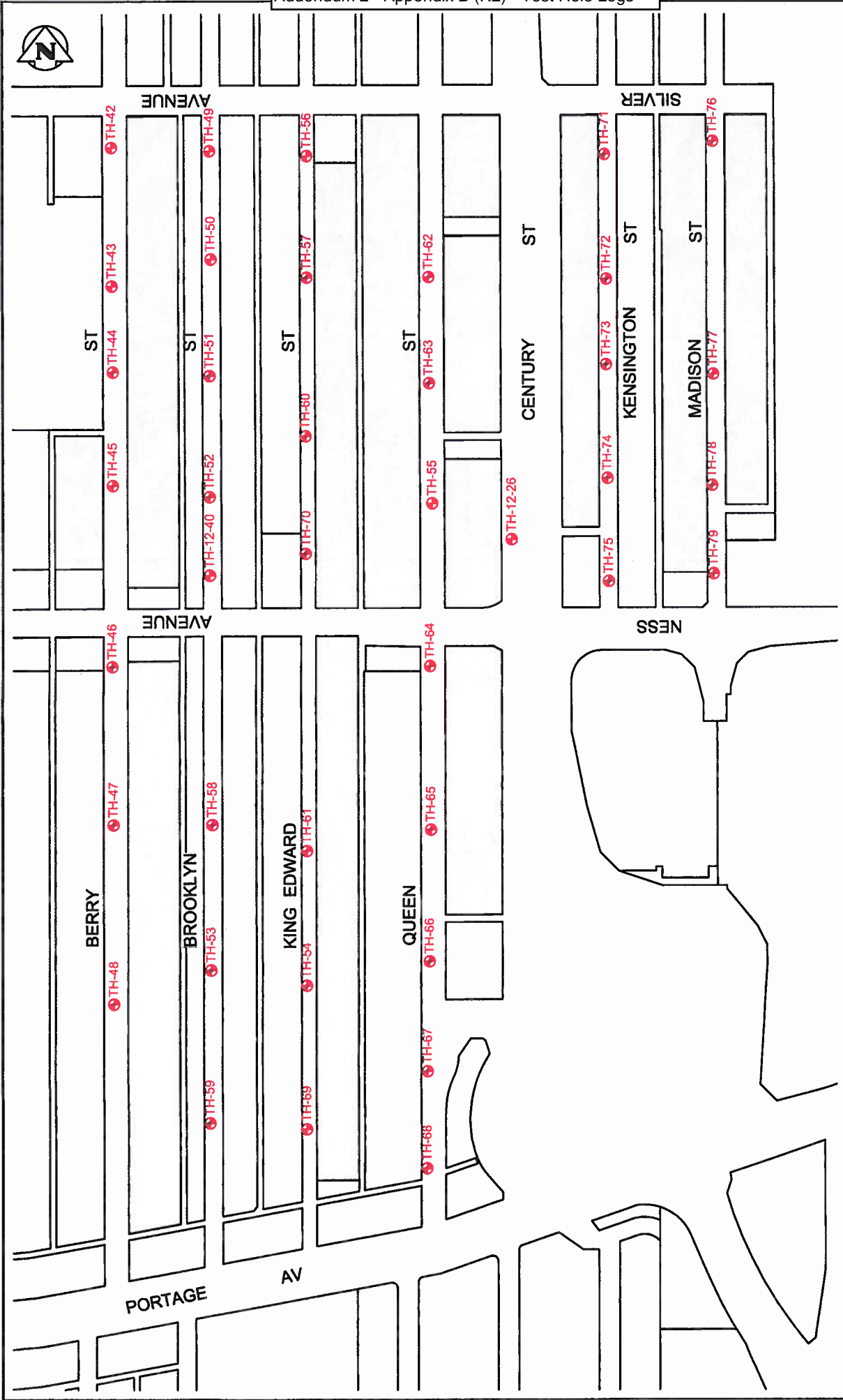
