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CLIENT:

PROJECT:

AECOM Australia Pty Ltd

LOCATION: Fenton Street, Fairfield

Cross River Rail - Phase 1

 SURFACE LEVEL:
 17.3 m AHD

 EASTING:
 502777

 NORTHING:
 6957911

 DIP/AZIMUTH:
 -90°/-

BORE No: CRR104 PROJECT No: 74321.00 DATE: 19 April 2010 SHEET 1 OF 4

		Description	Degree of	Rock Strength	Fracture	Discontinuities	Sa	mpling	3 & I	n Situ Testing
R	Depth (m)	of	Weathering		Spacing (m)	B - Bedding J - Joint	Type	e %	ລຸ	Test Results
		Strata	꼜 첫 했 않 당 뒤 () ()		0.01 0.10 1.00	S - Shear D - Drill Break	Ę	Core Rec. %	т» Г	& Comments
17	0.1	ASPHALTIC CONCRETE FILLING - moderately compacted, dark grey, sandy gravel filling, medium to coarse grained sand and fine to medium gravel fractions with some silt, moist SILTY CLAY - stiff to very stiff, grey and red-brown mottled, high plasticity, silty clay, with trace of fine to medium grained sand, moist (residual) - becoming very stiff to hard					qq			pp = 250kPa
16	* 1 - - -						s			8,14,14 N = 28
	-2	TUFF - extremely low to very low strength, highly to moderately weathered, grey and red-brown mottled, tuff				(See attached sheet fpr				
15						abbreviations)	S			11, 30/125mm
14	-3	TUFF - extremely low strength, highly to moderately weathered, fractured, grey and orange-brown mottled, tuff - becoming high strength, moderately to slightly weathered - becoming extremely low strength, highly to moderately weathered, some medium to high strength bands to 10mm				Defects generally overprinted by pervasive weathering 2.78m: J: sv, un, sm, cf 8mm, to 2.94m 2.9m: Numerous tight hairline fractures to 3.20m 3.42m: J: 45°, un, sm, cf 3mm				
	4.7	mottled				3.95m: J: 30°, un, sm, 4mm 4.73m: J: sv, un, sm, to 4.83m	C	100	37	
ŀ	-									
	IG: MD: YPE OF	300 DRIL BORING: Auger 0.00-2.70m, NML(LER: Taberner C core 2.70-15.0		ogged: Mah	I CAS	NG:	HW t	o 2.	7m

WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:

 SAMPLING & IN SITU TESTING LEGEND

 A
 Auger sample
 pp
 Pocket penetrometer (kPa)

 D
 Disturbed sample
 PID
 Photo ionisation detector

 B
 Buik sample
 Siandard penetration test

 U,
 Tube sample (x mm dia.)
 PL
 Point bad strength Is(50) MPa

 W
 Water sample
 V
 Shear Vane (kPa)

 C
 Core drilling
 D
 Water seep



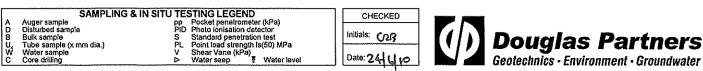
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SURFACE LEVEL: 17.3 m AHD EASTING: 502777 NORTHING: 6957911 DIP/AZIMUTH: -90°/--

