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**Queensland
Government**

GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR739**

Sheet 1 of 7

REFERENCE No **H12965**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation
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LOCATION	River Terrace
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COORDINATES 503426.8 E; 6960626.6 N

PROJECT No	FG6470
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SURFACE RL 26.52m

PLUNGE 90°

DATE STARTED 12/10/2017

GRID DATUM MGA94

JOB No

HEIGHT DATUM AHD

BEARING °

DATE COMPLETED 20/10/2017

DRILLER Schneider

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REMARKS: Rip - Aspley Formation. Rif - Brisbane Tuff.

LOGGED BY

REVIEWED BY

ZC & HA

S. Foley



**Queensland
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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR739**

Sheet 2 of 7

REFERENCE No **H12965**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation					
LOCATION	River Terrace			COORDINATES 503426.8 E; 6960626.6 N		
PROJECT No	FG6470	SURFACE RL	26.52m	PLUNGE	90°	DATE STARTED 12/10/2017
JOB No		HEIGHT DATUM	AHD	BEARING	°	DATE COMPLETED 20/10/2017
						GRID DATUM MGA94
						DRILLER Schneider

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH										DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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REMARKS: Rip - Aspley Formation. Rif - Brisbane Tuff.

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GEOTECHNICAL
BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND
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BOREHOLE No **CRR739**

Sheet 3 of 7

REFERENCE No **H12965**

PROJECT Cross River Rail CRR2017 - Additional Geotechnical Investigation

LOCATION River Terrace COORDINATES 503426.8 E; 6960626.6 N

PROJECT No FG6470 SURFACE RL 26.52m PLUNGE 90° DATE STARTED 12/10/2017 GRID DATUM MGA94

JOB No HEIGHT DATUM AHD BEARING ° DATE COMPLETED 20/10/2017 DRILLER Schneider

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH					DEFECT SPACING					ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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21			100 (91)		TUFF (Rif) FR: Cont'd. High to very high strength. - Js: 40°-50° (1-2/m) Pl/Sm, OP, Cn - Js: 70°-90° (1-2/m) Pl-UN/Sm, OP, Fe St or Cn.		FR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

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REMARKS: <u>Rip - Aspley Formation. Rif - Brisbane Tuff.</u>	LOGGED BY	REVIEWED BY
	<u>ZC & HA</u>	<u>S. Foley</u>

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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR739**

Sheet 4 of 7

REFERENCE No **H12965**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation
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LOCATION	River Terrace
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COORDINATES 503426.8 E; 6960626.6 N

PROJECT No	FG6470
------------	--------

SURFACE RL 26.52m

PLUNGE 90°

DATE STARTED 12/10/2017

GRID DATUM MGA94

JOB No

HEIGHT DATUM AHD

BEARING °

DATE COMPLETED 20/10/2017

DRILLER Schneider

DEPTH (m)	R.L. (m)	AUGER CASING	WASHBORING CORE DRILLING	RQD (%) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
						TUFF (Rif) FR: Cont'd.						
31												
32				100 (92)							Is(50)=2.70 MPa Is(50)=3.70 MPa	D (31.95m) A (31.96m)
33												
34											Is(50)=4.70 MPa Is(50)=5.50 MPa	D (34.20m) A (34.25m)
35				100 (98)				FR	VH		35.30m-36.20m: Healed joint with silicious infill, sub vertical.	
36										M		
37											Is(50)=2.10 MPa Is(50)=4.70 MPa	D (36.86m) A (36.87m)
38				100 (77)							38.30m-39.30m: BZ	
39	-13.48										Is(50)=2.20 MPa Is(50)=6.00 MPa	D (39.82m) A (39.83m)

Continued on next sheet

REMARKS: Rip - Aspley Formation. Rif - Brisbane Tuff.

