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GEOTECHNICAL LOG OF NON-CORE DRILLHOLE

Borehole No: BH116

Sheet No: 1 OF 2

Project No: 3003659

Client: QDTMR

Project: Smith Olsen Detailed Design Geotech Investigation **Co-ordinates System:** UTM Zone 56

Feature: **Easting:** 537001.1m E

Location: Refer Location Plan **Northing:** 6906662.9m S

Surface RL (m): 19.82

Angle from Horz: 90

Direction: n/a

DRILLING							TESTING				SUBSTANCE							
Method	Support	Rate	Rate	Rate	Water	Sample	Depth (m)	Depth/RL	Type	Sample or Field Test	Graphic Log	USC Symbol	Description	Moisture	Consistency/Density	Other Observations		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
SMEC GOLD COAST BOREHOLE NON CORE LOG (I:\PROJECTS\3003659\005_OPERATIONS\DD15 GEOTECHNICAL\INVESTIGATIONS\GINT FILES\SMITH - OLSEN BOREHOLES (CURRENT).GPJ, 23/11/11	ATC						19.82						ASPHALT					
							0.50	19.32					GM	Silty GRAVEL: Dense, medium to coarse gravel, grey, dry, road base.				
							1.00	18.82	S	3,4,4 N=8			CI	Silty CLAY: Firm to stiff, medium to low plasticity, pale orange and pale grey, some fine to coarse highly weathered siltstone gravel, trace of fine sand, moist, fill.				
							2.00	17.82	SPT		2,4,4 N=8				Some fine to medium siltstone gravel.		F St	
							3.00	16.82	S	2,4,5 N=9			CH	Silty CLAY: Firm to stiff, high plasticity, pale orange, some fine to medium gravel, moist, fill.				
							3.50	16.32	SPT		3,3,6 N=9				Some fine to coarse siltstone gravel.		M	
							4.50	15.32	S	2,4,7 N=11					Stiff, predominantly orange some pale grey, fine siltstone gravel.			St
							6.50	13.32	SPT		7,9,5 N=14			SM	Silty SAND: Medium dense, medium plasticity, fine to medium, dark grey to grey, small clay fraction/seam, some decomposed wood/carbonaceous material, wet, natural, alluvium.		W	MD
							7.50	12.32	SPT		3,4,5 N=9			CH	Silty CLAY: Stiff, medium to high plasticity, grey-brown some orange-red mottling, trace of fine sand, trace of fine sub angular quartzite gravel, trace of fibrous wood material, moist, natural.			St
							8.50	11.32	SPT		11,7,8 N=15			CI	Silty CLAY: Stiff, low to medium plasticity, grey mottled pale grey, trace of fine sand, moist, residual.		M	
							9.00	10.82	SPT		5,12,15 N=27				Very stiff, pale grey, trace of dark brown laminations/rootlets.			VSt

Notes (Instrumentation etc):

Contractor: GeoDrill

Commenced: 27/07/11

Logged By: ME/BD

Equipment: Hydropower Scout

Completed: 27/07/11

Checked By: AR

Basis of description and details of abbreviations are given on explanatory notes



GEOTECHNICAL LOG OF NON-CORE DRILLHOLE

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
						SPT	10.40 9.42		S	6,12,13 N=25			Very stiff, pale grey, trace of dark brown laminations/rootlets. (continued)	M	VSt	
						U50							METASILTSTONE/METASANDSTONE: Pale grey some iron staining, extremely low strength, extremely weathered, (remoulds to very stiff low plasticity silty clay trace of sand).			
						SPT	11.00 8.82		S	1,6,12 N=18			Pale grey stained yellow-orange, (remoulds to very stiff medium plasticity silty clay trace of sand).			
						U50										
						SPT	12.00 7.82		S	6,13,22 N=35			Pale grey stained orange, very low strength in parts.			
													Borehole discontinued at 12.45m			
							13									
							14									
							15									
							16									
							17									
							18									
							19									

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NOTES RELATING TO GEOTECHNICAL REPORTS AND SITE INVESTIGATION LOGS

GEOTECHNICAL REPORTS AND SITE INVESTIGATION LOGS

Geotechnical reports/logs are prepared by qualified personnel on the information supplied or obtained and are based on current engineering standards of interpretation and analysis.

Information may be gained from limited subsurface testing, surface observations, previous work, and is supplemented by knowledge of the local geology and experience of the range of properties that may exhibited by the materials present. For this reason, geotechnical reports should be regarded as interpretative rather than factual documents, limited to some extent by the scope of information on which they rely.

Where the report/log has been prepared for a specific purpose (e.g. design of a three-storey building), the information and interpretation may not be appropriate if the design is changed (e.g. a twenty-storey building). In such cases, the report/log and the sufficiency of the existing work should be reviewed by SMEC in the light of the new proposal.

Every care is taken with the report/log content; however, it is not always possible to anticipate or assume responsibility for the following conditions:

- Unexpected variations in ground conditions. The potential for this depends on the amount of investigative work undertaken.
- Changes in policy or interpretation by statutory authorities
- The actions of contractors responding to commercial pressures

If these occur, SMEC would be pleased to resolve the matter through further investigation, analysis or advice.

UNFORESEEN CONDITIONS

Should conditions encountered on site differ markedly from those anticipated from the information contained in the report/log, SMEC should be notified immediately. Early identification of site anomalies generally results in any problems being more readily resolved and allows re-interpretation and assessment of the implications for future work.

SUBSURFACE INFORMATION

Logs of a borehole, recovered core, test pit, excavated face, or cone penetration test are an engineering and/or geological interpretation of the subsurface conditions. The reliability of the logged information depends on the drilling/testing method, sampling/observation spacing's and the ground conditions. It is not always possible or economic to obtain continuous high-quality data. It should also be recognised that the volume of material observed or tested is only a fraction of the total subsurface profile.

Interpretation of subsurface information and application to design and construction must take into consideration the spacing of the test locations, the frequency of observations and testing, and the possibility that geological boundaries may vary between observation points.

Groundwater observations and measurements outside of specially designed and constructed piezometers should be treated with care for the following reasons:

- In low permeability soils groundwater may not seep into an excavation or bore in the short time it is left open.
- A localised perched water table may not represent the true water table.
- Groundwater levels vary according to rainfall events or season.
- Some drilling and testing procedures mask or prevent groundwater inflow.

The installation of piezometers and long-term monitoring of groundwater levels may be required to adequately identify groundwater conditions.