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BOREHOLE ENGINEERING LOG

HOLE NO : N072J_BH01

CLIENT : TRANSPORT AND MAIN ROADS

POSITION : E: 359985, N: 8136592 (56 MGA94)

PAGE : 1 OF 3

PROJECT : TNRP

SURFACE ELEVATION : 196.3 (AHD)

DATE DRILLED : 1/11/12 TO 1/11/12

JOB NO : CB27000.F687

DIP / AZIMUTH : 90°

LOGGED BY : KMF

LOCATION : KENNEDY HWY (CAIRNS - MAREEBA)

CHECKED BY : AJ

DRILLING						MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations
DRILLING & CASING	WATER											
<div>AD/T</div>		H			196.3	0.0		GP	SANDY GRAVEL (GP): Grey, fine to medium gravel, fine to coarse grained sand, trace of fines.	D	F	FILL
								0.50m	SANDY GRAVEL (GP): Grey brown, fine to medium gravel, fine to coarse grained sand, trace of fines.			
			F		1.50m SPT 5, 3, 3 N=6	195.3	1.0	GP			1.50m	COLLUVIUM
					1.95m	194.3	2.0	CI	SILTY CLAY (CI): Red brown, medium plasticity, with fine to medium grained angular gravel and cobbles, trace organics.		F	
<div>WB</div>									EXTREMELY WEATHERED PHYLLITE: Grey brown, red brown, extremely low to low strength, remolds to CLAYEY GRAVEL (GC), fine to coarse grained angular gravel, with some fine to medium grained sand, trace of cobbles.	D - VD		EXTREMELY WEATHERED ROCK
			H		3.00m SPT 28/150mm HB N=R 3.15m	193.3		3.0				
						192.3	4.0					
									Continued as Cored Drill Hole			
					191.3	5.0						
					190.3	6.0						

DRILLING				SAMPLES & FIELD TESTS				DENSITY (SPT N-value)		CONSISTENCY (Su) {N-value}			
HA	Hand Auger	RR	Rock Rolling	DS	Disturbed Sample	SPT	Standard Penetration Test	VL	Very Loose	0 - 4	VS	Very Soft	< 12 kPa {0-2}
AS	Auger Screw	AT	Air Track	ES	Env Soil Sample	U	Undisturbed Tube Sample	L	Loose	4 - 10	S	Soft	12 - 25 {2-4}
AD/T	Auger Drill TC-bit	HQ	HQ Coring	EW	Env Water Sample	W	Water Sample	MD	Medium Dense	10 - 30	F	Firm	25 - 50 {4-8}
AD/V	Auger Drill V-bit	NQ	NQ Coring					D	Dense	30 - 50	St	Stiff	50 - 100 {8-15}
WB	Washbore	NMLC	NMLC Coring	HP	Hand Penetrometer			VD	Very Dense	50 - 100	VSt	Very Stiff	100 - 200 {15-30}
DRILLING PENETRATION				HV	Hand Vane Shear	MOISTURE CONDITION		CO	Compact	>50/150mm	H	Hard	> 200 kPa {>30}
VE	Very Easy	F	Firm	VH	Very Hard	D	Dry	M	Moist	W	Wet		
E	Easy	H	Hard										
GROUNDWATER SYMBOLS													
▼ = Water level (static)													
▽ = Water level (during drilling)													



CORED BOREHOLE ENGINEERING LOG HOLE NO : N072J_BH01

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DIP / AZIMUTH : 90°

LOGGED BY : KMF

LOCATION : KENNEDY HWY (CAIRNS - MAREEBA)

CHECKED BY : AJ

DRILLING				MATERIAL				DEFECTS & COMMENTS			
DRILLING	WATER DETAIL	TCR/RQD DEPTH	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral	DEFECT SPACING (mm)	Description of joints, seams, defects, additional observations and comments	GENERAL
			196.3	0.0							
				195.3							
				194.3							
				193.3							
				192.3							
						START CORING AT 4.60m					
		100% TCR 0% RQD 5.00	191.3	5.0		PHYLLITE: Dark grey green, pale grey, orange brown, distinct bedding at 30° to 40°.	HW			4.67 JT 70° PR RF 4.70 JT 70° PR RF 4.77 JT 30° CU RF 4.80 JT 30° CU RF 4.90 JT 50° CU RF 4.94 JT 60° PR RF 5.13 JT 70° PR S 5.36 JT 70° PR S 5.53 JT 70° PR RF 5.77 JT 60° UN RF 5.89 JT 30° CU RF 5.93 JT 30° CU RF	
		100% TCR 72% RQD 6.00	190.3	6.0			MW - HW				

DRILLING				SAMPLES & FIELD TESTS				DEFECT ABBREVIATIONS				ROCK STRENGTH (Is50 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
				SPT	SPT Sample			DB	Drill Break	SN	Stain	PR	Planar	0.1-0.3	Low
				U	Undisturbed Tube Sample			FZ	Fractured Zone	VR	Veneer	ST	Stepped	0.3-1.0	Medium
								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				
										SL	Slickensided				
GROUNDWATER SYMBOLS															
		= Water level (static)													
		= Water level (during drilling)													

CLIENT : TRANSPORT AND MAIN ROADS

POSITION : E: 359985, N: 8136592 (56 MGA94)

