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QLD\_DMR\_LIB\_01A GLB Log A\_ENGINEERING BOREHOLE LOG WLITHOLOGY TOWNSVILLE RING ROAD 4 GEANEY LANE.GPJ <<DrawngFile>> Datgel CPT Tool gilnt Add-In 17/10/2013 11:47

# **ENGINEERING**BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No	BH404
SHEET	_1_ of _4_
REFERENCE No	H11492

PROJECT		<u>To</u>	w <u>n</u>	sville R	ing [	Road Section 4									
LOCATIO	N .	Ge	a <u>n</u>	ey Lane	<u> </u>	erpass		_				COOR	DINATES <u>46470</u>	6.1 E; 7871666.	<u>1 N</u>
PROJECT	No	FG	<u>60</u>	20		SURFACE R.L. 14.10m PLUNGE		_	-	DATE STARTED	_20	0/4/13	_ GRID DATUM	GDA 94	
JOB No		26	<u>8/1</u>	<u>0M/5</u>		HEIGHT DATUM <u>AHD</u> BEARING _		_	-	DATE COMPLETED	_2′	/4/13_	_ DRILLER	Cairns Drilling	L <b>_</b>
DEPTH (m)		ASING ASH BORING	ORE DRILLING	RQD ( )%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	SC	/EATHERING	INTACT DEFECT SPACING (mm)		GRAPHIC LOG	ADDITIONAL AND TEST RESU		SAMPLES
0 14	.10 ⁴	(U ≤	:0 	REC %	Š	Clayey SAND (FILL)	<del> </del>	>	>	<u> </u>	+	9			Ø F
					Α	Dark grey to brown, moist, loose to medium dense.		(S	SC)					1,5,4 N=9	SPT :
- - -					В		$\otimes$			:::::: <b>:</b>				4,4,8	SPT -
_2   12	.20						- 💥	H	_		+-	-+-		N=12	-
- - - - - - - - - - - - - - - - - - -					С	Pale brown to brown, slighty moist to mois very dense. Generally fine to medium grained sand wit coarse grained bands throughout.				# # # # # #				30/50 N>50	\$PT
- - - - - - - - - - -					D					± ± ± ± ± ±				30/100 N>50	SPT
- - - - - - - - - - - - -					E			/5	SC)					12,23,30/100 N>50	SPT
					F				,					30/150 N>50	SPT -
- '					G									28,30/60 N>50	SPT -
9 5	.10				Н	Sandy CLAY Pale brown with occasional orange brown ironstaining, slightly moist, hard. Low plasticity, fine to medium grained sand.		((	CL)					— — —3 <del>0</del> / <del>15</del> 0- N>50	SPT -
REMA	RKS							_						LOGGED BY	
								_			_			VP	



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# **ENGINEERING**BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No	BH404
SHEET	_2_ of _4_
REFERENCE No	H11492

PROJECT	Townsville Ring	Road Section 4					
LOCATION	Geaney Lane Ov	ver <u>pass</u>				COO	RDINATES 464706.1 E; 7871666.1 N
PROJECT No	FG6020	SURFACE R.L. <u>14.10m</u> PLUNGE			DATE STARTED	20/4/13	GRID DATUM <u>GDA 94</u>
JOB No		HEIGHT DATUM <u>AHD</u> BEARING					
R.L. (m)	RQD ( ) % (	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT DEFECT STRENGTH SPACING (mm)  THE STRENGTH SPACING (mm)  RESTRENGTH SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA  AND TEST RESULTS  WWS
- 11 	J	Sandy CLAY (Cont'd)					18,30/110 N>50 SPT :
- 12 - 12 13	К	Trace fine gravel.		(CL)			12,30/150 SPT I
0.90	L	Clayey SAND Pale brown with some orange brown iron staining in part, moist, dense to mainly very dense. Medium to coarse grained sand.					13,26,30/105 N>50 SPT
- 15 - 15 	M			(SC)			10,17,26 N=43
16             	N	Becoming fine to medium grained sand.		(00)			14,25,30/110 N>50 SPT
- 18 - 18 18 	P	Becoming medium to coarse grained sand.			‡ 1 1 1 1		23,30/110 N>50 SPT =
- 19 - 19 - 19 - 19 - 1 - 1 - 1 - 1 - 20 - REMARK	Q	VOLCANIC BRECCIA Pyroclastic rock consisting of angular fragments embedded in a finer grained matrix. XW: Generally exhibits the engineering properties of a pale brown, moist, hard, Sandy Gravelly Clay. Low plasticity.		xw			14,30/140 SPT 1 SP



