COPYRIGHT NOTICE

This geotechnical log and its associated data (the Document) is licensed by the Queensland Department of Transport and Main Roads under the <u>Creative Commons Attribution 4.0 Licence</u> (CC BY 4.0). When reusing the Document, in whole or in part, please attribute the Department and author as follows: "(c) State of Queensland (Department of Transport and Main Roads) 2020, licensed under the CC BY 4.0 Licence, prepared by Jacobs". This licence does not apply to the Queensland Government logo or trademarks.

LIMITATION OF LIABILITY

The CC BY 4.0 Licence contains a comprehensive Disclaimer of Warranties and Limitation of Liability. In addition, please note that this Document was prepared for Departmental use only. Reuse of the Document by anyone for any other purpose could result in error and/or loss. You should obtain professional advice before making decisions based on the contents of the Document.

When reproducing any part of this Document, you must also reproduce this limitation of liability notice in addition to the italicised attribution statement above.

Retrieved from the Queensland Geotechnical Database http://qgd.org.au/

This log has been contributed to the Queensland Geotechnical Database with the permission of Jacobs.

BOREHOLE ENGINEERING LOG HOLE NO: CURVE 59 BH01 POSITION: E: 358650, N: 8137036 (55 MGA94) PAGE: 1 OF 3 CLIENT: TMR PROJECT: SAFER ROADS SOONER PROJECT SURFACE ELEVATION: 318.5 (AHD) DATE DRILLED: 1/8/13 TO 1/8/13 DIP / AZIMUTH : 90° LOGGED BY: JP JOB NO: CB24735.01 CHECKED BY: AJ LOCATION: KENNEDY HWY (CAIRNS - MAREEBA) DRILLING **MATERIAL** LES & TESTS (E CONSISTENCY MATERIAL DESCRIPTION MOISTURE $\widehat{\Xi}$ STRUCTURE **SRAPHIC** DEPTH & CASING Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components GROUND V EVELS & Other Observations WATER SAMPL FIELD 1 Ζ 90 FILL Н ASPHALT: (0.10). SANDY SILT (SM): Orange brown, red brown, fine to coarse grained sand, with fine to coarse grained angular gravel, comprising of medium strength quartzite, trace of cobbles. SM 317.5 1.0 CLAYEY SILT (ML): Orange brown, red brown, low plasticity, with fine to medium grained sand, trace of fine to medium grained sub-angular gravel and RESIDUAL SOIL? Nesidou Survey Content (%) = 24.1, Liquid Limit (%) = 47, Plastic Limit (%) = 33, Plasticity Index (%) = 14, Linear Shrinkage (%) = 6, % Passing 2.425mm: 91, % Passing 0.425mm: 84, % Passing 0.075mm: 76, % Passing 0.002mm: 13 RESIDUAL SOIL? AD7 D 1.45m F - St From 2.00 m becoming brown F .50m PT , 0, 1 N=1 MI From 2.50 m becoming mottled orange brown. OBSERVED VS From 2.80 m trace of organics and rootlets. 2.95m 315.5 -3.0 NOT F - St WB 4.00m SPT 6, 10, 9 N=19 314.5 QUARTZITE: Dark brown, dark grey, extremely weathered, extremely low strength, appears as GRAVELLY CLAY (CI), medium plasticity, fine to EXTREMELY WEATHERED ROCK <<Dra><<Dra>c<DrawingFile>> 04/12/2013 coarse grained angular gravel, with fine to coarse grained sand. VSt H 4.45m HIGHLY WEATHERED ROCK QUARTZITE: Dark brown, dark grey, highly weathered, low to medium strength. VH 313.5 -5.0 CB24735.01.GPJ Continued as Cored Drill Hole BOREHOLE Log CURRENT.GLB DRILLING SAMPLES & FIELD TESTS CONSISTENCY (Su) {N-value} DENSITY (SPT N-value) Hand Auger Disturbed Sample SPT Standard Penetration Test RR Rock Rolling VL Very Loose 0 - 4 VS < 12 kPa {0-2} Env Soil Sample Undisturbed Tube Sample Auger Screw AT Auger Drill TC-bit HQ Air Track HQ Coring AS Loose 4 - 10 S Soft 12 - 25 {2-4} Water Sample EW Env Water Sample **IBRARY** MD Medium Dense 10 - 30 25 - 50 {4-8} Firm Auger Drill V-bit Washbore NQ NQ Coring NMLC NMLC Coring AD/V WB D Dense 30 - 50 St Stiff 50 - 100 {8-15} HP Hand Penetrometer HV Hand Vane Shear MOISTURE CONDITION
D = Dry M = Moist W = Wet DRILLING PENETRATION VD Very Dense 50 - 100 VSt Very Stiff 100 - 200 {15-30} OFFICE F Firm H Hard VE Very Easy E Easy Very Hard (P: Peak Su R: Residual Su) CO Compact >50/150mm Hard > 200 kPa {>30} N SPT blows per 300mm HW SPT penetration by hammer weight **GROUNDWATER SYMBOLS** RW SPT penetration by rod weight = Water level (static) = Water level (during drilling)

