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Mount Polley Mine Project: Tailings Storage Facility 2011 Geotechnical Site Investigation – FINAL

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IMPORTANT NOTICE

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1.0 INTRODUCTION

Mount Polley is a copper and gold mine owned by Imperial Metals Corporation and operated by the Mount Polley Mining Corporation (MPMC). The design and construction monitoring of the Tailings Storage Facility (TSF) embankment from mine start up to early 2011 had been completed under the direction of Knight Piesold Limited (KP). AMEC Environment and Infrastructure, a division of AMEC Americas (AMEC), assumed the role of engineer-of-record for the TSF embankment as of 28 January 2011.

A geotechnical investigation was undertaken in October 2011, based on the review of existing site instrumentation and as required to conform to TSF monitoring recommendations. The investigation comprised geotechnical drilling, installation of three slope indicators, eleven vibrating wire piezometers (VWP) and was followed up by laboratory testing on selected samples. In conjunction with the investigation, the installation of four groundwater monitoring wells was also completed at the request of MPMC to address issues not related to geotechnical stewardship of the TSF.

2.0 BACKGROUND

2.1 General

The Mount Polley mine is located 56 km northeast of Williams Lake, British Columbia. Operations began in 1997 and have continued to the present, with the exception of a prolonged shutdown for economic reasons occurring between 2001 and 2005. The mine currently processes ore at a mill throughput rate of approximately 20,000 tonnes per day. Tailings from this process are deposited as slurry into a TSF comprised of a 4.2 km long earth and rockfill embankment, as shown in Drawing 2011.01. The embankment, being raised annually via modified centerline geometry, is formed of three sections:

1. Main, up to 45 m high;
2. Perimeter, up to 27 m high; and
3. South, up to 17 m high.

The Stage 7 embankment raise, constructed in the summer of 2011, uniformly increased the TSF embankment crest elevation to approximately 960.1 m, a height increase of 2.0 m relative to the previous year's crest raise.

As of June 2011, 93 piezometers had been installed along nine monitoring planes within the three embankment sections. Also as of June 2011, of the 93 piezometers, approximately 40% were functioning. Piezometers have been installed in the TSF embankment fills, foundations, and the impounded tailings upstream of the compacted till core zone. Five slope inclinometers were installed near the downstream toe of the Main embankment, four of which currently function. Given the nature of the TSF, monitoring embankment response to raising and ongoing

tailings placement is an essential component of sound tailings management. A full review of the nature and number of instruments present in the dam was originally completed by AMEC during a dam safety review (DSR) completed in 2006 (AMEC, 2006). Based upon that review, replacement of non-functioning instrumentation in key locations was recommended in the 2006 DSR (AMEC, 2006). This recommendation was reiterated in the 2011 TSF review and recommendations memorandum (AMEC, 2011). Both these documents also recommended further characterization of glaciolacustrine soils within the foundations of the dams as this had been postulated from very early in the mine life as being a potential stability concern but was not effectively addressed prior to the 2011 TSF review and recommendations.

2.2 Basis for 2011 Investigation

Based on AMEC's review of the existing Mount Polley TSF information, and instrumentation coverage (AMEC, 2011), it was determined there was need for an improved characterization of foundation soil conditions, pore pressures and potential movements within foundation glaciolacustrine soils. The 2011 investigation was proposed to MPMC on that basis and was approved. The investigation as specifically undertaken with efforts focussed on enhancing the understanding of these issues and in particular, the following three geotechnical issues:

1. *Glaciolacustrine foundation soils (GLU)*: The 2006 Dam Safety Review (AMEC, 2006) and 2010 Dam Safety Inspection (KP, 2011) both highlighted the significance of any potential for pre-shearing (i.e. low strength) within the glaciolacustrine soils present within the Mount Polley TSF foundation soils and recommended additional investigation and testing be undertaken to improve characterisation of these soils. Specifically, the concern would be associated with any laterally continuous, high plastic clay varves within the glaciolacustrine soils that, if pre-sheared to a low residual shear strength, would represent a weak planar feature within the foundation that would largely govern dam stability. Further, even if not pre-sheared, such clay varves could be driven to a low shear strength as a result of movements induced by the ongoing raising of the dam, thus making it important to monitor displacement patterns within these soils. Movement (about 4 mm) within this foundation soil type was noted by KP (2011) to have occurred in inclinometer SI01-02.
2. *Perimeter embankment crack:* The 2010 Dam Safety Inspection (KP, 2011) observed a longitudinal crack (i.e. parallel to the axis of the dam) at the eastern portion of the Perimeter embankment (at station 3+400 m) within the downstream rockfill shell. It is unknown whether this crack is indicative of embankment slope movement (possibly related to till borrow excavation operations to the downstream, and/or foundation glaciolacustrine soils), or merely reflects localized rockfill settlement. No further cracking has been observed in this area.
3. *South embankment foundation conditions*: AMEC's review of foundation conditions concluded little information existed within the ultimate South embankment downstream toe area.

2.3 Previous Investigations

A review of previous site investigations was carried out for the Tailings Storage Facility which included the following:

- Geotechnical Drilling, November 1989 (Wright 1990)
- Geotechnical Investigation, 1995 (KP 1995)
- Groundwater Monitoring Well Installation, February 1997 (KP 1997a)
- Geological Investigations, 1997 (KP 1997b)
- Slope Inclinometer Installation, May 2006 (KP 2007)
- Borrow Site Investigation, May 2008 (KP 2009)

The previous investigations consisted of excavating test pits and advancing drill holes by various drilling methods including air rotary, diamond drilling and sonic drilling. Complete detailed report information for all of the previous investigations was not available for AMEC's review. This includes the following investigations:

- 1989 Test Pit Investigation
- 1995 Test Pit Investigation
- 1996 CPT Program and Pressure Relief Well Installations
- 1997 Borehole Investigation
- 2001 Slope Inclinometer Installation
- 1996-2010 Piezometer Installations

A plan illustrating the location of previous site investigations is presented on Drawing 2011.11.

3.0 SITE INVESTIGATION PROGRAM

3.1 Scope

The site investigation program was carried out from September 29 to October 11, 2011, inclusive. The investigation was carried out using a Sonic drill rig and included completion and installation of 11 vibrating wire piezometers, and 3 slope inclinometers. The Sonic drilling method utilises a rotary vibratory drill head to introduce both rotary motion and high frequency resonant vibrations to advance the drill hole and return a relatively continuous core sample.

The piezometer and inclinometer holes were advanced to final depths ranging from 11.0 m to 48.0 m, and from 43.0 m to 50.0 m, respectively. In each of the holes, retrieval of continuous overburden core samples was undertaken. The sample retrieval allowed characterisation of foundation soils (in particular, examination of the glaciolacustrine unit) and identification of appropriate piezometer tip installation locations.

Characterisation of the GLU within the field was based on various observations including (but not limited to), the presence of fine grained soil as the primary constituent, presence of varves and laminations, and separation between till and/or fluvial units. Photographs of the core samples characterised as GLU are presented in Appendix C.

A summary of the completed site investigation program is presented in Table 3.1, and a summary of installed instrumentation details in Table 3.2.

Laboratory tests including Atterberg Limits, moisture content determinations and grain size distributions for samples of overburden soil were carried out in AMEC's Prince George Materials Lab and are presented in Appendix A. Detailed visual inspection was also performed in the lab on selected samples. Results from laboratory testing are presented in Section 3.3 as well as in the drill hole logs provided in Appendix B.

3.2 Drilling

All holes were advanced within the TSF in the three embankments: Main, Perimeter and South. The drill holes were advanced in the following locations based on the three geotechnical conditions mentioned in Section 2.1:

1. *Glaciolacustrine foundation soils*: Six piezometers and two inclinometers were advanced in the downstream toe area of the Main embankment, using the existing rockfill buttress as a platform. Two piezometers were advanced in the downstream toe area of the Perimeter embankment.
2. *Perimeter embankment crack:* Drill holes were advanced both on the embankment crest and adjacent to the downstream embankment toe at chainage 3+400. One inclinometer was installed at the crest while one piezometer was installed at the toe.
3. *South embankment foundation conditions:* Two piezometers were installed adjacent to the downstream toe area of the South embankment.

Locations of the drill holes are shown in plan view on Drawing 2011.01. Instrumentation sections are presented on Drawings 2011.02 through 2011.09.

Table 3.1: 2011 Drill Holes Summary

Hole ID	Coordinates		Instrumentation	Surface Elevation (m)	Total Drillhole Depth (m)	Location
	Northing	Easting				
VW11-01	5818480	594463	Piezometer	941.0	11.1	South Embankment
VW11-02	5818343	594786	Piezometer	945.1	17.4	
VW11-03	5818272	595467	Piezometer	927.0	23.2	Main Embankment
VW11-04	5818309	595533	Piezometer	921.6	29.3	
VW11-05	5818410	595605	Piezometer	920.6	32.3	
VW11-06	5818423	595686	Piezometer	916.3	35.4	
VW11-07	5818554	595850	Piezometer	919.8	43.3	
VW11-08	5818697	596027	Piezometer	927.7	47.5	
VW11-09	5819415	595928	Piezometer	936.6	41.7	Perimeter Embankment
VW11-10	5819783	595410	Piezometer	931.8	42.4	Perimeter Embankment
VW11-11	5820031	594892	Piezometer	940.9	23.5	
SI11-01	5818353	595527	Inclinometer	921.1	44.8	Main Embankment
SI11-02	5818716	595998	Inclinometer	928.3	49.4	Main Embankment
SI11-04	5819780	595408	Inclinometer	931.9	43.3	Perimeter Embankment

Table 3.2: Summary of Instrumentation Details

Hole ID	Instrumentation ID	Instrumentation Serial No.	Installation Depth (m)	Tip Location (Soil Unit)
VW11-01 (FX3)	F5	1119797	7.0	Foundation Till
VW11-02 (IX3)	I5	1119796	7.6	Foundation Till
	I6	1119792	10.4	Glaciolacustrine
VW11-03 (EX4)	E6	1119794	15.2	Glaciolacustrine
	E7	1119801	18.9	Glaciofluvial
VW11-04 (CX4)	C11	1119798	12.5	Glaciolacustrine
	C12	1119795	21.0	Foundation Till
VW11-05 (AX5)	A16	1119799	12.2	Glaciolacustrine
	A17	09-2810	16.8	Glaciolacustrine
	A18	09-2808	24.4	Foundation Till
VW11-06 (AX6)	A19	09-2811	10.7	Glaciolacustrine
	A20	09-2809	15.2	Glaciolacustrine
	A21	1119786	22.9	Foundation Till
VW11-07 (BX4)	B11	1119793	13.7	Glaciolacustrine
	B12	1119791	25.9	Foundation Till
	B13	1119785	31.1	Glaciolacustrine
VW11-08 (KX2)	K1	1119788	15.2	Glaciofluvial
	K2	1119784	33.8	Glaciofluvial
VW11-09 (JX1)	J1	1119800	19.4	Foundation Till
VW11-10 (DX4)	D6	1119790	18.4	Glaciolacustrine
	D7	1119802	24.4	Glaciofluvial
VW11-11 (GX2)	G4	1119789	6.1	Foundation Till
	G5	1119787	10.7	Glaciolacustrine

Note: ID in brackets (eg. (FX3)) corresponds with existing Mount Polley instrumentation identification.

Drill hole depths ranged from 11.1 m to 49.4 m below ground surface (at the drill hole collar). Each of the inclinometer holes was terminated a minimum of 2 m into the weathered rock or bedrock unit to ensure the instrumentation was installed in a secure unit. The vibrating wire piezometers were grouted in, allowing for rapid installation of multiple VWP's in a single borehole. Slope inclinometers were grouted into completed sonic drill holes. Typical piezometer installation details are shown on Figure 3.1.

Calibration reports for the VWP's are provided in Appendix D. Readings of new instrumentation are presented in Appendix E. A summary of piezometer readings from February 4, 2012 are shown in Table 3.3.

Figure 3.1: Typical Piezometer Installation Details

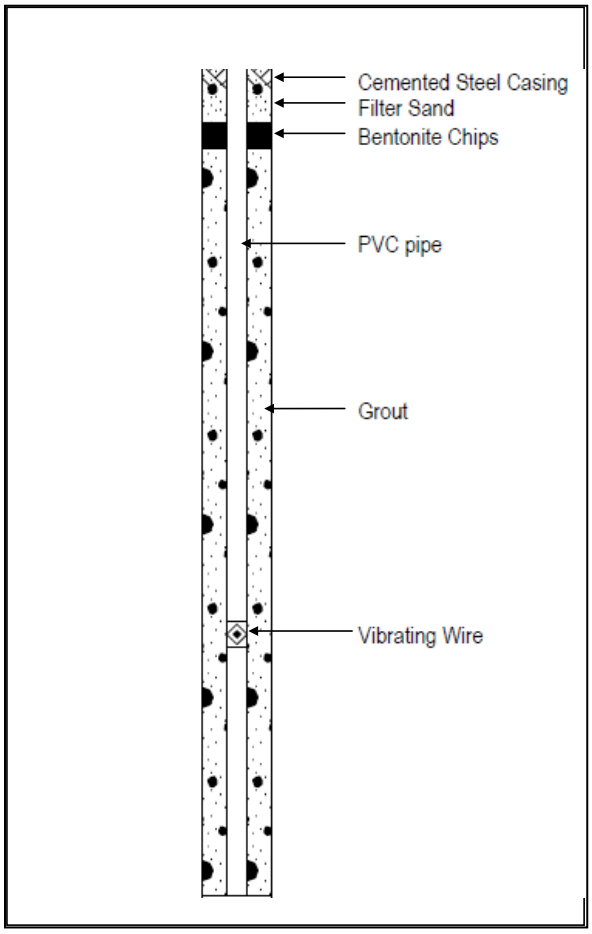


Table 3.3: Summary of Piezometer Data (February 4, 2012)

Location	Hole ID	Instrumentation ID	Tip Material	Tip Elevation (m)	Fill Elevation (m)	Elevation Head (m)
7+52	VW11-01	F5	Foundation Till	934.0	941	942.3
11+00	VW11-02	I5	Foundation Till	937.5	945.1	946.6
		I6	Glaciolacustrine	934.7		946.6
17+60	VW11-03	E6	Glaciolacustrine	911.8	927	917.7
		E7	Glaciofluvial	908.1		918.1
18+45	VW11-04	C11	Glaciolacustrine	909.1	921.6	914.8
		C12	Foundation Till	900.6		906.2
19+60	VW11-05	A16	Glaciolacustrine	908.4	920.6	913.7
		A17	Glaciolacustrine	903.8		913.5
		A18	Foundation Till	896.2		915.4
20+30	VW11-06	A19	Glaciolacustrine	905.7	916.3	910.2
		A20	Glaciolacustrine	901.1		911.7
		A21	Foundation Till	893.5		914.5
22+40	VW11-07	B11	Glaciolacustrine	906.1	919.8	916.7
		B12	Foundation Till	893.9		918.1
		B13	Glaciolacustrine	888.7		917.8
24+70	VW11-08	K1	Glaciofluvial	912.4	927.7	934.7
		K2	Glaciofluvial	893.8		937.3
32+80	VW11-09	J1	Foundation Till	917.2	936.6	921.6*
39+15	VW11-10	D6	Glaciolacustrine	913.4	931.8	916.1
		D7	Glaciofluvial	907.4		915.6
44+60	VW11-11	G4	Foundation Till	934.8	940.9	941.8
		G5	Glaciolacustrine	930.2		938.4

*Piezometer inaccessible, last reading from November 27, 2011

3.3 Index Property Testing – Overburden Samples

3.3.1 General

Index property testing conducted on collected samples included moisture content tests, grain size analyses (including hydrometer analysis on selected samples), and Atterberg limits testing on samples with measurable plasticity. Detailed visual inspection was also performed in the lab on selected samples from various drill holes.

Laboratory results are presented in Appendix A as well as in the drill hole logs in Appendix B. A summary of laboratory testing for each drill hole is presented below in Table 3.4.

Table 3.4: Summary of Laboratory Tests Undertaken

Hole ID	Total Drillhole Depth (m)	No. of samples Tested			
		Grain size Analysis	Moisture Content	Atterberg Limits	Detailed Visual Inspection
VW11-01	11.1	1	4	0	0
VW11-02	17.4	0	5	1	0
VW11-03	23.2	0	5	1	3
VW11-04	29.3	1	10	2	0
VW11-05	32.3	0	9	2	0
VW11-06	35.4	0	19	1	7
VW11-07	43.3	0	17	3	0
VW11-09	41.7	3	18	0	1
VW11-10	42.4	2	25	4	2
VW11-11	23.5	1	18	0	2
SI11-01	44.8	3	8	1	3
SI11-02	49.4	2	26	5	9
SI11-04	43.3	1	4	0	3

***Note**: 23 samples were tested from collected boxed core or Shelby tubes at VW11-06, VW11-08 and SI11-04. All other samples were grab samples.*

3.3.2 Detailed Visual Inspection

A detailed visual inspection was performed by a qualified soil technician on selected samples in AMEC's Prince George laboratory following the investigation program. The inspections involved observations of soil composition, varve thickness, plasticity, consistency, colour, moisture content and structure. These observations are included within the drill hole logs in Appendix B.

3.3.3 Atterberg Limits

Atterberg Limits testing gives numerical values to soil plastic and liquid limits, thus classifying the type of fine-grained soil. From these values, the plasticity index (PI) and liquidity index (LI) can be determined. Plasticity index indicates the range of moisture contents where a soil exhibits plastic properties (typically, if PI=0, the soil is classified as non-plastic). Liquidity index is a measure of the stiffness within the soils plasticity index range (soils with LI>1, typically exhibit a very low shear strength). Liquidity index values have been reported to classify as

over-consolidated clay when the LI=0 and as highly over-consolidated clay if the LI is a negative value. (Means and Parcher, 1963)

Out of a total of 20 Atterberg limits tests completed, 19 were performed on samples from within the GLU. Samples chosen for Atterberg limits testing were generally selected from areas indicating a thick GLU. The testing interval was decreased in some holes where similar units were observed and in close proximity to each other. Results from Atterberg limits testing are discussed below and are also presented in Table 3.5.

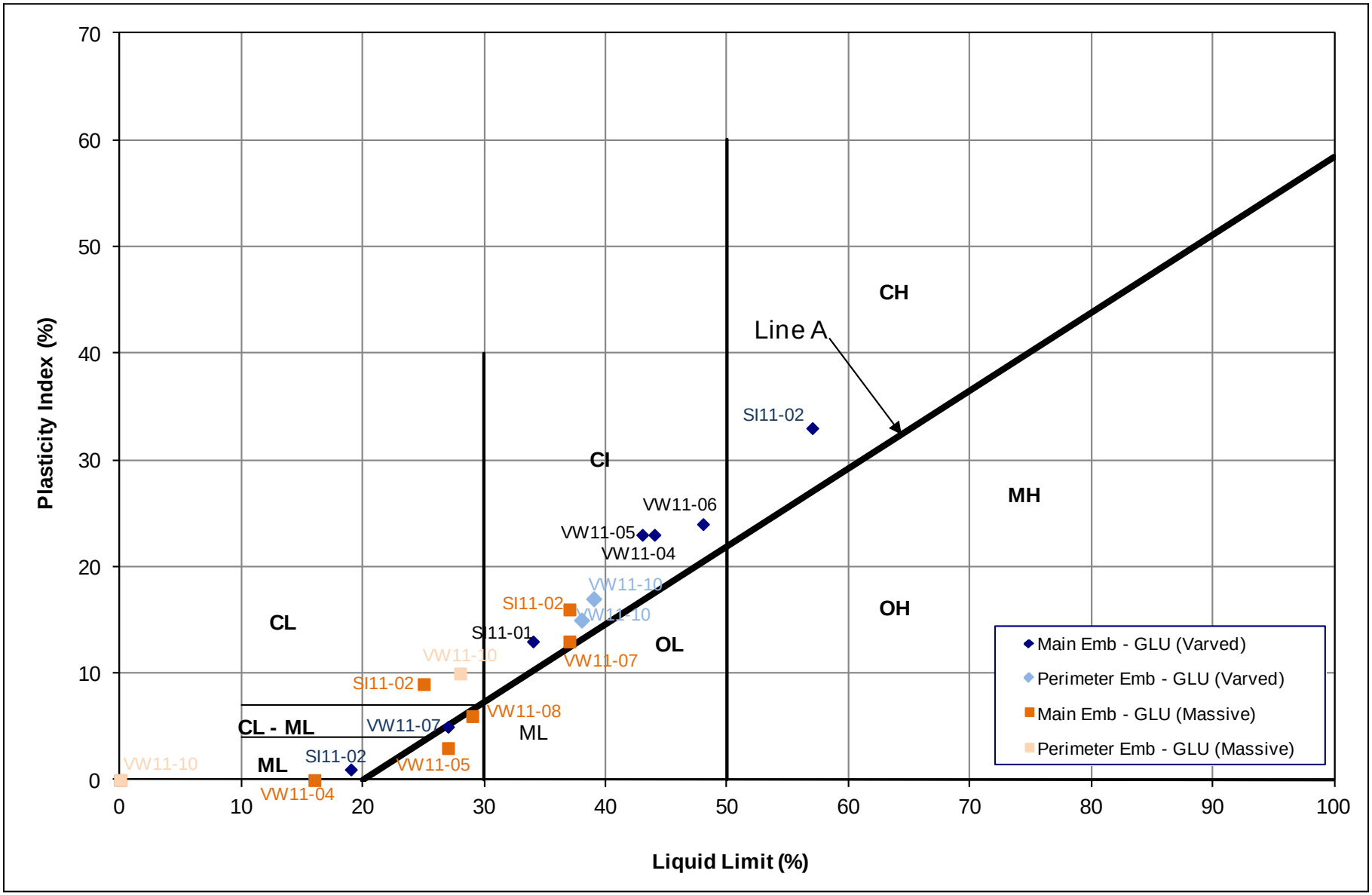
- Samples tested from within the glaciolacustrine unit which appeared to have a varved structure, yielded plasticity index results ranging from 1 to 33%, the majority of fines generally classifying as clay of intermediate plasticity (CI). The highest plasticity index result of 33%, fines classifying as clay of high plasticity (CH), occurred in a sample from drill hole SI11-02 (Main Embankment) at approximate elevation 900.6 m. Moisture contents typically ranged from 20% to 32% (with the exception of sample C2 from VW11-06 with a moisture content of 38%).
- Samples tested from within the glaciolacustrine unit which appeared to have a massive structure, yielded plasticity index results ranging from 0 to 16%, the fines generally classifying as either silt with low plasticity (ML) or clays with low to intermediate plasticity (CL-CI).
- One sample was tested within a glaciofluvial unit in VW11-03. The sample yielded a moisture content of 22.2% with fines classifying as non-plastic.

Table 3.5: Summary of Atterberg Limits Testing Results

Hole ID	Sample Depth (m)	Location	Soil Classification	Moisture Content	Plastic Limit (%)	Liquid Limit (%)	Plasticity Index	Liquidity Index	Comments
VW11-03	18	Main Embankment	SM*	22.2	0	0	0	-	Non-plastic
VW11-04	10		CI	23.4	21	44	23	0.10	Varved
	15		CM	32.4	26	16	-10	-	Non-plastic
VW11-05	13.7		CI	29.8	20	43	23	0.43	Varved
	16.6		ML	24.8	24	27	3	0.27	
VW11-06	11		CI	37.9	24	48	24	0.58	Varved
VW11-07	13.2		CI	26.1	24	37	13	0.16	
	20.2		CM	26.7	25	0	0	-	Non-plastic
	30.8		CL-ML	25.5	22	27	5	0.70	Varved
VW11-08	17.2		ML	26.4	23	29	6	0.57	
SI11-01	11.7		CI	27.6	21	34	13	0.51	Varved
SI11-02	16.5		ML	18.4	18	19	1	0.40	Varved
	21.5		CL	15.4	16	25	9	-	
	27.6		CH	31.8	24	57	33	0.24	Varved
	31.3		CI	30.4	21	37	16	0.59	
VW11-10	17	Perimeter Embankment	CI	23	22	39	17	0.06	Varved
	18.2		CI	24.7	23	38	15	0.11	Varved
	20		CM	22.4	25	0	0	-	Non-plastic
	35.8		CL	20.1	18	28	10	0.21	
VW11-02	10.5	South Embankment	CL	17.3	20	28	8	-	

*Sample from Glaciofluvial unit. All other samples are from Glaciolacustrine unit.

Figure 3.2: Atterberg Limits Test Results (Glaciolacustrine Unit)



3.3.4 Grain Size Analyses

Grain size analyses were conducted on selected samples from the each of the glaciolacustrine, glaciofluvial and till units.

- Hydrometer analyses conducted on samples from the glaciolacustrine unit (massive structure) indicated clay contents (% by dry weight finer than 2 microns) in the range of 8.1% to 33.7% with total fines contents (% by dry weight finer than 74 microns) typically in the range of 72.9% to 99.5%, based on the 75-mm minus sample fraction.
- Hydrometer analyses conducted on samples from the glaciofluvial unit indicated sand contents (% by dry weight between 74 microns and 4.75mm) of approximately 35% to 68% with total fines contents in the range of 26.2% to 52.4%.
- Hydrometer analyses conducted on samples from the till unit indicated clay contents in the range of 4.7% to 21.6% with total fines contents in the range of 40.7% to 88.1%.

4.0 KEY RESULTS AND IMPLICATIONS

Key information obtained from the investigation is discussed below.

4.1 Main Embankment

Information obtained from the investigation indicates that within the foundation soils there exists a continuous glaciolacustrine unit with interbedded glaciofluvial units between an upper and lower till unit overlying bedrock.

The GLU is generally characterised as:

1. Silty CLAY to Clayey SILT to SILT
   - Occasional sand layers (2-20 mm thick)
   - Low to high plasticity
   - Stiff to hard
   - Moist to wet (moisture content = 15-32%)
   - Clay varves (3-30 mm thick) and silt varves (1-50 mm thick)

overlying,

2. SILT to Sandy SILT
   - Non-plastic to low plasticity
   - Dense
   - Wet to saturated (moisture content = 20-34%)
   - Massive structure with occasional clay varves

The glaciofluvial unit is generally characterised as:

- SAND to Silty SAND
  - Trace to some gravel, trace clay
  - Non-plastic
  - Compact to dense
  - Moist to wet (moisture content = 4-28%)

The till is generally characterised as:

- Sandy SILT to Clayey SILT
  - Trace to some gravel
  - Occasional sand seams and/or lenses
  - Non-plastic to low plasticity
  - Dense to stiff-hard
  - Moist (moisture content = 7-30%)

Photographs of samples collected within the GLU from the Main embankment drill holes are presented in Appendix C, Photos 2 through 36 and 47 through 62. Sections displaying interpreted stratigraphic profiles of the drill holes are presented in Drawings 2011.02 through 2011.06.

4.1.1 Glaciolacustrine Foundation Soils

The GLU within the main embankment foundation appears to be thickest along the east and central regions of the embankment (approx. Sta.22+40 to 24+70 m) with thicknesses ranging from 15.0 m to 18.1 m. The unit appears to thin moving west towards the south embankment (approx. Sta. 20+30 to 17+60 m) with thicknesses decreasing from 8.7 m to 2.5 m.

Consistency

The GLU containing a greater percentage of clay was generally considered to have a consistency of very stiff to hard. This conclusion is consistent with that of historical data from previous Knight Piesold investigations. Table 4.1 provides a summary of foundation soil characteristics of selected nearby holes encountering the GLU.

Table 4.1 Summary of Foundation Soil Characteristics – Main Embankment

Hole ID/Location	Elevation (m)/ Depth (mbgs*)	Consistency/Density	Soil Unit
GW96-3[1]	907 900	Stiff to very stiff	Silt, some clay to clayey (GLU)
	900 895	Very stiff to hard	Silt, trace sand (GLU)
GW96-9[1]	911 910	Stiff to very stiff	Silt, trace sand (GLU)
SI06-1[2]	909 901	Compact to very dense	Silt, trace clay
SI06-2[2]	909 900	Compact to dense	Silt, trace clay
SI06-3[2]	911 901	Dense to very dense	Silt, trace clay, trace sand
TPB11[3]	1.8 3.7	Dense	Silt, some sand
TPB13[3]	1.1 4.9	Dense	Silt, trace to some sand, trace gravel, trace clay
TPB14[3]	1.1 4.9	Dense	Silt, some sand to sandy
MP89-234[4]	909 900	Dense	Clay and Silt, trace pebbles
Cross Section 3[5]	varies	Very stiff	Silt, lesser Clay, rare sand seams (GLU)

*Meters below ground surface
1 Air rotary drilled Ground water monitoring well holes (KP 1997a)
2 Air rotary drilled Slope Inclinometer holes (KP 2007)
3 Test Pit excavation (Wright 1990)
4 Diamond Drill holes. Report notes “It was not possible to distinguish between the dense alluvial silts and glacial tills in the drilling program”. (Wright 1990)
5 Geological summary cross-section through Main embankment centerline (KP 1997b)

Where the GLU consists primarily of non-plastic silts (typically below the upper, more clay-rich portion of the unit), it was generally observed to be loose to compact upon sample retrieval. An example of this material unit was found in samples G4 and G5 in drill hole VW11-05 (See Photos 12 and 13). This condition was found in a majority of the drill holes along the main embankment and is also described in the following historical investigations:

- Drill logs from the 1996 investigation (GW96-3) note a "*coarse silt, quickens under vibration*" (KP 1997a).
- A cone penetration testing (CPT) program was conducted in 1996 due to low SPT N-values (encountered during a prior investigation) within a non-plastic silt layer. The CPT investigations confirmed that the N-values were due to drilling disturbance and not weak foundation soils. (KP 1997b)

It should be noted that, during the 2011 drilling program, at least three attempts were made to push a Shelby tube sampler (0.76 m length) within the GLU closer to the east end of the main embankment, obtaining only 0.15 m - 0.25 m of recovery due to high penetration resistance. Based on the above information, the apparently loose condition within the recovered sonic core is not reflective of the in situ condition, but is instead a result of vibration and sample disturbance caused by the sonic drilling method. The relatively low moisture contents of the silt further attest to this conclusion.

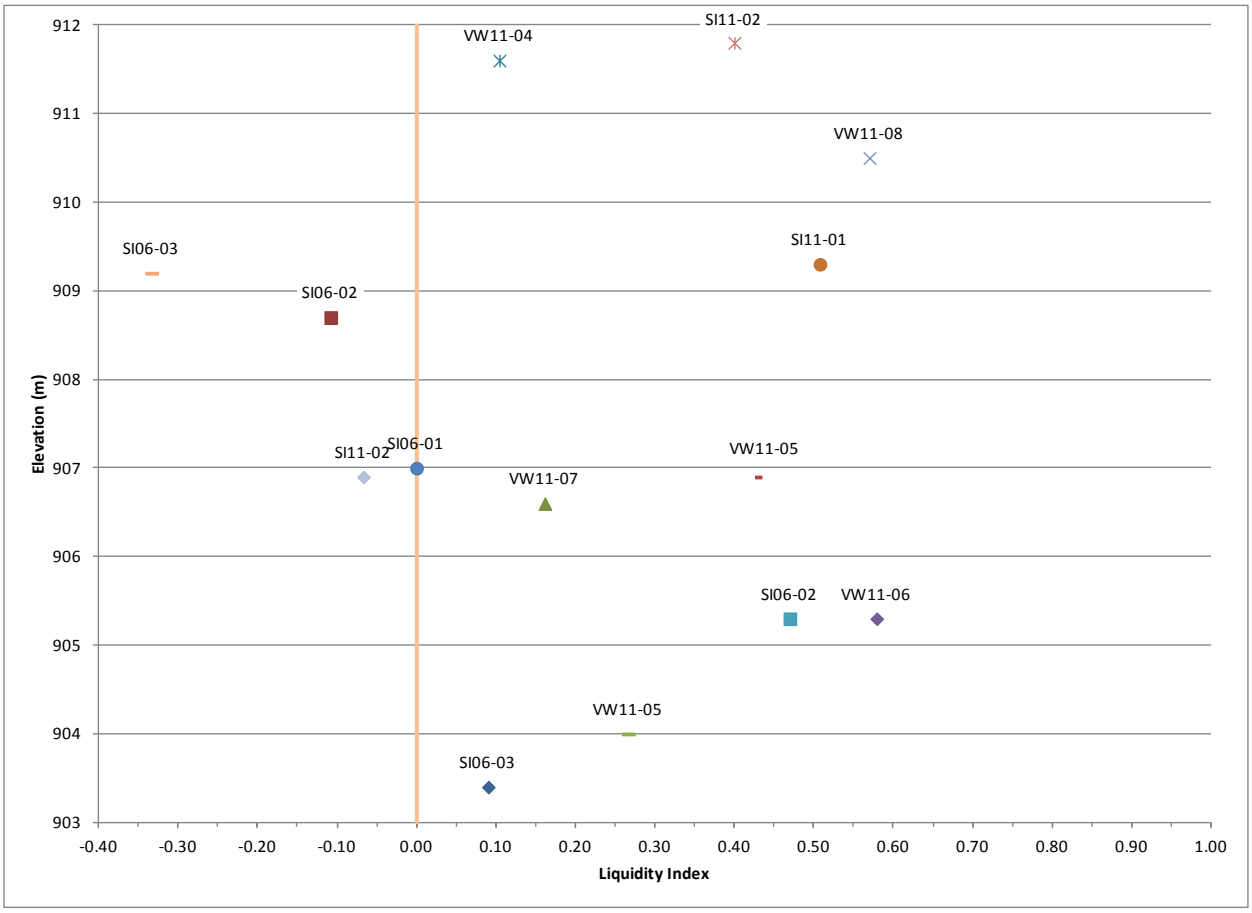
Over-consolidated condition

There are a number of indications to suggest that GLU along the main embankment is in an over-consolidated state. Soils that are over-consolidated typically have higher peak strength (at a given effective stress), than normally consolidated soils. Moreover, for heavily over-consolidated soils with high fines contents (such as the GLU) that will shear in an undrained manner due to low hydraulic conductivity, the undrained shear strength will typically exceed the drained shear strength, owing to negative shear-induced pore pressures.