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S. Foley



GEOTECHNICAL
BOREHOLE LOG

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

BOREHOLE No **CRR739**

Sheet 5 of 7

REFERENCE No **H12965**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation								
LOCATION	River Terrace				COORDINATES 503426.8 E; 6960626.6 N				
PROJECT No	FG6470	SURFACE RL	26.52m	PLUNGE	90°	DATE STARTED	12/10/2017	GRID DATUM	MGA94
JOB No		HEIGHT DATUM	AHD	BEARING	°	DATE COMPLETED	20/10/2017	DRILLER	Schneider

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH						DEFECT SPACING						ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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41			100 (92)		TUFF (Rif) FR: Cont'd.		FR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

43.70m-43.81m: J, 45° to sub vertical, Cn

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REMARKS: Rip - Aspley Formation. Rif - Brisbane Tuff.	LOGGED BY	REVIEWED BY
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GEOTECHNICAL
BOREHOLE LOG

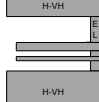
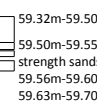
FOR GEOTECHNICAL TERMS AND
SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **CRR739**

Sheet 6 of 7

REFERENCE No **H12965**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation					
LOCATION	River Terrace			COORDINATES 503426.8 E; 6960626.6 N		
PROJECT No	FG6470	SURFACE RL	26.52m	PLUNGE	90°	DATE STARTED 12/10/2017
						GRID DATUM MGA94
JOB No		HEIGHT DATUM	AHD	BEARING	°	DATE COMPLETED 20/10/2017
						DRILLER Schneider

DEPTH (m)	R.L. (m)	AUGER CASING	WASHBORING	CORE DRILLING	RQD () % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH					DEFECT SPACING					ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS		
										EH	VH	H	M	J	VL	EL	EC	VC	C			M	W
51					100 (95)		TUFF (Rif) FR: Cont'd.		FR				Is(50)=3.00 MPa Is(50)=3.10 MPa	D (50.25m) A (50.27m)									
52																					Is(50)=2.20 MPa Is(50)=2.20 MPa	D (51.60m) A (51.61m)	
53																					Is(50)=4.30 MPa Is(50)=3.90 MPa	D (52.40m) A (52.41m)	
54					100 (100)																52.89m-53.05m: CAI=1.20 53.30m: 100% water loss down hole. Joint located at this section. -J: 53.25-53.45m; 60°, Pl/Sm, VIII, OP, Cn.	Is(50)=3.60 MPa Is(50)=4.30 MPa	D (52.90m) A (52.91m)
55																					54.12m-54.66m: SZ	Is(50)=0.95 MPa Is(50)=2.90 MPa	D (54.00m) A (54.01m)
56					100 (98)																55.42m-55.52m: CAI=0.35		
57														56.65m-56.85m: Brazilian Tensile Strength = 9.03 MPa 57.10m-57.27m: Slake Durability Index Test 57.51m-57.62m: CAI=1.08	Is(50)=3.30 MPa Is(50)=6.10 MPa UCS=175.00 MPa E=38 GPa v= 0.063	D (56.12m) A (56.13m) (56.29m)							
58					100 (91)												Is(50)=1.10 MPa Is(50)=1.10 MPa Is(50)=5.00 MPa Is(50)=2.90 MPa	D (58.06m) A (58.07m) A (58.41m) D (58.42m)					
59	-32.65																						
	-33.48						SILTSTONE (Rip) SW: Grey, fine grained, thinly bedded, high to very high strength, with coal seams.		HW				Is(50)=4.50 MPa Is(50)=1.50 MPa	D (59.49m) A (59.50m)									

Continued on next sheet

REMARKS: Rip - Aspley Formation. Rif - Brisbane Tuff.	LOGGED BY	REVIEWED BY
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GEOTECHNICAL
BOREHOLE LOG

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

BOREHOLE No **CRR739**

Sheet 7 of 7

REFERENCE No **H12965**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation					
LOCATION	River Terrace			COORDINATES 503426.8 E; 6960626.6 N		
PROJECT No	FG6470	SURFACE RL	26.52m	PLUNGE	90°	DATE STARTED 12/10/2017
						GRID DATUM MGA94
JOB No		HEIGHT DATUM	AHD	BEARING	°	DATE COMPLETED 20/10/2017
						DRILLER Schneider

