Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH026
SHEET 1 of 2
REFERENCE No H10576

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 11 COORDINATES 485953.1 E; 7080881.9 N
PROJECT No FG5825 SURFACE R.L. 167.79m PLUNGE ____ DATE STARTED 13/7/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING ____ DATE COMPLETED 13/7/09 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	167.79				**Clayey SILT** Pale grey with minor mottled red iron staining, moist, hard.									
				A	Organics throughout.		(CI-ML)					2,23,14 N=37		SPT
1	166.29			B	**SILTSTONE (XW):** Generally exhibits engineering properties of pale grey to mottled red, moist, hard clayey silt.		XW					8,14,21 N=35		SPT
2	165.79		(42)		**SILTSTONE (HW):** Grey with red mottling, fine grained.		HW					Is(50) = 0.07MPa Is(50) = 0.05MPa		o x
	165.26				**SILTSTONE (MW):** Pale grey with mottled red and orange, fine grained, medium bedded.									
3					Defects generally dip at <10° and are open.							Is(50) = 0.07MPa Is(50) = 0.14MPa		x o
			100 (53)		Defect surfaces are typically planar, smooth, iron stained. 3.41 - 3.75m: Pale brown, medium grained, thinly bedded, HW Sandstone.							Is(50) = 0.04MPa Is(50) = 0.04MPa		x o
4														
5			100 (0)									Is(50) = 0.11MPa Is(50) = 0.10MPa		x o
6							MW							
			100 (48)									Is(50) = 0.12MPa Is(50) = 0.17MPa		x o
7														
												Is(50) = 0.21MPa Is(50) = 0.19MPa		x o
8														
												Is(50) = 0.15MPa Is(50) = 0.15MPa		x o
9					**Detailed defect descriptions are shown on Form GEOT533/8 attached.**									
			100 (61)									Is(50) = 0.19MPa Is(50) = 0.19MPa		x o
10					(See over)							Is(50) = 0.16MPa		x

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

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

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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH026
SHEET 2 of 2
REFERENCE No H10576

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 11 COORDINATES 485953.1 E; 7080881.9 N
PROJECT No FG5825 SURFACE R.L. 167.79m PLUNGE DATE STARTED 13/7/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 13/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
10	157.79	**SILTSTONE (MW):** (Cont'd)			Is(50) = 0.17MPa		o
					UCS=1237kPa Is(50) = 0.21MPa		x
					Is(50) = 0.18MPa		UCS
					Is(50) = 0.19MPa		x
					Is(50) = 0.24MPa		o
11					Is(50) = 0.28MPa		x
					UCS=1558kPa Is(50) = 0.27MPa		UCS
					Is(50) = 0.34MPa		x
		Detailed defect descriptions are shown on Form GEOT533/8 attached.	MW		Is(50) = 0.30MPa		o
12					Is(50) = 0.23MPa		x
					UCS=1594kPa Is(50) = 0.26MPa		UCS
		100 (75)			Is(50) = 0.34MPa		x
					Is(50) = 0.31MPa		o
13					Is(50) = 0.23MPa		x
					Is(50) = 0.29MPa		o
	154.49	**SILTSTONE (SW):** Dark grey to grey, fine grained. Carbonaceous seams ~1mm throughout. Foliations generally dip at 10°. Defects close to medium spacing. Prominent defect sets dip along bedding.	SW		Is(50) = 0.36MPa		x
14					Sandstone interbed Is(50) = 0.38MPa		o
	153.25				Is(50) = 0.26MPa		x
					Is(50) = 0.25MPa		o
15		**SANDSTONE (MW):** Pale brown, fine to medium grained, thinly bedded.	MW		Is(50) = 0.32MPa		x
	152.44	96			Is(50) = 0.14MPa		o
		Defects typically shallow dipping and fresh. Borehole terminated at 15.35m					
16							
17							
18							
19							
20							

