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# REPORT OF BOREHOLE: CRR 215

SHEET: 1 OF 4

CLIENT: Aecom Australia Pty Ltd

COORDS: 501491.44 m E 6955728.94 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 18.67 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Wilkie Street

INCLINATION: -90°

LOGGED: FHH

DATE: 30/8/10

JOB NO: 107632034

HOLE DEPTH: 20.10 m

CHECKED: NK

DATE: 18/10/10

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	H		0	18.67					ASPHALT dark grey, very dense	D	VD	
			0.25									
M				18.42	SPT 1.00-1.45 m 6, 9, 14 N=23 PP >600 kPa			CL- CL	Silty CLAY low medium plasticity, yellow red and brown, with some medium to coarse subangular gravels, dry to moist, hard			
			1.50									
				17.17					Silty CLAY non low plastic, pale grey, dry to moist, hard			
			2									
				2.70	SPT 2.50-2.95 m 7, 15, 20 N=35 PP >600 kPa				interbedded with thin dark grey carboneous layers below approximately 2.7 m			
			3	15.97								
					SPT 4.00-4.38 m 12, 18, 30/80mm HB N>48 PP >600 kPa							
			4	4.50								
				14.17					with trace of fine sand, possibly extremely weathered mudstone in some places below approximately 4.5 m			
			5									
					SPT 5.50-5.95 m 22, 20, 22 N=42							
			6	5.50								
				13.17					with some relict of rock structure below approximately 5.5 m			
			7									
				7.00	SPT 7.00-7.06 m 30/60mm HB				MUDSTONE grey to dark grey, interbedded with thin carboneous dark grey layers, extremely weathered, friable, very low to low strength			
			8	11.67								
					SPT 8.50-8.56 m 30/60mm							
			9									

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GAP gINT FN. F01a  
RL3



# REPORT OF BOREHOLE: CRR 215

SHEET: 2 OF 4

CLIENT: Aecom Australia Pty Ltd

COORDS: 501491.44 m E 6955728.94 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 18.67 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Wilkie Street

INCLINATION: -90°

LOGGED: FHH

DATE: 30/8/10

JOB NO: 107632034

HOLE DEPTH: 20.10 m

CHECKED: NK

DATE: 18/10/10

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M-H		10		SPT 10.00-10.05 m 30/50mm			MUDSTONE grey to dark grey, interbedded with thin carbeneous dark grey layers, extremely weathered, friable, very low to low strength			Fb
			11								
			11.20	7.47				with increasing carbeneous layers below approximately 11.2 m			
			11.50	7.17	SPT 11.50-11.63 m 30/130mm			becoming extremely to distinctly weathered below approximately 11.5 m		D - M	
	H		13		SPT 13.00-13.05 m 30/50mm			For Continuation Refer to Sheet 3			
			14								
			15								
			16								
			17								
			18								
			19								
			20								

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GAP gINT FN. F01a  
RL3



# REPORT OF BOREHOLE: CRR 215

SHEET: 3 OF 4

CLIENT: Aecom Australia Pty Ltd

COORDS: 501491.44 m E 6955728.94 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 18.67 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Wilkie Street

