Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH059
SHEET 1 of 3
REFERENCE No H10623

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 23 COORDINATES 481753.0 E; 7080678.3 N
PROJECT No FG5825 SURFACE R.L. 122.34m PLUNGE ____ DATE STARTED 31/8/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING ____ DATE COMPLETED 31/8/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / 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
0	122.34				**Gravelly SILT (Topsoil)** Mottled brown, dry.		(MLG)					Driller's log only		
	121.84			A	**Clayey SILT (Residual)** Brown to grey, moist, stiff, low plasticity, occasional coarse sand and fine gravels.		(CI-ML)					5,6,8 N=14		SPT
1	121.14			B	**PHYLLITE (HW)** Generally exhibits the engineering properties of pale brown, moist, hard, clayey SILT of intermediate plasticity.		HW					30/80 N>50		SPT
2				C	Becoming wet @ 2.5m.							30/80 N>50		SPT
	119.34		(49)		**PHYLLITE (MW/SW)** Pale grey with dark grey interbeds, fine grained. Strongly foliated, dips at 45°-50°. Defects medium to wide spacing. Prominent defect sets typically dip parallel to foliation and at 10°, 40° and 60°. Defect surfaces generally clay infilled and iron stained.							Crushed zone Is(50) = 2.02MPa Is(50) = 1.17MPa		x o
3			100 (21)									Clay seam, 50°		
4					5.25m Foliations ~60°.							Is(50) = 0.87MPa Is(50) = 1.67MPa		o x
5			100 (55)		From 6.0m Foliations 55°-60°.		MW-SW					J, Un, Cl, 70°		
6												Sheared Zone		
7			100 (79)		**Detailed defect descriptions are shown on Form GEOT533/8 attached.**							Is(50) = 1.10MPa Is(50) = 3.00MPa		o x
8														
9			100 (44)									Is(50) = 1.37MPa Is(50) = 1.81MPa J, 80°, clay filled, 3mm, Pl, C		o x
10					(See over)									

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

LOGGED BY MW

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 10:31

Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH059
SHEET 2 of 3
REFERENCE No H10623

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 23 COORDINATES 481753.0 E; 7080678.3 N
PROJECT No FG5825 SURFACE R.L. 122.34m PLUNGE ____ DATE STARTED 31/8/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING ____ DATE COMPLETED 31/8/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / 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
10	112.34				**PHYLLITE (MW/SW)** (Cont'd)									
			100 (72)		10.5m Foliations, 65°.		MW-SW					Is(50) = 1.81MPa Is(50) = 1.30MPa		x o
11												J, Pl, 75°, S, Cl		
	110.41													
12			100 (39)		**ANDESITE (MW)** Brown-orange, fine to medium grained crystals in fine grained groundmass.		MW					Is(50) = 0.36MPa Is(50) = 0.40MPa		x o
	110.03				**PHYLLITE (MW/SW)** Pale grey with dark grey interbeds, fine grained.									
13					Strongly foliated, dips at 45°-50° and disturbed in places.							Is(50) = 2.52MPa Is(50) = 0.92MPa		o x
			100 (70)		Defects medium to wide spacing. Prominent defect sets typically dip parallel to foliation and at 10°, 40° and 60°. Defect surfaces generally clay infilled and iron stained. 12.83m Foliations, 50-60°.									
14														
15			100 (72)		From 15.15m Foliations, 65-70°.							Is(50) = 1.15MPa Is(50) = 0.22MPa		x o
												J, 70°, C		
16							MW-SW							
			100 (52)											
17												Crushed zone		
												Is(50) = 0.52MPa Is(50) = 2.13MPa		o x
18			100 (70)		**Detailed defect descriptions are shown on Form GEOT533/8 attached.**									
19														
			100 (58)									Is(50) = 1.24MPa Is(50) = 0.61MPa		x o
20					(See over)									

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

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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH059
SHEET 3 of 3
REFERENCE No H10623

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 23 COORDINATES 481753.0 E; 7080678.3 N
PROJECT No FG5825 SURFACE R.L. 122.34m PLUNGE DATE STARTED 31/8/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 31/8/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / 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	102.34				**PHYLLITE (MW)** (Cont')							Jt, 80-85°, Pl, Cl, R, W		
21							MW-SW					Is(50) = 1.10MPa Is(50) = 1.08MPa		o x
					Detailed defect descriptions are shown on Form GEOT533/8 attached.							Is(50) = 2.13MPa Is(50) = 1.68MPa		x o
22	99.84		100									Broken zone		
					Borehole terminated at 22.5m									
23														
24														
25														
26														
27														
28														
29														
30														

