




PROJECT 11-1191-0007		<b>RECORD OF BOREHOLE No H1-11</b>				1 OF 1 <b>METRIC</b>							
G.W.P. 156-98-00		LOCATION N 5136094.7; E 273250.1		ORIGINATED BY GM									
DIST HWY 17		BOREHOLE TYPE 108 mm I.D. Continuous Flight Hollow Stem Augers		COMPILED BY EC									
DATUM Geodetic		DATE April 25, 2012		CHECKED BY SEMP									
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV. DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES								
243.2	GROUND SURFACE												
0.0	PEAT (Fibrous)		1	SS	7	▽	243					NP	0 1 57 42
242.8	Firm Black Wet						242						
0.4	SILTY CLAY, trace sand, mottled Firm to very stiff Brown Moist		2	SS	16								
		3	SS	12	241								
241.0	SILT, some gravel, trace to some clay, trace to some sand Compact Brown to grey Wet	4	SS	14	240								
2.2		5	SS	14									
239.5	Silty SAND, some gravel Very loose to compact Grey Wet	6	SS	17	239								
3.7		7	SS	3	238								
237.6	SAND and GRAVEL, trace to some silt, trace clay Compact Grey Wet	8	SS	10	237								
5.6	Between 0.3 and 1.5 m of heave encountered below 6.1 m depth.	9	SS	24	236								
234.8	END OF BOREHOLE AUGER REFUSAL	10	SS	20/0.15	235								
8.4	Note: 1. Water level at a depth of 1.8 m below ground surface (Elev. 241.4 m) upon completion of drilling.												

SUD-MTO 001 11-1191-0007.GPJ CAL-MISS.GDT 17/03/14 DATA INPUT:

[illegible]

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE


PROJECT 11-1191-0007		RECORD OF BOREHOLE No H1-13				1 OF 1 METRIC										
G.W.P. 156-98-00		LOCATION N 5136102.1; E 273299.0		ORIGINATED BY GM												
DIST HWY 17		BOREHOLE TYPE 108 mm I.D. Continuous Flight Hollow Stem Augers		COMPILED BY EC												
DATUM Geodetic		DATE April 25, 2012		CHECKED BY SEMP												
SOIL PROFILE			SAMPLES		GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)		
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH kPa							WATER CONTENT (%)	
243.0	GROUND SURFACE						20	40	60	80	100					
0.0	PEAT (Fibrous)		1	SS	9		242									
242.6	Stiff Black Dry															
0.4	SILTY CLAY, varved Soft to very stiff Brown to grey Moist to wet		2	SS	17		241									
			3	SS	9											
		4	SS	4	240											
239.4	Silty SAND, trace to some gravel Very loose Grey Wet															
3.6		5	SS	3	239											
238.5	SAND and GRAVEL, some silt, trace clay Loose to compact Grey Wet															
4.5		6	SS	6	238											
	Approximately 0.9 m of heave encountered below a depth of 5.2 m.															
236.8		7	SS	50/0.15	237											
6.2	END OF BOREHOLE AUGER REFUSAL															
	Note: 1. Water level at a depth of 1.2 m below ground surface (Elev. 241.8 m) upon completion of drilling.															

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT		RECORD OF BOREHOLE No H1-14				1 OF 1 METRIC						
11-1191-0007												
G.W.P. 156-98-00		LOCATION		N 5136094.6; E 273323.0		ORIGINATED BY GM						
DIST		HWY 17		BOREHOLE TYPE 108 mm I.D. Continuous Flight Hollow Stem Augers		COMPILED BY EC						
DATUM Geodetic		DATE		April 25, 2012		CHECKED BY SEMP						
SOIL PROFILE			SAMPLES		GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE								
244.5	GROUND SURFACE											
0.0	PEAT (Fibrous)		1	SS	1							
244.2	Very soft		2	SS	10							
0.3	Black		3	SS	14							
	Moist		4	SS	6							
	CLAY, varved											
	Soft to stiff											
	Brown to grey											
	Wet											
238.6	SILT, trace to some clay		5	SS	WH							
5.9	Loose		6	SS	WH							
	Grey											
	Wet											
237.3	SAND, trace to some silt											
7.2	Very loose		8	SS	WH							
	Grey											
	Wet											
236.3	Approximately 3.0 m of heave encountered below 8.2 m depth.											
8.2	END OF BOREHOLE											
235.4	END OF DCPT REFUSAL TO FURTHER PENETRATION (HAMMER BOUNCING)											
9.1	Note:  1. Water level at a depth of 3.4 m below ground surface (Elev. 241.1 m) upon completion of drilling.											

SUD-MTO 001 11-1191-0007.GPJ GAL-MASS.GDT 17/03/14 DATA INPUT:

+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT 11-1191-0007		RECORD OF BOREHOLE No H1-15				1 OF 1 METRIC							
G.W.P. 156-98-00		LOCATION N 5136121.3; E 273340.6		ORIGINATED BY GM									
DIST _____ HWY 17		BOREHOLE TYPE 108 mm I.D. Continuous Flight Hollow Stem Augers		COMPILED BY EC									
DATUM Geodetic		DATE April 26, 2012		CHECKED BY SEMP									
SOIL PROFILE			SAMPLES		GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH kPa					
244.6	GROUND SURFACE												
0.0	PEAT		1	SS	11								
244.0	Stiff Black Wet												
0.6	CLAY, varved Firm to stiff Brown Moist to wet		2	SS	14								
			3	SS	12								
			4	SS	5								
241.2	CLAYEY SILT												
3.4	Stiff Grey Wet												
240.3			5	SS	12								
4.3	Silty SAND, trace to some gravel Compact Grey Wet												
			6	SS	21								
	Approximately 0.6 m of heave encountered below 5.2 m depth.												
239.0													
5.6	Gravelly SAND, trace to some silt, trace clay Very loose to compact Grey Wet												
			7	SS	3								
			8	SS	6								
			9	SS	23								
			10	SS	24								
233.6													
11.0	END OF BOREHOLE AUGER REFUSAL												
	Note: 1. Water level at a depth of 3.0 m below ground surface (Elev. 241.6 m) upon completion of drilling.												