DEPTH (m)	R.L. (m)	AUGER CASING	WASHBORING	CORE DRILLING	RQD () % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH						DEFECT SPACING						ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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	-33.86						SILTSTONE (Rip) SW: Cont'd. -Js: 0°-10° (3/m), Pl/Sm, VIII, OP, Cn -BP: 0°-20° (4/m), Pl/Ro, VII, TI, Vr CONGLOMERATE (Rip) FR: Grey, coarse grained, thickly bedded, medium to high strength.	XXXXXX	SW		H																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</

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	ZC & HA	S. Foley

CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Project Name	Cross River Rail CRR2017 – Geotechnical Investigation		
Project No.	FG6470	Date	20/10/17
Borehole No.	CRR739	Reference No.	H12965
Location	River Terrace	Start Depth (m)	0.45
Submitted By	M. de Gee	Finish Depth (m)	66.30



CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Project Name	Cross River Rail CRR2017 – Geotechnical Investigation		
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DEPARTMENT OF TRANSPORT AND MAIN ROADS
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Submitted By	M. de Gee	Finish Depth (m)	66.30



CORE PHOTO LOG

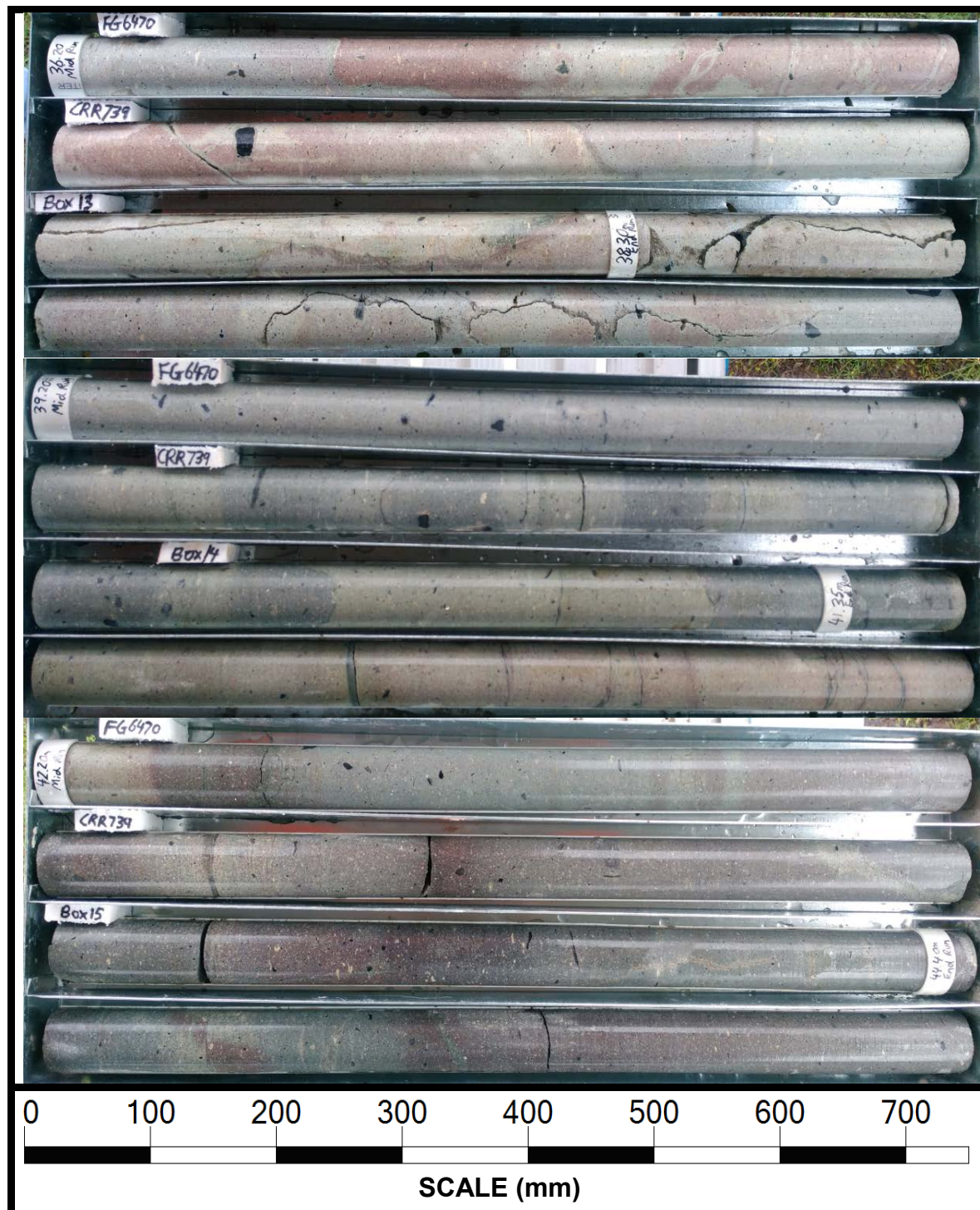
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Project No.	FG6470	Date	20/10/17
Borehole No.	CRR739	Reference No.	H12965
Location	River Terrace	Start Depth (m)	0.45
Submitted By	M. de Gee	Finish Depth (m)	66.30



CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Project Name	Cross River Rail CRR2017 – Geotechnical Investigation		
Project No.	FG6470	Date	20/10/17
Borehole No.	CRR739	Reference No.	H12965
Location	River Terrace	Start Depth (m)	0.45
Submitted By	M. de Gee	Finish Depth (m)	66.30



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DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Project Name	Cross River Rail CRR2017 – Geotechnical Investigation		
Project No.	FG6470	Date	20/10/17
Borehole No.	CRR739	Reference No.	H12965
Location	River Terrace	Start Depth (m)	0.45
Submitted By	M. de Gee	Finish Depth (m)	66.30



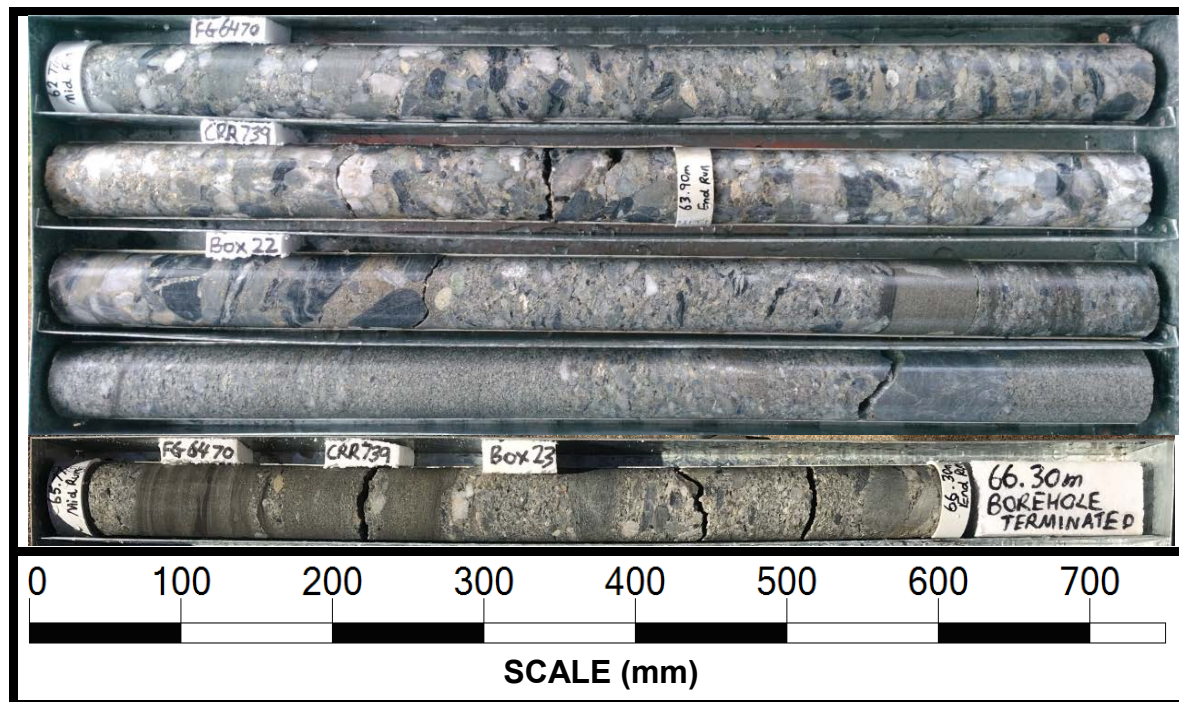
CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Project Name	Cross River Rail CRR2017 – Geotechnical Investigation		
Project No.	FG6470	Date	20/10/17
Borehole No.	CRR739	Reference No.	H12965
Location	River Terrace	Start Depth (m)	0.45
Submitted By	M. de Gee	Finish Depth (m)	66.30



