 48 - GM12-07 BX 19-21 66.00-75.30m



PHOTO 49 - GM12-07 BX 22-24 75.30-84.30m



PHOTO 50 - GM12-07 BX 25-27 84.30-93.28m



PHOTO 51 - GM12-07 BX 28-30 93.28-103.48m



PHOTO 52 - GM12-07 BX 31-33 103.48-113.74m



PHOTO 53 - GM12-07 BX 34-36 113.74-124.50m



PHOTO 54 - GM12-07 BX 37-39 124.50-133.70m



PHOTO 55 - GM12-07 BX 40-42 133.70-139.75m



PHOTO 56 - GM12-07 BX 43-45 142.96-152.50m



PHOTO 57 - GM12-07 BX 46-48 152.50-162.20m



PHOTO 58 - GM12-07 BX 49-51 162.20-171.31m



PHOTO 59 - GM12-07 BX 52-54 171.31-181.20m



PHOTO 60 - GM12-07 BX 55-57 181.20-190.64m



PHOTO 61 - GM12-07 BX 58-60 190.64-199.83m



PHOTO 62 - GM12-07 BX 61-63 199.83-210.10m



PHOTO 63 - GM12-07 BX 64-66 210.10-219.70m



PHOTO 64 - GM12-07 BX 67-69 219.70-229.45m



PHOTO 65 - GM12-07 BX 70-72 229.45-239.25m



PHOTO 66 - GM12-07 BX 73-75 239.25-249.00m



PHOTO 67 - GM12-07 BX 76-78 249.00-259.40m



PHOTO 68 - GM12-07 BX 79-81 259.40-269.17m



PHOTO 69 - GM12-07 BX 82-84 269.17-279.00m



PHOTO 70 - GM12-07 BX 85-87 279.00-288.52m



PHOTO 71 - GM12-07 BX 88-90 288.52-298.12m



PHOTO 72 - GM12-07 BX 91-93 298.12-313.35m



PHOTO 73 - GM12-07 BX 94-96 313.35-323.75m



PHOTO 74 - GM12-07 BX 97-99 323.75-333.43m



PHOTO 75 - GM12-07 BX 100-102 333.43-343.30m



PHOTO 76 - GM12-07 BX 103-105 343.30-352.92m



PHOTO 77 - GM12-07 BX 106-108 352.92-362.70m



PHOTO 78 - GM12-07 BX 109-111 362.70-372.59m



PHOTO 79 - GM12-07 BX 112-114 372.59-382.60m



PHOTO 80 - GM12-07 BX 115-117 382.06-392.05m



PHOTO 81 - GM12-07 BX 118-120 392.05-400.50m EOH



PHOTO 82 - GM12-08 BX 1-3 0.00-13.50m



PHOTO 83 - GM12-08 BX 4-6 13.50-23.10m



PHOTO 84 - GM12-08 BX 7-9 23.10-32.10m



PHOTO 85 - GM12-08 BX 10-12 32.10-42.44m



PHOTO 86 - GM12-08 BX 13-15 42.44-57.84m



PHOTO 87 - GM12-08 BX 16-18 51.84-61.10m



PHOTO 88 - GM12-08 BX 19-21 61.10-71.30m



PHOTO 89 - GM12-08 BX 22-24 71.30-80.90m



PHOTO 90 - GM12-08 BX 25-27 80.90-90.50m



PHOTO 91 - GM12-08 BX 28-30 90.50-100.20m



PHOTO 92 - GM12-08 BX 31-33 100.20-109.30m



PHOTO 93 - GM12-08 BX 34-36 109.30-118.14m



