

APPENDIX 'A'

GEOTECHNICAL TEST HOLE LOGS

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The geotechnical test hole logs are provided to aid in the Contractor's evaluation of the existing pavement structures and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in pavement structure and/or soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.

Geotechnical Test Hole Logs for St John's Park

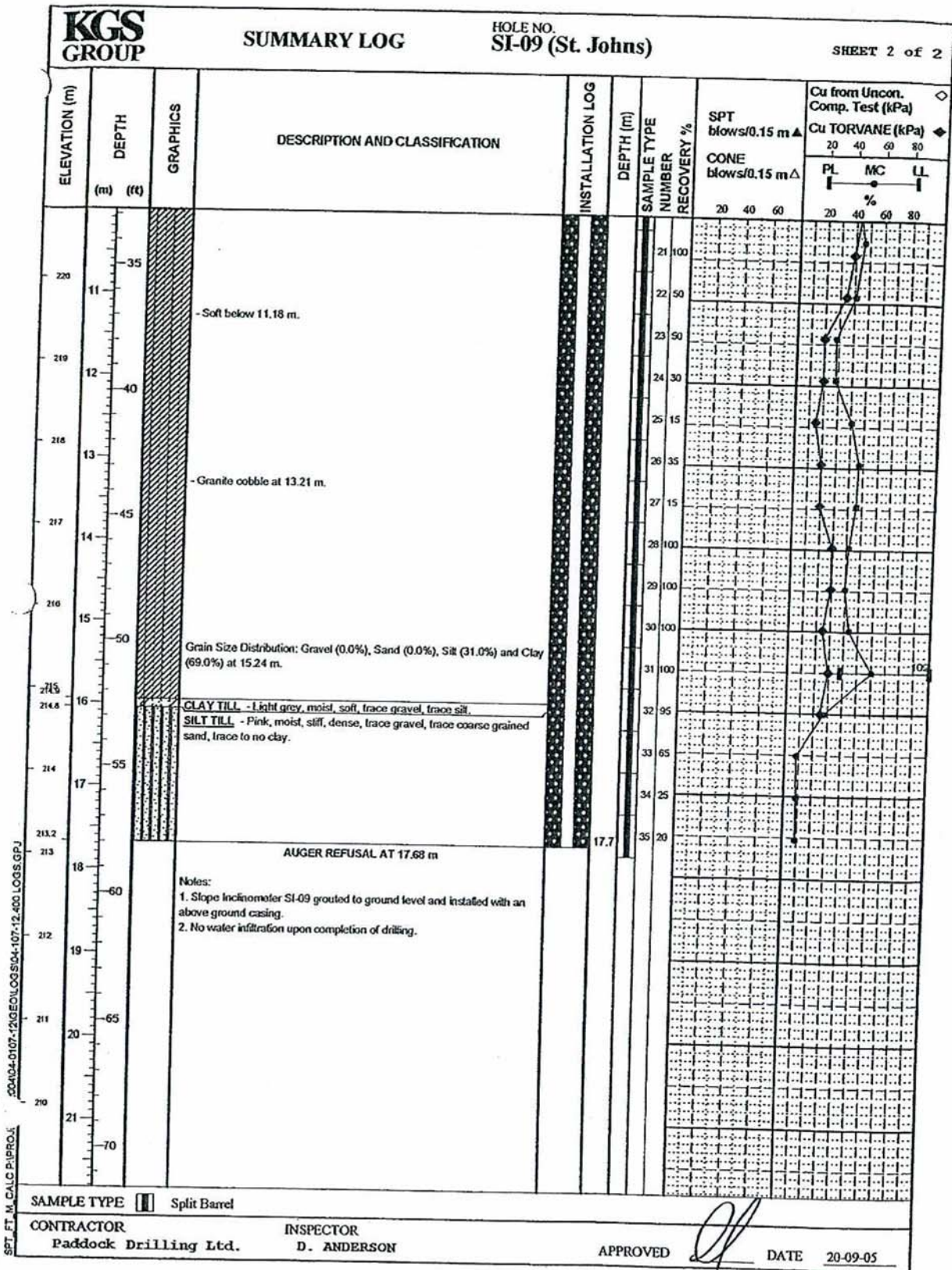
Test Hole Log SI-09 for St John's Park

KGS GROUP		SUMMARY LOG		HOLE NO. SI-09 (St. Johns)		SHEET 1 of 2	
CLIENT CITY OF WINNIPEG		JOB NO. 04-107-12.400		GROUND ELEV. 230.83 m			
PROJECT FLOOD PUMPING STATIONS - CONDITION ASSESSMENT STUDY		SITE St. John's Flood Pumping Station		TOP OF PVC ELEV.			
LOCATION 10 m East from Station		DRILLING METHOD 200 mm ø Hollow Stem Auger, ACKER SS Drill Rig		WATER ELEV.			
				DATE DRILLED 12-Oct-04			