Figure 4.1 presents a plot of liquidity index results for various drill holes along the main embankment. The plot shows a number of samples with a liquidity index (LI) near zero (moisture content = plastic limit), which is typically consistent with an overconsolidated condition. For example, in VW11-04, testing of the silt GLU near elevation 911.5 m (top of the unit) resulted in a LI equal to 0.1(See Photo 4). This condition was also found to exist in several other locations along the Main Embankment from the 2011 investigation as well as earlier investigations. Table 4.2 presents a summary of available lab data for investigation holes located along the main embankment, 2011 and earlier. Note that some negative LI values were obtained, indicating natural moisture contents below the plastic limit.

A summary of GLU descriptions from Stage 2A Tailings Facility Construction report indicates that the "*glaciolacustrine (silt, clay) sediments are often highly overconsolidated and very stiff to hard*". (KP 1997b)

Figure 4.1: Elevation vs. Liquidity Index – Drill holes along Main Embankment



*Note: SI06 drill holes are from the 2006 slope inclinometer installation program.

Table 4.2 Summary of Available Lab Results – Main Embankment

Hole ID	Location	Sample Elevation (m)	Moisture Content (%)	Plasticity Index	Liquidity Index	Friction Angle (Φ)	Cohesion (c')	Soil Description
TP95-37[2]	16+55[4]	-	18.8	11	0.2	35	0	Sand and Silt, some gravel and clay (Till)
TP95-39[2]	17+90[4]	-	28.5	-	-	33	0	Silt, some clay and sand, trace gravel (Till)
VW11-04	18+45	911.6	23.4	23	0.1	-	-	Silt, some clay to clayey, trace sand (GLU)
		906.6	32.4	-	-	-	-	Silt, trace clay, trace sand (GLU)
SI11-01	18+65	909.3	27.6	13	0.5	-	-	Silty Clay to Clayey Silt (GLU)
TP95-38[2]	19+20[4]	-	28.4	14	0.7	-	-	Silt, some clay, trace sand and gravel (GLU)
VW11-05	19+60	906.9	29.8	23	0.4	-	-	Silty Clay, trace gravel (GLU)
		904	24.8	3	0.3	-	-	Silt (GLU)
SI06-01[3]	19+85	907	16	4	0.0	-	-	Sandy Silt, some clay (GLU)
		904	30.7	12.8	0.3	-	-	Silt, some clay, trace sand (GLU)
VW11-06	20+30	905.3	37.9	24	0.6	-	-	Silty Clay to Clayey Silt, trace sand (GLU)
TPB13/14[1]	20+30	-	25.1	14	0.6	-	-	Clayey Silt, some sand, trace gravel (Till)
SI06-02[3]	20+95	908.7	24.2	17.6	-0.1	-	-	Silt and Clay (GLU)
		905.3	40.3	23.2	0.5	-	-	Silt and Clay (GLU)
		900.4	27.3	0	-	-	-	Silt, trace clay (GLU)
SI06-03[3]	21+95	918	13.6	7.9	-0.4	-	-	Silt, some Gravel, sand, clay (GLU)
		909.2	14.4	10.2	-0.3	-	-	Clayey Silt, trace sand, gravel (GLU)
		906.4	23.3	13.5	0.0	-	-	Clayey Silt, trace sand (GLU)
		903.4	25.9	17.7	0.1	-	-	Clayey Silt (GLU)
		900.3	23.6	0	-	-	-	Silt, trace clay (GLU)
VW11-07	22+40	906.6	26.1	13	0.2	-	-	Silt, trace clay to clayey (GLU)
		899.6	26.7	0	-	-	-	Silt, some sand, trace clay (GLU)
		889	25.5	5	0.7	-	-	Silt, trace to some clay (GLU)

Hole ID	Location	Sample Elevation (m)	Moisture Content (%)	Plasticity Index	Liquidity Index	Friction Angle (Φ)	Cohesion (c')	Soil Description
SI11-02	24+55	911.8	18.4	1	0.4	-	-	Silty Clay, trace sand (GLU)
		906.9	15.4	9	-0.1	-	-	Silty Clay, trace sand (GLU)
		900.9	31.8	33	0.2	-	-	Clay, some silt to silty, some sand (GLU)
		897.1	30.4	16	0.6	-	-	Clayey Silt, trace sand (GLU)
VW11-08	24+70	910.5	26.4	6	0.6	-	-	Silty Clay to Clayey Silt (GLU)
TPB1[1]	25+30[4]	-	13.7	10	-0.5	-	-	Silt, some clay and sand, trace gravel (Till)

[1] Geotechnical Investigation (Wright 1990)
[2] Geotechnical Investigation (KP 1995)
[3] Slope Inclinometer Installation (KP 2007)
[4] Locations are approximate

Soil Structure and Slickenside Features

The presence of laterally extensive and continuous clay varves (high plasticity) of any appreciable thickness within the unit, if pre-sheared to a low residual shear strength, would represent a weak planar feature within the foundation. Slickenside features within the clay varves would constitute evidence of pre-shearing, and if continuous and pervasive would result in an operative shear strength near the residual strength of the clay. Further, even if not pre-sheared, such clay varves could be driven to low shear strength as a result of movements induced by the ongoing raising of the dam.

Prior to the 2011 investigation, there was limited description of specifics regarding these aspects of the GLU. For example, there was little to no information found during the review of previous investigations describing the soil type, thickness, quantity or continuity of laminations/varves present within the foundation soils.

The follow layering features were noted during the 1996 investigation:

- Within the silt GLU in drill hole **GW96-3**
  - Coarse silt-fine sand laminations, light grey to brown, overlying irregular layers of slight composition change and color change (grey to grey-brown), overlying laminated with rare fine sand/coarse silt layers (1mm thick) overlying silt and clay (1 mm - 3 mm thick).
- Within the silt GLU in drill hole **GW96-9**
  - Layered silt with lesser thin fine sand and silt laminations, as well as silt and clay layers.

The follow layering features were noted during the 2011 investigation:

- Within the upper silt unit in drill hole **VW11-04**
  - Few alternating brown and grey varves
- Within the upper silty clay unit in drill hole **VW11-05**
  - Moderate number of brown and grey varves
- Within the silty clay to clayey silt unit in drill hole **VW11-06**
  - Changing with depth, clay layers (3 mm thick), overlying clay, silt, and sand layers (10 mm - 15 mm thick), overlying silt and sand layers (50 mm thick), overlying clay layers (10 mm - 30 mm thick) and silt (1 mm - 5 mm thick), overlying silt layers (5 mm thick)
- Within the lower clayey silt unit in drill hole **VW11-07**
  - Few silt and clay layers.
- Within the lower silt GLU **VW11-08**
  - Distinct sand (2 mm - 20 mm thick) and silt (2 mm - 10 mm thick) layers within silt unit overlying few varves

- Within the lower clayey silt GLU in drill hole **SI11-02**
  - Distinct sand and silt layers within silty clay unit overlying few varves
- Within the GLU in drill holes **VW11-04** through **VW11-07**
  - Sand layers (300 mm - 600 mm thick)

It appears that the main concentration of clay layers occurs within the area of station 19+00 to 21+00 m, with thicknesses ranging from approximately 3 mm to 30 mm (see Photos 11 and 16). The samples were closely examined, peeling them apart along the varves by a pocket knife, to check for any indications of slickenside features: none were found in any of the samples. The clay layers appear to become fewer, with sand layers increasing in occurrence and thickness, moving northeast along the Main Embankment. The sand layers are particularly noted in drill holes VW11-08 and SI11-02 (See Photos 29, 52-54). The sand and silt layers were typically 2 mm - 20 mm thick and 2 mm - 10 mm thick, respectively. This change might suggest a depositional environment transitional between glaciolacustrine and glaciofluvial moving from southwest to northeast along the Main Embankment alignment.

Inclinometer Records

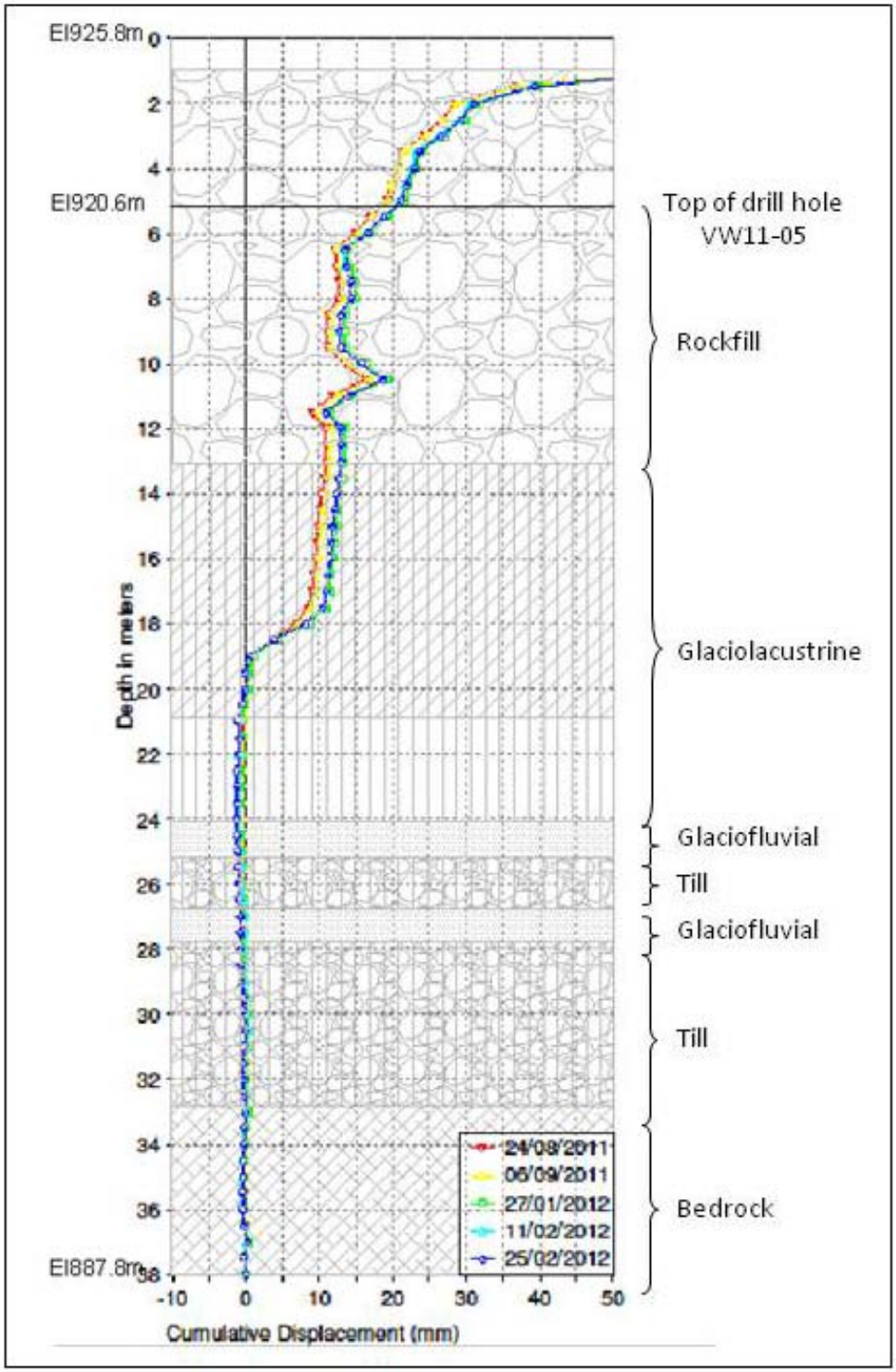
The central region of the main embankment encompasses slope inclinometer SI01-02, which recorded movement (about 4 mm), at an approximate depth of 10 m below ground in the lacustrine silts (KP, 2011). The 2011 investigation indicates that the GLU in this area consists of soils of low to medium plasticity with a liquidity index ranging from approximately 0.3 to 0.4. Comparing the inclinometer displacement plot with the closest drill hole log in this location (VW11-05), the section of recorded movement occurred within the glaciolacustrine silty clay unit, at about Elev. 908 m. A plot of recent cumulative displacement data from SI01-02 and stratigraphy from VW11-05 is presented on Figure 4.2. Photographs of the GLU within the section of movement (represented by VW11-05) are presented in Photos 11 and 12.

Inclinometer SI01-02 has indicated a total of about 10 mm of cumulative displacement over a depth interval of 1 m over a period of about 5 years, an average rate of displacement of about 2 mm/year, and a cumulative shear strain of about 1%. This degree of movement is well within tolerable limits, and is inconsistent with pre-sheared weak planes within the GLU.

Inclinometer SI06-01 is located near SI01-02, and has indicated essentially zero movement over about a five year period, suggesting that the movement within SI01-02 is limited in extent. Other inclinometers along the Main Embankment (SI06-02 and SI06-03), installed prior to 2011 and for which there is sufficient record to discern trends, show zero movement (SI06-02), and cumulative displacement of about 3 mm (in the GLU) over five years (SI06-03), with a cumulative shear strain of about 0.6%.

In summary, inclinometer data to date is consistent with the GLU comprising a competent foundation for the dams. This is no indication of pervasive pre-shearing nor is there indication there would be significant brittle behaviour upon shearing (loss of strength and, as a result, accelerated movements induced by shear strains).

Figure 4.2: Cumulative Displacement vs. Depth (SI01-02) and VW11-05 stratigraphy



GLU Shear Strength

The GLU is in an over-consolidated state, but based on detailed visual inspections (field and lab), there appears to be no evidence of pre-shearing (slickensided structure) within the GLU induced by glacial drag. Stability analyses to date have assigned the GLU a drained shear strength value as follows:

- Effective cohesion (c') = 0
- Effective friction angle (ϕ') = 28°

The 2011 investigation program, information from previous geotechnical investigations undertaken by KP, and the inclinometer data to date indicate that these shear strength parameters remain appropriate, and potentially somewhat conservative. Continued monitoring of inclinometer displacements within the GLU are required to provide ongoing evaluation and, if necessary, reassessment of the operative shear strength within the foundations of the dams.

4.2 Perimeter Embankment

The details below give a description of the general units encountered during the investigation. The GLU encountered below the Perimeter Embankment is generally characterised as follows:

- Clayey SILT to Silty CLAY to SILT
  - Trace sand
  - Low to medium plasticity
  - Very stiff to hard
  - Moist to wet (moisture content = 16-29%)
  - Clay and silt varves (< 5 mm thick)

The glaciofluvial unit is generally characterised as:

- SAND to Silty SAND
  - Trace to some gravel, trace clay
  - Non-plastic
  - Compact to dense
  - Moist to wet (moisture content = 15-29%)

The till is generally characterised as:

- Sandy SILT to Silty CLAY
  - Trace to some gravel
  - Non-plastic to low plasticity
  - Dense, stiff to hard
  - Moist (moisture content = 8-21%)
  - Occasional sand and silt seams

Photographs of samples collected within the GLU from the Perimeter embankment drill holes are presented in Appendix C, Photos 38 through 46. Sections displaying drill hole stratigraphy conditions are presented on Drawings 2011.07 and 2011.08.

Investigation results indicate that discontinuous glaciolacustrine and glaciofluvial units exist within the glacial till units of the Perimeter Embankment foundation soils. A review of previous investigations confirms these observations. Table 4.3 provides a summary of foundation soil characteristics of selected nearby holes encountering a GLU. Drawing 2011.11 presents a plan view of the location of these drill holes.

Table 4.3: Summary of Foundation Soil Characteristics – Perimeter Embankment

Hole ID	Elevation (m)/ Depth (mbgs)	Consistency/Density	Soil Unit
GW96-1[1]	922.8 919.4	Firm	Clay and Silt (GLU)
	900.2 897.7	Very stiff	Silt, trace fine sand and clay (GLU)
GW96-2[1]	920.4 913.1	Very dense	Silt, trace fine sand, some clay (GLU)
	907.2 904.6	Very stiff	Sand and Silt (GLU)
KP08-01[2]	916.5 916	Very dense	Clayey Silt (GLU)
KP08-02[2]	924.5 920.4	Dense	Sand with some clay (GLU)
KP08-06[2]	931.5 930.9	Dense	Clay and Silt (GLU)
	930.5 926	Dense	Sand and Silt (GLU)
KP08-12[2]	920.5 909.2	Very dense	Silty Sand (GLU)

1 Air rotary drilled Ground water monitoring well holes (KP 1997a)
2 Sonic drilled borrow drill holes (KP 2008)

Based on the information presented in Table 4.3, the GLU along the Perimeter embankment is described as very stiff and dense to very dense, with one exception. The upper GLU in GW96-1 is described as firm, but is not of significant concern in this instance as the drill hole location is approximately 140 m further downstream from the current toe of the dam.

The following were noted during the 1996 and 2006 investigations with respect to soil structure and stratigraphy along the Perimeter Embankment alignment:

- Within the clay and silt unit in drill hole **GW96-1**

  - Fine silty sand laminations (1 mm - 100 mm thick), contains till-like layers (20 mm - 100 mm thick)

- Within the silt unit in drill hole **GW96-2**
  - May contain thin fine sand laminations, overlying thinly to irregular laminated (2 mm - 10 mm thick) fine sand layers, some clay in thin layers, overlying fine-medium grained silt with laminations of more clay rich layers (1 mm - 2 mm thick), occasional (20 mm - 30 mm) layers of till-like sand/silt layers with fine gravel, overlying horizontally stratified, light brown, fine-medium grained sand seams (<20 mm thick).

- Within the sand and silt unit in drill hole **KP08-06**
  - Stratified, 150 mm clay seam is present in center of interval, dividing wet and dry portions of unit.

Layering of clay and silt (<5 mm thick) was observed in only one of the three drill holes along the Perimeter Embankment, VW11-10(See Photos 38 through 41). In general clay layers within the GLU appear to be discontinuous and less than 5 mm in thickness with the GLU along the embankment generally observed as having a massive structure. These observations suggest a distinct facies change relative to the GLU along the Main Embankment alignment.

In general, the results above present no indication that the crack observed in the downstream rockfill near station 3+400 m (KP, 2011) was due to the presence of weak soil conditions in the area. Based upon available information, foundation conditions along the Perimeter Embankment appear more favourable than those along the Main Embankment, in terms of the presence and extent of clay-rich zones within the GLU.

4.3 South Embankment

The foundation soils along the south embankment generally consisted of a glacial till unit overlain by a thin GLU, approximately 0.6 m thick (observed in the hole closest to the main embankment).

The overlying till unit ranged from 6 m to 10 m in thickness, and is described as a brown to grey sandy silt of low plasticity, compact to dense with moisture contents ranging from about 11 to 16%. The GLU generally consists of brown clayey silt, trace sand, low plasticity with occasional varves. The consistency was hard with a moisture content of about 17%. Clay rich zones were not present.

A photograph of the sample collected within the GLU from the South embankment is presented in Appendix C, Photo 1. A stratigraphic profile section of the drill holes displaying these conditions is presented on Drawing 2011.09.

4.4 Summary

In summary, the 2011 investigations, previous investigations, and the inclinometer records indicate that the GLU is over-consolidated, not extensively pre-sheared if it is at all, has not exhibited displacements of any concern in response to the loading imposed by the dam construction. For stability evaluation purposes, the GLU can be characterized, and perhaps conservatively so, with drained shear strength parameters of c' = 0 and ϕ' = 28°. Continued regular monitoring of inclinometer displacements is important going forward to validate this conclusion and re-evaluate it should increased rates of displacement be noted.

5.0 MONITORING WELLS

At the request of MPMC, the installation of four monitoring wells was completed during the site investigation program. These four wells were comprised of one deep and one shallow monitoring well installed at each of the two drill sites, designated G1 and G2. Site G1 is located along the Bootjack Access road while G2 is located along the old Polley Lake pump road. The well locations are presented in Drawing 2011.12.

Drill hole logs describing the encountered soil stratigraphy and well installation details are presented in Appendix F.

6.0 LIMITATIONS AND CLOSURE

This report has been prepared for the exclusive use of Mount Polley Mining Corporation for specific application to the area within this report.

Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. AMEC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

Respectfully submitted,

AMEC Environment & Infrastructure,
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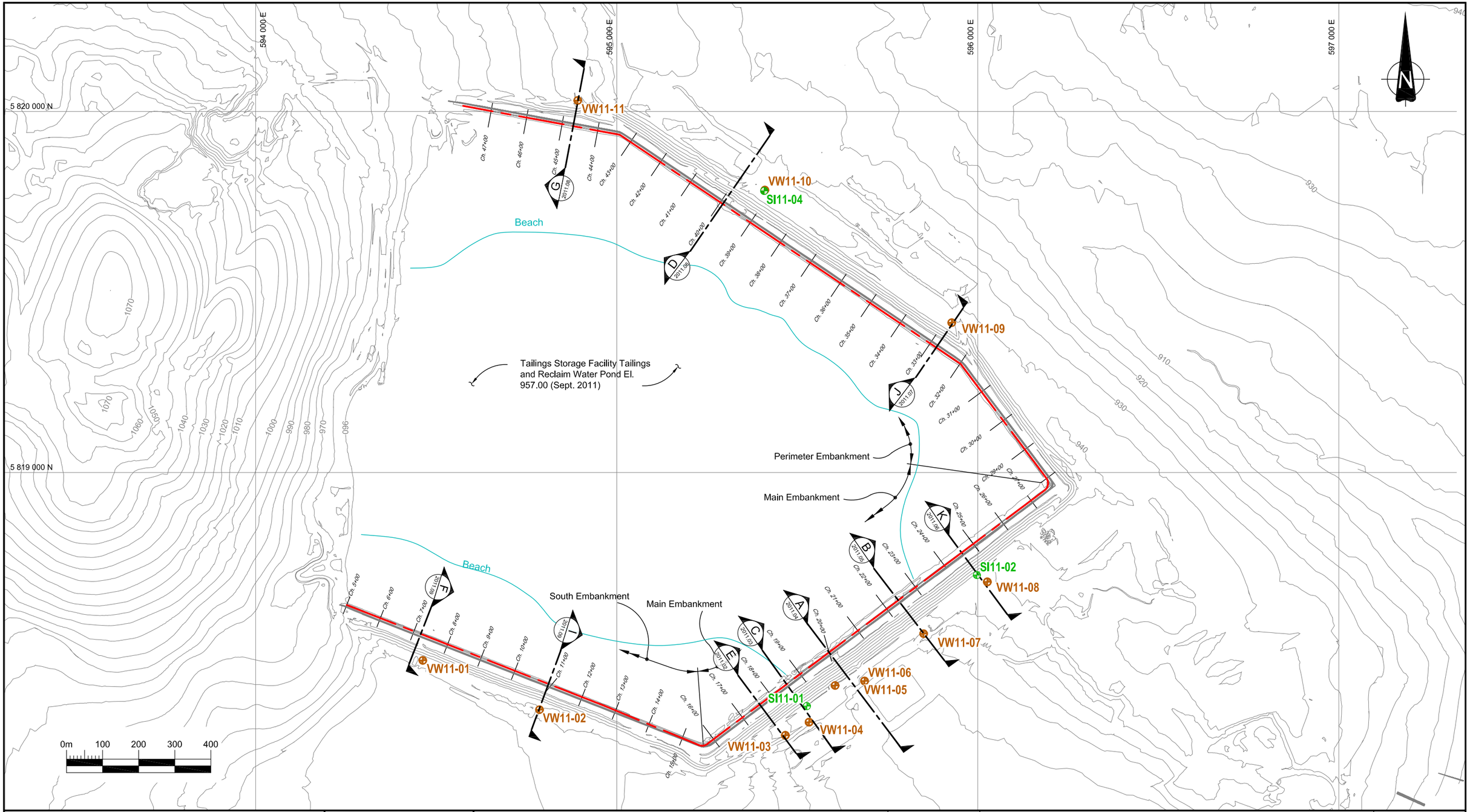
DRAWINGS



LEGEND:

- Vibrating Wire
- Slope Inclinometer

NOTE:

1. Base data from 2011 airborne survey provided by MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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Tel. 604-294-3811 Fax 604-294-4664

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CHK'D BY:	LW
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SCALE:	AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT

TITLE: TAILINGS STORAGE FACILITY 2011 DRILL HOLES PLAN

DATE:	JAN. 2012
PROJECT NO:	VM00560
REV. NO.:	A
DRAWING No.	2011.01

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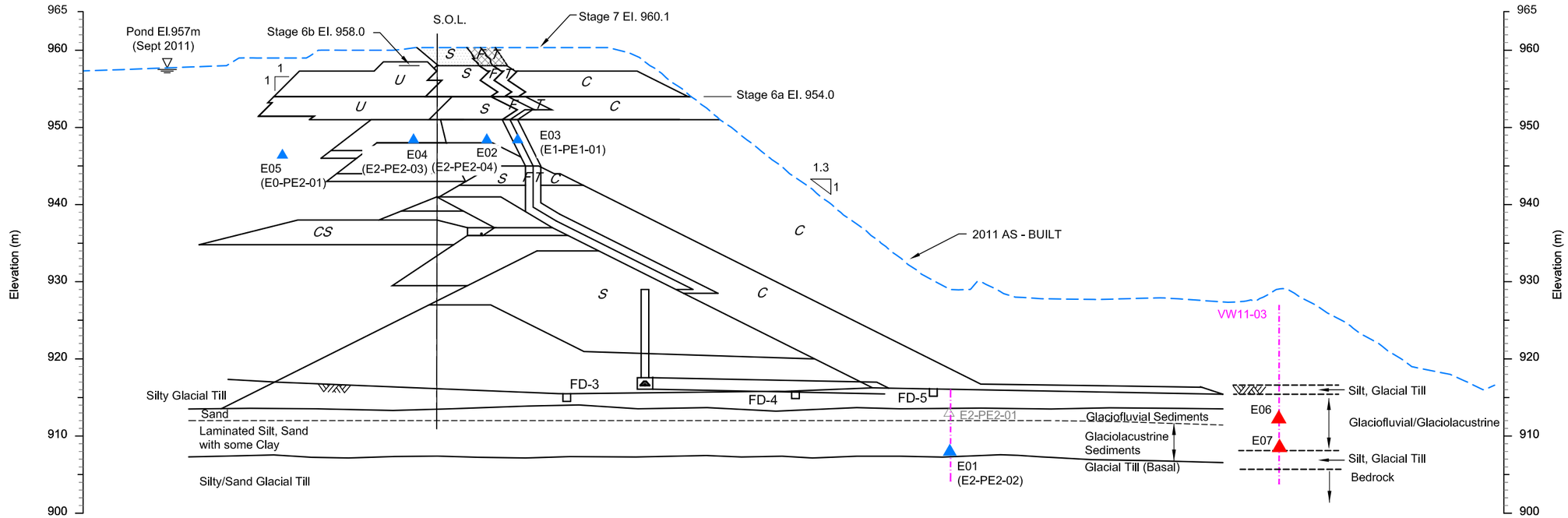

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- FUNCTIONING PIEZOMETER
- NON-FUNCTIONING PIEZOMETER
- 2011 SLOPE INCLINOMETER
- FUNCTIONING SLOPE INCLINOMETER
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- *C* ROCK - SHELL ZONE
- *T* ROCK - TRANSITION ZONE
- *F* FILTER SAND
- *FT* SAND
- *U* SELECT FILL
- *CBL* SELECT COARSE ROCKFILL
- *D* DRAINAGE GRAVEL

SECTION E 01

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SCALE (m)

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

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CHK'D BY: LW
DATUM: NAD83
PROJECTION: UTM Zone 0
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PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTION E 17+60
MAIN EMBANKMENT INSTRUMENTATION

DATE: FEB. 2012
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REV. NO.: A
FIGURE No. 2011.02

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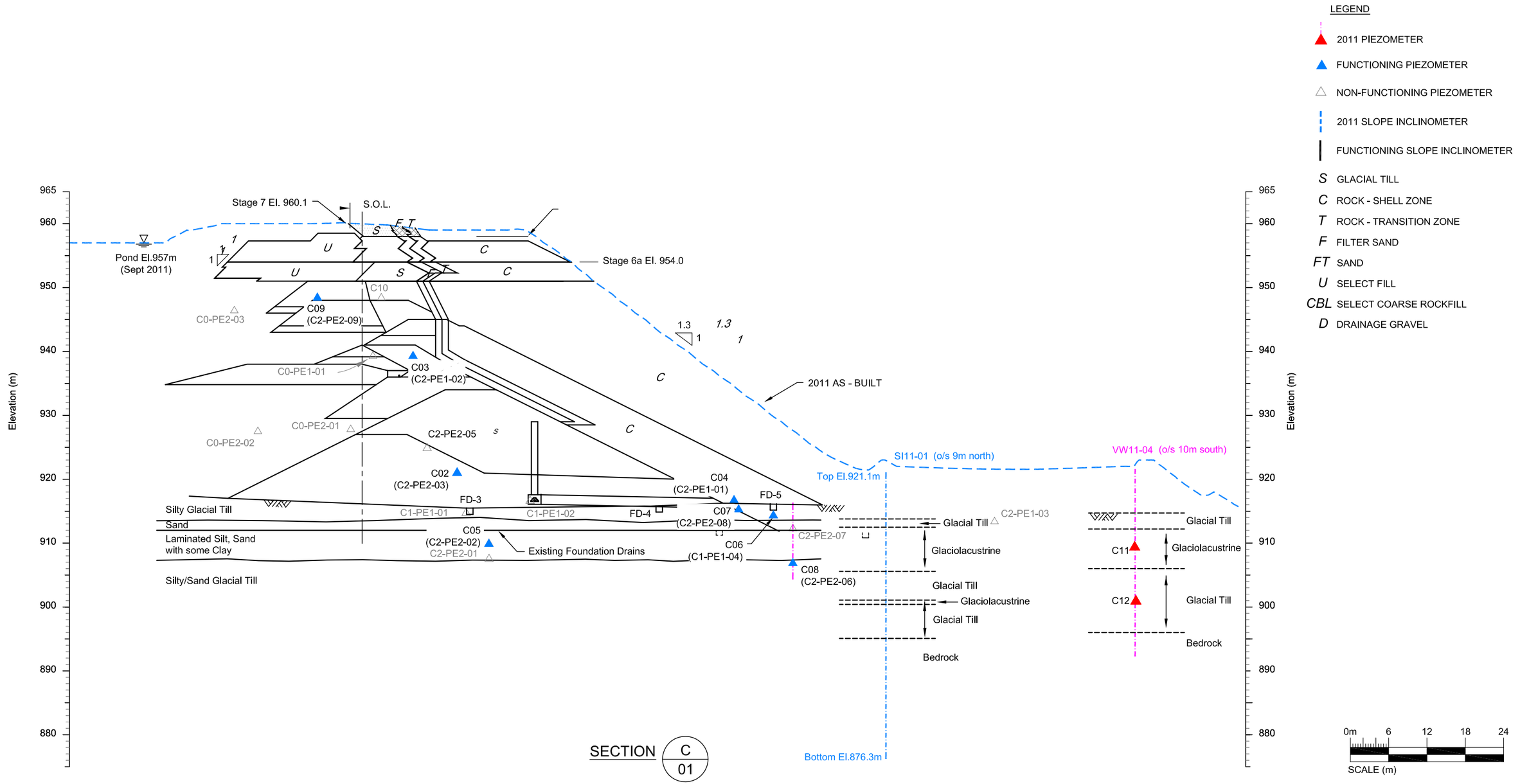