BORE No: CRR104 PROJECT No: 74321.00 DATE: 19 April 2010 SHEET 2 OF 4

Decktion Opention Strength Sprength Spacing Spacing 0 SANDSTONE - medium strength, modarately weathered, first, grey and prage-brown meliced, first to and prage-brown meliced, the becoming medium to high the to medium strength, fractured to mm clay band Strength to and prage-brown meliced to the properties of the p		Description	Degree of	Rock	Fracture	Discontinuities	Sampling & In Situ Testin			
30 SANDSTONE - medium strength, medicareap-stroom metided, fine to medicareap-stroom metided medicareap-stroom metided medicareap-stroom metided			Weathering	Strength	Spacing				-	
SANDSTORE - medure strength, medure senders vealured, the strength, medure senders to 30mm Image: 4 doi: 10 min.	(m)		N N N N N N N N N N N N N N N N N N N				1yp	U S S S S S	ROI %	& Comments
Peconing Indium Advantages and Store Bandwing Peroperture 4.45 mm (Bandwing Bandwing Peroperture) 4.45 mm (Bandwing Bandwing Bandwing Peroperture) 4.45 mm (Bandwing Bandwing Bandw	- <u>2</u> -	moderately weathered, fresh, grey and orange-brown mottled, fine to medium sandstone, bedding subhorizontal, clay seams to 30mm lat 50-100mm spacings to 5.65m becoming generally high strength				5.08m: J: 50°, un, sm, cf 4mm 5.1m: B: 10°, pl, sm 5.44m: J: sv, un, ro, lim,				
Profile Lag Salad Profile Lag Salad 6.43m: 37.70 m, 23, 105 m, 26.51m: 81.10°, pl sm, 1m, ag 6.83, 700, 7.23, 10CS Sandstore Decoming medium to carse sandstone Salam: 81.0°, pl sm, 1m, ag 6.83, 700, 7.23, 10CS C Pecoming medium to high High strength Salam: 81.0°, pl sm, of smm Salam: 81.0°, pl sm, of smm Pecoming ing the trength High strength, fine to medium sandstone F.23m: 81.30°, un, no, im C 100 90 Prom high strength, fine to medium sandstone F.70m high strength, fine to medium sandstone F.63m: B: 10°, un, sm, im Salam: 81.20°, un, sm, im Salam: 81.20°, un, sm, im Salad Some high strength, fine to medium secola Salam: 81.10°, pl, sm, of smm Salam: 81.10°, pl, sm, of smm Salam: 81.10°, pl, sm, of smm Salad Some high strength, fine to medium secola Salam: 81.10°, pl, sm, of smm Salam: 81.10°, pl, sm, of smm Salam: 81.10°, pl, sm, of smm Salad Salam: 81.10°, pl, sm, of smm Salam: 81.10°, pl, sm, of smm Salam: 81.10°, pl, sm, of sem Salam: 81.0°, pl, sm, of sem Salad Salam: 81.10°, pl, sm, of sem Salam: 81.10°, pl, sm, of sem Salam: 81.10°, pl, sm, of sem Salam: 81.0°, pl, sm, of sem Salad Salam: 81.10°, pl, sm, of sem Salam: 81.10°, pl, sm, of sem Sa		becoming highly weathered, red-brown becoming moderately weatherd, grey and orange-brown mottled 60mm clay band, wood fragment becoming medium to high strength, moderately to slightly weathered, sporadic laminae of coarse sandstone to 20mm e 40mm clay band				 ¹5.45m: B: sh, pl, ro, lim 5.6m: B: sh, pl, sm, ag 5.67, 5.85m 5.72m: B: 10°, pl, ro, lim 6.05m: J: 45°, un, ro 6.17m: J: 45°, pl, sm, cf 				PL(A) = 0.27MPa PL(A) = 0.27MPa PL(D) = 0.27MPa PL(D) = 0.27MPa
** ** <td< td=""><td></td><td>L becoming fracture stained becoming medium to coarse sandstone</td><td></td><td></td><td></td><td>6.51m: B: 10°, pl, sm, lim, ag 6.83, 7.00, 7.23,</td><td>ucs</td><td>-</td><td></td><td>4.114 MPa</td></td<>		L becoming fracture stained becoming medium to coarse sandstone				6.51m: B: 10°, pl, sm, lim, ag 6.83, 7.00, 7.23,	ucs	-		4.114 MPa
Becoming medium strength, grey, fine to medium strength, grey, fine to medium strength, fine to medium to high strength, medium to high strengt	7	strength 150mm moderately to slightly weathered, orange-brown and grey mottled, fine to medium breccia band				6.85m: J: 60°, un, ro, cc	с	100	90	
For the strength of the str		 becoming medium strength, grey, fine to medium sandstone 70mm high strength, fine to medium breccia band 10mm clay seam 5mm clay seam 				7.63m: B: 10°, pl, sm, cf	-			
8.65 9 becoming low strength, medium 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 11 </td <td>8.2</td> <td>5 CONGLOMERATE - low strength, moderately weathered, fractured, orange-brown and grey mottled, fine to medium conglomerate,</td> <td></td> <td></td> <td></td> <td>8.2m: B: 10°, un, sm, lim 8.34m: B: 15°, pl, sm, cf</td> <td>A CANADA A C</td> <td>- 110- 4100, 111 11 11 11 11 11 11 11 11 11 11 11 1</td> <td>• • • • • • • • • • • • •</td> <td>PL(A) = 0.39MPa PL(D) = 0.3MPa</td>	8.2	5 CONGLOMERATE - low strength, moderately weathered, fractured, orange-brown and grey mottled, fine to medium conglomerate,				8.2m: B: 10°, un, sm, lim 8.34m: B: 15°, pl, sm, cf	A CANADA A C	- 110- 4100, 111 11 11 11 11 11 11 11 11 11 11 11 1	• • • • • • • • • • • • •	PL(A) = 0.39MPa PL(D) = 0.3MPa
-9 -becoming medium to high strength		becoming low strength, medium to coarse conglomerate				8.65m: CORE LOSS:				-
RIG: MD300 DRILLER: Taberner LOGGED: MAH CASING: HW to 2.7m TYPE OF BORING: Auger 0.00-2.70m, NMLC core 2.70-15.00m Core 2.70-15.00m	9	 becoming medium to nign strength SANDSTONE - low strength, moderately weathered, fractured, orange-grey, medium to coarse sandstone, bedding subhorizontal 				8.9m: frg to 9.05m, di	с	89	86	
TYPE OF BORING: Auger 0.00-2.70m, NMLC core 2.70-15.00m		= 180mm fine conglomerate interbed = becoming fine to medium sandstone ↓ becoming fresh				N.9.94m: J: 45°, pl, ro, lim		-		
REMARKS:	TYPE OF	BORING: Auger 0.00-2.70m, NML OBSERVATIONS: No free groundw	C core 2.70-15.00	Om	gged: Mał	H CAS	ING:	нw	to 2.	7m



