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GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 FINAL 18/03/2016

BH260

Sheet 1 of 4

BOREHOLE No

REFERENCE No

H12269

PROJE	ст	Ν	1ac	kay Rin	g Ro	ad								
LOCAT	ION	Р	ion	eer Rive	er B	ridge, Pier 19 (RHS)						OORDINATES 721381.0	E; 766066	52.1 N
PROJE	CT No	F	G6:	184		SURFACE RL 5.50m	PLU	INGE	90°	DATE STAF	RTED 05/07/2015	GRID DATUM	6DA 94 / N	/IGA Z55
JOB No)	2	42/	′10G/90)6	HEIGHT DATUM A.H.D.	BEA	RING_		DATE COMPLE	ETED 06/07/2015	DRILLER S	axon Drill	ing
DEPTH (m)	R.L. (m)	JGER SING	ASH BORING DRE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	ГІТНОГОGY	USCS WEATHERING	INTACT STRENGTH 표チェマップ쿄			ADDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
-	4.80	AU				Silty CLAY (Topsoil) Dark brown, moist, very soft. High plasticity.				<u>-</u> - - - - - - -				
- - - - - - -					A	Silty Sandy CLAY (Alluvium) Dark brown, moist, very soft. Fine grained sand, medium plasticity.		(CI)		- - - - - - - - -			1, 1, 2 N=3	SPT
2 	3.30 2.80	-			В	2.00m: becomes very soft Clayey SAND (Alluvium) Dark brown, moist, very loose. Fine grained sand. Silty Sandy CLAY (Alluvium)		(SC)					1, rw, 1 N=1	SPT
- 3 					с	Dark brown, moist, firm. Fine grained sand, low to medium plasticity.		(CI)		- 			3, 3, 4 N=7	SPT
4	1.50				D	SAND trace clay (Alluvium) Pale brown grey, moist, medium dense. Fine to medium grained sand, poorly graded.		(SP)					3, 6, 5 N=11	SPT
5	0.00	-			E	5.00m: Becomes wet, loose. Fine to coarse grained sand. Interbedded SAND and Sandy GRAVEL (Alluvium) Pale orange grey, wet, medium							1, 1, 7 N=8	SPT
	-1.50	-			F	dense. Fine to coarse grained sand, fine to medium grained gravel, rounded and subangular grains.		(SW)		- - - - - - - - -			7, 11, 10 N=21	SPT - - - -
					G	Sandy GRAVEL (Alluvium) Brown, wet, medium dense. Coarse grained sand, fine grained gravel, subrounded grained.				- - - - - - - - - - -			5, 8, 14 N=22	SPT
- - - - - - - - - - - - - - - - - - -					н			(GP)		- - - - - - - - -			10, 7, 15 N=22	SPT
	-4.50				I	Continued on next sheet				- - - - - - -			6, 9, 10 N=19	SPT
RI	EMAR	KS:	ł	<gwu =<="" td=""><td>= W</td><td>/undaru Granodiorite</td><td></td><td></td><td></td><td></td><td></td><td>LOGGED BY</td><td>REVIE</td><td>WED BY</td></gwu>	= W	/undaru Granodiorite						LOGGED BY	REVIE	WED BY
											-	C.Boyes		oley
						TMR G	EOTECH	HNICAL B	DREHOLE LOG - CREATED V	/ITH HOLEBASE SI	I		•	

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GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 FINAL 18/03/2016