INCLINATION: -90°

LOGGED: FHH

DATE: 30/8/10

JOB NO: 107632034

SOLE DEPTH: 20.10 m

CHECKED: NK

DATE: 18/10/10

Drilling					Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
				10								
				11								
				12								
				13	13.05		Continuation of Sheet 2					
					5.62		MUDSTONE fine grained, pale yellow brown and dark grey, bedding parting deeping at 0-5° occasionally 10°, interbedded with thin carbeneous layers in some places	SW		13.10-13.20: FZ, 10°, Pl, Sm, Cn 13.25: J, 0°, Pl, Sm, Cn 13.25: J, 90°, Pl, Sm, Cn 13.27: J, 0°, Pl, Sm, Cn 13.32: J, 10°, Pl-Un, Sm-Ro, Cn 13.35: J, 90°, Pl, Sm, Cn 13.37: C, 0°, Pl, Sl-Sm, Cn 13.44: C, 0°, Pl-St, Sm, Cn 13.46: J, 50°, Pl, Sm, Cn 13.50: DB 13.55-13.59: FC, 0°, Pl-Un, Ro, Ct, pale brown sandy clay, fragmented rock ieces (10-30mm) 13.60-13.65: DS, 10°, 50 mm, pale brown silty clay grading to fine subangular gravels 13.82: J, 90°, Pl, Sm, Cn 13.86: CS, 5°, Pl, Sm, Cn, fragmented rock pieces (1-10mm) 13.99: J, 5°, Pl, Sl-Sm, Cn 14.05: C, 5°, Pl, Sm, Cn 14.08: CS, 15°, Pl-Un, Sm, Cn, fragmented rock pieces (1-10mm) 14.14: J, 85°, Pl-Un, Sm, Cn 14.17: J, 5°, Pl, Sm-Ro, Cn 14.17: J, 90°, Pl, Sm, Cn 14.18: DB 14.23-14.30: J, 5°, Pl, Sm, Ct, dark grey silty clay 14.25: J, 85°, Pl, Sm-Ro, Cn 14.25: J, 90°, Pl, Sm, Cn 14.32: J, 5°, Pl, Sm, Cn 14.33: J, 5°, Pl, Sm, Cn 14.34: J, 65°, Pl, Sm, Cn 14.37: J, 65°, Pl, Sm, Cn 14.38: J, 25°, Un, Sm, Cn 14.42: FC, 30°, Pl, Sm, Cn, fragmented rock pieces (2-10mm) 14.45-14.55: DZ, 5°, Pl, Sm, 100 mm, pale yellow brown silty CLAY and fragmented rock pieces (1-10) 14.58: J, 90°, Pl, Sm, Cn 14.74-14.76: DS, 5°, Pl-St, Sm, Cn, fragmented rock pieces (1-5mm) 14.76-14.78: DS, 0°, Pl, Sm, Cn 14.82-14.91: DS, 0°, Pl, Sm, Cn 14.93: J, 0°, Pl, Sm, Cn, possible drilling break 15.00: HB 15.08: J, 5°, Pl-Un, Ro, Vr, dark grey carbeneous material 15.19: J, 0°, Pl, Sm, Cn 15.23: J, 80°, Pl, Sm, Cn 15.26: J, 40°, Un-St, Ro, Vr, dark grey carbeneous material 15.40: J, 5°, Pl, Sm, Cn 15.42-15.52: DB 15.56: DB 15.59: J, 15°, Un, Ro, Cn 15.60: J, 90°, Pl, Sm, Cn 15.62: J, 30°, Pl, Sm, Cn 15.63: J, 10°, Pl, Sm, Cn 15.65: J, 90°, Pl, Sm, Cn 15.68: J, 5°, Pl-Un, Sm, Vr, dark grey carbeneous material 15.75: J, 85°, Pl, Sm, Cn 15.83: J, 90°, Pl, Sm, Cn 15.84: J, 15°, Pl, Sm, Vr, yellow brown silty clay		
				14								
					14.60		CORE LOSS	SW				
					3.97		MUDSTONE fine grained, dark green and pale grey, bedding parting deeping at 0-5°, interbedded with thin carbeneous layers in some places	-FR				
				15								
				16								
				17								
				18								
					18.55		interbedded with thin bands of pale brown, extremely low very low strength mudstone between approximately 18.55 and 18.9 m	DW				
					18.86			-SW				
					-0.19		interbedded with thin bands of pale brown, low to medium strength mudstone between approximately 18.86 and 19.00 m	SW				
				19								
					19.44		interbedded with thin bands of pale brown, low to medium strength mudstone between approximately 19.42 and 19.86 m	DW				
					-0.77			-SW				
				20	20.00			SW				

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GAP gINT FN. F02b  
RL3



# REPORT OF BOREHOLE: CRR 215

SHEET: 4 OF 4

CLIENT: Aecom Australia Pty Ltd

COORDS: 501491.44 m E 6955728.94 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 18.67 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Wilkie Street