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

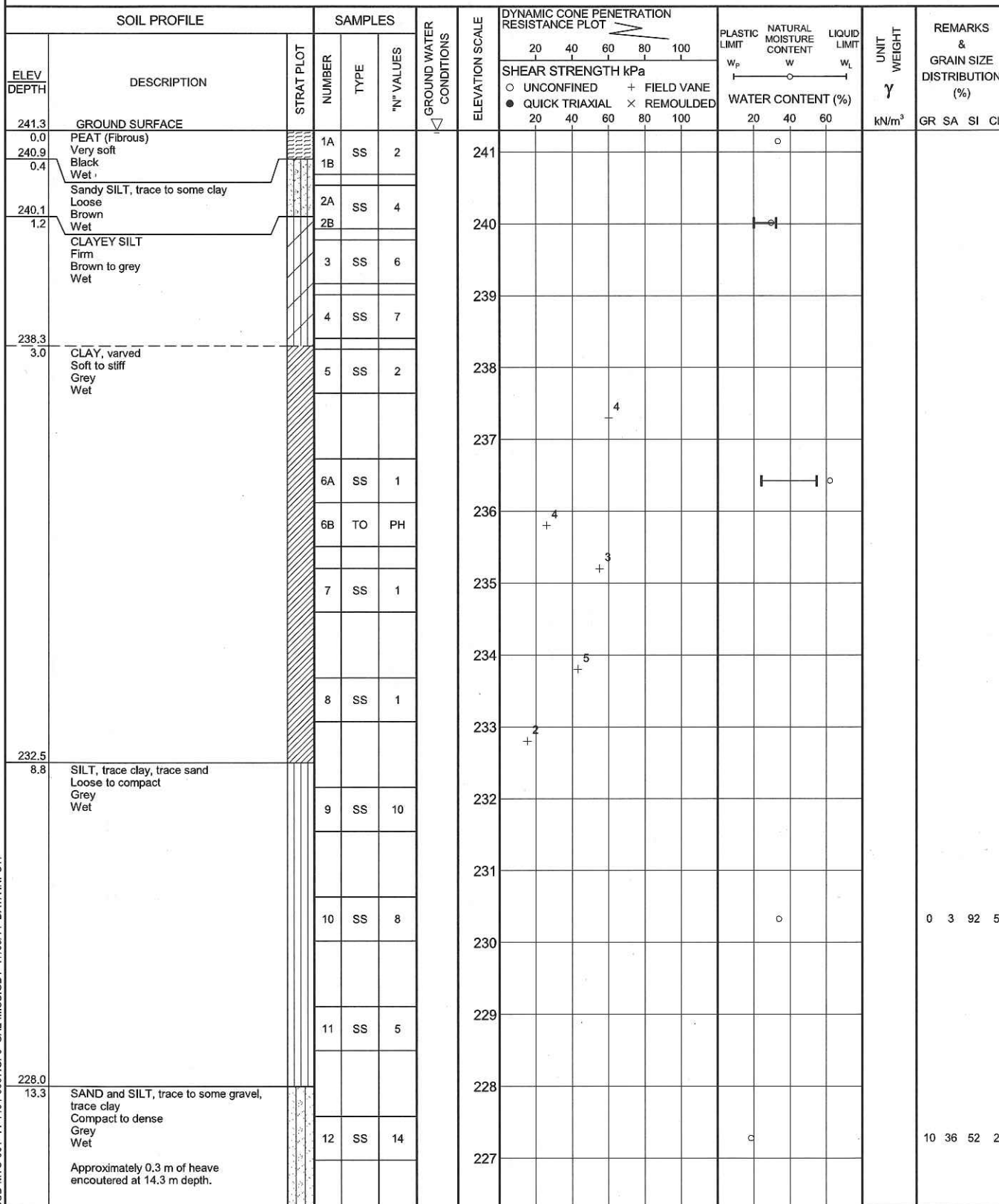
PROJECT <u>11-1191-0007</u>		<b>RECORD OF BOREHOLE No H1-16</b>		1 OF 1 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136034.1; E 273000.3</u>		ORIGINATED BY <u>GM</u>	
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Portable Equipment, NW Casing, Wash Boring</u>		COMPILED BY <u>EC</u>	
DATUM <u>Geodetic</u>		DATE <u>May 22, 2012</u>		CHECKED BY <u>SEMP</u>	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT w <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w <sub>L</sub>	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI C	
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa							WATER CONTENT (%)
								○ UNCONFINED + FIELD VANE							

241.3	GROUND SURFACE													
0.0	PEAT (Fibrous)		1	SS	3									
241.0	Soft Black Wet													
0.5	Sandy SILT													
	SILTY CLAY, varved		2	SS	8									
	Soft Brown to grey Wet													
			3	SS	9									
			4	SS	2									
238.1			5A											
3.2	SILT, trace to some clay, trace sand, trace gravel Loose to compact Brown to grey Wet		5B	SS	6									2 2 90 6
237.3			6	SS	26/0.2									
4.0	END OF BOREHOLE SPOON REFUSAL (HAMMER BOUNCING)  Note: 1. Water level at ground surface (Elev. 241.3 m) upon completion of drilling.  2. Moved 1 m north of Borehole H1-16 and turned an N-vane at 2.7 m depth.													

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

<b>PROJECT</b> 11-1191-0007		<b>RECORD OF BOREHOLE No H1-17</b>		1 OF 2 <b>METRIC</b>	
<b>G.W.P.</b> 156-98-00		<b>LOCATION</b> N 5136024.7; E 273026.2		<b>ORIGINATED BY</b> GM	
<b>DIST</b> _____ <b>HWY</b> 17		<b>BOREHOLE TYPE</b> Portable Equipment, NW Casing, Wash Boring		<b>COMPILED BY</b> EC	
<b>DATUM</b> Geodetic		<b>DATE</b> May 24 and 25, 2012		<b>CHECKED BY</b> SEMP	



SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

Continued Next Page

+ 3, x 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT <u>11-1191-0007</u>		<b>RECORD OF BOREHOLE No H1-17</b>		2 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136024.7; E 273026.2</u>		ORIGINATED BY <u>GM</u>	
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Portable Equipment, NW Casing, Wash Boring</u>		COMPILED BY <u>EC</u>	
DATUM <u>Geodetic</u>		DATE <u>May 24 and 25, 2012</u>		CHECKED BY <u>SEMP</u>	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT   NATURAL MOISTURE CONTENT   LIQUID LIMIT			UNIT WEIGHT  γ  kN/m³	REMARKS & GRAIN SIZE DISTRIBUTION (%)  GR   SA   SI   CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa			WATER CONTENT (%)				
— CONTINUED FROM PREVIOUS PAGE —								○ UNCONFINED   + FIELD VANE ● QUICK TRIAXIAL   × REMOULDED			w <sub>p</sub> w   w <sub>L</sub>				
								20   40   60   80   100							
225.5			13	SS	60		226								
15.8	END OF BOREHOLE														
	Note:  1. Moved 1 m east of Borehole H1-17 and obtained a Shelby tube at 5.2 m depth.  2. Water level at ground surface (Elev. 241.3 m) upon completion of drilling.														

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:



PROJECT 11-1191-0007

**RECORD OF BOREHOLE No H1-18**

1 OF 2 **METRIC**

G.W.P. 156-98-00

LOCATION N 5136038.3; E 273050.1

ORIGINATED BY GM

DIST HWY 17

BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring

COMPILED BY EC

DATUM Geodetic

DATE May 23 and 24, 2012

CHECKED BY SEMP

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa							
241.3	GROUND SURFACE							20 40 60 80 100							
0.0	PEAT (Fibrous) Very soft Black Wet		1	SS	1		241								
240.4			2A												
0.9	Sandy SILT, trace to some clay, some organics Loose		2B	SS	10		240								0 23 65 12
239.9	Brown to grey Wet														
1.4	CLAY, varved Soft to stiff Brown to grey Wet		3	SS	5										
			4	SS	6		239								
			5	SS	1		238								
			6	SS	WH		237								
			7	SS	WH		236								
			8	SS	1		235								
							234								
							233								
232.6															
8.7	SILT, trace to some clay, trace sand, trace gravel Loose to compact Grey Wet		9	SS	4		232						NP	1 2 89 8	
			10	SS	6		231								
							230								
			11	SS	14		229								
228.1	Approximately 0.2 m of heave encountered at 12.8 m depth.														
13.2	SAND, trace silt Compact						228								
227.7	Grey Wet		12	SS	22/0.15										
13.6															

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

Continued Next Page

+ 3, x 3:

Numbers refer to  
Sensitivity

○ 3%

STRAIN AT FAILURE



SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:


+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE



SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

+3, ×3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT <u>11-1191-0007</u>		<b>RECORD OF BOREHOLE No H1-19</b>		2 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136051.9; E 273074.1</u>		ORIGINATED BY <u>GM</u>	
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Portable Equipment, NW Casing, Wash Boring</u>		COMPILED BY <u>EC</u>	
DATUM <u>Geodetic</u>		DATE <u>May 28 and 29, 2012</u>		CHECKED BY <u>SEMP</u>	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT   NATURAL MOISTURE CONTENT   LIQUID LIMIT			UNIT WEIGHT  γ  kN/m³	REMARKS & GRAIN SIZE DISTRIBUTION (%)  GR   SA   SI   CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa		WATER CONTENT (%)				
								○ UNCONFINED      + FIELD VANE ● QUICK TRIAXIAL    × REMOULDED	w <sub>p</sub> w      w <sub>L</sub>					
--- CONTINUED FROM PREVIOUS PAGE ---							20   40   60   80   100	20   40   60						
225.6	Gravelly SAND, some silt, trace clay Compact Grey Wet  Approximately 0.6 m of heave encountered at 15.8 m depth.		13	SS	16		226							
15.7							225							
			14	SS	14		224							
							223							
222.4				15	SS	23								
18.9	END OF BOREHOLE													
	Note:  1. Moved 1 m north of Borehole H1-19 and obtained a Shelby tube at 4.6 m depth.  2. Water level at ground surface (Elev. 241.3 m) upon completion of drilling.													

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

<b>PROJECT</b> 11-1191-0007		<b>RECORD OF BOREHOLE No H1-20</b>		1 OF 2 <b>METRIC</b>	
<b>G.W.P.</b> 156-98-00		<b>LOCATION</b> N 5136042.5; E 273099.9		<b>ORIGINATED BY</b> GM	
<b>DIST</b> _____ <b>HWY</b> 17		<b>BOREHOLE TYPE</b> Portable Equipment, NW Casing, Wash Boring		<b>COMPILED BY</b> EC	
<b>DATUM</b> Geodetic		<b>DATE</b> May 30, 2012		<b>CHECKED BY</b> SEMP	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa						
241.2 0.0	GROUND SURFACE													
240.4 0.8	PEAT (Fibrous) Very soft Black Wet		1	SS	WH									
	SILTY CLAY, varved Firm to stiff Brown to grey Wet		2	SS	3									
			3	SS	2									
			4A											
			4B	SS	4									
	Varved below 2.6 m depth.													
			5	SS	2									
			6A	SS	1									
			6B	TO	PH									
			7	SS	1									
232.4 8.8	CLAYEY SILT Very soft to soft Grey Wet		8	SS	1									
231.0 10.2	SILT Loose Grey Wet		9	SS	9									
229.3 11.9	SAND and SILT, trace clay Very loose to loose Grey Wet		10	SS	7									
			11	SS	2									

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

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+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT		11-1191-0007		RECORD OF BOREHOLE No H1-20				2 OF 2		METRIC						
G.W.P.		156-98-00		LOCATION		N 5136042.5; E 273099.9		ORIGINATED BY		GM						
DIST		HWY 17		BOREHOLE TYPE		Portable Equipment, NW Casing, Wash Boring		COMPILED BY		EC						
DATUM		Geodetic		DATE		May 30, 2012		CHECKED BY		SEMP						
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL	
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × REMOULDED								WATER CONTENT (%)
--- CONTINUED FROM PREVIOUS PAGE ---								20	40	60	80	100				
224.9	SAND and SILT, trace clay Very loose to loose Grey Wet  Approximately 0.3 m of heave encountered at 15.8 m depth.		12	SS	6											
16.3	SAND, some silt Loose to compact Grey Wet		13	SS	11											
			14	SS	8											
			15	SS	13											
220.5			16	SS	30/0.15											
20.7	END OF BOREHOLE SPOON REFUSAL (HAMMER BOUNCING)  Note:  1. Water level at ground surface (Elev. 241.2 m) upon completion of drilling.															

