FINAL 02/11/2017

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **BH18**

Sheet 1 of 4

REFERENCE No **H12912**

PROJECT Boyne River Bridge Repalcement

LOCATION Abutment B, RHS

COORDINATES 323388.7 E; 7159815.2 N

PROJECT No FG6482 | SURFACE RL 126.98m | PLUNGE 90° | DATE STARTED 05/07/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 06/07/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0					Silty CLAY trace Sand (Alluvium) Dark brown, moist, stiff. Low to medium plasticity. Fine grained sand.						
1				A						6, 5, 6 N=11	SPT
2				B	2.00m: Becoming very stiff and medium plasticity.		(CI)			6, 8, 8 N=16	SPT
3				C						8, 11, 11 N=22	SPT
4				D	4.00m: Becoming hard.					11, 15, 16 N=31	SPT
5	121.98			E	Silty SAND (Alluvium) Dark brown, moist, medium dense. Fine grained sand.		(SM)			10, 12, 13 N=25	SPT
6	120.98			F	Sandy SILT (Alluvium) Dark brown, moist, very stiff. Medium plasticity. Fine grained sand.		(ML)			12, 14, 14 N=28	SPT
7	119.98			G	Silty SAND (Alluvium) Brown, moist, medium dense. Fine grained sand.		(SM)			10, 14, 13 N=27	SPT
8				H	8.00m: Becoming dense.					9, 14, 16 N=30	SPT
9				I						10, 14, 17 N=31	SPT
	116.98										

Continued on next sheet

REMARKS: Je1 - Evergreen Formation.

LOGGED BY	REVIEWED BY
S. Louei	S. Foley

Queensland Government

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BOREHOLE No **BH18**

Sheet 2 of 4

REFERENCE No **H12912**

PROJECT Boyne River Bridge Repalcement

LOCATION Abutment B, RHS

COORDINATES 323388.7 E; 7159815.2 N

PROJECT No FG6482 | SURFACE RL 126.98m | PLUNGE 90° | DATE STARTED 05/07/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 06/07/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS / WEATHERING	INTACT STRENGTH (EH VH H M I VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES / TESTS
				J	Silty SAND (Alluvium) Cont'd.		(SM)			12, 14, 16 N=30	SPT
	116.48				Silty CLAY (Alluvium) Brown to pale brown, moist, hard. Low plasticity.		(CL)				
11	115.78			K	Silty SAND (Alluvium) Brown, moist, dense. Fine to medium grained sand.					10, 15, 30 N=45	SPT
12				L	12.00m: Becoming Silty SAND With Gravel. Medium to coarse grained sand, fine grained gravel, very dense.					14, 25, 30/145mm	SPT
13				M	13.00m: Becoming Silty SAND trace Gravel.		(SM)			30/135mm hb	SPT
14				N						15, 19, 28 N=47	SPT
15	111.98			O	Silty CLAY trace Sand (Residual) Pale brown, moist, hard. Low plasticity.		(CL)			30/130mm hb	SPT
	111.58		(97)		Fine grained sand. SANDSTONE (Je1) XW: Brown pale grey mottled orange red, fine grained, indistinctly bedded, mainly very low to low strength. Recovered as Sandy CLAY in parts.		XW	VL-L	W C M	Is(50)=0.14 MPa Is(50)=0.09 MPa	A (15.72m) D (15.75m)
16										Is(50)=0.19 MPa Is(50)=0.14 MPa	D (16.60m) A (16.63m)
17								L	M W	UCS=4.45 MPa	(17.16m)
										Is(50)=0.21 MPa Is(50)=0.20 MPa	D (17.50m) A (17.56m)
18			100						M		
			(69)					VL-L	W	Is(50)=0.26 MPa Is(50)=0.15 MPa	D (18.34m) A (18.40m)
19										Is(50)=0.20 MPa Is(50)=0.20 MPa	D (18.84m) A (18.85m)
								VL	W		
	107.18		100								
	106.98		(16)		SILTSTONE (Je1)		MW		M	Is(50)=0.79 MPa Is(50)=1.70 MPa	D (19.84m) A (19.92m)

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REMARKS: Je1 - Evergreen Formation.

