ARUP

CORED BOREHOLE RECORD

BH224
HOLE

SHEET 3
OF 3

CLIENT	DMR
PROJECT	IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA

LOGGED BY	ACS
CHECKED BY	GWB
DRILLED DATE	24-Jul-07

CONTRACTOR	Terratest	ANGLE	Vertical
DRILL MODEL	Edson 3000	BEARING	-
DRILLER	Brent Ormsby	HOLE DIAMETER	100mm ()

GROUND LEVEL	RL 25.77m
LOCATION	32815 E 150717 N
ELEVATION DATUM	Australian Height Datum
COORDINATE SYSTEM	Local Grid

DRILLING | STRATA | MATERIAL DESCRIPTION | DISCONTINUITIES

TCR % (Drill rate)	SCR / (RQD)	FLUSH RETURN % (TYPE)	SAMPLES ($CaCO_3$, SPT, UCS, etc)	R.L. (m)	DEPTH (m)	GRAPHIC LOG	ROCK TYPE Grain Size, Texture/Fabric, Colour, Minor Components	WEATHERING	ESTIMATED ROCK STRENGTH	Is 50 (MPa)	FREQUENCY (per m)	SPECIFIC: TYPE	SPECIFIC: ANGLE	SPECIFIC: THICKNESS (mm)	GENERAL DESCRIPTION: Planarity, Roughness, Coating, Infill
				13.32	12.45		Continued from Borehole								
				13.12	12.65		CORE LOSS: 0.2m (sand, fine grained in drilling mud return).								
92()	92/(89)		C				SILTSTONE, massive, grey-brown, with properties of a hard silty clay (CH).	XW/RS	EL VL L M H VH EH	A0.09	30 10 3 1	Be	10	1	PL Ro2 Sandy
			C							A0.09		Be	10	1	IR Ro3 Sandy
				11.99	13.78		MUDSTONE, massive, grey-black with properties of a hard clay (CH).	XW/RS				Be	0	1	PL Ro2 Sandy
			C							A0.10					
							.... 14.40 with bands of very fine to fine grained sandstone, up to 120mm thick	XW/RS				Be	20	1	PL Ro3 Sandy
												Jo	0	<5	PL Ro3 Sandy
			SPTLS					XW/RS				Be	0	<5	PL Ro3 Sandy
			N 8:17.21												
				9.41	16.36		*.... 16.14 ironstone lens*					Be	15	2	PL Ro2 Sandy
							CORE LOSS: 1.64m (sand, fine to medium grained in drilling mud return).					Be	10	5	CU Ro3 Sandy
35()	35/(32)			7.77	18.00		End of Borehole at 18.00m								

NOTES: Hole Diameter 100mm to 18.00m depth. (Solid Flight Augering to 7.5m. HW casing to 7.7m. Washboring with 100mm diameter tri-blade bit from 7.5m to 12m. NMLC Coring from 12.45m to 18m. Groundwater below 7m.)

JOB 86015

ARUP

BOREHOLE RECORD

BH230
HOLE

SHEET 1
OF 2

CLIENT	DMR	LOGGED BY	ACS
PROJECT	IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA	CHECKED BY	GWB
		DRILLED DATE	10-Aug-07
CONTRACTOR	Terratest	ANGLE	Vertical
DRILL MODEL	Edson 3000	BEARING	-
DRILLER	Brent Ormsby	HOLE DIAMETER	100mm ()
		GROUND LEVEL	RL 17.07m
		LOCATION	32010 E 150158 N
		ELEVATION DATUM	Australian Height Datum
		COORDINATE SYSTEM	Local Grid