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CLIENT: PROJECT:

AECOM Australia Pty Ltd Cross River Rail - Phase 1 LOCATION: Fenton Street, Fairfield

SURFACE LEVEL: 17.3 m AHD EASTING: 502777 NORTHING: 6957911

BORE No: CRR104 PROJECT No: 74321.00 DATE: 19 April 2010 SHEET 3 OF 4

Donth	Description Degree o Weatherin		ic –	Rock Strength	Fracture Spacing	Discontinuities			-	n Situ Testing	
Depth (m)	of Strata	Weathering	Graph	Very Low Very Low Medium Very High Ex High Ex High Medium	໌(m) ັ	8 - Bedding J - Joint S - Shear D - Drill Break	Type	Core ec. %	RQD %	Test Results	
	² becoming medium to high	M H M S E E		<u>מוליביבוציצימ</u>				CC.		Comments	
. 10.18	\strength - becoming low to medium \strength		27 27			^C 10.04m: J: 65°, pl, ro	с	89	86	PL(A) = 0.1MPa PL(D) = 0.12MP	
-	CONGLOMERATE - very low strength, slightly weathered,		Doc								
ŀ	fractured, grey, fine to medium		þ°(
ļ	lalignment		$\underline{]}^{o}$			10.61m: B: 15°, pl, ti, lim					
	l ≥ 200mm very low to low strength, n medium to coarse sandstone		PC								
	interbed becoming low strength		20								
- 11	becoming medium strength,		20							PL(A) = 0.26MF PL(D) = 0.2MF	
	moderately to slightly weathered, grey and orange-brown banded		00							1 2(0) ~ 0.200	
F	- becoming medium to coarse		ΓŲ			11.3m: J: 30°, un, h, lim					
	becoming medium to high		l'ac								
[strength 130mm fine to medium sandstone		Ľζ			11.49m: B: 30°, un, ro, lim					
11.72	∖intered ∖- becoming fresh /		20				С	100	100		
-	SANDSTONE - medium strength,					11.8m: B: sh, pl, sm, ag			ŀ		
- 12	fresh, slightly fractured, grey, fine					12.00, 12.10, 12.16, 12.34m					
	subhorizontal, sporadic coal laminae to 5mm									PL(A) = 0.55M PL(D) = 0.36M	
	- becoming high strength, medium										
10.4	sandstone										
- 12.4	\grey ,fine sandstone		67								
ŀ	CONGLOMERATE - medium strength, moderately to highly		100								
	weathered, slightly fractured, orange-brown and grey, medium to		Þ		 	10.75mm h 20% vm m					
	coarse conglomerate, subhorizontal clast orientation		100			12.75m: J: 30°, un, ro		<u> </u>			
- 13	- becoming moderately weathered		þ							PL(A) = 0.9M	
-	- becoming highly weathered,		Do			13.1m: J: 15°, un, ro, lim				PL(D) = 0.63N	
13.23	orange-brown	┥┆┖┽┿┓┆┆	م د								
Ĩ.	SANDSTONE - very low strength, a slightly weathered, slightly					13.38m: B: 30°, pl, sm,					
-	fractured, grey, fine to medium sandstone, bedding at 20°					cf 5mm				l.	
-	רן - 5mm clay seam										
ľ	becoming low strength becoming medium to highb										
13.9	strength, medium sandstone					13,89m: B: 10°, pl, ro	_				
-14 14.0	- becoming coarse sandstone CONGLOMERATE - low to					10,00111 2. 10 , p. 10	С	100	100	PL(A) = 0.17N	
Į	medium strength, fresh, slightly fractured, grey, fine to medium		Ľ(PL(D) = 0.12	
ļ	conglomerate, subhorizontal clast										
	orientation		Ľί			14.4m: J: sv, un, ro, to					
14.58						14.90m					
14.0	SANDSTONE - high strength, fresh, slightly fractured, grey,										
-	medium to coarse sandstone, bedding subhorizontal to 20°, coal										
}	laminae to 3mm				i li li	14.9m: B: 20°, pl, sm,					
<u> </u>		<u></u>	ىنىي	- <u>-</u>						_	
ig: MD	300 DRIL BORING: Auger 0.00-2.70m, NML	LER: Taberi C core 2 70-			GGED: MAI	H CASI	NG:	ΗW	to 2.	/m	
	DBSERVATIONS: No free groundw										
	S:										

