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BOREHOLE ENGINEERING LOG

HOLE NO : N072I_BH01

CLIENT : TRANSPORT AND MAIN ROADS

POSITION : E: 360041, N: 8136503 (56 MGA94)

PAGE : 1 OF 3

PROJECT : TNRP

SURFACE ELEVATION : 221.3 (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	GROUND WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	STRUCTURE & Other Observations
DRILLING & CASING	WATER	PENETRATION	LEVELS	RL (m)	CLASSIFICATION SYMBOL	Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION CONSISTENCY
AD/T		H		221.3	GP	SANDY GRAVEL (GP): Grey, fine to medium gravel, fine to coarse grained sand, trace of fines.	FILL
				220.3	CI-CH	GRAVELLY CLAY (CI-CH): Orange brown, medium to high plasticity, fine to medium grained angular gravel.	COLLUVIUM
				219.3	CI	SILTY CLAY (CI): Red brown, medium plasticity, with fine to medium grained angular gravel.	
				218.3	GC	CLAYEY GRAVEL (GC): Red brown, fine to coarse gravel, angular.	RESIDUAL SOIL
				217.3		EXTREMELY WEATHERED PHYLLITE: Orange 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.	EXTREMELY WEATHERED ROCK
				216.3			
				215.3			

DRILLING				SAMPLES & FIELD TESTS			
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			VD Very Dense	50 - 100	VSt Very Stiff	100 - 200 {15-30}
				CO Compact	>50/150mm	H Hard	> 200 kPa {>30}
DRILLING PENETRATION				MOISTURE CONDITION			
VE Very Easy	F Firm	VH Very Hard		HP Hand Penetrometer	D = Dry M = Moist W = Wet		
E Easy	H Hard			HV Hand Vane Shear			
GROUNDWATER SYMBOLS				N SPT blows per 300mm			
= Water level (static)				HW SPT penetration by hammer weight			
= Water level (during drilling)				RW SPT penetration by rod weight			



CORED BOREHOLE ENGINEERING LOG HOLE NO : N072I_BH01

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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) START CORING AT 6.00m	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral	DEFECT SPACING (mm)	Description of joints, seams, defects, additional observations and comments	GENERAL
		100% TCR 11% RQD	215.3	6.0		PHYLLITE: Orange brown, pale brown, brown grey, indistinct to distinct bedding at 30° to 40°.	EW - HW			6.09 JT 80° Clay CU RF 5 mm 6.22 SS 30° GC UN RF 40 mm 6.34 JT 40° Clay PR S 5 mm 6.41 SS 50° Clay CU RF 50 mm 6.54 SS 30° Clay CU RF 50 mm 6.67 JT 50° PR S 6.73 JT 60° CU RF 6.79 JT 60° CU RF 6.87 SS 30° Clay CU RF 40 mm 6.93 JT 30° UN RF	
		7.00	214.3	7.0		CORE LOSS 0.20m (7.00-7.20)					
		72% TCR 0% RQD	213.3	8.0		PHYLLITE: Orange brown, pale brown, brown grey, indistinct to distinct bedding at 30° to 40°.	HW			7.24 JT 30° UN RF 7.27 JT 30° PR RF 7.28 SS 30° GC PR RF 330 mm 7.61 JT 30° PR RF 7.67 SS 30° GC CU RF 140 mm 7.81 JT 30° PR RF 7.88 JT 40° Clay CU RF 5 mm 7.89 SS 30° GC CU RF 30 mm 7.96 JT 30° PR RF 8.05 JT 40° CU RF 8.12 JT 20° PR RF 8.20 SS 30° GC PR RF 30 mm 8.27 SS 40° GC CU RF 50 mm 8.34 JT 30° Clay UN RF 5 mm 8.44 JT 30° Clay UN RF 5 mm 8.50 JT 30° Clay UN RF 10 mm 8.54 JT 30° UN RF 8.62 JT 30° UN RF 8.68 SS 30° GC UN RF 100 mm 8.76 SS 50° GC PR RF 240 mm	
		9.50	212.3	9.0		CORE LOSS 0.50m (9.00-9.50)					
		70% TCR 0% RQD	211.3	10.0		CORE LOSS 0.15m (9.50-9.65)					
		10.00	211.3	10.0		PHYLLITE: Orange brown, pale brown, brown grey, indistinct to distinct bedding at 30° to 40°.	EW			9.65 SS 50° GC PR RF 450 mm	
		100% TCR 26% RQD	210.3	11.0			EW - HW			10.03 JT 70° UN RF 10.12 SS 50° PR RF 380 mm	
		11.00	210.3	11.0			MW			10.60 JT 70° UN RF 10.70 JT 30° PR RF 10.87 JT 30° UN RF 10.89 JT 30° PR RF	
		80% TCR 27% RQD	209.3	12.0			EW			11.06 JT 30° UN RF 11.14 JT 30° UN RF 11.20 JT 30° UN RF 11.35 JT 70° PR RF 11.37 JT 30° CU RF 11.44 JT 30° UN RF 11.54 JT 70° PR RF 11.59 JT 20° UN RF 11.64 JT 40° IR RF 11.75 SS 70° GC IR RF 250 mm	

DRILLING

NMLC NMLC Coring HQ HQ Coring
NQ NQ Coring PQ PQ CoringTCR % core run recovered
RQD % core run > 100mm long
(rock fraction only measured)

GROUNDWATER SYMBOLS

▼ = Water level (static)
▽ = Water level (during drilling)

SAMPLES & FIELD TESTS

D Disturbed Sample ES Env Soil Sample
W Water Sample EW Env Water Sample
SPT SPT Sample
U Undisturbed Tube Sample

DEFECT ABBREVIATIONS

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

ROCK STRENGTH (Is50 MPa)

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

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[illegible]

DRILLING NMLC NMLC Coring HQ HQ Coring NQ NQ Coring PQ PQ Coring TCR % core run recovered RQD % core run > 100mm long (rock fraction only measured) GROUNDWATER SYMBOLS  = Water level (static)  = Water level (during drilling)				SAMPLES & FIELD TESTS D Disturbed Sample ES Env Soil Sample W Water Sample EW Env Water Sample SPT SPT Sample U Undisturbed Tube Sample				DEFECT ABBREVIATIONS 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				ROCK STRENGTH (Is50 MPa) 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	
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		Client: Transport and Main Roads	
		Project: Transport Network Reconstruction Program	
drawn	KMF	Core Photograph – N072I_BH1	
date	8/11/2012	Project no. CB27000	
scale	NTS	Photo No: N072I_BH1 1 of 1	