PHOTO 94 - GM12-08 BX 37-39 118.14-128.02m



PHOTO 95 - GM12-08 BX 40-42 128.02-138.00m



PHOTO 96 - GM12-08 BX 43-45 138.00-147.30m



PHOTO 97 - GM12-08 BX 46-48 147.30-156.60m



PHOTO 98 - GM12-08 BX 49-51 156.60-165.62m



PHOTO 99 - GM12-08 BX 52-54 165.62-174.60m



PHOTO 100 GM12-08 BX 55-57 174.60-183.73m



PHOTO 101 GM12-08 BX 58-60 183.74-193.10m

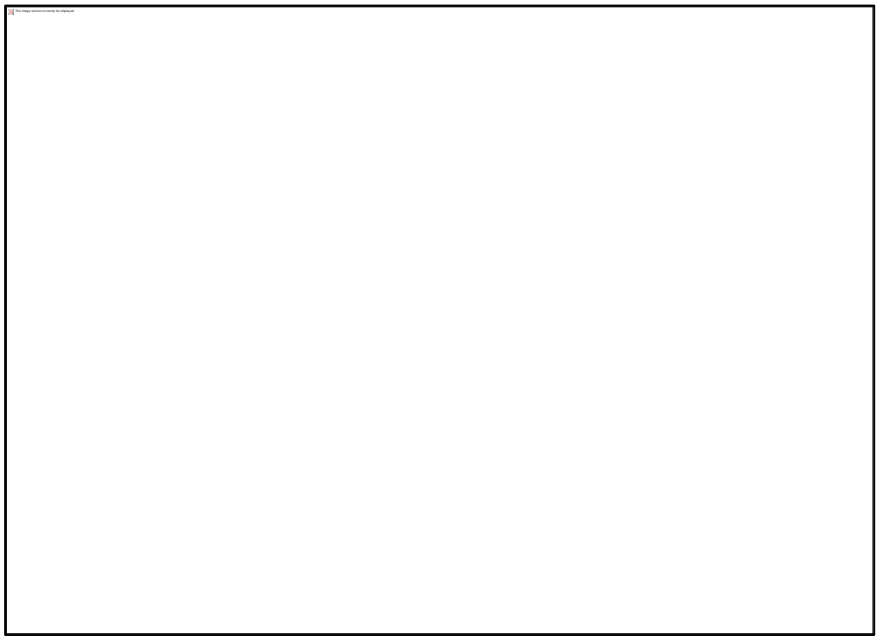


PHOTO 102 GM12-08 BX 61-63 193.10-202.24m



PHOTO 103 GM12-08 BX 64-66 202.24-211.90m



PHOTO 104 GM12-08 BX 67-69 211.90-221.59m



PHOTO 105 GM12-08 BX 70-72 221.59-230.60m



PHOTO 106 GM12-08 BX 73-75 230.60-239.90m



PHOTO 107 GM12-08 BX 76-78 239.90-249.40m



PHOTO 108 GM12-08 BX 79-81 249.40-258.64m



PHOTO 109 GM12-08 BX 82-84 258.64-268.32m



PHOTO 110 GM12-08 BX 85-87 268.32-278.04m



PHOTO 111 GM12-08 BX 88-90 278.04-287.67m



PHOTO 112 GM12-08 BX 91-93 287.67-296.50m



PHOTO 113 GM12-08 BX 94-96 296.50-305.60m



PHOTO 114 GM12-08 BX 97-99 305.60-314.63M



PHOTO 115 GM12-08 BX 100-102 314.63-324.0m



PHOTO 116 GM12-08 BX 103-105 324.00-333.56m



PHOTO 117 GM12-08 BX 106-108 333.56-342.80m



PHOTO 118 GM12-08 BX 109-111 342.80-349.20m



PHOTO 119 GM12-08 BX 112-114 352.30-358.50m



PHOTO 120 GM12-08 BX 115-117 361.74-371.01m



PHOTO 121 GM12-08 BX 118-120 371.01-380.57m



PHOTO 122 GM12-08 BX 121-123 380.57-390.00m



PHOTO 123 GM12-08 BX 124-126 390.00-399.60m



PHOTO 124 GM12-08 BX 127 399.50-400.50m EOH

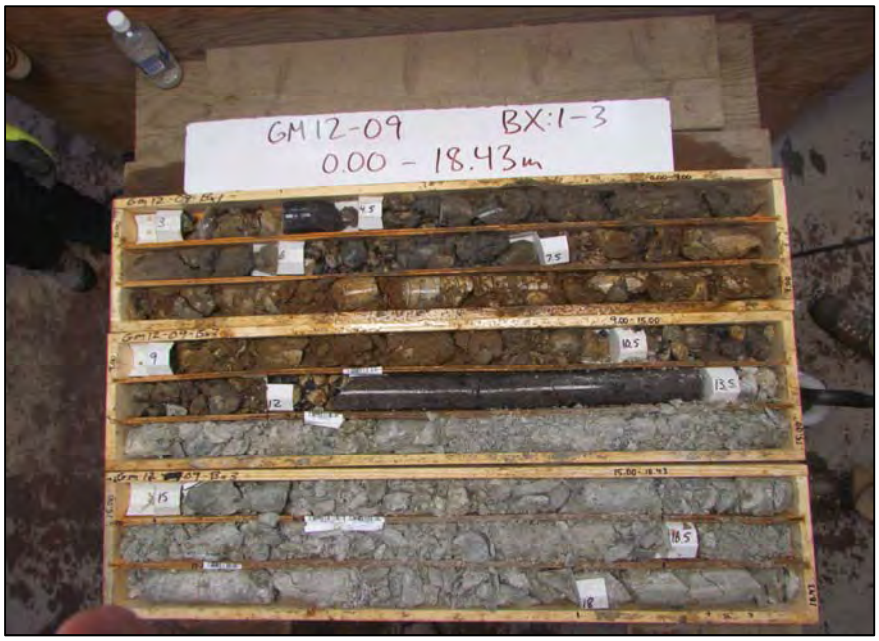


PHOTO 125 GM12-09 BX 1-3 00.00-18.43m



PHOTO 126 GM12-09 BX 4-6 18.43-33.19m



PHOTO 127 GM12-09 BX 7-9 33.19-49.90m



PHOTO 128 GM12-09 BX 10-12 49.90-60.00m



PHOTO 129 GM12-09 BX 13-15 60.00-70.50m



PHOTO 130 GM12-09 BX 16-18 70.50-80.00m



PHOTO 131 GM12-09 BX 19-21 80.00-89.60m



PHOTO 132 GM12-09 BX 22-24 89.60-99.00m



PHOTO 133 GM12-09 BX 25-27 99.00-108.50m



PHOTO 134 GM12-09 BX 28-30 108.50-118.60m



PHOTO 135 GM12-09 BX 31-33 118.60-128.00m



PHOTO 136 GM12-09 BX 34-36 128.00-137.20m



PHOTO 137 GM12-09 BX 37-39 137.20-146.80m



PHOTO 138 GM12-09 BX 40-42 146.80-155.75m



PHOTO 139 GM12-09 BX 43-45 155.75-165.00m



