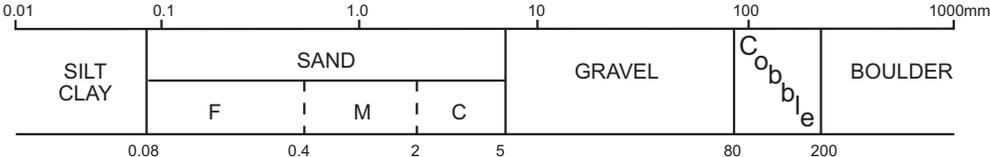


Appendix A

Borehole Logs

DESCRIPTIVE TERMS- BOREHOLE/TEST PIT LOG

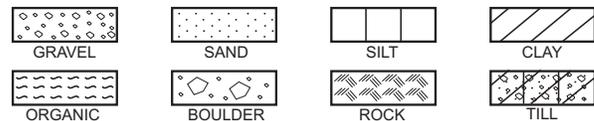
SOILS	GRAIN SIZE																
	DESCRIPTIVE TERMINOLOGY	<table border="1"> <tr> <td>TRACE</td> <td>SOME</td> <td>ADJECTIVE</td> <td colspan="2">and > 35% noun > 35% and main fraction</td> </tr> <tr> <td>trace clay, etc.</td> <td>some gravel, etc.</td> <td>silty, etc.</td> <td colspan="2">sand and gravel, etc.</td> </tr> </table>					TRACE	SOME	ADJECTIVE	and > 35% noun > 35% and main fraction		trace clay, etc.	some gravel, etc.	silty, etc.	sand and gravel, etc.		
	TRACE	SOME	ADJECTIVE	and > 35% noun > 35% and main fraction													
	trace clay, etc.	some gravel, etc.	silty, etc.	sand and gravel, etc.													
COMPACTNESS gravels, sands, tills	<table border="1"> <tr> <td>N, RANGE</td> <td>0 - 4</td> <td>4 - 10</td> <td>10 - 30</td> <td>30 - 50</td> <td>> 50</td> </tr> <tr> <td>DENSITY</td> <td>V. LOOSE</td> <td>LOOSE</td> <td>MEDIUM</td> <td>DENSE</td> <td>V. DENSE</td> </tr> </table>					N, RANGE	0 - 4	4 - 10	10 - 30	30 - 50	> 50	DENSITY	V. LOOSE	LOOSE	MEDIUM	DENSE	V. DENSE
N, RANGE	0 - 4	4 - 10	10 - 30	30 - 50	> 50												
DENSITY	V. LOOSE	LOOSE	MEDIUM	DENSE	V. DENSE												
CONSISTENCY silt, clay	<table border="1"> <tr> <td>S, KPa</td> <td>< 12.5</td> <td>12.5 - 25</td> <td>25 - 50</td> <td>50 - 100</td> <td>100 - 200</td> </tr> <tr> <td>CONSISTENCY</td> <td>V. SOFT</td> <td>SOFT</td> <td>MEDIUM</td> <td>STIFF</td> <td>V. STIFF</td> </tr> </table>					S, KPa	< 12.5	12.5 - 25	25 - 50	50 - 100	100 - 200	CONSISTENCY	V. SOFT	SOFT	MEDIUM	STIFF	V. STIFF
S, KPa	< 12.5	12.5 - 25	25 - 50	50 - 100	100 - 200												
CONSISTENCY	V. SOFT	SOFT	MEDIUM	STIFF	V. STIFF												

ROCK	RQD	OVERALL QUALITY			FRACTURE SPACING	
	0 - 25	VERY POOR			VERY CLOSE 20 - 60 mm	
	25 - 50	POOR			CLOSE 60 - 200 mm	
	50 - 75	FAIR			MODERATE 200 - 600 mm	
	75 - 90	GOOD			WIDE 600 - 2000 mm	
	90 - 100	EXCELLENT			VERY WIDE 2 - 6 m	
COMP. STR. MPa	1 - 5	5 - 25	25 - 50	50 - 100	100 - 250	
DESCRIPTION	V. WEAK	WEAK	MODERATE	STRONG	V. STRONG	