DRILLING	STRATA				MATERIAL DESCRIPTION	CONDITION		OBSERVATION
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L. (m)	DEPTH (m)	GROUP SYMBOL	LEGEND	SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	WATER / MOISTURE	CONSISTENCY: COHESIVE VS S F ST VST H; NON COHESIVE VL L MD D VD	SOIL ORIGIN, STRUCTURE, ETC.
	16.87	0.20	CL		Silty SAND fine to medium grained, brown, with grass rootlets.	D		**TOP**
					Sandy CLAY (CL) light brown, sand fine to coarse grained, with gravel fine grained angular.	D		**COHES**
	16.37	0.70	SW		Clayey Gravelly SAND (SW) dense, sand fine to coarse grained, white-grey, gravels fine grained sub-angular to sub-rounded.			**NONCO**
	15.67	1.40	CL		Sandy CLAY (CL) very stiff, brown, sand fine to coarse grained.			**COHES**
SPT at 1.71m N 24;30/120	15.45	1.62	SW		*.... 1.56 increase in quartz gravel fine grained angular*			**NONCO**
	15.12	1.95	CL		Clayey Gravelly SAND (SW) very dense, sand fine to coarse grained, white-grey.			**COHES**
	14.77	2.30	CH		Sandy CLAY (CL) stiff, brown, sand fine to coarse grained, with gravel fine grained sub-angular to sub-rounded.			**COHES**
	14.27	2.80	CH		CLAY (CH) hard, grey light brown, with sand medium grained.			**COHES**
SPT at 3.3m N 4;11,18					CLAY (CH) very stiff then hard, grey mottled brown, with silt and ironstone sand nodules, fine grained (ironstained clay).	D		**COHES**
SPT at 4.7m N 8;30/100						D		
	11.07	6.00	CH		Sandy Silty CLAY (CH) hard, red brown, sand fine to medium grained angular.	W		**COHES**
SPT at 6.2m N 15;30/100	10.89	6.18	CL		*.... 6.13 ironstone gravel, fine to medium grained, red*			
					Sandy CLAY (CL) hard, grey, sand fine to coarse grained.			**COHES**
	9.57	7.50	CI CH		CLAY (CI-CH) hard, grey-brown, with silt.	D		
SPT at 7.8m N 11;22,32					.... 7.80m - 7.95m with sand, fine grained			**COHES**
	8.07	9.00	CH		Sandy CLAY (CH) very stiff, grey-brown, sand fine grained.	W		
SPT at 9.3m N 8;15,22								**COHES**

NOTES Hole Diameter 100mm to 15.14m depth. (Solid Flight Augering to 15m. Groundwater below 10.6m. Encountered seepage through gravels at 6.13m depth.)

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ARUP

BOREHOLE RECORD

BH230
HOLE

SHEET 2
OF 2

CLIENT	DMR	LOGGED BY	ACS
PROJECT	IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA	CHECKED BY	GWB
		DRILLED DATE	10-Aug-07
CONTRACTOR	Terratest	ANGLE	Vertical
DRILL MODEL	Edson 3000	BEARING	-
DRILLER	Brent Ormsby	HOLE DIAMETER	100mm ()
		GROUND LEVEL	RL 17.07m
		LOCATION	32010 E 150158 N
		ELEVATION DATUM	Australian Height Datum
		COORDINATE SYSTEM	Local Grid

DRILLING	STRATA				MATERIAL DESCRIPTION	CONDITION			OBSERVATION
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	WATER / MOISTURE	CONSISTENCY: COHESIVE (VS, S, F, ST, VST, H)	CONSISTENCY: NON COHESIVE (VL, L, MD, D, VD)	SOIL ORIGIN, STRUCTURE, ETC.
	m	m							
			CH		Sandy CLAY (CH) very stiff, grey-brown, sand fine grained. *(continued)*				**COHES**
SPT at 10.8m N 8;15,24	6.44	10.63	SP		SAND (SP) dense, fine to coarse grained sub-angular, light brown, grey-brown. *.... 10.90 with clay*	W			**NONCO**
SPT at 12.2m N 22;30/90	4.98	12.09	CL		Sandy CLAY (CL) hard, grey, sand medium to coarse grained sub-angular with traces of gravel fine grained.				**COHES**
SPT at 13.68m N 25;30/50	3.57	13.50	SP		SAND (SP) very dense, medium to coarse grained, dark grey, sub-angular with clay.				**NONCO**
SPT at 15.07m N 30/140s	2.07 1.93	15.00 15.14	GP		Quartz GRAVEL (GP) very dense, fine to medium grained, sub-angular to sub-rounded, (poorly cemented sands and gravels). *Borehole completed at 15.14m depth*				**SNDGRV**

NOTES Hole Diameter 100mm to 15.14m depth. (Solid Flight Augering to 15m. Groundwater below 10.6m. Encountered seepage through gravels at 6.13m depth.)

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