PHOTO 140 GM12-09 BX 46-48 165.00-17.00m



PHOTO 141 GM12-09 BX 49-51 174.00-183.10m



PHOTO 142 GM12-09 BX 52-54 183.10-193.70m



PHOTO 143 GM12-09 BX 55-57 193.70-202.50m

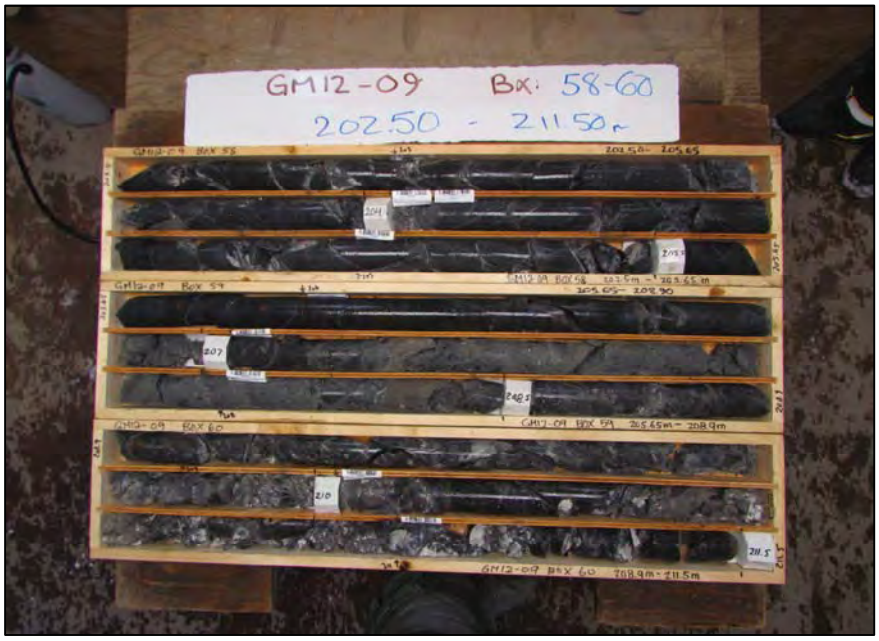


PHOTO 144 GM12-09 BX 58-60 202.50-211.50m



PHOTO 145 GM12-09 BX 61-63 211.50-221.00m



PHOTO 146 GM12-09 BX 64-66 221.00-230.03m



PHOTO 147 GM12-09 BX 67-69 230.03-239.50m



PHOTO 148 GM12-09 BX 70-72 239.50-249.00m

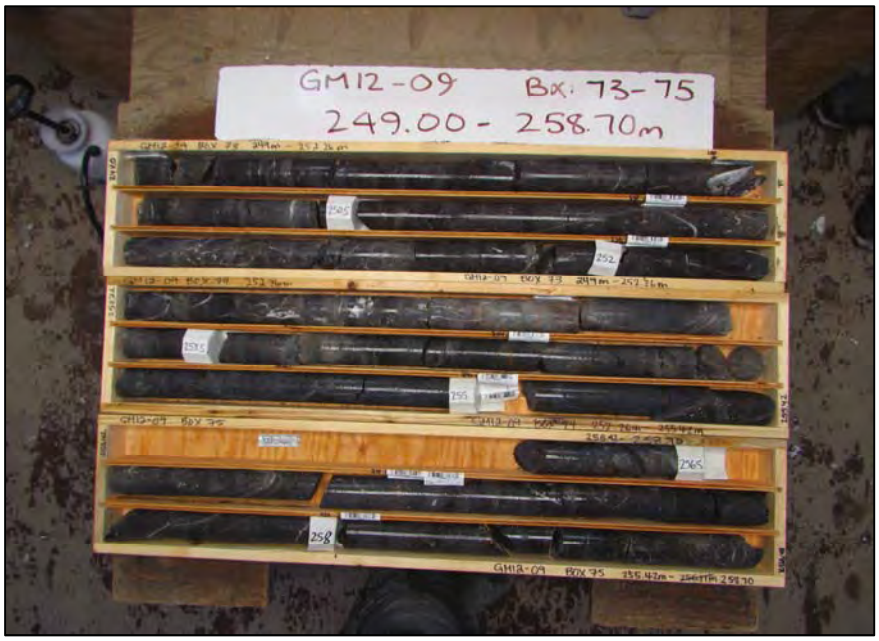


PHOTO 149 GM12-09 BX 73-75 249.00-258.70m



PHOTO 150 GM12-09 BX 76-78 258.70-268.20m



PHOTO 151 GM12-09 BX 79-81 268.12-277.70m



PHOTO 152 GM12-09 BX 82-84 277.70-287.22m



PHOTO 153 GM12-09 BX 85-87 287.22-296.74m



PHOTO 154 GM12-09 BX 88-90 296.74-306.89m



PHOTO 155 GM12-09 BX 91-93 306.89-316.58m



PHOTO 156 GM12-09 BX 94-96 316.58-326.00m



PHOTO 157 GM12-09 BX 97-99 326.00-335.45m



PHOTO 158 GM12-09 BX 100-102 335.45-345.00m



PHOTO 159 GM12-09 BX 103-105 345.00-354.65m



PHOTO 160 GM12-09 BX 106-108 354.65-364.33m



PHOTO 161 GM12-09 BX 109-111 364.33-374.10m



PHOTO 162 GM12-09 BX 112-114 374.10-383.50m



PHOTO 163 GM12-09 BX 115-117 383.50-393.30m



PHOTO 164 GM12-09 BX 118-120 393.30-400.00m EOH



PHOTO 165 GM12-10 BX 1-3 0.00-11.72m



PHOTO 166 GM12-10 BX 4-6 11.72-21.00m

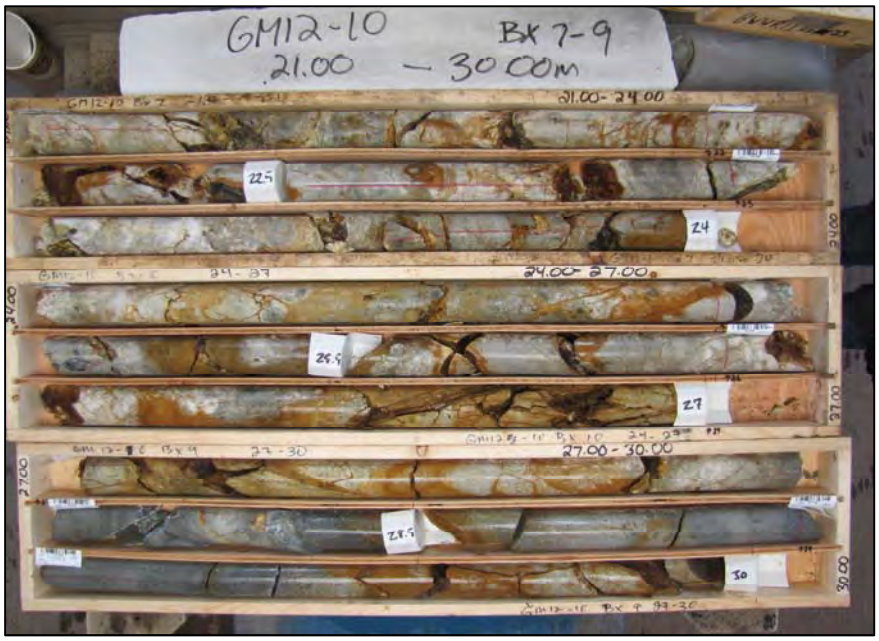


PHOTO 167 GM12-10 BX 7-9 21.00-30.00m



PHOTO 168 GM12-10 BX 10-12 30.00-39.19m



PHOTO 169 GM12-10 BX 13-15 39.19-48.70m



PHOTO 170 GM12-10 BX 16-18 39.19-48.70m



PHOTO 171 GM12-10 BX 19-21 57.61-66.73m



PHOTO 172 GM12-10 BX 22-24 66.73-76.25m



PHOTO 173 GM12-10 BX 25-27 76.25-85.95m



PHOTO 174 GM12-10 BX 28-30 85.95-95.16m



PHOTO 175 GM12-10 BX 31-33 95.16-106.16m



PHOTO 176 GM12-10 BX 34-36 106.16-115.62m



PHOTO 177 GM12-10 BX 37-39 115.62-125.65m



PHOTO 178 GM12-10 BX 40-42 125.65-135.39m



PHOTO 179 GM12-10 BX 43-45 135.39-144.46m



PHOTO 180 GM12-10 BX 46-48 144.46-154.50m



PHOTO 181 GM12-10 BX 49-51 154.50-164.05m



PHOTO 182 GM12-10 BX 52-54 164.05-177.74m



PHOTO 183 GM12-10 BX 55-57 177.74-187.22m