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 1703/14 DATA INPUT:

PROJECT <u>11-1191-0007</u>		<b>RECORD OF BOREHOLE No H1-21</b>		1 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>	LOCATION <u>N 5136033.1; E 273125.8</u>	ORIGINATED BY <u>AC</u>			
DIST <u>          </u> HWY <u>17</u>	BOREHOLE TYPE <u>Portable Equipment, NW Casing, Wash Boring</u>	COMPILED BY <u>EC</u>			
DATUM <u>Geodetic</u>	DATE <u>June 4, 2012</u>	CHECKED BY <u>SEMP</u>			

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>P</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ  kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa						
241.0	GROUND SURFACE													
0.0	PEAT (Fibrous) Very soft Black Wet		1	SS	WH									
			2	SS	WH									
239.6							240							
1.4	CLAY, varved Firm to stiff Brown to grey Wet		3	SS	2									
			4	SS	2		239							
							238							
			5	SS	1									
							237							
			6	SS	WH									
			7	TO	PM		236							
							235							
			8	SS	WH		234							
232.6							233							
8.4	CLAYEY SILT, trace sand Stiff Grey Wet		9	SS	2		232							
231.1							231							
9.9	SILT, trace to some clay, trace sand Loose Grey Wet		10	SS	8		230							
							229							
			11	SS	5		228							
228.0							227							
13.0	SAND and SILT, trace clay Very loose to compact Grey Wet		12	SS	WH									

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

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+ 3, x 3; Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT 11-1191-0007		<b>RECORD OF BOREHOLE No H1-21</b>				2 OF 2 <b>METRIC</b>									
G.W.P. 156-98-00		LOCATION N 5136033.1; E 273125.8				ORIGINATED BY AC									
DIST HWY 17		BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring				COMPILED BY EC									
DATUM Geodetic		DATE June 4, 2012				CHECKED BY SEMP									
SOIL PROFILE			SAMPLES			DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC NATURAL LIQUID UNIT REMARKS LIMIT MOISTURE CONTENT LIMIT WEIGHT & GRAIN SIZE W <sub>p</sub> W W <sub>L</sub> γ DISTRIBUTION (%)						
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	GROUND WATER CONDITIONS	ELEVATION SCALE	SHEAR STRENGTH kPa ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × REMOULDED			WATER CONTENT (%)			γ	GR SA SI CL
	--- CONTINUED FROM PREVIOUS PAGE ---							20 40 60 80 100							
	SAND and SILT, trace clay Very loose to compact Grey Wet		13	SS	4		225								0 52 46 2
			14	SS	3		224								
			15	SS	12		223								
222.4	END OF BOREHOLE														
18.6	Note: 1. Water level at ground surface (Elev. 241.0 m) upon completion of drilling. 2. Ponded water at 0.2 m above ground surface (Elev. 241.2 m).														

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:



PROJECT		11-1191-0007		<b>RECORD OF BOREHOLE No H1-22</b>		1 OF 2 <b>METRIC</b>							
G.W.P.		156-98-00		LOCATION		N 5136046.5; E 273149.8							
DIST		HWY 17		BOREHOLE TYPE		Portable Equipment, NW Casing, Wash Boring							
DATUM		Geodetic		DATE		June 5, 2012							
						ORIGINATED BY AC							
						COMPILED BY EC							
						CHECKED BY SEMP							
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT w <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES								
241.0	GROUND SURFACE												
0.0	PEAT (Fibrous) Very soft Black Wet		1	SS	WH								
			2	SS	WH								
239.8							240						
1.2	Sandy SILT, trace clay Loose Grey Wet		3	SS	6								
239.0							239						
2.0	SILTY CLAY, varved Firm to stiff Grey Wet		4	SS	3								
			5	SS	2								
							238						
			6	SS	1								
			7	TO	PM								
							237						
			8	SS	1								
							236						
							235						
							234						
			9	SS	1								
							233						
							232						
			10	SS	4								
231.0							231						
10.0	SILT, trace clay, trace to some sand Loose Grey Wet		11	SS	10								
							230						
			12	SS	7								
							229						
227.7							228						
13.3	Silty SAND Very loose to loose Grey Wet		13	SS	5								
							227						

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

Continued Next Page

+ 3, x 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT <u>11-1191-0007</u>		<b>RECORD OF BOREHOLE No H1-22</b>		2 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136046.5; E 273149.8</u>		ORIGINATED BY <u>AC</u>	
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Portable Equipment, NW Casing, Wash Boring</u>		COMPILED BY <u>EC</u>	
DATUM <u>Geodetic</u>		DATE <u>June 5, 2012</u>		CHECKED BY <u>SEMP</u>	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT   NATURAL MOISTURE CONTENT   LIQUID LIMIT			UNIT WEIGHT  γ  kN/m³	REMARKS & GRAIN SIZE DISTRIBUTION (%)  GR SA SI CL	
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa				WATER CONTENT (%)					
								○ UNCONFINED   + FIELD VANE ● QUICK TRIAXIAL   × REMOULDED									
--- CONTINUED FROM PREVIOUS PAGE ---								20	40	60	80	100	W <sub>p</sub>	W	W <sub>L</sub>		
222.3 18.7	Silty SAND Very loose to loose Grey Wet		14	SS	6		225										
			15	SS	3			224									
			16	SS	10			223									
	END OF BOREHOLE																
	Note:  1. Water level at ground surface (Elev. 241.0 m) upon completion of drilling.  2. Ponded water at 0.2 m above ground surface (Elev. 241.2 m).																