PAGE : 3 OF 3

PROJECT : TNRP

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DIP / AZIMUTH : 90°

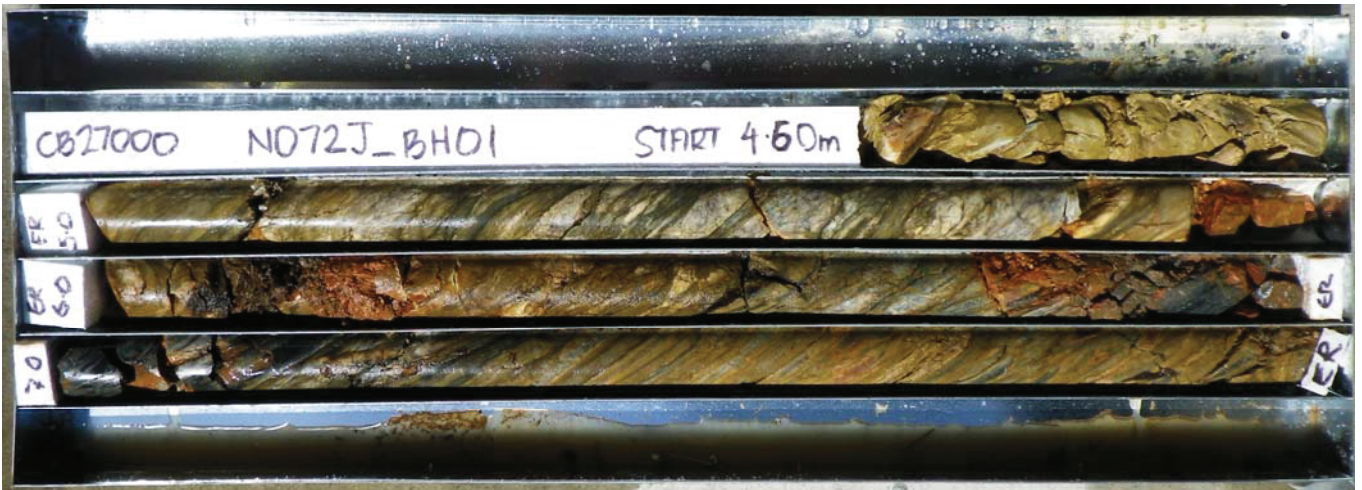
LOGGED BY : KMF


LOCATION : KENNEDY HWY (CAIRNS - MAREEBA)

CHECKED BY : AJ

DRILLING				MATERIAL		DEFECTS & COMMENTS						
DRILLING	WATER DETAIL	TCR/RQD DRILL DEPTH	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● Axial ○ Diametral	DEFECT SPACING (mm)	Description of joints, seams, defects, additional observations and comments	GENERAL	
NMLC ↓		100% TCR 37% RQD	190.3	6.0		PHYLLITE: Dark grey green, pale grey, orange brown, distinct bedding at 30° to 40°. (continued)	MW			6.05 JT 30° UN RF		
		HW	6.25 SS 30° UN RF									
		MW	6.49 JT 80° PR RF									
		100% TCR 64% RQD	189.3	7.0		Cored Drill Hole Terminated at 8.00 m.	HW			6.72 JT 50° PR RF 6.82 JT 90° PR RF 6.93 SS 30° IR RF		
SW	7.07 JT 30° CU RF 7.12 JT 30° UN RF 7.24 JT 60° UN RF											
	7.57 JT 80° PR RF 7.65 JT 80° PR RF 7.82 JT 70° PR RF 7.91 JT 80° PR RF 7.95 JT 80° PR RF											
			188.3	8.0		Cored Drill Hole Terminated at 8.00 m.						
			187.3	9.0								
			186.3	10.0								
			185.3	11.0		Cored Drill Hole Terminated at 8.00 m.						
			184.3	12.0								

<p>DRILLING</p> <p>NMLC NMLC Coring HQ HQ Coring NQ NQ Coring PQ PQ Coring</p> <p>TCR % core run recovered RQD % core run > 100mm long (rock fraction only measured)</p> <p>GROUNDWATER SYMBOLS</p> <p> = Water level (static)  = Water level (during drilling)</p>				<p>SAMPLES & FIELD TESTS</p> <p>D Disturbed Sample ES Env Soil Sample W Water Sample EW Env Water Sample SPT SPT Sample U Undisturbed Tube Sample</p>				<p>DEFECT ABBREVIATIONS</p> <p>CS Crushed Seam CN Clean Cu Curved CZ Crushed Zone CT Coating IR Irregular DB Drill Break SN Stain PR Planar FZ Fractured Zone VR Veneer ST Stepped JT Joint Un Undulated IS Infilled Seam POL Polished SZ Shear Zone RF Rough VN Vein S Smooth SL Slickensided</p>				<p>ROCK STRENGTH (Is50 MPa)</p> <p>0-0.03 Extremely Low 0.03-0.1 Very Low 0.1-0.3 Low 0.3-1.0 Medium 1.0-3.0 High 3.0-10 Very High</p>	
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		Client: Transport and Main Roads	
		Project: Transport Network Reconstruction Program	
drawn	KMF	Core Photograph – N072J_BH01	
date	8/11/2012	Project no. CB27000	
scale	NTS	Photo No: N072J_BH01 1 of 1	