PHOTO 184 GM12-10 BX 58-60 187.22-197.22m



PHOTO 185 GM12-10 BX 61-63 197.22-207.00m



PHOTO 186 GM12-10 BX 64-66 207.00-216.50m



PHOTO 187 GM12-10 BX 67-69 216.50-222.83m



PHOTO 188 GM12-10 BX 70-72 222.83-232.50m



PHOTO 189 GM12-10 BX 73-75 235.86-245.80m



PHOTO 190 GM12-10 BX 76-78 259.66-269.78m



PHOTO 191 GM12-10 BX 79-81 255.28-265.31m



PHOTO 192 GM12-10 BX 82-84 265.31-275.23m



PHOTO 193 GM12-10 BX 85-87 275.23-285.00m



PHOTO 194 GM12-10 BX 88-90 285.00-295.08m



PHOTO 195 GM12-10 BX 91-93 295.08-304.75m



PHOTO 196 GM12-10 BX 94-96 304.75-314.61m



PHOTO 197 GM12-10 BX 97-99 314.61-324.36m



PHOTO 198 GM12-10 BX 100-102 324.36-334.00m



PHOTO 199 GM12-10 BX 103-105 334.00-343.85m



PHOTO 200 GM12-10 BX 106-108 343.85-354.00m



PHOTO 201 GM12-10 BX 109-111 354.00-365.24m



PHOTO 202 GM12-10 BX 112-114 365.24-375.70m



PHOTO 203 GM12-10 BX 115-117 375.70-385.90m



PHOTO 204 GM12-10 BX 118-120 385.90-400.00m EOH



PHOTO 205 GM12-11 BX 1-3 0.00-23.28m



PHOTO 206 GM12-11 BX 4-6 23.28-37.50m



PHOTO 207 GM12-11 BX 7-9 37.5-46.35m



PHOTO 208 GM12-11 BX 10-12 46.35-55.85m



PHOTO 209 GM12-11 BX 13-15 55.85-65.31m



PHOTO 210 GM12-11 BX 16-18 65.31-71.57m



PHOTO 211 GM12-11 BX 19-21 74.59-80.75m



PHOTO 212 GM12-11 BX 22-24 83.56-93.00m



PHOTO 213 GM12-11 BX 25-27 93.00-98.65m



PHOTO 214 GM12-11 BX 28-30 101.55-110.46m



PHOTO 215 GM12-11 BX 31-33 110.46-119.64m



PHOTO 216 GM12-11 BX 34-36 119.64-128.61m



PHOTO 217 GM12-11 BX 37-35 128.61-137.78m



PHOTO 218 GM12-11 BX 40-42 137.70-148.50m



PHOTO 219 GM12-11 BX 43-45 148.50-157.79m



PHOTO 220 GM12-11 BX 46-48 157.79-167.10m



PHOTO 221 GM12-11 BX 49-51 167.10-177.00m



PHOTO 222 GM12-11 BX 52-54 177.00-186.75m



PHOTO 223 GM12-11 BX 55-57 186.75-195.57m



PHOTO 224 GM12-11 BX 58-60 195.57-204.39m



PHOTO 225 GM12-11 BX 61-63 204.39-213.68m



PHOTO 226 GM12-11 BX 64-66 213.68-225.85m



PHOTO 227 GM12-11 BX 67-69 225.85-234.94m



PHOTO 228 GM12-11 BX 70-72 234.94-244.18m



PHOTO 229 GM12-11 BX 73-75 244.18-263.00m



PHOTO 230 GM12-11 BX 76-78 253.00-263.30m