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

LOGGED BY MW

QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG995012.GDW Datgel CPT Tool gINt Add-In 12/05/2010 10:31

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

Borehole No: **BH 59**

Start Depth: 3.00m
Finish Depth: 22.50m
Project No: FG5825
H No: 10623

0 100 200 300 400 500 600mm

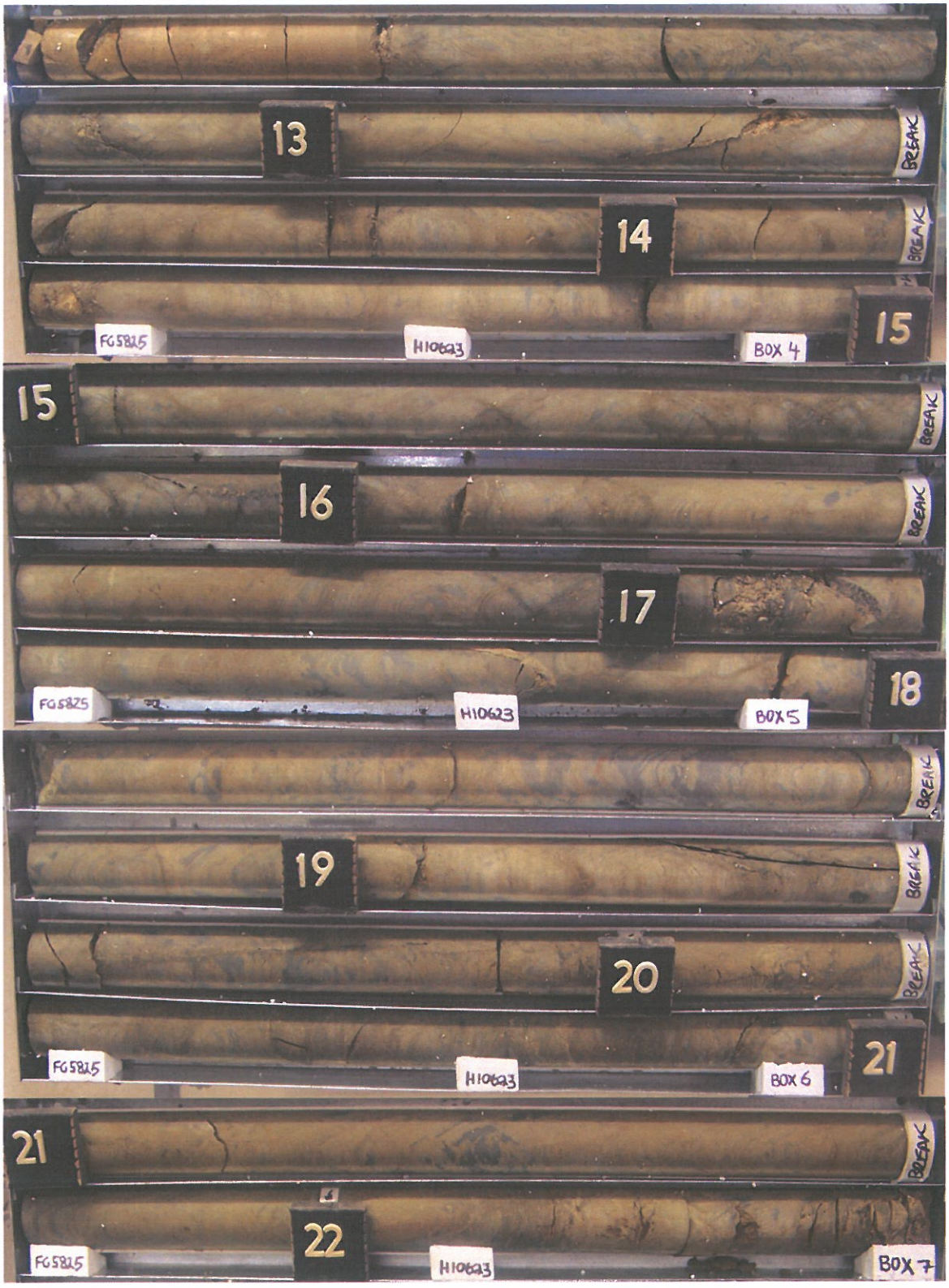
SCALE 1:5

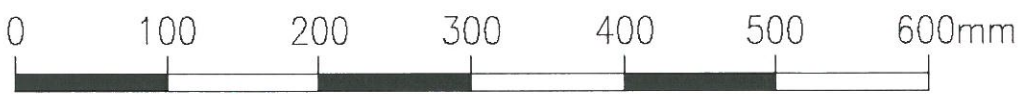
F:GEOT043/1

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

Borehole No: **BH 59**

Start Depth: 3.00m
Finish Depth: 22.50m
Project No: FG5825
H No: 10623





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

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Department of Main Roads

DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

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

BOREHOLE NO.:	BH59
SHEET:	1 of 2
REFERENCE NO.:	H10623

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

LOCATION: Cut 23

PROJECT NO.: FG5825 **SURFACE R.L.:** 122.30 **DRILLER:** R & D Drilling

JOB NO.: 128/10A/901 **DATUM:** AHD **DATE DRILLED:** 31/08/09

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
3.06	J	35°	St	R	O		
3.18-3.29	CZ/DI?	50°		S	O		Clay Veneer
3.67	FP	60°	Pl	SR	C	FeSt	
3.80	J	45°	Pl		C		
3.84	J	55°	Pl		C		
4.02	Clay Seam	30°	Un		C		
4.52	J	75°	Un-St	S	C		Cn
4.56	J	25°	Un	SR	C		Clay Veneer
4.58	J	60°	Un	S	C		Clay Veneer
4.65	J	30°	Un	R	C	W	
4.68	J	20°	Pl	S	C		Cl, In
4.71	J	25°	Pl	S	C		
