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**Queensland
Government**

Department of
Main Roads

ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND
SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No **BHP15**

SHEET **1** of **4**

REFERENCE No **H9900**

PROJECT **HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT**

LOCATION **23.5m RT, 1.5m STH FROM EASTN PILE OF PIER 15 OF EXIST BRIDGE** COORDINATES **39048.6 E; 52301.9 N**

PROJECT No **FG5423** SURFACE R.L. **-0.72** PLUNGE _____ DATE STARTED **26/04/06** GRID DATUM **PROJECT DATUM**

JOB No **165/122/35** HEIGHT DATUM **AHD** BEARING _____ DATE COMPLETED **27/04/06** DRILLER **CAIRNS DRILLING**

DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH		DEFECT SPACING (mm)		GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS		
									CU	UC	0-100	100-2000					
0	-0.72					ESTUARINE SAND & SHELL Pale grey to grey brown, wet, mainly very loose to loose. Slightly organic, medium to coarse grained sand, partly decomposed shell fragments throughout.											
1					A		(SP-SM)							pH _F = 7.92 pH _{Fox} = 6.45	2,2,2 N=4	SPT	
2					B									pH _F = 7.86 pH _{Fox} = 6.50	2,1,2 N=3	SPT	
3					C											U50	
4	-4.12				D	ESTUARINE SILTY CLAY Dark grey, moist to mainly wet, very soft. Occasional shell fragments.	(OH)							pH _F = 7.62 pH _{Fox} = 3.57	RW N<1	SPT	
5	-5.72				E	ALLUVIAL SILTY CLAY Pale grey green to dark grey, wet, very soft. Minor sand fraction.	(CH)							pH _F = 7.24 pH _{Fox} = 1.85	RW N<1 ASS Sample stored at Herston Geotechnical Laboratory	SPT	
6	-6.97				F	ALLUVIAL SILTY SANDY CLAY Pale green grey to mottled orange brown, moist, mainly very stiff to occasionally hard. Medium to high plasticity.										10,16,21 N=37	SPT
7					G		(CI-CH)									6,7,10 N=17	SPT
8					H											4,7,11 N=18	SPT
10	-10.72																

A ENGINEERING BOREHOLE LOG W/ LITHOLOGY FG5423 HIGHWAY BRIDGE.GPJ MRD_LIB_V1.2.GLB 25/10/06

REMARKS **FINE TO MEDIUM GRAINED MAINLY LAMINATED CARBONACEOUS FRIABLE SEDIMENTARY ROCK**

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Department of Main Roads

ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No BHP15

SHEET 2 of 4

REFERENCE No H9900

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT
 LOCATION 23.5m RT, 1.5m STH FROM EASTN PILE OF PIER 15 OF EXIST BRIDGE COORDINATES 39048.6 E; 52301.9 N
 PROJECT No FG5423 SURFACE R.L. -0.72 PLUNGE _____ DATE STARTED 26/04/06 GRID DATUM PROJECT DATUM
 JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 27/04/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	WEATHERING					DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS		
							USC	EH	VH	I	N					J	L
10	-10.72				ALLUVIAL SILTY CLAY Brown to slightly mottled orange brown, moist, stiff to mainly very stiff. High plasticity; minor fraction of very fine sand. Becoming slightly silty and sandy with depth.	 (CH)									5,6,9 N=15	SPT	
11				J													
12																	
13				K												4,6,9 N=15	SPT
14																	
15				L												5,8,10 N=18	SPT
16				M												6,9,13 N=22	SPT
17																	
18	-18.72				ALLUVIAL SILTY SAND Brown, moist to mainly wet, medium dense. Mainly fine to medium grained sand.	 (SM)											
19				N											4,7,11 N=18	SPT	
20	-20.72			P											6,7,9 N=16	SPT	

REMARKS FINE TO MEDIUM GRAINED MAINLY LAMINATED CARBONACEOUS FRIABLE SEDIMENTARY ROCK

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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No BHP15
SHEET 3 of 4
REFERENCE No H9900