CORE PHOTO LOGDEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Project Name	Cross River Rail CRR2017 – Geotechnical Investigation		
Project No.	FG6470	Date	20/10/17
Borehole No.	CRR739	Reference No.	H12965
Location	River Terrace	Start Depth (m)	0.45
Submitted By	M. de Gee	Finish Depth (m)	66.30



Detailed Discontinuity Description Log

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				Project No.	FG6470		
Site ID / Borehole No.		CRR739				Surface RL	26.69		
Geologist		H.A, Z.C				Date	12/10/2017		
						Page	1	of	6
Traverse Chainage; or Down hole depth (rock core)	Type	Dip ° / Dip Direction °;	Planarity	Roughness	Roughness Class	Aperture	Infilling	Zones ¹	Other
	LP /	or				CD /	Cn /	SZ /	
	BP /	Angle ° from	Stp /	Ro /	I to IX	OP /	St /	CZ /	
	FP /	horizontal	Un /	Sm /		FL /	Vr /	HFZ /	
	J etc.	(rock core)	PI	SI		TI	Ct ¹	AZ	
0.45							Cn	HFZ	210mm
0.66	J	5	Un	Sm	V	OP	Cn		
0.88	J	0	Un	Sm	V	OP	St		Fe
1.02	J	0	Un	Sm	V	OP	St		Fe
1.08	J	10	Un	Sm	V	TI	St		Fe
1.20	J	5	Un	Sm	V	OP	St		Fe
1.54	J	10	Un	Sm	V	OP	St		Fe
1.74	J	0	Un	Sm	V	OP	St		Fe
1.76	J	20	Un	Sm	V	OP	St		Fe
1.90	J	20	Un	Sm	V	TI	St		Fe
2.01	J	5	Un	Sm	V	OP	St		Fe
2.33	J	0	Un	Sm	V	OP	St		Fe
2.34	J	0	Un	Sm	V	OP	St		Fe
2.64	J							HFZ	40mm
2.68	J	5	Un	Sm	V	OP	Cn		
3.20	J	20	Un	Sm	V	OP	Cn		
3.28	J	5	Un	Sm	V	OP	St		Fe
3.53	J	80	Un	Sm	V	TI	Cn		
3.67	J	5	Un	Sm	V	TI	Cn		
3.74							St	HFZ	20mm, Fe
3.76	J	20	Un	Sm	V	OP	St		Fe
3.96							St	HFZ	240mm, Fe
4.35	J	10	Un	Sm	V	OP	St		Fe
4.42	J	10	Un	Sm	V	OP	St		Fe
4.92	J	0	Un	Sm	V	OP	St		Fe
4.94	J	10	Un	Sm	V	OP	St		Fe
4.97	J	75	Un	Sm	V	CD	St		Fe
5.23	J	80	Un	Sm	V	OP	Cn		
5.57	J	90	Un	Sm	V	OP-TI	St		Fe
5.84	J	15	Un	Sm	V	OP	St		Fe
5.84	J	85	Un	Sm	V	CD	St		Fe