PHOTO 231 GM12-11 BX 79-81 263.30-273.00m



PHOTO 232 GM12-11 BX 82-84 273.00-282.43m



PHOTO 233 GM12-11 BX 85-87 282.43-291.94m



PHOTO 234 GM12-11 BX 88-90 291.94-301.30m



PHOTO 235 GM12-11 BX 91-93 301.30-310.90m



PHOTO 236 GM12-11 BX 94-96 310.90-320.45m



PHOTO 237 GM12-11 BX 97-99 320.45-330.00m



PHOTO 238 GM12-11 BX 100-102 330.00-339.75m



PHOTO 239 GM12-11 BX 103-105 339.75-349.12m



PHOTO 240 GM12-11 BX 106-108 349.12-358.80m



PHOTO 241 GM12-11 BX 109-111 358.80-368.60m



PHOTO 242 GM12-11 BX 112-114 368.80-378.26m



PHOTO 243 GM12-11 BX 115-117 378.26-388.11m



PHOTO 244 GM12-11 BX 118-120 388.11-397.90m



PHOTO 245 GM12-11 BX 121 397.90-400.50mEOH

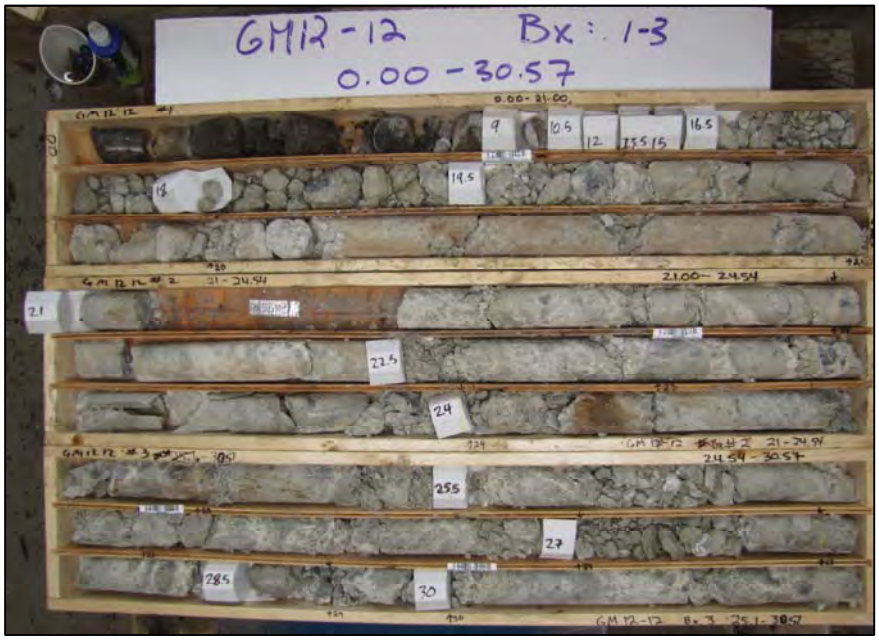


PHOTO 246 GM12-12 BX 1-3 00.00-30.57m



PHOTO 247 GM12-12 BX 4-630.57-44.46m



PHOTO 248 GM12-12 BX 7-9 44.46-66.00m



PHOTO 249 GM12-12 BX 10-12 66.00-82.50m



PHOTO 250 GM12-12 BX 13-15 82.50-98.50m



PHOTO 251 GM12-12 BX 16-18 98.50-113.35m



PHOTO 252 GM12-12 BX 19-21 113.35-123.70m



PHOTO 253 GM12-12 BX 22-24 123.70-134.43m



PHOTO 254 GM12-12 BX 25-27 134.43-143.57m



PHOTO 255 GM12-12 BX 28-30 143.57-152.85m



PHOTO 256 GM12-12 BX 31-33 152.85-161.90m



PHOTO 257 GM12-12 BX 34-36 161.90-171.00m



PHOTO 258 GM12-12 BX 37-39 171.00-180.38m



PHOTO 259 GM12-12 BX 40-42 180.38-189.60m



PHOTO 260 GM12-12 BX 43-45 189.60-199.60m



PHOTO 261 GM12-12 BX 46-48 199.60-209.10m



PHOTO 262 GM12-12 BX 49-51 209.10-219.00m



PHOTO 263 GM12-12 BX 52-54 219.00-228.63m



PHOTO 264 GM12-12 BX 55-57 228.63-238.24m



PHOTO 265 GM12-12 BX 58-60 238.34-247.50m



PHOTO 266 GM12-12 BX 61-63 247.50-257.30m



PHOTO 267 GM12-12 BX 64-66 257.30-267.20m



PHOTO 268 GM12-12 BX 67-69 267.20-277.10m



PHOTO 269 GM12-12 BX 70-72 277.10-286.50m



PHOTO 270 GM12-12 BX 73-75 286.50-296.04m



PHOTO 271 GM12-12 BX 76-78 296.04-305.70m



PHOTO 272 GM12-12 BX 79-81 305.70-315.50m



PHOTO 273 GM12-12 BX 82-84 335.11-325.40m



PHOTO 274 GM12-12 BX 85-87 325.40-335.11m



PHOTO 275 GM12-12 BX 88-90 335.11-344.80m



PHOTO 276 GM12-12 BX 91-93 344.80-354.40m



PHOTO 277 GM12-12 BX 94-96 354.40-364.40m