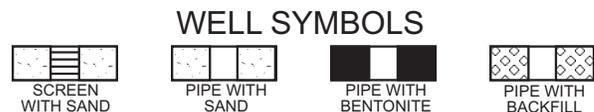
SAMPLE TYPES (location to scale on log)

S SPLIT TUBE G SHOVEL
T SHELBY TUBE H CARVED BLOCK
P PISTON K SLOTTED
F AUGER V IN SITU VANE
W WASH NR NO RECOVERY

LOG SYMBOLS



ROCK CORES A(30mm); B(41mm); N(54mm)



- N - standard penetration test; blows by 475 J drop hammer to advance Std. 50mm O.D. split tube sampler 0.3m
RQD - percent of core consisting of hard, sound pieces in excess of 100mm long (excluding machine breaks)
RECOVERY - sample recovery expressed as percent or length
S - shear strength, kPa; vane \oplus ; penetrometer \blacksquare ; unconfined \circ ; U_c unconfined compressive strength
 S_r - shear strength, remoulded; vane \otimes ; penetrometer \square
Dd - dry density; t/m^3
W - natural moisture content, percent *
PL - plastic limit, percent ---
LL - liquid limit, percent ---
ND - non detect, total petroleum hydrocarbons (TPH) not detected in soil
Groundwater Level ∇ ; Seepage ∇

