Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No BH035
SHEET 1 of 3
REFERENCE No H10594

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 12 COORDINATES 484994.5 E; 7081137.6 N
PROJECT No FG5825 SURFACE R.L. 176.16m PLUNGE DATE STARTED 29/7/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 29/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	SAMPLE	RQD ( )% CORE REC %	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	176.16	**Clayey SILT (RESIDUAL)** Pale grey to brown with mottled red iron staining, moist, firm.	A			(Cl)					2,2,2 N=4	SPT
1	174.86	Increase in red iron staining @ 1.3m.										
		Silty CLAY Pale grey with mottled red iron staining, moist, very stiff.	B			(Cl)					7,9,8 N=17	SPT
2	173.66	Rock fabric visible throughout.										
		PHYLLITE (XW): Generally exhibits engineering properties of pale grey with mottled red iron staining, moist, hard silty Clay.	C								10,15,19 N=34	SPT
3		Quartz veins throughout.										
			D			XW					8,17,24 N=41	SPT
4		4.5m: Becoming generally clayey Silt, gravels are typically fine, angular quartz gravels, becoming coarse sandy Silt in parts.	E								8,11,22 N=33	SPT
5												
	170.41	5.5m: Grading into HW rock.	F			HW					22,30/60 N>50	SPT
		PHYLLITE (MW): Pale brown to slightly green, fine grained, thinly foliated.		(0) 100							Is(50) = 0.35MPa Is(50) = 0.49MPa	x o
6		Weakly foliated, typically dipping at 20°.		(0) 100							Is(50) = 0.84MPa Is(50) = 0.20MPa	x o
		Defects are generally medium to widely spaced.		(45)								
7		Prominent defect sets at 30, 45 and 70°.										
		Defect surfaces are typically iron stained or thinly clay infilled.									▽ 7/10/09	
8						MW						
		Detailed defect descriptions are shown on Form GEOT533/8 attached.		100 (88)								
9											Is(50) = 0.54MPa Is(50) = 0.44MPa	x o
				100 (62)							Is(50) = 0.29MPa Is(50) = 0.21MPa Is(50) = 0.34MPa	x o o
10		(See over)										

REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached.**

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BOREHOLE No BH035
SHEET 2 of 3
REFERENCE No H10594

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 12 COORDINATES 484994.5 E; 7081137.6 N
PROJECT No FG5825 SURFACE R.L. 176.16m PLUNGE DATE STARTED 29/7/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 29/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	RQD ( )% / CORE REC %	MATERIAL DESCRIPTION	USC	WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
10	166.16		**PHYLLITE (MW):** (Cont'd)			Is(50) = 0.34MPa		x
11						Is(50) = 0.48MPa Is(50) = 0.61MPa		x o
12		94 (0)			MW	Broken core Is(50) = 0.42MPa Is(50) = 0.51MPa		x o
13	163.26	100 (59)	**PHYLLITE (MW - SW):** Pale grey to slightly green, fine grained, thinly foliated. Foliations typically dip at 30-40°. Defects are gnerally medium to wide spacing.			Is(50) = 0.39MPa Is(50) = 0.56MPa		x o
14		100 (63)	Prominent defect set parallel to foliation with another set at 60°. Defect surfaces are typicaly iron stained or thinly clay infilled.					
15								
16					MW-SW	Is(50) = 0.65MPa Is(50) = 0.89MPa		o x
17		100 (59)	**Detailed defect descriptions are shown on Form GEOT533/8 attached.**					
18						Is(50) = 0.39MPa Is(50) = 0.43MPa		x o
19								
20						Is(50) = 1.15MPa Is(50) = 0.53MPa		o x

AUGER / CASING / ROCK ROLLER / CORE DRILLING

INTACT STRENGTH: EH VH H M L VL EL
DEFECT SPACING (mm): 20 60 200 600 2000

REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached.**

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QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG95012.GDW Datgel CPT Tool gINt Add-In 12/05/2010 10:30

Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No BH035
SHEET 3 of 3
REFERENCE No H10594

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 12 COORDINATES 484994.5 E; 7081137.6 N
PROJECT No FG5825 SURFACE R.L. 176.16m PLUNGE DATE STARTED 29/7/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 29/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / ROCK ROLLER / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
20	156.16		100 (61)		**PHYLLITE (MW - SW)** (Cont'd)							Is(50) = 0.27MPa		o
												Is(50) = 0.33MPa		x
21			100 (78)								Crushed / sheared zone, dipping @ 45°			
											Crushed / sheared zone, dipping @ 40°			
22								MW-SW				Is(50) = 0.59MPa		o
												Is(50) = 0.61MPa		x
23					**Detailed defect descriptions are shown on Form GEOT533/8 attached.**						Crushed / sheared zone, dipping @ 45°			
			100 (76)											
24												Is(50) = 0.10MPa		x
												Is(50) = 1.08MPa		o
25	151.16		80		Borehole terminated at 25m									
26														
27														
28														
29														
30														

REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached.**

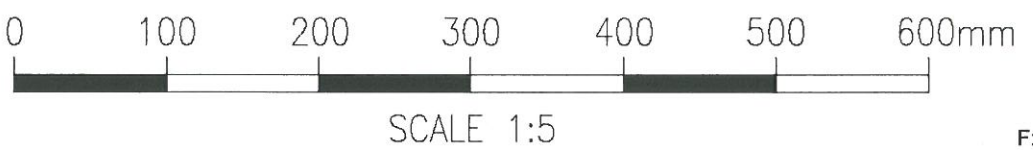
LOGGED BY JA

QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG95012.GDW Datgel CPT Tool gINt Add-In 12/05/2010 10:30

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**

Borehole No: **BH35**

Start Depth: 5.71m
Finish Depth: 25.00m
Project No: FG5825
H No: 10594



SCALE 1:5

F:GEOT043/1

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**

Borehole No: **BH35**

Start Depth: 5.71m
Finish Depth: 25.00m
Project No: FG5825
H No: 10594

0 100 200 300 400 500 600mm

SCALE 1:5

F:GEOT043/1

GEOTECHNICAL BRANCH LABORATORY
Materials Services - Brisbane
35 Butterfield Street, HERSTON Q 4006
Phone: (07) 3115 3035 Fax: (07) 3115 3011

Queensland Government
Department of Main Roads

DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO.:	BH35
SHEET:	1 of 3
REFERENCE NO.:	H10594

PROJECT: Bruce Highway (Cooroy – Curra) Section A Geotechnical Investigation

LOCATION: Cut 12

PROJECT NO.:	FG5825	**SURFACE R.L.:**	176.2	**DRILLER:**	R & D Drilling
JOB NO.:	128/10A/901	**DATUM:**	MGA94	**DATE DRILLED:**	29/7/09

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
5.77	J	20°	Pl	S	O	FeSt	
5.84	J	50°	Pl	S	O	FeSt	
5.93	J	10°	Pl	SR	O	FeSt	
6.00	J	45°	Pl		C	FeSt	
6.26	J	60°	Pl	S	O	FeSt	
6.35	J	60°	Pl	S	O	FeSt	
6.51	J	50°	Pl	S	O	FeSt	
6.60	J	50°	Pl	S	C	FeSt	
7.00	J	45°	Pl	S	O		Cl
7.08	J	30°	Pl	S	O	FeSt	
7.13	J	10°	Pl		C		Cl
7.26	J	50°	Pl	S	O	FeSt	
7.52	J	50°	Pl	S	O	FeSt	
7.73	J	50°	Pl	S	O	FeSt	
7.73	J	60°	Pl	SR	O		Cn
7.78	J	80-90°	Ir	R	O		Cn
8.16	J	30°	Pl	SR	O		Cn
8.21	J	45°	Pl	S	O	FeSt	

Abbreviations *(as per F: GEOT 017/5 – 2009)*

ROUGHNESS		WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J, Js	Joint, Joints	Cl	Clay Infill
Sr	Slightly Rough	W	Weathered	B	Bedding	CLy	Clayey
S	Smooth	Smn	Secondary Mineralisation	BP	Bedding Parting	Co	Coal Seam
SL	Slickensided	Cn	Clean	FP	Foliation Parting	Carb	Carbonaceous
PO	Polished	MnSt	Manganese Stained	LP	Lamination Parting	Sl	Sand Infill
PLANARITY		**APERTURE**		CLV	Cleavage	QZ	Quartz
Pl	Planar	C	Closed	Fr	Fracture	CA	Calcite
St	Stepped	O	Open	SZ	Sheared Zone	Chl	Chlorite
Un	Undulating	F	Filled	CZ	Crushed Zone	In	Incipient
Cu	Curved	T	Tight	BZ	Broken Zone	Int	Intersecting
Ir	Irregular			HFZ	Highly Fractured Zone	Lam (s)	Lamination (s)
				WS	Weathered Seam	Di	Drilling Induced
				Vn	Vein	H	Horizontal
						V	Vertical

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.