PHOTO 278 GM12-12 BX 97-99 364.40-374.20m



PHOTO 279 GM12-12 BX 100-102 374.20-384.38m



PHOTO 280 GM12-12 BX 103-105 384.38-394.04m EOH



PHOTO 281 GM12-13 BX 1-3 4.20-13.75m



PHOTO 282 GM12-13 BX 4-6 13.75-24.26m



PHOTO 283 GM12-13 BX 7-9 24.26-34.14m

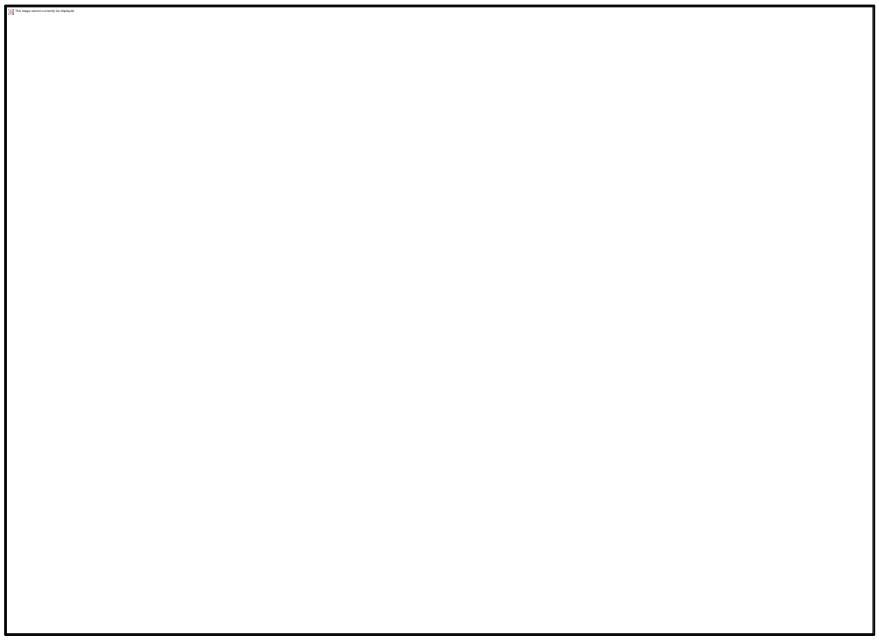


PHOTO 284 GM12-13 BX 10-12 34.14-44.90m



PHOTO 285 GM12-13 BX 16-18 54.50-67.65m



PHOTO 286 GM12-13 BX 19-21 67.65-77.45m



PHOTO 287 GM12-13 BX 22-24 77.45-88.50m



PHOTO 288 GM12-13 BX 25-27 88.50-97.50m



PHOTO 289 GM12-13 BX 28-30 97.50-106.50m



PHOTO 290 GM12-13 BX 31-33 106.50-115.83m



PHOTO 291 GM12-13 BX 34-36 115.83-126.00m



PHOTO 292 GM12-13 BX 37-39 126.00-136.05m



PHOTO 293 GM12-13 BX 40-42 136.05-145.50m

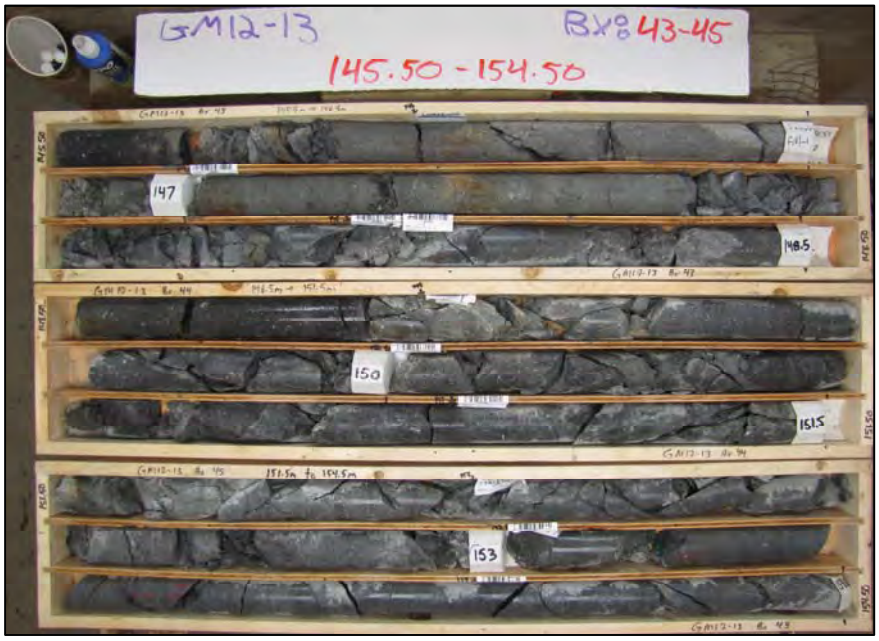


PHOTO 294 GM12-13 BX 43-45 145.50-154.50m



PHOTO 295 GM12-13 BX 46-48 154.50-163.50m



PHOTO 296 GM12-13 BX 49-51 163.50-172.50m



PHOTO 297 GM12-13 BX 52-54 172.50-181.65m



PHOTO 298 GM12-13 BX 55-57 181.65-191.25m



PHOTO 299 GM12-13 BX 58-60 191.25-201.00m



PHOTO 300 GM12-13 BX 61-63 201.00-210.00m



PHOTO 301 GM12-13 BX 64-66 210.00-219.30m



PHOTO 302 GM12-13 BX 67-69 219.30-228.90m



PHOTO 303 GM12-13 BX 70-72 228.90-235.00m



PHOTO 304 GM12-13 BX 73-75 238.20-247.23m



PHOTO 305 GM12-13 BX 76-78 247.23-256.12m



PHOTO 306 GM12-13 BX 79-81 256.12-265.50m



PHOTO 307 GM12-13 BX 82-84 265.50-275.06m



PHOTO 308 GM12-13 BX 85-87 275.06-284.65m



PHOTO 309 GM12-13 BX 88-90 284.67-293.67m



PHOTO 310 GM12-13 BX 91-93 293.67-303.00m



PHOTO 311 GM12-13 BX 94-96 303.00-312.55m



PHOTO 312 GM12-13 BX 97-99 312.55-322.35m



PHOTO 313 GM12-13 BX 100-102 322.35-331.50m



PHOTO 314 GM12-13 BX 103-105 331.50-340.50m



PHOTO 315 GM12-13 BX 106-108 340.50-349.77m



PHOTO 316 GM12-13 BX 109-111 349.77-359.55m



PHOTO 317 GM12-13 BX 112-114 359.55-368.90m



PHOTO 318 GM12-13 BX 115-117 368.95-378.00m



PHOTO 319 GM12-13 BX 118-120 378.00-387.00m



PHOTO 320 GM12-13 BX 121-123 387.00-396.00m



PHOTO 321 GM12-13 BX 124-125 396.00-400.50m EOH



PHOTO 322 BWWR12 BX 1-3 0.00-21.27m



