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REPORT OF BOREHOLE: BH411

SHEET: 1 OF 3

DRILL RIG: Fox B40

CONTRACTOR: Schneider Drilling Pty Ltd

LOGGED: BC DATE: 16/9/11

CHECKED: NK DATE: 27/9/11

CLIENT: McConnell Dowell Constructors (Aust) P/L COORDS: 85456.8 m E 60158.1 m N GCCC

PROJECT: Gold Coast Rapid Transit SURFACE RL: -5.4 m DATUM: AHD

LOCATION: Zone 4 INCLINATION: -90°

JOB NO: 117632047 HOLE DEPTH: 14.42 m

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		0	-5.35	SPT 1.00-1.45 m 3, 1, 1 N=2			GM	Sandy Silty GRAVEL fine to coarse grained, angular, brown, dark grey silt, trace shell fragments		L	W	
			0.90	-6.25				SM	SAND fine to coarse grained, angular, pale brown				
			1	-6.25									
			2		SPT 2.50-2.95 m 6, 9, 20 N=29						MD		
			3	-3.10									
				-8.45					fine to coarse, angular, dark brown, odourous				
				-3.50	SPT 4.45-4.90 m 14, 17, 11 N=28			CL- CI	Sandy CLAY medium plasticity, brown, trace fine to coarse angular gravel near top of layer (possibly first 300 mm)		M - W	F - St	
			4	-8.85									
				-4.30				SM	Clayey SAND pale brown, trace fine to coarse angular to sub-rounded quartz gravel		W	MD	
			5	-9.65			ML	Clayey SILT medium plasticity, pale brown to pale grey, silty clay in places		M	St - VSt		
				-5.20			CL	Silty CLAY low plasticity, grey to pale grey and pale green, from 6.0 with relict rock structure, fissured, randomly oriented with spacing >5 mm to 30 mm					
				-10.55									
				-5.50	SPT 5.95-6.40 m 17, 13, 17 N=30 PP =250 kPa								
			6	-10.85									
			7					For Continuation Refer to Sheet 2					
			8										
			9										
			10										

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH411

SHEET: 2 OF 3

DRILL RIG: Fox B40

CONTRACTOR: Schneider Drilling Pty Ltd

LOGGED: BC DATE: 16/9/11

CHECKED: NK DATE: 27/9/11

CLIENT: McConnell Dowell Constructors (Aust) P/L COORDS: 85456.8 m E 60158.1 m N GCCC

PROJECT: Gold Coast Rapid Transit SURFACE RL: -5.4 m DATUM: AHD

LOCATION: Zone 4 INCLINATION: -90°

JOB NO: 117632047 HOLE DEPTH: 14.42 m

Drilling					Field Material Description					Defect Information									
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)						
									EL 0.03 VL 0.11 L 0.1 M 0.3 H 1 VH 3 EH 10				10	30	100	300	1000	3000	
				0															
				1															
				2															
				3															
				4															
				5															
				6															
				6.65	-12.00		Continuation of Sheet 1												
NMLC		100	29 (63)	7			ARGILLITE fine grained, pale green to pale grey, with quartz veining	DW		6.70 m: J, 5°, Un, Ro, 5 mm, with grey clay infill 6.76-6.86 m: V, 0°, quartz 6.80 m: J, 70°, Un, Ro, Sn-Ct 6.86-6.92 m: HB 6.96 m: J, 70°, Un, Ro, Sn-Ct 7.18 m: J, 5°, Un, Ro, Sn-Ct 7.49 m: J, 45°, Un, Ro, Sn-Ct 7.50 m: J, 30°, Un, Ro, Sn-Ct 7.72 m: J, 0°, Un, Ro, Sn 8.00 m: J, 45°, Un, Ro, Sn 8.25 m: J, 45°, Un, Ro, Sn 8.30 m: J, 75°, Un, Ro, Sn, 1 mm, with clay infilling 8.42-8.49 m: FZ, 50°, quartz vein with fracturing 20-50 mm with pyrite nodules 8.54 m: J, 30°, Un, Ro, Vr, 1 mm, brown clay infilled 8.59 m: J, 25°, Pl, Ro, Vr, grey clay veneer 8.82 m: J, 35°, Un, Ro, Vr, grey clay veneer 8.88 m: J, 80°, Un, Ro, Vr, 2 mm, grey clay infilled 9.04 m: J, 85°, Un, Ro, Sn 9.07 m: J, 30°, Un, Ro, Sn 9.11 m: J, 10°, Un, Ro, Sn 9.15 m: J, 85°, Un, Ro, Sn 9.25 m: J, 5°, Un, Ro, Sn 9.33 m: J, 25°, Pl, Ro, Sn 9.45 m: J, 60°, Un, Ro, Cn									
		100	72 (80)																
				8															
		100	42 (53)	9															
				9.63	-14.98		ARGILLITE fine grained, dark grey with pale green to pale grey layers, bedding / layers 1-20 mm thickness												