INCLINATION: -90°

LOGGED: FHH

DATE: 30/8/10

JOB NO: 107632034

HOLE DEPTH: 20.10 m

CHECKED: NK

DATE: 18/10/10

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)	
				20	20.10 -1.43		CORE LOSS END OF BOREHOLE @ 20.10 m GROUNDWATER NOT ENCOUNTERED LEFT OPEN			15.90: HB 15.94: HB 15.98: HB 16.00: HB 16.05: J, 0°, Pl, Sm, Cn, possible drilling break 16.23: J, 0°, Pl, Sm-Ro, Cn, possible drilling break 16.43: DB 16.65: DS, 0°, Pl, Sm, Ct, yellow brown silty clay 16.69: J, 0°, Pl, Sm, Vr, yellow brown silty clay, possible drilling break 16.87: J, 0°, Pl, Sm, Cn, possible drilling break 17.00: J, 0°, Pl, Ro, Cn, possible drilling break 17.12: J, 0°, Pl, Sm-Ro, Cn, possible drilling break 17.20: J, 0°, Pl, Sm, Vr, dark yellow brown silty clay, possible drilling break 17.34: J, 0°, Pl, Ro, Cn, possible drilling break 17.60: DB 17.66: J, 10°, Un, Ro, Cn 17.94: DB 18.17: HB 18.22: HB 18.25: HB 18.30: J, 5°, Un, Ro, Cn 18.31: HB 18.56: J, 10°, Pl-Un, Sm-Ro, Cn 18.85-18.90: DS, 0°, Pl, Sm, Cn, dark yellow brown silty clay and fragmented rock pieces (1-5mm) 18.98: HB 19.00: HB 19.17: J, 10°, Un, Ro, Cn 19.21: J, 0°, Pl-St, Sm, Cn, possible drilling break 19.23: C, 10° 19.39: J, 90°, Pl, Sm, Cn 19.42: J, 0°, Pl, Sm, Cn, possible drilling break 19.48: J, 5°, Un, Ro, Vr, dark grey coal 19.55: HB 19.66: J, 20°, Pl-Un, Ro, Cn, possible drilling break 19.81-19.85: IS, 10°, Pl, Sm, Ct, 40 mm, pale grey clay 19.86: DB 19.87: J, 90°, Pl, Ro, Cn 19.88: DB 19.92: J, 0°, Pl, Sm, Cn, possible drilling break			
				21									
				22									
				23									
				24									
				25									
				26									
				27									
				28									
				29									
				30									

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GAP gINT FN. F02b  
RL3



## REPORT OF CORE PHOTOGRAPHS: CRR 215

CLIENT: Aecom Australia Pty Ltd  
PROJECT: Cross River Rail  
LOCATION: Wilkie Street  
JOB NO: 107632034

COORDS: 501491 m E 6955728 m N  
SURFACE RL: 18.67 DATUM: AHD  
INCLINATION: -90°  
HOLE DEPTH: 20.1 m

DEPTH RANGE: 13.0 5-20.1 m  
DRILL RIG: FD500  
DRILLER: Foundril Pty Ltd  
LOGGED: FHH DATE: 30/08/10  
CHECKED: NK DATE: 4/10/10





# REPORT OF STANDPIPE INSTALLATION: CRR 215

SHEET: 1 OF 1

CLIENT: Aecom Australia Pty Ltd

COORDS: 501491.44 m E 6955728.94 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 18.67 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Wilkie Street