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT
LOCATION 23.5m RT, 1.5m STH FROM EASTN PILE OF PIER 15 OF EXIST BRIDGE COORDINATES 39048.6 E; 52301.9 N
PROJECT No FG5423 SURFACE R.L. -0.72 PLUNGE _____ DATE STARTED 26/04/06 GRID DATUM PROJECT DATUM
JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 27/04/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH					DEFECT SPACING (mm)			GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
									EH	VH	TH	N	U	20	80	200				600
20	-20.72					ALLUVIAL GRAVELLY SAND Brown, moist to mainly wet, mainly medium dense to dense. (Fine fraction > Coarse fraction) Fine fraction - Fine to coarse grained subangular to sub rounded quartzitic sand. Coarse fraction - Angular to subangular quartz and sandstone particles sizing up to 40mm.	(SP)											8,20,17 N=37	SPT	
21																				
22																				
23	-23.72					ALLUVIAL SILTY SAND Pale brown, wet, medium dense. Fine to coarse grained sand. Some coarse gravel more towards bottom.	(SM)												6,6,7 N=13	SPT
24																				
25																				
26	-26.22					SANDSTONE FINE TO MEDIUM GRAINED MAINLY MASSIVE TO SLIGHTLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK HW: Pale grey, moist, very dense silty sand gradually grading into very low to low strength rock. Relic rock structures throughout.													30/100 N>50	SPT
27																				
28	-28.22		(84)			MW-SW: Pale grey to grey, mainly fine to medium grained, mainly massive to slightly laminated, low to mainly medium strength. Gradually grading into very low to low strength rock.		SW											Is(50)=0.13 MPa Is(50)=0.08 MPa	x o
29	-29.72		100 (82)			INTERBEDDED MUDSTONE & LOW GRADE COAL (See Remarks.) MW - SW: Dark grey, black to white banded, fine to medium grained, thinly laminated, very low to mainly low strength with some medium strength bands.		MW										Is(50)=0.46 MPa Is(50)=0.58 MPa Is(50)=0.79 MPa Is(50)=0.95 MPa Is(50)=0.24 MPa Is(50)=0.16 MPa	x o x o x o	
30	-30.72							MW											Is(50)=0.16 MPa Is(50)=0.14 MPa Is(50)=0.11 MPa Is(50)=0.40 MPa	x o x o

REMARKS FINE TO MEDIUM GRAINED MAINLY LAMINATED CARBONACEOUS FRIABLE SEDIMENTARY ROCK

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ENGINEERING BOREHOLE LOG

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SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No BHP15

SHEET 4 of 4

REFERENCE No H9900

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 23.5m RT, 1.5m STH FROM EASTN PILE OF PIER 15 OF EXIST BRIDGE COORDINATES 39048.6 E; 52301.9 N

PROJECT No FG5423 SURFACE R.L. -0.72 PLUNGE _____ DATE STARTED 26/04/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 27/04/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
30	-30.72												
	-30.92		92		X	Altered, fractured and friable along defects especially in coal seams; sandstone bands appear to be erodable. Defects: Some drilling-induced lamination partings <10° (5-6/m). HW: ?? Borehole terminated at 30.2m		HW				Coreloss	
31													
32													
33													
34													
35													
36													
37													
38													
39													
40													

REMARKS FINE TO MEDIUM GRAINED MAINLY LAMINATED CARBONACEOUS FRIABLE SEDIMENTARY ROCK

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Project: **Houghton Highway Bridge Duplication**

Borehole No: **BHP15**

Start Depth: 27.50m

Finish Depth: 30.00m

Project No: FG5423

H No: 9900



Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 26/04/06

Date Tested 31/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-412/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/412.A	BHP 15	27.56	D	0.13	0.13	L	Sandstone
GS06/412.B	BHP 15	27.61	A	0.08	0.08	VL	Sandstone
GS06/412.C	BHP 15	28.08	D	0.46	0.46	M	Sandstone
GS06/412.D	BHP 15	28.10	A	0.57	0.58	M	Sandstone
GS06/412.E	BHP 15	28.42	D	0.80	0.79	M	Sandstone
GS06/412.F	BHP 15	28.45	A	0.95	0.95	M	Sandstone
GS06/412.G	BHP 15	28.66	D	0.24	0.24	L	Sandstone
GS06/412.H	BHP 15	28.68	A	0.16	0.16	L	Sandstone
GS06/412.J	BHP 15	29.18	D	0.16	0.16	L	I/B Mudst/Sandstone/Coal
GS06/412.K	BHP 15	29.19	A	0.15	0.14	L	I/B Mudst/Sandstone/Coal

Sample Remarks

* D - Diametral; A - Axial; B - Block; I - Irregular;

** EL - Extremely Low; VL - Very Low; L - Low; M - Medium; H - High; VH - Very High; EH - Extremely High (taken from AS1726 Table 8A)


Remarks / Variations to Test Procedures:

I/B - Interbedded
Mudst - Mudstone

Test Method: AS4133.4.1

Software Version 2.03 April 2005

Client Name: Department of Main Roads
Client Address: PO Box 70, Spring Hill QLD 4004

Signatory  14.6.06

(Peter Simson)



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Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 26/04/06

Date Tested 31/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-412/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/412.L	BHP 15	29.63	D	0.11	0.11	L	I/B Mudst/Sandstone/Coal
GS06/412.M	BHP 15	29.66	A	0.41	0.40	M	I/B Mudst/Sandstone/Coal

Sample Remarks

* D - Diametral; A - Axial; B - Block; I - Irregular;

** EL - Extremely Low; VL - Very Low; L - Low; M - Medium; H - High; VH - Very High; EH - Extremely High (taken from AS1726 Table 8A)

Remarks / Variations to Test Procedures:

I/B - Interbedded
Mudst - Mudstone

Test Method: AS4133.4.1

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Signatory

P. Simson 14.6.06

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