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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DWN BY:	YC
CHK'D BY:	LW
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PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTION C 18+50
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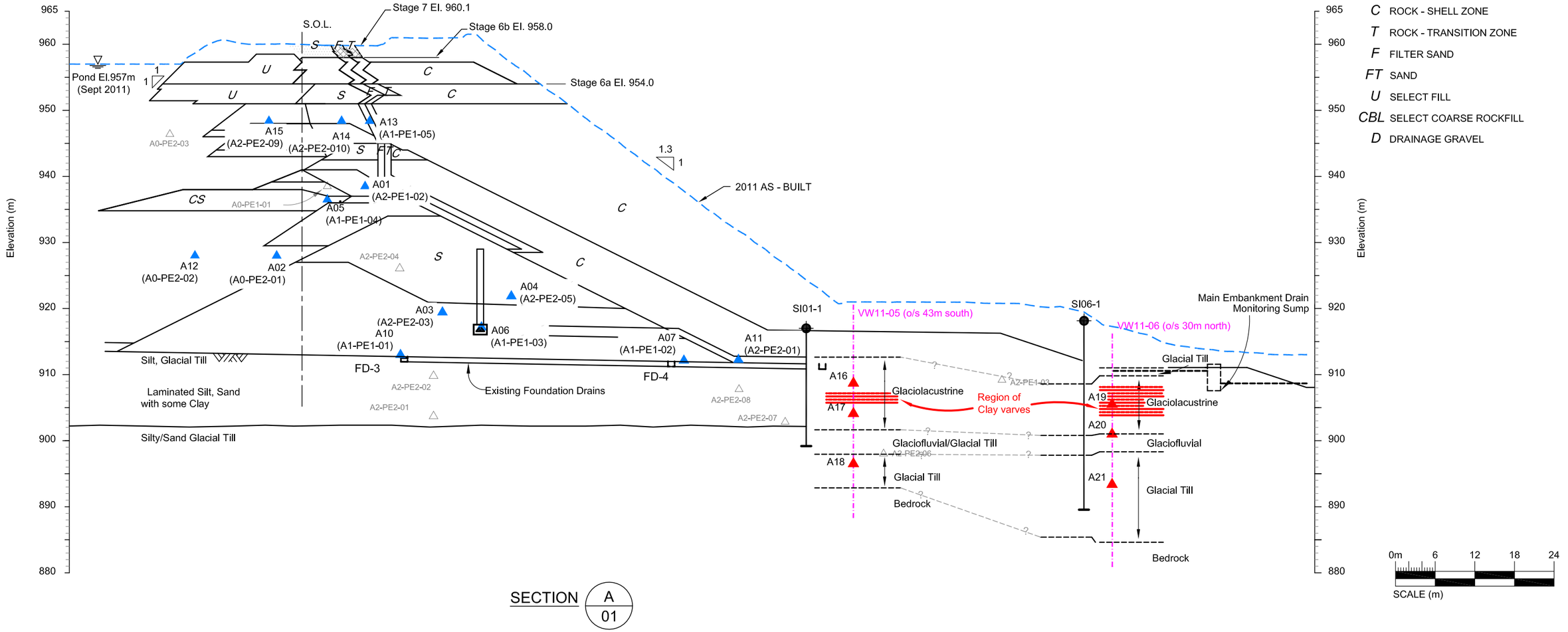

LEGEND

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- FUNCTIONING PIEZOMETER
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- 2011 SLOPE INCLINOMETER
- FUNCTIONING SLOPE INCLINOMETER
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- *T* ROCK - TRANSITION ZONE
- *F* FILTER SAND
- *FT* SAND
- *U* SELECT FILL
- *CBL* SELECT COARSE ROCKFILL
- *D* DRAINAGE GRAVEL

SECTION A 01

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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DWN BY: YC
CHK'D BY: LW
DATUM: NAD83
PROJECTION: UTM Zone 0
SCALE: AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTION A 20+00
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DATE: JAN. 2012
PROJECT NO: VM00560
REV. NO.: A
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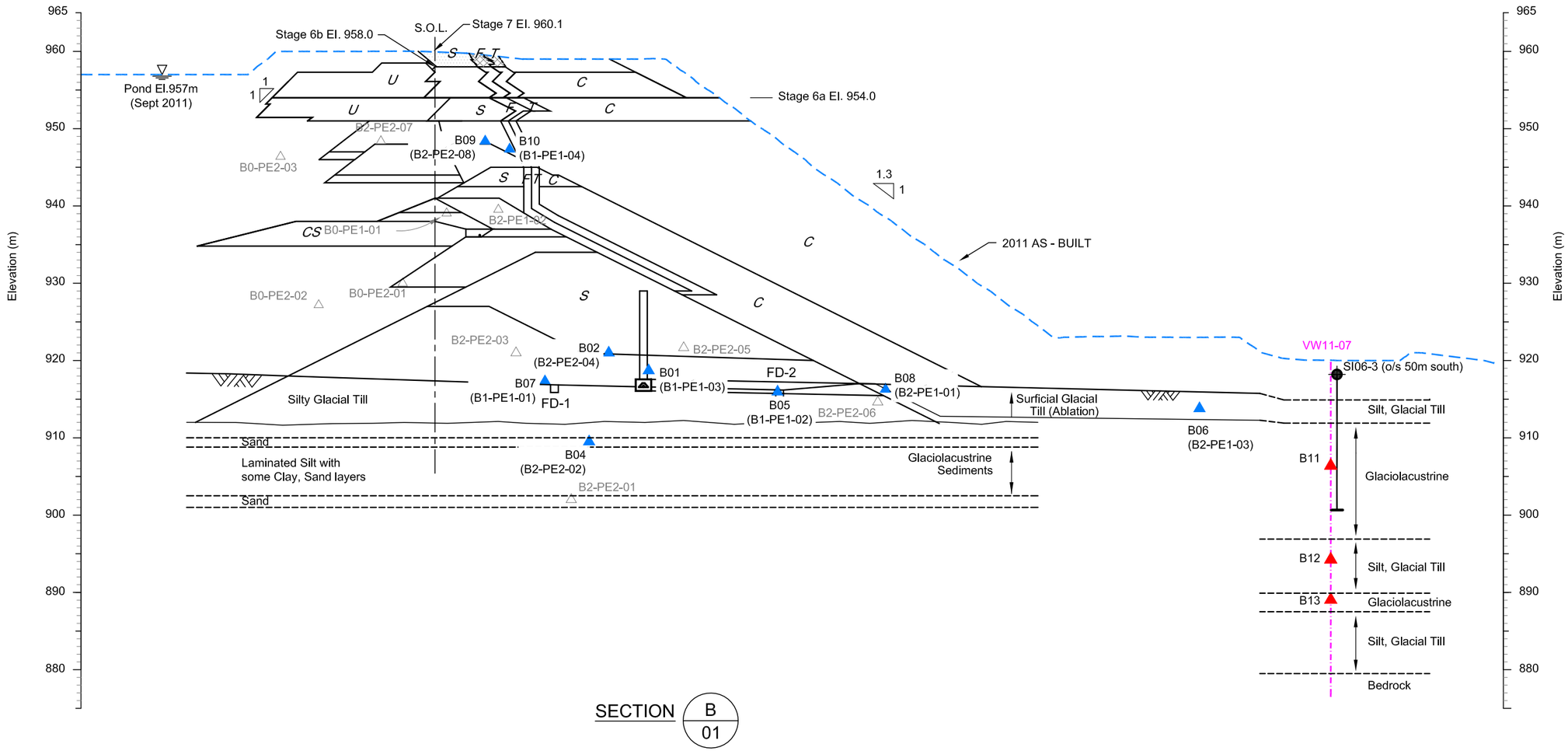

LEGEND

- 2011 PIEZOMETER
- FUNCTIONING PIEZOMETER
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- 2011 SLOPE INCLINOMETER
- FUNCTIONING SLOPE INCLINOMETER
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- *C* ROCK - SHELL ZONE
- *T* ROCK - TRANSITION ZONE
- *F* FILTER SAND
- *FT* SAND
- *U* SELECT FILL
- *CBL* SELECT COARSE ROCKFILL
- *D* DRAINAGE GRAVEL

SECTION B 01

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

AMEC Environment & Infrastructure
4445 Lougheed Highway, Suite 600,
Burnaby, BC, V5C 0E4
Tel. 604-294-3811 Fax 604-294-4664

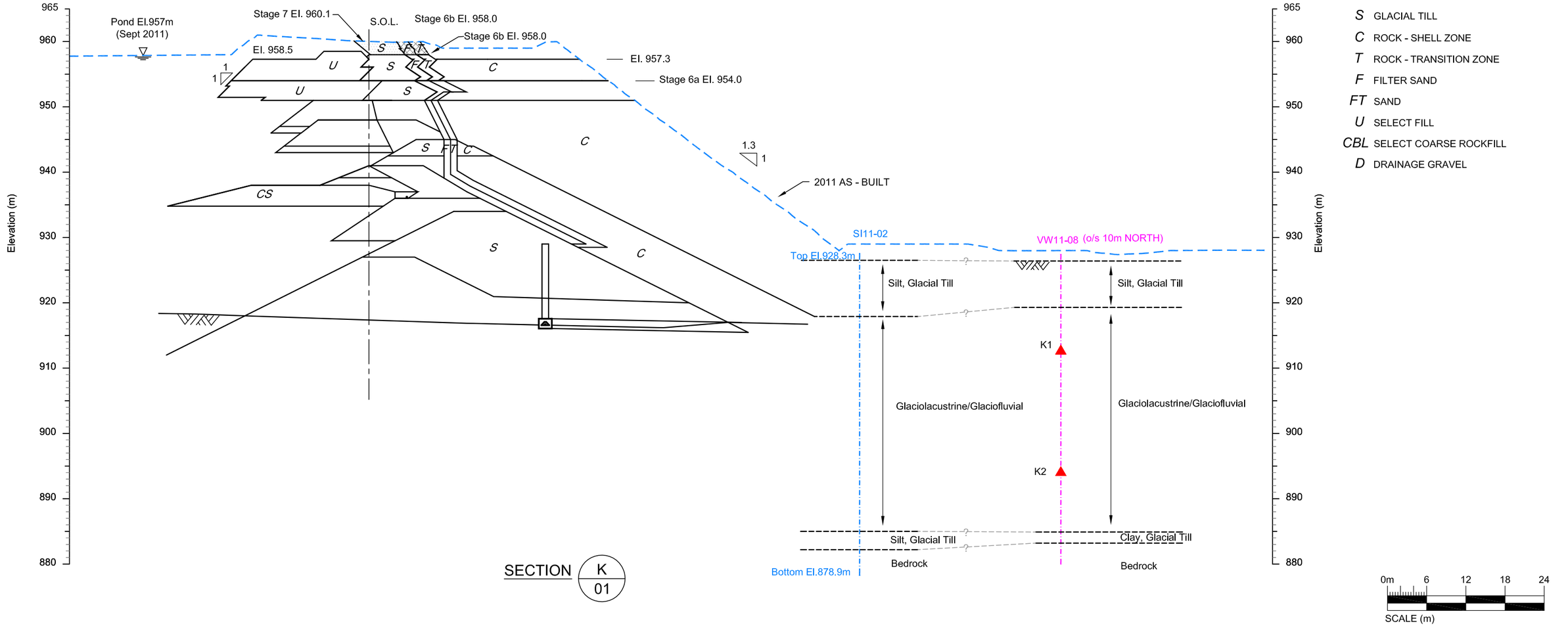
DWN BY: YC
CHK'D BY: LW
DATUM: NAD83
PROJECTION: UTM Zone 0
SCALE: AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTION B 22+40
MAIN EMBANKMENT INSTRUMENTATION

DATE: JAN. 2012
PROJECT NO: VM00560
REV. NO.: A
FIGURE No. 2011.05

S:\PROJECTS\VM00560 - Mt Polley Engineering Services\Phase 200 Field Services\Task 3 - Instrumentation Installation and SI\2011_SI 2011.03-.09_26March.dwg - SECTION B - Mar. 28, 2012 3:57pm - yuan.chen



LEGEND

- 2011 PIEZOMETER
- FUNCTIONING PIEZOMETER
- NON-FUNCTIONING PIEZOMETER
- 2011 SLOPE INCLINOMETER
- FUNCTIONING SLOPE INCLINOMETER
- *S* GLACIAL TILL
- *C* ROCK - SHELL ZONE
- *T* ROCK - TRANSITION ZONE
- *F* FILTER SAND
- *FT* SAND
- *U* SELECT FILL
- *CBL* SELECT COARSE ROCKFILL
- *D* DRAINAGE GRAVEL

SECTION K 01

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

Imperial Metals

CLIENT: IMPERIAL METALS

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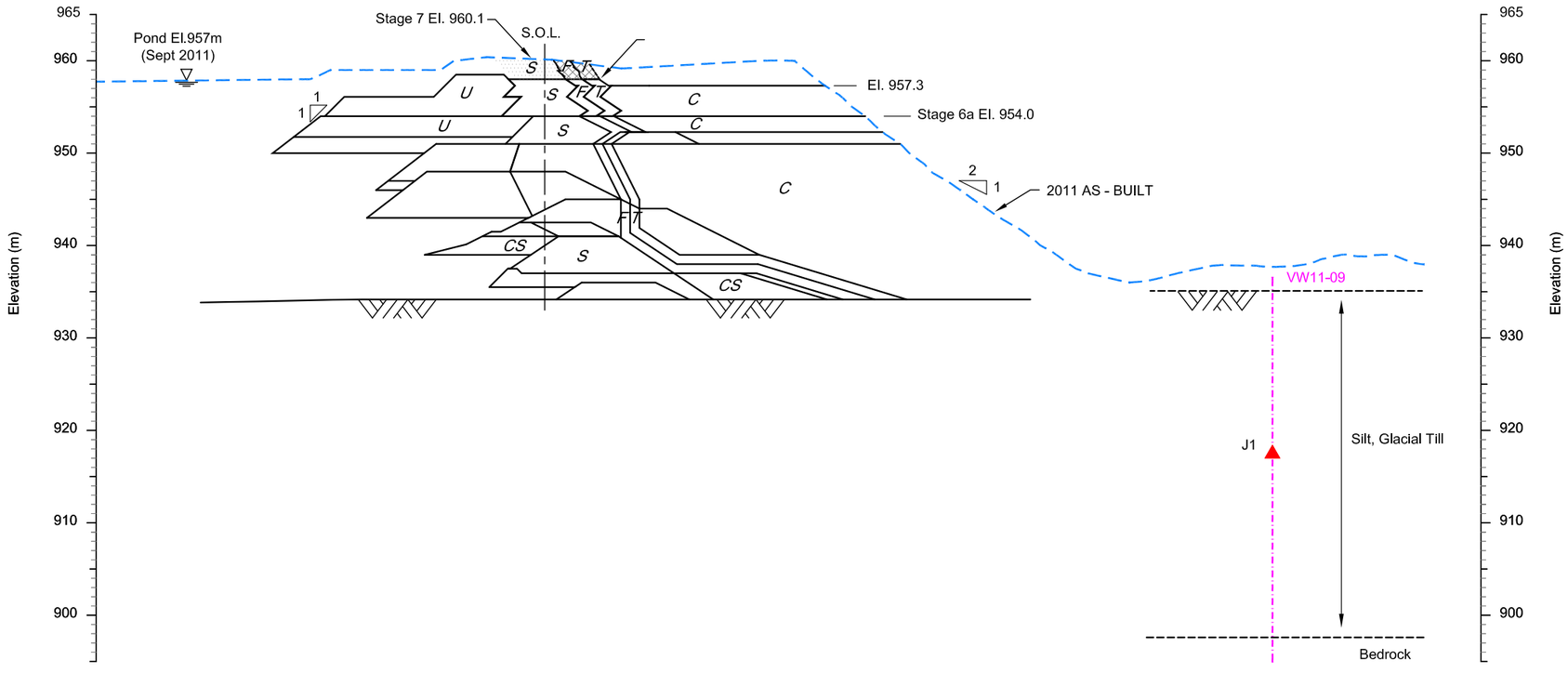
DWN BY:	YC
CHK'D BY:	LW
DATUM:	NAD83
PROJECTION:	UTM Zone 0
SCALE:	AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTION K 24+60
MAIN EMBANKMENT INSTRUMENTATION

DATE:	JAN. 2012
PROJECT NO:	VM00560
REV. NO.:	A
FIGURE No.	2011.06

S:\PROJECTS\VM00560 - Mt Polley Engineering Services\Phase 200 Field Services\Task 3 - Instrumentation Installation and SI\2011_SI 2011.03-.09_26March.dwg - SECTION KK - Mar. 28, 2012 4:01pm - yuan.chen



LEGEND

- 2011 PIEZOMETER
- FUNCTIONING PIEZOMETER
- NON-FUNCTIONING PIEZOMETER
- 2011 SLOPE INCLINOMETER
- FUNCTIONING SLOPE INCLINOMETER
- *S* GLACIAL TILL
- *C* ROCK - SHELL ZONE
- *T* ROCK - TRANSITION ZONE
- *F* FILTER SAND
- *FT* SAND
- *U* SELECT FILL
- *CBL* SELECT COARSE ROCKFILL
- *D* DRAINAGE GRAVEL

SECTION J 01

0m 6 12 18 24
SCALE (m)

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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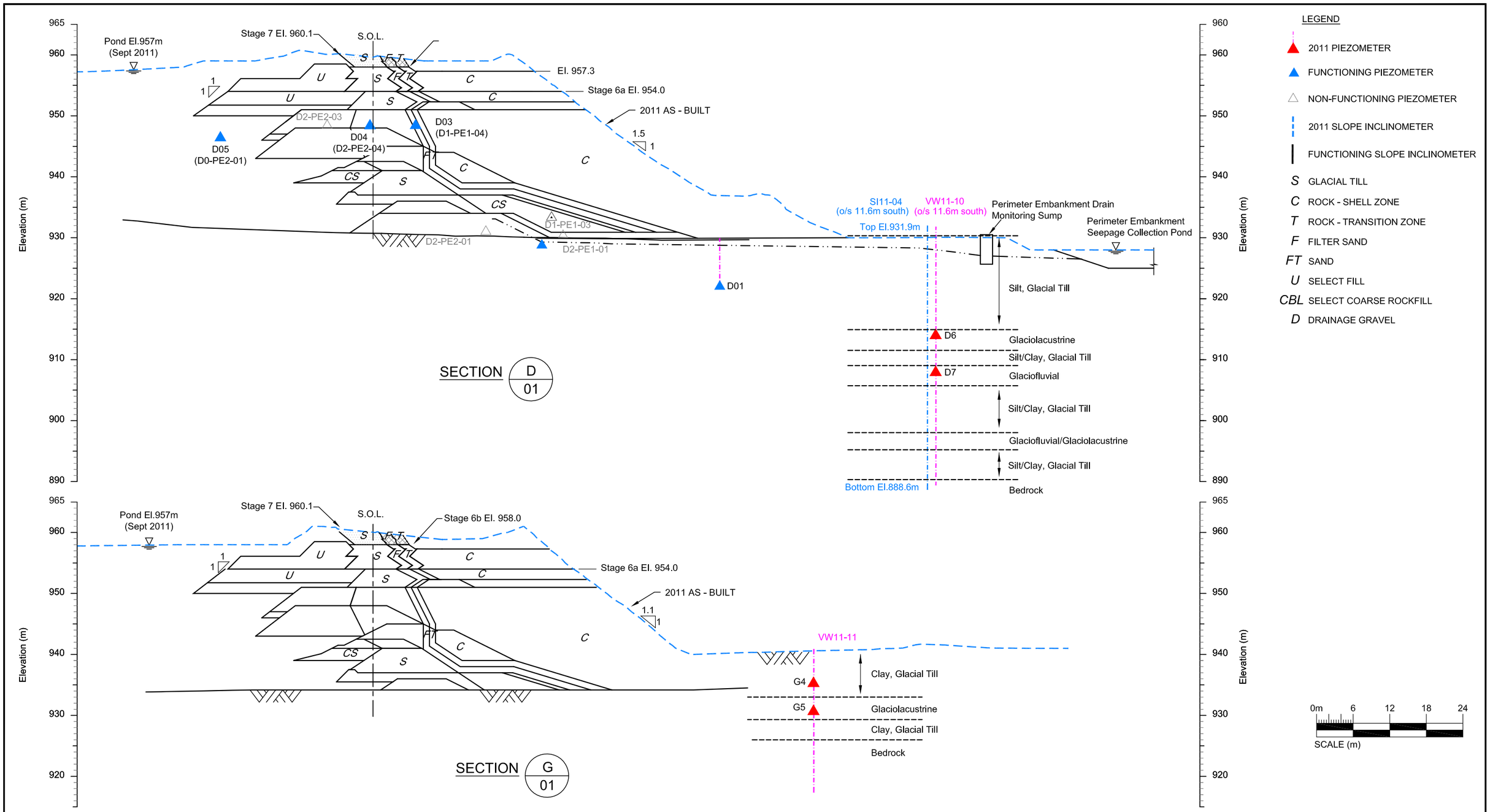
DWN BY: YC
CHK'D BY: LW
DATUM: NAD83
PROJECTION: UTM Zone 0
SCALE: AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTION J 32+80
PERIMETER EMBANKMENT INSTRUMENTATION

DATE: JAN. 2012
PROJECT NO: VM00560
REV. NO.: A
FIGURE No. 2011.07



NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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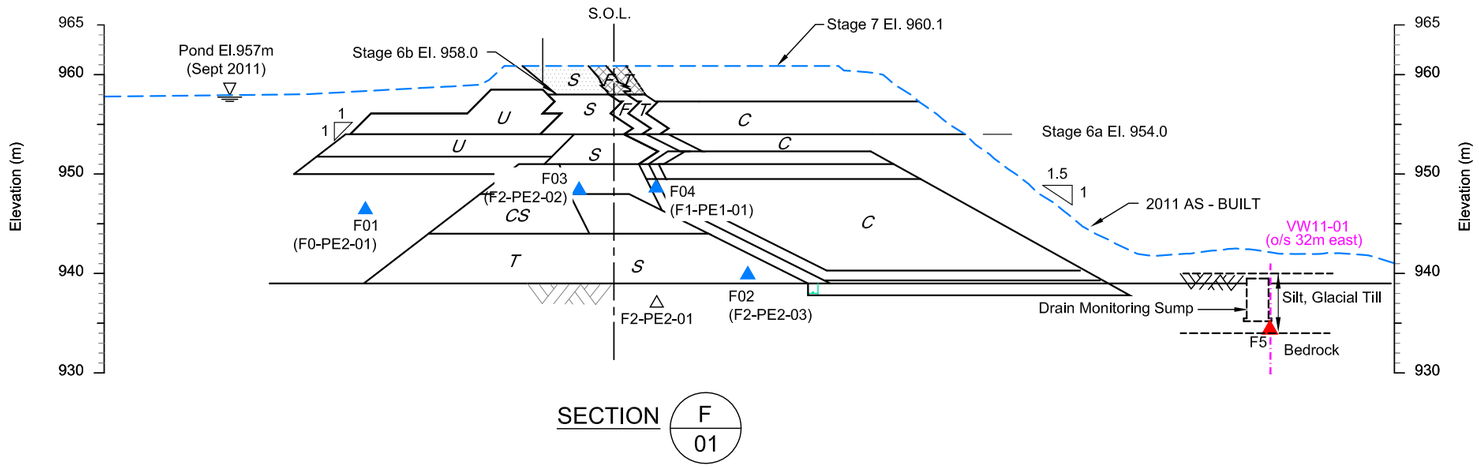
DWN BY:	YC
CHK'D BY:	LW
DATUM:	NAD83
PROJECTION:	UTM Zone 0
SCALE:	AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

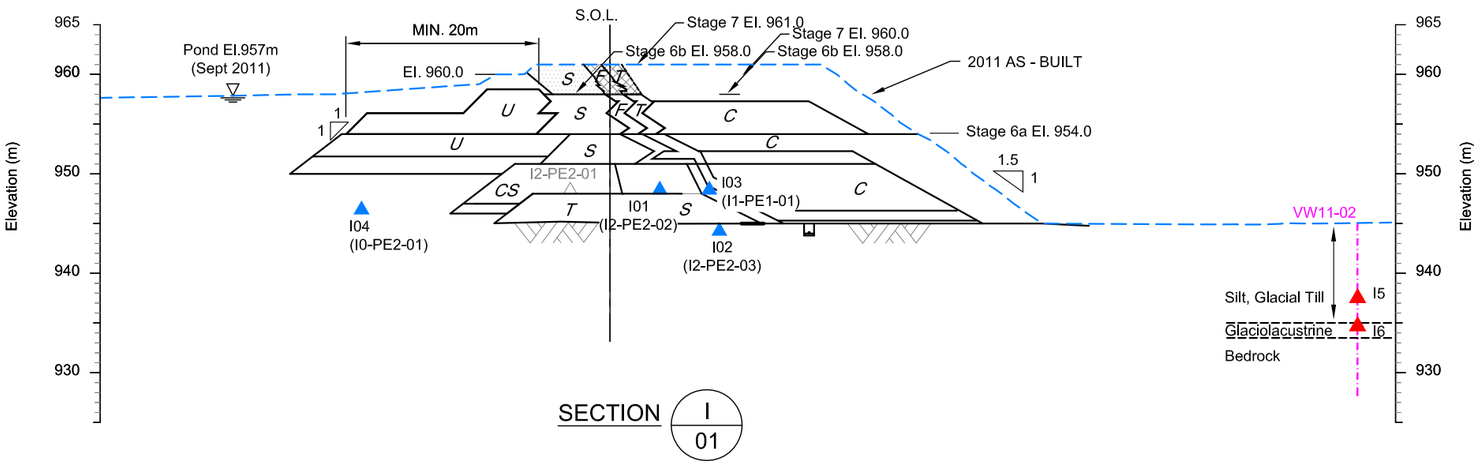
TITLE: SECTIONS D 39+90 & G 44+70
PERIMETER EMBANKMENT INSTRUMENTATION

DATE:	JAN. 2012
PROJECT NO:	VM00560
REV. NO.:	A
FIGURE No.	2011.08

S:\PROJECTS\VM00560 - Mt Polley Engineering Services\Phase 200 Field Services\Task 3 - Instrumentation Installation and SI\2011_SI 2011.03-.09_26March.dwg - SECTION DG - Mar. 28, 2012 3:58pm - yuan.chen



SECTION F 01



SECTION I 01

LEGEND

- 2011 PIEZOMETER
- FUNCTIONING PIEZOMETER
- NON-FUNCTIONING PIEZOMETER
- 2011 SLOPE INCLINOMETER
- FUNCTIONING SLOPE INCLINOMETER
- *S* GLACIAL TILL
- *C* ROCK - SHELL ZONE
- *T* ROCK - TRANSITION ZONE
- *F* FILTER SAND
- *FT* SAND
- *U* SELECT FILL
- *CBL* SELECT COARSE ROCKFILL
- *D* DRAINAGE GRAVEL

0m 6 12 18 24

SCALE (m)

NOTES:

1. SECTIONS ORIGINATING FROM KNIGHT PIESOLD 2010 TSF ANNUAL CONSTRUCTION REPORT.
2. 2011 AS-BUILT BASED ON SEPTEMBER 2011 FLYOVER SURVEY PROVIDED BY MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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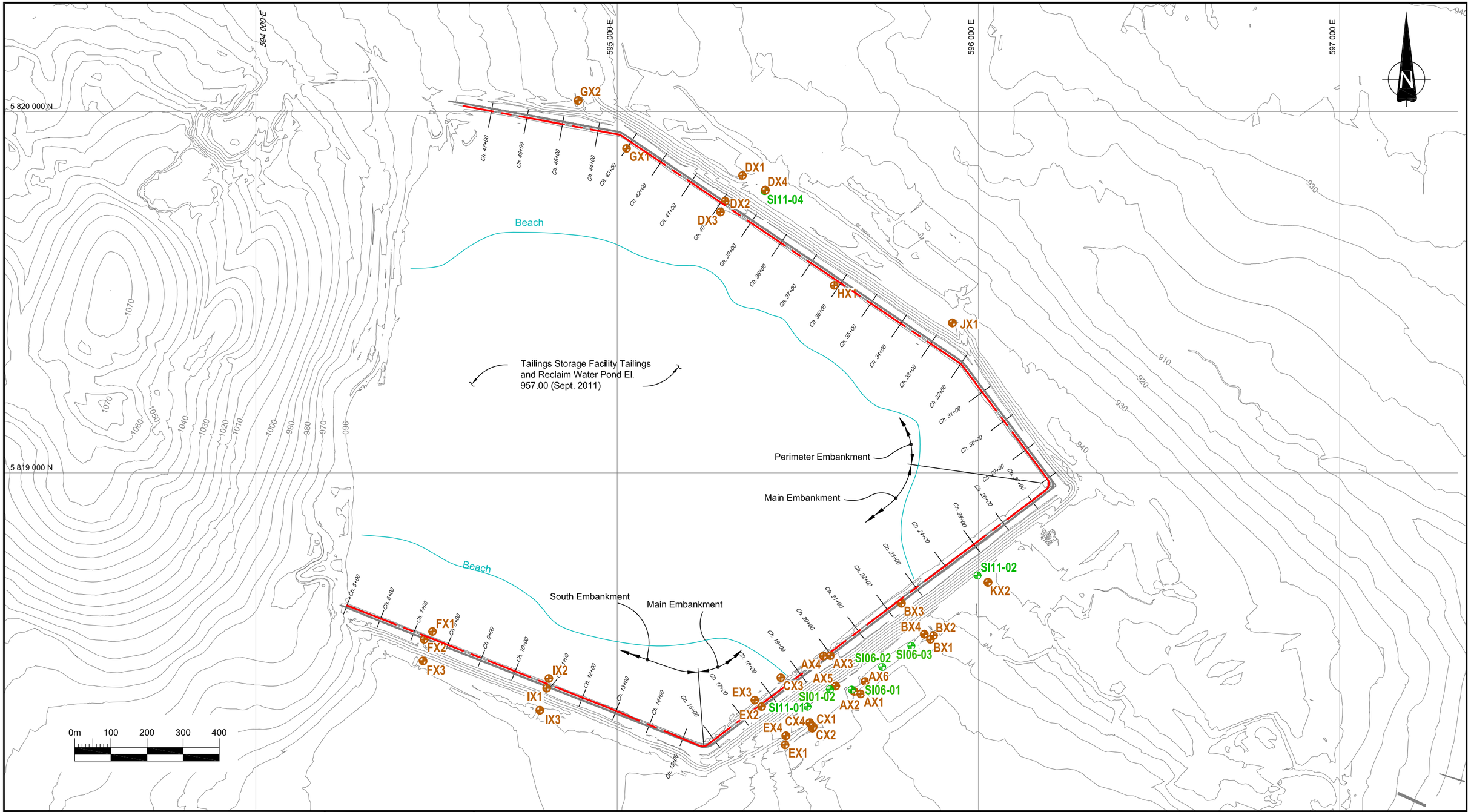
DWN BY: YC
CHK'D BY: LW
DATUM: NAD83
PROJECTION: UTM Zone 0
SCALE: AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT
TAILINGS STORAGE FACILITY

TITLE: SECTIONS F 7+20 & I 11+00
SOUTH EMBANKMENT INSTRUMENTATION

DATE: JAN. 2012
PROJECT NO: VM00560
REV. NO.: A
FIGURE No. 2011.09

S:\PROJECTS\VM00560 - Mt Polley Engineering Services\Phase 200 Field Services\Task 3 - Instrumentation Installation and SI\2011_SI 2011.03-.09_26March.dwg - SECTION FF II - Mar. 28, 2012 4:00pm - yuan.chen



LEGEND:

- Vibrating Wire
- Slope Inclinometer

NOTE:

1. Base data from 2011 airborne survey provided by MPMC.

CLIENT LOGO

CLIENT: IMPERIAL METALS

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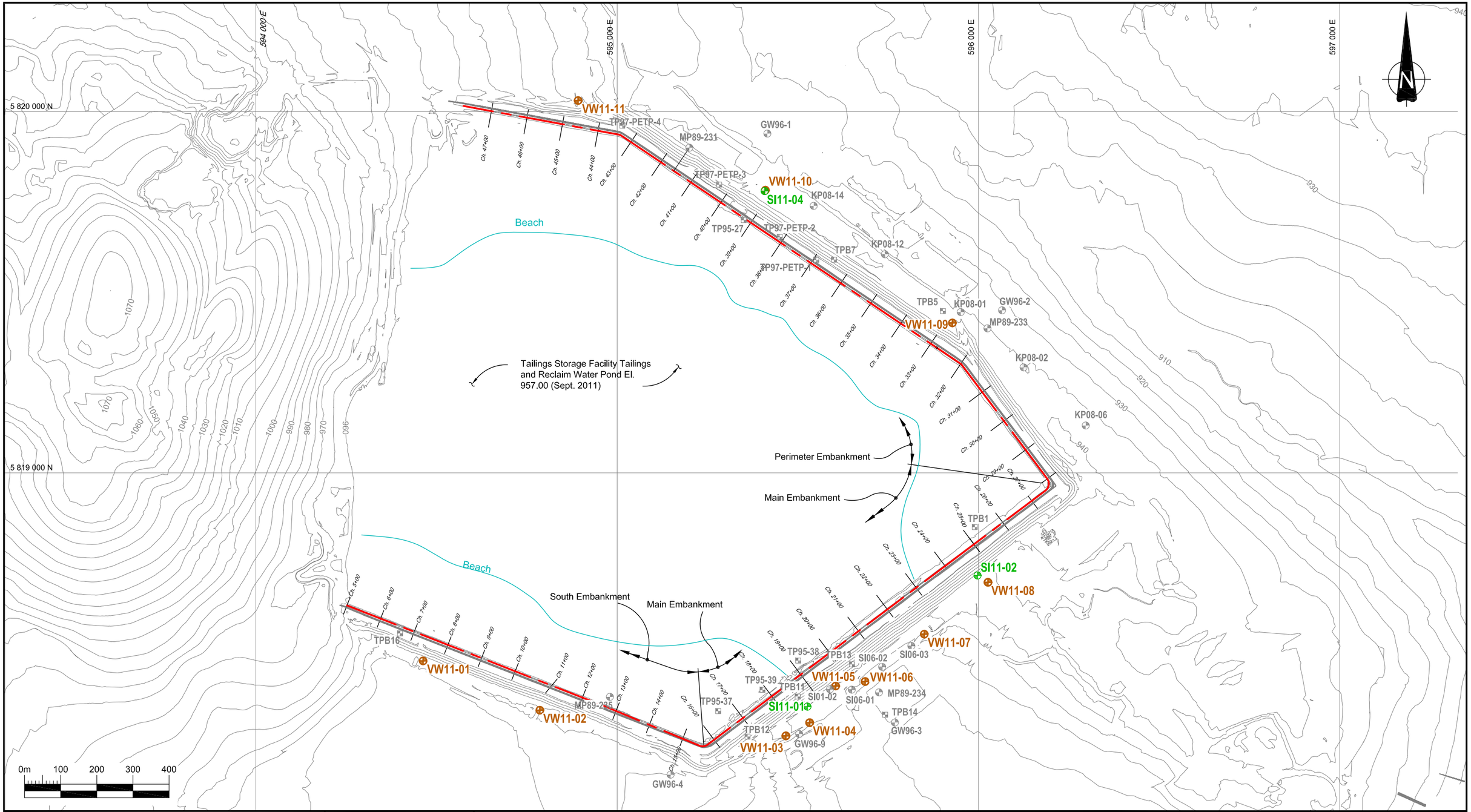
DWN BY:	YC
CHK'D BY:	LW
DATUM:	NAD83
PROJECTION:	UTM Zone 0
SCALE:	AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT

TITLE: TAILINGS STORAGE FACILITY INSTRUMENTATION PLAN

DATE:	JAN. 2012
PROJECT NO:	VM00560
REV. NO.:	A
FIGURE No.	2011.10

S:\PROJECTS\VM00560 - Mt Polley Engineering Services\Phase 200 Field Services\Task 3 - Instrumentation Installation and SI\2011_SI 2011.08.dwg - 2011.08 - Mar. 28, 2012 4:11pm - yuan.chen



LEGEND:

- 2011 Vibrating Wire
- 2011 Slope Inclinometer
- KP08-01 2008 Drill Hole
- SI06-01 2006 Slope Inclinometer
- SI01-01 2001 Slope Inclinometer
- GW96-1 1996 Monitoring Well
- MP89-231 1989 Condemnation Drillhole
- TP97-PETP-1 1997 Test Pit
- TP95-27 1995 Test Pit
- TPB11 1989 Test Pit

NOTE:
1. Base data from 2011 airborne survey provided by MPMC.

