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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH115
SHEET 1 of 4
REFERENCE No H10891

PROJECT Ipswich Motorway Upgrade - Rocklea to Darra
LOCATION Corner Ipswich Rd and Oxley Rd near Oxley Hotel COORDINATES 497978.6 E; 6950861.9 N
PROJECT No FG5779 SURFACE R.L. 14.05m PLUNGE -90° DATE STARTED 09/11/10 GRID DATUM GDA94
JOB No 140/U16/902 HEIGHT DATUM AHD BEARING DATE COMPLETED 11/11/10 DRILLER R&D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	CASING OTHER WASH BORING 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				
0	14.05					Silty CLAY (Engineered Fill) Brown, moist. Rock fill up to 300mm.								Non destructive drilling up to 1.5m depth. (Based on Drillers Logs only)		
2	12.05				A	SANDSTONE XW: Generally exhibits engineering properties of red brown, moist, very dense silty sand. Sand fraction medium to coarse grained.	XW							25,25,30/140mm N>50	SPT	
3	11.05		(95)			CLAYSTONE FINE GRAINED SEDIMENTARY ROCK COMPOSED MAINLY COMPOSED OF CLAY SIZED PARTICLES HW: Generally exhibits engineering properties of mottled red, massive and patchy iron staining, mainly extremely low to very low strength.								Is(50) = 0.04MPa Is(50) = 0.03MPa	x o	
4			100			Contains iron concretionary nodules; interbeds of siltstone in parts.								Is(50) = 0.11MPa Is(50) = 0.08MPa Is(50) = 0.11MPa Is(50) = 0.08MPa DD = 1.64t/m ³ ; WD = 2.02t/m ³ ; MC = 23%; UCS=341KPa Is(50) = 0.10MPa Is(50) = 0.07MPa	x o x o	
5			(100)			Becoming yellow below 8.0m depth app. 150mm long.										
6			100			Generally defects are rare. - Drilling induced bedding / lamination partings @ 5-10° (2/m)								Is(50) = 0.05MPa Is(50) = 0.03MPa	x o	
7			(90)			Defects are mainly medium to wide spaced, closed & open with silty clay infill or iron stained.	HW							Is(50) = 0.14MPa Is(50) = 0.10MPa Is(50) = 0.05MPa	o x o	
8			100											Is(50) = 0.08MPa Is(50) = 0.04MPa	x o	
9			(90)											Is(50) = 0.11MPa Is(50) = 0.03MPa	x o	
10			100											Is(50) = 0.13MPa Is(50) = 0.13MPa DD = 1.78t/m ³ ; WD = 2.10t/m ³ ; MC = 18%; UCS=1197KPa	x o	
			(90)											Is(50) = 0.05MPa Is(50) = 0.02MPa	x o	
						(See over)								Is(50) = 0.02MPa	o	

REMARKS Sandstone: Fine to coarse grained, massive, poorly cemented sedimentary rock mainly composed of sand sized particles.

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BOREHOLE No BH115
SHEET 2 of 4
REFERENCE No H10891

PROJECT Ipswich Motorway Upgrade - Rocklea to Darra
LOCATION Corner Ipswich Rd and Oxley Rd near Oxley Hotel COORDINATES 497978.6 E; 6950861.9 N
PROJECT No FG5779 SURFACE R.L. 14.05m PLUNGE -90° DATE STARTED 09/11/10 GRID DATUM GDA94
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DEPTH (m)	R.L. (m)	CASING OTHER WASH BORING 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	EL	20			
10	4.05					CLAYSTONE HW: (Cont'd)												
															Heavily iron stained zone	Is(50) = 0.05MPa Is(50) = 0.05MPa	x o x	
																Is(50) = 0.08MPa Is(50) = 0.08MPa	x o	
															Siltstone interbeds	Is(50) = 0.13MPa Is(50) = 0.06MPa	x o	
															DD = 1.82t/m ³ ; WD = 2.12t/m ³ ; MC = 16.6%; UCS=1082KPa			
							HW									Is(50) = 0.13MPa Is(50) = 0.11MPa	x o	
																Is(50) = 0.06MPa Is(50) = 0.04MPa	x o	
																Is(50) = 0.06MPa Is(50) = 0.03MPa	x o	
																Is(50) = 0.11MPa Is(50) = 0.05MPa	x o	
															Siltstone interbeds.	Is(50) = 0.06MPa Is(50) = 0.07MPa	x o	
	-1.65					MUDSTONE HW: Mottled red to black massive, fissile structure visible throughout, mainly extremely low to very strength.												
							HW									Is(50) = 0.05MPa Is(50) = 0.06MPa	x o	
						Contains interbeds of claystone app. 500mm thick. Generally defects are rare. - Irregular Joints @ 45° (1/m)												
						CLAYSTONE MW: Pale grey, massive, fine grained, mainly very low strength.									DD = 1.84t/m ³ ; WD = 2.14t/m ³ ; MC = 16.8%; UCS=988KPa	Is(50) = 0.05MPa Is(50) = 0.06MPa	x o	
						Generally defects are rare. - Drilling induced lamination partings @ 5° (<1/m)												
						Defects are mainly wide spaced, planar, smooth, tight, closed and clean or iron stained / or carbonaceous.	MW								Loose sand (XW)	Is(50) = 0.08MPa Is(50) = 0.13MPa	x o	
																Is(50) = 0.07MPa Is(50) = 0.07MPa	x o	
	-5.55					MUDSTONE (See over)	MW											
20																		