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT 11-1191-0007			RECORD OF BOREHOLE No H1-23			1 OF 2 METRIC								
G.W.P. 156-98-00		LOCATION N 5136060.4; E 273173.8		ORIGINATED BY AC										
DIST HWY 17		BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring		COMPILED BY EC										
DATUM Geodetic		DATE September 18 and 19, 2012		CHECKED BY SEMP										
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa						
241.3	GROUND SURFACE													
0.0	PEAT (Fibrous)		1A	SS	WH									
241.0	Very soft Black Wet		1B											
0.3	ORGANIC CLAY													
	Soft Brown to black Wet		2	SS	3									
240.0	CLAYEY SILT to SILT													
1.3	Soft Grey Wet		3	SS	3									
239.1	CLAY, varved													
2.2	Soft to firm Grey Wet		4	SS	2									
			5	SS	2									
			6	SS	WH									
			7	TO	PM									
234.0	CLAYEY SILT, trace sand													
7.3	Firm Grey Wet		8	SS	1									
232.6	SILT, trace sand, trace to some clay													
8.7	Very loose to loose Grey Wet		9	SS	7									
			10	SS	3									
229.6	SAND and SILT to SAND, trace clay													
11.7	Loose to compact Grey Wet		11	SS	5									
			12	SS	4									

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

Continued Next Page

+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT <u>11-1191-0007</u>		<b>RECORD OF BOREHOLE No H1-23</b>		2 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136060.4; E 273173.8</u>		ORIGINATED BY <u>AC</u>	
DIST <u>      </u> HWY <u>17</u>		BOREHOLE TYPE <u>Portable Equipment, NW Casing, Wash Boring</u>		COMPILED BY <u>EC</u>	
DATUM <u>Geodetic</u>		DATE <u>September 18 and 19, 2012</u>		CHECKED BY <u>SEMP</u>	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC NATURAL LIQUID LIMIT MOISTURE LIMIT CONTENT			UNIT WEIGHT  $\gamma$  kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)  GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa					WATER CONTENT (%)				
								<div><div>20406080100</div><div>○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × REMOULDED</div></div>					<div><div>204060</div><div>○</div></div>				
	— CONTINUED FROM PREVIOUS PAGE —																
	SAND and SILT to SAND, trace clay Loose to compact Grey Wet		13	SS	11		226										
							225										
			14	SS	10												
223.9							224										
17.4	END OF BOREHOLE  Note:  1. Water level at ground surface (Elev. 241.3 m) upon completion of drilling.																

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT 11-1191-0007			RECORD OF BOREHOLE No H1-24			1 OF 2 METRIC							
G.W.P. 156-98-00			LOCATION N 5136051.4; E 273199.8			ORIGINATED BY ID							
DIST _____ HWY 17			BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring			COMPILED BY EC							
DATUM Geodetic			DATE September 25 and 26, 2012			CHECKED BY SEMP							
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES								
241.2	GROUND SURFACE												
0.0	PEAT (Fibrous) Very soft Brown to black Wet		1	SS	WH		241						
240.5													
0.7	CLAY to SILTY CLAY Very soft to firm Brown to grey Wet		2	SS	4		240						
			3	SS	1								
	Trace organics above 2.3 m depth.		4	SS	1		239						
			5	SS	1		238						
	Varved below 3.7 m depth.		6	SS	WH		237						
			7	SS	WH		236						
			8	TO	PM		235						
			9	SS	1		234						
233.0	Sandy SILT, trace to some gravel Loose Grey Wet						233						
8.2			10	SS	9		232						
			11	SS	5		231						
			12	SS	4		230						
			13	SS	7		229						
							228						
							227						

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

Continued Next Page

+ 3, x 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT 11-1191-0007		<b>RECORD OF BOREHOLE No H1-24</b>				2 OF 2 <b>METRIC</b>											
G.W.P. 156-98-00		LOCATION N 5136051.4; E 273199.8				ORIGINATED BY ID											
DIST HWY 17		BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring				COMPILED BY EC											
DATUM Geodetic		DATE September 25 and 26, 2012				CHECKED BY SEMP											
SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			UNIT WEIGHT $\gamma$ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL	
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH kPa ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × REMOULDED					WATER CONTENT (%) W <sub>p</sub> W W <sub>L</sub>				
	— CONTINUED FROM PREVIOUS PAGE —						20	40	60	80	100						
225.4	Sandy SILT, trace to some gravel Loose Grey Wet		14	SS	8		226										
15.8	END OF BOREHOLE  Note: 1. Water level at ground surface (Elev. 241.2 m) upon completion of drilling.																

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT 11-1191-0007			RECORD OF BOREHOLE No H1-25			1 OF 2 METRIC		
G.W.P. 156-98-00			LOCATION N 5136037.4; E 273232.1			ORIGINATED BY ID		
DIST _____ HWY 17			BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring			COMPILED BY EC		
DATUM Geodetic			DATE September 26, 2012			CHECKED BY SEMP		
SOIL PROFILE			SAMPLES			DYNAMIC CONE PENETRATION RESISTANCE PLOT		
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	GROUND WATER CONDITIONS	ELEVATION SCALE	20 40 60 80 100 SHEAR STRENGTH kPa ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × REMOULDED 20 40 60 80 100 PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT W <sub>p</sub> W W <sub>L</sub> WATER CONTENT (%)
241.2	GROUND SURFACE							
0.0	PEAT (Fibrous) Very soft Brown Wet		1	SS	WH		241	
240.6								
0.6	CLAYEY SILT, trace organics Very soft to firm Grey Wet		2	SS	1		240	
			3	SS	6		239	
			4	SS	3			
238.2								
3.0	CLAY, varved Soft Grey Wet		5	SS	1		238	
			6	TO	PM		237	
			7	SS	1		236	
			8	TO	PM		235	
234.0							234	
7.2	SILT, some clay Very loose to loose Grey Wet		9	SS	2		233	
			10	SS	8		232	
			11	SS	8		231	
							230	
229.5								
11.7	Silty SAND, trace clay Very loose Grey Wet		12	SS	4		229	
							228	
227.9								
13.3	Gravelly SAND Compact Grey Wet		13	SS	28		227	

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:


Continued Next Page

+ 3, x 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT 11-1191-0007			RECORD OF BOREHOLE No H1-25				2 OF 2 METRIC						
G.W.P. 156-98-00			LOCATION N 5136037.4; E 273232.1				ORIGINATED BY ID						
DIST HWY 17			BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring				COMPILED BY EC						
DATUM Geodetic			DATE September 26, 2012				CHECKED BY SEMP						
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES								
	--- CONTINUED FROM PREVIOUS PAGE ---												
225.1	Gravelly SAND Compact Grey Wet		14	SS	21		226						
16.1	END OF BOREHOLE						225						
223.5							224						
17.7	END OF DCPT REFUSAL TO FURTHER PENETRATION (HAMMER BOUNCING)  Note: 1. Water level at ground surface upon completion of drilling.												

