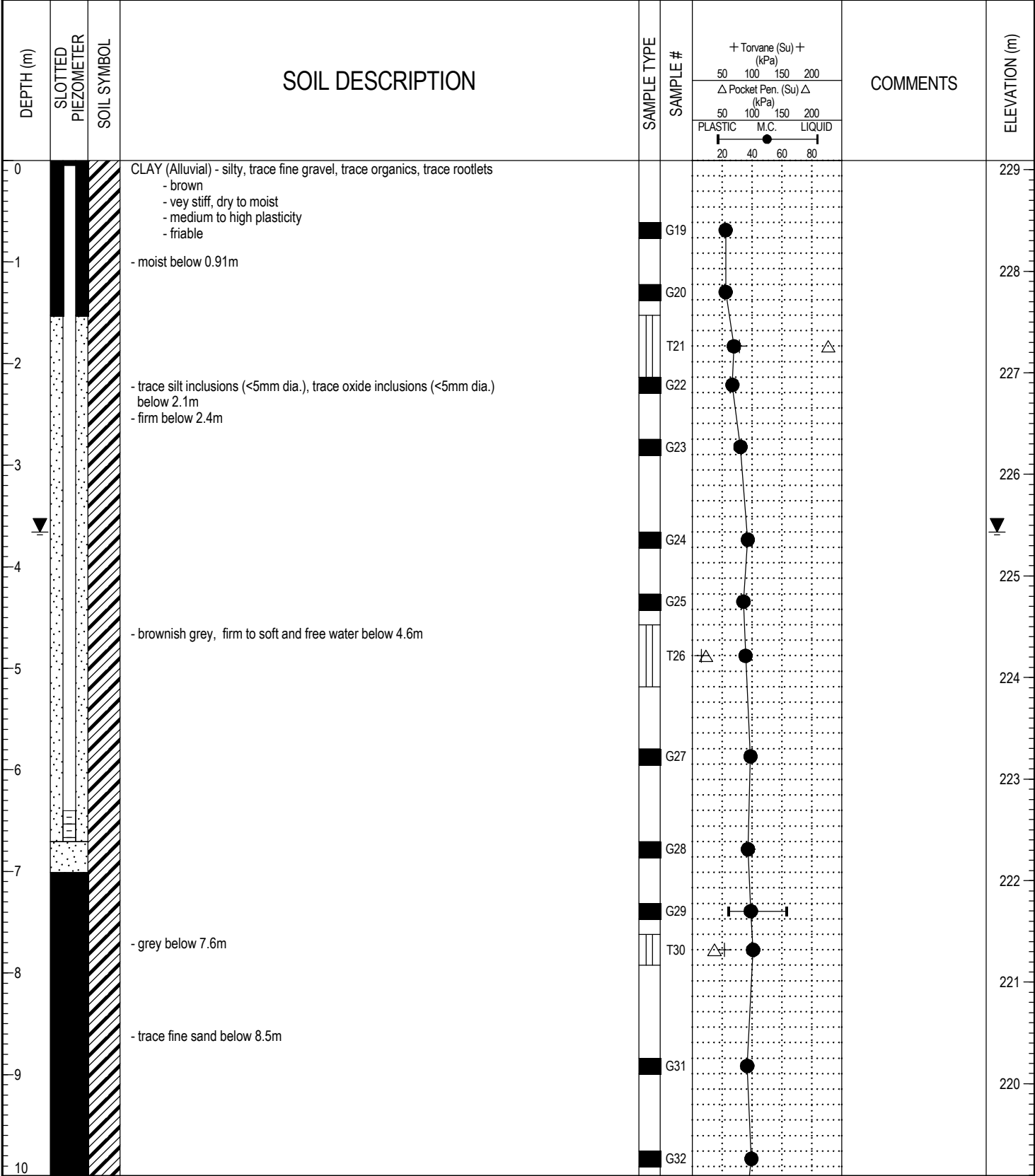
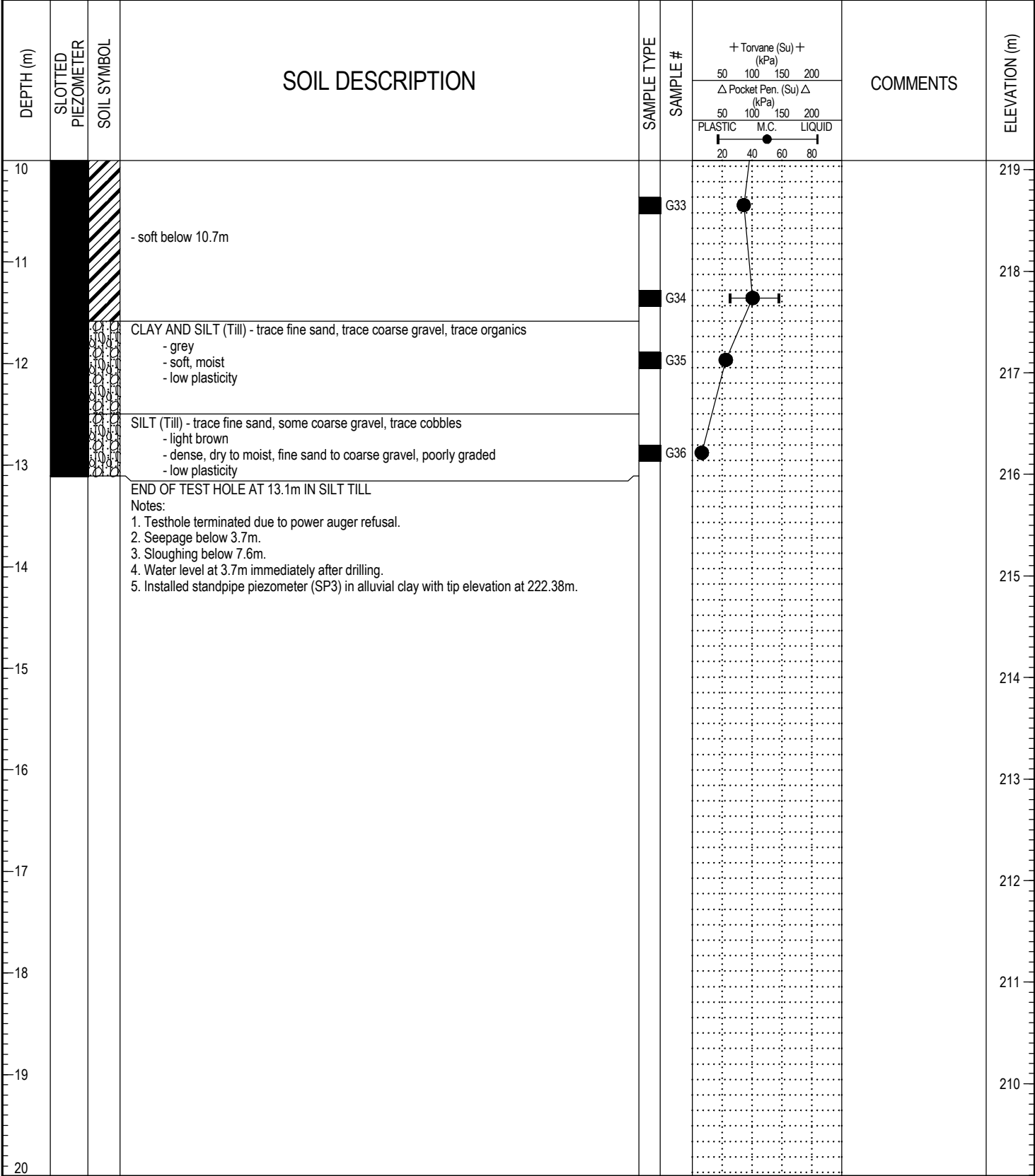


PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-01		
LOCATION: UTM: Zone14 E 0633327.66 N 5521482.83				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61		METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 229.09		
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



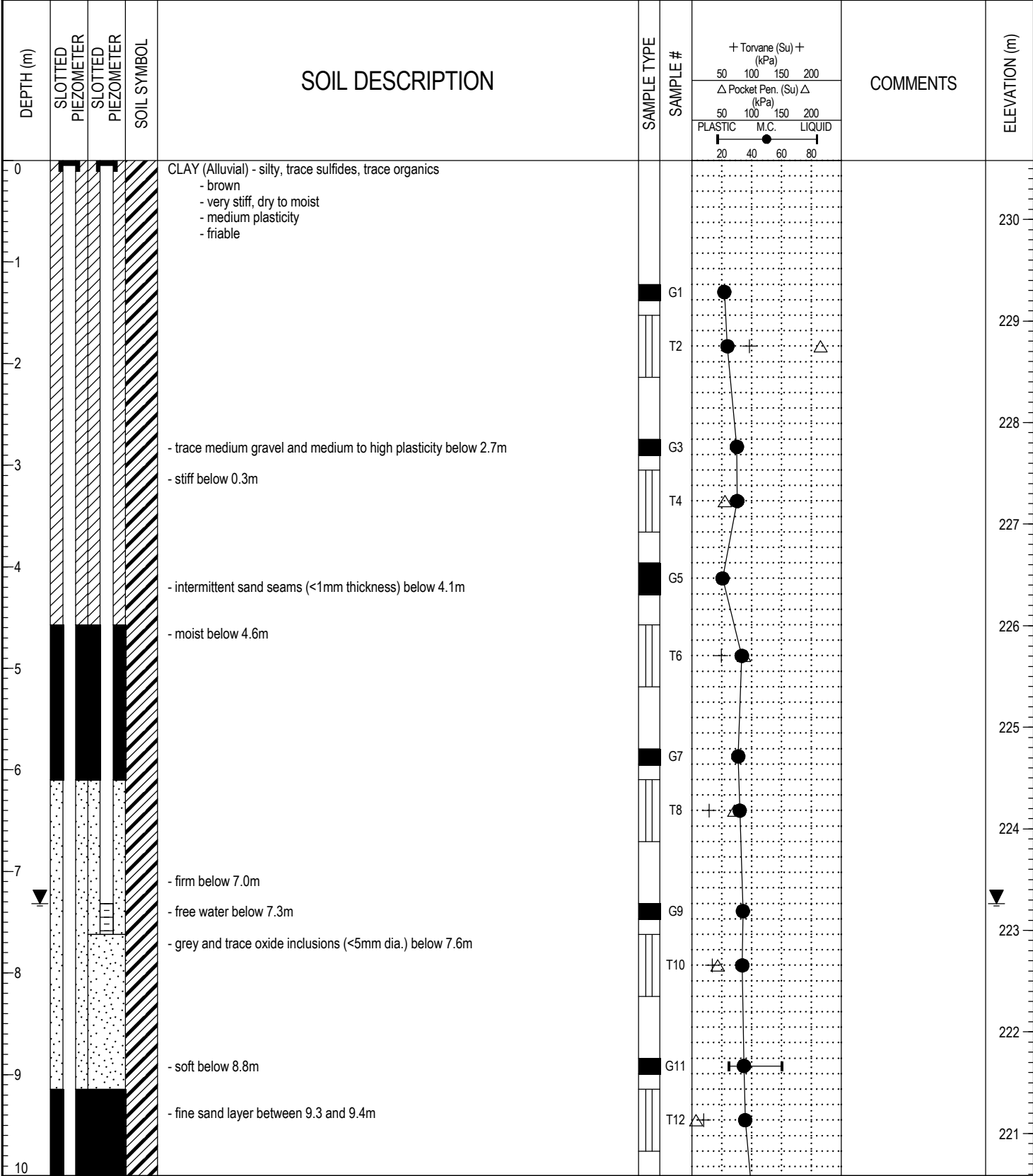
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-01		
LOCATION: UTM: Zone14 E 0633327.66 N 5521482.83				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 229.09	
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



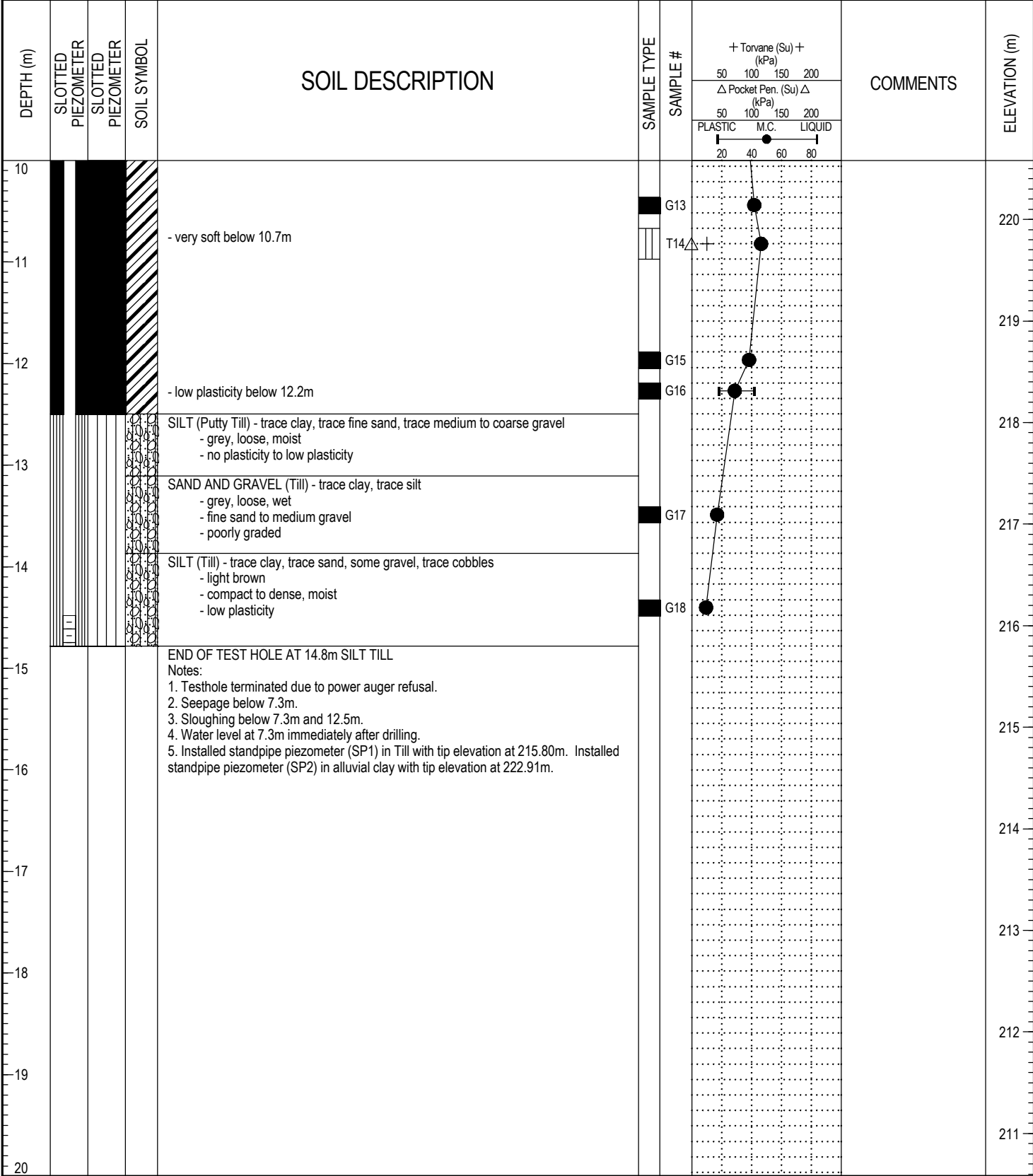
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-02		
LOCATION: UTM: Zone14 E 0633246.84 N 5521368.52				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 230.58	
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