5.04	J	40°	Pl	S	C		Cn
5.30	J	60	Un-St	SR	C	FeSt	
5.50	J	70°	Un	SR	C	FeSt	
5.80	J	65°	Un	R	C	FeSt, MnSt	
6.38-6.92	SZ	65°	Pl		C		Clay w/ crushed rock and gravel
8.45	J	65°	Pl	SR	C	FeSt	Clay veneer. Crushed rock infill

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.:	BH59
SHEET:	2 of 2
REFERENCE NO.:	H10623

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
8.52	J	40°	Pl		C	W	Rehealed
8.61	J	35°	Un	S	C	W	
9.22-9.50	J	80°	Pl	S	C		Cl, 3 mm
10.06	J	55°	Pl	SR	C	FeSt, W	
10.36	J	80°	Ir	R	C	FeSt, MnSt	
10.67	DI	60°	Un	S	C	FeSt, MnSt	
10.72	J	0°			C		Rehealed
11.13	J	50°	Pl	S	C	Cn	
11.66	J	75°	Pl	SR		W, FeSt, MnSt	
11.93	BP	10°	Pl	SR	C		
12.10	J	35°	Pl	S	C	W, FeSt, MnSt	
12.20	J	10°	Pl	S	C	W, FeSt, MnSt	
12.23	J	10°	Pl	S	C	W, FeSt, MnSt	
12.31	BP	15°	Pl	SR	C		5mm Crushed rock infill
12.27	J	70°	Un	S	C	FeSt	
12.54	J	25°	Pl	S	C	W	
12.83	J	45°	Ir	R	C	W	
13.54	J	60°	Un	S	O		Clay Veneer
13.76	J	5°	Pl	SR	C		
13.79	J	10°	Un	SR	O		
14.12	J	30°	Un	SR	C	FeSt	
14.32	J	65°	Pl	SR	C	FeSt, MnSt	
14.36	J	70°	Pl		C		1 mm crushed rock infill
14.77	J	25°	Pl	SR	O		Crushed rock <10mm
15.75-15.94	J	70°	Un-St	R	C	FeSt, W	
16.12	J	25°	Un	R	C	W	
17.07-17.14	CZ	70°			C		
17.62	J	80°	Pl	S	C		Crushed Rock/ clay infill
18.36	J	40°	Pl	R	C	W, FeSt	
18.69	J	35°	Pl	SR	C	FeSt ,W	
19.09	J	35°	St	R	C	Cn	
19.45	J	80°	Pl	R	C	W	
19.91	J	0°	St	R	O		Cn
20.58	J	35°	Un	R	C	FeSt	
20.64	J	50°	Un	R	C	FeSt	
20.96	J	45°	Un	R	C	W	
22.30-22.72	J	80°	Pl	S	C	FeSt, W	
22.30	J	80°	Pl	S	C	FeSt, W	
22.43	J	40°	St	SR	C	FeSt	