GEOTECHNICAL LOG OF NON-CORE DRILLHOLE

Borehole No: BH204
Sheet No: 1 OF 2
Project No: 3003659

Client: QDTMR
Project: Smith Olsen Detailed Design Geotech Investigation
Feature:
Location: Refer Location Plan

Co-ordinates System: UTM Zone 56
Easting: 537717.4m E
Northing: 6906583.5m S

Surface RL (m): 18.63
Angle from Horz: 90
Direction: n/a

DRILLING								TESTING			SUBSTANCE					
Method	Support	Rate: Fast	Rate: Medium	Rate: Slow	Water	Sample	Depth (m)	Depth/RL	Type	Sample or Field Test	Graphic Log	USC Symbol	Description Soil Type: density/consistency, grain size/plasticity, colour, particle shape/secondary components, minor constituents, moisture, origin, additional observations.	Moisture	Consistency/ Density	Other Observations
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ATC	HW Casing							18.63 0.15					ASPHALT			
								18.48 0.50				GM	Silty GRAVEL: Dense, fine to medium gravel, grey, dry, road base.	D	D	
						SPT	1	18.13 1.05	S	5,3,3 N=6			Gravelly SILT: Firm, low plasticity, brown, fine to medium gravel (HW SILTSTONE), occasional red-brown Silty CLAY lumps, moist, fill.	M		
								17.58 1.50				ML	SILT: Firm, low plastictiy, pale brown, occasional fine to medium gravel (HW Siltstone), dry to moist, possible natural.		F	
						SPT	2	17.13 2.00	S	2,3,7 N=10			Stiff, some clay fines, trace of decomposing wood fibres, rare fine Quartz gravels.	D M		
								16.63 2.50					Orange-brown, no wood fibre, possible EW/Residual Siltstone.		St	
WR						SPT	3	16.13 4.00	S	5,9,11 N=20			METASANDSTONE: Extremely low strength, extremely weathered, fine grained, yellow-orange stained orange.			
						SPT	4	14.63	S	9,13,19 N=32			Pale grey, occasional thin grey-brown Siltstone laminations.			
						SPT	5		S	12,15,30/ 140mm N*=47						
						SPT	6		S	8,12,25 N=37						
						SPT	7		S	6,22,30/ 75mm N*=82						
							8	8.50 10.13					METASILTSTONE: Extremely low strength, extremely weathered, pale grey trace of red staining laminated red-orange, some dark red staining in parts.			
							9	10.00								

Notes (Instrumentation etc): 3.7m offset on road shoulder

Contractor: GeoDrill
Equipment: Hydropower Scout

Commenced: 03/10/11
Completed: 03/10/11

Logged By: ME/BD
Checked By: AR

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

SMEC GOLD COAST BOREHOLE NON CORE LOG I:\PROJECTS\3003659\005_OPERATION\SDD15 GEOTECHNICAL\INVESTIGATIONS\GINT FILES\SMITH - OLSEN BOREHOLES (CURRENT).GPJ 21/11/11

GEOTECHNICAL LOG OF NON-CORE DRILLHOLE

Borehole No: BH204
Sheet No: 2 OF 2
Project No: 3003659

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DRILLING							TESTING				SUBSTANCE					
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WR						SPT	11	8.63	S	5,10,17 N=27			Pale grey trace of yellow-orange bleaching, rare quartz fragments.			
						SPT	12		S	8,17,23 N=40						
						SPT	13	*13.00* 5.63	S	22,30/ 120mm N*75			Extremely low strength to very low strength, green-grey-brown, thinly laminated, some iron staining on laminations.			
						SPT	14	*14.50* 4.13	S	14,30/ 130mm N*=69			Grey-brown green, iron staining in laminations.			
						SPT	16		S	14,22,30/ 130mm N*=56						
							17						Borehole discontinued at 16.45m			
							18									
							19									

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SMEC GOLD COAST BOREHOLE NON CORE LOG I:\PROJECTS\3003659\005_OPERATION\SDD15 GEOTECHNICAL\INVESTIGATIONS\GINT FILES\SMITH - OLSEN BOREHOLES (CURRENT).GPJ 18/11/11

Member of the Surbana Jurong Group

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.