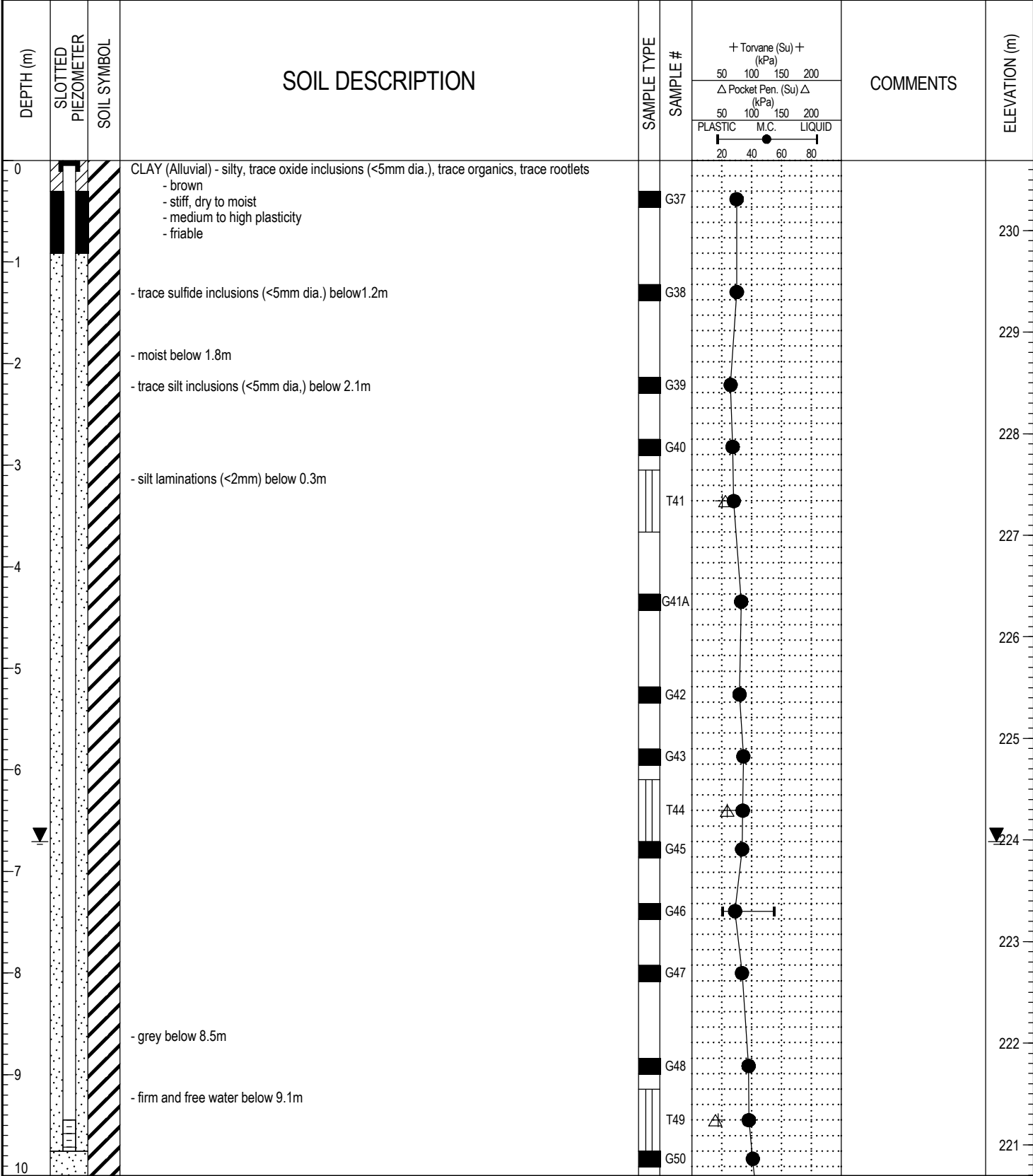
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-02		
LOCATION: UTM: Zone14 E 0633246.84 N 5521368.52				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61		METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 230.58		
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