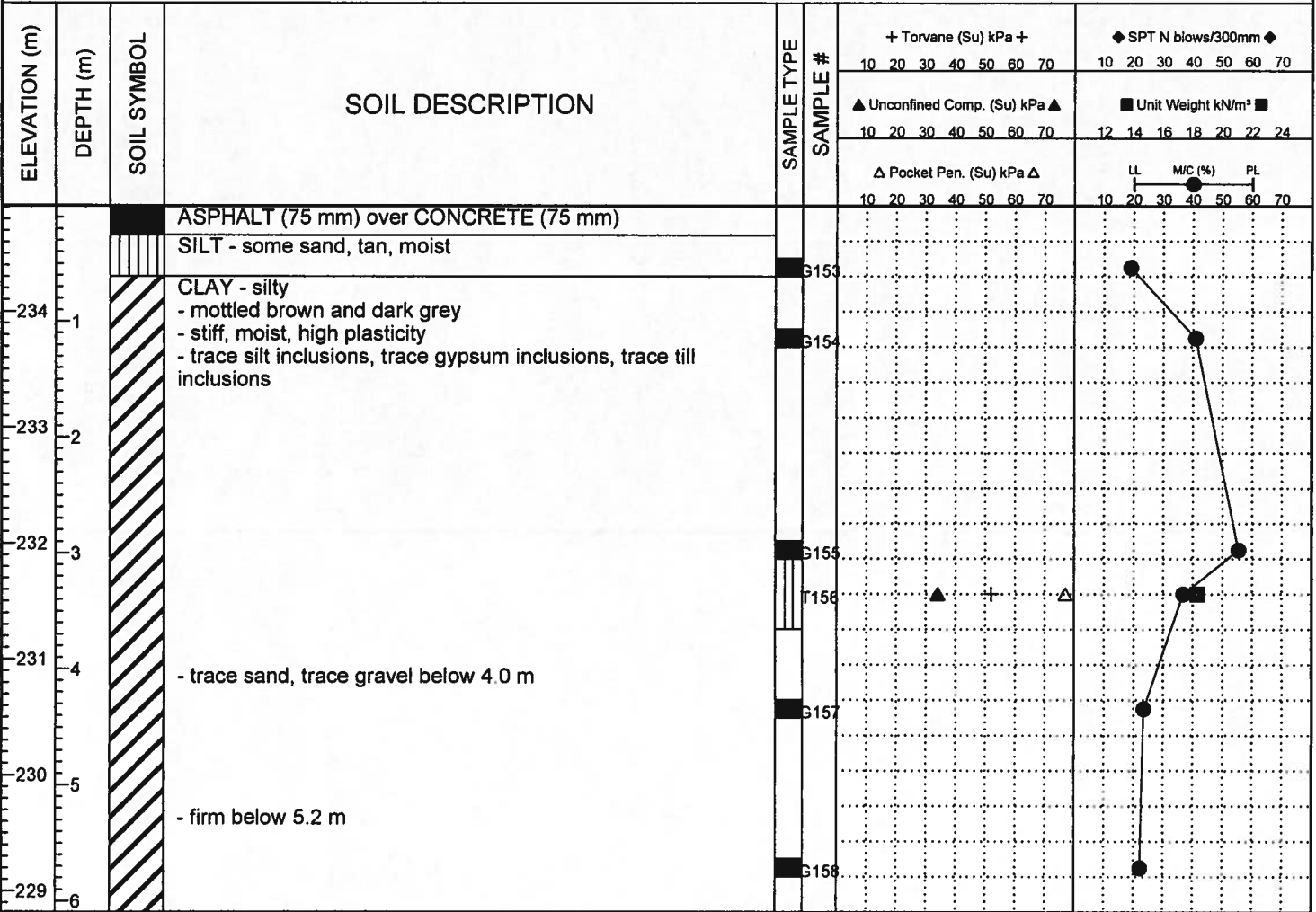


