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	Queensland Government
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GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 FINAL 17/03/2016

BH209

Sheet 1 of 5

BOREHOLE No

REFERENCE No

H12218

LOCATION Pioneer River Bridge, Pier 2 (RHS) COORDINATES 721276.9 E; 7660075. PROJECT No FG6184 SURFACE RL 6.98m PLUNGE 90° DATE STARTED 23/09/2015 GRID DATUM GDA 94 / MG JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 25/09/2015 DRILLER Cairns Drillin Image: Correct of the started to the sta	GA Z55 g
JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING DATE COMPLETED 25/09/2015 DRILLER Cairns Drillin (i) RL. (m) (i) ROD (i) III IIII IIII IIII IIII IIII IIIII IIIII IIIII IIIIIII IIIIIIIIIIII (ii) RL. (m) IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	g
Image: Constraint of the second se	
	PLES
	SAMPLES TESTS
Fine to coarse grained sand.	
1 5.98 1 5.98 A Sandy CLAY (Alluvium) Brown, moist, very stiff. Low plasticity.	SPT
2 2.00m: becomes hard.	SPT
3.98 3.98 C CLAY (Alluvium)	SPT
2.98 2.98 2.98 2.98 2.98 2.98 2.98 2.98	SPT
5 Clayey SAND (Alluvium) Brown grey, moist, medium dense. 8,11,11 Fine to medium grained sand. (SC)	SPT
• F SAND trace clay (Alluvium) - Grey, moist, dense. - - Fine to medium grained. -	SPT
- 1.02	SPT
	SPT
9 -2.12 1 Clayey SAND (Alluvium) Brown grey, moist, dense. 5 -3.02	SPT
REMARKS: Kgwu = Wundaru Granodiorite LOGGED BY REVIEW	
The geotechnical borehole log - created with holebase si	еу

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 FINAL 17/03/2016

BH209

Sheet 2 of 5

BOREHOLE No

REFERENCE No

H12218

PROJE	СТ	1	Mac	kay Rin	g Rc	ad								
LOCAT	ION	F	Pion	eer Riv	er B	ridge, Pier 2 (RHS)						COORDINATES 721276.9	E; 76600	75.2 N
PROJE	CT No	F	G6	184		SURFACE RL 6.98m	PLU	INGE S	0°	DATE STAF	RTED 23/09/2015	GRID DATUM	GDA 94 / M	MGA Z55
JOB No	D	2	242,	/10G/90	06	HEIGHT DATUM A.H.D.	BEAR	RING _		DATE COMPLI	ETED 25/09/2015	DRILLER	Cairns Dril	ling
DEPTH (m)	R.L. (m)	AUGER CASING	WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	ГІТНОГОGY	USCS WEATHERING				ADDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
-	-3.22	AU	MA CC		J	SAND (Alluvium) Brown grey, moist, medium dense. Fine to coarse grained sand. CLAY (Alluvium)		(SP)	Ĕ,Ĕ,⊢,ĕ,⊣Ĭ,Ĕ - - - - - -				7, 12, 16 N=28	SPT
- - - - - -	-4.02	-			к	Grey, moist, very stiff. Low to medium plasticity. Sandy CLAY (Alluvium) Grey, moist, very stiff. Fine to medium grained sand, low		(CI)					6, 9, 16 N=25	SPT
- - - - - -	-5.02				L	to medium plasticity. CLAY trace sand (Alluvium) Grey, moist, very stiff. Low to medium plasticity.			- - - - - - - -				4, 7, 9 N=16	SPT
	-6.02				м	Sandy CLAY (Alluvium) Brown, moist, very stiff to hard.		(CI)		-			5, 8, 12	SPT
- - - - - - - - - - - - - - - - - - -						Fine grained sand, medium to high plasticity.		(СН)					N=20	
	-8.02				N								6, 11, 16 N=27	SPT
- 15 - - - -					0	Clayey SAND (Residual) Brown grey, moist, medium dense. Fine to coarse grained sand, low to medium plasticity.							8, 12, 17 N=29	SPT
16 					Ρ	16.00m: becomes very dense.		(SC)					30/140	SPT
- 17 - 17 	-10.97				Q								20, 30/100	SPT
- 18 				(0) 100 (0)		MICRODIORITE (Kgwu) MW: Blue grey, fine grained, massive, high strength. Js: 0° to 15°; (12/m); PI/Ro; TI-FL; Fe St and Cly Vr; Js: 20° to 30°; (3/m); PI/Ro; TI; Fe St,	Ň	мw нw	H	vc-c	18.65m-18.84m: HW	ls(50)=2.30 MPa 50)=4.70 MPa	D (18.19m)-
- - - - - -	-13.02			<u>100</u> (0)		some Cly Vr; Js: 60° to 70°; (1/m); Pl/Sm; Tl; Fe St;		MW	МН	vc-c	19.80m-19.88m: BZ;		50)=0.78 MPa	(19.30m) - - - - - - - - -
		1/2				Continued on next sheet								
RI	-MAR	KS		Kgwu :	= W	/undaru Granodiorite						LOGGED BY		EWED BY
												T.Goosey	S.	Foley
L						TMR G	EOTECH	HNICAL B	DREHOLE LOG - CREATED	VITH HOLEBASE SI				