BH260

Sheet 2 of 4

BOREHOLE No

REFERENCE No

H12269

PROJEC	T	١	Mac	kay R	ng Ro	bad								
LOCATI	ON	F	Pion	eer R	ver E	ridge, Pier 19 (RHS)					cc	DORDINATES 721381.0	E; 766066	2.1 N
PROJEC	CT No	F	G62	184		SURFACE RL 5.50m	PLU	INGE	90°	DATE STAF	RTED 05/07/2015	GRID DATUM	6DA 94 / N	1GA Z55
JOB No)	2	242/	'10G/	906	HEIGHT DATUM A.H.D.	BEA	RING_		DATE COMPLE	ETED 06/07/2015	DRILLER S	axon Drilli	ng
DEPTH (m)	R.L. (m)	AUGER CASING	WASH BORING CORE DRILLING	RQI () % COR REC	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH 표준구구			DDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
- - - - -					J	Clayey SAND (Alluvium) Pale grey, wet, medium dense. Fine grained sand, medium to high plasticity.		(SC)					1, 4, 10 N=14	SPT
- 11 - - -	-5.90				к	11.00m: clay component decreasing. SAND trace silt (Alluvium)							8, 10, 13 N=23	SPT
- - - - - - - - - - - - - - - -					L	Pale grey and orange grey, wet, medium dense. Fine to coarse grained sand, subrounded grains.		(SP)					7, 7, 9 N=16	SPT
- 13 - 13 	-7.60				м	L 13.00m: becomes dense. GRANODIORITE XW: Recovered as grey and dark grey, moist, dense, silty clayey sand. Fine to medium grained sand.							8, 14, 30 N=44	SPT
14					N	14.00m: becomes very dense.	* * * * * * * * * *	xw				2	3, 30, 30/140	SPT
- - - - - -	-10.00				0	GRANODIORITE (Kgwu) HW: Recovered as speckled grey,	+ + + + + + + + + + + + +						18, 30, 30 N=60	SPT
- 16 - - - - -					Ρ	dark grey, moist, very dense, silty sand. Fine to coarse grained sand. Pyrite throughout, rock structure evident.	* * * * *						30, 30/115 -	SPT
- 17 - 17 					Q	17.00m: becomes speckled grey, dark grey and pink. Pyrite content decreasing.	+ + + + + + + + + + + +	нw					22, 30/120 -	SPT
- 18 					R	18.00m: pyrite throughout.	* * * * * *						30/110 -	SPT
- 19 	-14.40				s		+ + + + + + + + + + + +						30/60 hb	
		<u> </u>		l_(0)		Continued on next sheet			ı	·	ı		I	
RE	MAR	KS	: ŀ	۲gwu	I = V	/undaru Granodiorite						LOGGED BY	REVIE	WED BY
												C.Boyes	S.F	oley
L						TMR	GEOTEC	HNICAL B	DREHOLE LOG - CREATED	WITH HOLEBASE SI				