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CLIENT: IMPERIAL METALS

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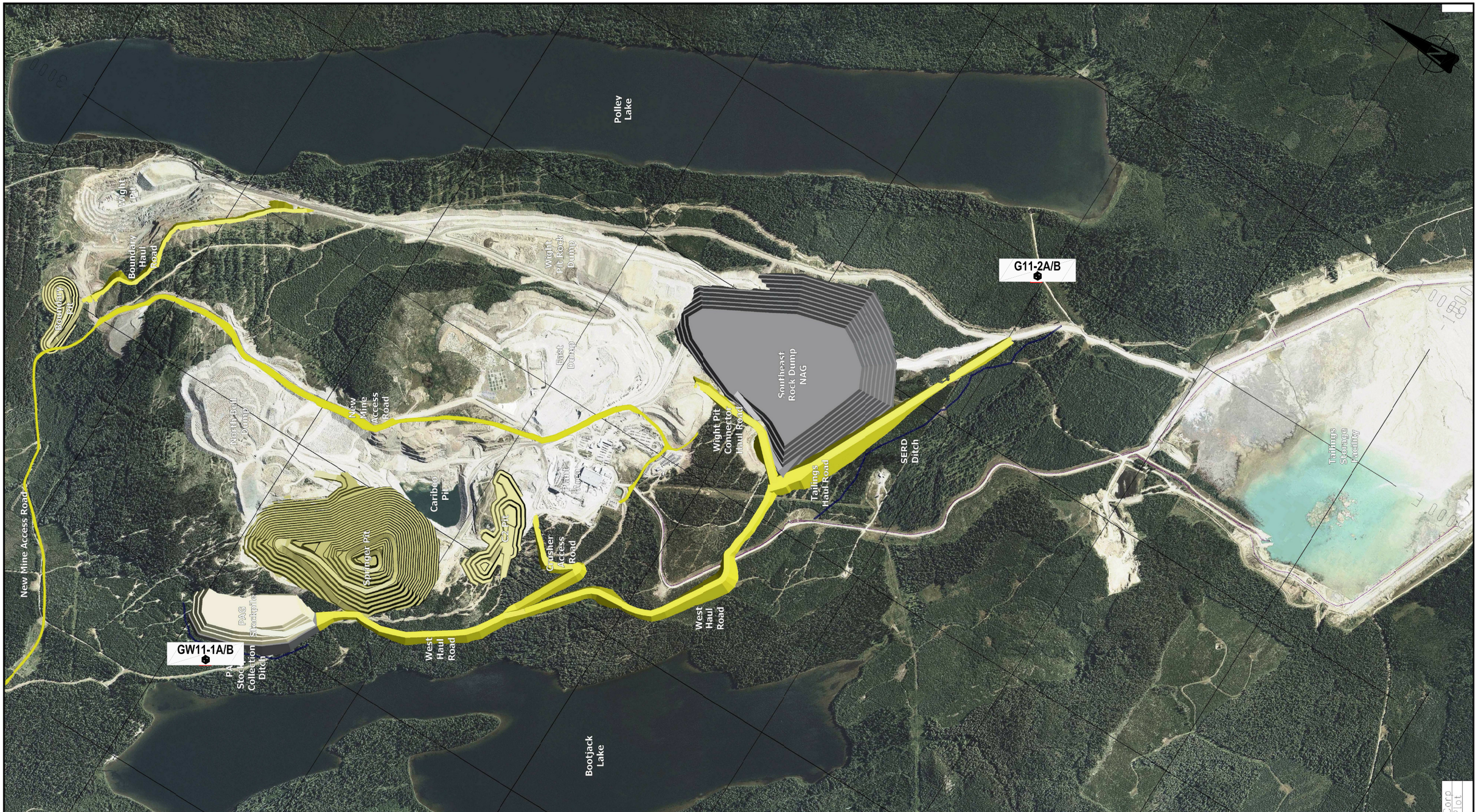
DWN BY:	YC
CHK'D BY:	LW
DATUM:	NAD83
PROJECTION:	UTM Zone 0
SCALE:	AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT

TITLE: TAILINGS STORAGE FACILITY
PREVIOUS SITE INVESTIGATIONS PLAN

DATE:	JAN. 2012
PROJECT NO:	VM00560
REV. NO.:	A
DRAWING No.	2011.11

S:\PROJECTS\VM00560 - Mt Polley Engineering Services\Phase 200 Field Services\Task 3 - Instrumentation Installation and SI\2011_SI 2011.11_Prev SI PLAN.dwg - SI Plan - Mar. 28, 2012 4:13pm - yuan.chen



LEGEND:

Monitoring Well

NOTE:

1. Base imagery from "Permit Ammendment Plot", dated December 21, 2010, provided by MPMC.

0m 200 400 600 800

1 : 20000

CLIENT LOGO

Imperial Metals

CLIENT: IMPERIAL METALS

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DWN BY:	YC
CHK'D BY:	LW
DATUM:	NAD83
PROJECTION:	UTM Zone 0
SCALE:	AS SHOWN

PROJECT: MOUNT POLLEY MINE PROJECT

TITLE: ENVIRONMENTAL MONITORING WELLS PLAN VIEW

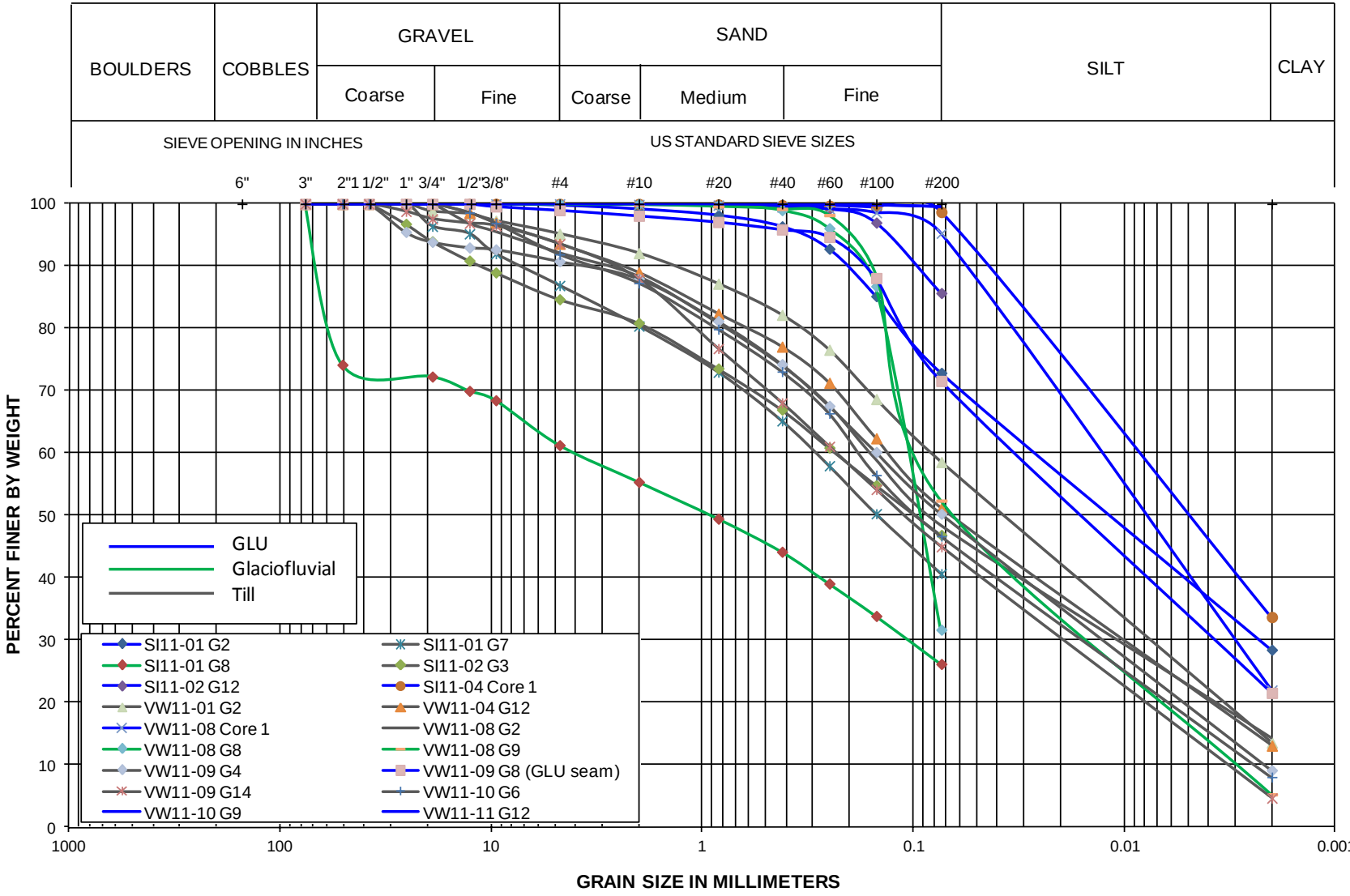
DATE:	JAN. 2012
PROJECT NO:	VM00560
REV. NO.:	A
FIGURE No.	2011.12

This drawing was originally produced in colour.

APPENDIX A

2011 Laboratory Testing Data

MOUNT POLLEY - 2011 SITE INVESTIGATION
CORE SAMPLE GRADATION CURVE



APPENDIX B

2011 Drill hole Site Investigation Logs

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-01**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818353 EASTING: 595527	ELEVATION: 921.077 m

SAMPLE TYPE ■ TUBE ⊘ NO RECOVERY ⊠ SPLIT SPOON ☰ GRAB ▥ MUD RETURN ◧ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			ROCKFILL. [NAG]					921
1								920
2								919
3								918
4								917
5								916
6								915
7								914
8			CLAY, silty, trace sand, trace gravel, low plasticity to non plastic, very stiff, brown, moist. [Till]		G1			913
9			Silty CLAY to Clayey SILT, trace gravel, trace cobble, low plasticity to non plastic, very stiff, grey, moist, trace grey silt layers, varved. [Glaciolacustrine]					912
10								911
11			- at 10.9m, silt, clayey, sandy, till-like, moist - at 11.0m, medium plasticity, grey to light brown, varved		G2		**Hydrometer** (GRABG2): Gravel <1% Sand:27% Silt:44% Clay:28%	910
12			- at 12.2m, silt, trace to some clay layers, non-plastic, wet		G3		**Atterberg** (GRAB G3): Plastic Limit:21% Liquid Limit:34%	909
13					G4			908
14								907
15								906
16			- at 15.2m, 300mm thick grey sand and gravel layer, coarse sand, moist to wet SILT, trace to some sand, trace clay, trace gravel, low plasticity, dense, damp. [Till]		G5			905
17			- at 17.1m, trace cobble, trace fine sand pocket, moist					904
18					G6			903
19			- below 18.6m, trace to some sand, trace to some gravel, trace clay, hard, reddish grey, damp					902
20			- at 19.5m, sand, silty, some gravel, trace clay		G7		**Hydrometer** (GRABG7): Gravel:13% Sand:46% Silt:33% Clay:8%	

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LOGGED BY: LW | COMPLETION DEPTH: 44.8 m
ENTERED BY: DO | COMPLETION DATE: 10/7/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-01**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818353 EASTING: 595527	ELEVATION: 921.077 m

SAMPLE TYPE ■ TUBE ⊘ NO RECOVERY ⊠ SPLIT SPOON ☰ GRAB ▥ MUD RETURN ◧ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			SILT, clayey, trace sand (coarse grained), trace gravel, low to medium plasticity, stiff to very stiff, moist, varved. [Glaciolacustrine]					
21			Sandy SILT to Silty SAND and GRAVEL, compact, moist, trace sand pockets. [Till]					900
22	●				G8			899
23			- at 23.0m, compact to dense, reddish grey, moist				**Sieve** (GRAB G8): Gravel:39% Sand:35% Fines (Silt & Clay):26%	898
24					G9			897
25			- at 24.7m, trace cobble, trace weathered rock pieces, dense to very dense, damp					896
26			WEATHERED BEDROCK, reddish grey to red. - at 24.7m, some medium grained sand, compact to dense					895
27								894
28					G10			893
29								892
30								891
31								890
32								889
33								888
34								887
35								886
36								885
37								884
38								883
39								882
40								

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Tel: (604) 294-3811

LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 44.8 m
COMPLETION DATE: 10/7/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-01**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818353 EASTING: 595527	ELEVATION: 921.077 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40			WEATHERED BEDROCK, reddish grey to red *(continued)*					
41								880
42			BEDROCK, brown.					879
43								878
44								877
45			END of BOREHOLE at 44.8m - installed slope inclinometer - backfilled with grout					876
46								875
47								874
48								873
49								872
50								871
51								870
52								869
53								868
54								867
55								866
56								865
57								864
58								863
59								862
60								

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Tel: (604) 294-3811

LOGGED BY: LW	COMPLETION DEPTH: 44.8 m
ENTERED BY: DO	COMPLETION DATE: 10/7/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-02**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818716 EASTING: 595998	ELEVATION: 928.268 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			ROCKFILL (NAG)					928
1								927
2			SILT to CLAY, sand to sandy, some to trace clay, trace to some gravel, medium to low plasticity, hard, brown, moist, trace silt zones. [Till]					926
3	•				G1			925
4								924
5	•				G2			923
6								922
7	•		- from 6.7m to 7.0m, sand and silt, some gravel, some clay		G3		**Hydrometer** (GRABG3): Gravel:15% Sand:38% Silt:36% Clay:11%	921
8	•				G4			920
9					G5			919
10	•		CLAY, silty, trace fine sand, low to medium plasticity, stiff to very stiff, grey to brown, varved [Glaciolacustrine]		G6			918
11	•		SAND, medium grained, trace fines, uniformly graded, dense to very dense, brown, moist to wet. [Glaciofluvial] - below 10.4m, fine grained sand		G7			917
12								916
13								915
14	•		CLAY, silty, trace to some fine sand, low to medium plasticity, stiff, grey to brown, varved [Glaciolacustrine]		G8 U1			914
15	•				G9			913
16	•		SAND, fine grained, trace fines, uniform, dense to very dense, brown, moist to wet. [Glaciofluvial]		G10			912
17	•		CLAY, silty, trace fine sand, low plasticity, stiff to hard, grey to brown, varved. [Glaciolacustrine] - below 17.1m, some to trace silt, low to medium plasticity, hard, grey, moist to wet		G11		**Atterberg** (GRAB G11): Plastic Limit:18% Liquid Limit:19%	911
18								910
19								909
20								

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LOGGED BY: DO	COMPLETION DEPTH: 49.4 m
ENTERED BY: DO	COMPLETION DATE: 10/1/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-02**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818716 EASTING: 595998	ELEVATION: 928.268 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			CLAY, silty, trace fine sand, low plasticity, stiff to hard, grey to brown, varved. [Glaciolacustrine] *(continued)*		G12		**Hydrometer** (GRABG12): Sand:14% Silt:70% Clay:16%	908
21								
22			- from 21.3m to 21.5m, trace gravel, trace sand		G13		**Atterberg** (GRAB G13): Plastic Limit:16% Liquid Limit:25%	907
23								906
24			CLAY, some silt to silty, some sand, fine grained, medium to high plasticity, hard, grey to brown, varved. [Glaciolacustrine]		G14			905
25								904
26								903
27								902
28					G15		**Atterberg** (GRAB G15): Plastic Limit:24% Liquid Limit:57%	901
29								900
30			- below 29.3m, silt, some clay seams, some to trace sand seams, medium grained, medium plasticity, hard, brown, varved		G16			899
31			SILT, clayey, trace fine grained sand, medium plasticity, stiff, brown, moist to wet. [Glaciolacustrine]		G17		**Atterberg** (GRAB G17): Plastic Limit:21% Liquid Limit:34%	898
32			GRAVEL (fine grained), some medium grained sand, gap graded, dense to very dense, subrounded, moist to wet. [Glaciofluvial]					897
33			SAND, fine to medium grained, trace fines, uniformly graded, dense to very dense, brown, wet to saturated. [Glaciofluvial]		G18			896
34								895
35					G19			894
36								893
37					G20			892
38			- at 37.5m, silt layer, 300mm thick, trace gravel, low plastic, hard, brown, wet.		G21			891
39								890
40					G22			889

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Tel: (604) 294-3811

LOGGED BY: DO	COMPLETION DEPTH: 49.4 m
ENTERED BY: DO	COMPLETION DATE: 10/1/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-02**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818716 EASTING: 595998	ELEVATION: 928.268 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40			GRAVEL (fine grained), some sand to sandy, coarse grained, trace fines, uniformly graded, dense to very dense, wet, occasional cobble. [Glaciofluvial]*(continued)*		G23			888
41								887
			SAND, trace fines, medium grained, dense to very dense, brown, saturated. [Glaciofluvial]					
42			CLAY, some silt to silty, low plasticity, hard, grey to brown, varved [Glaciolacustrine]		G24			886
43								885
			SILT, sandy to some sand, some gravel, some to trace clay, low plasticity, grey to brown, moist, occasional cobble. [Till]					
44			- from 43.6m to 44.5m, sand seam, medium grained, trace gravel		G25			884
45					G26			883
46			WEATHERED BEDROCK.					882
			BEDROCK.					
47								881
48					G27			880
49								879
			END of BOREHOLE at 49.4m. - installed slope inclinometer - backfilled with grout					
50								878
51								877
52								876
53								875
54								874
55								873
56								872
57								871
58								870
59								869
60								

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LOGGED BY: DO	COMPLETION DEPTH: 49.4 m
ENTERED BY: DO	COMPLETION DATE: 10/1/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-04**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819780 EASTING: 595408	ELEVATION: 931.932 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▧ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			SAND and GRAVEL, silty, trace clay, brown, rootlets. [Fill]					
1			- below 0.9m, some clay, mottled, trace black organics, moist					931
2			SILT, sand to sandy, some to trace clay, trace gravel, low plasticity to non plastic, brown, moist, trace grey silt zones. [Till]					930
3								929
4								928
5			- at 4.9m, trace cobble, brownish grey					927
6								926
7								925
8								924
9								923
10								922
11								921
12								920
13								919
14			- below 14.0m, increasing sand content with depth					918
15								917
16			- at 15.5m, 300 mm thick silty sand and gravel layer, moist					916
17			- at 16.8, 150 mm thick silty sand and gravel layer, moist SILT, clayey, trace sand, medium plasticity, very stiff to hard, grey, moist, varved. [Glaciolacustrine]					915
18							**Hydrometer** (CORE C1): Sand:1% Silt:65% Clay:34%	914
19			- below 18.6m, sandy, low plasticity Silty SAND to Sandy SILT, trace clay, trace gravel (fine grained), medium plasticity silt, loose to compact, brown, moist. [Glaciofluvial]		C1			913
20								

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LOGGED BY: LW | COMPLETION DEPTH: 43.3 m
ENTERED BY: DO | COMPLETION DATE: 10/5/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-04**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819780 EASTING: 595408	ELEVATION: 931.932 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20	●				C2			
21			SILT, trace sand, trace gravel, low plasticity to non plastic, grey, moist. [Till]					911
22			- at 21.9m, 1.0m thick sand and gravel layer					910
23			SAND (medium to fine grained), some silt, trace gravel, brown, saturated. [Glaciofluvial]					909
24								908
25								907
26			SILT, sandy, some to trace clay, trace gravel, low plasticity to non plastic, reddish grey to grey, moist. [Till]					906
27								905
28								904
29								903
30			-at 29.9m, sand, medium grained					902
31			- below 31.1m, trace cobble, grey					901
32								900
33			SAND (medium to coarse grained), trace silt, trace to some gravel (fine grained), uniformly graded, brown to grey, moist to wet, occasional silt layers. [Glaciofluvial]					899
34								898
35			- below 35.4m, fine grained sand, grey					897
36			- below 36.0m, trace clay lenses, trace gravel(fine grained), trace sand(coarse grained), moist					896
37								895
38								894
39			SILT, sandy, some to trace clay, trace gravel, low plasticity to non plastic, brownish grey to grey, moist. [Till]					893
40			- at 39.6m, silt zones, brown					

BH FOR SOIL/ROCK VM00560.200.3_BH LOGS_5MARCH.GPJ AMEC-PG-MULTIWELL-DATATEMPLATE.GDT 3/14/12

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LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 43.3 m
COMPLETION DATE: 10/5/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **SI11-04**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819780 EASTING: 595408	ELEVATION: 931.932 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40			SILT, sandy, some to trace clay, trace gravel, low plasticity to non plastic, brownish grey to grey, moist. [Till] *(continued)*					
41			- at 40.9m, silt zones, white					891
			WEATHERED BEDROCK, white layers.					
42								890
			- below 42.4m, light grey, very dense					
43								889
			END of BOREHOLE at 43.3m.					
			- installed slope inclinometer					
44			- backfilled with grout					888
45								887
46								886
47								885
48								884
49								883
50								882
51								881
52								880
53								879
54								878
55								877
56								876
57								875
58								874
59								873
60								

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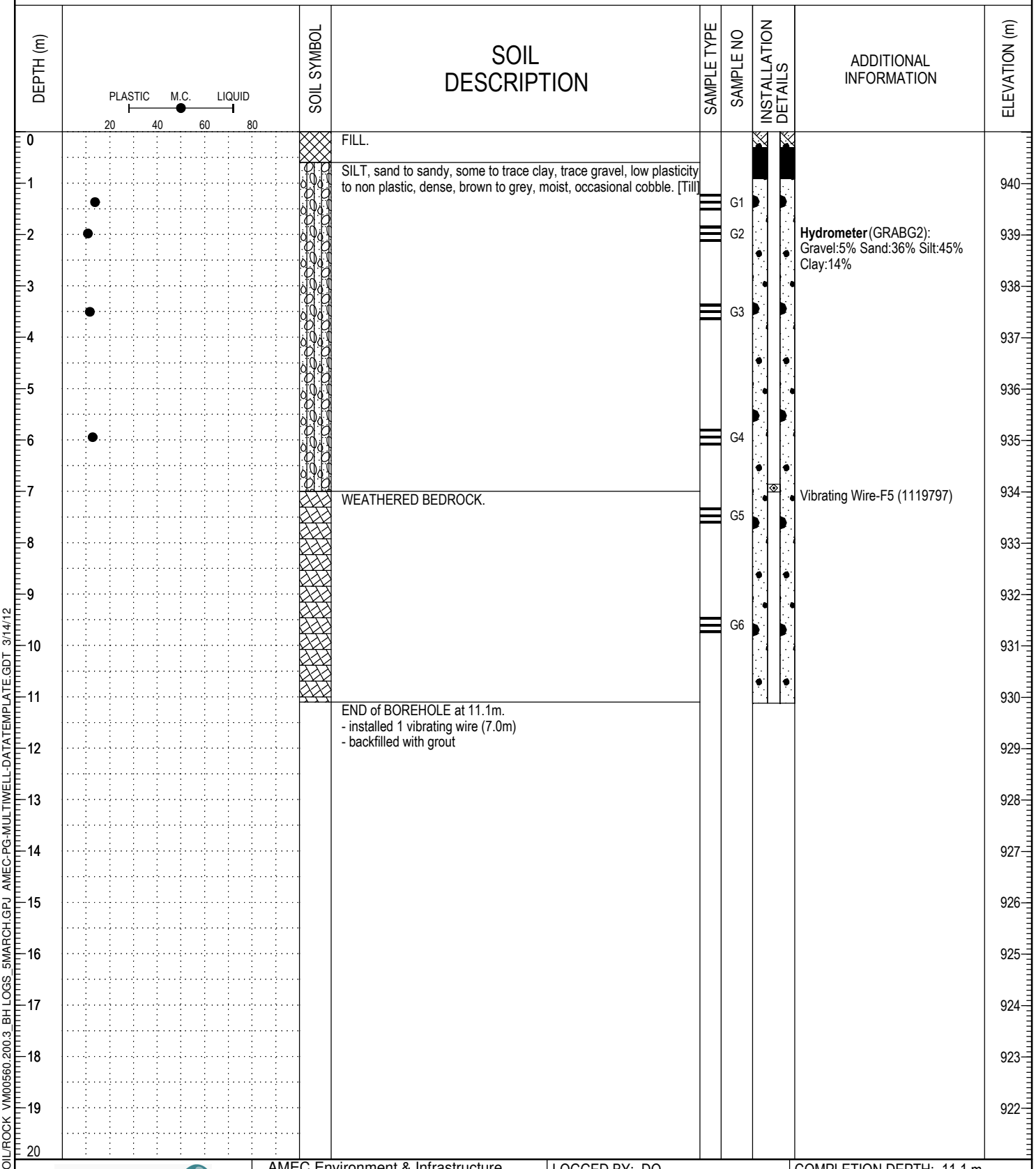
LOGGED BY: LW	COMPLETION DEPTH: 43.3 m
ENTERED BY: DO	COMPLETION DATE: 10/5/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-01 (FX3)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818480 EASTING: 594463	ELEVATION: 941.009 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN



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LOGGED BY: DO	COMPLETION DEPTH: 11.1 m
ENTERED BY: DO	COMPLETION DATE: 10/3/11
	Page 1 of 1

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-02 (IX3)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818343 EASTING: 594786	ELEVATION: 945.093 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			SILT, sand to sandy, some to trace clay, trace gravel, low plasticity, compact to dense, brown to grey, moist, trace silt zones. [Till]					945
1								944
2					G1			943
3					G2			942
4								941
5								940
6					G3			939
7								938
8							Vibrating Wire-I5 (1119796)	937
9					G4			936
10							Vibrating Wire-I6 (1119792)	935
			SILT, some clay to clayey, trace sand, low plasticity to non plastic, hard, brown, moist, varved, occational gravel drop stone. [Glaciolacustrine]		G5		**Atterberg** (GRAB G5): Plastic Limit:20% Liquid Limit:28%	
11			BEDROCK, brown to redish grey.					934
12					G6			933
13								932
14								931
15					G7			930
16								929
17					G8			928
			END of BOREHOLE at 17.4m. - installed 2 vibrating wire (7.6m, 10.4m) - backfilled with grout					
18								927
19								926
20								

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LOGGED BY: DO
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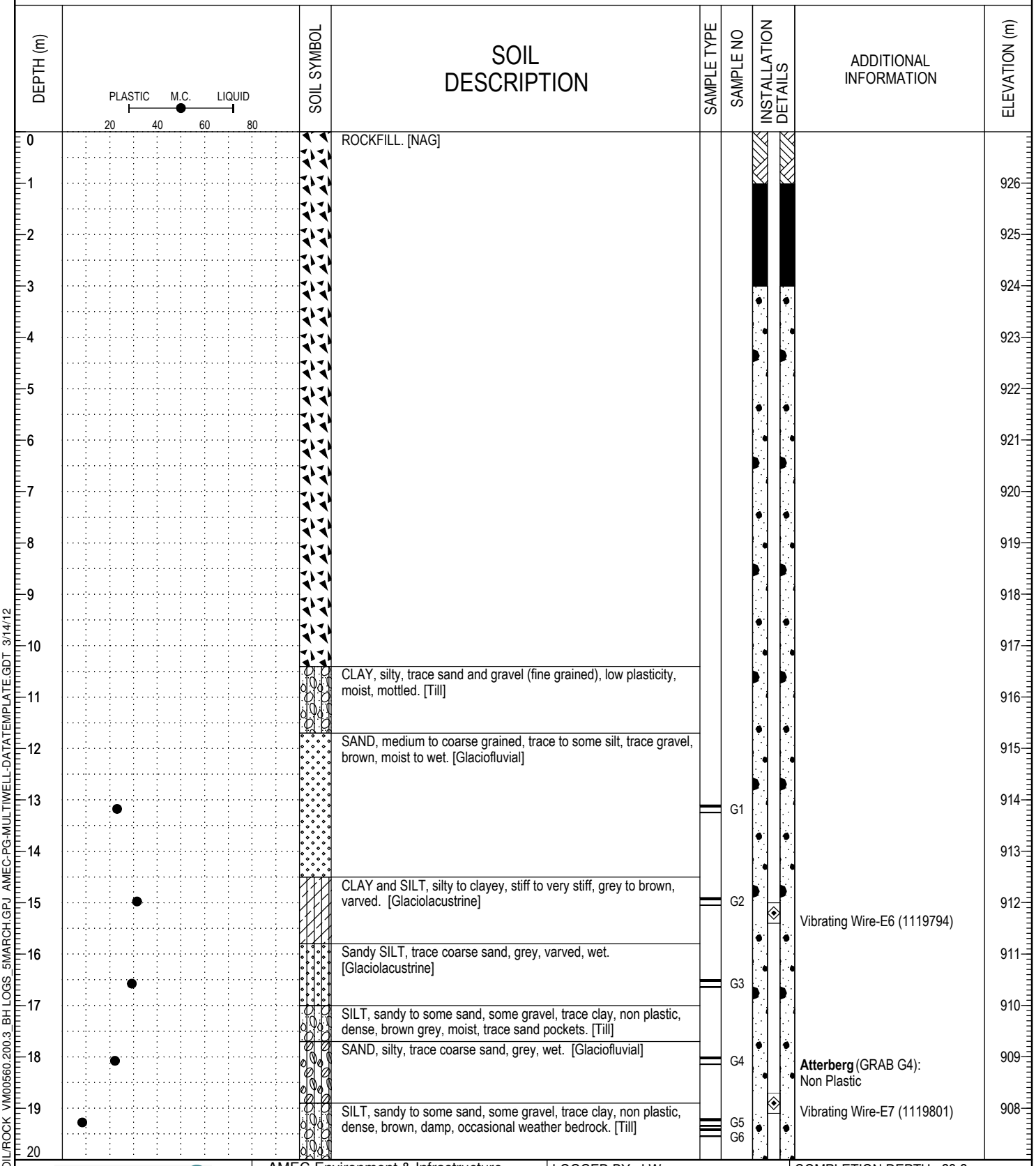
COMPLETION DEPTH: 17.4 m
COMPLETION DATE: 10/4/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-03 (EX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818272 EASTING: 595467	ELEVATION: 926.997 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN



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LOGGED BY: LW	COMPLETION DEPTH: 23.2 m
ENTERED BY: DO	COMPLETION DATE: 10/8/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-03 (EX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818272 EASTING: 595467	ELEVATION: 926.997 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			SILT, sandy to some sand, some gravel, trace clay, non plastic, dense, brown, damp, occasional weather bedrock. [Till] *(continued)*					
21								906
22			WEATHERED BEDROCK, red to grey.					905
23								904
24			END of BOREHOLE at 23.2m. - installed 2 vibrating wire (15.2m, 18.9m) - backfilled with grout					903
25								902
26								901
27								900
28								899
29								898
30								897
31								896
32								895
33								894
34								893
35								892
36								891
37								890
38								889
39								888
40								

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LOGGED BY: LW | COMPLETION DEPTH: 23.2 m
ENTERED BY: DO | COMPLETION DATE: 10/8/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-04 (CX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818309 EASTING: 595533	ELEVATION: 921.594 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			ROCKFILL. [NAG]					921
1								
2								920
3								
4								919
5								
6								918
7			SAND and SILT, some to trace clay, trace gravel, trace cobble low plasticity to non plastic, brown to grey, moist. [Till]					917
8								
9					G1		**Hydrometer** (GRABG1): Gravel:6% Sand:43% Silt:38% Clay:13%	916
10			SILT, some clay to clayey, trace coarse sand, low to medium plasiticity, very dense (silt) to hard (clayey silt) , brown, moist, varved. [Glaciolacustrine]		G2		**Atterberg** (GRAB G2): Plastic Limit:21% Liquid Limit:44%	915
11								
12			- at 11.3m, 300 mm thick sand layer, medium to coarse grained, trace gravel - below 11.6m, light brown to grey, varved, trace sand seam		G3			914
13			- below 12.5m, grey, stiff, wet - below 12.8m, trace clay, some sand, non plastic				Vibrating Wire-C11 (1119798)	913
14			- below 13.7m, silt, trace clay, non-plastic, grey		G4			912
15					G5		**Atterberg** (GRABG5): Non Plastic	911
16			SILT, sandy, trace clay, trace gravel, low plasticity to non plastic, dense, grey, moist, occasional cobble, silt lenses.[Till] - at 15.5m, 200mm thick coarse sand and gravel seam					910
17					G6			909
18			- below 17.7m, trace to some clay, trace sand pockets, trace weathered rock pieces, moist					908
19			- at 18.9m, clayey, trace sand		G7		**Hydrometer** (GRABG7): Sand:1% Silt:65% Clay:34%	907
20								906
								905
								904
								903
								902