File: CB24735.01 CURVE 59_BH01 Page 1 OF 3

	S	}		V.	C	OREC	BOF	REHOL	E EN	GINEE	RIN	IG	L	ЭG	i H	OLE	NO :	CURVE	59_BH	01
PF	CLIENT : TMR POSITION : E: 358650, N: 8137036 (55 MGAPROJECT : SAFER ROADS SOONER PROJECT SURFACE ELEVATION : 318.5 (AHD) JOB NO : CB24735.01 DIP / AZIMUTH : 90°							GA94	1)	PAGE: 2 OF 3 DATE DRILLED: 1/8/13 TO 1/8/13 LOGGED BY: JP										
LOCATION : KENNEDY HWY (CAIRNS - MAREEBA)														CHECKED BY: AJ						
DRILLING	WATER DETAIL	TING TCR/ROD	RL (m)	DEPTH (m)	GRAPHIC LOG	(texture	TYPE : Co , fabric, mir	MATERIA SCRIPTION blour, Grain s neral compos ntation, etc as	size, Structur	ess	Weathering	C	Is(50) - Axi - Diam	al	SF	EFECT PACING (mm)	Desc	ription of joint defects, addit vations and o	s, seams, ional	GENERAL
10	M N N N N N N N N N N N N N N N N N N N	DEPTH	318.5 317.5 316.5 314.5				NG AT 5.00m						N							15)
		62% TCR		-		QUARTZITE:	Grey, grey bro	own, indistinct fo	oliation.		HW - MW				, , ,		- 5.16	JT 60° IR RF JT 5° CU RF JT 80° IR RF		-
-NMLC		0% RQD 5.40		-			0.15m (5.25-5				X		<u> </u>		ľ		5.20	JT 70° IR VR		
J		100% TCR	-	-				own, indistinct fo		Ol) modi::	EW - HW				\perp	1 T 	- 5.50	JT 90° IR RF		
		0% RQD 5.60	312.5	_		plasticity, trac angular grave	e of fine to co	grey appears as arse grained sa hard.	nd and medium	or, medium n grained										SPT 3, 13, 24 N=27
	DRILLING NMLC NMLC Coring HQ HQ Coring D Distur NQ NQ Coring PQ PQ Coring W Water SPT					rbed Sample r Sample	& FIELD TEST ES Env So EW Env Wa	il Sample	SL Slic				elean oating tain eneer Polishe Rough Smooth Slickens	Cu C IR Ir PR P ST S Un U d	tepped ndulated	0-0.03	Medium High Very High	Low		

