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## ENGINEERING BOREHOLE LOG

BOREHOLE No	<u>_BH406_</u> _
SHEET	<u>1</u> of <u>3</u>
REFERENCE No	<u>H11494</u>

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

PRO	DJECT	Townsville Ring Road Section 4												
									ORDINATES 464708.1					
					SURFACE R.L. <u>13.22m</u> PLUNGE									
JOE	No	_26	<u>8/1</u>	<u>0M/5</u>		HEIGHT DATUM <u>AHD</u> BEARING			DATE COM	PLETED	29/4/1	<u>3</u> DRILLER <u>(</u>	Cairns Drilling	
DEPTH (m)	R.L. (m) 13.22		CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	ГІТНОГОСУ	JSC WEATHERING	INTACT STRENGTH サチェをコラゴ	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DA AND TEST RESULT		SAMPLES TESTS
-	13.22	Π	T	INEO //	0,	Engineered Road Base and Fill	$\overline{\otimes}$							
- - - - - - - - - - - - - - - - - -	11.72											Non Destructive Digging Te	chniques	
Ē			L.			Clayey SAND Pale brown to brown, moist, dense to very								-
-2			L.			dense. Medium to coarse grained sand.								-
11:47			L.							-				-
tt Add-In 17/10/2013					С			(SC)					12,19,20 N=39	SPT -
			L.											-
Datgel CPT T	9.22				D	Trace gravel, angular.							17,30/100 N>50	SPT -
**************************************	9.22				E	Silty SAND Brown, moist, very dense. Fine to medium grained sand.					++		28,30/75 N>50	SPT -
0.D. DMR_LIB_01A.GLB_Log_A_ENGINEERING_BOREHOLE_LOG_WLITHOLOGY_TOWNSYILLE_RING_ROAD4.GEANEY LANE_GFJ_ COLT_TOT_T_T_T_T_T_T_T_T_T_T_T_T_T_T_T_T_	6.22				F			(SM)					18,29,30/125 N>50	SPT
VGINEERING BOREHOLE LOG WLITHG					G	Clayey SAND Pale brown to brown, moist, dense to mainly very dense. Medium to coarse grained sand.		(SC)					18,30/130 N>50	SPT -
QLD_DMR_LIB_01A.GLB_L0g_A_EN					Н								12,21,30 N>50	SPT
l	REMARK	S										LC	DGGED BY	]
		_											VP	

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# ENGINEERING BOREHOLE LOG

BOREHOLE No	<u>_BH406</u>
SHEET	<u>2</u> of <u>3</u>
REFERENCE No	<u>H11494</u>

VP

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

ROJECT	<u>Towr</u>	<u>nsville</u> R											
				erpass					CO	OORDINATES 464708.1 E; 787169	RDINATES <u>464708.1 E; 7871691.0 N</u>		
ROJECT No	_FG60	020		SURFACE R.L. <u>13.22m</u> PLUNGE	DATE STARTED				23/4/1	13 GRID DATUM <u>GDA 94</u>			
OB No	268/1	<u>10M/5</u>		HEIGHT DATUM <u>AHD</u> BEARING _			DATE COM	IPLETED -	29/4/1	13 DRILLER <u>Cairns Drilli</u>	ng		
(m) (m)	CASING OTHER WASH BORING CORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	ГІТНОГОСУ	ISC VEATHERING	T T T T T T T T T T T T T T T T T T T	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES		
10 3.22	0050	REC %	S	Clayey SAND		≥∣≤			0		S.		
				(Cont'd)			· · · · · · · · · · · ·						
				Becoming dense.			· · · · · · · · - <del>-</del>			13,23,2	3		
			J							N=4	6		
11													
12													
-			к	Becoming very dense & iron stained.						11,21,30/14 N>5			
										14-0			
13													
				Becoming medium dense to dense.									
			L				· · · · · · · · · · ·			7,13,1 N=3	0		
14						(SC)					Г		
						, ,							
							· · · · · · · · -						
5			м	Becoming medium to coarse grained sand.						10,15,1			
										N=3	3		
6													
			Ν	Becoming fine to medium grained & very						20,28,30/12 N>5			
7				dense sand.									
-4.98			Р				· · · · · · · · · · · · · · · · · · ·			Rockroller Technique Used. 28,30/14			
				VOLCANIC BRECCIA Pyroclastic rock consisting of angular									
				fragments embedded in a finer grained matrix.									
19				<b>XW:</b> Generally exhibits the engineering properties of a red, pink brown to yellow		XW							
				brown to grey, slightly moist, Clayey Sand. Some fine grained gravel.									
-6.28		(32)	Q	MW: Red, pink brown, medium to coarse	$\overline{\Delta}$				+-+	<u>30/3</u> <u>30/3</u>			
		. ,		grained, massive, low to medium strength.		мw				ls(50) = 0.17MP			

