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CLIENT	JP						OLE DGGED BY	ACS	OF 4
CLIENT PROJECT	DMR IPSWI	СН МОТО	RWA	Y UPGF	RADE - WACOL TO DARRA	CI	HECKED BY RILLED DATE	, B ul-07 to 20-Ju	
CONTRACTOR DRILL MODEL DRILLER	Ed	rratest son 3000 ent Ormsb	y	ANGLE Vertical BEARING - HOLE DIAMETER 100mm ()			ROUND LEVEL OCATION LEVATION DATUM DORDINATE SYST	9.89m 38 E 150661 alian Height Da	
DRILLING		STRA	ГА	MATERIAL DESCRIPTION			CONDITIO	OBSERV	
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	IP SYMBOL	LEGEND	SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	WATER / MOISTURE	CONSISTE	NON COHESIVE	SOIL C
	m	m	GROUP			> \(\)	S S S S S S S S S S S S S S S S S S S		
	19.75	0.14	SM CI	×	silty SAND (SM) medium to coarse grained, brown, with clay and grass rootlets.				NON
	19.39	0.50			sandy CLAY (CI) firm, brown then grey, sand medium to coarse grained, with gravel fine to medium grained, angular to sub-rounded.				СОН
	10.00	+	SM	× . ×	silty SAND (SM) very dense, very fine to fine grained, grey, cemented.	-			NON
-	18.89 -	1 1.00	CI	<u>-</u>	sandy CLAY (CI) firm, brown then grey, sand medium to coarse grained, with gravel fine to medium grained, angular to sub-rounded.	1			СОН
_	18.59	1.30	СН		CLAY (CH) hard, brown, with a trace of sand medium grained, sub-rounded, with a trace of tree rootlets.	D			
SPT at 1.8m		<u> </u>							
N 14;18,24	-	-2			-	-			СОН
		<u> </u>							
-		Į .							
<u> </u>	17.09	2.80	СН		sandy CLAY (CH) very stiff to hard, brown-grey, sand fine grained.	М			СОН
SPT at 3.3m	16.79 16.59	3.10	SP	<u> </u>	SAND (SP) medium dense, fine grained, brown, with clay.	}			NON
N 10;12,14	16.29	3.30	SC	- : - : - -	clayey SAND (SC) medium dense, fine grained, grey with light brown bands, clay (cl).	М			NON
[10.29	3.60	CI CH		sandy CLAY (CI-CH) very stiff, fine grained, brown-grey with a trace of quartz gravel, fine to medium grained angular.]		TIII	
- 💆	-	-4			-				сон
_	15.39	4.50							
SPT at 4.8m	15.19	4.70	SC CL		clayey SAND (SC) dense, fine grained, grey with light brown bands, with clay (cl).	W W			NON
N 12;14,18	-	-5		<u> </u>	sandy CLAY (CL) very stiff, fine grained, grey with light brown bands.				
-		‡							сон
_		 				-			
-	13.89 -	6 6.00	6						
SPT at 6.3m		+	CH		sandy CLAY (CH) stiff, grey-white, sand fine grained, with a trace of silt.	-			
N 9;10,6		‡				1			
_		+				1			СОН
-	-	 7			-				
_	12.39	7.50	00		AND CON June 1				
SPT at 7.8m		‡	SC		clayey SAND (SC) dense, fine grained, mottled red-brown, light brown, grey.	1			
N 12;20,19	-	8			-				
<u>-</u>		‡ !			 -	1			NON
_		+		- <u>-</u>		1			
<u> </u>	10.89 -	9 9.00	<u>.</u>	·	and CLAY (Cl) hard so that have and he	1		للم	
SPT at 9.3m		+	CI		sandy CLAY (CI) hard, mottled brown, red-brown, light brown, sand fine grained, with bands of medium dense clayey sand, fine grained.	1			
N 12;23,22		‡ .		- <u>-</u> -		1			сон
-		1				1			