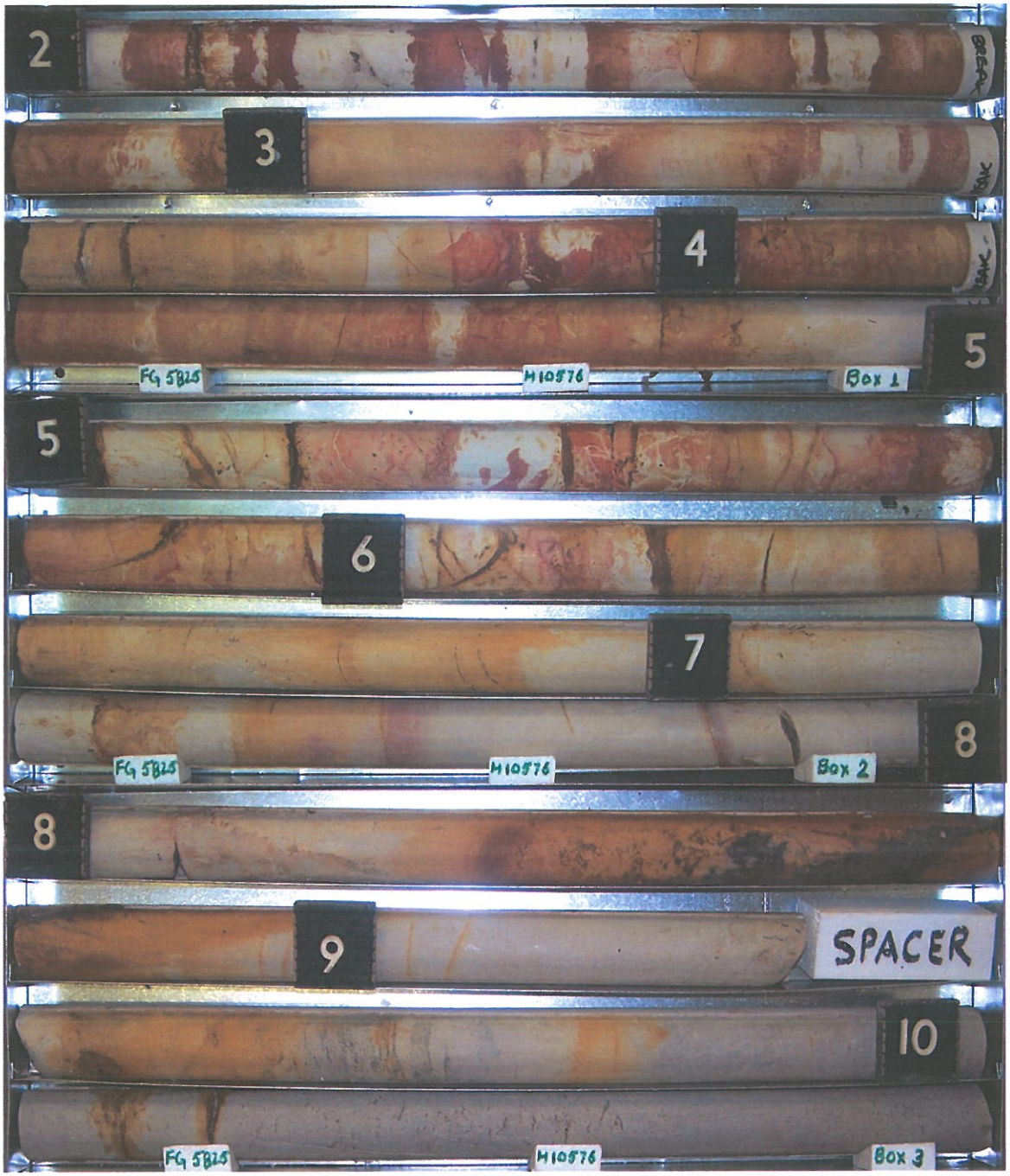
REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached.** Standpipe piezometer installed.