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# **ENGINEERING**BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No	BH404
SHEET	_3_ of _4_
REFERENCE No	H11492

PROJECT No. FG6020 SURFACE RL 14.10m PLUNGE DATE STARTED 20/4/13 GRID DATUM GDA.94 DOB No. 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 21/4/13 DRILLER Caims Drilling.    RI	PROJ	ECT	_To	<u>wn</u>	sville R	ing F	Road Section 4	 	_			
268/10M/5	LOCA	TION	_ <u>Ge</u>	<u>ean</u>	ey Lane	<u>Ov</u>	erpass	 	_		C	COORDINATES 464706.1 E; 7871666.1 N
RI	PROJ	ECT No	_F	<u> 360</u>	20		SURFACE R.L. 14.10m PLUNGE	 		DATE STARTED	20/4/	4/13 GRID DATUM <u>GDA 94</u>
MATERIAL   DESCRIPTION   Second   Sec	JOB N	No	_26	8/1	<u>0M/5</u>		HEIGHT DATUM <u>AHD</u> BEARING	 		DATE COMPLETED _	21/4/	1/13 DRILLER <u>Cairns Drilling</u>
VOLCANIC RRECCIA XW.(Cort d)  Becoming pale brown, red, moist, very dense, Clayey Gravely Sand.  R  R  Becoming brown, brown to red, pink, moist, very dense Gravely Sand. HW rock fragments.  Becoming brown, brown to red, pink, moist, very dense Gravely Sand. HW rock fragments.  A  A  A  A  A  A  A  A  A  A  A  A  A		(m)	AÚGER CASING WASEL BOBING	CORE DRILLING	()%	SAMPLE		USC	WEATHERING	INTACT DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA  AND TEST RESULTS  WWS SJEWN SJE
Becoming pale brown, red, moist, very dense, Clayery Gravelly Sand.   A												
Miles   Mile	- - - - - -					R	dense, Clayey Gravelly Sand.					
-11.40    A	- 23						moist, very dense Gravelly Sand. HW rock	XW	v			
MW: Pale brown, pink, red, medium to coarse grained, massive, generally very low to low strength. Defects:	- - - - - - -	11 40				<del>-</del>						N>50
Defects: -Joint at 60°-70° (3/m) -Irregular Joints (3/m) Defects are generally planar to irregular, rough, open, clayey infilled. Defect spacing: Close to medium.  (0)  MW:Brown to red, pink, fine to coarse grained, massive, medium to mainly high strength. Clasts (sizing from 2mm to 30mm diameter) in a finer grained matrix. Defects: -Joint at 60°-70° (3/m) -Irregular Joints (3/m) -Defects: -Joint at 60°-70° (3/m) -Irregular Joints (3/m) -Defects: -Joint at 60°-70° (2/m) -Joint at 45° (1/m) -Joint at 45° (1/m) -Joint at 60°-70° (2/m) -Jo		-11.40			(0)		coarse grained, massive, generally very					N>50 S81
MW:Brown to red, pink, fine to coarse grained, massive, medium to mainly high strength.   Clasts (sizing from 2mm to 30mm diameter) in a finer grained matrix.   Defects:	- 26 - - - - - -	-12.75			100		Defects: -Joint at 60°-70° (3/m) -Irregular Joints (3/m) Defects are generally planar to irregular, rough, open, clayey infilled.	HW	v			Is(50) = 0.05MPa o
Joint at 45° (1/m) Joint at 60°-70° (2/m) Defects are generally planar, rough, open, clayey infilled. Defect spacing: Mainly medium to wide.  Joint at 45° (1/m) Joint at 60°-70° (2/m) Defects are generally planar, rough, open, clayey infilled. Defect spacing: Mainly medium to wide.  Joint at 45° (1/m) Joint at 45° (	- - - - - - -				(0)		MW:Brown to red, pink, fine to coarse grained, massive, medium to mainly high strength. Clasts (sizing from 2mm to 30mm diameter) in a finer grained matrix. Defects: -Joint at 0°-30° (1/m)					
Is(50) = 1.95MPa  Is(50) = 1.56MPa	- - - - - -						-Joint at 60°-70° (2/m) Defects are generally planar, rough, open, clayey infilled.	ΜV	v			Is(50) = 1.58MPa o
Is(50) = 1.56MPa	- -29 -											Is(50) = 1.95MPa o
LOGGED DV	30											Is(50) = 1.56MPa o
VP		EMARK	s _					 				-