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

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Detailed Discontinuity Description Log

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Project Name		Cross River Rail				Project No.	FG6470		
Site ID / Borehole No.		CRR739				Surface RL	26.69		
Geologist		H.A, Z.C				Date	12/10/2017		
						Page	2	of	6
Traverse Chainage; or Down hole depth (rock core)	Type	Dip ° / Dip Direction °;	Planarity	Roughness	Roughness Class	Aperture	Infilling	Zones ¹	Other
	LP /	or				CD /	Cn /	SZ /	
	BP /	Angle ° from	Stp /	Ro /	I to IX	OP /	St /	CZ /	
	FP /	horizontal	Un /	Sm /		FL /	Vr /	HFZ /	
J etc.	(rock core)	PI	SI			TI	Ct ¹	AZ	
6.14	J	15	Un	Sm	V	CD	St		Fe
6.14	J	90	Un	Sm	V	OP	St		Fe
6.31	J	60	Un	Sm	V	OP	St		Fe
6.57	J	90	Un	Sm	V	CD	St		570mm, Fe
7.14	J	80	Un	Sm	V	CD	St		Fe
7.38	J	90	Un	Sm	V	CD	St		Fe
7.51	J	80	Un	Sm	V	CD	St		Fe
7.70	J	10	Un	Sm	V	OP	St		Fe
7.70	J	80	Un	Sm	V	OP	St		Fe
7.81	J	80	Un	Sm	V	OP	St		Fe
7.98	J	10	Un	Sm	V	OP	St		Fe
8.02	J	10	Un	Sm	V	TI	St		Fe
8.06	J	10	Un	Sm	V	OP	St		Fe
8.08	J	0	Un	Sm	V	OP	St		Fe
8.10	J	10	Un	Sm	V	OP	St		Fe
8.11	J	80	Un	Sm	V	CD	St		Fe
8.30	J	5	Un	Sm	V	CD	St		Fe
8.37	J	0	Un	Sm	V	CD	St		Fe
8.45	J	20	Un	Sm	V	CD	St		Fe
8.50	J	5	Un	Sm	V	OP	St		Fe
8.56	J	20	Un	Sm	V	OP	St		Fe
8.62	J	20	Un	Sm	V	OP	St		Fe
8.63	J	5	Un	Sm	V	CD	St		Fe
8.84	J	0	Un	Sm	V	OP	St		Fe
9.07	J	10	Un	Sm	V	CD	St		Fe
9.27	J	10	Un	Sm	V	OP	St		Fe
9.33	J	5	Un	Sm	V	OP	St		Fe
9.33	J	85	Un	Sm	V	CD	St		Fe
9.51	J	5	Un	Sm	V	OP	St		Fe
9.53	J	0	Un	Sm	V	OP	St		Fe
9.53	J	85	Un	Sm	V	CD	St		Fe

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

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Detailed Discontinuity Description Log

