



Sub-Surface Log

Test Hole TH19-02

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Client: Blumetric Environmental **Project Number:** [REDACTED]
Project Name: Former Wellgreen Mill and Tailings Area **Location:** UTM 7V, 6820520 m N, 589170 m E (Tailings Dam)
Contractor: Midnight Sun Drilling Inc. **Ground Elevation:** 791.24 m
Method: 100 mm sonic core in 152 mm casing hole, Rig 9 Terrasonic track mounted **Date Drilled:** 8 October 2019 - 8 October 2019

Sample Type: Grab (G) Shelby Tube (T) Split Spoon (SS) Split Barrel (SB) Core (C)
Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders
Backfill Legend: Bentonite Cement Drill Cuttings Filter Pack Sand Grout Slough

Elevation (m)	Depth (m)	Soil Symbol	TR-01	SP-02	MATERIAL DESCRIPTION	Sample Type	Sample Number	SPT (N)	Temperature (°C)	Bulk Unit Wt (kN/m ³)		Undrained Shear Strength (kPa)			
										16	17		18	19	20
										Particle Size (%)		Test Type △ Torvane △ ⊕ Pocket Pen. ⊕ ⊠ Qu ⊠ ○ Field Vane ○			
										0	20		40	60	80
					GRAVEL (FILL) - sandy, trace silt, trace organics, trace rootlets - grey - moist, loose - well-graded, fine sand to coarse gravel - sub-rounded, maximum diameter <50 mm	▲	G120								
	-0.5														
	-1.0				- clay seam, soft to firm, low plasticity (300 mm thick), trace cobbles (<100 mm diam.) below 1.2 m	⊗	SS121	8							
	-1.5				- wet below 1.5 m	▲	G122								
	-2.0					⊗	SS123	10							
789.3	-2.0				SILT - trace to some fine sand, trace organics, grey, moist, compact - some clay, trace sand, firm, high plasticity below 2.1 m - sand seam, brown, poorly-graded, fine to medium sand (400 mm thick) at 2.2 m	▲	G124								
	-2.5					▲	G125								
	-2.5					▲	G126								
	-3.0				SAND - some silt, trace clay, trace gravel (<15 mm diam.), trace organics - brown - moist to wet, loose to compact - poorly-graded, fine to medium sand	⊗	SS127	13							
788.5	-3.0					⊗	SS128	10							
	-3.5														
	-4.0				- clay seam, some organics, dark grey, firm, intermediate plasticity (300 mm thick)	▲	G129		10.6						
	-4.5					⊗	SS130	7							
	-5.0														
785.8	-5.5				SILT - some fine sand - grey - wet, loose - no plasticity	▲	G131		10.6						

SUB-SURFACE LOG LOGS 2019-11-08 WELLGREEN WORKPLAN SITE (TEST HOLES)_FINAL_BT_0154-015-00.GPJ_TREK GEOTECHNICAL_GDT_28/11/19

Logged By: [REDACTED] **Reviewed By:** [REDACTED] **Project Engineer:** [REDACTED]



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SUB-SURFACE LOG - LOGS 2019-11-08 WELL GREEN WORKPLAN SITE (TEST HOLES)_FINAL_BT 0154-015-00.GPJ_TREK GEOTECHNICAL.GDT 28/11/19

Elevation (m)	Depth (m)	Soil Symbol	TR-01	SP-02	MATERIAL DESCRIPTION	Sample Type	Sample Number	SPT (N)	Temperature (°C)	Bulk Unit Wt (kN/m ³)			Particle Size (%)			Undrained Shear Strength (kPa)		
										16	17	18	19	20	21	Test Type		
										0	20	40	60	80	100	50	100	150
783.9	6.5				- some clay, moist, low plasticity below 6.1 m	X	SS132	7	10.4									
783.0	7.5				SAND - trace clay, trace silt, trace gravel (<15 mm diam.) - brown - wet, compact - no plasticity - poorly-graded, fine to coarse sand		T133		10									
							G134											
782.4	8.5				SILT - some fine sand, trace clay - grey, moist to wet, compact, no to low plasticity		G135		9									
					- trace to some clay, trace cobbles (<100 mm diam.), moist, soft, low plasticity below 8.5 m		G136											
	9.0				SAND AND GRAVEL - trace fines, trace cobbles (<100 mm diam.) - grey - moist to wet, very dense - well-graded, fine sand to coarse gravel - sub-rounded - brown below 9.1 m	X	SS137	57	8.6									
	10.0						G138		7.5									
	10.7				- fine sand seam, grey, compact (300 mm thick) at 10.7 m	X	SS139	21	7.5									
780.0	11.5				CLAY (TILL) - silty, trace sand, trace to some gravel (<15 mm diam.), trace cobbles (<100 mm diam.), grey, moist, stiff, low plasticity		G140		7.5									
779.7	12.0				SAND AND GRAVEL - trace fines, trace cobbles (<130 mm diam.) - brown - moist to wet, very dense - well-graded, fine sand to coarse gravel - rounded to sub-rounded		G141		7.5									
	12.5						SS142	63	7.5									
	13.0								7.6									



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										16	17	18	19	20	21	Test Type					
										Particle Size (%)		△ Torvane △ + Pocket Pen. + ⊠ Qu ⊠ ○ Field Vane ○									
										0	20	40	60	80	100						
										PL		MC	LL								
										0	20	40	60	80	100	0	50	100	150	200	250
13.5																					
14.0					- some clay, some silt below 14.0 m	SS143	40 / 91mm		7.9												
14.5																					
15.0																					
776.0						G144			7.1												

END OF TEST HOLE AT 15.2 m IN SAND AND GRAVEL

Notes:

1. Seepage between 1.5 m and 1.8 m depth, between 2.8 m and 8.5 m depth, between 10.7 m and 11.3 m depth and between 11.6 m and 14.0 m below ground surface.
2. Sloughing could not be observed due to drilling method.
3. 25 mm diameter PVC pipe (TR-01) installed to a depth of 15.2 m (at the bottom of test hole) to facilitate thermistor string.
4. Test hole backfilled with sand from the bottom of test hole to 1.2 m depth and bentonite chips from 1.2 m depth to surface.
5. Standpipe SP-02 (50 mm diameter) installed at 9.1 m below ground surface in adjacent test hole (located 1.5 m south from TH19-01).
6. Groundwater level measured in SP-02 at elevation 785.592 m on October 10, 2019.

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