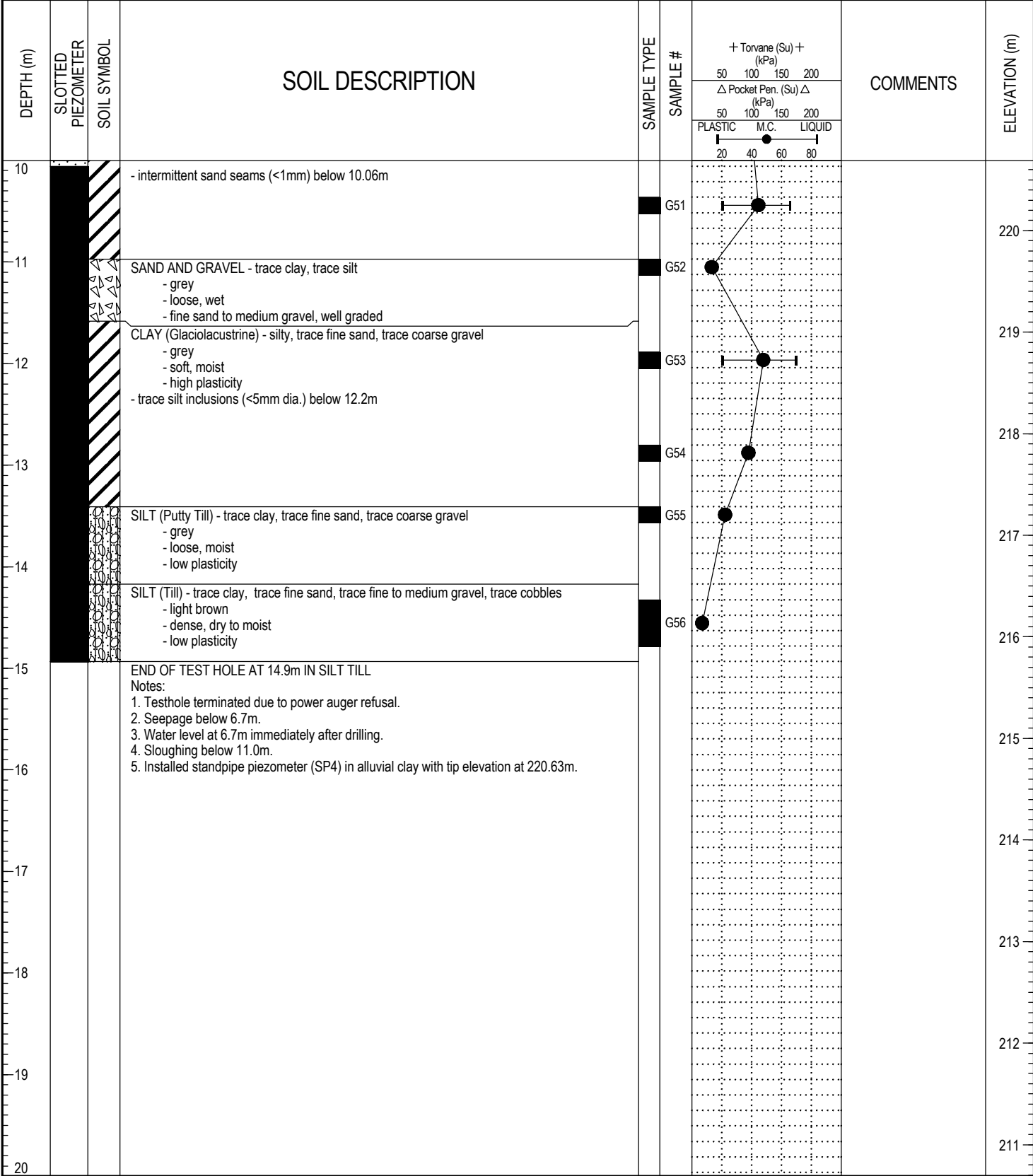
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-03		
LOCATION: UTM: Zone14 E 633267.91 N 5521223.68				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 230.69	
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



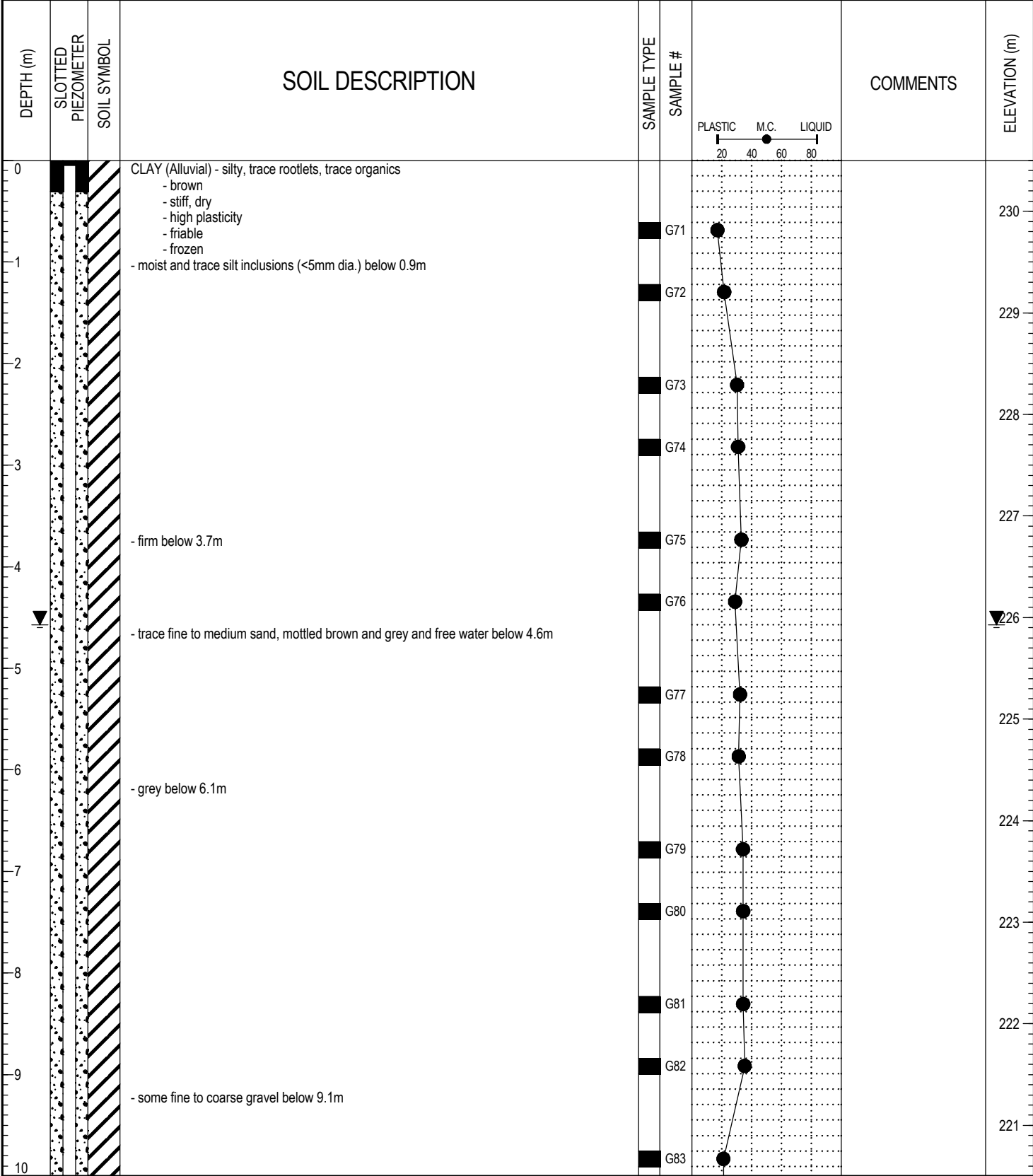
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-03			
LOCATION: UTM: Zone14 E 633267.91 N 5521223.68				PROJECT NO.: 0265-390-00-0300			
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 230.69		
SAMPLE TYPE		GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE		BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