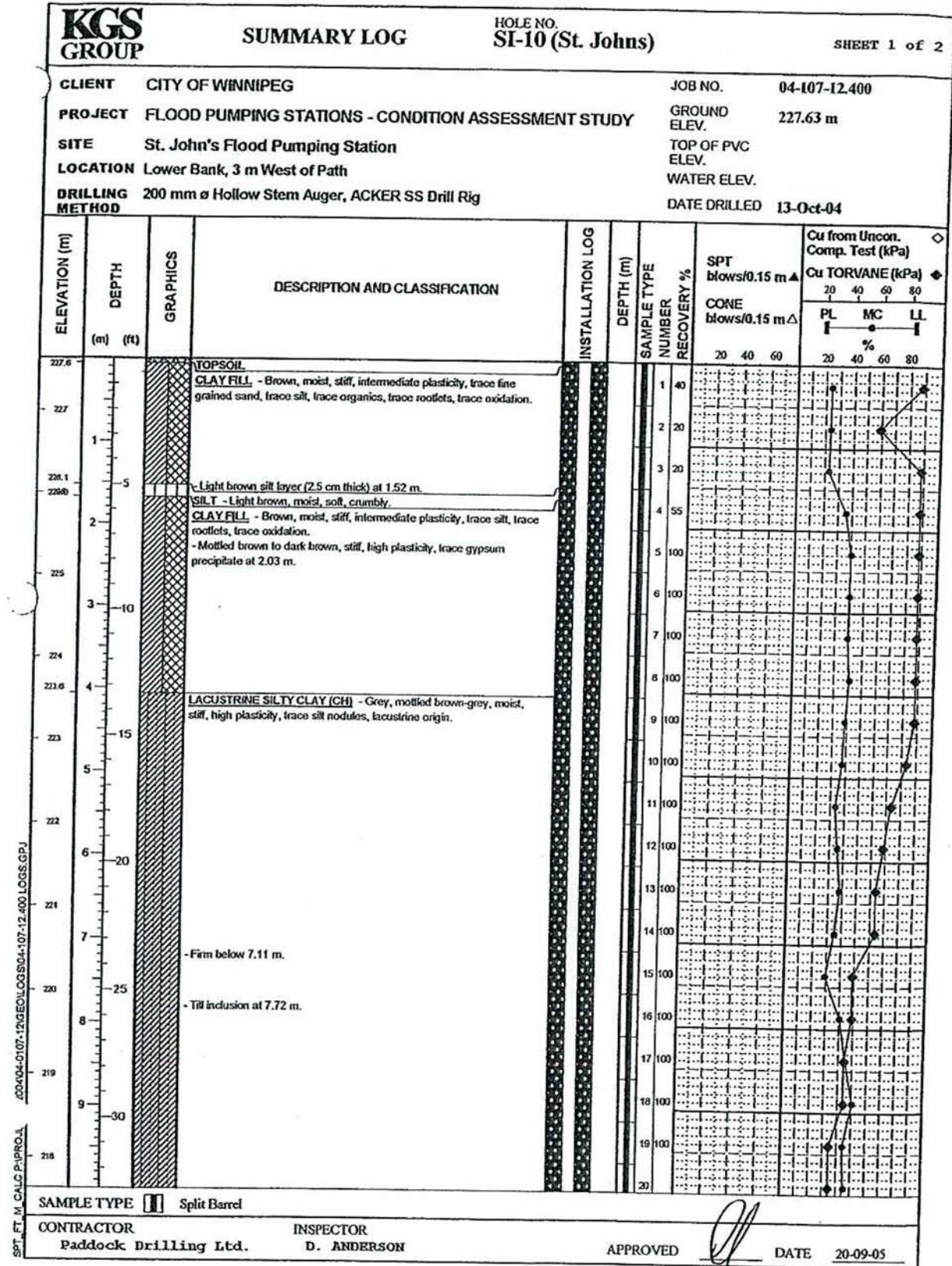
ELEVATION (m)	DEPTH (m)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT blows/0.15 m Δ	CONE blows/0.15 m Δ	Cu from Uncon. Comp. Test (kPa)		
										PL	MC	LL
230.8			TOPSOIL									
230.2			CLAY FILL - Black, moist, stiff, high plasticity, crumbly, trace gravel, trace rootlets, trace organics, trace oxidation.									
230	1		CONCRETE									
229.4			CLAY FILL - Black, moist, stiff, high plasticity, crumbly, trace gravel, trace organics, trace oxidation.									
229.3	5		NO RECOVERY									
229			SILTY CLAY - Brown, moist, firm, intermediate plasticity, trace to some silt, trace fine grained sand.									
228.6	2		NO RECOVERY									
228.3			LACUSTRINE SILTY CLAY (CH) - Brown, mottled brown to dark brown, moist, stiff, high plasticity, trace oxidation.									
228			- Silt layer (light brown, moist, soft, crumbly) from 3.38 to 3.43 m.									
227.8	3		- Silt layer (light brown, moist, soft, crumbly) from 3.63 to 3.71 m.									
227	4		- Trace silt lenses (<1 mm thick) at 4.06 m.									
226	5		Grain Size Distribution: Gravel (0.0%), Sand (0.0%), Silt (20.3%) and Clay (79.7%) at 4.06 m.									
225	6		- Grey at 5.51 m.									
224	7		- Firm, trace silt nodules, lacustrine origin below 5.59 m.									
223	8		- Brown, mottled brown to dark brown, stiff, trace silt lenses (<1 mm thick) at 6.10 m.									
222	9		- Brown, mottled brown-grey at 6.60 m.									
221	10		- Grey at 7.37 m.									
	15		- Firm, trace gravel below 7.62 m.									