	5	1		V _L	C	ORED	BORE	HOL	E EN	IGINE	ΞEI	RIN	IG	LC	G	Н	OLE	NO : 0	CURVE	59_BH	101
CL	JENT	: TMF	₹				PC	SITION :	E: 35865	0, N: 8137	7036 (55 M	GA94	.)		PA	GE : :	3 OF 3	1		
PF	ROJE	CT : S	AFER	ROAL	s soo	NER PROJE	CT SU	RFACE E	ELEVATION	ON : 318.5	(AH	D)				DA	TE DR	ILLED :	1/8/13 TC	1/8/13	
\vdash			24735.		MN/ (CA	IDNIC MADI		P / AZIMU	JTH : 90	0								BY : J DBY :			
LO		DRILL		חזעב	VV T (CA	JIRNS - MARI		MATERIA	AL							Сп			S & COMN	MENTS	
DRILLING	WATER DETAIL	HIND TOR/ROD	(E)	9 DEPTH (m)	GRAPHIC LOG	(texture,	DESCF TYPE : Colour fabric, mineral tion, cementati	composit	tion, hard	ness		Weathering	C	ls(50) - Axia - Diame	RENGTH tral	SP.	FECT ACING mm)	Desc	ription of joint defects, addit vations and c	s, seams, ional	GENERAL
MB −			312.3	- - -		plasticity, trace	Brown, dark grey a e of fine to coarse l, very stiff to hard.	grained san	d and medi	′ (CI), mediu um grained	m	EW - HW									- - - -
-NMLC		70% TCR		_		QUARTZITE:	Grey, grey brown,	indistinct fol	liation.			EW - HW						6.57 6.61 6.62	JT 30° IR RF JT 90° IR RF JT 50° IR RF JT 5° IR RF		-
		0% RQD 7.00			$\overline{}$	QUARTZITE: medium plasti	Red brown, dark g city, very stiff.	rey appears	as SANDY	CLAY (CI),		$\overline{}$	331 1					6.70	JT 20° IR RF JT 50° CH IR JT 70° IR RF	RF	
			311.5-	7.0 - - - - -		QUARTZITE:	0.15m (6.85-7.00) Brown, dark grey a to coarse grained	ippears as \$ sand, trace	SANDY CLA of medium	AY (CI), medi grained angu	ium ular	EW							JT 0° ST RF JT 30° IR RF		SPT 6, 23, 30/120mm
*							Grey, pale grey, in	distinct to di	istinct foliati	on at 40° to		MW		11		닎		7.82 · 7.86 ·	JT 0 - 5° IR VI JT 90° IR VR	₹	}
		33% TCR	310.5-	-8.0		CORE LOSS	0.27m (7.93-8.20)				$-\uparrow$	$\overline{\ \ }$		TT				7.88	JT 80° IR VR		_
NMLC —		0% RQD 8.20		_		OLIADIZITE	O i i		:-4:4 f -1:-4:	+ 40° +-	/		11	11		Ш	<u> </u>		JT 5° IR VR		1
\(\frac{1}{2} \)		100% TCR		_		60°.	Grey, pale grey, in	distinct to di	istinct foliati	on at 40° to		MW		1				∼ 8.32 .	JT 90° IR VR JT 40 - 90° IR JT 0° IR VR	VR	-
		0% RQD	-	_										1		1] 	8.43	JT 0° ST VR JT 20° IR RF		-
		8.65		-		End of Cored	Drill Hole at 8.65 n	n					++	11	1	Н			JT 90° IR VR JT 0 - 5° IR VI	₹	
			-	- 9.0 																	
	NQ N	RQD % (rc GR V = V	DF Coring ng 6 core ri 6 core ri 6 core ri 7 cock fract	un recov un > 100 ion only VATER vel (stat	HQ F PQ F rered 0mm long measured SYMBOL	S	D Disturbed W Water San SPT SPT Samp	nple [·]	ES Env EW Env	STS Soil Sample Water Samp	ole C F J	CS Crus CZ Crus DB Drill EZ Frac T Joint S Infille SZ She 'N Veir	shed S shed Z Break tured Z d Sear ar Zon	eam one Zone m e	CT Cos SN Sta VR Ver POL P RF R S Sr SL Sl	ean ating in neer olished ough nooth ckens	Cu Cu IR Irr PR PI ST St Un Ur d	egular anar epped ndulated	ROCK STR 0-0.03 0.03-0.1 0.1-0.3 0.3-1.0 1.0-3.0 3.0-10	Extremely Very Low Low Medium High Very High	Low



	SINCLAIR KNIGHT MERZ	Client: Transport and Main Roads								
drown		Project: Safer Road Sooner								
drawn	AJ									
date	14/08/2013	Core Photograph – Curve 59_I	BH01							
scale	NTS	Project no. CB24735.01	Photo No: Curve 59_BH01	1 of 1						