											FINAL 1	.8/03/2016
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	SO)		ensland			BC	REHOLE	LOG			Sheet 3 of 4	
13g		Gov	ernment		SY		GEOTECHNICAL TE REFER FORM F:GE			REFERENCE NO	. н	12269
PROJECT	 Mack	ay Ring R	oad									
LOCATION			Bridge, Pier 19 (RHS)							coordinates 7213	81 0 E: 76606	62.1 N
	FG61		SURFACE RL	5 50m	DU	JNGE S	10°	DATE CT	 ARTED 05/07/201		тим GDA 94 / I	
PROJECT No						_			LETED 06/07/201		LLER Saxon Dril	
JOB No		10G/906	HEIGHT DATUM	А.Н.D.	BEA	RING_		DATE COMP	LETED 06/07/201	5 DRI		
(E) HL R.L. (M)	AUGER CASING WASH BORING CORE DRILLING	RQD ()% CORE REC%	MATERIAL DESI	CRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH 표구주구주구구		i	ADDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
-14.80		COR					-	_				=
_			GRANODIORITE (Kgw	/u	+++			_				-
		60) XW: Recovered as gr	ey, moist, very	+ + + +	xw	L	c				-
- 21 - 21		(Pg) 100	dense, sand. Mediun grained sand.	n to coarse	÷.	-	1 -	-				
		100 (0)	CORE LOSS		+	•	F	F				-
		100	GRANODIORITE (Kgw)		ŀ.	xw	-L	c-				
16.50		(0)	XW: Recovered as group and the second	ey, moist, very Coarse grained	+							
		(0) ^{COR} 60	sand, fine grained gra	avel.	•_+	-	_		22.30m-22.45m: N	Aicrodiorite band	ls(50)=2.60 MPa	 A (22.30m)
-		(20)	-¢ORE LOSS GRANODIORITE (Kgw	/ /u	÷	мw	мн	vc	(MW): grey, fine gr high strength. High		ls(50)=0.41 MPa	D (22.57m)–
) HW: Grey, dark grey	and pale red,	+	·	L				ls(50)=0.37 MPa	 A (22.90m)
- 23			coarse grained, porp	•	ŀ.	HW	VL-L	vc				-
-17.94	$\left\{ \left \right \right\}$		medium strength. Js: 5° to 20°; (5/m); P	Pl/Ro; TI-OP; Fe	÷.	MW					ls(50)=12.00 MPa	
		100 (89)	_St; _ls: 20° to 50°; (1/m);	Pl/Sm [.] OP [.] Fe	• * +			c			UCS=146.00 MPa	D (23.55m)_ (23.57m) [_]
24			St;		÷	-		м				
			GRANODIORITE (Kgw)	/u	++	SW	VH					-
-			SW: Speckled grey, d pale red, coarse grain		[+]			w				
- 25			very high strength.		+						Is(50)=10.00 MPa	 A (24.96m)
-19.92		100	Js: 30° to 45°; (~1/m) _Js: 5° to 15°; (<2/m);		++				— 25.29m-25.32m: B	Z;	Is(50)=7.10 MPa	D (25.10m)
-		(67)	MICRODIORITE (Kgw	u	\bigtriangledown	1	н	с	25.42m-25.51m: H 25.42m: Contact: 5		ls(50)=2.90 MPa	
		100 (90)	_) SW: Grey speckled da	ark grey, fine	\mathbb{N}				25.76m-25.85m: C CA, small rock frag	ments	IS(50)=2.90 MPa	A (25.66m)_ _ _
26 			grained, massive, hig strength.	h to very high	K]			throughout <20mr	n;		
			Js: 5° to 15°; (<3/m);	PI-Un/Ro; OP;	А	sw	H-VH	м	26.39m-26.55m: J: CD; CA VN;	: 70°; PI/Sm-Ro;	ls(50)=1.60 MPa	D (26.30m)
F		100 (87)	Cn; Js: 50° to 80°; (2/m);	Pl/Sm-Ro; CD;	W				26.57m-26.75m: J: CD; CA VN <5mm;		Ic/E01-4 70 140	
- 27			CA VN <5mm;		Ŵ				26.76m: J: 65°; Pl/:		ls(50)=4.70 MPa ls(50)=1.70 MPa	A (26.87m)– D (27.00m)_
-21.91					Ŵ				veining; 27.41m: Contact: 5	50°; Pl/Sm; CD;		-
F			GRANODIORITE (Kgw)	/u	ŀ							
28			SW: Speckled grey, d pale red, medium to		ŀ,			м				
		100 (100)	massive, high to very	high strength.	÷+						UCS=63.50 MPa	(28.11m) _
			Js: 35° to 50°; (4/m); OP; Cn;		÷+		H-VH		━ 28.45m-28.47m: C	Z: 15°; OP; Sinf;		
			Js: 5° to 15°; (<2/m); Cn;	PI-Un/Ro; OP;	++	SW		с				-
29			, i		+						ls(50)=11.00 MPa	 A (29.22m)
			29.52 to 29.73m: Mid	crodiorite	ŀ.			м	29.52m-29.73m: C	contacts: 50°; Pl/	Is(50)=13.00 MPa	D (29.35m)-
			(SW): grey, fine grain very high strength.		++				Sm-Ro; OP; Cn;			
24.50			Continued on n	ext sheet	+	1						
REMAR	KS: K	gwu = V	Vundaru Granodio	rite						LOGGED B	BY REVI	EWED BY
										C.Boyes	S.	Foley