LOGGED BY	REVIEWED BY
S. Louei	S. Foley

Queensland Government

GEOTECHNICAL BOREHOLE LOG

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BOREHOLE No **BH18**

Sheet 3 of 4

REFERENCE No **H12912**

PROJECT Boyne River Bridge Repalcement

LOCATION Abutment B, RHS

COORDINATES 323388.7 E; 7159815.2 N

PROJECT No FG6482 | SURFACE RL 126.98m | PLUNGE 90° | DATE STARTED 05/07/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 06/07/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
21					SILTSTONE (Je1) MW: Cont'd. Pale grey mottled orange brown and red, fine grained, laminated to thinly bedded, low to medium strength. - LP/BP: 30° to 40° (2-3/m); Pl/Sm; Tl; Fe St; Cly Vr - Js: 60° to 70° (1-2/m); Pl/Sm; Tl-CD; Cly Vr Fine grained SANDSTONE interbeds <200mm		MW HW MW HW MW	M, MH, LM, M, LM, M, C, C, M, L, M	W, M, C, C, M	Is(50)=1.20 MPa Is(50)=0.54 MPa Is(50)=0.10 MPa Is(50)=0.42 MPa Is(50)=0.21 MPa 21.73m-21.75m: BZ Is(50)=0.29 MPa 22.07m-22.11m: BZ Is(50)=0.40 MPa Is(50)=0.19 MPa 22.42m-22.45m: BZ	D (20.38m) A (20.40m) D (20.82m) A (20.92m) D (21.50m) A (21.76m) A (22.00m) D (22.05m)
22	104.56										
23			100 (10)		SANDSTONE (Je1) HW: Yellow brown and pale grey, fine grained, thinly bedded, very low to low strength. With SILTSTONE interbeds <100mm. - LP/BP: 20° to 40° (3-4/m); Pl/Sm; Tl; Fe St; Cly Vr or Ct <2mm - Js: 20° to 30° (1-2/m); Pl/Sm; Tl; Fe St; Cly Vr - Js: 70° to 90° (1-2/m); Un/Ro-Sm; Tl; Fe St; Cly Vr		HW	EL-VL, VC, VL-L, VC, L, LM, VL-L	EC, VC, C	Is(50)=0.22 MPa Is(50)=0.20 MPa	D (23.55m) A (23.59m)
24							MW			Is(50)=0.10 MPa Is(50)=0.06 MPa	A (23.95m) D (24.05m)
25								LM, VL, L	VC, C	Is(50)=0.32 MPa Is(50)=0.47 MPa	D (24.79m) A (24.87m)
26			100 (49)				HW	VC, L, L	C, C	25.26m-25.30m: BZ, DI 25.45m-25.49m: BZ 25.68m-25.73m: BZ 25.80m-25.90m: BZ, XW 25.90m-26.35m: HFZ Is(50)=0.11 MPa Is(50)=0.17 MPa	D (25.56m) A (25.60m)
	100.63		100								
27			(37)		SILTSTONE (Je1) MW: Pale grey, fine grained, thinly bedded, low to medium strength. - LP/BP: 10° to 20° (2/m); Pl/Sm; Tl; Cly Vr - Js: 50° to 70° (3/m); Un/Sm; Tl; Cly Vr - Js: 80° to 90° (1/m); Pl/Ro-Sm; Tl; Fe St		MW HW HW	L, VC, M, C, L, VC, VL	C, M, C, VC	Is(50)=0.53 MPa Is(50)=0.82 MPa 27.30m-27.41m: HW	D (26.67m) A (26.95m)
28	99.57										
			100		SANDSTONE (Je1) HW: Pale grey and pale brown, fine grained, thinly to medium bedded, very low to low strength. - BP: 5° to 20° (3-4/m); Pl/Ro-Sm; Tl-OP; Cly Vr - Js: 40° to 60° (2-3/m); Pl/Ro; Tl; Cly Vr - Js: 60° to 80° (1/m); Un/Ro; Tl; Cly Vr		XW	VL, C, L, M, C, VL, VC, VL-L, VL, L, VL	C, M, C, C, M, C, VC	Is(50)=0.22 MPa UCS=2.14 MPa Is(50)=0.18 MPa Is(50)=0.09 MPa Is(50)=0.07 MPa Is(50)=0.16 MPa Is(50)=0.12 MPa 29.71m-29.80m: BZ	D (27.64m) (27.81m) A (27.92m) D (28.80m) A (28.83m) A (29.15m) D (29.19m)
29			(33)				HW				
	96.98										