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LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 29.3 m
COMPLETION DATE: 10/8/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-04 (CX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818309 EASTING: 595533	ELEVATION: 921.594 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN

PLASTIC M.C. LIQUID (20 40 60 80)

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20	SILT, sandy, trace clay, trace gravel, low plasticity to non plastic, dense, grey, moist, occasional cobble, silt lenses.[Till] *(continued)*					901
21	- at 20.1m, 300mm thick silt, sandy, trace clay lense, brown, varved		G8		Vibrating Wire-C12 (1119795)	
	- below 20.4m, some gravel					900
22	Silty CLAY to SILT, some sand, some clay lenses, low plasticity to non plastic, stiff, grey, varved. (Glaciolacustrine)					
23	SILT, sandy, trace clay, trace gravel, low plasticity to non-plastic, compact to dense, grey, moist, occasional cobble, silt lenses. [Till]		G9			899
	- at 22.7m, 200mm thick sand and gravel seam					
24	- below 23.2m, trace cobble					898
	- below 24.4m, trace sand seams, reddish grey		G10			897
25						
26	WEATHERED BEDROCK, trace sand seams, red to grey.		G11			896
27						895
28						894
29						893
	END of BOREHOLE at 29.3m.					892
30	- installed 2 vibrating wire (12.5m, 21.0m)					
	- backfilled with grout					891
31						890
32						889
33						888
34						887
35						886
36						885
37						884
38						883
39						882
40						

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LOGGED BY: LW | COMPLETION DEPTH: 29.3 m
ENTERED BY: DO | COMPLETION DATE: 10/8/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-05 (AX5)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818410 EASTING: 595605	ELEVATION: 920.601 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			ROCKFILL. [NAG]					920
1								919
2								918
3								917
4								916
5								915
6								914
7								913
8			CLAY, silty, trace gravel, low plasticity, stiff to hard, brown, trace silt layers, trace sand layers, trace rootlets. [Glaciolacustrine]					912
9			- below 8.8m, trace sand, low plasticity, very stiff to hard, grey, varved.					911
10	●				G1			910
11								909
12			- at 11.9m, 600m thick sandy zone, non plastic, stiff to very stiff, grey		G2		Vibrating Wire-A16 (1119799)	908
13								907
14	⊢●		- at 13.7m, medium plasticity		G3		**Atterberg** (GRAB G3): Plastic Limit:20% Liquid Limit:43%	906
15	●		- below 15.0m, silt, clayey, medium plasticity, very stiff		G4			905
16			SILT, low plasticity, loose, grey, wet. [Glaciolacustrine]					904
17	●		- below 17.1m, trace clay, saturated		G5		Vibrating Wire-A17 (09-2810) **Atterberg** (GRAB G5): Plastic Limit:24% Liquid Limit:27%	903
18								902
19	●		SAND, coarse grained, trace gravel, grey. [Glaciofluvial]		G6			901
20								

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LOGGED BY: LW
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COMPLETION DEPTH: 32.3 m
COMPLETION DATE: 10/9/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-05 (AX5)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818410 EASTING: 595605	ELEVATION: 920.601 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20, 40, 60, 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			SILT, some sand to sandy, some gravel, trace clay, low plasticity to non plastic, grey, occasional cobble. [Till]		G7			900
21								
22			SAND, medium to coarse grained, trace fines, trace gravel, brownish grey. [Glaciofluvial]					899
23			SILT, some sand to sandy, some gravel, trace clay, low plasticity to non plastic, grey to brown, moist to wet, occasional cobble. [Till]					898
24								897
25					G8		Vibrating Wire-A18 (09-2808)	896
26			- below 26.2m, sand and gravel, silty					895
27								894
28			WEATHERED BEDROCK, red to grey.		G9			893
29			- at 29.3m, sand and gravel, silty, reddish grey, till-like					892
30								891
31								890
32								889
33			END of BOREHOLE at 32.3m. - installed 3 vibrating wire (12.2m, 16.8m, 24.4m) - backfilled with grout					888
34								887
35								886
36								885
37								884
38								883
39								882
40								881

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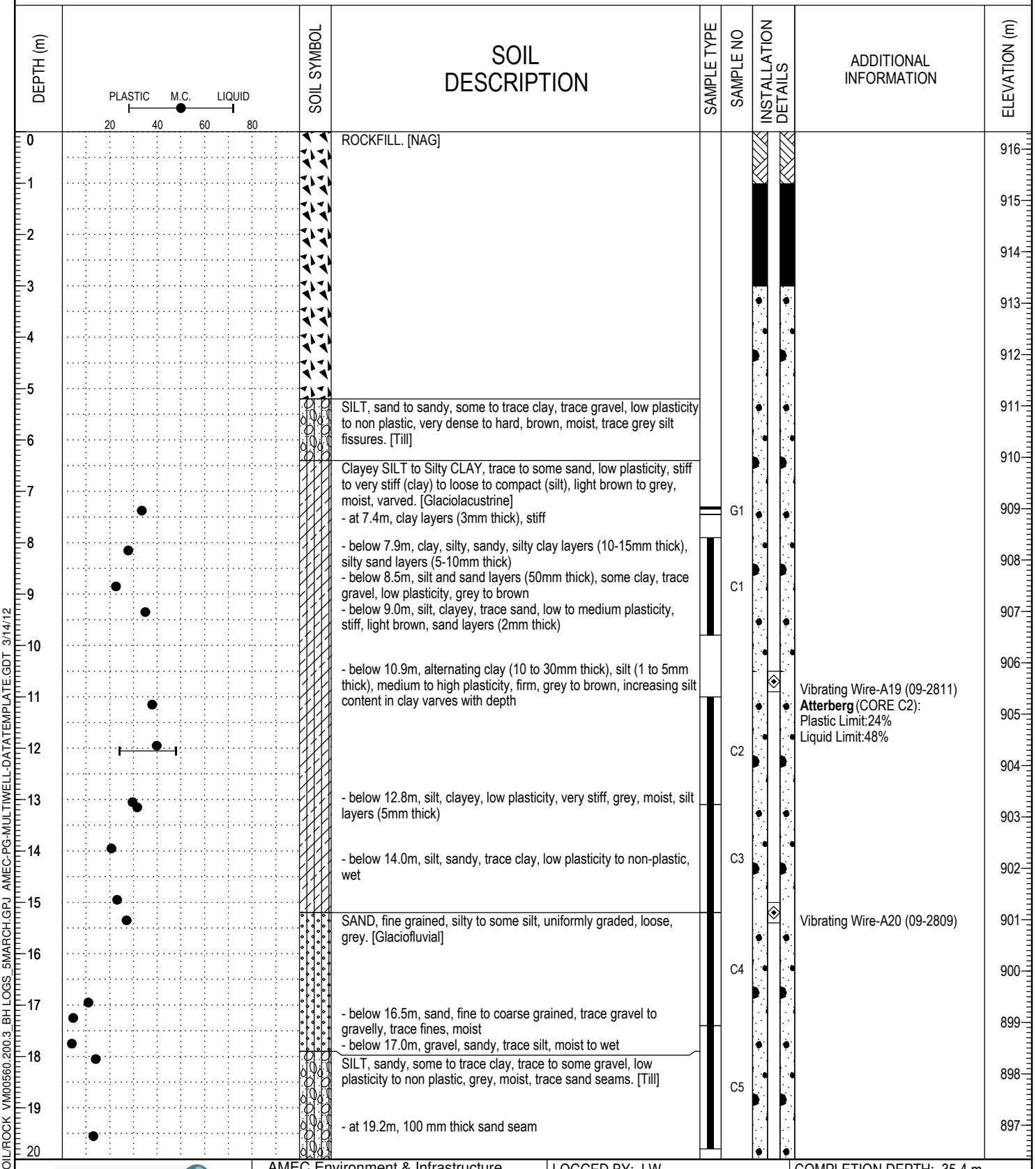
LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 32.3 m
COMPLETION DATE: 10/9/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-06 (AX6)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818423 EASTING: 595686	ELEVATION: 916.337 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN



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LOGGED BY: LW	COMPLETION DEPTH: 35.4 m
ENTERED BY: DO	COMPLETION DATE: 10/10/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-06 (AX6)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818423 EASTING: 595686	ELEVATION: 916.337 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			SILT, sandy, some to trace clay, trace to some gravel, low plasticity to non plastic, grey, moist, trace sand seams. [Till] *(continued)*					896
21	●		- below 20.1m, trace clay - below 20.6m, trace cobble		G2			895
22								894
23							Vibrating Wire-A21 (1119786)	893
24			- below 23.2m, trace sand seams, reddish grey					892
25	●				G3			891
26			- below 25.6m, occasional weathered bedrock pieces - below 26.2m, some gravel					890
27								889
28								888
29								887
30								886
31	●		- at 31.1m, sand, gravelly, trace fines		G4			885
32			WEATHERED BEDROCK, trace fine sand seam, red to grey.					884
33								883
34								882
35								881
36			END of BOREHOLE at 35.4m. - installed 3 vibrating wire (10.7m, 15.2m, 22.9m) - backfilled with grout					880
37								879
38								878
39								877
40								

BH FOR SOIL/ROCK VM00560.200.3_BH LOGS_5MARCH.GPJ AMEC-PG-MULTIWELL-DATATEMPLATE.GDT 3/14/12

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LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 35.4 m
COMPLETION DATE: 10/10/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-07 (BX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818554 EASTING: 595850	ELEVATION: 919.779 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			ROCKFILL. [NAG]					919
1								918
2								917
3								916
4								915
5	●		SILT, clayey, some sand, some gravel, low plasticity, stiff to hard, brown, occasional sand seam. [Till]		G1			914
6								913
7								912
8			SILT, trace clay to clayey, low plasticity to non plastic, loose to compact (silt) and stiff to very stiff (clayey silt), brown, moist. [Glaciolacustrine]					911
9	●		- below 8.4m, trace to some clay, grey, occasional silty sand zone		G2			910
10								909
11	●		- at 10.4m, 500mm thick sand seam, trace to some silt, trace fine gravel, loose, grey		G3			908
12	●		- below 11.3m, clayey, trace sand, varved, low to medium plasticity, very stiff		G4			907
13	●—		- below 12.5m, medium plasticity, light brown		G5		**Atterberg** (GRAB G5): Plastic Limit:24% Liquid Limit:37%	906
14			- below 14.0m, trace silt layers, trace fine grained sand layers, light brown to grey				Vibrating Wire-B11 (1119793)	905
15								904
16	●				G6			903
17			- below 17.0m, silt layers, low plasticity to non plastic, very stiff to stiff, light brown to dark grey					902
18	●				G7			901
19								900
20								

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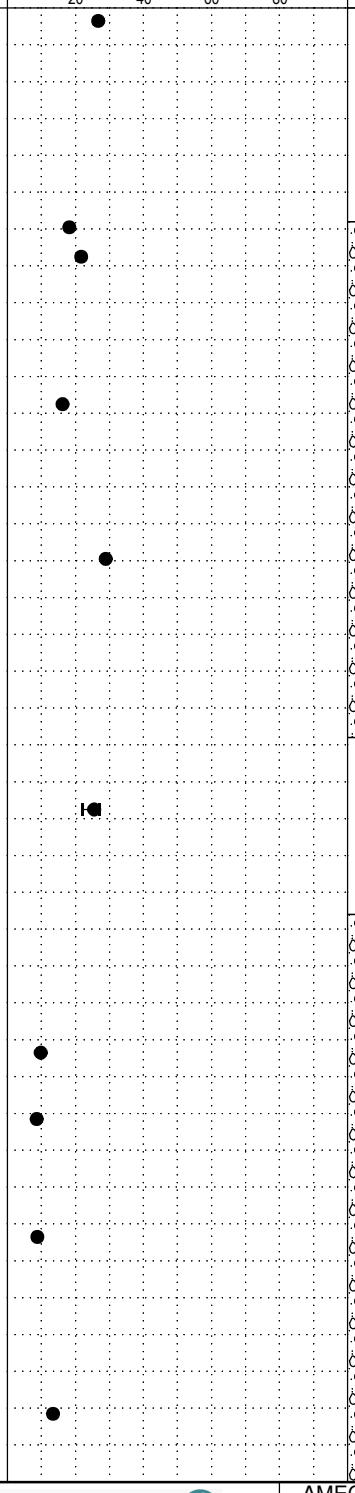
LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 43.3 m
COMPLETION DATE: 10/6/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-07 (BX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818554 EASTING: 595850	ELEVATION: 919.779 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN



DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20	SILT, some sand, fine grained, trace clay, low plasticity to non plastic, loose to compact, grey, varved. [Glaciolacustrine] *(continued)*		G8		**Atterberg** (GRABG8): Non Plastic	899
21						898
22						897
23	SILT, some sand, some to trace clay, trace gravel, low plasticity to non plastic, dense, grey, occasional sand zones. [Till]		G9			
			G10			896
24	- at 23.2m, sand, fine grained, silty, trace gravel, grey - at 23.8m, 100 mm thick sand and gravel layer, trace cobble - below 23.9m, silt, clayey, some sand and gravel					895
25			G11			894
26	- below 26.2, clay, silty				Vibrating Wire-B12 (1119791)	893
27			G12			892
28						891
29	- at 28.7m, boulder					890
30	SILT, trace to some clay, low plasticity, grey, wet, varved, trace clay seams. [Glaciolacustrine]		G13		Vibrating Wire-B13 (1119785) **Atterberg** (GRAB G13): Plastic Limit:22% Liquid Limit:27%	889
31						888
32	- below 32.2m, sand and gravel, fine to coarse grained sand, silty					887
33	SILT, sand to sandy, trace gravel, low plasticity to non plastic, compact to dense, grey. [Till]					886
34	- below 33.5m, sandy, some gravel		G14			885
35	- below 34.4m, dark grey, occasional black weathered bedrock pieces		G15			884
36						883
37			G16			882
38						881
39	- below 38.7m, sand, coarse grained, trace gravel, grey		G17			880
40						

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LOGGED BY: LW
ENTERED BY: DO
COMPLETION DEPTH: 43.3 m
COMPLETION DATE: 10/6/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-07 (BX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818554 EASTING: 595850	ELEVATION: 919.779 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40		O.C.	WEATHERED BEDROCK, grey to black.					879
41								878
42								877
43			END of BOREHOLE at 43.3m. - installed 3 vibrating wire (13.7m, 25.9m, 31.1m) - backfilled with grout					876
44								875
45								874
46								873
47								872
48								871
49								870
50								869
51								868
52								867
53								866
54								865
55								864
56								863
57								862
58								861
59								860
60								

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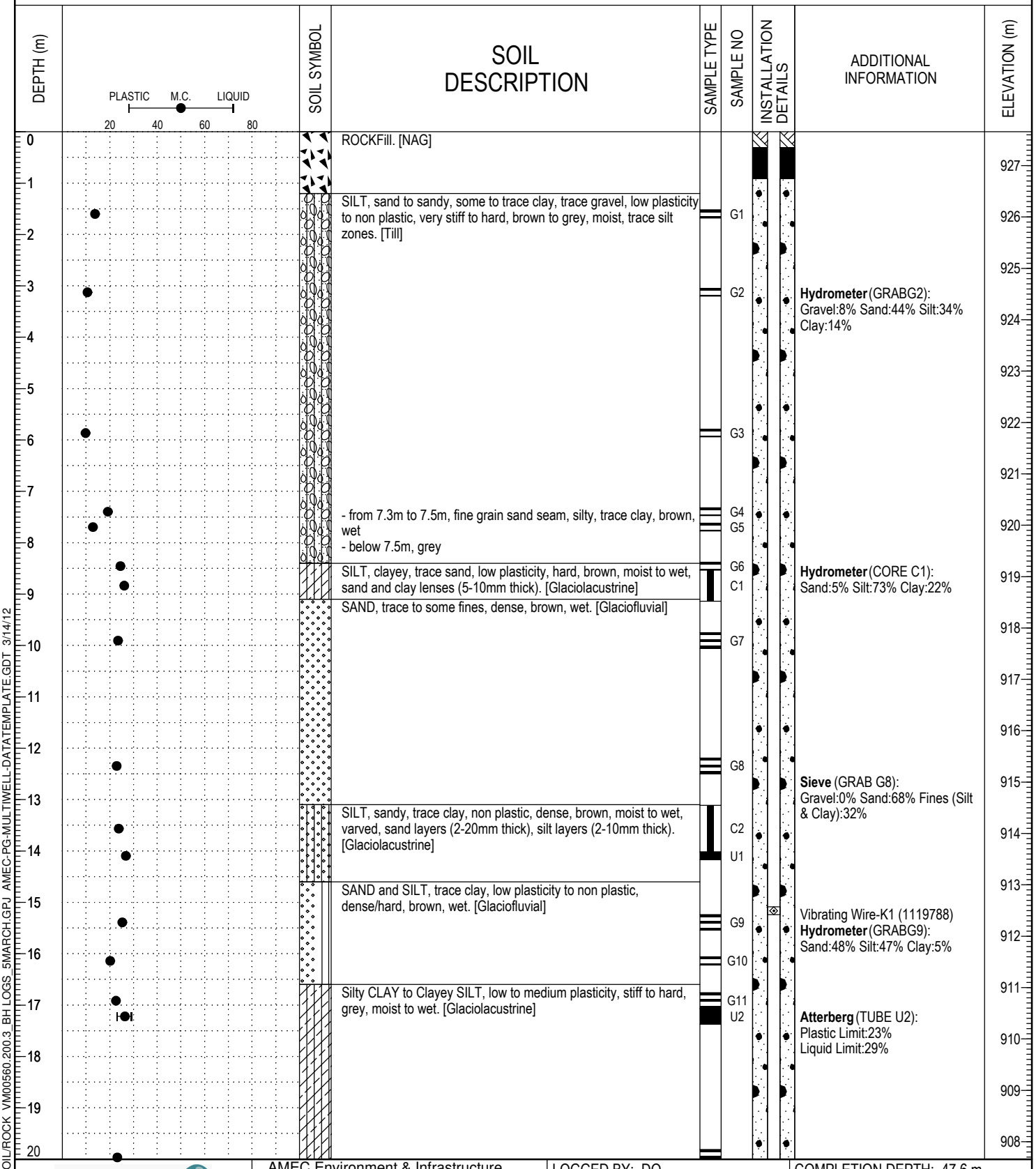
LOGGED BY: LW	COMPLETION DEPTH: 43.3 m
ENTERED BY: DO	COMPLETION DATE: 10/6/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-08 (KX2)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818697 EASTING: 596027	ELEVATION: 927.659 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN



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LOGGED BY: DO	COMPLETION DEPTH: 47.6 m
ENTERED BY: DO	COMPLETION DATE: 9/30/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-08 (KX2)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818697 EASTING: 596027	ELEVATION: 927.659 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN

PLASTIC M.C. LIQUID (20 40 60 80)

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20	Silty CLAY to Clayey SILT, low to medium plasticity, stiff to hard, grey, moist to wet. [Glaciolacustrine] *(continued)*		G12			
21			C3			907
22	- below 21.8m, moist to dry, varved					906
23						905
24						904
25	- below 25m, hard		G13			903
26			C4			902
27						901
28	- at 27.4m, 20mm thick sand seam, medium to coarse grained		G14			900
29	SILT, clayey, some some, low plasticity, hard, brown, moist to wet, varved, sand/gravel lenses. [Glaciolacustrine]		G15			899
30			G16			898
31	- at 30.5m, 300mm thick sand seam, some gravel					897
32	SILT, trace sand, trace clay, low plasticity to non plastic, dense, brown, moist to wet, transitioning to SAND, some silt with depth. [Glaciofluvial]		G17			896
33						895
34	SAND, trace fines, fine grained transitioning to coarse grained with depth, dense, wet to saturated. [Glaciofluvial]		G18		Vibrating Wire-K2 (1119784)	894
35			G19			893
36	- below 35.2m, medium grained sand, trave fine gravel					892
37			G20			891
38	- at 37.0m, 450mm thick silt layer, some clay, brown		G21			890
39			G22			889
40	- at 39.0m, 300mm thick silt layer, some clay, brown - below 39.3m, coarse grained sand, some gravel		G23			888

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LOGGED BY: DO
ENTERED BY: DO
COMPLETION DEPTH: 47.6 m
COMPLETION DATE: 9/30/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-08 (KX2)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5818697 EASTING: 596027	ELEVATION: 927.659 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40	●		SAND, trace fines, fine grained transitioning to coarse grained with depth, dense, wet to saturated. [Glaciofluvial] *(continued)*		G24			887
41			- below 41.5m, gravelly coarse grained sand, occasional cobble					886
42								885
43	●		CLAY, some silt, some sand, some gravel, low plasticity, hard, brown, moist. [Till]		G25			884
44								883
45			WEATHERED BEDROCK					882
46					G26			881
47			BEDROCK, grey		G27			880
48			END of BOREHOLE at 47.5m. - installed 2 vibrating wire (15.2m, 33.8m) - backfilled with grout					879
49								878
50								877
51								876
52								875
53								874
54								873
55								872
56								871
57								870
58								869
59								868
60								

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LOGGED BY: DO	COMPLETION DEPTH: 47.6 m
ENTERED BY: DO	COMPLETION DATE: 9/30/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-09 (JX1)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819415 EASTING: 595928	ELEVATION: 936.589 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0			CLAY, silty, some sand, some gravel, low plasticity, firm to stiff, brown, wet, organics. [Fill]					936
1			- below 1.5m, organic rich layer					
			SILT, sand to sandy, some to trace clay, trace gravel, low plasticity to non plastic, dense, brown to grey, moist, trace silt zones. [Till]		G1			935
2								
3					G2			934
4								933
5								932
6			- below 5.5m, medium to high plasticity, grey					931
7					G3			930
8			- below 8.0m, brown, moist to dry					929
9								928
10					G4		**Hydrometer** (GRABG4): Gravel:9% Sand:41% Silt:41% Clay:9%	927
11			- below 10.0m, occasional cobble					926
12					G5			925
13								924
14								923
15					G6			922
16								921
17								920
18					G7			919
19			- below 18.6m, grey				Vibrating Wire-J1 (1119800)	918
20			- at 19.2m, 400mm glaciolacustrine seam, silt, clayey, trace sand, low plasticity, grey		G8		**Hydrometer** (GRABG8): Gravel:1% Sand:11% Silt:67% Clay:21%	917

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LOGGED BY: DO
ENTERED BY: DO
COMPLETION DEPTH: 41.7 m
COMPLETION DATE: 10/6/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-09 (JX1)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819415 EASTING: 595928	ELEVATION: 936.589 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			- below 19.6m, till, trace gravel, brown SILT, sand to sandy, some to trace clay, trace gravel, low plasticity to non plastic, dense, brown to grey, moist, trace silt zones. [Till] *(continued)*					916
21					G9			
22					G10			915
23								914
24					G11			913
25								912
26			- below 25.9m, grey - below 26.2m, gravelly, brown to grey		G12			911
27								910
28					G13			909
29			- below 29.1m, grey					908
30								907
31					G14		**Hydrometer** (GRABG14): Gravel:6% Sand:49% Silt:40% Clay:5%	906
32								905
33								904
34					G15			903
35								902
36								901
37					G16			900
38								899
39			WEATHERED BEDROCK					898
40					G17			897

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LOGGED BY: DO
ENTERED BY: DO
COMPLETION DEPTH: 41.7 m
COMPLETION DATE: 10/6/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-09 (JX1)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819415 EASTING: 595928	ELEVATION: 936.589 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40	●		BEDROCK		G18			896
41								895
42			END of BOREHOLE at 41.7m. - installed 1 vibrating wire (19.4m) - backfilled with grout					894
43								893
44								892
45								891
46								890
47								889
48								888
49								887
50								886
51								885
52								884
53								883
54								882
55								881
56								880
57								879
58								878
59								877
60								

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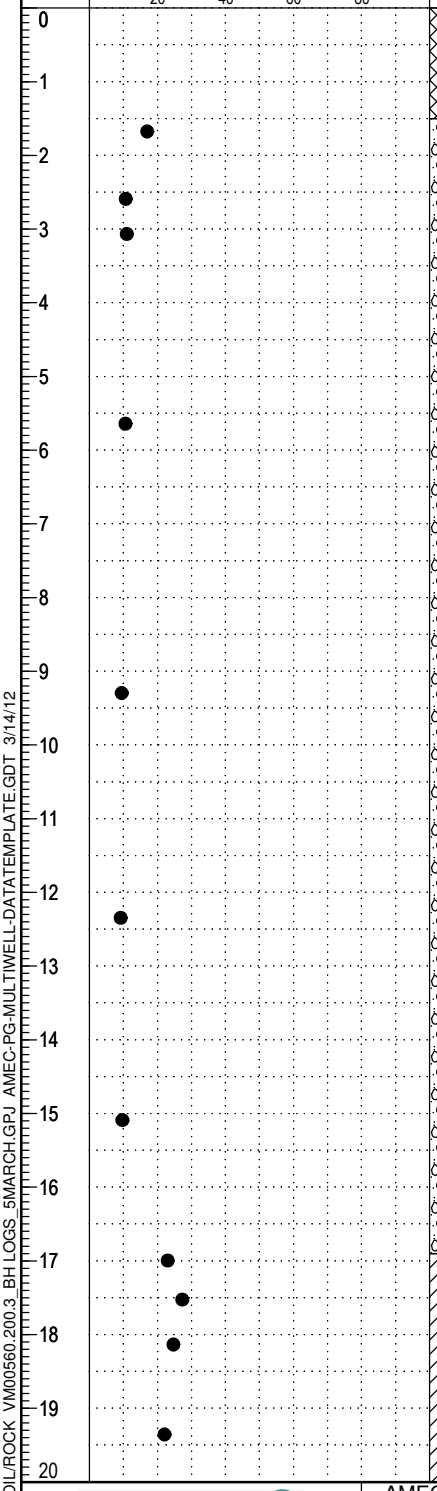
LOGGED BY: DO	COMPLETION DEPTH: 41.7 m
ENTERED BY: DO	COMPLETION DATE: 10/6/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-10 (DX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819783 EASTING: 595410	ELEVATION: 931.804 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN



DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0	CLAY, silty, some sand, some gravel, low plasticity, stiff, brown, wet, organics, tree roots. [Fill]					931
1						
2	SILT, sand to sandy, some to trace clay, trace gravel, low plasticity to non plastic, compact to dense, brown to grey, moist, trace silt zones. [Till]		G1			930
3			G2			929
4	- at 3.1m, 10mm thick infilling, orange		G3			928
5	- below 4.9m, occasional cobble					927
6			G4			926
7						925
8						924
9			G5			923
10						922
11						921
12			G6		**Hydrometer** (GRABG6): Gravel:8% Sand:45% Silt:39% Clay:8%	920
13						919
14						918
15			G7			917
16						916
17	CLAY, silty to silt, trace to some sand, medium plasticity, hard, brown to grey, moist to wet, varved. [Glaciolacustrine]		G8		**Atterberg** (GRABG8): Plastic Limit:22% Liquid Limit:39%	915
18			G9		**Sieve** (GRABG9): Sand:0.5% Fines (Silt & Clay):99.5%	914
19			G10		**Atterberg** (GRABG10): Plastic Limit:23% Liquid Limit:38% Vibrating Wire-D6 (1119790)	913
20			G11			912

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LOGGED BY: DO
ENTERED BY: DO
COMPLETION DEPTH: 42.4 m
COMPLETION DATE: 10/1/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-10 (DX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819783 EASTING: 595410	ELEVATION: 931.804 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			CLAY, silty, some sand, some gravel, low plasticity, hard, grey, moist, occasional cobble. [Till]		G12		**Atterberg** (GRABG12): Non Plastic	911
21					G13			910
22			- below 22.3m, brown		G14			909
23			SAND, medium grained, trace fines, uniformly graded, very dense, brown, wet, occasional coarse sand seam 10 to 20mm thick. [Glaciofluvial]		G15			908
24					G16		Vibrating Wire-D7 (1119802)	907
25								906
26					G17			905
27			CLAY, some silt, some sand, some gravel, low plasticity, hard, grey to brown, moist, occasional cobble. [Till]					904
28					G18			903
29								902
30								901
31								900
32					G20			899
33								898
34			SAND, medium grained, trace gravel, trace fines, uniformly graded, very dense, brown, wet. [Glaciofluvial]		G21			897
35								896
36			SILT, some clay, low plasticity, hard, grey to brown, wet to moist. varved. [Glaciolacustrine]		G22		**Atterberg** (GRAB G22): Plastic Limit:18% Liquid Limit:28%	895
37			CLAY, silty, some sand, some gravel, low plasticity, stiff to hard, grey to brown, occasional sand seams, occasional silt seams. [Till]		G23			894
38			- at 38.1m, 200mm thick sand seam, brown to grey		G24			893
39			- at 38.7m, 200mm thick sand seam, brown to grey					892
40			- at 39.6m, 400mm thick silt seam					

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LOGGED BY: DO	COMPLETION DEPTH: 42.4 m
ENTERED BY: DO	COMPLETION DATE: 10/1/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-10 (DX4)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5819783 EASTING: 595410	ELEVATION: 931.804 m

SAMPLE TYPE: TUBE | NO RECOVERY | SPLIT SPOON | GRAB | MUD RETURN | CORE RETURN

DEPTH (m)	PLASTIC / M.C. / LIQUID (20, 40, 60, 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
40			CLAY, silty, some sand, some gravel, low plasticity, stiff to hard, grey to brown, occasional sand seams, occasional silt seams. [Till] *(continued)*					891
41					G25			
42			BEDROCK, grey		G26			890
43			END of BOREHOLE at 42.4m. - installed 2 vibrating wire (18.4m, 24.4m) - backfilled with grout					889
44								888
45								887
46								886
47								885
48								884
49								883
50								882
51								881
52								880
53								879
54								878
55								877
56								876
57								875
58								874
59								873
60								872

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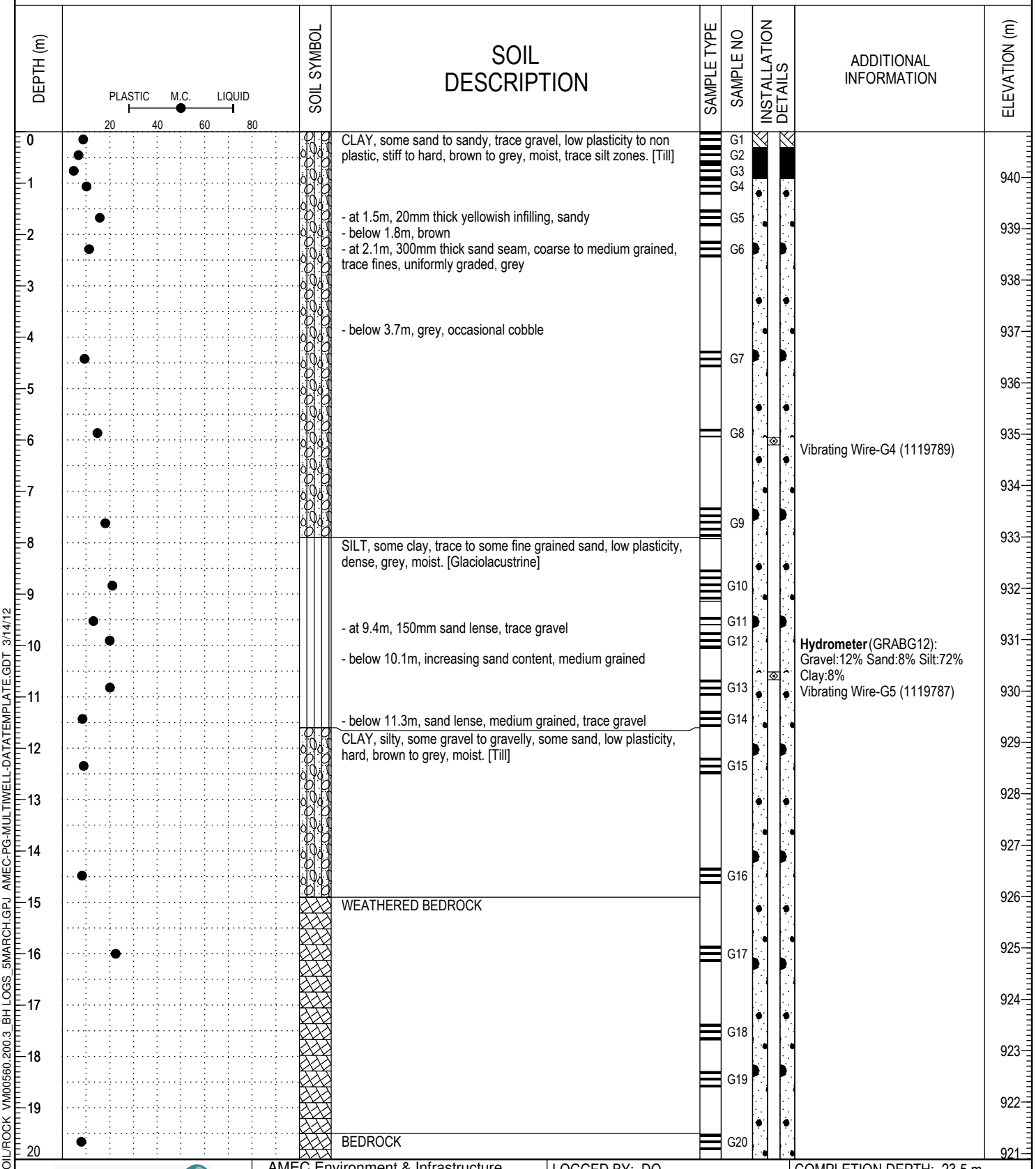
LOGGED BY: DO
ENTERED BY: DO
COMPLETION DEPTH: 42.4 m
COMPLETION DATE: 10/1/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-11 (GX2)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5820031 EASTING: 594892	ELEVATION: 940.887 m

