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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH62

SHEET 1 OF 3

Client:	QUEENSLAND MAIN ROADS	Date Commenced:	7/7/05
Project:	TUGUN BYPASS GEOTECHNICAL INVESTIGATION	Date Completed:	8/7/05
Borehole Location:	Cut; Chainage 2140 (MC11); on centreline;	Recorded By:	AO
Project Number:	2134070C	Log Checked By:	DAW

Drill Model/Mounting:	EAZE-CAT TRACKED RIG	Hole Angle:	90°	Surface RL:	37.3 m AHD
Borehole Diameter:	80 mm	Bearing:	---	Co-ords:	E 48217.2 N 89163.6 PMG

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 RL(m) AHD	4 DEPTH(m)	5 FIELD TEST	6 SAMPLE	7 GRAPHIC LOG	8 USC SYMBOL	9 SOIL/ROCK MATERIAL FIELD DESCRIPTION	10 MOISTURE	11 RELATIVE DENSITY / CONSISTENCY (VS S F St VSt H / L MD D VD)	12 HAND PENETROMETER (kPa)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
TC	C	NOT SEEN	37					CL	**Silty CLAY:** medium plasticity, red brown, some fine to coarse grained sand and gravel throughout.		St		RESIDUAL SOIL
			36	1.00 1	SPT 10,15,11 N=26	SPT			**GREYWACKE:** fine to medium grained, brown, highly weathered, very low to low strength. ...1.40-1.50m: Extremely weathered, extremely low strength argillite band, pale grey. mostly stained red-brown.				WEATHERED ROCK Slight foliations visible. LL=24% PI=6% WPI=210 Emerson No.=5 % passing 0.425mm=38% % passing 0.075mm=18%
			35	2									
WB	Nil			2.70	SPT 22.30 /60mm	SPT			**ARGILLITE:** grey, mostly stained orange-brown and red-brown, highly weathered, very low to low strength, trace of fine grained greywacke interbeds.				
			34	3									
			33	4	SPT 30 /100mm	SPT							Foliated, 80° planar defects. LL=34% PI=15% WPI=420 Emerson No.=5 % passing 0.425mm=28% %passing 0.075mm=18%
			32	5									
				5.50	SPT 30 /60mm	SPT			**GREYWACKE:** fine grained, grey-brown, some red-brown iron staining, moderately weathered, medium strength.				Highly fractured.
			31	6									
			30	7					REFER TO CORED BOREHOLE LOG				
			29	8									
			28	9									

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

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CORED BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH62

Client:	QUEENSLAND MAIN ROADS	Date Commenced:	7/7/05
Project:	TUGUN BYPASS GEOTECHNICAL INVESTIGATION	Date Completed:	8/7/05
Borehole Location:	Cut; Chainage 2140 (MC11); on centreline;	Recorded By:	AO
Project Number:	2134070C	Log Checked By:	DAW

Drill Model/Mounting:	EAZE-CAT TRACKED RIG	Hole Angle:	90°	Surface RL:	37.3 m AHD
Borehole Diameter:	80 mm	Bearing:	---	Co-ords:	E 48217.2 N 89163.6 PMG

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 CORE RECOVERY	5 RQD	6 RL(m) AHD	6 DEPTH(m)	7 GRAPHIC LOG	8 SOIL/ROCK MATERIAL FIELD DESCRIPTION	9 WEATHERING	10 INFERRED STRENGTH Is(50) MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH 10)	11 AVERAGE DEFECT SPACING mm (10, 30, 100, 300, 1000, 3000)	12 STRUCTURE AND ADDITIONAL OBSERVATIONS
					37							
						1						
					36							
						2						
					35							
						3						
					34							
						4						
					33							
						5						
					32							
						6						
					31							
								COMMENCE CORING AT 6.76 m				
NMLC	Nil		97	67	30	6.79 7		CORE LOSS GREYWACKE: fine to medium grained, pale grey, mostly stained orange-brown, ...6.79-7.24m: Silicified/quartz cemented band. ...7.24-7.34m: Argillite band. ...7.34-7.75m: fine grained greywacke band. ...7.75-8.22m: coarse grained greywacke band. ...fine to medium grained greywacke.	MW			6.82m: J, sub-horizontal, smooth, planar. 6.95m: 10° - 40° J, irregular, Fe-stained. 7.00m: J, sub-horizontal, undulating. 7.14m: 40° J, fairly planar, rough. 7.24-7.34m: broken zone. 7.24 to 7.40m: 80° J, undulating, smooth. 7.58m: 65° J, planar, rough, Fe-stained.
			100	31	29	8						7.89m: 70° J, planar, smooth, Fe-stained. 7.96m: J, sub-horizontal, planar, smooth, Fe-stained. 8.21m: J, sub-horizontal, irregular, rough, Fe-stained. 8.39m: 65° B, planar, smooth, Fe-stained. 8.48m: 50° - 60° B, undulating, Fe-stained.
			100	50	28	9						8.74m: J, sub-horizontal, irregular, rough, Fe-stained. 8.85m: 50°J, planar, smooth, Fe-stained. 8.97m: J, sub-horizontal, planar, Fe-st. 9.06-9.15m: 2x40° J's, planar, fairly smooth, Fe-stained.
			100	26								9.31m: 35° J, planar, smooth, Fe-stained. 9.38-9.45m: Broken zone. 9.52m: 40° J, planar, Fe-staining, smooth.

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

Parsons Brinckerhoff Australia Pty Ltd. Version 5.1 ENGINEERING CORED BOREHOLE LOG LOGS 250505.GPJ GEOTECH.GDT 15/8/05

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CORED BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH62

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Project:	TUGUN BYPASS GEOTECHNICAL INVESTIGATION	Date Completed:	8/7/05
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Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 CORE RECOVERY	5 RQD	6 RL(m) AHD	6 DEPTH(m)	7 GRAPHIC LOG	8 SOIL/ROCK MATERIAL FIELD DESCRIPTION	9 WEATHERING	10 INFERRED STRENGTH Is(50) MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	11 AVERAGE DEFECT SPACING mm (10, 30, 100, 300, 1000, 3000)	12 STRUCTURE AND ADDITIONAL OBSERVATIONS
NMLC			100	48	27			**GREYWACKE:** fine to medium grained, pale grey, mostly stained orange-brown, *(continued)*	MW			6.67m: 10° J, planar, smooth, Fe-stained. 10.00-10.15m: Extremely fractured zone, Fe-staining. 10.15-10.27m: Highly fractured zone, numerous 60°-70° planar defects. 10.43m: 20° J, planar, smooth, Fe-st. 10.43-10.83m: Numerous healed fractures, some with quartz infill. 10.83m: J, sub-horizontal, irregular, Fe-st. 11.00m: 40° J, planar, rough, Fe-stained. 11.23m: 35° J, planar, Fe-stained. 11.28m: 30° J, planar, Fe-stained. 11.45m: 20° J, irregular, Fe-stained. 11.58m: 65° - 90° B, undulating, Fe-st.
					26	11		...becoming medium to coarse grained.				
								...11.58-11.78m: Fine grained greywacke interbed. ...Argillite interbed.				11.78m: 70° B, planar.
					25	12		END OF BOREHOLE AT 11.86 m				
					24	13						
					23	14						
					22	15						
					21	16						
					20	17						
					19	18						
					18	19						

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Project: **Tugun Bypass Geotechnical Investigation**
Borehole: **BH62**
Start Depth: 6.76m
Finish Depth: 11.86m