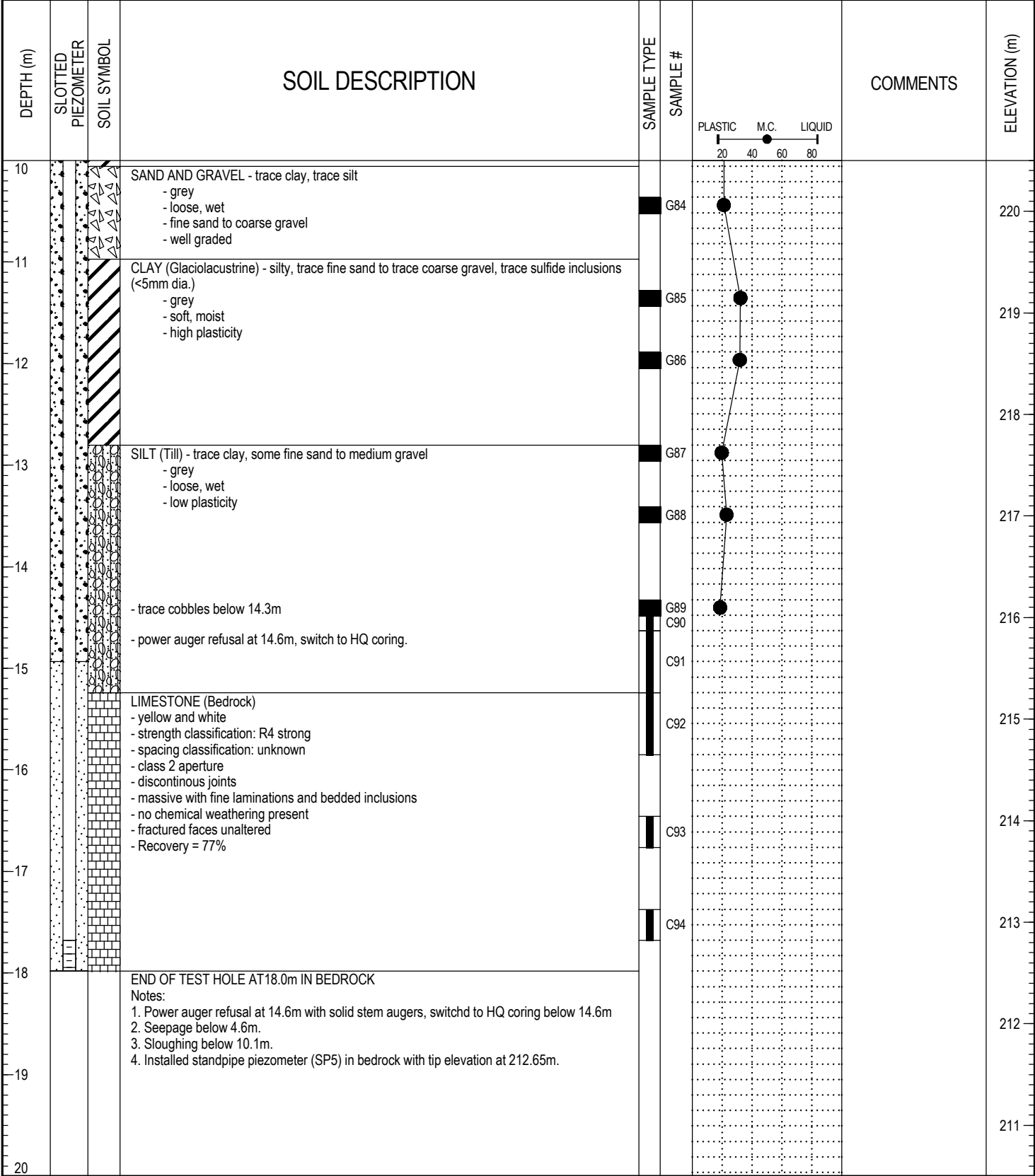
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-04		
LOCATION: UTM: Zone14 E 633349.49 N 5521064.84				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: SSA 150mm dia., HQ Coring		ELEVATION (m): 230.5	
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



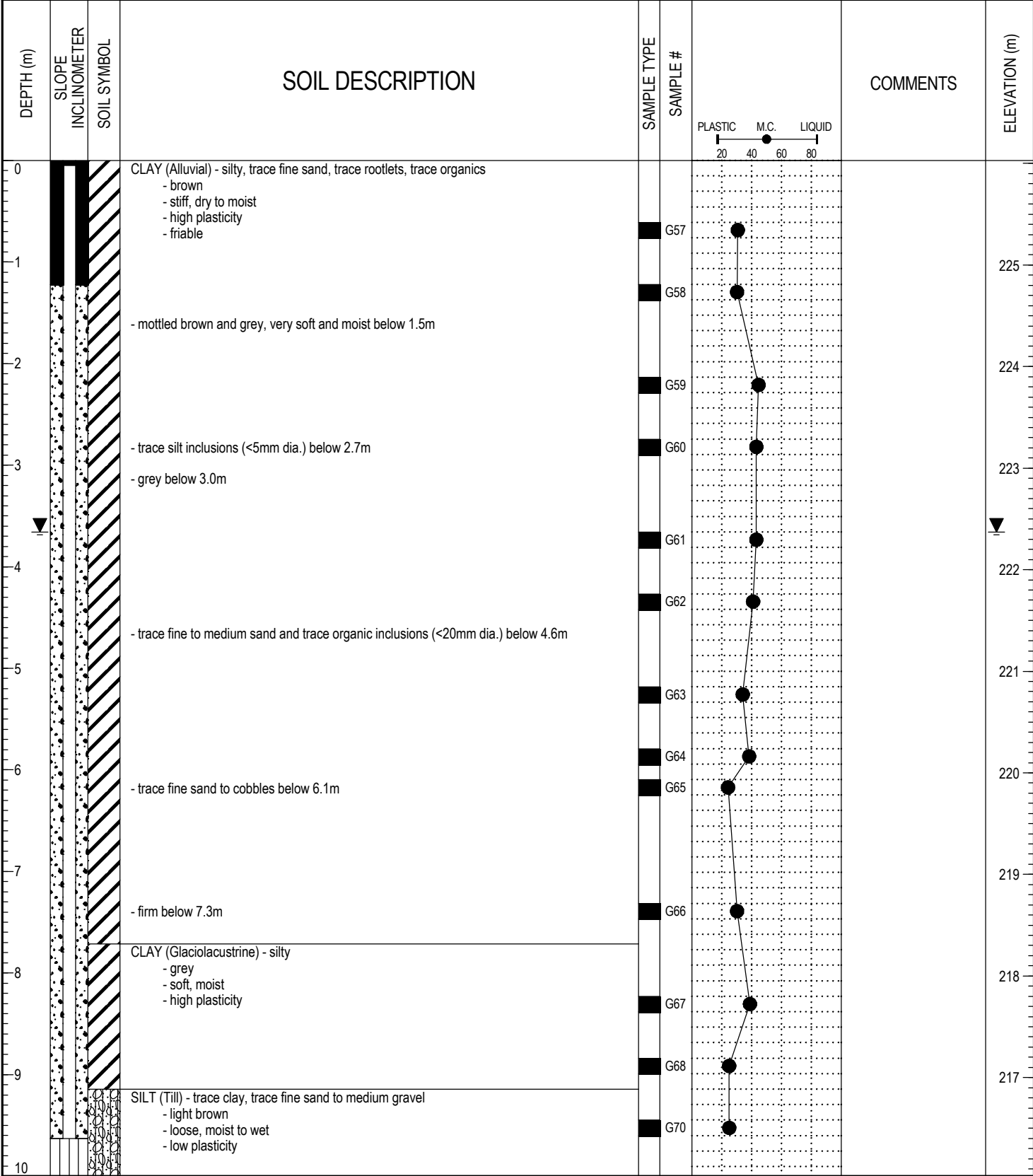
LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-04		
LOCATION: UTM: Zone14 E 633349.49 N 5521064.84				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: SSA 150mm dia., HQ Coring		ELEVATION (m): 230.5	
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization		CLIENT: City of Winnipeg		TESTHOLE NO: TH06-05		
LOCATION: UTM: Zone14 E 633326.96 N 5521053.14				PROJECT NO.: 0265-390-00-0300		
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61			METHOD: Solid Stem Auger 150mm dia.		ELEVATION (m): 226.029	
SAMPLE TYPE	GRAB	SHELBY TUBE	SPLIT SPOON	BULK	NO RECOVERY	CORE
BACKFILL TYPE	BENTONITE	GRAVEL	SLOUGH	GROUT	CUTTINGS	SAND



LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06

PROJECT: St. Vital Park - Phase 1: Riverbank Stabilization	CLIENT: City of Winnipeg	TESTHOLE NO: TH06-05
LOCATION: UTM: Zone14 E 633326.96 N 5521053.14		PROJECT NO.: 0265-390-00-0300
CONTRACTOR: Paddock Drilling Ltd., Nodwell S-61	METHOD: Solid Stem Auger 150mm dia.	ELEVATION (m): 226.029
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input 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

DEPTH (m)	SLOPE INCLINOMETER	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	PLASTIC	M.C.	LIQUID	COMMENTS	ELEVATION (m)
10	<input type="checkbox"/>	<input type="checkbox"/>	END OF TESTHOLE AT 10.2m IN SILT TILL Notes: 1. Testhole terminated due to power auger refusal. 2. Seepage below 3.7m. 3. Sloughing below 1.8m. 4. Water level at 3.7m immediately after drilling. 5. Installed Slope Incliner (SI05) in separate test hole using hollow stem augers. S							226.029
11										215
12										214
13										213
14										212
15										211
16										210
17										209
18										208
19										207
20										207

LOG OF TESTHOLE ST.VITAL PARK TESTHOLES.GPJ UMA.GDT 12/19/06



LOGGED BY: Ryan Belbas	COMPLETION DEPTH: 10.06 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 11/30/06
PROJECT ENGINEER: Ken Skaffeld	Page 2 of 2

CLIENT CITY OF WINNIPEG, PROPERTY AND DEVELOPMENT SERVICES
PROJECT DEPARTMENT ST. VITAL PARK STABILITY ASSESSMENT
SITE ST. VITAL PARK, WINNIPEG, MANITOBA
LOCATION Top of Slope, See Dwg. 99-107-16 01
DRILLING METHOD 180 mm dia. Hollow Stem Auger

JOB NO. 99-107-16
GROUND ELEV. 230.68 m (GEODETIC)
TOP OF PVC ELEV.
WATER ELEV.
DATE DRILLED 18/11/99

ELEV. (m)	DEPTH (m)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	SPT (N) blows/0.15 m	CONE blows/0.15 m	10 20 30	P.L. MC L.L.	Cu from Uncon. Comp. Test (kPa)	Cu TORVANE (kPa)	% - kPa	20 40 60 80
230.43	0		ORGANIC CLAY - Dark brown, soft to firm, intermediate plasticity, some silt, trace organic matter, crumbly. SILTY CLAY (Cl-CH Alluvium) - Dark brown, moist, firm, intermediate plasticity, trace fine grained sand, trace organic matter to 0.6 m depth, crumbly. -stiff between 0.6 and 12.2 m -trace silt inclusions (1 cm ø) below 0.6 m			1								
	1					2								
	2		-mottled grey and brown between 1.63 and 7.3 m -intermediate to high plasticity between 1.63 and 4.25 m -trace oxidation below 1.63 m			3								
	3					4								
	4		-trace black organic matter between 3.05 and 4.25 m			5								
	5					6								
	6		-high plasticity below 4.25 m -trace fine grained gravel between 4.25 and 4.9 m			7								
	7					8								
	8		-trace fine to medium grained sand between 5.5 and 6.1 m -trace black organic matter below 5.5 m			9								
	9					10								
	10		-trace fine grained sand between 6.1 and 7.3 m			11								
	11					12								
	12		-dark grey below 7.3 m -trace fine to medium grained sand between 7.3 and 9.15 m			13								
	13					14								
	14					15								
	15		-Grain Size Distribution: 4.4% sand, 32.7% silt, 62.9% clay at 8.8 m -trace fine to coarse grained sand between 9.15 and 9.75 m			16								
	16					17								
	17		-trace fine grained sand between 9.75 and 11 m			18								

SPT FT. M. CALC 9910716.GPJ

SAMPLE TYPE SPLIT SPOON SHELBY SPLIT BARREL SAMPLER AUGER GRAB CORE SAMPLER

CONTRACTOR Paddock Drilling Ltd. INSPECTOR A. PROSKIN APPROVED T.C. DATE 14/01/00

ELEV. (m)	DEPTH (m)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE	NUMBER	SPT (N) blows/0.15 m ▲	P.L. MC L.L.	Cu from Uncon. Comp. Test (kPa) <	Cu TORVANE (kPa) <
								blows/0.15 m Δ	% - kPa	20 40 60 80	20 40 60 80
			-trace fine to medium grained sand, traces of water below 11 m				19				
218.50	12		-silty sand layer (100 mm thick), grey, wet, compact, fine to medium grained, trace coarse grained, trace fine to coarse grained gravel, trace shells at 12.1 m				20				
	13		SILTY CLAY (CH Lacustrine) - Dark grey, moist, firm, high plasticity.				21				
	13.1		-trace fine to coarse grained sand, trace fine grained gravel below 12.2 m				22				
216.81	14		-Grain Size Distribution: 1.3% gravel, 13.8% sand, 21.8% silt, 63.1% clay at 13.1 m				23				
216.66	14		-soft below 13.4 m								
	14		SILTY CLAY TILL - Tan, moist, stiff, low plasticity, trace fine to coarse grained sand, trace fine grained gravel.								
			AUGER REFUSAL @ 14.02 m								
	15		Notes: 1. No water infiltration observed at end of drilling. 2. Test hole stayed open with no sloughing at completion of drilling.								
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										