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:



PROJECT 11-1191-0007		RECORD OF BOREHOLE No H1-26		1 OF 1 METRIC										
G.W.P. 156-98-00		LOCATION N 5136058.0; E 273255.1		ORIGINATED BY ID										
DIST _____ HWY 17		BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring		COMPILED BY EC										
DATUM Geodetic		DATE October 22 and 23, 2012		CHECKED BY SEMP										
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa						
241.3	GROUND SURFACE													
0.0 241.0 0.3	PEAT (Fibrous) Very soft Brown Wet		1	SS	1									
	CLAY Firm to stiff Brown to grey Wet		2	SS	14									
			3	SS	2									
			4	SS	WH									
237.6														
3.7	SILT, some clay Very loose Grey Wet		5	SS	WH									
			6	SS	WH									
235.7														
5.6	SAND and SILT, trace to some gravel, trace clay Loose to dense Grey Wet		7	SS	6									
			8	SS	6									
			9	SS	41									
232.2														
9.1	END OF BOREHOLE													
230.3														
11.0	END OF DCPT REFUSAL TO FURTHER PENETRATION (107 Blows / 0.30 m)													
Notes: 1. Water level at ground surface (Elev. 241.3 m) upon completion of drilling.														

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT 11-1191-0007

**RECORD OF BOREHOLE No H1-29**

1 OF 1 **METRIC**

G.W.P. 156-98-00

LOCATION N 5136058.6; E 273332.0

ORIGINATED BY GM

DIST

HWY 17

BOREHOLE TYPE 108 mm I.D. Continuous Flight Hollow Stem Augers

COMPILED BY EC

DATUM Geodetic



DATE April 23, 2012

CHECKED BY SEMP

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			UNIT WEIGHT $\gamma$ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa				
								WATER CONTENT (%)				
241.3	GROUND SURFACE											
0.0	TOPSOIL		1	SS	4							
240.9			2	SS	15							
0.4	CLAY, varved Soft to stiff Brown to grey Wet		3	SS	10							
			4	SS	3							
			5	SS	3							
236.4			6	SS	3							
4.9	SILT, some sand, trace clay Very loose Grey Wet		7	SS	4							
	Approximately 0.3 and 1.2 m of heave encountered below 5.8 m depth.		8	SS	WH							
234.1												
7.2	Silty SAND, trace gravel Very loose Grey Wet											
232.8	END OF BOREHOLE AUGER REFUSAL											
8.5	Note:  1. Water level at a depth of 3.0 m below ground surface (Elev. 238.3 m) upon completion of drilling.											

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

+ 3, x 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

PROJECT 11-1191-0007		RECORD OF BOREHOLE No H1-30				1 OF 1 METRIC										
G.W.P. 156-98-00		LOCATION N 5136075.0; E 273351.3		ORIGINATED BY GM												
DIST HWY 17		BOREHOLE TYPE 108 mm I.D. Continuous Flight Hollow Stem Augers		COMPILED BY EC												
DATUM Geodetic		DATE April 26, 2012		CHECKED BY SEMP												
SOIL PROFILE			SAMPLES		GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)		
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH kPa							WATER CONTENT (%)	
241.2	GROUND SURFACE						20	40	60	80	100					
0.0	PEAT (Fibrous)		1	SS	5		241									
0.2	Black Wet															
	SILTY CLAY Firm to stiff Brown to grey Wet		2	SS	10											
		3	SS	8												
239.0																
2.2	SILT, trace to some clay, trace sand Compact Grey Wet	4	SS	13										0 2 89 9		
		5	SS	26												
237.5																
3.7	Silty SAND, trace to some gravel, trace clay Very loose to compact Grey Brown	6	SS	15												
		7	SS	3												
	Between 0.9 m and 4.6 m of heave encountered below 5.2 m depth.															
		8	SS	6									15 63 21 1			
		9	SS	20												
233.0	END OF BOREHOLE						233									
8.2							232									
							231									
230.7	END OF DCPT REFUSAL TO FURTHER PENETRATION (HAMMER BOUNCING)															
10.5	Note:  1. Water level at a depth of 1.8 m below ground surface (Elev. 239.4 m) upon completion of drilling.															

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

<b>PROJECT</b> 11-1191-0007		<b>RECORD OF BOREHOLE No C1-1</b>		1 OF 1 <b>METRIC</b>	
<b>G.W.P.</b> 156-98-00		<b>LOCATION</b> N 5136117.1; E 273222.2		<b>ORIGINATED BY</b> ID	
<b>DIST</b> HWY 17		<b>BOREHOLE TYPE</b> Portable Equipment, NW Casing, Wash Boring		<b>COMPILED BY</b> EC	
<b>DATUM</b> Geodetic		<b>DATE</b> September 28 and October 1, 2012		<b>CHECKED BY</b> SEMP	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT w <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa	WATER CONTENT (%)					
241.7	GROUND SURFACE													
0.1	TOPSOIL		1	SS	2									
	CLAY to SILTY CLAY, varved Soft to firm Brown to grey Moist to wet		2	SS	4									
			3	SS	7									
	Trace organics above 2.1 m depth.		4	SS	2									
			5	SS	WH									
			6	SS	WH									
235.8														
5.9	SILT, trace sand, trace clay Loose to compact Grey Wet		7	SS	7									
			8	SS	4									
232.5														
9.2	END OF BOREHOLE SPOON REFUSAL (HAMMER BOUNCING)		9	SS	750.08									
	Note:  1. Water level at a depth of 0.6 m below ground surface (Elev. 241.1 m) upon completion of drilling.  2. Moved 1.0 m east of Borehole C1-1 and obtained a Shelby tube at 3.7 m depth. Advanced Dynamic Cone Penetration Test below 5.9 m depth.													