SAMPLE TYPE ■ TUBE ⊘ NO RECOVERY ⊠ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ◧ CORE RETURN



AMEC Environment & Infrastructure
Suite 600, 4445 Lougheed Hwy
Burnaby, BC V5C 0E4
Tel: (604) 294-3811

LOGGED BY: DO	COMPLETION DEPTH: 23.5 m
ENTERED BY: DO	COMPLETION DATE: 9/29/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Tailings Storage Facility SI program	BOREHOLE NO: **VW11-11 (GX2)**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Tracked SR-125/Sonic	NORTHING: 5820031 EASTING: 594892	ELEVATION: 940.887 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	PLASTIC M.C. LIQUID (20 40 60 80)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20			BEDROCK *(continued)*					920
21					G21			919
22								918
23					G22			917
24			END of BOREHOLE at 23.5m. - installed 2 vibrating wire (6.1m, 10.7m) - backfilled with grout					916
25								915
26								914
27								913
28								912
29								911
30								910
31								909
32								908
33								907
34								906
35								905
36								904
37								903
38								902
39								901
40								

AMEC Environment & Infrastructure
Suite 600, 4445 Lougheed Hwy
Burnaby, BC V5C 0E4
Tel: (604) 294-3811

LOGGED BY: DO	COMPLETION DEPTH: 23.5 m
ENTERED BY: DO	COMPLETION DATE: 9/29/11

APPENDIX C

Drill Core Photographs

DRILL HOLE: **VW11-02**

Photo 1	
Sample G5 Depth : 9.3m (30.5ft)	

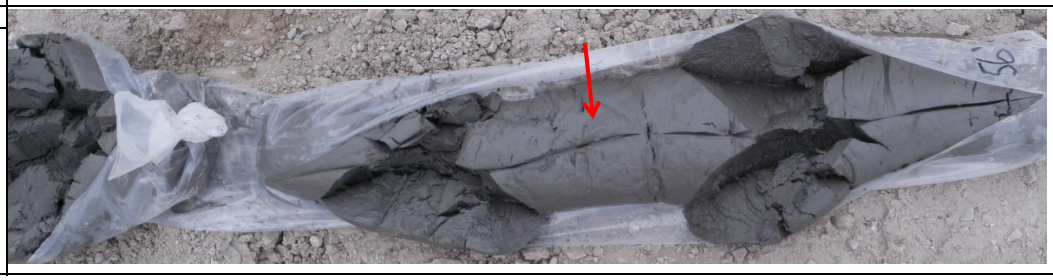
DRILL HOLE: **VW11-03**

Photo 2 Sample G2 Depth : 13.8m (45.4ft)	
Photo 3 Sample G3 Depth : 16.5m (54ft)	

DRILL HOLE: **VW11-04**

Photo 4 Sample G2 Depth : 10m (33ft)	
Photo 5 Sample G3 Depth : 11.6m (38ft)	
Photo 6 Sample G4 Depth : 13.7m (45ft)	
Photo 7 Sample G5 Depth : 14.9m (49ft)	
Photo 8 Depth : 21.6m (71ft)	

DRILL HOLE: **VW11-05**

Photo 9 Sample G1 Depth : 10m (33ft)	
Photo 10 Sample G2 Depth : 12.5m (41ft)	
Photo 11 Sample G3 Depth : 13.7m (45ft)	
Photo 12 Sample G4 Depth : 15.2m (50ft)	
Photo 13 Sample G5 Depth : 16.5m (54ft)	

DRILL HOLE: **VW11-06**

Photo 14 Sample G1 Depth : 7.3m (24ft)	
Photo 15 Sample C1 Depth : 7.9m (26ft)	
Photo 16 Depth : 9.7m (32ft)	
Photo 17 Sample C2 Depth : 11.0m (36ft)	
Photo 18 Sample C3 Depth : 13.1m (43ft)	

DRILL HOLE: **VW11-07**

Photo 19 Sample G2 Depth : 8.8m (29ft)	
Photo 20 Sample G3 Depth : 10.4m (34ft)	
Photo 21 Sample G4 Depth : 11.6m (38ft)	
Photo 22 Sample G5 Depth : 13.1m (43ft)	
Photo 23 Sample G6 Depth : 16.2m (53ft)	
Photo 24 Sample G7 Depth : 17.7m (58ft)	

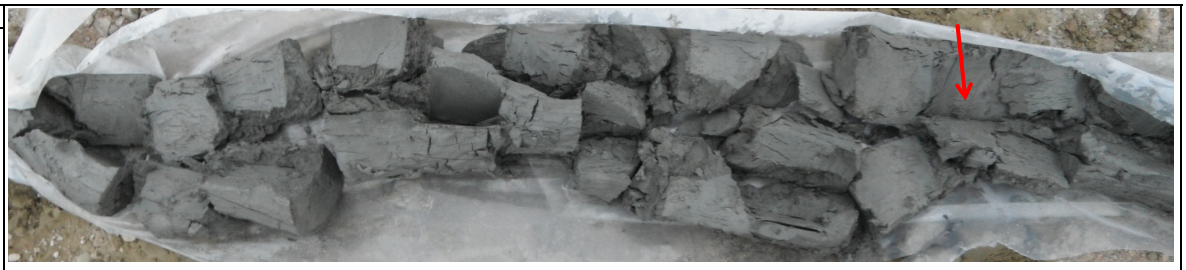
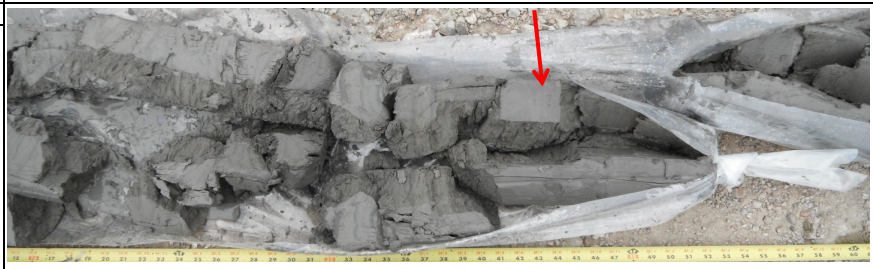
DRILL HOLE: **VW11-07**

Photo 25 Sample G8 Depth : 19.8m (65ft)	
Photo 26 Sample G13 Depth : 30.8m (101ft)	

DRILL HOLE: **VW11-08**

Photo 27 Sample G6/C1 Depth : 8.2m (27ft)	
Photo 28 Sample C2 Depth : 13.1m (43ft)	
Photo 29 Sample U1 Depth : 14m (46ft)	 
Photo 30 Sample G11 Depth : 16.8m (55ft)	
Photo 31 Sample G12/C3 Depth : 19.8m (65ft)	

DRILL HOLE: **VW11-08**

Photo 32 Sample G13 Depth : 24.4m (80ft)	
Photo 33 Sample C4 Depth : 25m (82ft)	
Photo 34 Sample G14 Depth : 27.4m (90ft)	
Photo 35 Sample G15 Depth : 28.7m (94ft)	
Photo 36 Sample G16 Depth : 29.9m (98ft)	

DRILL HOLE: **VW11-09**

Photo 37	
Sample G8 Depth : 19.2m (63ft)	

DRILL HOLE: **VW11-10**

Photo 38 Sample G8 Depth : 16.9m (55.5ft)	
Photo 39 Sample G9 Depth : 17.4m (57ft)	
Photo 40 Sample G10 Depth : 18m (59ft)	
Photo 41 Sample G11 Depth : 19.2m (63ft)	
Photo 42 Sample G12 Depth : 20m (65.5ft)	
Photo 43 Sample G22 Depth : 35.8m (117.5ft)	

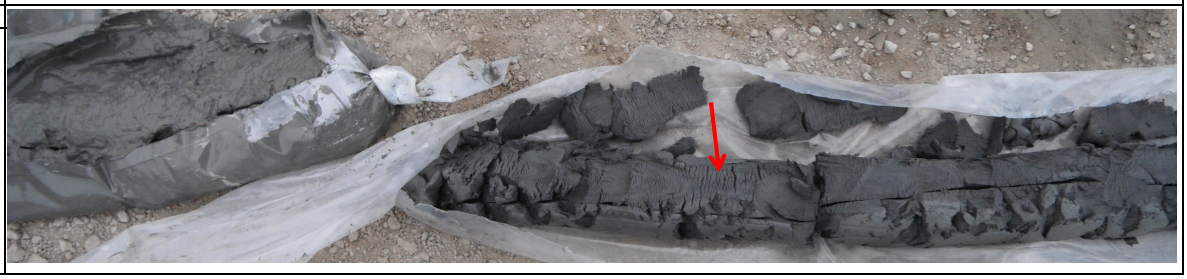
DRILL HOLE: **VW11-11**

Photo 43 Sample G10 Depth : 8.5m (28ft)	
Photo 44 Sample G11 Depth : 9.4m (31ft)	
Photo 45 Sample G12 Depth : 9.8m (32ft)	
Photo 46 Samples G13/G14 Depth : 10.7m (35ft)	

DRILL HOLE: **SI11-01**

Photo 47 Sample G1 Depth : 8.5m (28ft)	
Photo 48 Sample G2 Depth : 10.7m (35ft)	
Photo 49 Sample G3 Depth : 11.7m (38.5ft)	
Photo 50 Sample G4 Depth : 13.1m (43ft)	

DRILL HOLE: **SI11-02**

Photo 51 Sample G6 Depth : 10m (33ft)	
Photo 52 Sample G8 Depth : 13.6m (44.5ft)	
Photo 53 Sample U1 Depth : 14m (46ft)	 
Photo 54 Sample G9 Depth : 14.9m (49ft)	
Photo 55 Sample G11 Depth : 16.5m (54ft)	
Photo 56 Sample G12 Depth : 20.1m (66ft)	

DRILL HOLE: **SI11-02**

Photo 57 Sample G13 Depth : 70	
Photo 58 Sample G14 Depth : 79	
Photo 59 Sample G15 Depth : 90	
Photo 60 Sample G16 Depth : 97	
Photo 61 Sample G17 Depth : 102	
Photo 62 Sample G24 Depth : 138	

APPENDIX D

Vibrating Wire Calibration Reports

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

A16

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119799

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8772	8773	8773	0.582	0.17	0.105	0.03
70.0	8118	8119	8119	69.84	-0.05	69.89	-0.03
140.0	7460	7461	7461	139.5	-0.14	139.8	-0.05
210.0	6797	6797	6797	209.8	-0.06	210.1	0.03
280.0	6132	6133	6133	280.1	0.04	280.2	0.06
350.0	5469	5470	5470	350.3	0.10	349.9	-0.04

(kPa) Linear Gage Factor (G): 0.1059 **(kPa/ digit)** **Regression Zero:** 8778

Polynomial Gage factors: **A:** -3.073E-07 **B:** -0.1015 **C:**

Thermal Factor (K): -0.09582 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01536 **(psi/ digit)**

Polynomial Gage Factors: **A:** -4.457E-08 **B:** -0.01472 **C:**

Thermal Factor (K): -0.01390 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

A 17

VW Piezometer Calibration Certificate

Serial #: 09-2810
Range : 50 psi
Cable Length: 30 m
Date of Calibration: 11/3/2009

Part #: 52611024
Cable Part # : 50613524
Calibrated by: KB
Note:

ABC Calibration Factors

	A	B	C
kPa	-1.001898E-4	-1.074016E-1	1.111567E+3
psi	-1.453130E-5	-1.557728E-2	1.612191E+2

Pressure in kPa/psi = $(A \times Hz^2) + (B \times Hz) + C$, where Hz is frequency in Hertz.

TI Calibration Factors

	C0	C1	C2	C3	C4	C5
kPa	1.100319E+3	-9.874667E-2	-2.251975E-2	-1.021410E-4	7.353697E-5	-2.134806E-3
psi	1.595822E+2	-1.432149E-2	-3.266098E-3	-1.481378E-5	1.066526E-5	-3.096166E-4

Pressure in kPa/psi = $C0 + (C1 \times Hz) + (C2 \times T) + (C3 \times Hz^2) + (C4 \times Hz \times T) + (C5 \times T^2)$

Where Hz is the frequency reading in Hertz and T is the Thermistor reading in degrees C.
TI factors are calculated from temperatures at 5.0, 15.0 and 25.0 degrees C.
Applied pressure and temperature are NIST traceable.

Summary of Test Results at 15°C

Thermistor reading is 14.4 °C.

Applied Pressure is referenced to 1 atm. Calculated Pressure uses ABC Calibration factors.

Applied (psi)	Equivalent (kPa)	Frequency (Hz)	Calculated (psi)	Calculated (kPa)	Error (%FS)
0.00	0.0	2838.0	-0.03	-0.2	0.06
5.00	34.5	2786.2	5.01	34.5	-0.02
10.00	68.9	2733.9	10.02	69.1	-0.04
15.00	103.4	2681.0	15.01	103.5	-0.02
20.00	137.9	2627.2	20.00	137.9	0.01
25.00	172.4	2572.2	25.01	172.4	-0.02
30.00	206.8	2516.6	29.99	206.8	0.03
35.00	241.3	2459.8	34.98	241.2	0.04
40.00	275.8	2401.7	39.99	275.7	0.02
45.00	310.3	2342.4	45.00	310.3	0.00
50.00	344.7	2281.8	50.02	344.9	-0.03

A 18

VW Piezometer Calibration Certificate

Serial #: 09-2808
Range : 50 psi
Cable Length: 30 m
Date of Calibration: 11/3/2009

Part #: 52611024
Cable Part # : 50613524
Calibrated by: KB
Note:

ABC Calibration Factors

	A	B	C
kPa	-9.377097E-5	-1.359561E-1	1.182552E+3
psi	-1.360033E-5	-1.971877E-2	1.715147E+2

Pressure in kPa/psi = $(A \times Hz^2) + (B \times Hz) + C$, where Hz is frequency in Hertz.

TI Calibration Factors

	C0	C1	C2	C3	C4	C5
kPa	1.176037E+3	-1.304717E-1	-1.740900E-1	-9.524043E-5	1.318424E-4	-7.348788E-4
psi	1.705638E+2	-1.892265E-2	-2.524873E-2	-1.381297E-5	1.912145E-5	-1.065814E-4

Pressure in kPa/psi = $C0 + (C1 \times Hz) + (C2 \times T) + (C3 \times Hz^2) + (C4 \times Hz \times T) + (C5 \times T^2)$

Where Hz is the frequency reading in Hertz and T is the Thermistor reading in degrees C.
TI factors are calculated from temperatures at 5.0, 15.0 and 25.0 degrees C.
Applied pressure and temperature are NIST traceable.

Summary of Test Results at 15°C

Thermistor reading is 14.2 °C.

Applied Pressure is referenced to 1 atm. Calculated Pressure uses ABC Calibration factors.

Applied (psi)	Equivalent (kPa)	Frequency (Hz)	Calculated (psi)	Calculated (kPa)	Error (%FS)
0.00	0.0	2899.6	-0.01	-0.1	0.02
5.00	34.5	2848.5	4.99	34.4	0.01
10.00	68.9	2796.4	10.02	69.1	-0.04
15.00	103.4	2743.9	15.01	103.5	-0.02
20.00	137.9	2690.5	20.01	138.0	-0.02
25.00	172.4	2636.5	24.99	172.3	0.02
30.00	206.8	2581.1	30.01	206.9	-0.02
35.00	241.3	2525.3	34.99	241.2	0.02
40.00	275.8	2468.4	39.97	275.6	0.05
45.00	310.3	2410.1	44.99	310.2	0.02
50.00	344.7	2350.6	50.02	344.9	-0.04

A19

VW Piezometer Calibration Certificate

Serial #: 09-2811
Range : 50 psi
Cable Length: 30 m
Date of Calibration: 11/3/2009

Part #: 52611024
Cable Part # : 50613524
Calibrated by: KB
Note:

ABC Calibration Factors

	A	B	C
kPa	-5.482865E-5	-1.610882E-1	8.489390E+2
psi	-7.952223E-6	-2.336387E-2	1.231282E+2

Pressure in kPa/psi = $(A \times Hz^2) + (B \times Hz) + C$, where Hz is frequency in Hertz.

TI Calibration Factors

	C0	C1	C2	C3	C4	C5
kPa	8.498067E+2	-1.622674E-1	-3.172800E-2	-5.474878E-5	5.735595E-5	-6.924600E-5
psi	1.232497E+2	-2.353407E-2	-4.601595E-3	-7.940359E-6	8.318484E-6	-1.004293E-5

Pressure in kPa/psi = $C0 + (C1 \times Hz) + (C2 \times T) + (C3 \times Hz^2) + (C4 \times Hz \times T) + (C5 \times T^2)$

Where Hz is the frequency reading in Hertz and T is the Thermistor reading in degrees C.
TI factors are calculated from temperatures at 5.0, 15.0 and 25.0 degrees C.
Applied pressure and temperature are NIST traceable.

Summary of Test Results at 15°C

Thermistor reading is 14.3 °C.

Applied Pressure is referenced to 1 atm. Calculated Pressure uses ABC Calibration factors.

Applied (psi)	Equivalent (kPa)	Frequency (Hz)	Calculated (psi)	Calculated (kPa)	Error (%FS)
0.00	0.0	2731.1	0.00	0.0	-0.01
5.00	34.5	2655.6	5.00	34.5	0.00
10.00	68.9	2578.6	10.01	69.0	-0.01
15.00	103.4	2500.4	14.99	103.4	0.02
20.00	137.9	2420.4	19.99	137.8	0.02
25.00	172.4	2338.7	24.99	172.3	0.02
30.00	206.8	2255.2	29.99	206.8	0.01
35.00	241.3	2169.5	35.01	241.4	-0.02
40.00	275.8	2081.9	40.02	275.9	-0.04
45.00	310.3	1992.6	45.00	310.3	0.00
50.00	344.7	1900.8	49.99	344.7	0.03

A 20

VW Piezometer Calibration Certificate

Serial #: 09-2809
Range : 50 psi
Cable Length: 30 m
Date of Calibration: 11/3/2009

Part #: 52611024
Cable Part # : 50613524
Calibrated by: KB
Note:

ABC Calibration Factors

	A	B	C
kPa	-1.216316E-4	-1.581648E-3	1.004004E+3
psi	-1.764117E-5	-2.293986E-4	1.456185E+2

Pressure in kPa/psi = $(A \times Hz^2) + (B \times Hz) + C$, where Hz is frequency in Hertz.

TI Calibration Factors

	C0	C1	C2	C3	C4	C5
kPa	1.006982E+3	-4.540170E-3	6.769090E-3	-1.211797E-4	4.749271E-5	-1.009650E-3
psi	1.460452E+2	-6.584728E-4	9.817390E-4	-1.757501E-5	6.887993E-6	-1.464322E-4

Pressure in kPa/psi = $C0 + (C1 \times Hz) + (C2 \times T) + (C3 \times Hz^2) + (C4 \times Hz \times T) + (C5 \times T^2)$

Where Hz is the frequency reading in Hertz and T is the Thermistor reading in degrees C.
TI factors are calculated from temperatures at 5.0, 15.0 and 25.0 degrees C.
Applied pressure and temperature are NIST traceable.

Summary of Test Results at 15°C

Thermistor reading is 14.3 °C.

Applied Pressure is referenced to 1 atm. Calculated Pressure uses ABC Calibration factors.

Applied (psi)	Equivalent (kPa)	Frequency (Hz)	Calculated (psi)	Calculated (kPa)	Error (%FS)
0.00	0.0	2866.5	0.01	0.1	-0.01
5.00	34.5	2816.8	5.00	34.5	0.00
10.00	68.9	2766.2	10.00	68.9	0.01
15.00	103.4	2714.7	14.99	103.4	0.03
20.00	137.9	2662.2	19.98	137.8	0.04
25.00	172.4	2608.2	25.01	172.4	-0.02
30.00	206.8	2553.6	30.00	206.8	0.01
35.00	241.3	2497.4	35.02	241.5	-0.04
40.00	275.8	2440.2	40.01	275.9	-0.03
45.00	310.3	2381.8	44.99	310.2	0.01
50.00	344.7	2321.8	49.99	344.7	0.03

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

A21

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119786

Cable Length: 35 m

Date of Calibration: August 10, 2011

Temperature: 24.5 °C

Barometric Pressure: 979.3 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8728	8730	8729	0.423	0.12	-0.054	-0.02
70.0	8070	8071	8071	70.05	0.01	70.11	0.03
140.0	7412	7413	7413	139.6	-0.11	140.0	-0.01
210.0	6750	6750	6750	209.7	-0.09	210.0	0.00
280.0	6086	6086	6086	279.9	-0.03	279.9	-0.02
350.0	5418	5418	5418	350.5	0.15	350.0	0.01

(kPa) Linear Gage Factor (G): 0.1057 **(kPa/ digit)** **Regression Zero:** 8733

Polynomial Gage factors: **A:** -3.08E-07 **B:** -0.1014 **C:**

Thermal Factor (K): -0.1136 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01534 **(psi/ digit)**

Polynomial Gage Factors: **A:** -4.467E-08 **B:** -0.01470 **C:**

Thermal Factor (K): -0.01648 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

B11

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119793

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8841	8842	8842	-0.058	-0.02	0.120	0.03
70.0	8239	8240	8240	69.82	-0.05	69.83	-0.05
140.0	7635	7636	7636	139.9	-0.02	139.9	-0.04
210.0	7029	7029	7029	210.3	0.10	210.3	0.07
280.0	6429	6429	6429	280.0	0.00	280.0	0.00
350.0	5828	5828	5828	349.8	-0.07	349.9	-0.02

(kPa) Linear Gage Factor (G): 0.1161 **(kPa/ digit)** **Regression Zero:** 8841

Polynomial Gage factors: **A:** 1.198E-07 **B:** -0.1178 **C:**

Thermal Factor (K): -0.1387 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01684 **(psi/ digit)**

Polynomial Gage Factors: **A:** 1.738E-08 **B:** -0.01709 **C:**

Thermal Factor (K): -0.02012 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

B12

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119791

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8858	8859	8859	-0.055	-0.02	0.020	0.01
70.0	8217	8218	8218	69.89	-0.03	69.94	-0.02
140.0	7575	7575	7575	140.0	0.00	140.0	0.01
210.0	6933	6934	6934	210.0	0.00	210.0	0.01
280.0	6293	6293	6293	279.9	-0.03	279.9	-0.02
350.0	5651	5651	5651	349.9	-0.02	350.0	0.01

(kPa) Linear Gage Factor (G): 0.1091 **(kPa/ digit)** **Regression Zero:** 8858

Polynomial Gage factors: **A:** 1.42E-08 **B:** -0.1093 **C:**

Thermal Factor (K): -0.1387 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01583 **(psi/ digit)**

Polynomial Gage Factors: **A:** 2.06E-09 **B:** -0.01586 **C:**

Thermal Factor (K): -0.02011 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)$***

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

B13

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119785

Cable Length: 35 m

Date of Calibration: August 10, 2011

Temperature: 24.5 °C

Barometric Pressure: 979.3 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8920	8919	8920	0.269	0.08	0.219	0.06
70.0	8276	8276	8276	69.51	-0.14	69.52	-0.14
140.0	7619	7620	7620	140.2	0.04	140.2	0.06
210.0	6970	6970	6970	210.0	0.01	210.1	0.02
280.0	6319	6320	6320	280.0	0.01	280.0	0.01
350.0	5669	5670	5670	350.0	-0.01	349.9	-0.02

(kPa) Linear Gage Factor (G): 0.1076 **(kPa/ digit)** **Regression Zero:** 8922

Polynomial Gage factors: **A:** -3.776E-08 **B:** -0.1071 **C:**

Thermal Factor (K): -0.1189 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01561 **(psi/ digit)**

Polynomial Gage Factors: **A:** -5.477E-09 **B:** -0.01553 **C:**

Thermal Factor (K): -0.01724 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)$***

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

C11

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119798

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician: KRyan

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8773	8774	8774	0.186	0.05	0.018	0.01
70.0	8210	8211	8211	69.90	-0.03	69.91	-0.03
140.0	7643	7645	7644	140.0	0.01	140.1	0.04
210.0	7080	7081	7081	209.8	-0.05	209.9	-0.02
280.0	6514	6514	6514	280.0	-0.01	280.0	0.00
350.0	5947	5947	5947	350.2	0.05	350.0	0.00

(kPa) Linear Gage Factor (G): 0.1238 **(kPa/ digit)** **Regression Zero:** 8775

Polynomial Gage factors: **A:** -1.383E-07 **B:** -0.1218 **C:**

Thermal Factor (K): -0.08229 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01796 **(psi/ digit)**

Polynomial Gage Factors: **A:** -2.006E-08 **B:** -0.01766 **C:**

Thermal Factor (K): -0.01194 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA C12

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa
Date of Calibration: August 10, 2011
Serial Number: 1119795
Temperature: 23.6 °C
Cable Length: 30 m
Barometric Pressure: 980.7 mbar
Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8816	8817	8817	-0.489	-0.14	-0.122	-0.03
70.0	8165	8166	8166	70.25	0.07	70.15	0.04
140.0	7519	7519	7519	140.5	0.14	140.2	0.05
210.0	6877	6878	6878	210.2	0.06	209.9	-0.04
280.0	6236	6236	6236	279.9	-0.03	279.8	-0.06
350.0	5593	5593	5593	349.8	-0.07	350.1	0.04

(kPa) Linear Gage Factor (G): 0.1087 **(kPa/ digit)** **Regression Zero:** 8812

Polynomial Gage factors: **A:** 2.805E-07 **B:** -0.1127 **C:**

Thermal Factor (K): -0.1280 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01576 **(psi/ digit)**

Polynomial Gage Factors: **A:** 4.068E-08 **B:** -0.01635 **C:**

Thermal Factor (K): -0.01856 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

D6

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119790

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8937	8937	8937	0.099	0.03	0.094	0.03
70.0	8230	8231	8231	69.80	-0.06	69.81	-0.05
140.0	7518	7520	7519	140.0	0.00	140.0	0.00
210.0	6807	6808	6808	210.2	0.05	210.2	0.06
280.0	6101	6101	6101	279.9	-0.04	279.9	-0.03
350.0	5390	5390	5390	350.0	0.00	350.0	0.00

(kPa) Linear Gage Factor (G): 0.09865 **(kPa/ digit)** **Regression Zero:** 8938

Polynomial Gage factors: **A:** -8.689E-09 **B:** -0.09853 **C:**

Thermal Factor (K): -0.1248 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01431 **(psi/ digit)**

Polynomial Gage Factors: **A:** -1.26E-09 **B:** -0.01429 **C:**

Thermal Factor (K): -0.01810 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

D7

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119802

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8699	8700	8700	0.054	0.02	-0.030	-0.01
70.0	8049	8050	8050	70.16	0.04	70.15	0.04
140.0	7404	7405	7405	139.7	-0.08	139.7	-0.07
210.0	6751	6752	6752	210.1	0.04	210.2	0.05
280.0	6104	6104	6104	280.0	-0.01	280.0	-0.01
350.0	5454	5454	5454	350.1	0.02	350.0	0.00

(kPa) Linear Gage Factor (G): 0.1078 **(kPa/ digit)** **Regression Zero:** 8700

Polynomial Gage factors: **A:** -4.562E-08 **B:** -0.1072 **C:**

Thermal Factor (K): -0.08917 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01564 **(psi/ digit)**

Polynomial Gage Factors: **A:** -6.617E-09 **B:** -0.01555 **C:**

Thermal Factor (K): -0.01293 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA E6

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa
Date of Calibration: August 10, 2011
Serial Number: 1119794
Temperature: 23.6 °C
Cable Length: 30 m
Barometric Pressure: 980.7 mbar
Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8680	8681	8681	0.051	0.01	-0.005	0.00
70.0	7998	7998	7998	70.05	0.02	70.02	0.00
140.0	7316	7316	7316	140.0	0.00	140.0	-0.01
210.0	6633	6633	6633	210.1	0.02	210.0	0.01
280.0	5951	5951	5951	280.0	0.00	280.0	-0.01
350.0	5268	5268	5268	350.1	0.02	350.0	0.00

(kPa) Linear Gage Factor (G): 0.1026 (kPa/ digit) **Regression Zero:** 8681

Polynomial Gage factors: A: -9.833E-09 B: -0.1024 C:

Thermal Factor (K): -0.1238 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01488 (psi/ digit)

Polynomial Gage Factors: A: -1.426E-09 B: -0.01486 C:

Thermal Factor (K): -0.01796 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear,** $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

E 7

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119801

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8968	8969	8969	0.053	0.02	0.023	0.01
70.0	8312	8313	8313	70.08	0.02	70.08	0.02
140.0	7660	7661	7661	139.7	-0.09	139.7	-0.08
210.0	7000	7001	7001	210.1	0.04	210.2	0.05
280.0	6345	6345	6345	280.1	0.03	280.1	0.03
350.0	5691	5691	5691	349.9	-0.02	349.9	-0.03

(kPa) Linear Gage Factor (G): 0.1068 **(kPa/ digit)** **Regression Zero:** 8969

Polynomial Gage factors: **A:** -1.773E-08 **B:** -0.1065 **C:**

Thermal Factor (K): -0.1169 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01548 **(psi/ digit)**

Polynomial Gage Factors: **A:** -2.572E-09 **B:** -0.01545 **C:**

Thermal Factor (K): -0.01695 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

F5

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119797

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8848	8850	8849	0.358	0.10	0.115	0.03
70.0	8267	8268	8268	69.74	-0.07	69.86	-0.04
140.0	7682	7683	7683	139.5	-0.13	139.8	-0.05
210.0	7093	7093	7093	209.9	-0.03	210.2	0.05
280.0	6505	6506	6506	280.0	0.00	280.1	0.03
350.0	5917	5918	5918	350.1	0.04	349.9	-0.03

(kPa) Linear Gage Factor (G): 0.1193 **(kPa/ digit)** **Regression Zero:** 8852

Polynomial Gage factors: **A:** -2.631E-07 **B:** -0.1154 **C:**

Thermal Factor (K): -0.08899 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01731 **(psi/ digit)**

Polynomial Gage Factors: **A:** -3.816E-08 **B:** -0.01674 **C:**

Thermal Factor (K): -0.01291 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear,** $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

G4

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119789

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8892	8893	8893	-0.151	-0.04	0.016	0.00
70.0	8193	8193	8193	70.06	0.02	70.01	0.00
140.0	7495	7496	7496	140.1	0.02	139.9	-0.02
210.0	6797	6797	6797	210.2	0.05	210.0	0.01
280.0	6100	6100	6100	280.1	0.04	280.1	0.02
350.0	5406	5406	5406	349.8	-0.06	350.0	-0.01

(kPa) Linear Gage Factor (G): 0.1004 **(kPa/ digit)** **Regression Zero:** 8891

Polynomial Gage factors: **A:** 1.087E-07 **B:** -0.1019 **C:**

Thermal Factor (K): -0.1511 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01456 **(psi/ digit)**

Polynomial Gage Factors: **A:** 1.576E-08 **B:** -0.01478 **C:**

Thermal Factor (K): -0.02192 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA G5

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa
Date of Calibration: August 10, 2011
Serial Number: 1119787
Temperature: 23.6 °C
Cable Length: 30 m
Barometric Pressure: 980.7 mbar
Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8980	8981	8981	0.267	0.08	-0.015	0.00
70.0	8327	8328	8328	69.96	-0.01	70.00	0.00
140.0	7672	7673	7673	139.9	-0.04	140.1	0.02
210.0	7018	7018	7018	209.7	-0.08	209.9	-0.02
280.0	6360	6360	6360	280.0	-0.01	280.0	0.00
350.0	5701	5701	5701	350.3	0.08	350.0	0.00

(kPa) Linear Gage Factor (G): 0.1067 **(kPa/ digit)** **Regression Zero:** 8983

Polynomial Gage factors: **A:** -1.861E-07 **B:** -0.1040 **C:**

Thermal Factor (K): -0.1342 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01548 **(psi/ digit)**

Polynomial Gage Factors: **A:** -2.699E-08 **B:** -0.01508 **C:**

Thermal Factor (K): -0.01946 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear,** $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

I 5

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119796

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8830	8831	8831	0.054	0.02	-0.043	-0.01
70.0	8187	8187	8187	70.01	0.00	70.07	0.02
140.0	7544	7545	7545	139.8	-0.04	140.0	0.00
210.0	6901	6900	6901	209.9	-0.04	210.0	0.00
280.0	6256	6257	6257	279.9	-0.04	279.9	-0.02
350.0	5610	5610	5610	350.1	0.04	350.0	0.01