SPT, FI, M, CALC, 9810716.GPJ

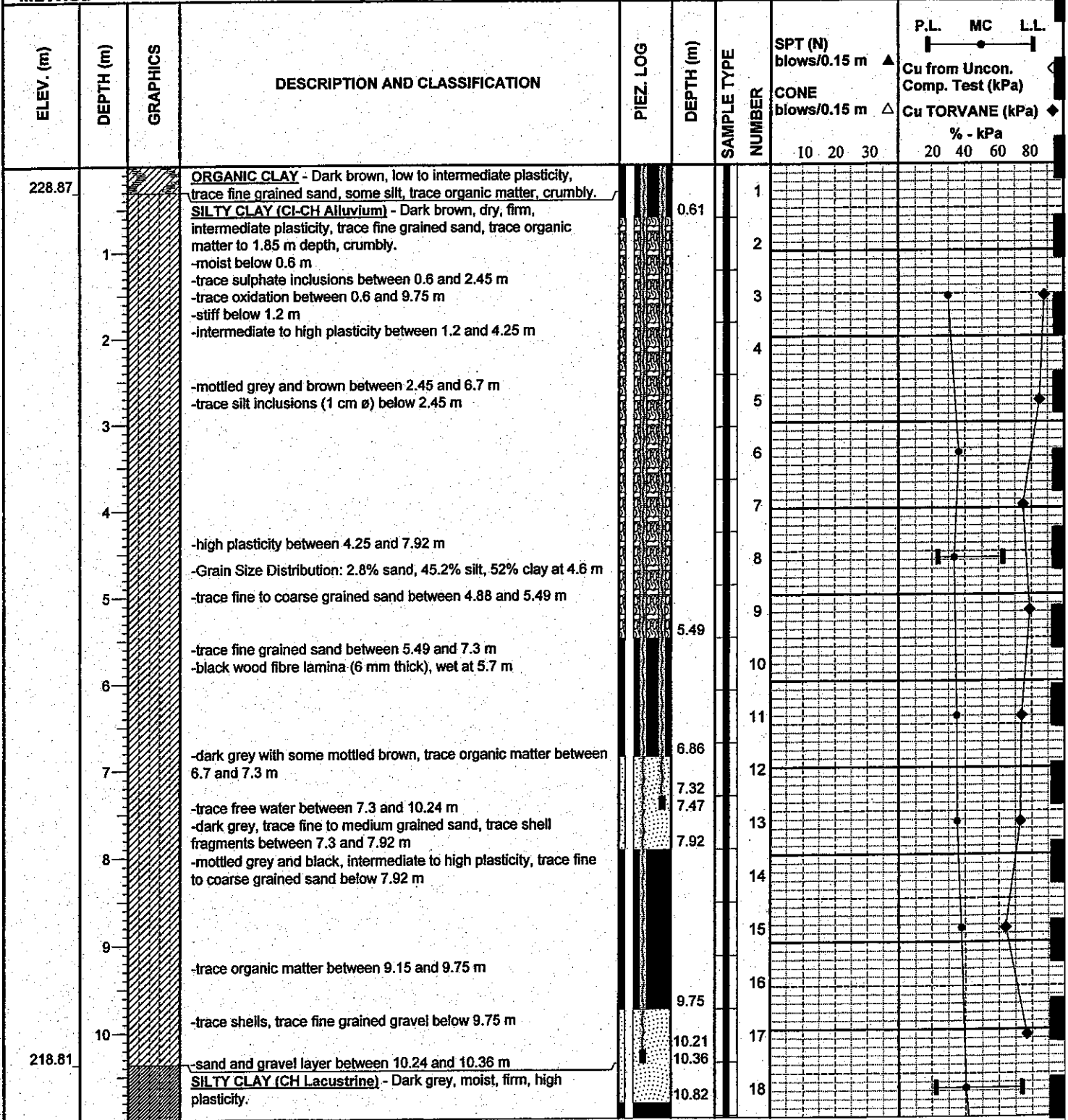
SAMPLE TYPE SPLIT SPOON SHELBY SPLIT BARREL SAMPLER AUGER GRAB CORE SAMPLER

CONTRACTOR **Paddock Drilling Ltd.** INSPECTOR **A. PROSKIN**

APPROVED T.C. DATE 14/01/00

CLIENT CITY OF WINNIPEG, PROPERTY AND DEVELOPMENT SERVICES
PROJECT DEPARTMENT ST. VITAL PARK STABILITY ASSESSMENT
SITE ST. VITAL PARK, WINNIPEG, MANITOBA
LOCATION Middle of Slope, See Dwg. 99-107-16 01
DRILLING METHOD 180 mm dia. Hollow Stem Auger

JOB NO. 99-107-16
GROUND ELEV. 229.17 m (GEODETIC)
TOP OF PVC ELEV.
WATER ELEV.
DATE DRILLED 17/11/99



SAMPLE TYPE SPLIT SPOON SHELBY SPLIT BARREL SAMPLER AUGER GRAB CORE SAMPLER

CONTRACTOR Paddock Drilling Ltd. **INSPECTOR** A. PROSKIN

APPROVED T.G. **DATE** 14/01/00

ELEV. (m)	DEPTH (m)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE	SAMPLE NUMBER	SPT (N) blows/0.15 m ▲	P.L. MC L.L.
								CONE blows/0.15 m △	Cu from Uncon. Comp. Test (kPa)
								10 20 30	20 40 60 80
217.19	12		-Grain Size Distribution: 6.1% gravel, 12.3% sand, 16.4% silt, 65.2% clay at 10.7 m				19		
216.45	12.19		SILTY CLAY TILL - Light grey, moist, soft, low to intermediate plasticity, trace fine to coarse grained sand, trace fine grained gravel.		12.19		20		
	12.42		-wet, trace coarse grained gravel below 12.19 m		12.42		21		
	12.73		AUGER REFUSAL @ 12.73 m		12.73				
	13		Notes: 1. Installed Casagrande stand pipe piezometer and 2 pneumatic piezometers, Stand pipe P1 consists of Schedule 40 PVC 25 mm OD, with 0.3 m screen zone, tip elevation 216.45 m. Pneumatic Piezometer PN-1 tip elevation @ 218.82 m, Serial Number - 52846. Pneumatic piezometer PN-2 tip elevation @ 221.71 m, Serial Number - 52876. 2. No water infiltration observed at end of drilling. 3. Test hole stayed open with no sloughing at completion of drilling.						
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								

SPT FT. M. CALC 9910716.GPJ

SAMPLE TYPE SPLIT SPOON SHELBY SPLIT BARREL SAMPLER AUGER GRAB CORE SAMPLER

CONTRACTOR **Paddock Drilling Ltd.** INSPECTOR **A. PROSKIN**

APPROVED **T.C.** DATE **14/01/00**

CLIENT CITY OF WINNIPEG, PROPERTY AND DEVELOPMENT SERVICES
PROJECT DEPARTMENT ST. VITAL PARK STABILITY ASSESSMENT
SITE ST. VITAL PARK, WINNIPEG, MANITOBA
LOCATION Lower Bank, See Dwg. 99-107-16 01
DRILLING METHOD 180 mm dia. Hollow Stem Auger