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REMARKS: Je1 - Evergreen Formation.

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BOREHOLE No **BH18**

Sheet 4 of 4

REFERENCE No **H12912**

PROJECT Boyne River Bridge Repalcement

LOCATION Abutment B, RHS

COORDINATES 323388.7 E; 7159815.2 N

PROJECT No FG6482 | SURFACE RL 126.98m | PLUNGE 90° | DATE STARTED 05/07/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 06/07/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	AUGER	CASING	WASH BORING	CORE DRILLING	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
31						100 (39)		SANDSTONE (Je1) HW: Cont'd.		HW	LM	C	Is(50)=0.05 MPa Is(50)=0.06 MPa	A (30.05m) D (30.14m)
										MW	LM	M	Is(50)=0.99 MPa Is(50)=0.92 MPa	A (30.53m) D (30.59m)
											LM	VC	31.30m-31.40m: BZ, DI	
32										HW	L LM L	C VC VC	Is(50)=0.29 MPa Is(50)=0.08 MPa	A (31.72m) D (31.85m)
33	93.95										L	C		
	93.58					100		SILTSTONE (Je1) MW: Pale grey, fine grained, laminated, mainly medium strength. - LP/BP: 20° (<4/m); Pl-Un/Sm; Tl; Cly Vr or Cn - Js: 70° (<1/m); Un/Ro; Tl; Cn Borehole completed at 33.40m		MW	MH	VC	Is(50)=1.10 MPa Is(50)=0.31 MPa	A (33.05m) D (33.23m)
34														
35														
36														
37														
38														
39														

REMARKS: Je1 - Evergreen Formation.

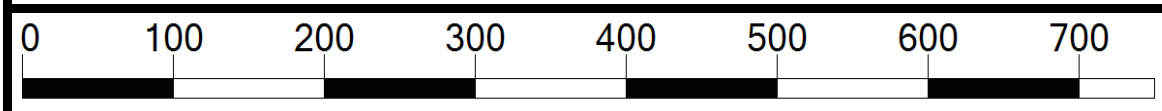
LOGGED BY	REVIEWED BY
S. Louei	S. Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

Project Name	**Boyne River Bridge Replacement**		
Project No.	FG6482	Date	07/07/2017
Borehole No.	BH18	Reference No.	H12912
Location	Abutment B, RHS	Start Depth (m)	15.40
Submitted By	S. Louei	Finish Depth (m)	33.40
Remarks			

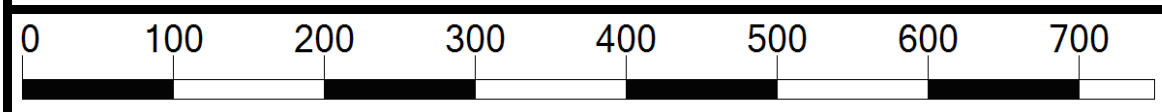


SCALE (mm)

CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

Project Name	**Boyne River Bridge Replacement**		
Project No.	FG6482	Date	07/07/2017
Borehole No.	BH18	Reference No.	H12912
Location	Abutment B, RHS	Start Depth (m)	15.40
Submitted By	S. Louei	Finish Depth (m)	33.40
Remarks			



SCALE (mm)