## **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/

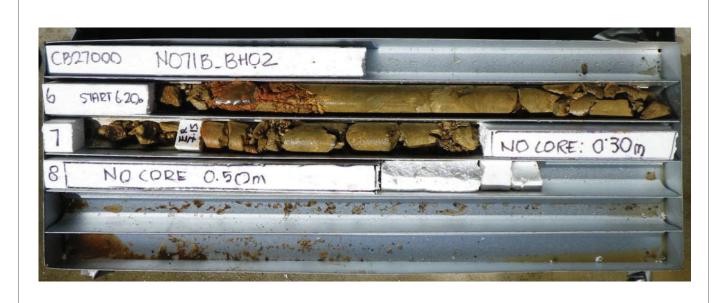
This log has been contributed to the Queensland Geotechnical Database with the permission of Jacobs.

**BOREHOLE ENGINEERING LOG HOLE NO: N071B BH02 CLIENT: TRANSPORT AND MAIN ROADS** POSITION: E: 358649, N: 8137285 (56 MGA94) PAGE: 1 OF 3 PROJECT: TNRP DATE DRILLED: 11/2/12 TO 11/2/12 SURFACE ELEVATION: 336.1 (AHD) LOGGED BY: KMF JOB NO: CB27000.F687 DIP / AZIMUTH : 90° CHECKED BY: AJ LOCATION: KENNEDY HWY (CAIRNS - MAREEBA) DRILLING **MATERIAL** LES & TESTS Œ CONSISTENCY MATERIAL DESCRIPTION MOISTURE  $\widehat{\Xi}$ STRUCTURE **3RAPHIC** DEPTH & CASING Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components DRILLING GROUND V EVELS & Other Observations Ζ 90 FILL ASPHALT: (0.08 m). SANDY GRAVEL: Grey, fine to medium gravel, angular, fine to coarse grained sand Н COLLUVIUM SILTY CLAY (CI-CH): Red brown, medium to high plasticity, with fine to coarse grained sand and fine and medium grained gravel. 335.1 CI-CH SOIL (40%) AND ROCK FRAGMENTS (60%): Soil comprises of SILTY CLAY (CI-CH), medium to high plasticity, rock fragments comprise of fine to coarse grained angular gravel and cobbles. F 1.95m 334.1 -2.0 OBSERVED AD/ 333.1 SOIL (70%) AND ROCK FRAGMENTS (30%): Soil comprises of SILTY CLAY (CI-CH), medium to high plasticity, with some fine to medium grained angular NOT gravel, rock fragments comprise of fine to coarse grained angular gravel and cobbles. St 3.45m RESIDUAL SOIL SILTY CLAY (CH): Red brown, high plasticity, with fine 19/11/2013 11:31 to medium grained angular gravel, trace of rootlets. 332.1 СН Н <<DrawingFile>> SPT 4, 6, 30 N=36 EXTREMELY WEATHERED ROCK QUARTZITE: Orange grey, extremely weathered, extremely low strength appears as clayey gravel (GC), fine to medium grained, angular, with fine grained CB27000.F688 GINT.GPJ 4.95m 331.1--5.0 VD Log BOREHOLE CURRENT.GLB 330.1 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 VH 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: CB27000.F687 N071B\_BH02 Page 1 OF 3

**BOREHOLE ENGINEERING LOG HOLE NO: N071B BH02 CLIENT: TRANSPORT AND MAIN ROADS** POSITION: E: 358649, N: 8137285 (56 MGA94) PAGE: 2 OF 3 PROJECT: TNRP SURFACE ELEVATION: 336.1 (AHD) DATE DRILLED: 11/2/12 TO 11/2/12 JOB NO: CB27000.F687 DIP / AZIMUTH : 90° LOGGED BY: KMF LOCATION: KENNEDY HWY (CAIRNS - MAREEBA) CHECKED BY: AJ **DRILLING MATERIAL** GROUND WATER LEVELS LES & TESTS Ξ CONSISTENCY MATERIAL DESCRIPTION MOISTURE CONDITION  $\widehat{\Xi}$ GRAPHIC LOG STRUCTURE DEPTH & CASING Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components WATER & Other Observations 씸 6.0 EXTREMELY WEATHERED ROCK SPT 30/130mr N=R, HB 6.13m AD/T F D VD 6.20m Continued as Cored Drill Hole 329.1-7.0 328.1--8.0 9.0 19/11/2013 11:31 326.1-10.0 <<DrawingFile>> CB27000.F688\_GINT.GPJ 325.1-11.0 .IBRARY\_CURRENT.GLB Log BOREHOLE SAMPLES & FIELD TESTS DRILLING CONSISTENCY (Su) {N-value} DENSITY (SPT N-value) SPT Standard Penetration Test U Undisturbed Tube Sample Hand Auger \_Disturbed Sample Rock Rolling RR VL Very Loose 0 - 4 VS Very Soft < 12 kPa {0-2} Auger Screw AT
Auger Drill TC-bit HQ Env Soil Sample Air Track HQ Coring Loose 4 - 10 S Soft 12 - 25 {2-4} EW Env Water Sample W Water Sample MD Medium Dense 10 - 30 25 - 50 {4-8} AD/V Auger Drill V-bit Washbore NQ NQ Coring NMLC NMLC Coring 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
PEasy F Firm VH
H Hard VD Very Dense 50 - 100 VSt Very Stiff 100 - 200 {15-30} BRISBANE OFFICE VE Very Easy E Easy VH Very Hard (P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight CO Compact >50/150mm Hard > 200 kPa {>30} Easy **GROUNDWATER SYMBOLS** RW SPT penetration by rod weight = Water level (static) = Water level (during drilling)

