FINAL 11/12/2018

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **CRR907**

Sheet 1 of 3

REFERENCE No **H13107**

PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION Clapham Yard — COORDINATES 501291.2 E; 6954219.1 N

PROJECT No FG6470 — SURFACE RL 8.70m — PLUNGE 90° — DATE STARTED 27/06/2018 — GRID DATUM MGA94

JOB No — HEIGHT DATUM AHD — BEARING ° — DATE COMPLETED 29/06/2018 — DRILLER Geodrill

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH EH VH H M L VL EL	DEFECT SPACING EC VC C M W VW EW	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	8.40			A	Silty Sandy GRAVEL (Fill)		(GM)				DIST
				B	Dark grey and brown, dry, loose to						DIST
				C	medium dense. Fine to coarse, sub-angular to sub-rounded. Fine to coarse grained sand. Trace rail						DIST
1				D	ballast. Minor Silty CLAY lenses throughout.		(CH)				DIST
					Silty CLAY (Alluvium)						
				E	Red-brown and grey, moist, stiff. High plasticity.					4, 13, 20 N=33	SPT
2	6.50				from 1.0m: very stiff to hard						
					Sandy CLAY (Alluvium)						
				F	Grey minor yellow-brown mottling, moist, very stiff to hard. Medium to high plasticity. Fine grained sand. Trace silt. Occasionally interbedded with Silt and Sand layers <400mm.					7, 12, 17 N=29	SPT
3											
				G						10, 15, 19 N=34 LL=51% PI= 32%	SPT
4											
				H						8, 15, 17 N=32	SPT
5											
				I			(CI)			7, 16, 23 N=39 LL=37% PI= 19%	SPT
6											
				J						10, 16, 16 N=32	SPT
7											
8											
	-0.10			K						17, 30, 30/80mm	SPT
9					Clayey GRAVEL (Alluvium) Grey and orange brown, moist, very dense. Medium, rounded to sub-rounded. Trace fine to coarse grained sand.		(GC)				
	-0.60				Sandy GRAVEL (Alluvium)		(GW)			9.30m-9.80m: Grey and yellow-brown. wet, dense. Fine to coarse grained. Some fine to medium gravel. Trace clay.	
	-1.30										

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REMARKS: Rip - Aspley Formation

LOGGED BY	REVIEWED BY
MH	S.Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **CRR907**

Sheet 2 of 3

REFERENCE No **H13107**

PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION Clapham Yard — COORDINATES 501291.2 E; 6954219.1 N

PROJECT No FG6470 — SURFACE RL 8.70m — PLUNGE 90° — DATE STARTED 27/06/2018 — GRID DATUM MGA94

JOB No — HEIGHT DATUM AHD — BEARING ° — DATE COMPLETED 29/06/2018 — DRILLER Geodrill

DEPTH (m)	R.L. (m)	RQD ( ) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
11			L	Sandy GRAVEL (Alluvium) Cont'd. Orange-brown and grey, moist, very dense. Fine to medium, sub-rounded to sub-angular. Medium to coarse grained sand. Trace clay. Trace silt.		4, 27, 30/130mm	SPT
			M			15, 30/75mm	SPT
12				from 12.0m: Minor interbedded sand layers	(GW)		
13							
14	-5.30		N	Clayey SAND (Alluvium) Orange-brown, moist, very dense. Fine to medium grained. Trace Silt. Minor interbred Sandy CLAY layers.	(SC)	30/110mm	SPT
15							
	-7.10						
16	-7.35	(93)	C	SANDSTONE (Rip) XW: Recovered as grey, medium to coarse grained sand. Fine to medium sub-angular gravel. Some clay.	XW / HW / XW / HW / MW	16.53m-16.57m: XW Cly; 16.81m-16.83m: XW Cly; 30/50mm	SPT; D (16.26m); A (16.28m)
17		100 (93)		SANDSTONE (Rip) SW: Grey, alternating fine grained and medium to coarse grained beds, thinly to medium bedded, medium strength. -BP: 5°-10° (3-4/m), Pl/Sm, Tl to CD, Cn, trace FeSt, trace Cly Ct. From 17.15: interbedded Conglomerate layers throughout From 17.30: interlaminated minor coal layers throughout.	SW / HW / SW	Is(50)=0.02 MPa; Is(50)=0.09 MPa; Is(50)=0.09 MPa; Is(50)=0.31 MPa; 18.32m-18.45m: HW BZ; UCS=23.20 MPa; E=4.9 GPa; v= 0.042; Is(50)=0.64 MPa; Is(50)=1.10 MPa; Is(50)=0.35 MPa; Is(50)=0.68 MPa; Is(50)=0.24 MPa; Is(50)=0.58 MPa	D (17.13m); A (17.14m); (18.12m); D (18.27m); A (18.28m); D (19.25m); A (19.28m); D (19.95m); A (19.96m)
18							
19							
	-11.30						