REMARKS Sandstone: Fine to coarse grained, massive, poorly cemented sedimentary rock mainly composed of sand sized particles.

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BOREHOLE No BH115
 SHEET 3 of 4
 REFERENCE No H10891

PROJECT Ipswich Motorway Upgrade - Rocklea to Darra
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 PROJECT No FG5779 SURFACE R.L. 14.05m PLUNGE -90° DATE STARTED 09/11/10 GRID DATUM GDA94
 JOB No 140/U16/902 HEIGHT DATUM AHD BEARING DATE COMPLETED 11/11/10 DRILLER R&D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	CASING OTHER WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USC WEATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
20	-5.95					MUDSTONE (Cont'd) MW: Dark black, massive with minor laminations, fissile in parts, mainly low strength.					Is(50) = 0.12MPa Is(50) = 0.04MPa	x o
21				100		Generally defects are rare. - Drilling induced lamination partings @ 5° (2/m) - Irregular fractured joint @ 25° (2/m)				Displays cracking along lamination partings	Is(50) = 0.11MPa Is(50) = 0.11MPa	x o
22				100		Defects are medium to wide spaced, planar, smooth, open and closed.	MW			Joint @ 25°	Is(50) = 0.11MPa Is(50) = 0.08MPa	x o
23				63							DD = 1.78t/m ³ ; WD = 2.10t/m ³ ; MC = 17.8%; UCS=2091KPa DD = 1.90t/m ³ ; WD = 2.18t/m ³ ; MC = 14.6%; UCS=2585KPa	x o
24	-9.45					SILTSTONE FINE GRAINED SEDIMENTARY ROCK COMPOSED MAINLY OF SILT SIZED PARTICLES MW: Grey to dark grey, massive, fine grained, mainly very low to low strength.				Sandstone interbeds	Is(50) = 0.05MPa Is(50) = 0.06MPa	x o
25				100		Contains interbeds of sandstone app. 600mm thick.	MW				Is(50) = 0.13MPa Is(50) = 0.06MPa	x o
26				100		Defects as above.					Is(50) = 0.16MPa Is(50) = 0.16MPa	x o
27	-12.55			100		SANDSTONE FINE TO MEDIUM GRAINED, MASSIVE, POORLY INDURATED SEDIMENTARY ROCK HW: Grey, bedded, fine grained, very low strength.					Is(50) = 0.09MPa	x
28				90		Generally exhibits properties of dense to very dense silty sand.					Is(50) = 0.18MPa Is(50) = 0.22MPa	x o
29				81		Generally defects are rare: - Drilling induced bedding partings @ 10° (1-2/m)	HW				Is(50) = 0.03MPa	o
30				85		Defects are wide to very wide spaced, irregular, slightly rough, open or tight, clean.					Is(50) = 0.03MPa Is(50) = 0.05MPa	x o
31				96							DD = 1.62t/m ³ ; WD = 1.98t/m ³ ; MC = 23%; UCS=195KPa	x o
32				96							Is(50) = 0.04MPa Is(50) = 0.03MPa	x o
33				96							Is(50) = 0.03MPa	x
34				(87)		(See over)						

REMARKS Sandstone: Fine to coarse grained, massive, poorly cemented sedimentary rock mainly composed of sand sized particles.