LOGGED BY JA

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

Borehole No: **BH26**

Start Depth: 2.00m
Finish Depth: 15.35m
Project No: FG5825
H No: 10576



0 100 200 300 400 500 600mm

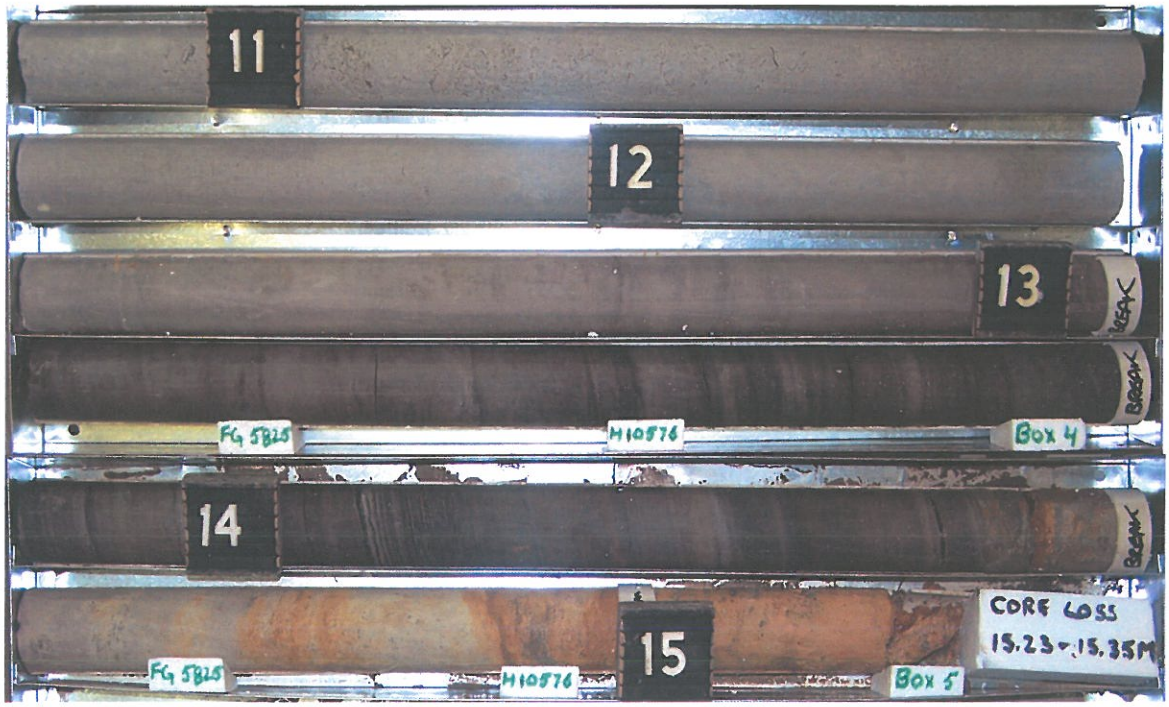
SCALE 1:5

F:GEOT043/1

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

Borehole No: **BH26**

Start Depth: 2.00m
Finish Depth: 15.35m
Project No: FG5825
H No: 10576



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.:	BH26
SHEET:	1 of 3
REFERENCE NO.:	H10576

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

LOCATION: Cut 11

PROJECT NO.:	FG5825	**SURFACE R.L.:**	167.79	**DRILLER:**	R&D Drilling Pty Ltd
JOB NO.:	128/10A/901	**DATUM:**	MGA94	**DATE DRILLED:**	13/07/09

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
2.13	J	10°	Pl	Sr	O	FeSt	
2.36	J	10°	Pl	S	O	Cn	
2.44	J	10°	Pl	S	O	FeSt	
2.45	J	10°	Pl	R	O	FeSt	
2.53	J	70°	Pl	S	O	FeSt	
2.68	J	10°	Ir	R	O	FeSt	
2.81	J	10°	Pl	R	O	FeSt	
2.94	J	10°	Pl	S	O	FeSt	
2.94	J	80-90°	Pl	Sr	O	FeSt	60mm long
3.16	J	80-90°	Pl	Sr	O	FeSt	40mm long
3.20	J	20°	Pl	S	O	FeSt	
3.23	J	10°	Pl	Sr	O	FeSt	
3.56	J	10°	Pl	Sr	O	Cn	
3.59	J	10°	Pl	Sr	O	Cn	
3.68	J	10°	Pl	S	O	FeSt	
3.78	J	10°	Pl	S	O	FeSt	
3.84	J	10°	Pl	S	O	FeSt	
4.29	J	10°	Pl	S	O	Cn	