Client Public Works & Government Services Canada

Proj No. 4735.48

BOREHOLE

Project Hueston Brook Culvert Replacement

Date Drilled 2015/05/12

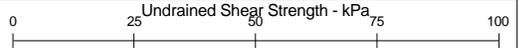
BH1
Page 1 of 1

Location Fundy National Park, New Brunswick

Ground Level, m

Datum: Geodetic

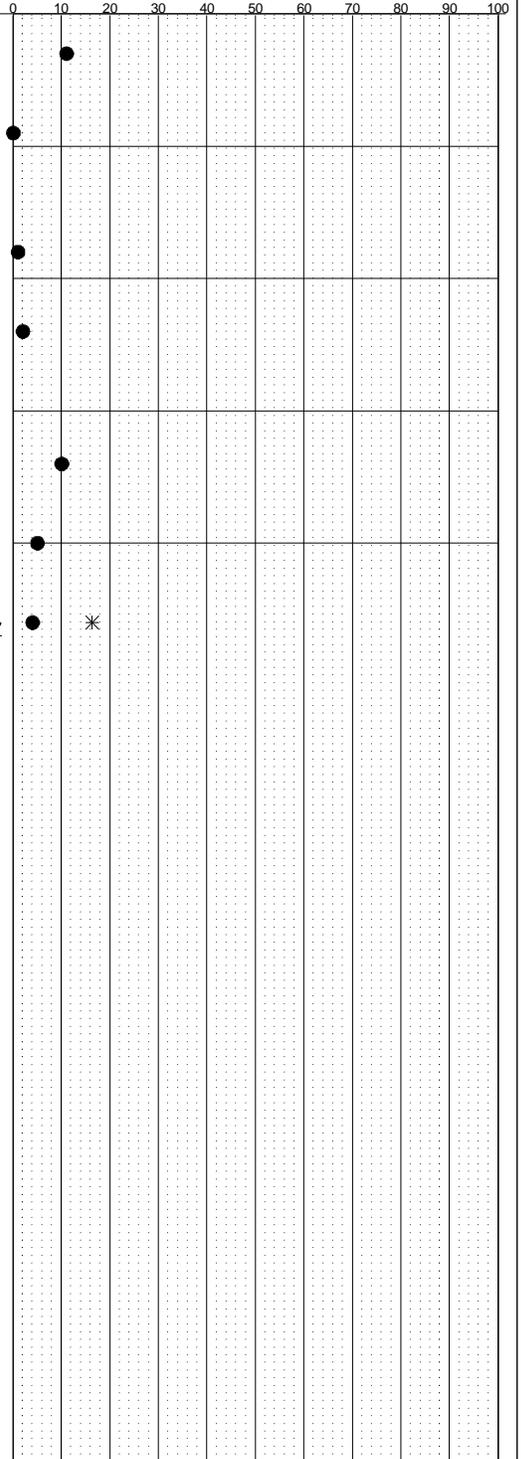
Logged By NG



- Unconfined Compression
- ⊕ Field Vane Test
- Pocket Penetrometer
- ⊗ Remoulded

Water Content & Atterburg Limits
Dynamic Penetration Test, blows/0.3m
Standard Penetration Test, blows/0.3m

DEPTH m	SAMPLE				LOG	DESCRIPTION
	No	TYPE	N (RQD)	REC (mm)		
0	1	S	11	170	0.10	ASPHALT Grey SAND and GRAVEL
1	2	S	0	100		
2	3	S	1	50		
2	4	S	2	50		
3	5	S	10	160		
4	6	S	5	0		
4.87	7	S	4	420	4.87	- Sand and Gravel, trace silt (A-1-a)



End of borehole at 4.87 mbgs
Groundwater encountered at 4.7 mbgs

Client Public Works & Government Services Canada

Proj No. 4735.48

BOREHOLE

Project Hueston Brook Culvert Replacement

Date Drilled 2015/05/12

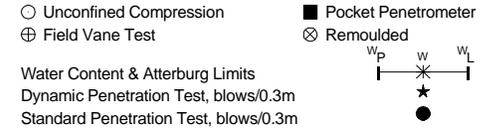
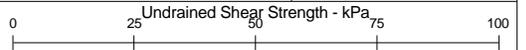
BH2
Page 1 of 1