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### ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No \_\_\_BH404 \_\_\_

SHEET \_\_4\_\_ of \_\_4\_\_

REFERENCE No \_\_\_H11492 \_\_\_

PRO	JECT	_Towi	<u>nsville R</u>	ing [	Road Section 4											
LOC	ATION	<u>Gea</u>	ney Lane	<u> Ov</u>	erpass							CC	ORDINATE	S 464706	.1 E; 7871666.	<u> </u>
PRO	JECT No	_F <u>G</u> 6	020		SURFACE R.L. 14.10m PLUNGE				DATE S	TARTE	ED _	20/4/	<u>13</u> GF	RID DATUM	GDA 94	
JOB					HEIGHT DATUM <u>AHD</u> BEARING										Cairns Drilling	
S DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC		INTACT RENGTH	DEFE SPACI (mm		GRAPHIC LOG		DDITIONAL I AND TEST RESU		SAMPLES TESTS
31 31 32	-17.30		100 (20)		ANDESITE: Fine grained, intermediate extrusive igneous rock. MW:Brown, fine grained, massive, medium to mainly high strength. Defects:	000000000000000000000000000000000000000	MW	V						ls(	CS=13.7 MPa 50) = 2.23MPa 50) = 4.59MPa	0 -
- - - - - - - - -	-18.90		100		-Joint at 0°-30° (2/m) -Joint at 40°-50° (3/m) -Joint at 60°-70° (2/m) Defects are generally planar, rough, open. Defect spacing: medium	>>>>>	IVIV							ls(£	50) = 1.79MPa	0 -
- 34 - 34 - 35 - 35 - 36 - 36 - 37 - 37 - 38 - 38 - 38 - 39 - 39 - 39	EMA DIVI				Borehole terminated at 33m										OGGED BY	
F	EMARK	s												l	OGGED BY	
															VP	

#### **CORE PHOTO LOG**

DEPARTMENT OF TRANSPORT & MAIN ROADS Geotechnical Branch 35 Butterfield Street, HERSTON Qld 4006 Phone 07 3066 3336



Project Name	<b>Townsville Ring Road Section</b>		
Project No	FG 6020	Date	21/04/13
Borehole No	BH 404	TMR H No	11492
Location	Geaney Lane Overpass	Start Depth (m)	25.50
Detail	Pier 1 (Left)	Finish Depth (m)	33.00
Chainage		Submitted By	MS
Remarks			
28.62 28.65		\$ 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
30.06			3 8 8
S O O O O O O O O O O O O O O O O O O O			
			32.0
	HOLE CO	MPLETED	FEEDR
0 100	200 300	400 500 600	700

SCALE 1:5