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		àc.						GE	OTECHN	ICAL		BOREHOLE No	В	H260
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	NS C	*1	GO	ve	ernment		S		GEOTECHNICAL TEI			REFERENCE No	н	12269
PROJE	СТ	Mac	kay Ring	Ro	ad									
LOCAT	ION	Pion	eer Rive	r Br	ridge, Pier 19 (RHS)							COORDINATES 721381	.0 E; 76606	62.1 N
PROJE	CT No	FG6	184		SURFACE RL	5.50m	PL	UNGE	90°	DATE STAI	RTED 05/07/201	.5 GRID DATUN	1 GDA 94 /	MGA Z55
JOB N	D	242/	/10G/90	6	HEIGHT DATUM	A.H.D.	BE	ARING		DATE COMPL	ETED 06/07/201	.5 DRILLEF	Saxon Dril	ling
-			RQD				~	Ű	INTACT	DEFECT		ADDITIONAL DATA		
DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	()% CORE REC%	SAMPLE	MATERIAL DES	CRIPTION	LITHOLOGY	USCS WEATHERING	STRENGTH	SPACING		AND TEST RESULTS		SAMPLES TESTS
_					GRANODIORITE (Kgw	/u		+					ls(50)=8.30 MPa	D (30.10m)-
- - - - - - - - - - - - - - - - - - -	-25.61) SW: (Cont'd)		+ + + + + + + + + + + + + + + + + + + +	+ + +	-		30.45m-30.82m: N (SW): grey, fine gra very high strength throughout. Contacts: 70°; PI-L VN;	ained, massive, , calcite veining Jn/Sm; CD; CA	;(50)=15.00 MPa	D (31.10m)
- - - - - - - - - - - - - - - - - - -			100 (93)		MICRODIORITE (Kgw) SW: Grey, fine graine very high strength. So veining throughout < Js: 0° to 30°; (1/m); P	d, massive, ome calcite 1mm thick.			VH	w			Is(50)=9.10 MPa	A (31.25m)
- - - - - - - - - - - - - - - - - - -					Cn or CA Ct; Js: 50° to 70°; (<1/m) Cn or CA Ct;	; PI/Sm-Ro; C	νP; / / / / / / / / / / / / / / / / / / /	sw					Is(50)=1.50 MPa Is(50)=5.70 MPa	D (32.27m) A (32.40m)
_											33.24m: J: 70°; Pl/			-
-							K	2		м			UCS=53.10 MPa	(33.57m) - -
- - 34	-28.60		100		34.06 to 34.10m: GF		Ľ	2					Is(50)=4.60 MPa	A (33.98m)
-					(SW): pink, coarse g		_/			-				-
-					Borehole complete	d at 34.10m				-				-
- 35 -										- 				-
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DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mackay – Ring Road (Stag	e 2)		
Project No.	FG6184	,	Date	06/07/15
Borehole No.	BH 260		TMR H No.	H12269
Location	Pioneer River Bridge		Start Depth (m)	19.90
Detail	Pier 19, RHS		Finish Depth (m)	34.10
Chainage			Submitted By	M.Ensor
Remarks				
		BH26		20X
R16184		Drib	ARGEN WILLIAM	A CONTRACT
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DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	06/07/15
Borehole No.	BH 260	TMR H No.	H12269
Location	Pioneer River Bridge	Start Depth (m)	19.90
Detail	Pier 19, RHS	Finish Depth (m)	34.10
Chainage		Submitted By	M.Ensor
Remarks		, , , , , , , , , , , , , , , , , , , ,	
0 100	200 300 400 SCALE 1:5	500 600	700

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



Project Name	Mackay – Ring Road (Stag	e 2)		
Project No.	FG6184	,	Date	06/07/15
Borehole No.	BH 260		TMR H No.	H12269
Location	Pioneer River Bridge		Start Depth (m)	19.90
Detail	Pier 19, RHS		Finish Depth (m)	34.10
Chainage			Submitted By	M.Ensor
Remarks				
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R16184		Drib	ARGEN WILLIAM	A CONTRACT
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	SCA	LE 1:5		

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



Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	06/07/15
Borehole No.	BH 260	TMR H No.	H12269
Location	Pioneer River Bridge	Start Depth (m)	19.90
Detail	Pier 19, RHS	Finish Depth (m)	34.10
Chainage		Submitted By	M.Ensor
Remarks		, , , , , , , , , , , , , , , , , , , ,	
0 100	200 300 400 SCALE 1:5	500 600	700