JOB NO. 99-107-16
GROUND ELEV. 225.87 m (GEODETIC)
TOP OF PVC ELEV.
WATER ELEV.
DATE DRILLED 19/11/99

ELEV. (m)	DEPTH (m)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE	NUMBER	SPT (N) blows/0.15 m			P.L. MC L.L.			
								10	20	30	Cu from Uncon. Comp. Test (kPa)			
								CONE blows/0.15 m			Cu TORVANE (kPa)			
								% - kPa						
											20	40	60	80
	1		SILTY CLAY (Cl-CH Alluvium) - Dark brown, moist, soft to firm, intermediate to high plasticity, trace fine grained sand, trace organic matter, trace silt inclusions (1 cm ø). -mottled light and dark brown between 0.6 and 2.45 m -trace fine to coarse grained sand between 0.6 and 1.2 m -stiff between 0.6 and 2.45 m -trace fine grained sand between 1.2 and 7.9 m		0.61									
	2													
	3		-mottled grey and brown between 2.45 and 5.8 m -firm between 2.45 and 3.05 m -trace oxidation between 3.05 and 7.3 m -stiff below 3.05 m											
	4													
	5													
	6		-dark grey, high plasticity, trace shells below 5.8 m -trace free water between 5.8 and 6.1 m											
	7													
	8		-Grain Size Distribution: 5.8% sand, 27.4% silt, 66.8% clay at 7.6 m -slickenside at 0° from horizontal at 7.77 m -trace fine to coarse grained sand, trace fine grained gravel below 7.9 m		8.53									
217.26														
216.78			-possible slickenside (45° from horizontal) covered with fine to medium grained sand at 7.9 m -slickenside at 15° from horizontal at 8.22 m		9.09									
	9		SILTY CLAY TILL - Tan to grey, moist, soft to firm, low plasticity, trace fine to coarse grained sand, trace fine grained gravel. END OF HOLE @ 9.09 m											
	10		Notes: 1. No water infiltration observed at end of drilling. 2. Test hole stayed open with no sloughing at completion of drilling.											

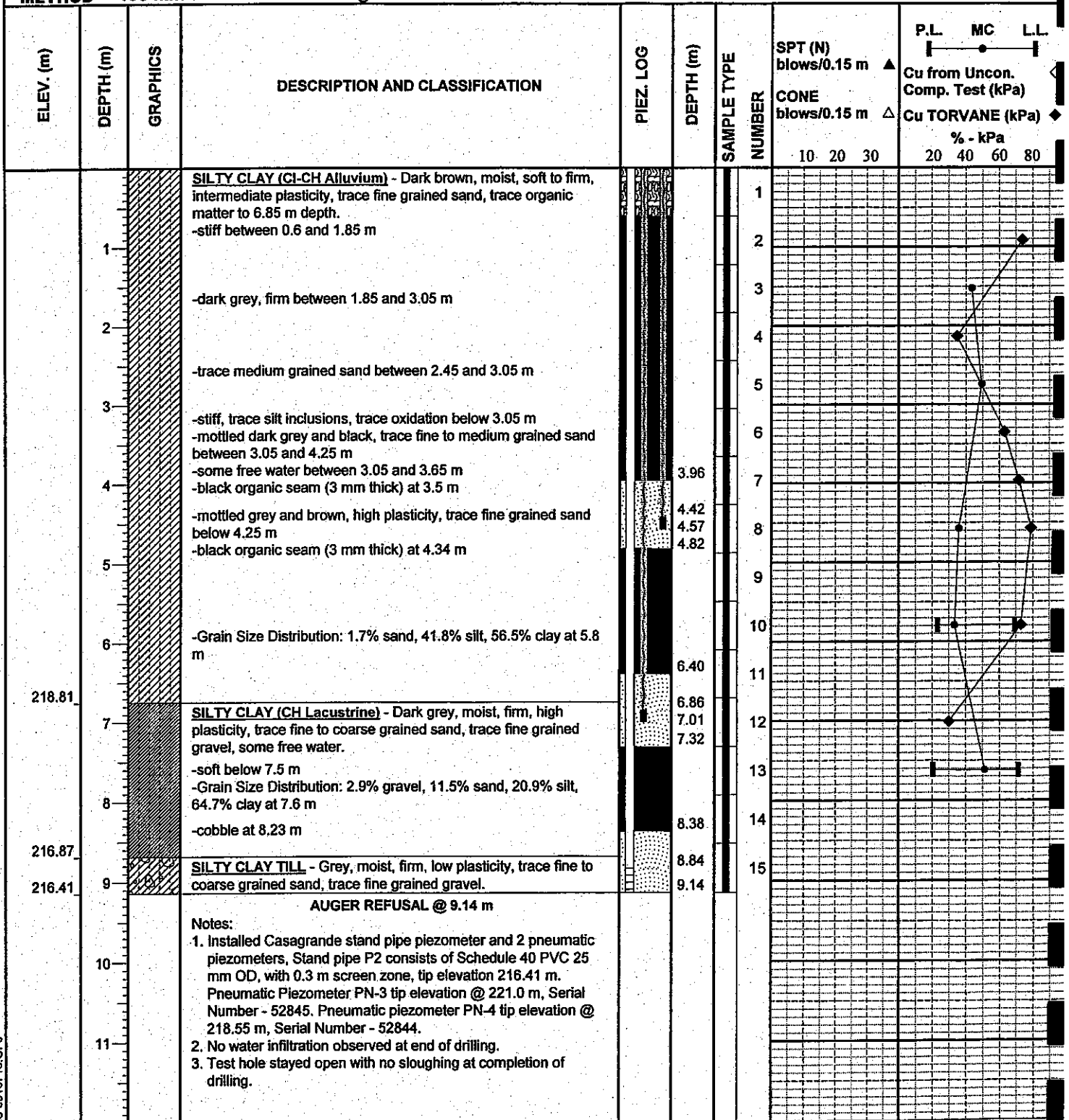
SAMPLE TYPE SPLIT SPOON SHELBY SPLIT BARREL SAMPLER AUGER GRAB CORE SAMPLER

CONTRACTOR Paddock Drilling Ltd. **INSPECTOR** A. PROSKIN

APPROVED T.C. **DATE** 14/01/00

CLIENT CITY OF WINNIPEG, PROPERTY AND DEVELOPMENT SERVICES
PROJECT DEPARTMENT ST. VITAL PARK STABILITY ASSESSMENT
SITE ST. VITAL PARK, WINNIPEG, MANITOBA
LOCATION Lower Bank, See Dwg. 99-107-16 01
DRILLING METHOD 180 mm dia. Hollow Stem Auger

JOB NO. 99-107-16
GROUND ELEV. 225.56 m (GEODETIC)
TOP OF PVC ELEV.
WATER ELEV.
DATE DRILLED 18/11/99



SPT, FT. M. CALC 9910716.GPJ

SAMPLE TYPE SPLIT SPOON SHELBY SPLIT BARREL SAMPLER AUGER GRAB CORE SAMPLER

CONTRACTOR Paddock Drilling Ltd. INSPECTOR A. PROSKIN

APPROVED T.C. DATE 14/01/00