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## GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **BH238**

Sheet 1 of 3

REFERENCE No **H12247**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 12 (CL)			COORDINATES 721337.2 E; 7660419.3 N	
PROJECT No	FG6184	SURFACE RL	3.41m	PLUNGE	90°
				DATE STARTED	04/11/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	06/11/2015
				DRILLER	Cairns Drilling

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
1				A	SAND trace silt and gravel (Fill) Brown, dry, very loose to loose. Fine to coarse grained sand. River bund. 1.00m: becomes moist	(SP)					2, 3, 4 N=7 SPT
2				B							2, 2, 2 N=4 SPT
3				C	3.00m: gravel content increasing.						2, 3, 3 N=6 SPT
4				D	4.00m: becomes wet.						1, 2, 2 N=4 SPT
5				E							3, 3, 3 N=6 SPT
	-1.89			F		(SP)					3, 3, 3 N=6 SPT
				G	Gravelly SAND trace clay and silt (Alluvium)						1, 2, 3 N=5 SPT
6				H	Brown and grey, wet, loose. Fine to coarse grained sand, fine to medium grained gravel.						6, 4, 2 N=6 SPT
				I							3, 3, 8 N=11 SPT
7				J	Becoming medium dense.						6, 9, 10 N=19 SPT
	-3.89			K	Silty SAND trace gravel (Alluvium) Pale brown grey, moist, medium dense.	(SM)					12, 13, 15 N=28 SPT
8				L	Fine to medium grained sand, low plasticity.						8, 14, 15 N=29 SPT
				M	8.50m: clay and gravel content increasing.						6, 11, 17 N=28 SPT
9				N	CLAY trace sand (Alluvium) Pale grey, moist, very stiff. Medium to high plasticity.	(CH)					5, 9, 13 N=22 SPT
	-5.59			O	9.40m: becomes brown. 9.50m: becomes grey mottled brown.						7, 13, 7 N=20 SPT
	-6.59									7.10m-7.30m: Sandy GRAVEL lens. Grey brown, wet, medium dense.	

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REMARKS: Kgwu = Wundaru Granodiorite

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BOREHOLE No **BH238**

Sheet 2 of 3

REFERENCE No **H12247**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 12 (CL)			COORDINATES 721337.2 E; 7660419.3 N	
PROJECT No	FG6184	SURFACE RL	3.41m	PLUNGE	90°
				DATE STARTED	04/11/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	06/11/2015
				DRILLER	Cairns Drilling

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 _VW _EW										
	-7.09			P	Sandy CLAY (Alluvium)		(CI)										8, 14, 23 N=37	SPT	
				Q	Grey brown mottled dark grey, moist, hard. Fine to medium grained sand, low to medium plasticity.		(SC)										18, 30/120	SPT	
11	-7.59				Clayey SAND (Alluvium)														
	-8.09			R	Brown, wet, very dense. Fine to medium grained sand, low to medium plasticity.		(CI)										10, 17, 27 N=44	SPT	
				S	Silty CLAY trace sand (Alluvium)														
12	-8.59				Grey mottled dark grey and brown, moist, hard. Fine to medium grained sand, medium plasticity.		(CI)										13, 30/140	SPT	
				T	Silty CLAY trace sand (Residual)												11, 25, 30/100	SPT	
					Grey mottled dark grey, brown and white, moist, hard. Medium plasticity.														
13				U	GRANODIORITE (Kgwu)		XW										12, 20, 30 N=50	SPT	
					XW: Recovered as grey brown mottled dark grey and brown, moist, hard, gravelly sandy clay.														
14	-10.59			V	GRANODIORITE (Kgwu)												12, 19, 23 N=42	SPT	
					XW: Recovered as pale grey brown mottled white, moist, hard, sandy clay. Fine to coarse grained sand, low plasticity.														
15				W													11, 18, 27 N=45	SPT	
16				X													9, 19, 30/130	SPT	
							XW												
17				Y													30/140	SPT	
18				Z													30/120	SPT	
19	-15.59			AA	GRANODIORITE (Kgwu)												30/50	SPT	
					HW: Grey and brown, medium to coarse grained, massive, very low strength.		HW												
	-16.59																		

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REMARKS: Kgwu = Wundaru Granodiorite

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BOREHOLE No **BH238**

Sheet 3 of 3

REFERENCE No **H12247**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 12 (CL)			COORDINATES 721337.2 E; 7660419.3 N	
PROJECT No	FG6184	SURFACE RL	3.41m	PLUNGE	90°
				DATE STARTED	04/11/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	06/11/2015
				DRILLER	Cairns Drilling

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 _VW _EW										
21				AB	GRANODIORITE (Kgwu) ) HW: (Cont'd)	+	HW											30/60	SPT
				AC														28, 30/90	SPT
22				AD														30/70	SPT
23				AE														30/60	SPT
24	-20.84			AF														30/40	SPT
25	-21.39		(45)		GRANODIORITE (Kgwu) ) SW: Grey mottled dark grey, coarse grained, porphyritic, very high strength.	+	SW	VH					C M					24.35m-24.43m: BZ;  Is(50)=9.90 MPa UCS=113.00 MPa	A (24.45m) (24.70m)
			100 (70)		GRANODIORITE (Kgwu) ) MW: Orange grey, coarse grained, porphyritic, medium to high strength. Js: 5° to 15°; (5/m); Pl/Ro; OP; Fe St and some Sinf; Js: 25° to 35°; (5/m); Pl/Ro; OP; Fe St and some Sinf; Js: 70° to 80°; (3-4/m); Pl/Ro; OP; Fe St and some Sinf;	+	MW	MH H-VH					EC- VC C					24.85m-25.25m: CA VN: 80°, 5mm;  Is(50)=1.90 MPa	I (25.30m)
26	-22.67				GRANODIORITE (Kgwu) ) SW: Grey mottled dark grey, coarse grained, porphyritic, very high strength. Js: 5° to 15°; (5/m); Pl/Ro; OP; Fe St and some Sinf; Js: 25° to 35°; (5/m); Pl/Ro; OP; Fe St and some Sinf; Js: 70° to 80°; (3-4/m); Pl/Ro; OP; Fe St and some Sinf;	+	SW	MH H					C CM					Is(50)=0.41 MPa Is(50)=0.73 MPa  Is(50)=5.50 MPa	D (25.95m) A (25.99m) D (26.55m)
27					GRANODIORITE (Kgwu) ) SW: Grey mottled dark grey, coarse grained, porphyritic, very high strength. Js: 5° to 15°; (3-4/m); Pl/Ro; TI; some Fe St; Js: 20° to 30°; (<2/m); Pl/Ro; TI; some Fe St; Js: 50° to 60°; (<1/m); Pl/Ro; TI; Fe St; Js: 80° to 85°; (<1/m); Pl-St/Ro; TI; Fe St;	+		VH					C M					Is(50)=5.80 MPa Is(50)=5.20 MPa	D (27.40m) A (27.46m)
28			100 (90)		28.94 to 29.22m: DOLERITE (SW): Dark grey, fine grained, massive, very high strength.	+		SW	VH					C W M					UCS=97.70 MPa Is(50)=11.00 MPa Is(50)=11.00 MPa
29	-26.39		100			+	VH					M							
Borehole completed at 29.80m																			

REMARKS: Kgwu = Wundaru Granodiorite

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# CORE PHOTO LOG

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