

William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists										DDH – SF5				
Engineering log – Cored borehole										Sheet 1 of 2				
Incorporating the Unified Rock Classification System (URCS)														
Project HYDRO TASMANIA DUNGROVE SCHEME					Location Southernfield (dam axis, west side)									
Coordinates			Drill type		Hydra Power Scout		Hole started		30 January 2008					
490092.0mE 5320614.9mN			Equipment		120mm hollow auger		Hole finished		30 January 2008					
Datum GDA94			Drill fluid(s)		Water		Drilled by		D Roberts					
RL Approx. 542m ASL			Inclination		Vertical		Logged by		T. Lagden					
Bearing			Checked by		W. Cromer									
Drilling information				Rock substance				Rock mass defects						
Bit type/size	Case type/size/lift	Fluid loss/water	Notes Samples, tests, unit weight (UW, g/cc)	Core recovery	RQD	metres	Graphic log	Substance description rock type, grain characteristics, colour, structure, minor components	Weathering	Est. strength	Nature of defects	Defect spacing (mm)	Defect description thickness, type, inclination, planarity, roughness, coating	Geol Interp
A			SPT 5,4,10 N=14 SPT 3,4,5 N=9 SPT 6,12/50 N> SPT 16,18,19 N=37 Refusal at 3.0m			1 2 3	SAND: fine grained; silty; clayey; Dry; MD CLAY: light brown; high plasticity; some fine rounded gravel; D-M CLAY: orange to light grey; silty, layered; medium plasticity; H						All SPT's sampled <PL, gravel is DW dolerite With some micaceous content Evidence of vertical and horizontal bedding	Soil and EW bedrock
NO TT			Packer test 3.7 to 7.5m Loggans = 11 Packer test 7.6 to 10.5m Loggans = 48			4 5 6 7 8 9	Interbedded SILTSTONE/ SANDSTONE/ MUDSTONE: Siltstone orange grey; soapy texture. Sandstone light orange to grey; fine grained Mudstone grey-brown; soapy texture Core loss (0.05m); soft material, probably clay						I _{vd} = 0.4MPa diametral Joint, 6mm, silty clay infill Joints in siltstone typically sub-horizontal, undulating rough with black oxide veneer Joints in mudstone typically tabular, planar, smooth Joint, 15mm silty clay infill Joint, 10mm silty clay infill	Lower Triassic sedimentary rocks



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Datum GDA94			Equipment			Drilled by			D. Roberts													
RL Approx. 542m ASL			120mm hollow auger			KMR Drilling Pty. Ltd.																
Inclination Vertical			NQTT triple tube core drilling			Logged by			T. Lagden													
Bearing			Drill fluid(s) Water			Checked by			W. Cromer													
Drilling information				Rock substance				Rock mass defects														
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									A	B	C	D	E	A	B	C	D	E				
			Factor test 7.8 to 10.5m Logtype = 42	20% 40% 60% 80%	20% 40% 60% 80%	Vertical depth Inclined depth		Interbedded SILTSTONE/ SANDSTONE/ MUDSTONE: Siltstone orange grey; soapy texture; sandstone light orange to grey; fine grained; mudstone grey-brown; soapy texture										30 100 300 1000 3000	Significant General	Joints in mudstone typically tabular, planar smooth	Lower Triassic sedimentary rocks	
						10		End of hole 10.5m											I _p = 1.2MPa diametral 3.3MPa axial			
						11																
						12																
						13																
						14																
						15																
						16																
						17																
						18																

Drilling
 T = Triple tube coring
 B = Blades
 R = Roller/Trocone
 A = Auger
 W = Wash boring
 DT = Double tube coring
 HAM = Rotary hammer

Case lift **Fluid loss**

Case lift: Casing used (No loss), Barrel withdrawn (50% loss, 100% loss)

RQD (Rock Quality Designation Index)
 The sum of the lengths of sound core pieces >100mm in length divided by the total core length measured along centreline. Core drilling breaks not included.

Water Level Inflow Outflow

Unit weight (UW, g/cc)
 A = >2.55 B = 2.40-2.55 C = 2.25-2.40
 D = 2.10-2.25 E = <2.10

Strength Approx. point load strength index I_s(50), MPa Approx. UCS MPA

Hammer impact test

A = rebound (RQ) >4 >103
 B = pt (PQ) 2-4 55-103
 C = dent (DQ) 1-2 21-55
 D = crater (CQ) 0.25-1 7-21
 E = moldable, friable (MQ) <0.25 <7

Soil consistency
 VS = Very Soft
 S = Soft
 F = Firm
 St = Stiff
 VSt = Very stiff
 H = Hard

Defects
 Joint, Shear zone, Infill seam, Van, Crush zone, EW seam

Soil density Index
 Coarse grained soils
 Fb = Friable
 VY = Very Loose
 L = Loose
 MD = Medium Dense
 D = Dense
 VD = Very Dense

Soil consistency
 A = Solid random breaks (SRB)
 B = Solid preferential breaks (SPB)
 C = Solid latent breaks (SLB)
 D = Non intersecting planes (2-D)
 E = Intersecting open planes (3-D)

Core loss
 Core loss (interval known)
 Core loss (interval unknown) Loss is shown in Graphic log column at top of run

Samples and Notes
 R = SPT penetration refusal
 D = Disturbed sample
 N = Standard Penetration Test
 pp = Hand penetrometer test
 SV = In-site Shear Vane test
 CS = Core Sample
 Ux = Undisturbed tube sample (x mm diameter)
 Nd = SPT and Disturbed Sample

Weathering
 A = Micro fresh slate (MFS)
 B = Visually fresh slate (VFS)
 C = Stained slate (STS)
 D = Partly decomposed slate (PDS)
 E = Completely decomposed slate (CDS)

Note: X on log is test result. Otherwise strength is visually estimated. US = Unconfined Compressive Strength