Γ.		N SITU TESTING LEGEND	CHECKED	_	
I A	Auger sample	pp Pocket penetrometer (kPa)			
D B U, W C	Disturbed sample Bulk sample Tube sample (x mm dia.) Water sample Core drilling	PID Photo ionisation detector S Standard penetration test PL Point load strength ts(50) MPa V Shear Vane (kPa) ▷ Water seep ₹ Water level	Initials: Date:741610		Douglas Partners Geotechnics • Environment • Groundwater

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DIP/AZIMUTH: -90°/--

CLIENT: AECOM Australia Pty Ltd Cross River Rail - Phase 1 LOCATION: Fenton Street, Fairfield

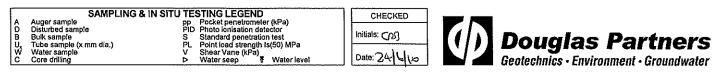
PROJECT:

SURFACE LEVEL: 17.3 m AHD 502777 NORTHING: 6957911

DIP/AZIMUTH: -90°/--

BORE No: CRR104 PROJECT No: 74321.00 **DATE:** 19 April 2010 SHEET 4 OF 4

			1 -			1	1	D -	- J -							1								
	Denth	Description	W	egre eath	ee of Iering	Graphic	Le	Ro			Ъ.	Fracture Spacing		Discon	ntinuities	1		-	n Situ Testing					
Ч	Depth (m)	of			~	Log	و لا			16	Vate	(m)			J - Joint	Type	se,	RQD %	Test Results &					
		Strata	NB :	ΜM	N SI B	U S	2 일 문	18		ШЩ	<u>م</u>	0.05	S-9	Shear	D - Drill Break	_ب	ပည္ဆ	Ϋ́	Comments					
	15.0° -	becoming medium strength, medium sandstone											\csla	im 5mm	<u>ا</u>									
Ļ	-	= 5mm coal laminae	' į	ΪÍ	11		į	į į	ļį	Í														
-~	-	Bore discontinued at 15.0m																						
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R	IG: MD3	300 DRIL	LEF	२ : T	aber	ner					LO	GGED: MA	Н		CAS	ING:	нw	to 2.1	7m					
Т	YPE OF	BORING: Auger 0.00-2.70m, NML	C co	ore	2.70-	15.00																		
			rater	r ob	serve	d wh	ilst a	auge	ering	3														
R	EMARK	S:											WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:											



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