	SKM CORED BOREHOLE ENGINEERING LOG HOLE NO: N071B_BH02																			
CLIENT : TRANSPORT AND MAIN ROADS POSITION :						ITION: E: 358649, N: 8137285 (56 MGA94)							PAGE: 3 OF 3							
PROJECT : TNRP						SURFACE ELEVATION : 336.1 (AHD)							DA	DATE DRILLED: 2/11/12 TO 2/11/12						
							DIP / AZIMUTH : 90°							LOGGED BY: KMF						
LOCATION: KENNEDY HWY (CAIRNS - MAREEBA) CONTRACTOR: SAXON DRILLING CHECKED BY: AJ										4ENTO										
DRILLING MATERIAL  DESCRIPTION  BY ESTIMATED STRENGTH Is(50)									DEFECTS & COMMENTS DEFECT COMMENTS											
DRILLING	WATER DETAIL	HIGH TCR/RQD	(E) 記 -330.1	DEPTH (m)	GRAPHIC LOG	(texture,	TYPE : Co fabric, mir	lour, Grain size, Structure eral composition, hardness itation, etc as applicable)			Weathering Parket   P				PACING (mm)	obsei	escription of joints, seams, defects, additional			
				_		START CORI	NG AT 6.20m	1												_
A				_		QUARTZITE:	orange brow	n, grey green			EW - HW						-SZ (	3C 250 mm		_
											HW -		i		H	ЩП	— JT			_
		100% TCR		_	()						MW				li					4
		33% RQD																0° PR RF		1
		, rugo										Ιij			j j	111	→JT 4	0° UN RF 0° UN RF		-
		7.15	329.1-	7.0							EW		1	P	Γ		SZ	0° PR S GC 150 mm		7
				-							HW - MW		I		P		- S7 2	0° PR RF 20° UN RF		-
-NMLC		69% TCR		F								l i i			Ţį	ļi i i	— SZ 2 — JT 3	20° UN RF 60° UN RF		]
		0%	-	t														.0° UN RF 30° GC UN RI	20 mm	-
		RQD 7.80		_	$\times$	CORE LOSS	0.20m (7.60-	7.80)			$\times$	ijį	į							-
		7.00				CORE LOSS	0.70m (7.80-	8.50)			()						†			
		0%	328.1-	8.0	$  \setminus /  $						$ \cdot $		1							-
		TCR			X						X	Ιij	į		Ţį					1
		% RQD		-	$ / \setminus  $						/		1							-
		8.50			$\langle \rangle$	Fad of Danah	.1-				$\downarrow - \downarrow$		1		1					
				L		End of Boreho	oie						i		ij					
				F																]
			327.1-	9.0									į							
			02	-										 	li					-
				_																
				_									į		Ţį					-
			-	_																7
				_																+
				_								Ιij	i		ij					]
			326.1-	10.0																-
				_								Ιį	į							-
				-																_
			-	+									1							4
				-									- [							-
				-																-
			325.1-	11.0																_
													-							-
				-									1							=
				L									į	Ιij						
				-																-
				-									1							1
			2044	- 40.5									į							+
			324.1 DF	<del>L 12.0</del> RILLING				SAMPLES	& FIELD TES	TS		DE	FEC	T ABBF	REVIAT	IONS	•	ROCK STF	ENGTH (Is5	0 MPa)
NMLC NMLC Coring HQ HQ Coring D Disturbed Sample ES Env Soil Sample CS Crushed Seam CN Clean Cu Curved 0-0.03 Extremely Low NQ NQ Coring PQ PQ Coring W Water Sample EW Env Water Sample CZ Crushed Zone CT Coating IR Irregular 0.03-0.1 Very Low										Low										
Ί΄	-	TCR %	6 core r	un recov	vered	9	SPT SPT	Sample sturbed Tube S		campio	DB Drill FZ Frac	Break tured 2		SN S	tain 💍	PR P	lanar tepped	0.1-0.3 0.3-1.0	Low Medium	
RQD % core run > 100mm long   JT Joint Un Undulated   1.0-3.0 High   IS Infilled Seam   POL Polished   3.0-10   Very High																				
SZ Shear Zone RF Rough VN Vein S Smooth								,												
1		<b>V</b> = \	Vater le	vel (stati	ic)									SL S	Slickens	sided				
	_	<u>√</u> =\	vater le	vel (duri	ng drilling	)														
	File: CB27000.F687 N071B_BH02 3 OF 3																			



	SINCLAIR KNIGHT MERZ	Client: Transport and Main Roads						
drawn	KMF	Project: Transport Network Reconstruction Program						
date	8/11/2012	Core Photograph – N071B_BH02						
scale	NTS	Project no. CB27000	Photo No: N071B_BH02 1 of 1					