SPT, ET, M, CALC, P, APPROV. 00404-0107-12GEOLOG-04-107-12-400 LOGS.OPJ	SAMPLE TYPE <input checked="" type="checkbox"/> Split Barrel	CONTRACTOR Paddock Drilling Ltd.	INSPECTOR D. ANDERSON	APPROVED	DATE 20-09-05
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Test Hole Log SI-09 for St John's Park



Test Hole Log SI-10 for St John's Park



Test Hole Log SI-10 for St John's Park

KGS GROUP		SUMMARY LOG		HOLE NO. SI-10 (St. Johns)		SHEET 2 of 2	
ELEVATION (m)	DEPTH (m)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE NUMBER	RECOVERY %
217	3.5				11.0	21	100
216.6	11		Large cobble in the end of the split barrel at 11.68 m. AUGER REFUSAL AT 11.05 m (on cobbles, rock or till)			22	15
216	12		Notes: 1. Slope Inclinometer SI-10 grouted to ground level and installed with an above ground casing.			23	40
215	13						
214	14						
213	15						
212	16						
211	17						
210	18						
209	19						
208	20						
207	21						
206	22						

SPT blows/0.15 m ▲
 CONE blows/0.15 m Δ

Cu from Uncon. Comp. Test (kPa) ◊
 Cu TORVANE (kPa) ◆

PL MC LL
 %

SAMPLE TYPE Split Barrel

CONTRACTOR Paddock Drilling Ltd. INSPECTOR D. ANDERSON

APPROVED DATE 20-09-05

SPT, FT, M, CALC, P, PROJ, 2004/04-01/07-12/GEOL/LOGS/04-107-12-400 LOGS.GPJ

Test Hole Log PN-09 & PN-10 for St John's Park

KGS GROUP		SUMMARY LOG		HOLE NO. PN-09 & PN-10 (St. Johns)		SHEET 1 of 2	
CLIENT CITY OF WINNIPEG		JOB NO. 04-107-12.400		GROUND ELEV. 227.43 m			
PROJECT FLOOD PUMPING STATIONS - CONDITION ASSESSMENT STUDY		TOP OF PVC ELEV.		WATER ELEV.			
SITE St. John's Flood Pumping Station		DATE DRILLED 13-Oct-04					
LOCATION Lower Bank, 4.5 m West of Path							
DRILLING METHOD 200 mm Ø Hollow Stem Auger, ACKER SS Drill Rig							

ELEVATION (m)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT blows/0.15 m ▲ CONE blows/0.15 m Δ	Cu from Uncon. Comp. Test (kPa) ◆			
									PL	MC	LL	
227.4			TOPSOIL									
227	1		CLAY FILL - Brown, moist, stiff, intermediate plasticity, trace fine grained sand, trace silt, trace organics, trace rootlets, trace oxidation.									
225.5	5		- Light brown silt layer (2.5 cm thick) at 1.52 m.		1.5							
225.4			SILT - Light brown, moist, soft, crumbly.									
225	2		CLAY FILL - Brown, moist, stiff, intermediate plasticity, trace silt, trace rootlets, trace oxidation.									
225			- Mottled brown to dark brown, stiff, high plasticity, trace gypsum precipitate at 2.03 m.									
224	3											
224					3.8							
223.4	4		LACUSTRINE SILTY CLAY (CH) - Grey, mottled brown-grey, moist, stiff, high plasticity, trace silt nodules, lacustrine origin.									
223												
222	5											
222					5.3							
221	6											
221												
221	7											
220												
220			- Firm below 7.11 m.									
219	8											
219												
218	9											
218												
218			- Till inclusion at 7.72 m.									