Abbreviations

ROUGHNESS		WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J, Js	Joint, Joints	Cln	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.:	BH26
SHEET:	2 of 3
REFERENCE NO.:	H10576

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
4.42	J	20°	Pl	S	O	Cn	
4.51	J	10°	Pl	S	O	FeSt	
5.05	J	20°	Pl	St	O	FeSt	
5.12	J	30°	Pl		C	FeSt	
5.15	J	40°	Pl	S	O	FeSt	
5.19	J	10°	Pl	S	O	FeSt	
5.22	J	10°	Pl	S	O	FeSt	
5.31	J	10°	Ir	R	O	FeSt	
5.34	J	10°	Pl	S	O	FeSt	
5.43	J	10°	Pl	S	O	FeSt	
5.46	J	10°	Pl	S	O	FeSt	
5.48	J	10°	Pl		C	FeSt	
5.75	J	10°	Pl	S	O	FeSt	
5.82	J	60°	Pl		C	FeSt	
5.97	J	20°	Pl		C	FeSt	
6.11	J	45°	Pl		C	FeSt	
6.31	J	20°	Pl	S	O	FeSt	
6.40	J	40°	Pl	S	O	Cn	
6.45	J	10°	Pl		C	FeSt	
6.6	J	60°	Pl	S	O	Cn	
6.75	J	10°	Pl	S	O		
7.05	J	50°	Pl		C	FeSt	
7.25	J	85°	Pl	S	O	Cn	
7.31	J	10°	Pl	S	O	FeSt	
7.33	J	10°	Pl	Sr	O	FeSt	
7.48	J	10°	Pl	S	O	FeSt	
7.78	J	25°	Pl	S	O	FeSt	
7.84	J	25°	Pl	S	O	FeSt	
7.98	J	20°	Pl	S	O	FeSt	
8.04	J	10°	Pl	S	O	FeSt	
8.13	J	10°	Pl	S	O	FeSt	
8.34	J	30°	Pl	S	O	FeSt	
8.70	J	60°	Pl	S	O	Cn	
8.94	J	10°	Pl	S	O	FeSt	
8.99	J	10°	Pl	S	O	FeSt	
9.05	J	10°	Pl	S	C	FeSt	
9.18	J	10°	Pl	S	O	MnSt	
9.27	J	20°	Pl	S	O	MnSt	
9.38	J	30°	Ir	S	O	MnSt	
9.42	J	10°	Pl	S	O	MnSt	
9.61	J	20°	Un		C		
10.02	J	10°	Pl	S	O	FeSt	
10.22	J	10°	Pl	S	O	FeSt	
10.29	J	10°	Pl	S	O	FeSt	
11.12	J	80°	Ir	Sr	O	Cln	100 mm long
13.26	J	10°	Pl	S	O	Cn	
13.32	J	10°	Pl	S	O	Cn	
13.34	J	10°	Pl	S	O	Cn	
13.55	J	15°	Pl	S	O	Cn	
13.61	J	15°	Pl	S	O	Cn	
13.65	J	10°	Pl	S	O	Cn	
13.96	J	10°	Pl	R	O	Cn	
14.07	J	20°	Pl	S	O	Cn	
14.17	J	20°	Pl	S	O	Cn	
14.24	J	10°	Pl	Sr	O	Cn	
14.34	J	15°	Pl	S	O	Cn	

BOREHOLE NO.:	BH26
SHEET:	3 of 3
REFERENCE NO.:	H10576

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
14.51	J	10°	Pl	Sr	O	FeSt	
14.90	J	20°	Pl	Sr	O	Cn	
14.94	J	10°	Pl	R	O	FeSt	
15.18-15.22	BZ						WS