			F	INAL 17/03/2016
	GEOTEC	HNICAL	BOREHOLE No	BH209
Queensland	BOREHO	LE LOG	Sheet 3 c	of 5
Covernment	FOR GEOTECHNIC SYMBOLS REFER FORM		REFERENCE No	H12218
PROJECT Mackay Ring Road				
LOCATION Pioneer River Bridge, Pier 2 (RHS)			COORDINATES 721276.9 E;	; 7660075.2 N
PROJECT No FG6184 SURFACE RL 6.98m	plunge 90°	DATE STARTED 23/09/201	GRID DATUM)A 94 / MGA Z55
JOB No 242/10G/906 HEIGHT DATUM A.H.D.	BEARING	DATE COMPLETED 25/09/201	DRILLER Ca	irns Drilling
RQD		DEFECT	ADDITIONAL DATA	
(E) 50 10% 11 HL RL. 10% 10% MATERIAL DESCRIPTION HL (m) 50 10% 10% HL (m) 50 10% 10% HL 10% 10% 10%		FH SPACING	AND TEST RESULTS	SAMPLES TESTS
- <u>100</u> MICRODIORITE (Kgwu) (0) MW: (Cont'd)	MW	20.15m-20.20m: F		-
	ý нw	LM Fe St;		-
	С мw 📃	LM E 21.08m-21.30m: E	3Z; Cly FL	-
	×	н vc	Is(50):	=0.94 MPa D (21.50m)
MICRODIORITE (Kgwu)		c		-
(6) massive, high strength. Calcite v infill of joints throughout.	/ein/			=4.10 MPa D (22.10m) =7.50 MPa A (22.20m)
Js: 5° to 15°; (4-5/m); Pl/Ro; TI;	Fe St	c		-
and some Cly Vr; Js: 30° to 40°; (1-2/m); Pl/Ro; Tl	-FL; 📉 🛛 👘			-
Fe St and CA; Js: 70° to 80°; (1-2/m); Pl/Ro; Tl	-FL;	23.10m-23.85m: J TI-FL, Fe St and CA		
Fe St and CA;	v sw	vc	Is(50):	=1.00 MPa D (23.60m)-
		C		
				-
		VC-C	UCS	
				-
²⁵ -18.12 MICRODIORITE (Kgwu		M VC-C	Is(50):	=0.51 MPa A (25.21m)
-) - MW: Brown grey, fine to mediu			Is(50):	=0.60 MPa D (25.60m)-
grained, massive, medium to hi strength. Calcite veining	gh + +			· · · · -
throughout. Micro fractures throughout.	+ + + +	M VC-C	(c/EQ)	=0.17 MPa A (26.31m)
Js: 0° to 10°; (4/m); Pl/Ro; Tl; Fe and Cly Vr;	St + + + + + + + + + + + + + + + + + + +		(JC) ²	=0.17 MPa A (26.31m)
Js: 40° to 50°; (4/m); Pl/Ro; Tl; F	e St + +	H VC-C	Is(50):	=3.50 MPa D (26.78m)-
and Cly Vr;	+ + HW	VL-L EC- VC	HW zone	-
	+ + + MW	H	Is(50):	=0.67 MPa A (27.50m)
	+ + + + + + + + + + + + + + + + + + + +	vc-c		-
	+ HW			=1.30 MPa D (28.15m)
21.72	+ XW + MW	н vc-c		-
GRANODIORITE (Kgwu)	ied, + HW	28.74m-28.86m: H	HW zone, Sinf	
porphyritic, medium to high	+ HW	VL E 29.10m-29.25m: H	HW zone, Sinf	-
-22.42 100 strength. (0) MICRODIORITE (Kgwu)	Č)		ls(50):	 =1.40 MPa A (29.57m)-
MW: Blue grey, fine grained, 	gth.	H VC-C		
Continued on next sheet				
REMARKS: Kgwu = Wundaru Granodiorite			LOGGED BY	REVIEWED BY
	TMR GEOTECHNICAL BOREHOLE LOG - CR	EATED WITH HOLEBASE SI	T.Goosey	S.Foley