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

+ 3, X 3: Numbers refer to      ○ 3% STRAIN AT FAILURE  
Sensitivity

PROJECT		11-1191-0007		RECORD OF BOREHOLE No C1-2		1 OF 1 METRIC						
G.W.P.		156-98-00		LOCATION		N 5136091.7; E 273224.8						
DIST		HWY 17		BOREHOLE TYPE		Portable Equipment, NW Casing, Wash Boring						
DATUM		Geodetic		DATE		September 20, 2012						
						ORIGINATED BY AC						
						COMPILED BY EC						
						CHECKED BY SEMP						
SOIL PROFILE		SAMPLES		GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER			TYPE	"N" VALUES					
241.4	GROUND SURFACE											
241.0	PEAT (Fibrous)		1A	SS	WH							
241.1	Very soft		1B	SS								
0.3	Black Wet											
	CLAY to SILTY CLAY											
	Soft		2	SS	2							
	Brown to grey Wet											
	Trace organics above 2.1 m depth.		3	SS	3							
			4	SS	2							
			5	SS	3							
236.1			6	TO	PM							
5.3	SILT, trace to some sand, trace clay											
	Loose to compact		7	SS	11							
	Grey Wet		8	SS	9							
			9	SS	15							
			10	SS	6							
233.3	END OF BOREHOLE											
8.1												
229.0	END OF DCPT REFUSAL TO FURTHER PENETRATION (100 Blows / 0.25 m)											
12.4	Note: 1. Water level at ground surface (Elev. 241.4 m) upon completion of drilling.											

+ 3, × 3; Numbers refer to Sensitivity

○ 3% STRAIN AT FAILURE

PROJECT 11-1191-0007			RECORD OF BOREHOLE No C1-3			1 OF 2 METRIC							
G.W.P. 156-98-00			LOCATION N 5136073.1; E 273227.8			ORIGINATED BY ID							
DIST HWY 17			BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring			COMPILED BY EC							
DATUM Geodetic			DATE September 27, 2012			CHECKED BY SEMP							
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES								
241.5	GROUND SURFACE												
0.0	PEAT (Fibrous) Soft Black Moist to wet		1A	SS	2		241						
240.8			1B										
0.7	SILTY CLAY, trace sand Soft Grey Wet		2	SS	3		240						0 1 56 43
			3	SS	2								
			4	SS	1		239						
	Trace organics above 2.3 m depth.		5	SS	WH		238						
			6	TO	PM		237						
236.0							236						
5.5	SILT, some clay Compact Grey Wet		7	SS	10		235						
234.3							234						
7.2	SAND, trace silt Loose to compact Grey Wet		8	SS	6		233						
			9	SS	10		232						0 98 (2)
	Between 0.9 m and 1.8 m of heave encountered below 9.7 m depth.		10	SS	10		231						
230.2							230						
11.3	END OF BOREHOLE						229						
							228						
227.2													
14.3													

Continued Next Page

+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT 11-1191-0007		<b>RECORD OF BOREHOLE No C1-3</b>				2 OF 2 <b>METRIC</b>								
G.W.P. 156-98-00		LOCATION N 5136073.1; E 273227.8				ORIGINATED BY ID								
DIST _____ HWY 17		BOREHOLE TYPE Portable Equipment, NW Casing, Wash Boring				COMPILED BY EC								
DATUM Geodetic		DATE September 27, 2012				CHECKED BY SEMP								
SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT $\gamma$ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH kPa						
— CONTINUED FROM PREVIOUS PAGE —							<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> <span>20 40 60 80 100</span> </div> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> <span>20 40 60 80 100</span> </div> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 5px;"> <span>20 40 60 80 100</span> </div>							
	END OF DCPT REFUSAL TO FURTHER PENETRATION (HAMMER BOUNCING)  Note:  1. Water level at a depth of 0.3 m below ground surface (Elev. 241.2 m) upon completion of drilling.													

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT <u>11-1191-0007</u>				<b>RECORD OF DCPT No H1-DC1</b>				1 OF 1 <b>METRIC</b>							
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136084.5; E 273021.1</u>		ORIGINATED BY <u>GM</u>											
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Dynamic Cone Penetration Test</u>		COMPILED BY <u>EC</u>											
DATUM <u>Geodetic</u>		DATE <u>June 11, 2012</u>		CHECKED BY <u>SEMP</u>											
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			20	40	60					
245.1	GROUND SURFACE						245								
0.0															
244.6															
0.5	END OF DCPT REFUSAL TO FURTHER PENETRATION (HAMMER BOUNCING)														