1:4=1:1000 of 1:5000 - SEE A REEF EXPLANATION - ANY/UNUSUAL - FERRY ROAD AND RIVERBEND CAN BE SEEN AND COMPARED/USED - APPROXIMATE/STREET MAP TEST HOLE LOCATIONS OVER 1 & 2 ARE CLEARLY MARKED



<b>TETRA TECH</b>		<b>THE CITY OF WINNIPEG</b> WATER AND WASTE DEPARTMENT	
DESIGNED BY	CHECKED BY	FERRY ROAD AND RIVERBEND COMBINED SEWER RELIEF WORKS <b>TEST HOLE LOCATIONS</b> CONTRACTS 1 & 2	
DRAWN BY GMD	APPROVED BY		
HOR. SCALE	RELEASED FOR CONSTRUCTION		
VERTICAL	DATE	CITY DRAWING NUMBER SHEET 1 OF 1	
CONSULTANT DRAWING NO. 100129300-SKT-C0008-A			

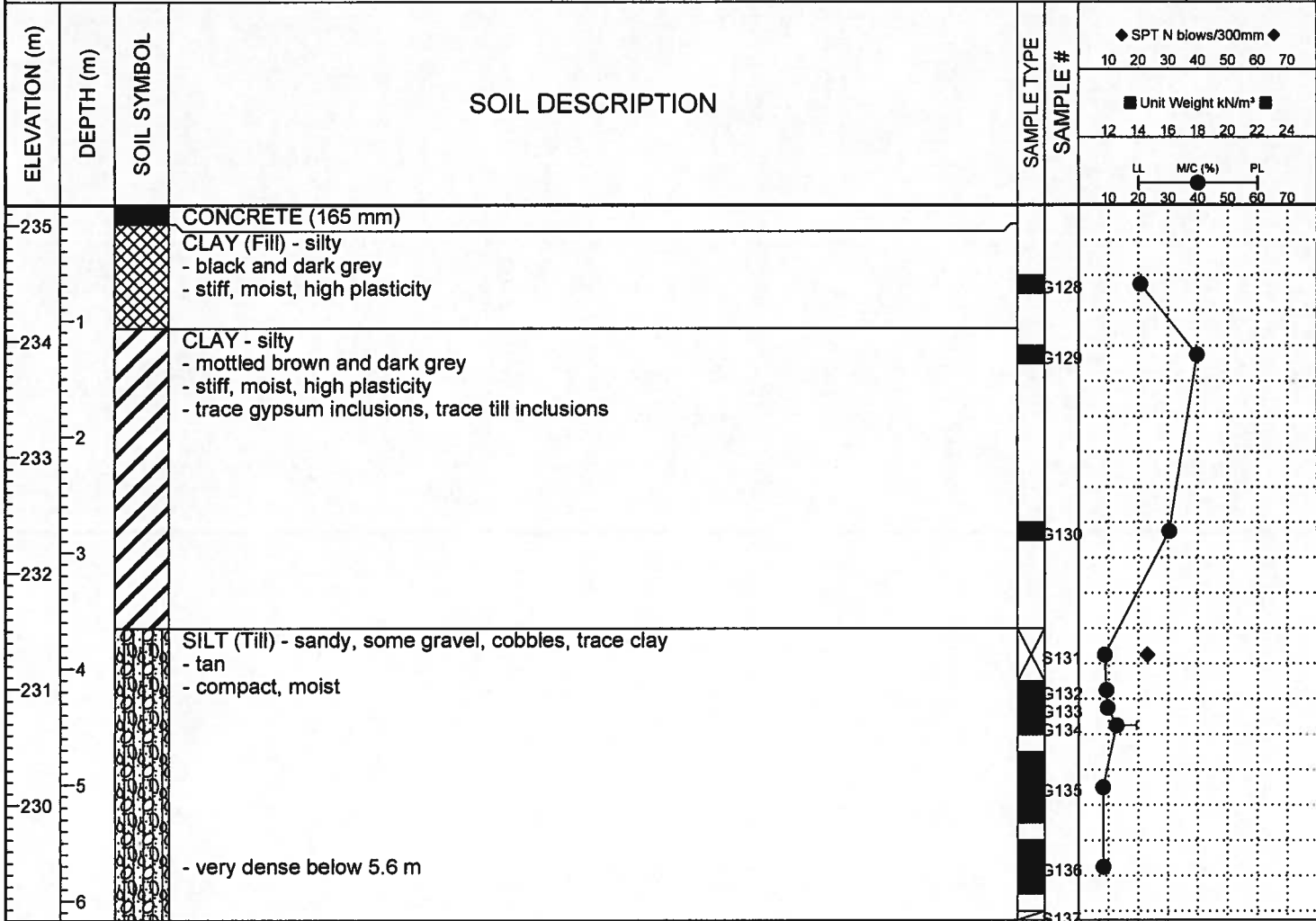
PROJECT: Ferry Road and Riverbend - Contracts 1 & 2		CLIENT: Tetra Tech		TESTHOLE NO: 12-61	
LOCATION: King Edward St. Approx. 100 m South of <del>Silver Ave.</del> <i>Ness Ave.</i>				PROJECT NO.: 123499	
CONTRACTOR: Paddock Drilling		METHOD: ACKER MP8 125mm dia. SSA		ELEVATION (m): 235.068	
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SHELBY TUBE	<input checked="" type="checkbox"/> SPLIT SPOON	<input type="checkbox"/> BULK	<input checked="" type="checkbox"/> NO RECOVERY
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> CUTTINGS
					<input type="checkbox"/> CORE
					<input type="checkbox"/> SAND