(kPa) Linear Gage Factor (G): 0.1087 **(kPa/ digit)** **Regression Zero:** 8831

Polynomial Gage factors: **A:** -9.831E-08 **B:** -0.1073 **C:**

Thermal Factor (K): -0.1400 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01577 **(psi/ digit)**

Polynomial Gage Factors: **A:** -1.426E-08 **B:** -0.01556 **C:**

Thermal Factor (K): -0.02030 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear,** $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

I6

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119792

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8919	8919	8919	0.207	0.06	-0.022	-0.01
70.0	8245	8247	8246	70.00	0.00	69.99	0.00
140.0	7571	7571	7571	140.0	0.00	140.1	0.03
210.0	6897	6897	6897	209.9	-0.03	210.0	0.00
280.0	6222	6222	6222	279.9	-0.03	279.9	-0.03
350.0	5543	5543	5543	350.3	0.08	350.1	0.02

(kPa) Linear Gage Factor (G): 0.1037 **(kPa/ digit)** **Regression Zero:** 8921

Polynomial Gage factors: **A:** -1.22E-07 **B:** -0.1019 **C:**

Thermal Factor (K): -0.08441 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01504 **(psi/ digit)**

Polynomial Gage Factors: **A:** -1.769E-08 **B:** -0.01478 **C:**

Thermal Factor (K): -0.01224 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

J1

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119800

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8754	8755	8755	0.055	0.02	-0.013	0.00
70.0	8118	8119	8119	70.06	0.02	70.12	0.03
140.0	7486	7487	7487	139.6	-0.11	139.8	-0.07
210.0	6847	6847	6847	210.0	0.01	210.1	0.04
280.0	6211	6212	6212	280.0	-0.01	280.0	0.01
350.0	5575	5575	5575	350.0	0.01	350.0	-0.01

(kPa) Linear Gage Factor (G): 0.1101 (kPa/ digit) **Regression Zero: 8755**

Polynomial Gage factors: **A: -8.012E-08** **B: -0.1089** **C:**

Thermal Factor (K): -0.1086 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01596 (psi/ digit)

Polynomial Gage Factors: **A: -1.162E-08** **B: -0.01580** **C:**

Thermal Factor (K): -0.01575 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

K1

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119788

Cable Length: 30 m

Date of Calibration: August 10, 2011

Temperature: 23.6 °C

Barometric Pressure: 980.7 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8937	8937	8937	0.308	0.09	-0.014	0.00
70.0	8259	8260	8260	69.93	-0.02	70.02	0.01
140.0	7580	7581	7581	139.7	-0.08	140.0	0.00
210.0	6899	6900	6900	209.7	-0.09	210.0	0.00
280.0	6217	6216	6217	279.9	-0.03	280.0	-0.01
350.0	5531	5531	5531	350.3	0.10	350.0	0.00

(kPa) Linear Gage Factor (G): 0.1028 **(kPa/ digit)** **Regression Zero:** 8940

Polynomial Gage factors: **A:** -2.215E-07 **B:** -0.09956 **C:**

Thermal Factor (K): -0.1017 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01491 **(psi/ digit)**

Polynomial Gage Factors: **A:** -3.213E-08 **B:** -0.01444 **C:**

Thermal Factor (K): -0.01475 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

K2

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119784

Cable Length: 35 m

Date of Calibration: August 10, 2011

Temperature: 24.5 °C

Barometric Pressure: 979.3 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8908	8909	8909	0.277	0.08	0.023	0.01
70.0	8280	8281	8281	69.97	-0.01	70.03	0.01
140.0	7653	7653	7653	139.6	-0.11	139.8	-0.05
210.0	7019	7019	7019	210.0	-0.01	210.2	0.05
280.0	6388	6389	6389	279.9	-0.02	280.0	0.00
350.0	5755	5755	5755	350.2	0.07	350.0	-0.01

(kPa) Linear Gage Factor (G): 0.1110 **(kPa/ digit)** **Regression Zero:** 8911

Polynomial Gage factors: **A:** -1.967E-07 **B:** -0.1081 **C:**

Thermal Factor (K): -0.1137 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01610 **(psi/ digit)**

Polynomial Gage Factors: **A:** -2.853E-08 **B:** -0.01568 **C:**

Thermal Factor (K): -0.01649 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON 48 Spencer St. Lebanon, NH 03766 USA

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Serial Number: 1119783

Cable Length: 35 m

Date of Calibration: August 10, 2011

Temperature: 24.5 °C

Barometric Pressure: 979.3 mbar

Technician:

Applied Pressure (kPa)	Gage Reading 1st Cycle	Gage Reading 2nd Cycle	Average Gage Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8993	8994	8994	0.161	0.05	-0.025	-0.01
70.0	8342	8342	8342	70.04	0.01	70.04	0.01
140.0	7690	7691	7691	139.9	-0.02	140.0	0.00
210.0	7038	7038	7038	209.9	-0.02	210.0	0.00
280.0	6385	6385	6385	280.0	-0.01	280.0	-0.01
350.0	5730	5730	5730	350.2	0.06	350.0	0.01

(kPa) Linear Gage Factor (G): 0.1073 **(kPa/ digit)** **Regression Zero:** 8995

Polynomial Gage factors: **A:** -1.057E-07 **B:** -0.1057 **C:**

Thermal Factor (K): -0.1093 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gage Factor (G): 0.01556 **(psi/ digit)**

Polynomial Gage Factors: **A:** -1.533E-08 **B:** -0.01533 **C:**

Thermal Factor (K): -0.01585 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_0 - R_1) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

APPENDIX E

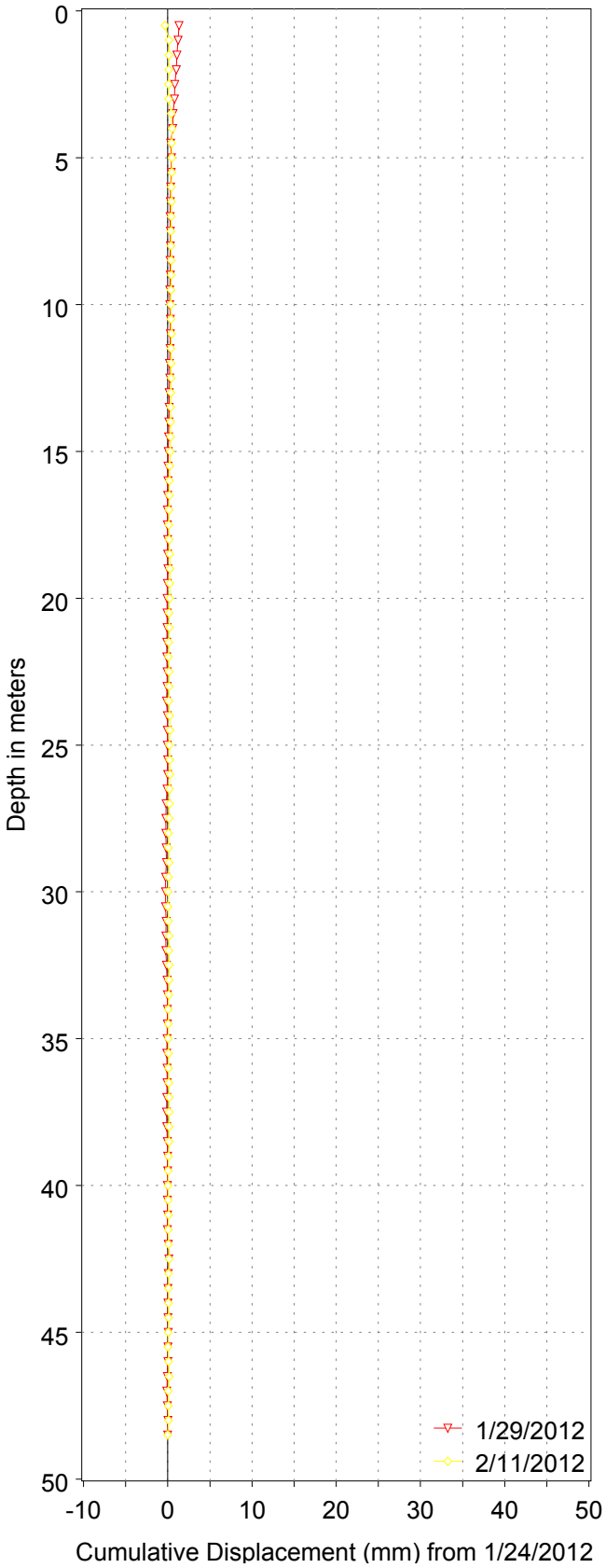
Instrumentation Readings

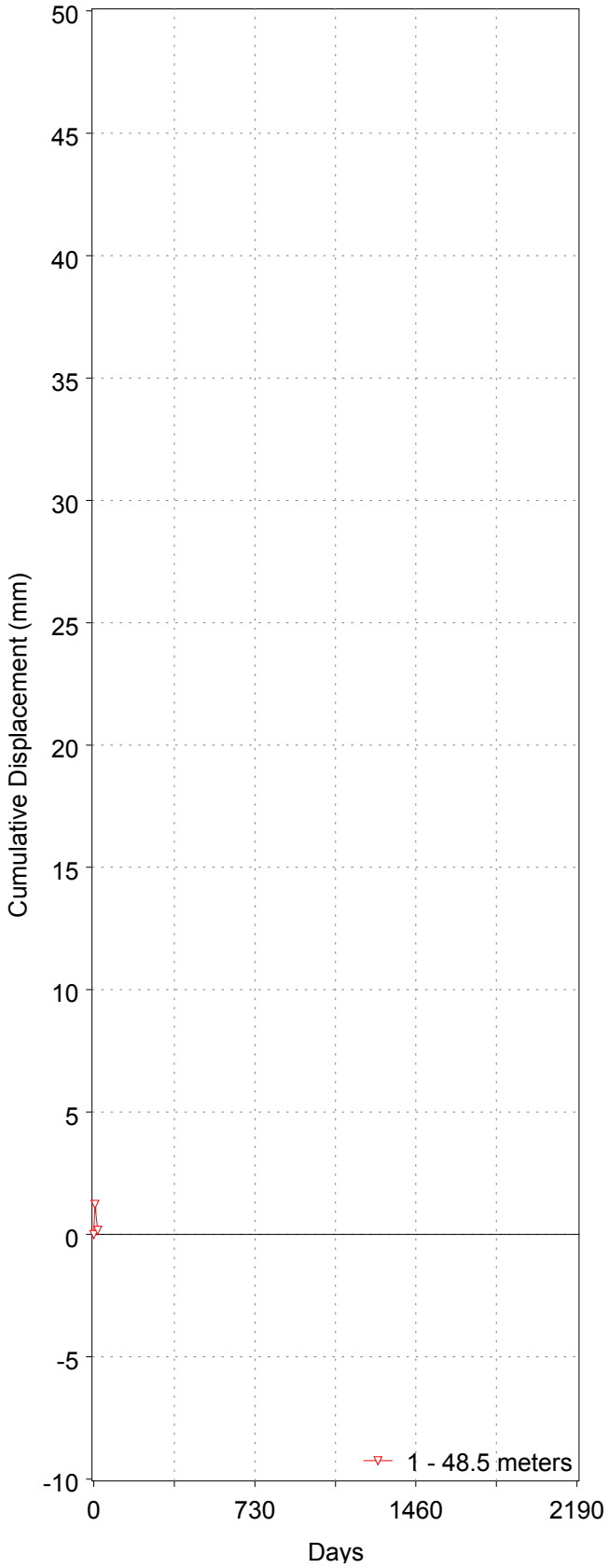
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-01 A-Axis



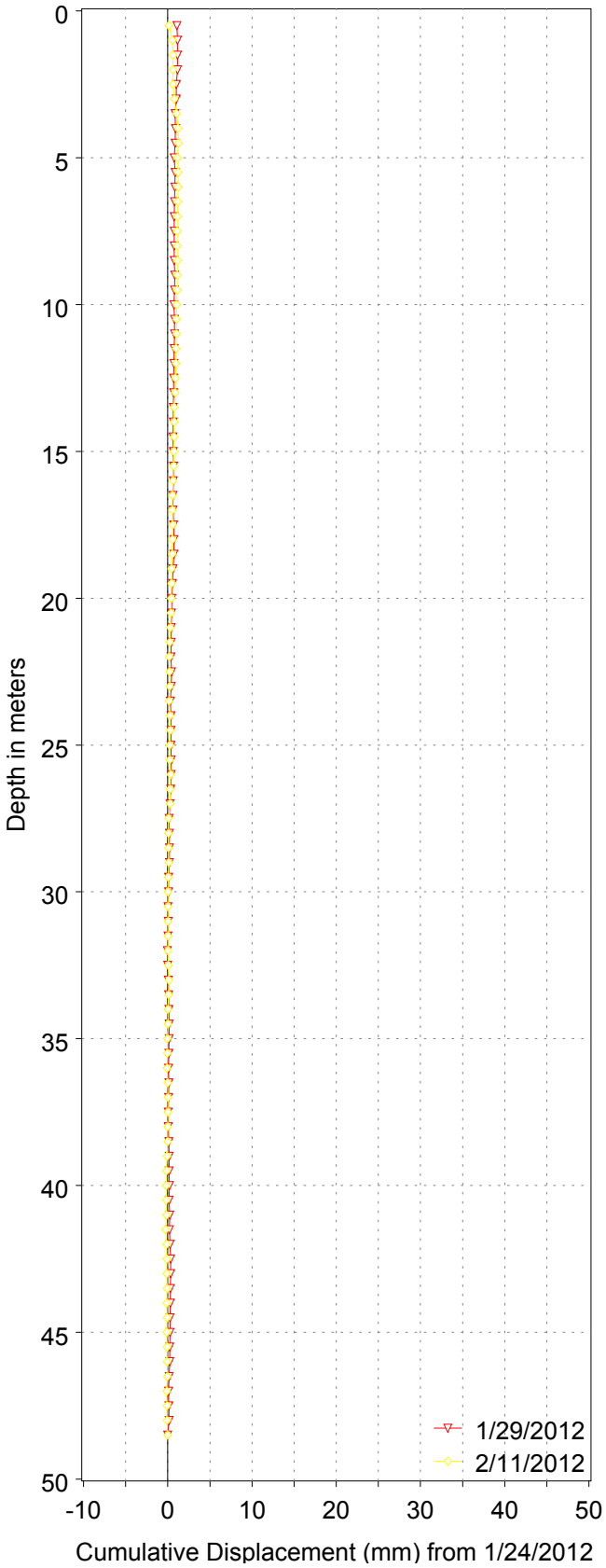


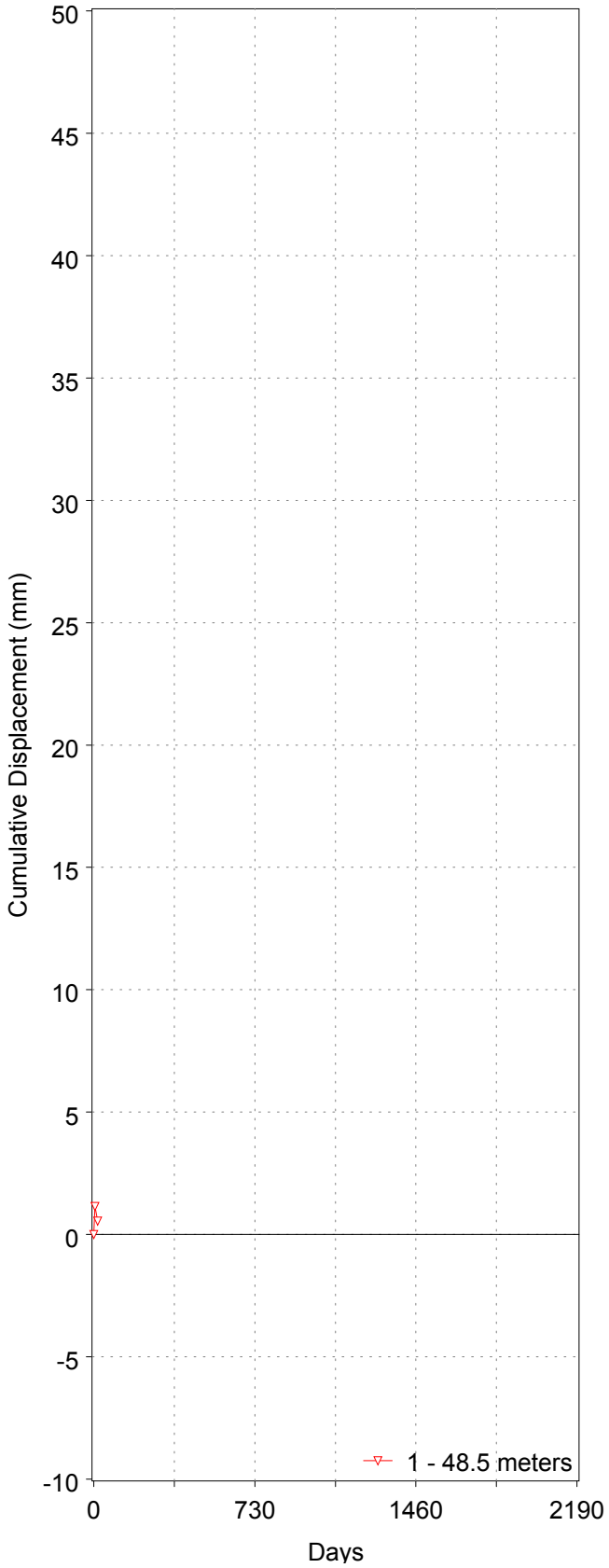
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-01 AB-Axis



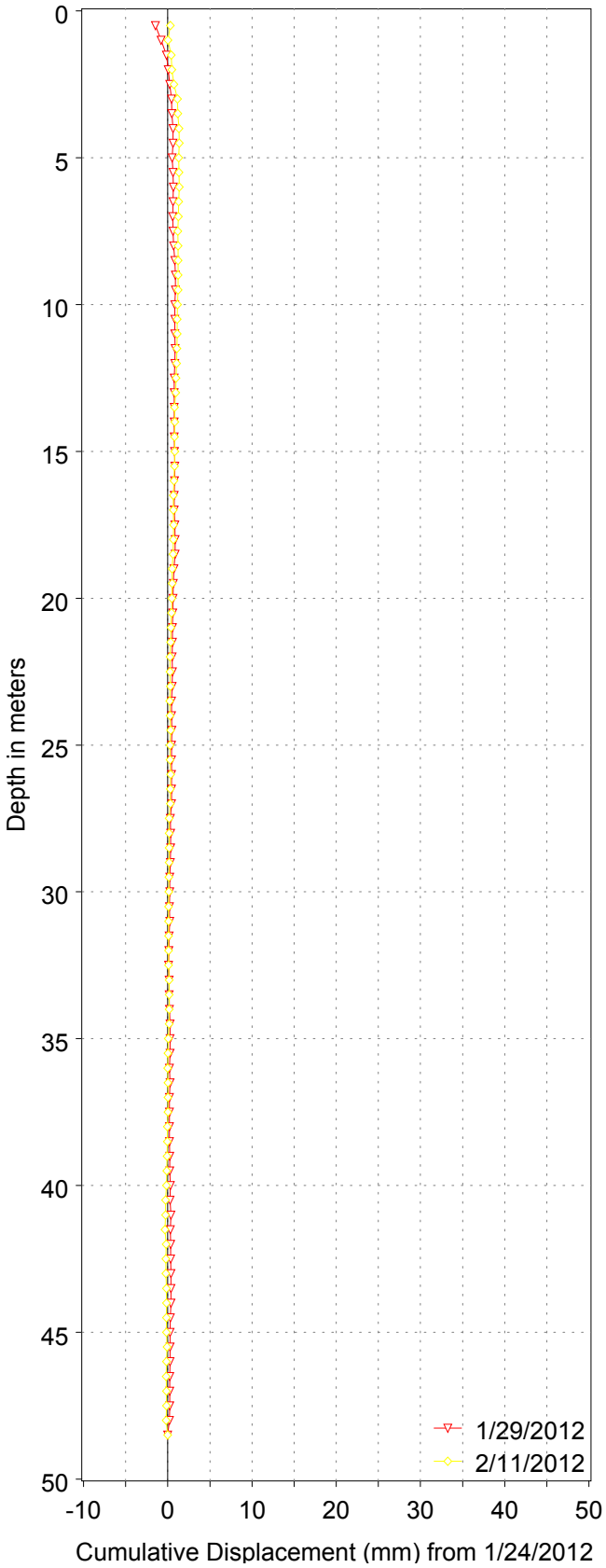


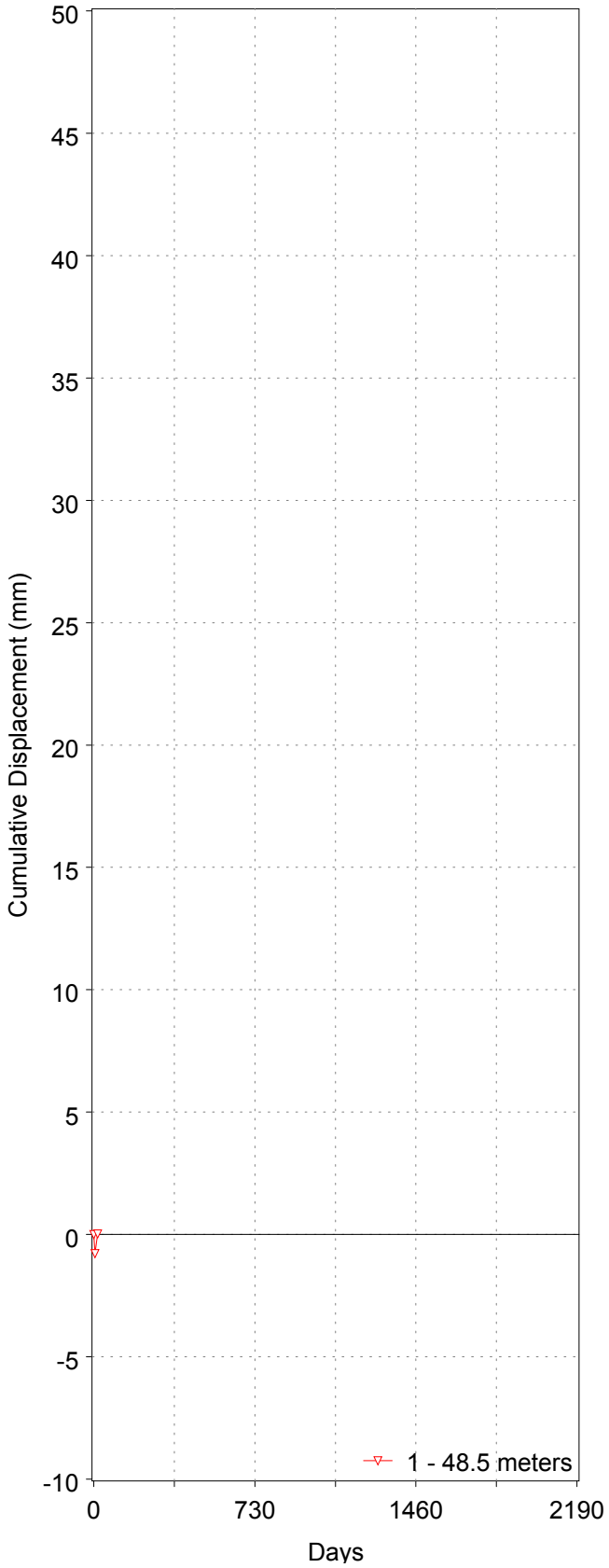
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-01 B-Axis



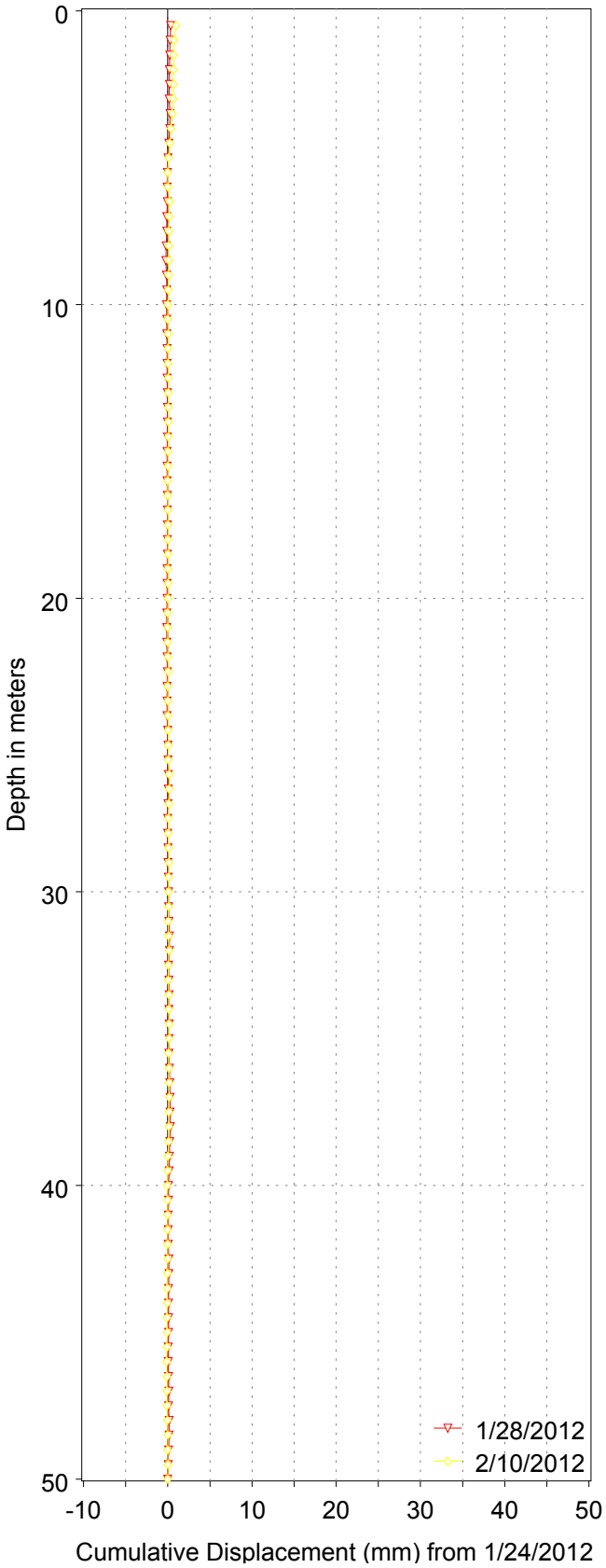


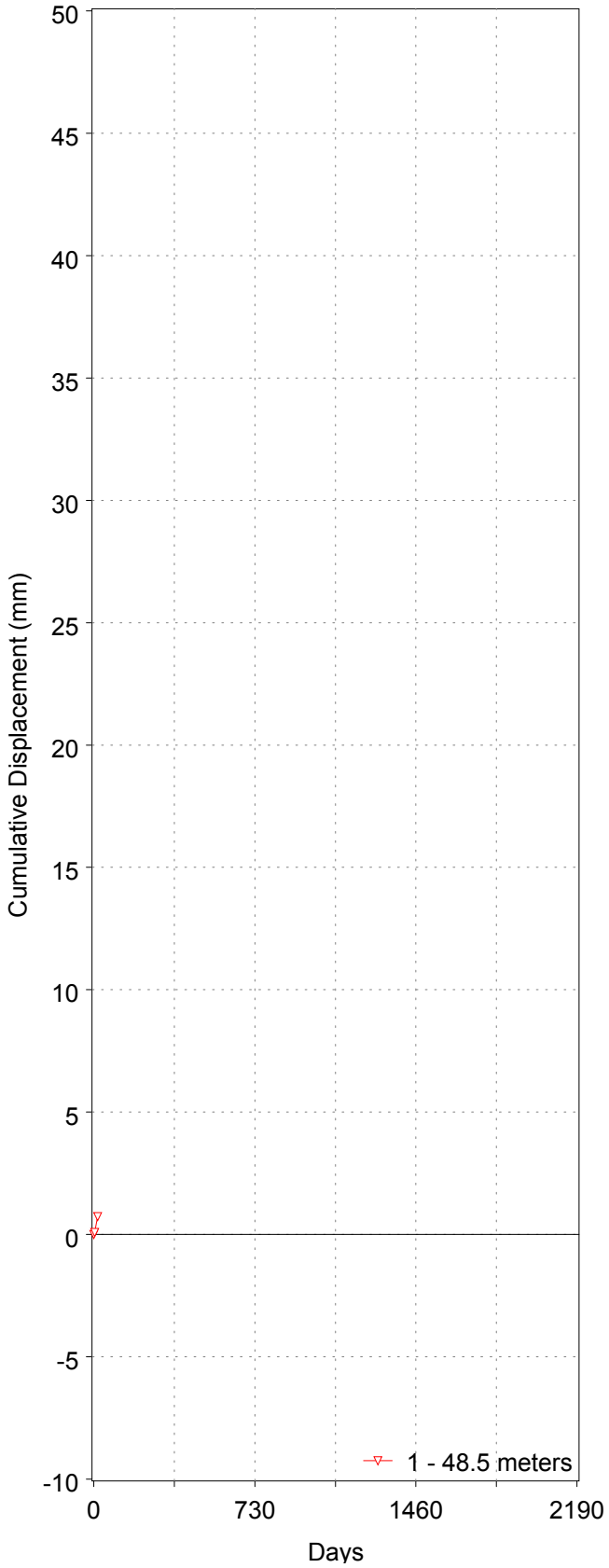
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-02 A-Axis



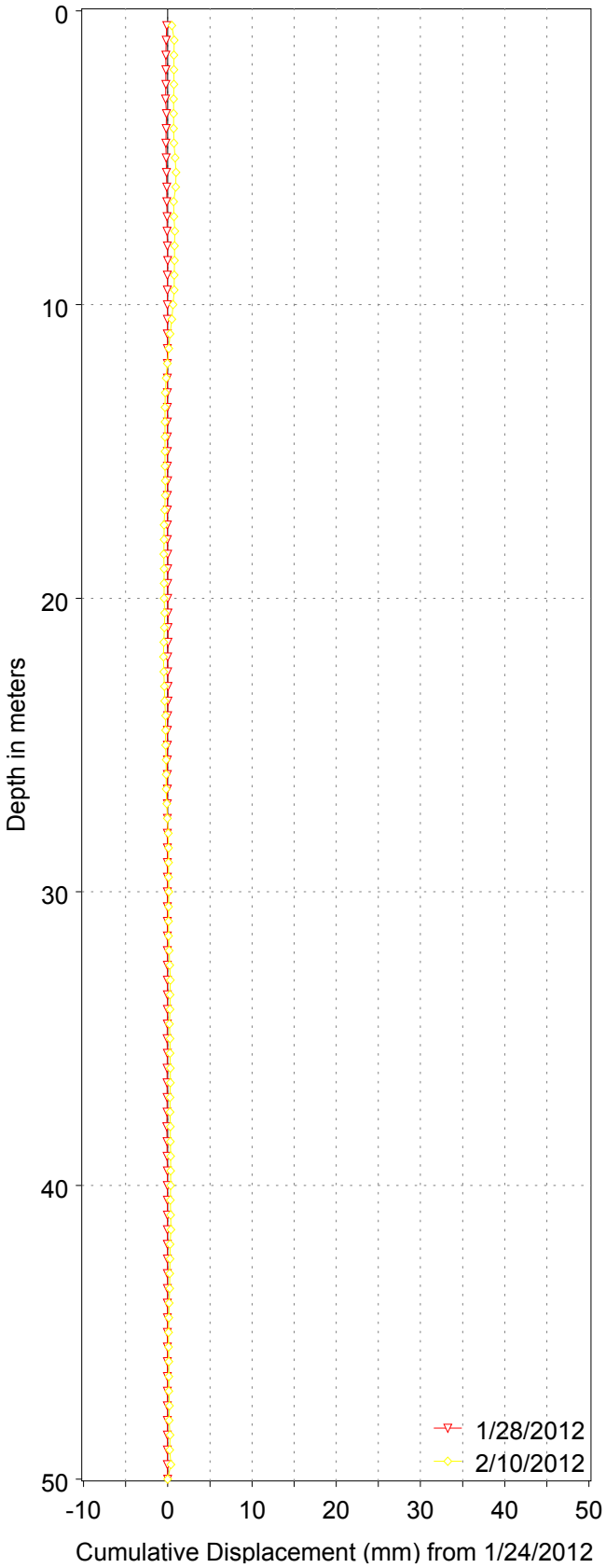


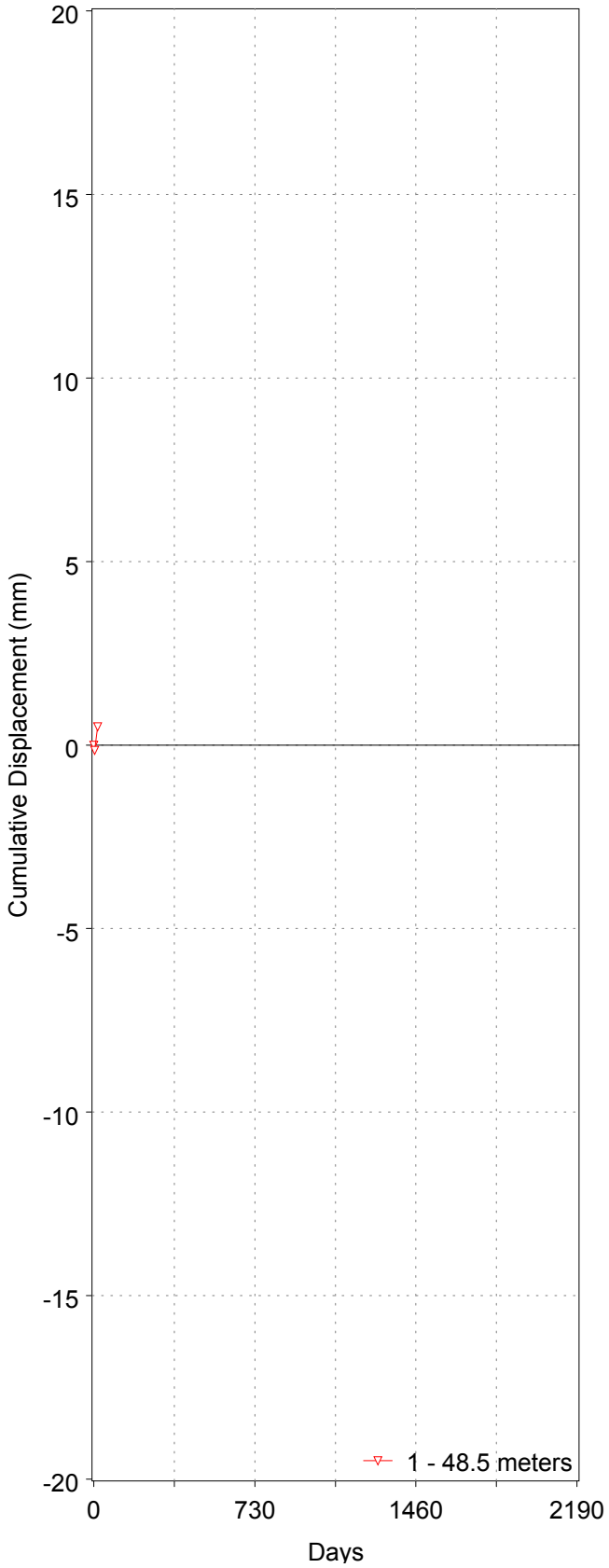
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-02 AB-Axis