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Project Name		Cross River Rail				Project No.	FG6470		
Site ID / Borehole No.		CRR739				Surface RL	26.69		
Geologist		H.A, Z.C				Date	12/10/2017		
						Page	3	of	6
Traverse Chainage; or Down hole depth (rock core)	Type	Dip ° / Dip Direction °;	Planarity	Roughness	Roughness Class	Aperture	Infilling	Zones ¹	Other
	LP /	or				CD /	Cn /	SZ /	
	BP /	Angle ° from	Stp /	Ro /	I to IX	OP /	St /	CZ /	
	FP /	horizontal	Un /	Sm /		FL /	Vr /	HFZ /	
J etc.	(rock core)	PI	SI			TI	Ct ¹	AZ	
10.02	J	5	Un	Sm	V	OP	St		Fe
10.03	J	5	Un	Sm	V	CD	St		Fe
10.03	J	85	Un	Sm	V	CD	St		Fe
10.51	J	5	Un	Sm	V	CD	St		Fe
10.52	J	5	Un	Sm	V	CD	St		Fe
10.54	J	0	Un	Sm	V	CD	St		Fe
10.63	J	5	Un	Sm	V	CD	St		Fe
10.69	J	10	Un	Sm	V	OP	St		Fe
10.91	J	35	PI	Sm	VIII	OP	St		Fe
11.45	J	5	Un	Sm	V	OP	St		Fe
11.60	J	10	Un	Sm	V	OP	St		Fe
11.65	J	5	Un	Sm	V	CD	St		Fe
11.80	J	5	Un	Sm	V	OP	St		Fe
11.96	J	10	Un	Sm	V	OP	St		Fe
12.11	J	40	Un	Sm	V	CD	St		Fe
12.15	J	10	Un	Sm	V	CD	St		Fe
12.37	J	0	Un	Sm	V	OP	St		Fe
12.83	J	10	Un	Sm	V	OP	St		Fe
12.74	J	10	Un	Sm	V	TI	St		Fe
13.52	J	10	Un	Ro	VI	FL	St		
13.60	J	10	Un	Sm	V	OP	St		Fe
14.61	J	0	Un	Sm	V	OP	St		Fe
14.63	J	0	Un	Sm	V	OP	St		Fe
15.10	J	5	Un	Sm	V	OP	St		Fe
15.67	J	50	PI	Sm	VIII	CD	St		Fe
15.80	J	0	PI	Sm	VIII	OP	St		Fe
15.97	J	5	Un	Sm	V	OP	St		Fe
16.44	J	70	Un	Sm	V	CD	St		Fe
16.81	J	65	PI	Sm	VIII	OP	St		Fe
17.13	J	30	PI	Sm	VIII	OP	Cn		Fe
17.75	J	90	PI	Sm	VIII	OP	St		Fe

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

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Detailed Discontinuity Description Log

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Project Name		Cross River Rail				Project No.		FG6470	
Site ID / Borehole No.		CRR739				Surface RL		26.69	
Geologist		H.A, Z.C				Date		12/10/2017	
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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 / TI	Infilling Cn / St / Vr / Ct ¹	Zones ¹ SZ / CZ / HFZ / AZ	Other
18.33	J	90	Pl	Sm	VIII	OP	St		Fe
18.47	J	90	Pl	Sm	VIII	OP	St		Fe
18.77	J	85	Pl	Sm	VIII	OP	St		Fe
19.27	J	45	Un	Sm	V	CD	St		Fe
19.36	J	88	Pl	Sm	VIII	CD	St		Fe
19.87	J	80	Pl	Sm	VIII	OP	Cn		
20.10	J	5	Un	Sm	V	OP	Cn		
20.17	J	10	Un	Sm	V	OP	Cn		
20.35	J	5	Pl	Sm	VIII	OP	St		Fe
20.70	J	5	Pl	Sm	VIII	OP	Cn		
20.75	J	10	Pl	Sm	VIII	OP	St		Fe
21.00	J	50	Un	Sm	V	TI	Vr		Qz
21.39	J	5	Pl	Sm	VIII	OP	Cn		
21.78	J	45	Un	Sm	V	TI	Vr		Qz
22.03	J	45	Stp	Sm	II	TI	Vr		Qz
22.75	J	50	Pl	Sm	VIII	OP	St		Fe
23.60	J	45	Un	Sm	V	TI	St		Fe
23.80	J	50	Pl	Sm	VIII	TI	Vr		Qz
24.35	J	30	Pl	Sm	VIII	TI	Vr		Qz
24.75	J	40	Stp	Sm	II	OP	Cn		
24.77	J	45	Pl	Sm	VIII	OP	Cn		Qz
25.45	J	50	Pl	Sm	VIII	TI	Vr		
25.95	J	5	Pl	Sm	VIII	OP	Cn		Fe
26.52	J	45	Pl	Sm	VIII	OP	St		
28.10	J	10	Pl	Sm	VIII	OP	Cn		
29.02	J	5	Pl	Sm	VIII	OP	Cn		Fe
30.90	J	50	Pl	Sm	VIII	OP	St		Fe
31.10	J	60	Un	Sm	V	OP	St		Fe
31.35	J	45	Pl	Sm	VIII	OP	St		
34.90	J	45	Pl	Sm	VIII	OP	Cn		
35.10	J	90	Un	Sm	V	OP	St		Fe