BOREHOLE NO.:	BH35
SHEET:	2 of 3
REFERENCE NO.:	H10594

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
8.75	J	45°	Pl	S	O	FeSt	
9.15	J	45°	Pl	S	O		Cl
9.46	J	45°	Pl	SR	O		Cn
9.48	J	50°	Pl	S	O		Cn
9.67	J	10°	St	S	O	FeSt	
10.07	J	50°	Pl	S	O	FeSt	
10.46	J	30°	Pl	R	O		Cn
10.50	J	45°	Pl		C		Cl
10.62	J	50°	Pl	S	O	FeSt	
10.62	J	50°	Pl	S	O	FeSt	
10.72	J	50°	Pl	S	O		Cl
10.90	J	45°	Pl	S	O		Cn
10.92	J	45°	Pl	S	O	FeSt	
11.07	J	60°	Pl		C		
11.09	J	30°	Pl	S	O	FeSt	
11.11	J	30°	Pl	S	O	FeSt	
11.14	J	30°	Pl	S	O	FeSt	
11.20	J	10°	Ir	R	C		
11.38	J	40°	Pl	S	O		Cn
11.50	J	60°	Pl		C		
11.67	J	50°	Pl	S	O		Cl
11.82	J	30°	Pl	S	O	FeSt	
11.83	J	30°	Pl	S	O	FeSt	
11.88	J	30°	Pl	S	O	FeSt	
11.90	J	60°	Pl	S	O	FeSt	
12.02	J	30°	Pl	S	O	FeSt	
12.03	J	80-90°	Cu	R	O	FeSt	
12.08	J	60°	Pl	S	O	FeSt	
12.42	J	30°	Pl	S	O	FeSt	
12.57	J	10°	Ir	R	O		Cn
12.61	J	20°	Pl	S	O		Cn
12.64	J	60°	Pl	S	O		Cn
12.66	J	30°	Pl	S	O		Cn
12.69	J	20°	Pl	S	O		Cn
12.72	J	20°	Pl	SR	O		Cn
12.76	J	60°	Ir		C		
13.03	J	30°	Pl	S	O		Cn
13.28	J	45°	Pl	SR	C		Cl
13.45	J	30°	Pl	S	O		Cn
13.56	J	30°	Pl	S	O		Cn
14.00	J	30°	Pl	S	O	FeSt	
14.07	J	20°	Pl	SR	O		Cn
14.14	J	30°	Cu	S	O		Cn
14.19	J	70°	Pl	S	C	FeSt	
14.27	J	30°	Pl	S	O		Cn
14.27	J	70°	Pl	SR	C		
14.40	J	20°	Pl	S	O		Cn
14.51	J	45°	Pl		C	FeSt	
14.54	J	20°	Pl	S	O		Cn
14.56	J	50°	Pl	SR	C		
14.67	J	10°	Pl	R	O		Cn
14.74	J	30°	Pl	SR	O		Cn
15.03	J	20°	Ir	R	C		
15.07	J	45°	Pl		C		Cl
15.17	J	40°	Pl	S	O		Cn
15.25	J	30°	Pl	S	O		Cn
15.36	J	30°	Pl	SR	O		Cn

BOREHOLE NO.:	BH35
SHEET:	3 of 3
REFERENCE NO.:	H10594

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
15.45	J	30°	Pl	R	O		Cn
15.56	J	20°	Ir	R	O	FeSt	
15.67	J	30°	Ir	R	O		Cn
15.82	J	30°	Pl	S	O		Cn
15.97	J	60°	Pl		C		
16.02	J	10°	St		C		
16.10	J	10°	Pl	S	O		Cn
16.10	J	30°	Pl	S	O		Cn
16.48	J	30°	Pl	S	O		Cn
16.48	J	60°	Pl	S	O		Cn
16.69	J	40°	St	S	O		Cn
16.72	J	60°	Pl	S	C		
17.11	J	30°	Pl	S	O		Cl
17.19	J	60°	Pl	S	O		Cn
17.20	J	80-90°	Ir		C		
17.31	J	45°	St	S	O		Cn
17.45	J	70°	Ir	SR	O	FeSt	
17.73	J	40°	Pl	SR	O		Cn
17.98	J	45°	Pl	S	O		Cn
18.00	J	45°	Pl	S	O	FeSt	
18.22	J	45°	Pl	SR	O		Cl
18.30	J	45°	Pl	S	O		Cn
18.31	J	45°	Pl	SR	O		Cn
18.54	J	60°	Pl		C		
18.55	J	30°	Ir	R	C		
18.63	J	30°	Pl	S	O		Cn
18.72	J	30°	Pl	S	O		Cn
18.84	J	10°	Ir	R	O		Cn
18.89	J	30°	Pl		C		
19.02	J	10°	Pl	R	O		Cn
19.28	J	40°	Pl	SR	O		Cl
19.64	J	40°	Pl	SR	O		Cn
19.82	J	50°	Pl	S	O		Cn
20.19	J	45°	Pl	SR	O		Cn
20.36	J	10°	Ir	R	O		Cn
20.47	J	50°	Pl	SR	O		Cn
20.65	J	10°	Ir	R	C		
20.71	J	20°	Pl	S	O		Cn
20.87	J	40°	Pl	S	O		Cn
20.90	J	40°	Pl	S	O		Cn
21.06	J	40°	Pl	S	O		Cn
21.14	J	30°	Pl	S	O		Cn
21.56	J	40°	Pl	S	O		Cn
21.97	J	50°	Pl	SR	O		Cn
21.24	J	60°	Pl	S	O	FeSt	
22.35	J	45°	Pl	S	O	FeSt	
22.68	J	40°	Pl	S	O		Cl
23.21	J	60°	Pl	S	O		Cn
23.24	J	10°	St	SR	O		Cn
23.43	J	30°	Pl	S	O		Cn
23.85	J	20°	Ir	S	O		Cn
23.92	J	20°	Pl	S	O		Cn
24.20	J	20°	Pl		C		
24.34	J	45°	Pl	S	O		Cl
24.57	J	20°	Ir	SR	O		Cn
24.75	J	40°	Pl	S	O		Cn