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# **ENGINEERING BOREHOLE LOG**

BOREHOLE No	<u>_BH406</u>
SHEET	<u>3</u> of <u>3</u>
REFERENCE No	<u>H11494</u>

VP

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

PRO	JECT	<u>Towr</u>	<u>nsville</u> R	ling l	Road Section 4							
LOC	ATION	_ <u>Gear</u>	ney Lane	<u>e Ov</u>						COOR	DINATES 464708.1 E; 7871691	. <u>0 N</u>
PROJECT No		_ <u>FG60</u>	020		SURFACE R.L <u>13.22m</u> PLUNGE			DATE S	TARTED	23/4/13	GRID DATUM GDA 94	
JOB	No	_268/	<u>10M/5</u>		HEIGHT DATUM <u>AHD</u> BEARING			DATE COM	IPLETED	29/4/13	DRILLER <u>Cairns Drillin</u>	g
DEPTH (m)	R.L. (m)	CASING OTHER WASH BORING CORE DRILLING	RQD ( )% CORE	SAMPLE	MATERIAL DESCRIPTION	ГІТНОГОСУ	USC WEATHERING	INTACT STRENGTH มีระราร่า	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
_20			REC %	S	VOLCANIC BRECCIA		MW			0		N 
	-7.03				<u>MW: (Cont'd)</u>		ΉW			+-+-		_
21			 (28)		HW: Red, pink brown, grey, medium to coarse grained, massive, very low to low strength. XW zones with very low strength up to 30cm. Defects:		хw нw					-
					Broken throughout, clayey infilled joints. Defect spacing: Close	$  \Delta  $	xw					-
- - - 22	-8.63				MW: Red, pink brown, yellow, medium to coarse grained, massive, mainly medium		HW				—————— <del>Is</del> ( <del>50)= 1:12MP</del> a	- o -
					strength. Some HW patches with very low to low strength. Defects:		MW				ls(50) = 0.49MPa	0
23			100		- Joints @ 20°-30° (2/m) - Joints @ 40°-50° (5/m) - Joints @ 60°-70° (2/m) - Irregular joints (3/m)						ls(50) = 0.45MPa	0
			(8)	<u> </u>	Defects are generally planar to irregular, rough, open, clay infilled.		HW				ls(50) = 0.62MPa	• O
					Defect spacing: Close to mainly medium.	$  \Delta  $					ls(50) = 1.03MPa	ο
24									· · · ·		ls(50) = 0.39MPa	0
			<u>    100    </u> (0)	~			MW					-
			93									-
2 - 26	-12.78		(0)	$\geq$			HW					
	-14.08		<u>93</u> (72)		ANDESITE: Fine grained, intermediate extrusive igneous rock. MW:Dark brown, fine grained, massive, low strength. Defects: - Joints @ 20°-30° (5/m) - Joints @ 50°-60° (5/m) Defects are generally planar, rough, iron		MW					-
					stained, open. Defect spacing: Close to medium.	Ň				1-1-		]
	-15.28		100		SW: Dark grey to black, fine grained, massive, high to very high strength. Defects: - Joints @ 45° (1/m) - Joints @ 60° - 70°(1/m) Defects are generally planar, rough, iron		sw				Is(50) = 1.81MPa UCS=111 MPa Is(50) = 1.90MPa	ı 🔤
≦- <					stained, open. Defect spacing: Mainly wide.			<del>.</del> <del>.</del>				
6 – 29 – 29 – – – – – – – – – – – – – – – – – – –					Borehole terminated at 28.5m	-						-
												-
2 <sup> -</sup> 3 30								· · · · · · · · ·				
F	REMARKS	S									LOGGED BY	

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#### CORE PHOTO LOG

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



Department of Transport and Main Roads

Project Name	Townsville Ring Road Section	า 4	
Project No	FG 6020	Date	29/04/13
Borehole No	BH 406	TMR H N	lo 11494
Location	Geaney Lane Overpass	Start Dep	oth (m) 19.50
Detail	Pier 2 (Left)	Finish De	epth (m) 28.50
Chainage		Submitte	d By MS
Remarks			
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