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

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Detailed Discontinuity Description Log

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Project Name		Cross River Rail				Project No.		FG6470	
Site ID / Borehole No.		CRR739				Surface RL		26.69	
Geologist		H.A, Z.C				Date		12/10/2017	
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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 / TI	Infilling Cn / St / Vr / Ct ¹	Zones ¹ SZ / CZ / HFZ / AZ	Other
35.30	J	70	Un	Sm	V	TI	Vr		Qz, Fe
35.60	J	80	Pl	Sm	VIII	TI	Vr		Qz
36.73	J	50	Stp	Sm	II	TI	Vr		Si
37.10	J	45	Pl	Sm	VIII	TI	Vr		Si
37.65	J	90	Pl	Sm	VIII	TI	Cn		
37.80	J	50	Pl	Sm	VIII	OP	Cn		
38.14	J	45	Un	Sm	V	OP	Cn		
38.45	J	45	Pl	Sm	VIII	OP	Cn		
38.55	J	40	Pl	Sm	VIII	OP	Cn		
38.80	J	80	Un	Sm	V	OP	Cn		
38.95	J	90	Un	Sm	V	OP	Cn		
39.10	J	90	Un	Sm	V	OP	Cn		
40.38	J	1	Pl	Sm	VIII	OP	Cn		
40.67	J	2	Pl	Sm	VIII	OP	Cn		
41.69	BP	5	Pl	Sm	VIII	OP	Cn		
42.38	J	10	Pl	Sm	VIII	OP	Cn		
43.25	J	5	Pl	Sm	VIII	OP	Cn		
43.75	J	45	Pl	Sm	VIII	OP	Cn		
43.05	J	80	Pl	Sm	VIII	OP	Cn		
44.85	J	5	Pl	Sm	VIII	OP	Cn		
47.20	J	95	Un	Sm	V	TI	Cn		
49.10	J	2	Pl	Sm	VIII	OP	Cn		
50.85	J	5	Pl	Sm	VIII	OP	Cn		
53.30	J	45	Pl	Sm	VIII	OP	Cn		
53.50	J	45	Pl	Sm	VIII	OP	Cn		
57.32	J	60	Un	Sm	V	CD	Vr		
57.71	J	10	Pl	Sm	VIII	OP	Cn		
58.41	J	15	Pl	Sm	VIII	TI	Cn		
58.64	J	20	Pl	Sm	VIII	OP	Cn		
59.20	BP	45	Pl	Sm	VIII	TI	Vr		Coal
59.40	BP	5	Pl	Sm	VIII	TI	Vr		Coal

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

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Project Name		Cross River Rail				Project No.		FG6470	
Site ID / Borehole No.		CRR739				Surface RL		26.69	
Geologist		H.A, Z.C				Date		12/10/2017	
						Page		6	of 6
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 / SI	Roughness Class I to IX	Aperture CD / OP / FL / TI	Infilling Cn / St / Vr / Ct ¹	Zones ¹ SZ / CZ / HFZ / AZ	Other
59.50	BP	5	Pl	Ro	VII	TI	Vr		Coal
59.60	BP	5	Pl	Ro	VII	TI	Vr		Coal
59.67	BP	5	Pl	Ro	VII	TI	Vr		Coal
60.22	J	2	Pl	Sm	VIII	OP	Cn		
60.28	BP	2	Pl	Ro	VII	TI	Vr		Coal
60.32	BP	3	Pl	Ro	VII	TI	Vr		Coal
61.60	J	5	Pl	Sm	VIII	OP	Cn		
62.34	J	35	Un	Sm	V	OP	Cn		
63.71	J	15	Pl	Sm	VIII	OP	Cn		
65.56	J	45	1	Sm	II	OP	Cn		
65.90	J	10	Pl	Sm	VIII	OP	Cn		

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

F:GEOT 533/9 – 2014