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BOREHOLE No BH115
SHEET 4 of 4
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PROJECT Ipswich Motorway Upgrade - Rocklea to Darra
LOCATION Corner Ipswich Rd and Oxley Rd near Oxley Hotel COORDINATES 497978.6 E; 6950861.9 N
PROJECT No FG5779 SURFACE R.L. 14.05m PLUNGE -90° DATE STARTED 09/11/10 GRID DATUM GDA94
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DEPTH (m)	R.L. (m)	CASING OTHER WASH BORING 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	V	EL	20			
30	-15.95					SANDSTONE HW: (Cont'd) Highly erodable gravelly sand layers below 30m depth.	HW									Highly erodable gravelly sand layers app. 1.5m thick.	Is(50) = 0.06MPa Is(50) = 0.05MPa Is(50) = 0.03MPa	x o x
31			100															
	-17.49		(73)			MUDSTONE MW: Dark grey, bedded, fine grained, low strength. Defects: - Drilling induced lamination/ bedding partings @ 5-10° (1/m) - Joint @ 30° (>1/m)	MW									Is(50) = 0.06MPa Is(50) = 0.05MPa Is(50) = 0.10MPa Is(50) = 0.19MPa	x o x o	
32			100													Is(50) = 0.14MPa Is(50) = 0.18MPa	x o	
33			(100)			Defects are close to wide spaced, planar, smooth, tight or closed with clay infilled.										Is(50) = 0.08MPa Is(50) = 0.15MPa	x o	
34			100													Is(50) = 0.22MPa Is(50) = 0.24MPa	x o	
			(72)													Is(50) = 0.16MPa Is(50) = 0.31MPa	x o	
35	-21.21		100			Borehole terminated at 35.26m												
36																		
37																		
38																		
39																		
40																		

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Project: **Ipswich Motorway Upgrade - Rocklea to Darra**
Borehole No: **BH 115**
Start Depth: 3.00m
Finish Depth: 35.00m
Project No: FG5779
H No: H10891



SCALE 1:5

F:GEO043/1

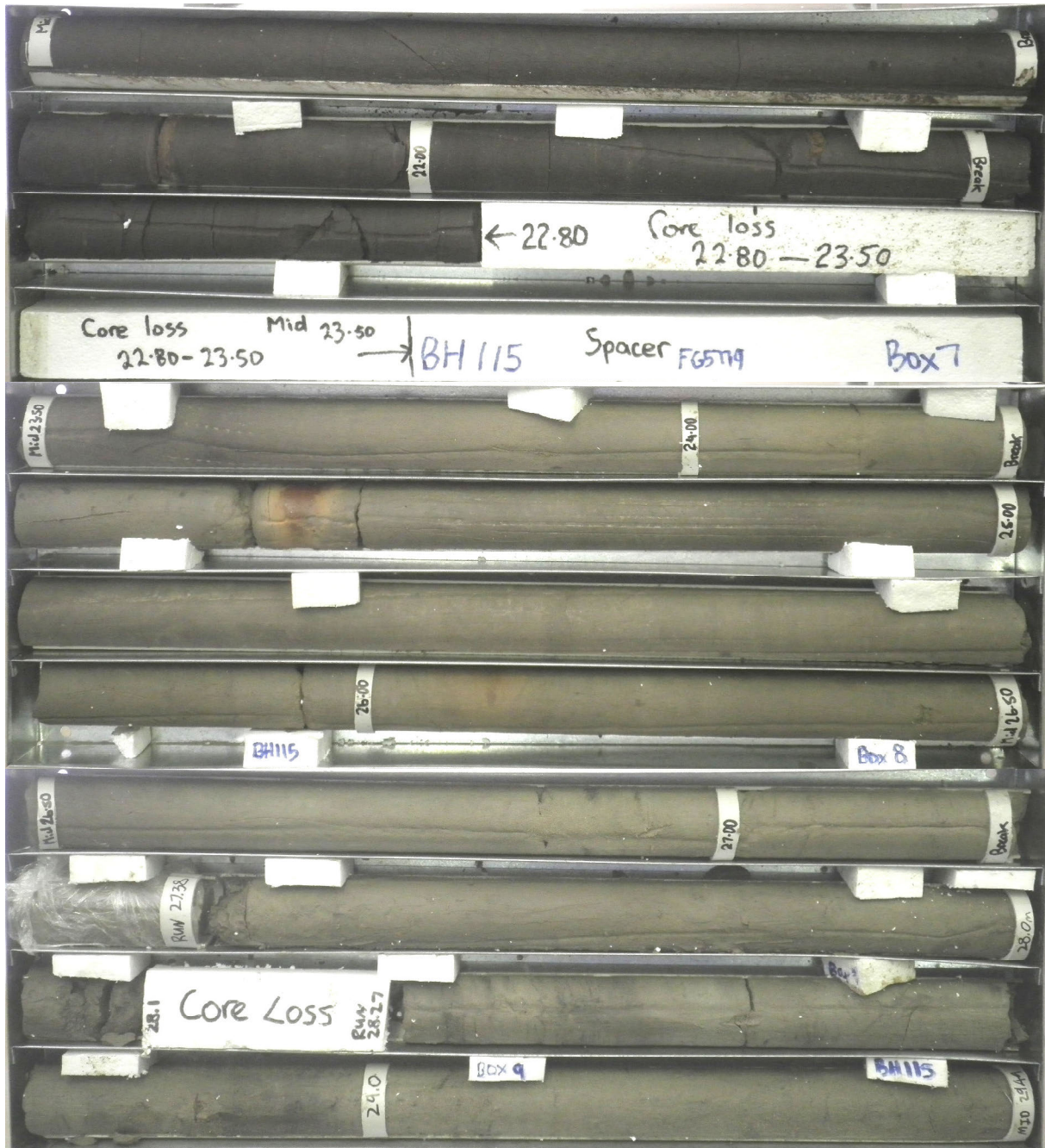
Project: **Ipswich Motorway Upgrade - Rocklea to Darra**
Borehole No: **BH 115**
Start Depth: 3.00m
Finish Depth: 35.00m
Project No: FG5779
H No: H10891