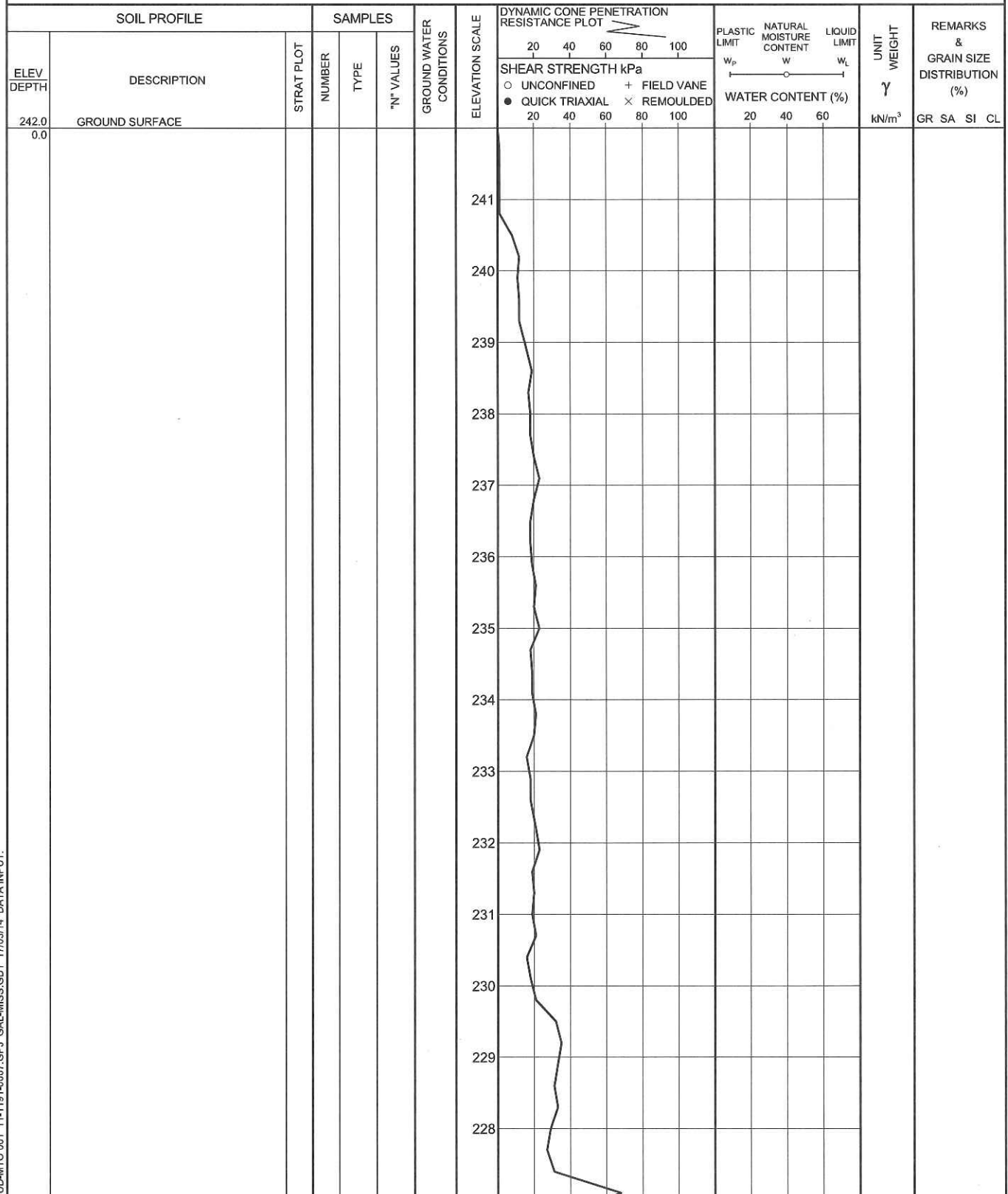
SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:



PROJECT <u>11-1191-0007</u>				<b>RECORD OF DCPT No H1-DC2</b>				1 OF 1 <b>METRIC</b>						
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136060.1; E 273070.4</u>				ORIGINATED BY <u>GM</u>								
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Dynamic Cone Penetration Test</u>				COMPILED BY <u>EC</u>								
DATUM <u>Geodetic</u>		DATE <u>June 8, 2012</u>				CHECKED BY <u>SEMP</u>								
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			UNIT WEIGHT $\gamma$ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)  GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			SHEAR STRENGTH kPa	W <sub>p</sub>	W	W <sub>L</sub>	WATER CONTENT (%)		
241.3 0.0	GROUND SURFACE													
241														
240														
239														
238														
237														
236														
235														
234														
233														
232														
231														
230														
229														
228														
227.6 13.7	END OF DCPT REFUSAL TO FURTHER PENETRATION (100 Blows / 0.28 m)													

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT <u>11-1191-0007</u>		<b>RECORD OF DCPT No H1-DC3</b>		1 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>	LOCATION <u>N 5136100.9; E 273120.1</u>	ORIGINATED BY <u>AC</u>			
DIST <u>          </u> HWY <u>17</u>	BOREHOLE TYPE <u>Dynamic Cone Penetration Test</u>	COMPILED BY <u>EC</u>			
DATUM <u>Geodetic</u>	DATE <u>September 17, 2012</u>	CHECKED BY <u>SEMP</u>			



Continued Next Page

+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE

SUD-WTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT <u>11-1191-0007</u>				<b>RECORD OF DCPT No H1-DC3</b>				2 OF 2 <b>METRIC</b>			
G.W.P. <u>156-98-00</u>				LOCATION <u>N 5136100.9; E 273120.1</u>				ORIGINATED BY <u>AC</u>			
DIST <u>          </u> HWY <u>17</u>				BOREHOLE TYPE <u>Dynamic Cone Penetration Test</u>				COMPILED BY <u>EC</u>			
DATUM <u>Geodetic</u>				DATE <u>September 17, 2012</u>				CHECKED BY <u>SEMP</u>			

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT SHEAR STRENGTH kPa ○ UNCONFINED    + FIELD VANE ● QUICK TRIAXIAL    × REMOULDED	PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT W <sub>p</sub> — W — W <sub>L</sub> WATER CONTENT (%)	UNIT WEIGHT γ kN/m <sup>3</sup>	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES						
	— CONTINUED FROM PREVIOUS PAGE —										
224.7							226				
17.3	END OF DCPT REFUSAL TO FURTHER PENETRATION (100 Blows / 0.25 m)						225				

SUD-MTO 001 11-1191-0007.GPJ CAL-MISS.GDT 17/03/14 DATA INPUT:

PROJECT <u>11-1191-0007</u>		<b>RECORD OF DCPT No H1-DC4</b>				1 OF 2 <b>METRIC</b>	
G.W.P. <u>156-98-00</u>		LOCATION <u>N 5136072.3; E 273172.7</u>				ORIGINATED BY <u>AC</u>	
DIST <u>          </u> HWY <u>17</u>		BOREHOLE TYPE <u>Dynamic Cone Penetration Test</u>				COMPILED BY <u>EC</u>	
DATUM <u>Geodetic</u>		DATE <u>September 18, 2012</u>				CHECKED BY <u>SEMP</u>	

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES								
241.3 0.0	GROUND SURFACE												
							241						
							240						
							239						
							238						
							237						
							236						
							235						
							234						
							233						
							232						
							231						
							230						
							229						
							228						
							227						
226.4													

SUD-MTO 001 11-1191-0007.GPJ GAL-MISS.GDT 17/03/14 DATA INPUT:

Continued Next Page

+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE



+ 3, × 3: Numbers refer to Sensitivity      ○ 3% STRAIN AT FAILURE