Continued on next sheet

REMARKS: Rip - Aspley Formation

LOGGED BY	REVIEWED BY
MH	S.Foley

FINAL 11/12/2018

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **CRR907**

Sheet 3 of 3

REFERENCE No **H13107**

PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION Clapham Yard

COORDINATES 501291.2 E; 6954219.1 N

PROJECT No FG6470 | SURFACE RL 8.70m | PLUNGE 90° | DATE STARTED 27/06/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 29/06/2018 | DRILLER Geodrill

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
21			100 (99)		SANDSTONE (Rip) SW: Cont'd				M	Is(50)=0.82 MPa Is(50)=0.52 MPa	D (21.05m) A (21.06m)
					from 21.10m: mainly coarse grained		SW	M	W	Is(50)=0.10 MPa Is(50)=0.43 MPa UCS=10.00 MPa E=1.94 GPa v= 0.055 Is(50)=0.24 MPa Is(50)=0.65 MPa	D (21.95m) A (21.96m) (22.12m) D (22.30m) A (22.31m)
23	-14.73		100		Borehole completed at 23.43m			M	M	Is(50)=0.46 MPa Is(50)=0.61 MPa	D (23.20m) A (23.21m)
24											
25											
26											
27											
28											
29											

REMARKS: Rip - Aspley Formation

LOGGED BY	REVIEWED BY
MH	S.Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

Detailed Discontinuity Description Log

Queensland Government

This form is intended for the detailed description of discontinuities and defects as measured in outcrop by line mapping, or as they occur downhole in drilled rock core. The descriptions and abbreviations used shall be in accordance with Australian Standard AS1726-1993 Geotechnical site investigations and TMR Geotechnical Terms and Symbols Form F:GEOT017/8.

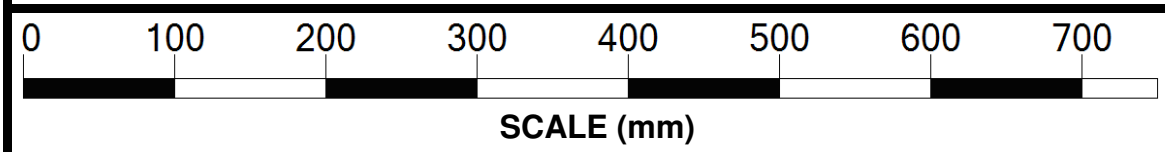
Project Name	**Cross River Rail - Stage 2**					**Project No.**	**FG6470**		
Site ID / Borehole No.	**CRR907**					**Surface RL**	**8.7**		
Geologist	**MARK HAYES**					**Date**	**28/06/2018**		
						Page	**1**	**of**	**1**

Traverse Chainage; or Down hole depth (rock core)	Type LP / BP / FP / J etc.	Dip ° / Dip Direction °; or Angle ° from horizontal (rock core)	Planarity Stp / Un / Pl	Roughness Ro / Sm / Sl	Roughness Class I to IX	Aperture CD / OP / FL / Tl	Infilling Cn / St / Vr / Ct [1]	Zones [1] SZ / CZ / HFZ / AZ	Other
16.49	B	5°	Pl	Sm	VIII	CD	CN		
16.56	B	5°	Un	Sm	V	CD	St	FE	
16.60	B	5°	Pl	Sm	VIII	FL	Ct	CLAY 40mm	
16.81	B	5°	Pl	Sm	VIII	CD	CN		
17.05	B	5°	Pl	Sm	VIII	CD	CN		
17.32	B	5°	Un	Sm	VIII	CD	CS10mm		
17.52	B	5°	Un	Sm	VIII	CD	CN		
17.57	B	10°	Un	Sm	V	OP	CS10mm		
17.61	B	5°	Pl	Sm	VIII	CD	CS10mm		
17.72	B	0°	Pl	Sm	VIII	CD	CN		
18.37	J	60°	Un	Sm	V	OP	CN		
18.40	B	10°	Pl	Sm	VIII	CD	CN		
18.42	B	10°	Pl	Sm	VIII	CD	CS10mm		
18.43	B	10°	Pl	Sm	VIII	CD	CS10mm		
18.46	B	15°	Pl	Sm	VIII	CD	CN		
18.57	B	10°	Pl	Sm	VIII	CD	CN		
18.76	B	5°	Pl	Sm	VIII	CD	CN		
19.15	B	5°	Un	Sm	V	CD	CN		
19.80	J	5°	Un	Sm	V	CD	CS10mm		
20.43	B	5°	Pl	Sm	VIII	FL	Ct	CLAY 20mm	
20.90	B	5°	Pl	Sm	VIII	CD	CN		
23.00	B	5°	Pl	Sm	VIII	CD	CN		

CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

Project Name	**Cross River Rail CRR 2018 – Geotechnical Investigation**		
Project No.	FG6470	Date	28.06.18
Borehole No.	CRR907	Reference No.	H13107
Location	Clapham Yard	Start Depth (m)	16.05
Submitted By	J. Armstrong	Finish Depth (m)	23.43



SCALE (mm)