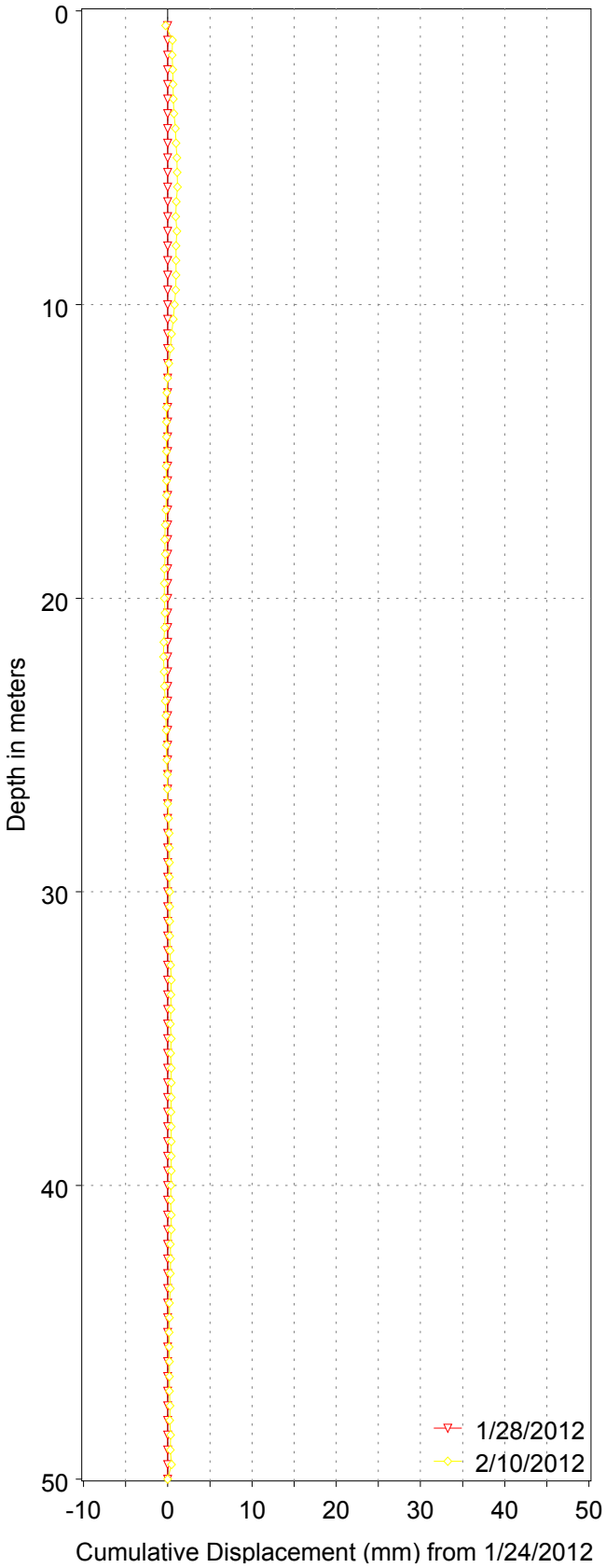


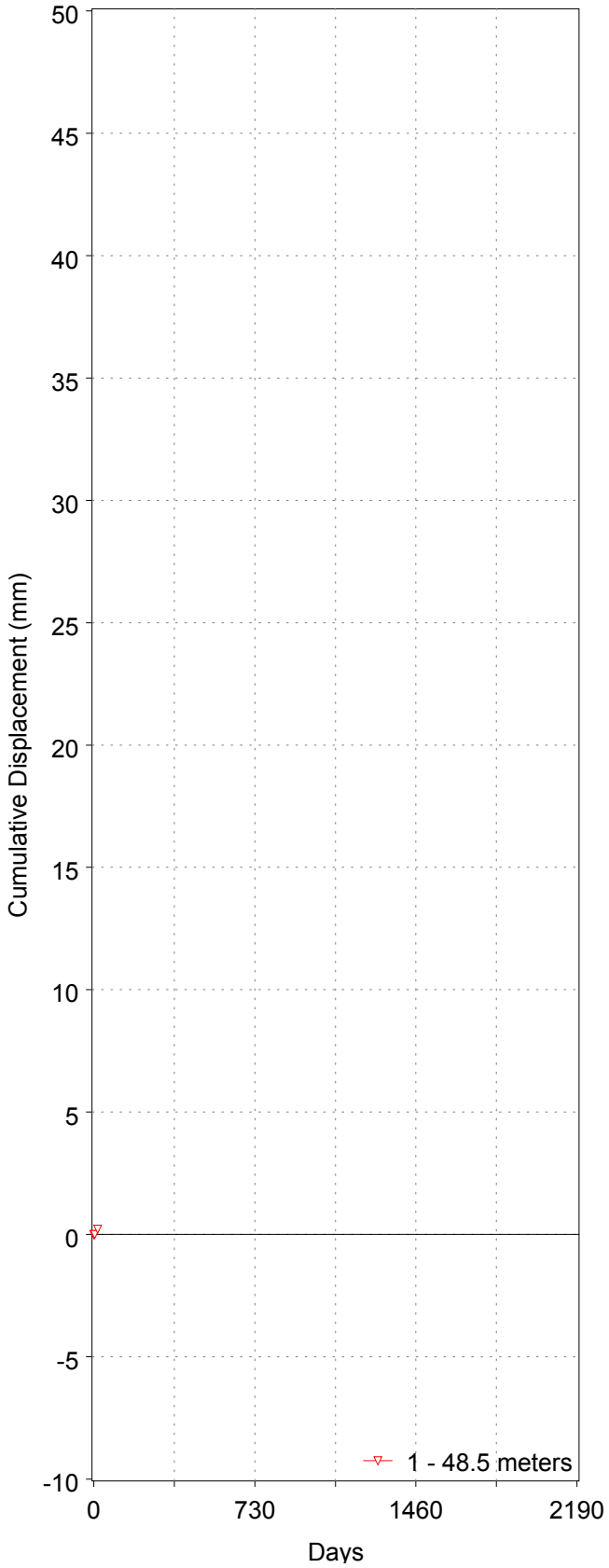
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-02 B-Axis



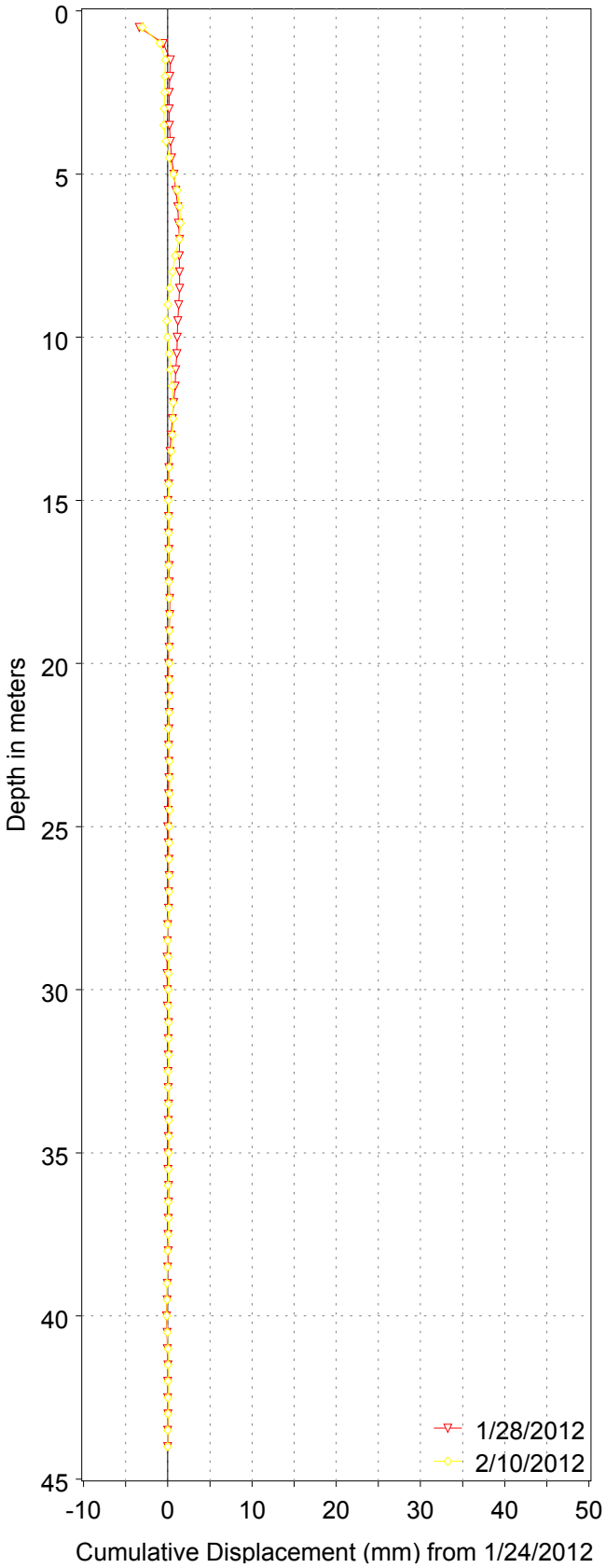


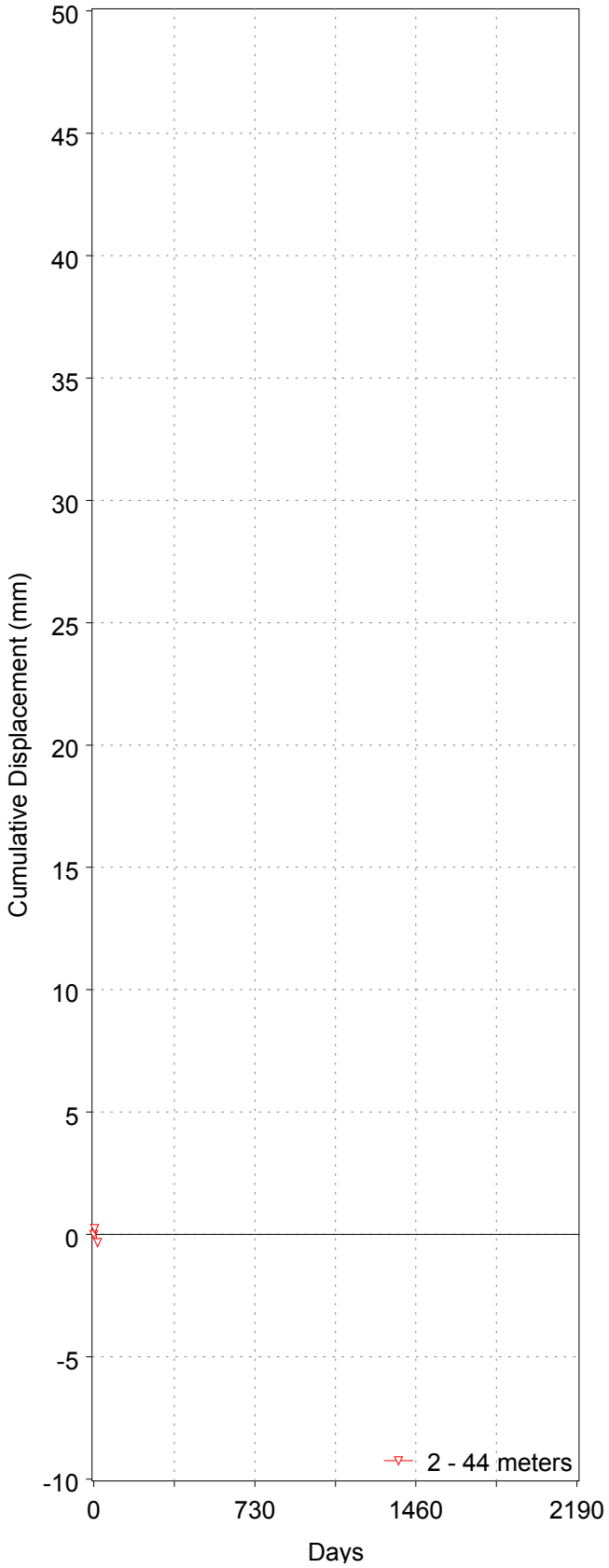
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-04 A-Axis



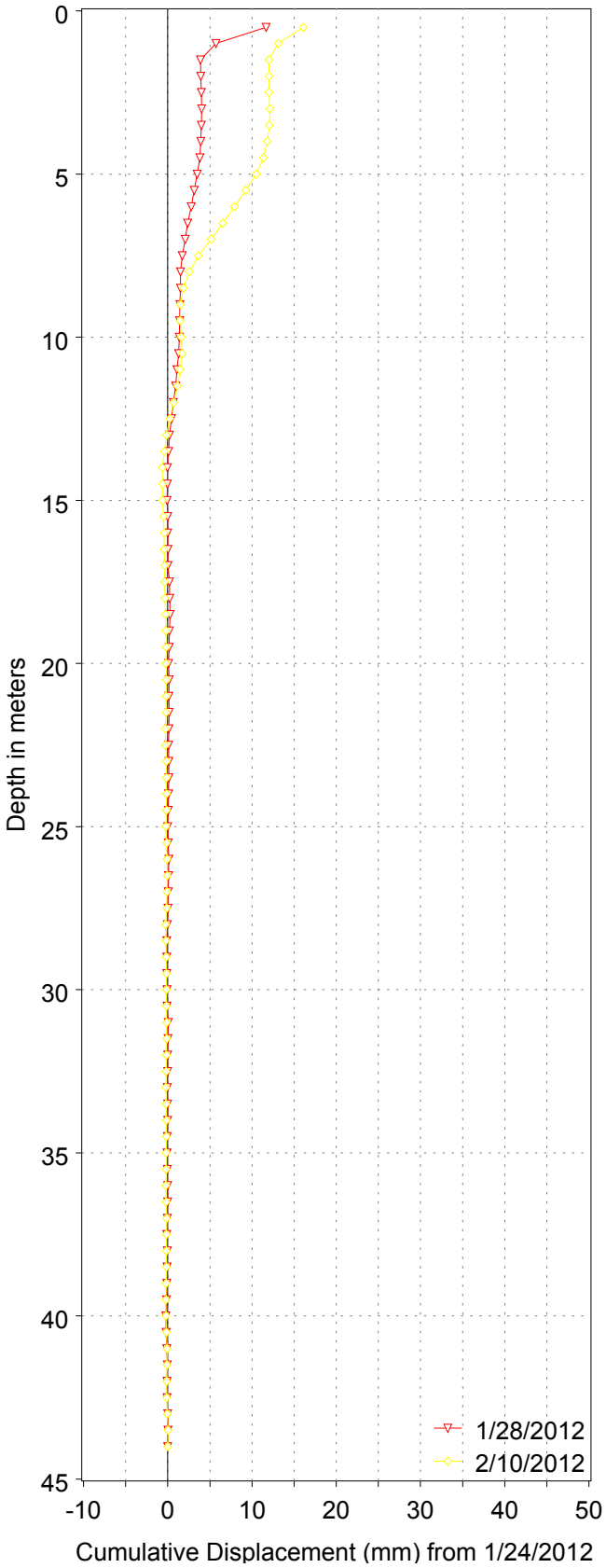


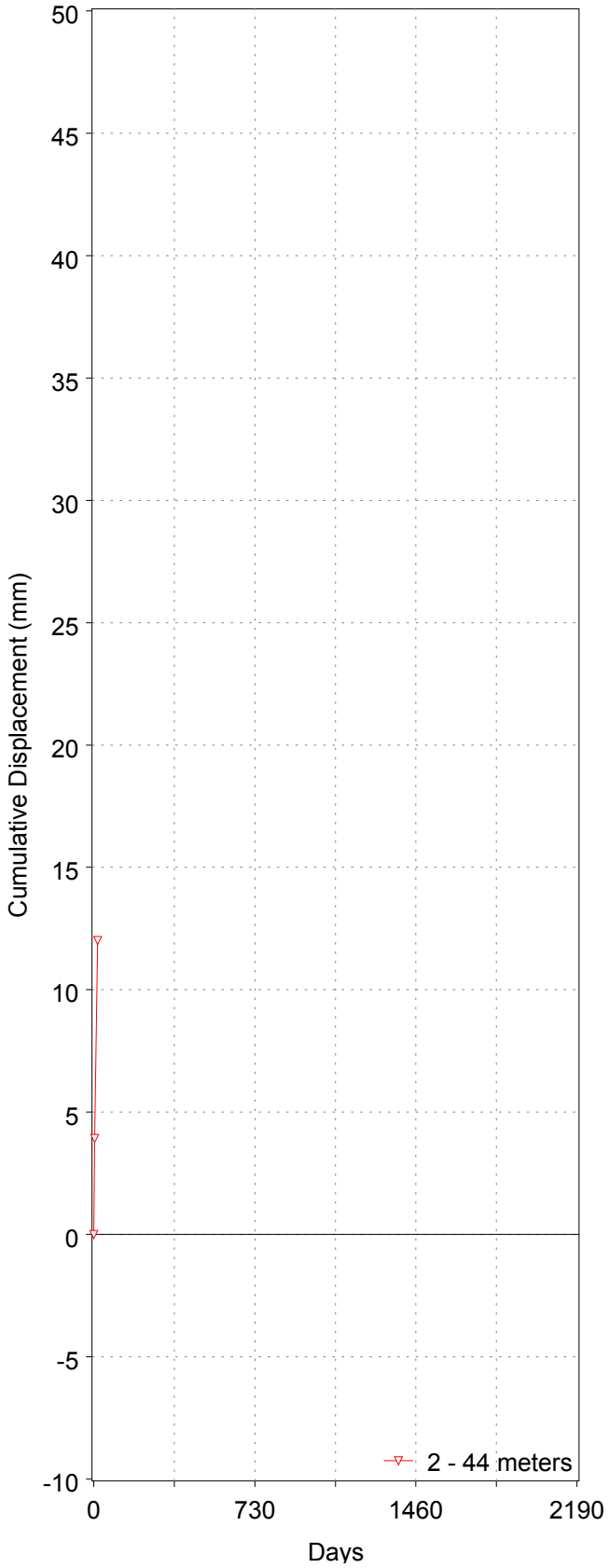
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-04 AB-Axis



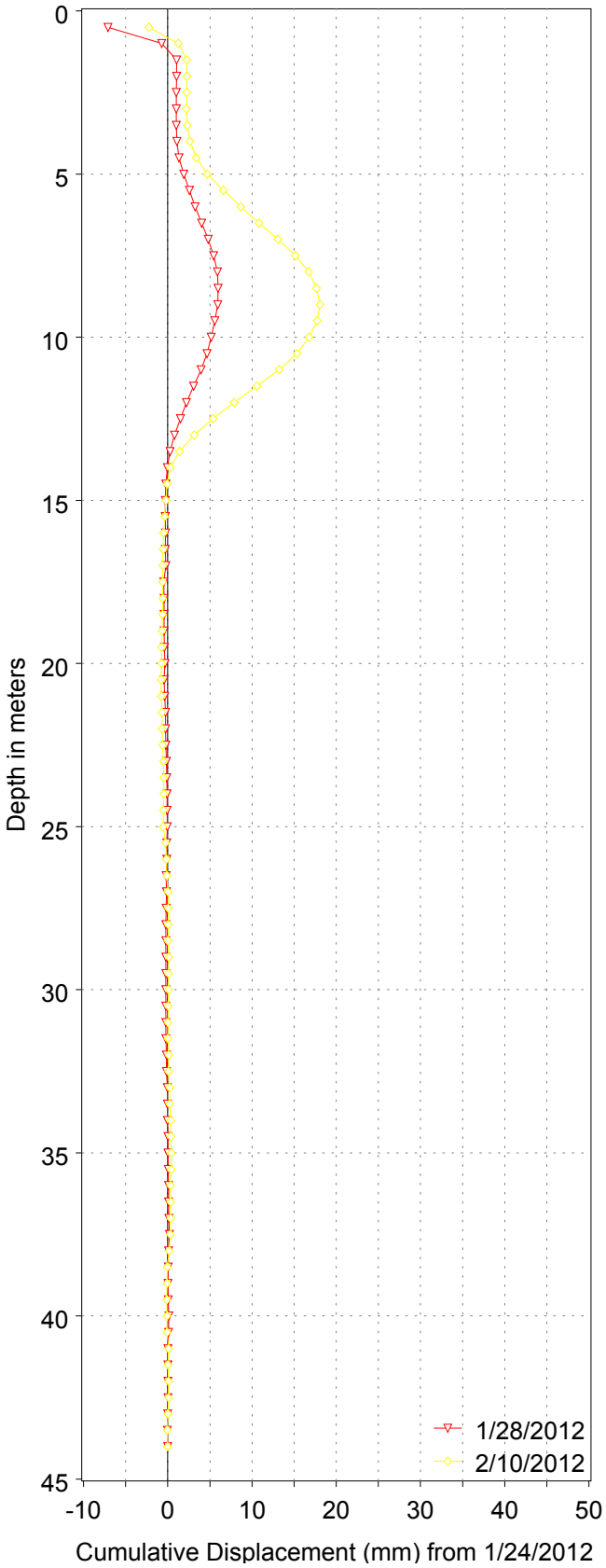


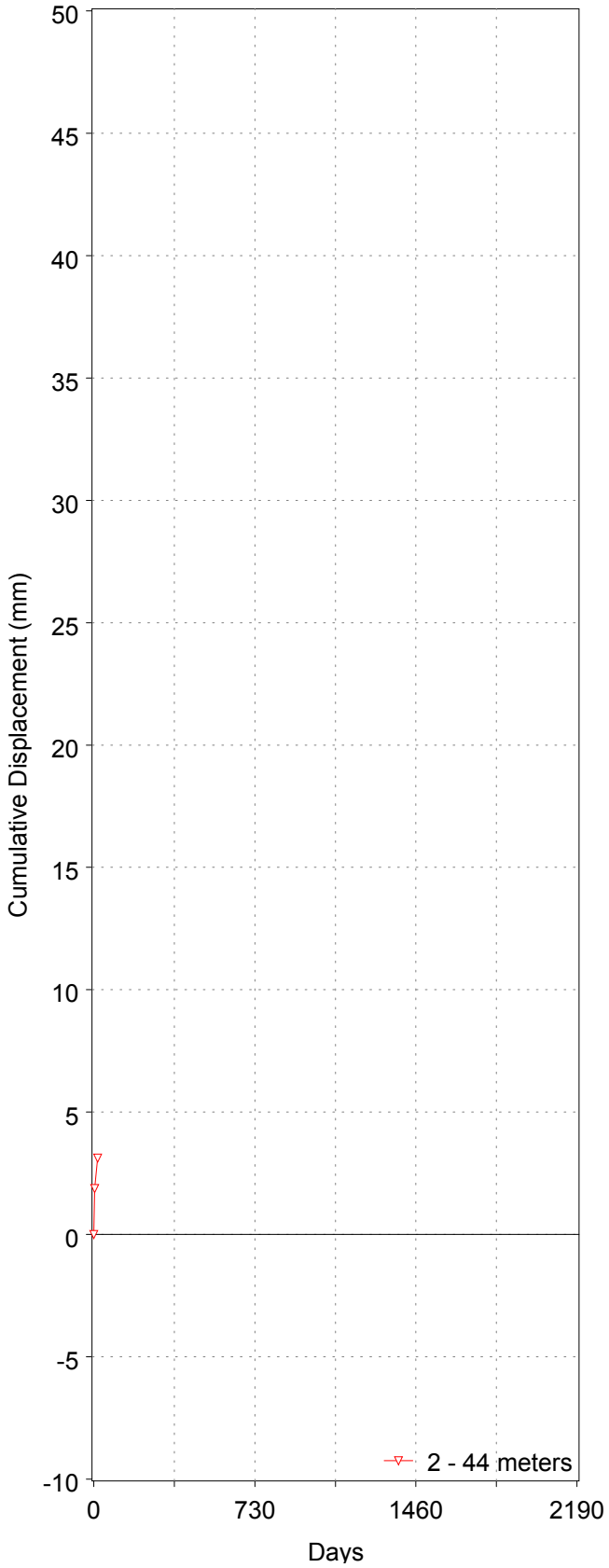
VM00560

Mt. Polley

Cumulative & Time Displacement

SI11-04 B-Axis





APPENDIX F

Monitoring Well Drill Hole Logs

CLIENT: Mount Polley Mining Corporation	PROJECT: Monitoring Well Installations	BOREHOLE NO: **GW11-1A**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Sonic	NORTHING: 5823845 EASTING: 590766	ELEVATION: 1030.00 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0		SILT and GRAVEL, some sand, brown to light brown, moist, trace rootlets, trace organics.				Estimated Ground Elevation	
1						Well Details: Well casing in concrete at surface with locking j-plug.	1029
2		SILT, sandy, some gravel, trace clay, compact, brown to grey, trace cobbles. [Till]				0-0.3m, Sand 0.3-0.6m, Slough 0.6-11.7m, Bentonite 11.7-15.4m, Sand 12.4-15.4m, Slotted PVC pipe 15.4-15.9m, Sand	1028
3							1027
4							1026
5							1025
6							1024
7							1023
8							1022
9		CLAY, silty, trace coarse sand, trace gravel, firm, grey, mottled. [Glaciolacustrine]					1021
10		WEATHERED BEDROCK, grey to greenish grey, oxidized zones, trace white calcite infilling.					1020
11							1019
12							1018
13							1017
14							1016
15							1015
16		END of BOREHOLE at 15.9m					1014
17							1013
18							1012
19							1011
20							

amec
AMEC Environment & Infrastructure
3456 Opie Crescent
Prince George, BC V2N 2P9
Tel: (250) 564-3243

LOGGED BY: LW
ENTERED BY: LW
COMPLETION DEPTH: 15.9 m
COMPLETION DATE: 10/11/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Monitoring Well Installations	BOREHOLE NO: **GW11-1B**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Sonic	NORTHING: 5823845 EASTING: 590766	ELEVATION: 1030.00 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0		SILT and GRAVEL, some sand, brown to light brown, moist, trace rootlets, trace organics.				Estimated Ground Elevation	
1						Well Details: Well casing in concrete at surface with locking j-plug.	1029
2		SILT, some fine sand, some gravel, trace clay, compact, brown to grey, trace cobbles. [Till]				0-0.3m, Sand 0.3-4.6m, Bentonite 4.6-8.1m, Sand 5.1-8.1m, Slotted PVC pipe 8.1-8.2m, Sand	1028
3							1027
4							1026
5							1025
6							1024
7							1023
8		END of BOREHOLE at 8.2m					1022
9							1021
10							1020
11							1019
12							1018
13							1017
14							1016
15							1015
16							1014
17							1013
18							1012
19							1011
20							

AMEC Environment & Infrastructure
3456 Opie Crescent
Prince George, BC V2N 2P9
Tel: (250) 564-3243

LOGGED BY: LW	COMPLETION DEPTH: 8.2 m
ENTERED BY: LW	COMPLETION DATE: 10/11/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Monitoring Well Installations	BOREHOLE NO: **GW11-2A**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Sonic	NORTHING: 5821020 EASTING: 594910	ELEVATION: 938.00 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0		SILT, clayey, trace coarse sand, trace fine gravel, low plasticity, brown, trace rootlets.				Estimated Ground Elevation	
1						Well Details: Well casing in concrete at surface with locking j-plug.	937
2						0-0.3m, Sand 0.3-0.6m, Bentonite 0.6-23.8m, Grout 23.8-25.3m, Bentonite 25.3-29.3m, Sand 26.2-29.3m, Slotted PVC pipe 29.3-29.5m, Sand	936
3							935
4		SILT, trace clay, trace fine sand, trace gravel, grey, moist, trace cobbles. [Till]					934
5							933
6		- at 5.5m, silty sand, moist to wet - at 6.1m, saturated					932
7		- at 7.3m, 50mm thick coarse sand zone					931
8		SILT, sandy, trace clay, trace gravel, grey, moist to wet, trace cobbles.					930
9							929
10							928
11							927
12							926
13		- at 13.4m, coarse sand, fine gravel, dark grey, wet					925
14		SILT, trace fine sand, black, saturated, trace rootlets, some brown organics. [Glaciofluvial]					924
15		- at 14.9m, dark grey to grey, moist to wet, layered					923
16							922
17		- at 16.8m, trace clay, black, layered - at 17.1m, sandy silt, some clay, dark grey, moist to wet, trace to some organics					921
18		- at 18.3m, clayey silt, grey, layered, trace black organics					920
19							919
20							

AMEC Environment & Infrastructure
3456 Opie Crescent
Prince George, BC V2N 2P9
Tel: (250) 564-3243

LOGGED BY: LW
ENTERED BY: LW
COMPLETION DEPTH: 29.5 m
COMPLETION DATE: 10/4/11

CLIENT: Mount Polley Mining Corporation	PROJECT: Monitoring Well Installations	BOREHOLE NO: **GW11-2A**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Sonic	NORTHING: 5821020 EASTING: 594910	ELEVATION: 938.00 m

SAMPLE TYPE ■ TUBE ▨ NO RECOVERY ▩ SPLIT SPOON ▤ GRAB ▥ MUD RETURN ▦ CORE RETURN

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
20		CLAY to SILT, silty to clayey, medium plasticity, grey, trace red mottled zones, brown silt layers *(continued)*					
21							917
22							916
23		- at 23.2m, trace fine gravel					915
24		SAND, silty, some gravel, trace clay, reddish grey, moist. [Till]					914
25							913
26		WEATHERED BEDROCK, red, moist.					912
27							911
28							910
29		- at 28.7m, grey					909
		END of BOREHOLE at 29.5m					
30							908
31							907
32							906
33							905
34							904
35							903
36							902
37							901
38							900
39							899
40							

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CLIENT: Mount Polley Mining Corporation	PROJECT: Monitoring Well Installations	BOREHOLE NO: **GW11-2B**
DRILLER: Mud Bay	Mount Polley - Likely, BC	PROJECT NO: VM00560.200.3
DRILL TYPE/METHOD: Sonic	NORTHING: 5821020 EASTING: 594910	ELEVATION: 938.00 m

SAMPLE TYPE ■ TUBE ⊘ NO RECOVERY ⊠ SPLIT SPOON ☰ GRAB ▥ MUD RETURN ◧ CORE RETURN

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	INSTALLATION DETAILS	ADDITIONAL INFORMATION	ELEVATION (m)
0		SILT, clayey, trace coarse sand, trace fine gravel, low plasticity, brown, trace rootlets.				Estimated Ground Elevation	
1						Well Details: Well casing in concrete at surface with locking j-plug.	937
2						0-10.4m, Bentonite	936
3						10.4-14.2m, Sand	935
4		SILT, trace clay, trace fine sand, trace gravel, grey, moist, trace cobbles. [Till]				11.1-14.2m, Slotted PVC pipe	934
5						14.2-14.3m, Sand	933
6		- at 5.5m, silty sand, moist to wet - at 6.1m, saturated					932
7							931
8		- at 7.3m, 50mm thick coarse sand zone SILT, sandy, trace clay, trace gravel, grey, moist to wet.					930
9							929
10							928
11							927
12							926
13							925
14		- at 13.4m, coarse sand, fine gravel, dark grey, wet SILT, trace fine sand, black, saturated, rootlets, some brown organics. [Glaciofluvial]					924
15		END of BOREHOLE at 14.3m					923
16							922
17							921
18							920
19							919
20							

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