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: BH411

SHEET: 3 OF 3

DRILL RIG: Fox B40

CONTRACTOR: Schneider Drilling Pty Ltd

LOGGED: BC DATE: 16/9/11

CHECKED: NK DATE: 27/9/11

CLIENT: McConnell Dowell Constructors (Aust) P/L COORDS: 85456.8 m E 60158.1 m N GCCC

PROJECT: Gold Coast Rapid Transit SURFACE RL: -5.4 m DATUM: AHD

LOCATION: Zone 4 INCLINATION: -90°

JOB NO: 117632047 HOLE DEPTH: 14.42 m

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
NMLC			100	42 (53)			ARGILLITE fine grained, dark grey with pale green to pale grey layers, bedding / layers 1-20 mm thickness	DW		9.63 m: C, 30°, Un, Ro, Ct 9.70 m: J, 75°, Un, Ro, Vr 9.76 m: J, 45°, Un, Ro, Ct 9.90 m: J, 85°, Un, Sm, Ct 9.95 m: J, 70°, Un, Ro, Sn 10.05 m: CZ, 20°, Pl, Sm, 3 mm, with sand sized and fine gravel sized fragments of angular rock 10.15 m: CZ, 20°, Pl, Ro, Vr, 5 mm, with sand sized and fine gravel sized fragments in clay matrix 10.27-10.37 m: CZ, fine to medium gravel sized and sand sized fragments of strong rock partially in a grey clay matrix 10.39 m: J, 20°, Pl, Sm, Cn 10.44 m: J, 20°, Pl, Ro, Vr, 2 mm, grey clay infilled 10.50 m: J, 75°, Un, Sm, Ct 10.60 m: J, 30°, Un, Sm, Cn, with pyrite speckles 10.68 m: J, Un, Ro, Cn 10.78 m: J, 45°, Un, Ro, Cn 10.86 m: J, 5°, Un, Ro, Cn 11.00 m: J, 0°, Un, Ro, Cn 11.10 m: J, 30°, Un, Ro, Ct 11.26 m: J, 30°, Un, Ro, Ct 11.40 m: V, 0°, 40 mm, quartz 11.47 m: J, 50°, Un, Ro, Cn 11.54 m: J, 5°, Un, Ro, Cn 11.56-11.70 m: J, 85°, Un, Ro, Ct 11.71 m: J, 5°, Un, Ro, Cn 11.75 m: J, 40°, Un, Ro, Cn 11.78 m: J, 40°, Un, Ro, Cn 11.87 m: DB 11.95 m: J, 45°, Un-St, Ro, Sn 12.05 m: J, 45°, Pl, Ro, Vr 12.12 m: J, 0°, Un, Ro, Cn 12.30 m: J, 45°, Un, Ro, Ct 12.48 m: DB 12.50 m: J, 55°, Un, Ro, Cn 12.73 m: J, 0°, Un, Ro, Cn 12.89 m: J, 20°, Un, Ro, Cn 12.95 m: J, 15°, Pl, Ro, Vr, 2 mm, grey clay infilled 12.98 m: J, 45°, Pl, Sm, Cn 13.14 m: J, 60°, Un, Ro, Cn 13.24 m: J, 20°, Pl, Sm, Cn 13.70 m: J, 25°, Un, Ro, Cn 13.85-13.94 m: J, 50°, Un, Sm, Cn, sp = 10-20 mm 14.00 m: J, 60°, Un, Sm 14.10 m: J, 55°, Un, Ro, Cn 14.25 m: J, 60°, Un, Ro, Sn, with pyrite speckles 14.35-14.39 m: HB				
			100	62 (81)				SW						
			99	48 (62)										
				14.42	-19.77		END OF BOREHOLE @ 14.42 m DRILLED OVER WATER							
				15										
				16										
				17										
				18										
				19										
				20										