CLIENT	DMR							HOLE LOGGED BY			cs	
PROJECT		СН МОТО	CHECKED BY GWB DRILLED DATE 19-Jul-07 to 20-					-07 to 20-Jul-				
CONTRACTOR DRILL MODEL DRILLER	Ed	rratest son 3000 ent Ormsb	у		ANGLE Vertical BEARING - HOLE DIAMETER 100mm ()	LOCATION 3263					:638 strali	.89m E 150661 N ian Height Datu Grid
DRILLING	STRA	TA		MATERIAL DESCRIPTION	CONDITION				l	OBSERVA		
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	WATER/ MOISTURE	CC	CONS DHESIVI	≡ c	NON OHESI	IVE	SOIL OF STRUCT ETC
SPT at 10.8m N 11;18,16	9.39	† · · · ·	CI		sandy CLAY (CI) hard, mottled brown, red-brown, light brown, sand fine grained, with bands of medium dense clayey sand, fine grained. (continued)	-	> 0)					COHE
		10.50 10.72			sandy CLAY (CI) firm to stiff, mottled brown, red-brown, light brown, sand medium to coarse grained, with ironstone gravel, medium grained,						1	COHE
					angular. \(\) angular. \(\)	A - - - - -						
		† 										COHE
SPT at 12.3m N 8;17,28	7.89	12 12.00	СН		CLAY (CH) hard, grey-brown, with ironstained lenses.	-		L L				СОНЕ
		†			Borehole continued as a Cored Drillhole	-	Т		1		+	
- -		+ - 13			- -	-						
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NOTES Hole Dia diamete to 24m.		†				-						

SHEET 3 **CORED BOREHOLE RECORD BH219** OF 4 LOGGED BY ACS CLIENT CHECKED BY **GWB** IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA **PROJECT** DRILLED DATE 19-Jul-07 to 20-Jul-07 CONTRACTOR Terratest Vertical **GROUND LEVEL** RL 19.89m **DRILL MODEL** Edson 3000 **BEARING** LOCATION 32638 E 150661 N DRILLER Brent Ormsby HOLE DIAMETER 100mm () **ELEVATION DATUM** Australian Height Datum COORDINATE SYSTEM Local Grid **DRILLING STRATA** MATERIAL DESCRIPTION DISCONTINUITIES SPECIFIC GENERAL DESCRIPTION FREQUENCY FLUSH RETURN 9 (TYPE) TCR % (Drill rate) SCR / (RQD Is 50 (MPa) (ber m) SAMPLES CaCO₃, SPT, UCS, **ESTIMATED** THICKNESS R.L. DEPTH GRAPHIC **ROCK TYPE** ANGLE ROCK Planarity, Roughness, Grain Size, Texture/Fabric, Colour, Minor Components STRENGTH Coating, Infill m Continued from Borehole 12.45 CORE LOSS: 0.24m. (clay (CH) at top of split from 7.20 SPT) O MUDSTONE massive, grey brown, with properties of clay (CH) very stiff to hard PL Ro2-Ro3 Fe . 13.34 ironstone band, fine grained, red-brown and PL Ro2-Ro3 Fe PL Ro2-Ro3 Fe -30 -55 89/(87) ()68 O 83/(78) 83() 3.07 16.82 SANDSTONE very fine to fine grained, brown, XW red-brown, ironstained to 17m (geotechnics)gin/kmaster w2d(14.12.07).gpj Vgeotechnics)gin/gint libraryaus_ library_12 (04.10.007).glb YZ-CARE LOG (rev Z2Jan08 checked ABIACP Feb 2006) YZ-Jan08 (1047 2 32 17 57 CORE LOSS: 0.43m. (sand, fine grained in drilling mud return). SPTLS 1.77 18.13 SANDSTONE very fine to fine grained, massive grey 1.55 18.34 CORE LOSS: 2.66m. (sand, medium grained in (7)/2 JOB **NOTES** Hole Diameter 100mm to 25.73m depth. (Solid Flight Augering to 4.5m. HW casing to 4.8m. Washboring with 100mm diameter tri-blade bit from 4.5m to 12m, 75mm diameter tri-blade bit from 24.15m to 25.5m. NMLC Coring from 12.45m 86015 to 24m. Groundwater below 4m.)