						_		FINAL 1	7/03/2016
			G	EOTECHN	IICAL		BOREHOLE No	В	H209
		ensland	В	OREHOLE	LOG		Sheet	4 of 5	
1 Set	Gov Gov	ernment		OR GEOTECHNICAL TE			REFERENCE No	H:	12218
PROJECT	Mackay Ring R	bad							
LOCATION	Pioneer River E	Bridge, Pier 2 (RHS)				(coordinates 721276.9	E; 76600	75.2 N
PROJECT No	FG6184	SURFACE RL 6.98m	PLUNG	e 90°	DATE STAF	RTED 23/09/2015	GRID DATUM	GDA 94 / N	MGA Z55
JOB No	242/10G/906	HEIGHT DATUM A.H.D.	BEARING	G	DATE COMPLE	ETED 25/09/2015	DRILLER	Cairns Dril	ling
	RQD		>	0 INTACT	DEFEOT		ADDITIONAL DATA		
(<u>w</u>) H R.L. M (m) H → 23.07	SNIFICE COLE COLE COLE COLE COLE COLE COLE CO	MATERIAL DESCRIPTION	LITHOLOGY USCS		DEFECT SPACING		AND TEST RESULTS		SAMPLES TESTS
	<u>100</u> (0)	MICRODIORITE (Kgwu) MW: (Cont'd) GRANODIORITE (Kgwu) MW: Pale red, brown and grey coarse grained, porphyritic, ve to high strength.	y low + H + H + H + H + H + H + H + H + H + H	W VLL W VLL W VLL W VLL W VLL W VLL	VC-C EC- VC VC VC	30.60m-30.78m: HW 30.95m-31.26m: HW Sinf 31.40m-31.60m: HW Cly 31.78m-32.10m: HW	V zone, Sinf V zone, Cly and V BZ; Sinf and	50)=2.20 MPa 50)=0.38 MPa	D (30.30m)
- <u>-25.27</u> 	<u>100</u> (76)	MICRODIORITE (Kgwu) SW: Green grey, fine to medius grained, massive, high strength Js: 5° to 15°; (3/m); Pl/Ro; TI; s Cly Vr;	m + + + + + + + + + + + + + + + + + + +	W H	M c		t	JCS=8.46 MPa	
- - - - - - - - - - - - - - - - - - -		Js: 35° to 45°; (3/m); PI/Ro; TI- Cly Vr; From 34.1m:	FL; + + 3' + + + + + + + + + + + +		M		is(50)=1.10 MPa 50)=1.30 MPa	D (33.26m) A (33.36m) - - - - - - -
- - - - - - - - - - - - - - - - - - -	100	Js: 5° to 15° (4-5/m); PI/Ro; TI; St and some Cly Vr Js: 75° to 85° (<1/m); PI/Ro; TI; Vr Becomes blue grey.	+	н	C M		ls(50)=2.80 MPa	A (34.27m)- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -	(80)		++ ++ ++ ++ ++ ++	н	M			50)=4.40 MPa 50)=1.80 MPa	D (35.35m) A (35.42m) - - - -
	<u>100</u> (77)	37.00m: Frequent foliated veinl and micro fractured/healed rock	ets + +	W VI-L	C E C	36.59m-36.90m: HW		50)=0.72 MPa	A (36.38m)- - - - - - - -
			+ + + + + +	W	C			50)=1.30 MPa 50)=0.55 MPa	D (37.40m)
- 39 - 39 	<u>100</u> (52)	From 38.9m: Becomes green g MICRODIORITE (Kgwu) MW: Green grey, fine to mediu grained, massive, medium stre Crenulated throughout.	rrey. + + + + Si + + Si + + + + + + + + + + + + + + + + + + +	W H	C VC	39.90m-40.05m: BZ	ls(50)=0.50 MPa	D (39.35m)
RENVAR	(ς. Κσωμ – Μ	Continued on next sheet Vundaru Granodiorite						DC \ <i>U</i>	
	v						LOGGED BY T.Goosey		Foley
			TMR GEOTECHNIC	AL BOREHOLE LOG - CREATED	WITH HOLEBASE SI		1.000589	3.	uley