END OF TEST HOLE AT 6.1 m IN CLAY  
 Notes:  
 1. No sloughing or seepage observed.  
 2. Test hole backfilled with auger cuttings.

BH GEOTECH PLOTS -NEW ALT1 RIVERBEND.LDS TEST HOLE LOGS.GPJ DRI.GDT 10/12/12

PROJECT: Ferry Road and Riverbend - Contracts 1 & 2	CLIENT: Tetra Tech	TESTHOLE NO: 12-58
LOCATION: Brooklyn St. Approx. of Ness Ave. <i>150 m South of Ness Ave.</i>		PROJECT NO.: 123499
CONTRACTOR: Paddock Drilling	METHOD: ACKER MP8 125mm dia. SSA	ELEVATION (m): 235.331
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE		
BACKFILL TYPE <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> CUTTINGS <input type="checkbox"/> SAND		



END OF TEST HOLE AT 6.2 m IN SILT TILL

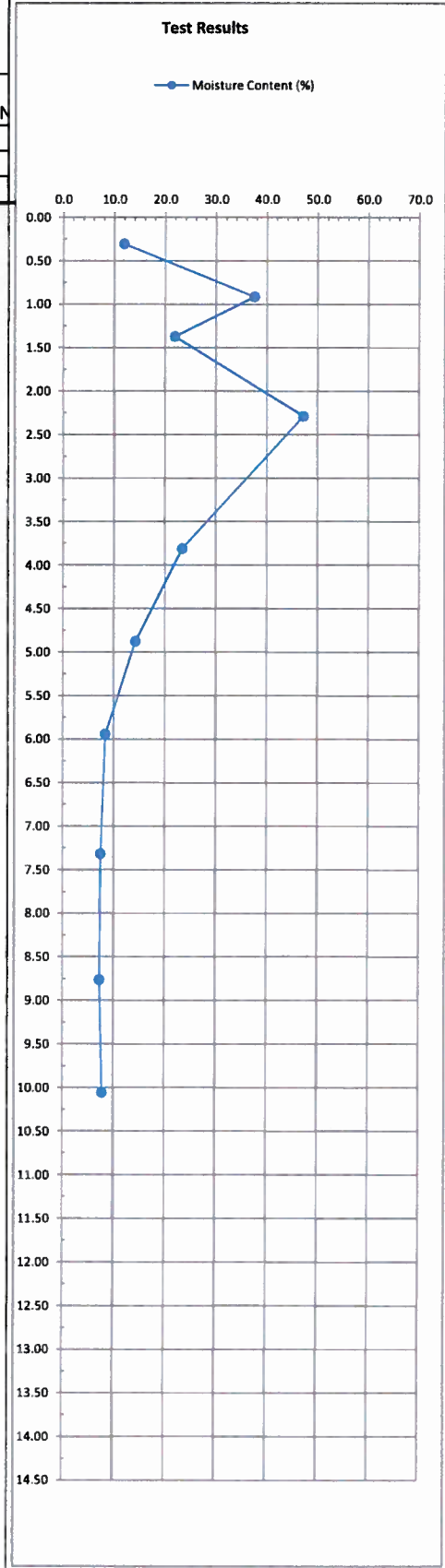
Notes:

1. SPT terminated at 6.2 m. Refusal on suspected cobble.
2. No sloughing or seepage observed.
3. Test hole backfilled with auger cuttings.

BH:GEOTECH PLOTS -NEW ALT1 RIVERBEND.LDS TEST HOLE LOGS.GPJ DRI.GDT 10/12/12

<b>DYREGROV ROBINSON INC.</b> Consulting Geotechnical Engineers	LOGGED BY: CR	COMPLETION DEPTH: 6.17 m
	REVIEWED BY: AOD	COMPLETION DATE: 31/10/12
	PROJECT ENGINEER: Alv Dyregrov	Page 1 of 1

DYREGROV ROBINSON INC. CONSULTING GEOTECHNICAL ENGINEERS			PROJECT # 113324	TEST HOLE NO. 12-14	
PROJECT: Ferry Road LDS		LOGGED BY: RB			
LOCATION: Brooklyn St. at Ness Ave.		REVIEWED BY: AOD			
CONTRACTOR: Paddock Drilling Ltd.		DRILL DATE: April 30, 2012			
METHOD: Acker MP8 - 125 mm SSA		DRILL DEPTH (m): 14.0			
DEPTH (m)	ELEVATION (m)	SOIL SYMBOL	SOIL DESCRIPTION	UNDRAINED SHEAR STRENGTH Su	
				QU	UNCONFINED COMPRESSION
				TV	TORVANE
				PP	POCKET PEN.
				Y	UNIT WEIGHT
0.00	235.00	0 - 0.15 m	CONCRETE		
0.50	234.50	0.15 - 0.6 m	CLAY (Fill) - silty, sandy, some gravel - dark grey to black, stiff, moist, intermediate plasticity	PP = 78 kPa	
1.00	234.00	0.6 - 1.2 m	CLAY - silty - mottled brown and grey, stiff, moist, high plasticity		
1.50	233.50	1.2 - 1.8 m	SILT - some sand - tan, compact, moist		
2.00	233.00	1.8 - 4.6 m	CLAY - silty - brown - firm, moist - high plasticity	TV = 39 kPa PP = 29 kPa	
2.50	232.50				
3.00	232.00		- some till inclusions, some sand, some gravel below 3.0 m		
3.50	231.50				
4.00	231.00				
4.50	230.50				
5.00	230.00	4.6 - 11.3 m	SILT (Till) - some sand, some cobbles - trace gravel - tan, compact, moist		
5.50	229.50		- light grey, dense, dry below 5.8 m		
6.00	229.00		- cobbly, bouldery below 6.1 m		
6.50	228.50				
7.00	228.00				
7.50	227.50				
8.00	227.00				
8.50	226.50				
9.00	226.00				
9.50	225.50				
10.00	225.00				
10.50	224.50				
11.00	224.00		- auger refusal, HQ coring below 11.3 m		
11.50	223.50	11.3 - 14.0 m	LIMESTONE (Bedrock) - yellowish white - R3 medium strong - very close to moderately close spacing (0.04 - 0.36 m) - Class 2 gapped aperture - class 1 filling - good quality RQD (82%)		
12.00	223.00				
12.50	222.50				
13.00	222.00				
13.50	221.50				
14.00	221.00		- thin clay seam (< 5 mm thick) at 14.0 m		
14.50	220.50	14.0 m	END OF TEST HOLE AT 14.0 m IN LIMESTONE BEDROCK Notes: 1. Squeezing below 3.0 m in clay 2. Auger refusal at 11.3 m, switched to HQ coring. 3. Test hole backfilled with auger cuttings, capped with concrete core and coldpatch.		