Location Fundy National Park, New Brunswick

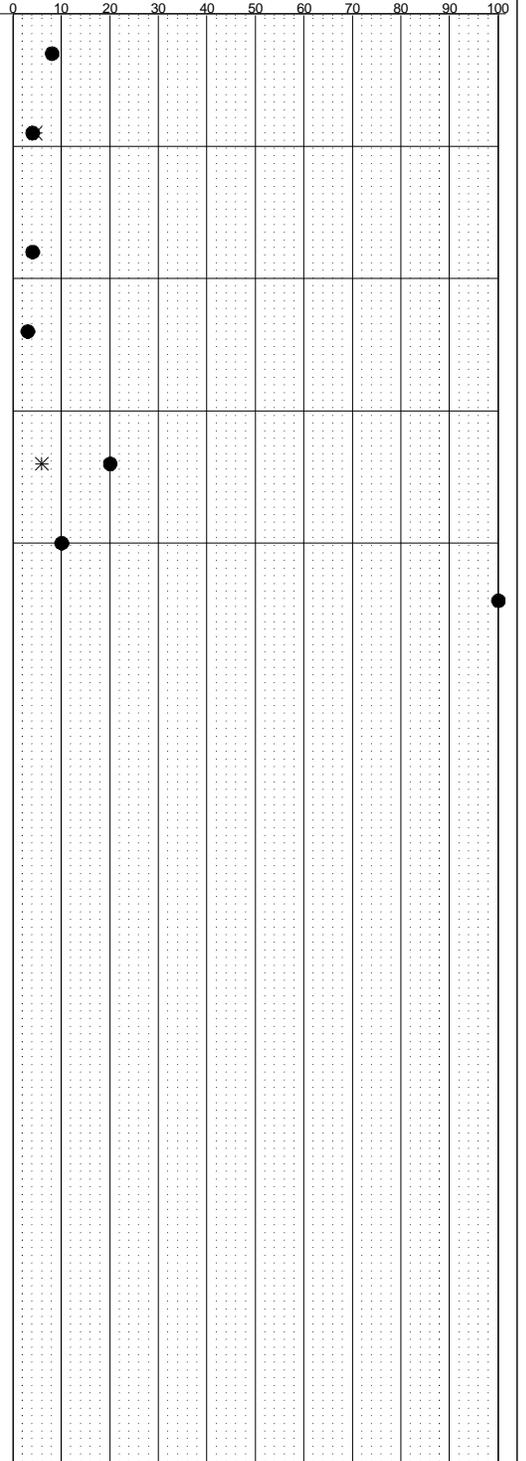
Ground Level, m

Datum: Geodetic

Logged By NG



DEPTH m	SAMPLE				LOG	DESCRIPTION
	No	TYPE	N (RQD)	REC (mm)		
0	1	S	8	300	0.10 ASPHALT	0.10
					Grey SAND and GRAVEL	
	2	S	4	220		
1					- Sandy gravel, trace silt (A-1-a)	
	3	S	4	150		
2	4	S	3	190		
	5	S	20	210		
3					- Sandy gravel, trace silt (A-1-a)	
	6	S	10	420	4.00	4.00
4					Brown sand, silt, some wood debris, trace gravel and clay	4.30
	7	S	100+	100	4.30	4.30
					Grey SAND and GRAVEL, some cobbles	4.57
					End of borehole at 4.57 mbgs	



Client Public Works & Government Services Canada

Proj No. 4735.48

BOREHOLE

Project Hueston Brook Culvert Replacement

Date Drilled 2015/05/12

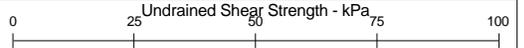
BH4
Page 1 of 1

Location Fundy National Park, New Brunswick

Ground Level, m

Datum: Geodetic

Logged By NG



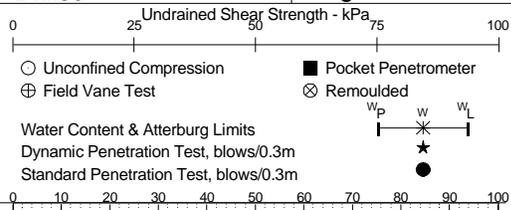
- Unconfined Compression
- ⊕ Field Vane Test
- Pocket Penetrometer
- ⊗ Remoulded



DEPTH m	SAMPLE				LOG	DESCRIPTION	Undrained Shear Strength - kPa																		
	No	TYPE	N (RQD)	REC (mm)			0	10	20	30	40	50	60	70	80	90	100								
0	1	S	14	150		Black SAND and GRAVEL, trace organics	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
0.60	2	S	11	100		Brown SAND and GRAVEL, some silt	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
1	3	S	27	150			10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2	4	S	8	220			10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
3	5	S	9	220		- Sand and gravel, some silt (A-1-a)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
4	6	S	9	370			10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
5	7	S	11	370		- Gravel and sand, trace silt (A-1-a)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
5.79	8	S	60	200			10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
End of borehole at 5.79 mbgs																									

Client	Public Works & Government Services Canada	Proj No.	4735.48	BOREHOLE	BH5
Project	Hueston Brook Culvert Replacement	Date Drilled	2015/05/12	Page 1 of 1	
Location	Fundy National Park, New Brunswick				

Ground Level, m	Datum: Geodetic	Logged By NG
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DEPTH m	SAMPLE				LOG	DESCRIPTION	TEST RESULTS																
	No	TYPE	N (RQD)	REC (mm)			UC	FVT	PP	W	W _p	W _L	DP										
0	1	S	18	320		0.10 Black SAND, some silt, trace organics Brown SAND and GRAVEL, some silt	0.10																
1	2	S	39	400		- Sand and gravel, some silt (A-1-a)		*															
2	3	S	38	400																			
3	4	S	35	150																			
4	5	S	8	80																			
5	6	S	12	280																			
6	7	S	6	200																			
5	8	S	100+	330		5.30	- Sand and gravel, some silt (A-1-a) Grey META-SEDIMENTARY BEDROCK	5.30														*	
6	9	NQ	0	500																			
7						- 9 horizontal fractures from 6.1 to 7.6																	
					7.62	End of borehole at 7.62 mbgs	7.62																