SCALE 1:5

F:GEO4043/1

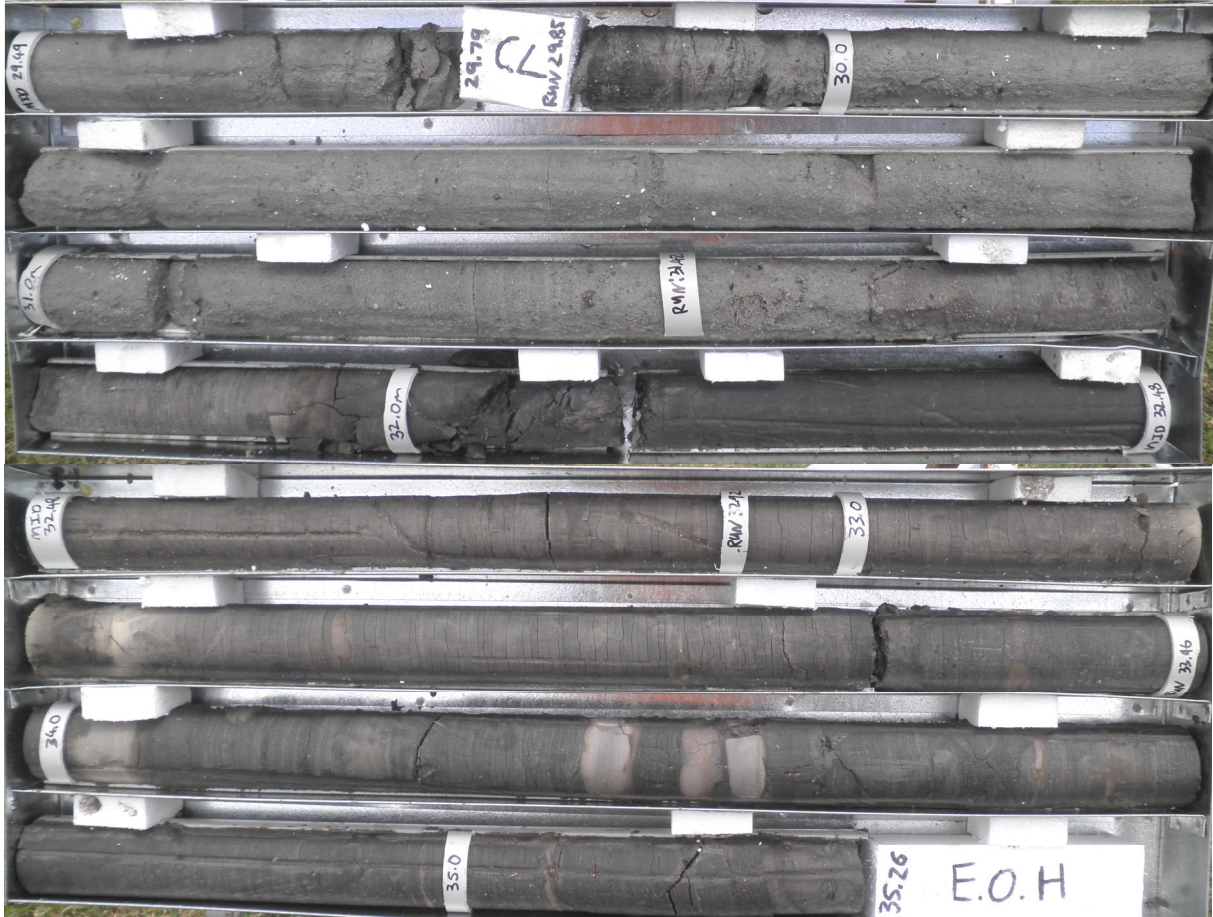
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SCALE 1:5

F:GEO043/1

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SCALE 1:5

F:GEO043/1