PHOTO 323 BWWR12 BX 4-6 21.27-39.50m



PHOTO 324 BWWR12 BX 7-9 39.50-48.70m



PHOTO 325 BWWR12 BX 10-12 48.70-57.70m



PHOTO 326 BWWR12 BX 13-15 57.70-67.40m



PHOTO 327 BWWR12 BX 16-18 69.70-76.05m



PHOTO 328 BWWR12 BX 19-21 76.05-81.00m



PHOTO 329 BWWR12 BX 22-24 84.00-93.00m



PHOTO 330 BWWR12 BX 25-27 93.00-102.00m



PHOTO 331 BWWR12 BX 28-30 102.00-110.50m



PHOTO 332 BWWR12 BX 31-33 110.50-119.10m



PHOTO 333 BWWR12 BX 34-36 119.10-128.00m



PHOTO 334 BWWR12 BX 37-39 128.00-137.28m



PHOTO 335 BWWR12 BX 40-42 137.28-146.40m



PHOTO 336 BWWR12 BX 43-45 146.40-156.00m



PHOTO 337 BWWR12 BX 46-48 156.00-165.20m



PHOTO 338 BWWR12 BX 49-51 165.20-174.30m



PHOTO 339 BWWR12 BX 52-54 174.30-183.30m



PHOTO 340 BWWR12 BX 55-57 183.30-192.57m



PHOTO 341 BWWR12 BX 58-60 192.57-201.80m



PHOTO 342 BWWR12 BX 61-63 201.80-210.78m



PHOTO 343 BWWR12 BX 64-66 210.78-219.80m



PHOTO 344 BWWR12 BX 67-69 219.80-229.30m



PHOTO 345 BWWR12 BX 70-72 229.30-238.80m



PHOTO 346 BWWR12 BX 73-75 238.80-248.22m



PHOTO 347 BWWR12 BX 76-78 248.22-257.65m



PHOTO 348 BWWR12 BX 79-81 257.65-266.10m



PHOTO 349 BWWR12 BX 82-84 266.10-275.16m



PHOTO 350 BWWR12 BX 85-87 275.16-184.05m



PHOTO 351 BWWR12 BX 88-90 284.05-292.75m



PHOTO 352 BWWR12 BX 91-93 292.75-300.00m EOH



PHOTO 353 BWWR13 BX 1-3 0.00-28.65m



PHOTO 354 BWWR13 BX 4-6 28.65-44.70m



PHOTO 355 BWWR13 BX 7-9 44.70-53.50m



PHOTO 356 BWWR13 BX 10-12 53.50-63.00m



PHOTO 357 BWWR13 BX 13-15 63.00-73.50m



PHOTO 358 BWWR13 BX 16-18 73.50-82.10m



PHOTO 359 BWWR13 BX 19-21 82.10-91.50m



PHOTO 360 BWWR13 BX 22-24 91.50-100.07m



PHOTO 361 BWWR13 BX 25-27 100.07-108.60m



PHOTO 362 BWWR13 BX 31-33 118.50-127.75m



PHOTO 363 BWWR13 BX 35-37 127.75-137.00m



PHOTO 364 BWWR13 BX 38-40 137.00-145.85m



PHOTO 365 BWWR13 BX 41-43 145.85-154.92m



PHOTO 366 BWWR13 BX 44-46 154.92-163.95m



PHOTO 367 BWWR13 BX 47-49 163.95-173.30m



PHOTO 368 BWWR13 BX 49-51 173.30-183.00m



PHOTO 369 BWWR13 BX 52-54 183.00-192.60m



PHOTO 370 BWWR13 BX 55-57 192.60-202.35m



PHOTO 371 BWWR13 BX 58-60 202.35-212.22m