DYREGROV ROBINSON INC. CONSULTING GEOTECHNICAL ENGINEERS				PROJECT # 113324	TEST HOLE NO. 12-26	
PROJECT: Ferry Road LDS				LOGGED BY: RB		
LOCATION: Century St. at Ness Ave.				REVIEWED BY: AOD		
CONTRACTOR: Paddock Drilling Ltd.				DRILL DATE: May 16, 2012		
METHOD: Acker MP8 - 125 mm SSA, HQ Core Barrel				DRILL DEPTH (m): 13.7		
DEPTH (m)	ELEVATION (m)	SOIL SYMBOL	SOIL DESCRIPTION	PIEZOMETER	UNDRAINED SHEAR STRENGTH	TEST RESULTS
					Su	
					QU UNCONFINED COMPRESSION	
					TV TORVANE	
					PP POCKET PEN.	
					γ UNIT WEIGHT	
0.00	235.04		0 - 0.76 m CLAY (Fill) - silty, trace sand, trace gravel - black - stiff, moist, high plasticity			
0.50	234.54					
1.00	234.04		0.76 - 1.7 m SILT - tan - loose, moist			
1.50	233.54					
2.00	233.04		1.7 - 9.1 m CLAY - silty - brown - stiff, moist, high plasticity		TV = 61 kPa PP = 37 kPa	
2.50	232.54					
3.00	232.04		- mottled brown and grey, trace silt inclusions below 3.0 m			
3.50	231.54					
4.00	231.04				TV = 52 kPa PP = 32 kPa	
4.50	230.54					
5.00	230.04				Qu = 61 kPa TV = 55 kPa PP = 92 kPa γ = 17.3 kN/m <sup>3</sup>	
5.50	229.54					
6.00	229.04		- grey, firm, trace sand, trace gravel below 6.1 m		TV = 42 kPa PP = 27 kPa	
6.50	228.54					
7.00	228.04					
7.50	227.54		- some till inclusions, wet, trace cobbles below 7.2 m			
8.00	227.04					
8.50	226.54		8.5 - 11.4 m SILT (Till) - clayey, some sand, trace gravel - light grey - loose, wet, intermediate plasticity - trace clay, low plasticity below 9.1 m		Qu = 26 kPa TV = 42 kPa PP = 36 kPa γ = 15.6 kN/m <sup>3</sup>	
9.00	226.04					
9.50	225.54					
10.00	225.04					
10.50	224.54					
11.00	224.04		- auger refusal on boulder, HQ coring below 11.0 m			
11.50	223.54		11.4 - 13.7 m LIMESTONE (Bedrock) - yellowish white - R3 medium strong - extremely close to moderately close spacing (0.01 - 0.27 m) - Class 2 gapped aperture - class 1 filling - fair quality RQD (52%)			
12.00	223.04					
12.50	222.54					
13.00	222.04					
13.50	221.54					
14.00	221.04		13.7 m END OF TEST HOLE AT 13.7 m IN LIMESTONE BEDROCK Notes: 1. Sloughing in silt till layer. 2. Standpipe piezometer with Casagrande tip installed to 12.2 m. 3. Water level measured at 8.01 m below ground surface on June 12, 2012. 4. Test hole backfilled with sand to 11.4 m, bentonite chips to 10.1 m and auger cuttings to ground surface. Piezometer protected with a flushmount cover.			