SAMPLE TYPE	CONTRACTOR Paddock Drilling Ltd.	INSPECTOR D. ANDERSON	APPROVED	DATE 20-09-05
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2004/04-01/07-12/GEOLOG/S/04-107-12.400 LOGS.GPJ

Test Hole Log PN-09 & PN-10 for St John's Park


ELEVATION (m)		DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT blows/0.15 m ▲ CONE blows/0.15 m △	Cu from Uncorr. Comp. Test (kPa) ◇ Cu TORVANE (kPa) ◆			
(m)	(ft)									PL	MC	LL	
217		35				10.1							
216.7				END OF HOLE AT 10.7 m		10.7							
216		11		Notes: 1. Stratigraphy based on SI-10 located approximately 1.5 m east. 2. Installed Standpipe Pneumatics PN-09 at 10.67 m, (Serial No. 29635) and PN-10 at 6.10 m (Serial No. 29641) with above ground casings.									
215		12											
215		40											
214		13											
214		45											
213		14											
213		50											
212		15											
212		55											
211		16											
211		60											
210		17											
210		65											
209		18											
209		70											
208		19											
208		75											
207		20											
207		80											
206		21											
206		85											

200404-01-07-12.GEOL.GCS04-107-12.400.LOSS.GPJ

SPT, FT. M. CALC. PIPRO.

SAMPLE TYPE

CONTRACTOR Paddock Drilling Ltd. INSPECTOR D. ANDERSON

APPROVED  DATE 20-09-05

Test Hole Log SP-05 for St John's Park

KGS GROUP		SUMMARY LOG		HOLE NO. SP-05 (St. Johns)		SHEET 1 of 2	
CLIENT CITY OF WINNIPEG		JOB NO. 04-107-12.400		GROUND ELEV. 227.54 m			
PROJECT FLOOD PUMPING STATIONS - CONDITION ASSESSMENT STUDY		TOP OF PVC ELEV. 228.39 m		WATER ELEV.			
SITE St. John's Flood Pumping Station		DATE DRILLED 13-Oct-04					
LOCATION Lower Bank, 5 m West of Path							
DRILLING METHOD 200 mm ø Hollow Stem Auger, ACKER SS Drill Rig							

ELEVATION (m)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE	NUMBER	RECOVERY %	SPT blows/0.15 m ▲	CONE blows/0.15 m Δ	Cu from Uncon. Comp. Test (kPa)			
											PL	MC	LL	
227.5			TOPSOIL											
227	1		CLAY FILL - Brown, moist, stiff, intermediate plasticity, trace fine grained sand, trace silt, trace organics, trace rootlets, trace oxidation.											
226.0	5		- Light brown silt layer (2.5 cm thick) at 1.52 m.		1.5									
225.9			SILT - Light brown, moist, soft, crumbly.											
225	2		CLAY FILL - Brown, moist, stiff, intermediate plasticity, trace silt, trace rootlets, trace oxidation. - Mottled brown to dark brown, stiff, high plasticity, trace gypsum precipitate at 2.03 m.											
224	3													
221.5	4		LACUSTRINE SILTY CLAY (CH) - Grey, mottled brown-grey, moist, stiff, high plasticity, trace silt nodules, lacustrine origin.											
223	5													
222	6													
221	7		- Firm below 7.11 m.											
220	8		- Till inclusion at 7.72 m.											
219	9													
216	10													

SAMPLE TYPE	CONTRACTOR Paddock Drilling Ltd.	INSPECTOR D. ANDERSON	APPROVED	DATE 20-09-05
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SPT, FT. M. CALC. P. PROJ. 004104-0107-12.GEOLLOGSD4:107-12.400.LOGS.GPJ


Test Hole Log SP-05 for St John's Park

KGS GROUP		SUMMARY LOG		HOLE NO. SP-05 (St. Johns)		SHEET 2 of 2					
ELEVATION (m)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT blows/0.15 m ▲	CONE blows/0.15 m Δ	Cu from Uncon. Comp. Test (kPa) ◆	Cu TORVANE (kPa) ◆
										20 40 60 80	20 40 60 80
										PL MC LL	%
217	35				10.1						
216.5	11		- Suspect till, no samples recovered below 11.05 m.								
216			- Large cobble in the end of the split barrel at 11.68 m.								
215	40				12.5						
214.1											
214	45		AUGER REFUSAL AT 13.40 m (on cobbles, rock or till)		13.4						
213			Notes: 1. Stratigraphy based on SI-10 located approximately 2 m east. 2. Installed Casagrande Standpipe SP-05 at 13.41 m. Stick up height is 0.85 m. Water level 13.245 m on October 12, 2004.								
212	50										
211											
210	55										
209	60										
208											
207	65										
206	70										

SPT, FT. M. SCALE P. PROJ. 200404-0107-12(GEOL)LOGS04-107-12.400 LOGS.GPJ

SAMPLE TYPE

CONTRACTOR Paddock Drilling Ltd. INSPECTOR D. ANDERSON

APPROVED  DATE 20-09-05