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Number Markay King Koad Number Markay King Koad Number Statuse Row findage. Pier 2 (816) compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) compound GA & A/ MGA 755 compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) compound GA & A/ MGA 755 compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) source compound GA & A/ MGA 755 compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) source compound GA & A/ MGA 755 source compound GA & A/ MGA 755 Statuse Row findage. Pier 2 (816) Markay King Row findage. Source monthing findage. Pier 2 (816) Bit Row findage. Pier 2 (816) - 0 <th></th> <th></th> <th>NG.</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>GE</th> <th>OTECHN</th> <th>ICAL</th> <th></th> <th>BOREHOLE No</th> <th>В</th> <th>H209</th>			NG.						GE	OTECHN	ICAL		BOREHOLE No	В	H209
Number Markay King Koad Number Markay King Koad Number Statuse Row findage. Pier 2 (816) compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) compound GA & A/ MGA 755 compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) compound GA & A/ MGA 755 compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) source compound GA & A/ MGA 755 compound GA & A/ MGA 755 Name: Statuse Row findage. Pier 2 (816) source compound GA & A/ MGA 755 source compound GA & A/ MGA 755 Statuse Row findage. Pier 2 (816) Markay King Row findage. Source monthing findage. Pier 2 (816) Bit Row findage. Pier 2 (816) - 0 <td></td> <td></td> <td></td> <td>Qu</td> <td>le</td> <td>ensland</td> <td></td> <td></td> <td>BC</td> <td>REHOLE</td> <td>LOG</td> <td> </td> <td>Shee</td> <td>t 5 of 5</td> <td></td>				Qu	le	ensland			BC	REHOLE	LOG		Shee	t 5 of 5	
CALLING Performation (single_lifer 2 (Red)) CONSUMET: (212/b) 5; 76600/5 2 N CONS 262109/305 UNEXTINE DURCTINE DURCTI		B	XI.	Go	0	ernment		SYI					REFERENCE No	H	12218
NEXT EG184 JUNCALE, G987 PULLES 01 DUE TENTES 27,097,013 DELEBICAINS CARSA 51 AM 237,007,005 HIGH CARSA CALL HAMM C DUE TENTES 27,097,013 DELEBICAINS CHING AM 100,000 HIGH CARSA CALL HAMM C DUE TENTES 27,097,013 DELEBICAINS CHING DELEBICAINS CH	PROJE	ст	Mac	kay Rin	ig Ro	bad						L			
DAND 247/105/305 INCENT DALLA N.D. DALLA DALLA <thdala< th=""> <thdala< th=""> DALA<td>LOCAT</td><td>ON</td><td>Pion</td><td>eer Riv</td><td>er B</td><td>ridge, Pier 2 (RHS)</td><td></td><td></td><td></td><td></td><td></td><td></td><td>COORDINATES 721276.</td><td>9 E; 76600⁻</td><td>75.2 N</td></thdala<></thdala<>	LOCAT	ON	Pion	eer Riv	er B	ridge, Pier 2 (RHS)							COORDINATES 721276.	9 E; 76600 ⁻	75.2 N
Bartonic concentration Bartoniconconcentration Bartoniconconcentratio	PROJE	CT No	FG63	184		SURFACE RL	5.98m	PLU	UNGE	90°	DATE STAF	RTED 23/09/201	5 GRID DATUM	GDA 94 / 1	MGA Z55
34.07 21.07 Concerner Concerner Model and a solution Add Jm -35.07 100 Prime Pri	JOB No)	242/	/10G/90	06	HEIGHT DATUM	4.H.D.	BEAI	RING_		DATE COMPLI	ETED 25/09/201	5 DRILLER	Cairns Dril	ling
34.07 21.07 Concerner Concerner Model and a solution Add Jm -35.07 100 Prime Pri	Ê							۲	ВN	INTACT	DEFECT		ADDITIONAL DATA		Ø
3587 MCRODORITE (swu)	DEPTH (n	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	CORE REC %	SAMPLE	MATERIAL DESC	RIPTION	ГІТНОГОС	USCS WEATHERI	STRENGTH			AND TEST RESULTS		SAMPLE
- 4 -						SW: Green grey, fine t grained, massive, high	o medium	+ + + + +	sw	H-VH	м				A (40.17m) D (40.30m)
- 40 - 41	- - - 41						/ I at 40.65m				- - 				-
- 40 - 41	-										-				-
- 40 - 41	-														-
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REMARKS: Kgwu = Wundaru Granodiorite LOGGED BY REVIEWED BY T.Goosey S.Foley	- 48 -										-				
REMARKS: Kgwu = Wundaru Granodiorite LOGGED BY REVIEWED BY T.Goosey S.Foley	-									‡	- - 				-
REMARKS: Kgwu = Wundaru Granodiorite LOGGED BY REVIEWED BY T.Goosey S.Foley	-										-				-
T.Goosey S.Foley	— 49 -										 - -				
T.Goosey S.Foley	-										- - -				-
T.Goosey S.Foley	-										-				-
T.Goosey S.Foley	I	I		•	•					·		•			·
	RE	MAR	KS: H	Kgwu	= V	/undaru Granodior	ite								
							That?	FOTE	HNICAL	OREHOLE LOG - CREATED W	TH HOI FRASE SI		T.Goosey	S.	Foley

CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mackav – Rin	g Road (Stag	e 2)			
Project No.	FG6184	<u> </u>	,	Date		25/09/15
Borehole No.	BH 209			TMR H N	0.	H12218
Location	Pioneer River	Bridge		Start Dep	th (m)	17.95
Detail	Pier 2, RHS			Finish De		40.65
Chainage				Submittee	d By	M.Ensor
Remarks						
Te	F46184				MARK	3
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CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Destant Maria	Machana Dina Daad (Otana 0)			
Project Name	Mackay – Ring Road (Stage 2) FG6184		Date	25/09/15
Project No. Borehole No.	BH 209		TMR H No.	H12218
Location	Pioneer River Bridge		Start Depth (m)	17.95
Detail	Pier 2, RHS		Finish Depth (m)	40.65
Chainage			Submitted By	M.Ensor
			Submitted by	W.LIISOI
Remarks				
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0 100	200 300 SCALE	400 1:5	500 600	700

CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mackay – Ring Road (Stag	<u>م</u> ا		
Project Name Project No.	FG6184	je <i>2</i> j	Date	25/09/15
Borehole No.	BH 209		TMR H No.	H12218
Location	Pioneer River Bridge		Start Depth (m)	17.95
Detail	Pier 2, RHS		Finish Depth (m)	40.65
Chainage			Submitted By	M.Ensor
Remarks			Oublinited By	M.Ensor
			MRR	
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