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# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND  
SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No   BH103    
SHEET   1   of   3    
REFERENCE No   H10869  

PROJECT   Ipswich Motorway Upgrade - Rocklea to Darra    
LOCATION   Granard Road Interchange   COORDINATES   500834.6 E; 6951923.0 N    
PROJECT No   FG5779   SURFACE R.L.   6.64m   PLUNGE   -90°   DATE STARTED   20/10/10   GRID DATUM   GDA94    
JOB No   140/U16/902   HEIGHT DATUM   AHD   BEARING            DATE COMPLETED   20/10/10   DRILLER   R&D Drilling Pty Ltd  

DEPTH (m)	R.L. (m)	AUGER CASING OTHER CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USC WEATHERING	INTACT STRENGTH						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
								EH	VH	H	M	J	VL				
0	6.64					<b>ASPHALT/ROADBASE</b> Dark grey gravel fill.									Based on Drillers log only Non-destructive digging up to 1.6m depth.		
6.14						<b>EMBANKMENT FILL</b> Dark grey, moist, gravelly silty clay.  Rock fragments sizing up to 100mm.									Based on Drillers log only.  Rock fill		
4.74					A	<b>Silty CLAY (ALLUVIUM)</b> Mottled brown, moist, mainly stiff to very stiff.  High plasticity; minor trace of red iron staining.										U100	
					B											3.5,7 N=12	SPT
					C											5.6,7 N=13	SPT
					D		(CH)									5.7,9 N=16	SPT
					E											5.5,10 N=15	SPT
					F	Becoming stiff below 7m depth.										3.5,6 N=11	SPT
-1.11																	
-1.61					G	<b>Gravelly Silty CLAY</b> Grey brown, moist, very stiff, medium to high plasticity. Gravel fraction subangular medium strength quartzitic sizing <6mm.	(CI-CH)									9,10,12 N=22	SPT
						<b>Low Grade COAL</b> XW: Generally exhibits engineering properties of dark black, moist, stratified, very stiff clay.									Low grade Coal		
					H	Mainly medium plasticity.  Extremely low strength coal.	XW									4.6,9 N=15	SPT
-3.36																	

REMARKS \_\_\_\_\_

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DEPTH (m)	R.L. (m)	AUGER CASING OTHER CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USC WEATHERING	INTACT STRENGTH						DEFECT SPACING (mm)			GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
								EH	VH	H	M	L	VL	EL	20	60			
10	-3.36				J	<b>SHALE FINE GRAINED, FISSILE, THINLY LAMINATED SEDIMENTARY ROCK.</b> XW: Generally exhibits engineering properties of greyish green, moist, fissile, very stiff to hard silty clay. Mainly medium plasticity.												6,9,11 N=20	SPT
11					K													16,19,30 N=49	SPT
12					L													9,15,30 N=45	SPT
13					M													17,15,17 N=32	SPT
14					N													12,19,21 N=40	SPT
15					P													9,17,30/140mm N>50	SPT
16					Q	Contains interbedded redish brown, horizontally bedded mudstone bands below 16.5m depth.												12,17,21 N=38	SPT
17					R	<b>HW:</b> Generally exhibits engineering properties of greyish green, moist, fissile, hard, silty clay. Mainly medium plasticity. Gradually grading into low strength rock with depth.												20,30/50mm N>50	SPT
18					S													30/85mm N>50	SPT
19	-12.36		(0)			<b>MW:</b> Grey brown, fine grained, faint laminations and fissile, very low to low strength. Defects: -Drilling induced /lamination partings @5-10°(3/m). -Irregular fracture @60-70° (1/m).													
20	-13.36		100																

Numerous drilling induced fracture  
HW fractured zone app. 300mm long.  
Carbonaceous Shale/Mudstone bands app. 400mm thick.  
Defect close to medium spaced, planar, smooth, open and clean or clay infill.  
XW broken zone

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DEPTH (m)	R.L. (m)	AUGER CASING OTHER CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	INTACT STRENGTH						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
							USC	WEATHERING	EH	VH	H	M					J
20	-13.36																
21					(80)	<p><b>SW:</b> Light green, fine grained, massive with faint laminations, mainly low to medium strength.</p> <p>Generally defects are rare: -Drilling induced /lamination partings @5-10°(4/m).</p>								Clay bands	<p>Is(50) = 0.09MPa Is(50) = 0.54MPa DD = 1.39t/m<sup>3</sup>; MC = 34.6%; UCS=1.24MPa Is(50) = 0.18MPa Is(50) = 0.46MPa</p>	x o	
					100	<p>Defects are medium to wide spaced, planar and stepped, smooth and slickensided , open to close and clean or clay infill.</p>								Clay seams Clay seams Clay seams Clay seams dipping @5-10°	<p>Is(50) = 0.03MPa Is(50) = 0.19MPa</p>	x o	
22	-15.06				(86)	<p><b>Interbedded Carbonaceous SHALE and MUDSTONE</b> <b>SW:</b>Red brown, fine grained, laminated, mainly low to medium strength.</p> <p>Generally defects are rare.</p>								Drilling induced/ lamination partings @5-10° (5/m)	<p>DD = 1.65t/m<sup>3</sup>; WD = 2.04t/m<sup>3</sup>; MC = 23.8%; UCS=8480KPa</p>		
					100	<p>Defects are close to medium, planar, slickensided and polished, closed and open.</p>										<p>Is(50) = 0.52MPa Is(50) = 0.10MPa</p>	x o
23					(87)	<p><b>SHALE</b> <b>SW:</b> Light green, fine grained, massive with faint laminations, mainly low strength.</p> <p>Generally defects are rare: -Drilling induced /lamination partings @5-10°(2/m).</p>								Possible shearing effects.			
					100	<p>Defects are medium to wide spaced, planar and stepped, smooth, open to close and clean or clay infill.</p>								Displays cracking on drying in parts.	<p>Is(50) = 0.19MPa Is(50) = 0.25MPa</p>	x o	
					(100)										<p>Is(50) = 0.11MPa Is(50) = 0.09MPa</p>	x o	
24	-15.86				100												
25	-18.30				100												
25						Borehole terminated at 24.94m											
26																	
27																	
28																	
29																	
30																	

REMARKS \_\_\_\_\_

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Project: **Ipswich Motorway Upgrade - Rocklea to Darra**  
Borehole No: **BH 103**  
Start Depth: 19.00m  
Finish Depth: 24.94m  
Project No: FG5779  
H No: H10869



SCALE 1:5

F:GEO043/1