PHOTO 372 BWWR13 BX 61-63 212.22-221.40m



PHOTO 373 BWWR13 BX 64-66 221.40-231.00m



PHOTO 374 BWWR13 BX 67-69 231.00-240.25m



PHOTO 375 BWWR13 BX 70-72 240.25-249.45m



PHOTO 376 BWWR13 BX 73-75 249.45-259.66m



PHOTO 377 BWWR13 BX 79-81 269.78-279.20m



PHOTO 378 BWWR13 BX 82-84 279.20-288.56m



PHOTO 379 BWWR13 BX 85-87 285.33-297.57m



PHOTO 380 BWWR13 BX 88-90 297.37-307.10m



PHOTO 381 BWWR13 BX 91-93 307.10-316.50m



PHOTO 382 BWWR13 BX 94-96 316.50-326.28m



PHOTO 383 BWWR13 BX 97-99 326.28-335.60m



PHOTO 384 BWWR13 BX 100-102 335.60-345.00m



PHOTO 385 BWWR13 BX 103-105 345.00-354.75m



PHOTO 386 BWWR13 BX 106-108 354.75-364.30m



PHOTO 387 BWWR13 BX 109-111 364.30-373.00m



PHOTO 388 BWWR13 BX 112-114 373.00-382.25m



PHOTO 389 BWWR13 BX 115-117 382.25-391.79m



PHOTO 390 BWWR13 BX 118 391.79-393.00m EOH



PHOTO 391 BWWR14 BX 1-3 0.00-30.00m



PHOTO 392 BWWR14 BX 4-6 30.00-45.13m



PHOTO 393 BWWR14 BX 7-9 45.13-54.00m



PHOTO 394 BWWR14 BX 10-12 54.00-63.00m



PHOTO 395 BWWR14 BX 13-15 63.00-71.83m



PHOTO 396 BWWR14 BX 19-21 81.44-91.10m



PHOTO 397 BWWR14 BX 22-24 91.1-100.5m



PHOTO 398 BWWR14 BX 25-27 100.5-110.00m



PHOTO 399 BWWR14 BX 28-30 110.0-118.76m



PHOTO 400 BWWR14 BX 31-33 118.76-129.00m



PHOTO 401 BWWR14 BX 34-36 129.00-138.00m



PHOTO 402 BWWR14 BX 37-39 138.00-147.00m



PHOTO 403 BWWR14 BX 40-42 147.00-156.00m



PHOTO 404 BWWR14 BX 43-45 156.00-165.00m



PHOTO 405 BWWR14 BX 46-48 165.00-174.00m



PHOTO 406 BWWR14 BX 49-51 174.00-183.00m



PHOTO 407 BWWR14 BX 52-54 183.00-192.00m



PHOTO 408 BWWR14 BX 55-57 192.00-201.00m



PHOTO 409 BWWR14 BX 58-60 201.00-210.00m



PHOTO 410 BWWR14 BX 61-63 210.00-213.00m



PHOTO 411 BWWR14 BX 64-66 219.00-227.60m



PHOTO 412 BWWR14 BX 67-69 227.00-237.00m



PHOTO 413 BWWR14 BX 70-72 237.00-246.00m



PHOTO 414 BWWR14 BX 73-75 246.00-255.00m



PHOTO 415 BWWR14 BX 76-78 255.00-264.00m



PHOTO 416 BWWR14 BX 79-81 264.00-272.00m



PHOTO 417 BWWR14 BX 82-84 272.90-282.00m



PHOTO 418 BWWR14 BX 85-87 282.00-291.00m



PHOTO 419 BWWR14 BX 88-90 291.00-300.00 EOH