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GAP gINT FN. F02a
RL3

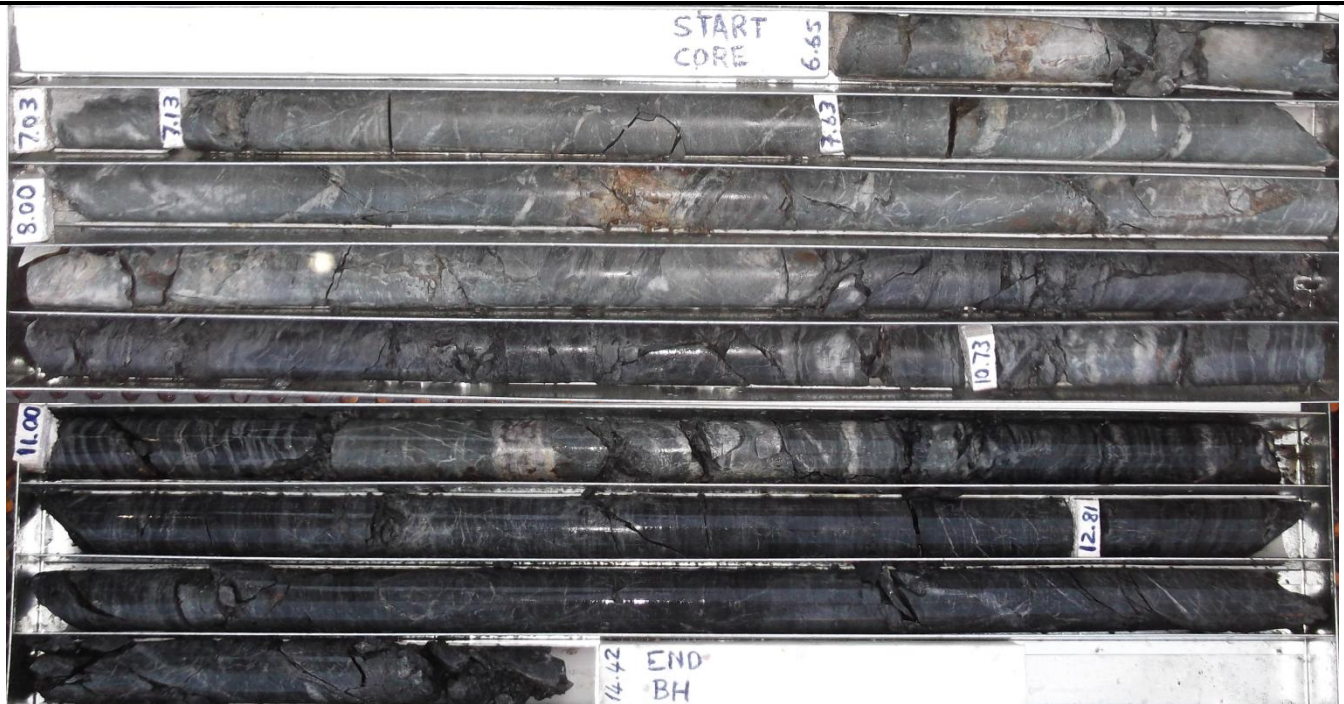


REPORT OF PHOTOGRAPHS: BH411

CLIENT: McConnell Dowell Constructors
PROJECT: Gold Coast Rapid Transit
LOCATION: Zone 4
JOB NO: 117632047

COORDS: 85456.8 m E 60158.1 m N
SURFACE RL: -5.35 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 14.42 m

DEPTH RANGE: 6.65 – 14.42 m
DRILL RIG: Fox B40
DRILLER: Schneider Drilling Pty Ltd
LOGGED: BC DATE: 16/9/11
CHECKED: NK DATE: 25/9/11



6.65 – 14.42 m