SHEET 4 **CORED BOREHOLE RECORD BH219** OF 4 LOGGED BY ACS CLIENT CHECKED BY **GWB** IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA **PROJECT** DRILLED DATE 19-Jul-07 to 20-Jul-07 CONTRACTOR Terratest Vertical **GROUND LEVEL** RL 19.89m **DRILL MODEL** Edson 3000 **BEARING** LOCATION 32638 E 150661 N Brent Ormsby HOLE DIAMETER **DRILLER** 100mm () **ELEVATION DATUM** Australian Height Datum COORDINATE SYSTEM Local Grid **DRILLING STRATA** MATERIAL DESCRIPTION DISCONTINUITIES GENERAL DESCRIPTION **SPECIFIC** FREQUENCY TCR % (Drill rate) HETURN TYPE) SCR / (RQD Is 50 (MPa) SAMPLES CaCO₃, SPT, UCS, Ê **ESTIMATED** THICKNESS R.L. DEPTH GRAPHIC **ROCK TYPE** ANGLE (per ROCK Planarity, Roughness, Grain Size, Texture/Fabric, Colour, Minor Components STRENGTH FLUSH Coating, Infill m CORE LOSS: 2.66m. (sand, medium grained in drilling mud return). (continued) (7)/7 2 SPTLS 30/30 ·**21** ^{21.00} -1.11 SAND (SP) very dense, medium to coarse grained, grey-white and black, gravel fine to medium grained, angular to sub-rounded, with clay. -1.29 21.18 CORE LOSS: 2.82m. (sand, medium to coarse grained in drilling mud return). 0)/0 0 - 23 SPTLS 30/1508 - **24** ^{24.00} -4.11 SAND and GRAVEL (SP) very dense, fine to coarse grained, grey, white, black, red (multicoloured), gravel fine to medium grained, angular to sub-rounded with bands of clay in matrix, (poorly (Tuff polymer + water) 100 0 cemented sands and gravels). 0 - 25 SPTLS 0 23:30/75 -5.84 25.73 25.70m - 25.73m very fine to fine grained sand End of Borehole at 25.73m Südesignigeotechnicsigintimaster w2d(14.12.07).gpj Südesignigeotechnicsigintigint libraryalus, library 12 (d4.10.007).glb ROTARY CORE LOG (rev 22Jan08 checked ABIACP Feb 2006) 2. Made Z2Jan08 10.47 - 28 JOB **NOTES** Hole Diameter 100mm to 25.73m depth. (Solid Flight Augering to 4.5m. HW casing to 4.8m. Washboring with 100mm diameter tri-blade bit from 4.5m to 12m, 75mm diameter tri-blade bit from 24.15m to 25.5m. NMLC Coring from 12.45m 86015 to 24m. Groundwater below 4m.)

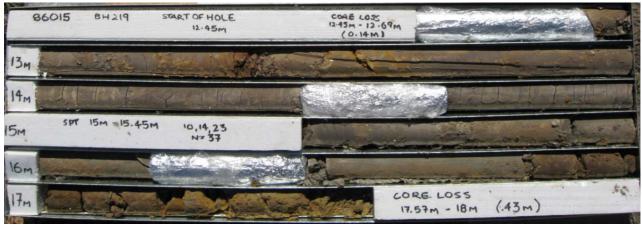
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BOREHOLE PHOTOGRAPHS

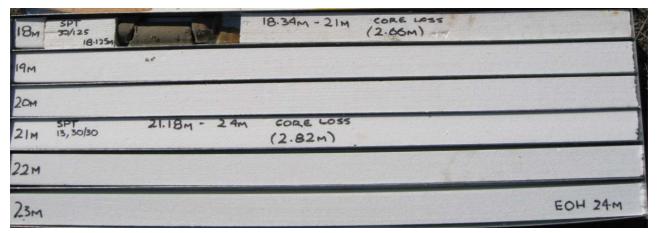


PROJECT: Upgrade Centenary Highway CLIENT: Department of Main Roads PROJECT NUMBER: 86015

Hole: BH 219



Depth: 12.45m - 18m



Depth: 18m - 24m