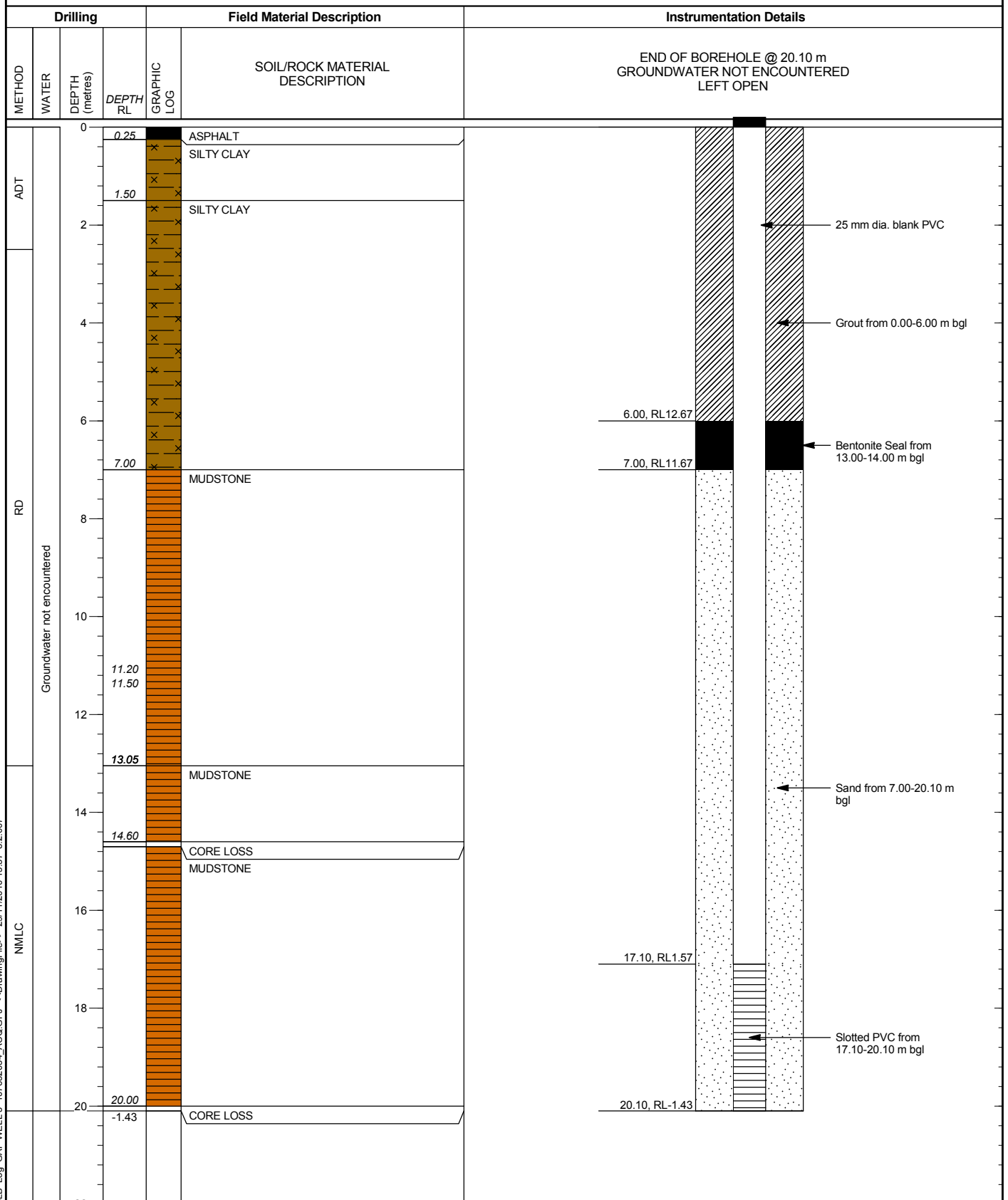
INCLINATION: -90°

LOGGED: FHH DATE: 30/8/10

JOB NO: 107632034

HOLE DEPTH: 20.10 m

CHECKED: NK DATE: 18/10/10



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17  
RL1





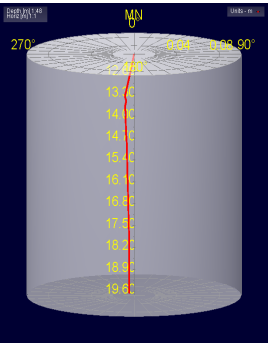
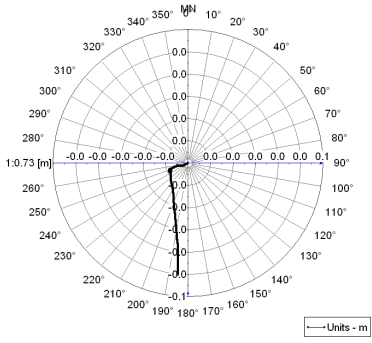
GEOPHYSICAL RECORD OF BOREHOLE: CRR 215

PROJECT	Cross River Rail	PROJECT #	107632034
CLIENT	Department of Transport and Main Roads	DATE	12/10/2010

LOCATION-	Wilkie Street	LOGGED BY-	FHH
EASTING-	501491.00 m E	LOGGED DATE-	30/8/10
NORTHING-	6955732.00 m N	LOGGING DATUM-	
ELEVATION-		LOGGED DEPTH-	20.10 m
DRILLED DEPTH-	20.10 m	DRAWN BY-	RCD
PLUNGE-	-90°	REVIEWED BY-	TR
CASING-	DEPTH-	FILE NAME-	CRR215-U.HED.WCL

Lithology

DEVIATION DATA

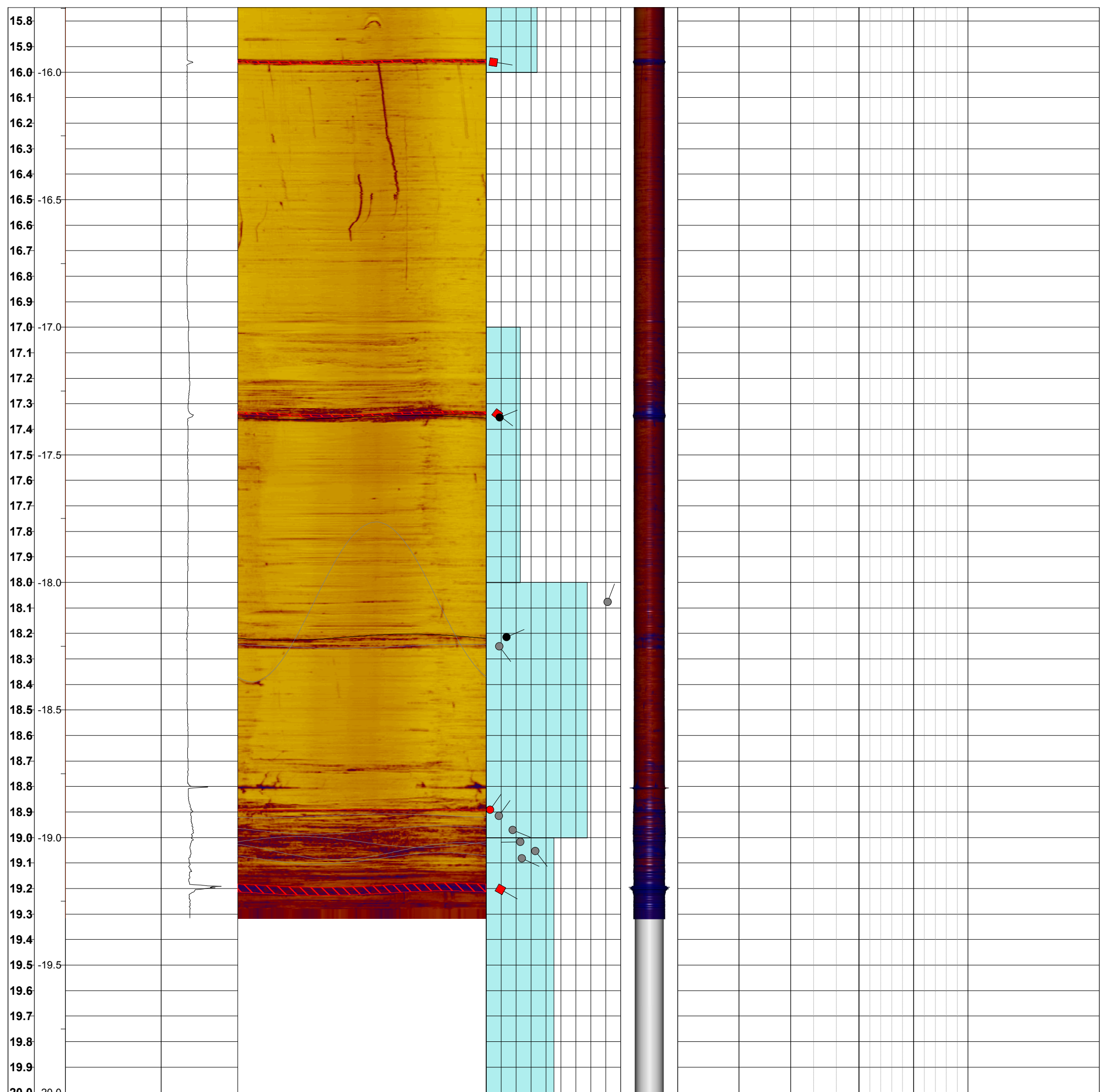


Interpreted Structures

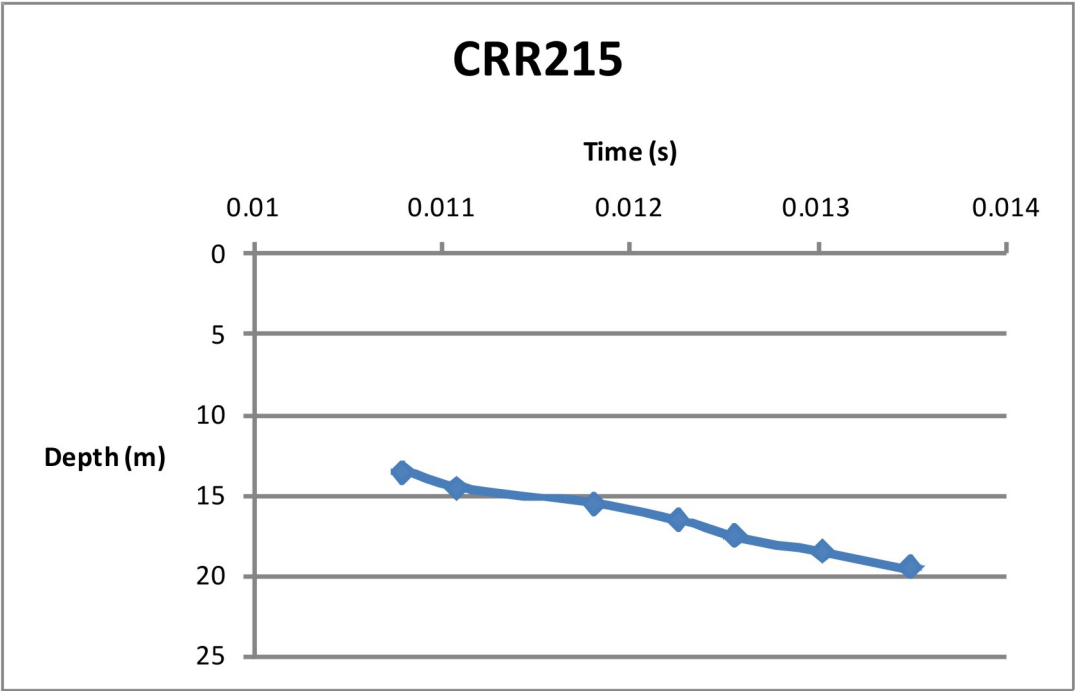
- Joint - High Confidence
- Joint - Low Confidence
- ◆ Crushed Seam - High Confidence
- Joint - Medium Confidence

Depth 1:15		RL	TELEVIEWER DATA					CORE DATA						
NATURAL GAMMA		ATV - Caliper		Amplitude		ATV FF		3D log	Core Photo	Lithology	Logged FF	RQD	TCR	Defect Description
0 cps 300		70 mm 90		0° 90° 180° 270° 0°		0 counts/m 8		293°			0 30	0 100	0 100	
				Interpreted Structures		Structure Orientation			(Refer to detailed core log, provided separately)					
0° 90° 180° 270° 0°				0 90										
12.1														
12.2														
12.3														
12.4														
12.5	-12.5													
12.6														
12.7														
12.8														
12.9														
13.0	-13.0													
13.1														
13.2														
13.3														
13.4														
13.5	-13.5													
13.6														
13.7														
13.8														
13.9														
14.0	-14.0													
14.1														
14.2														
14.3														
14.4														
14.5	-14.5													
14.6														
14.7														
14.8														
14.9														
15.0	-15.0													
15.1														
15.2														
15.3														
15.4														
15.5	-15.5													
15.6														
15.7														





GA-BQ-291 RL1  
Issued 31/03/10



Geophone Depth (m)		Interval velocity (P wave m/s)
from	to	
13.6	14.6	3457
14.6	15.6	1370
15.6	16.6	2251
16.6	17.6	3332
17.6	18.6	2141
18.6	19.6	2141

Note:

\* - 1st arrival not clear due to noise

Calculations done without accounting for borehole deviation



CLIENT <b>Department of Transport and Main Roads</b>		PROJECT <b>Cross River Rail</b>		
DRAWN <b>GDK</b>	DATE <b>OCT 4</b>	TITLE <b>CRR215 VSP</b>		
CHECKED <b>TR</b>	DATE			
SCALE <b>NTS</b>	PROJECT No <b>000-107632034</b>		FIGURE No	REV No <b>A3</b>