Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BHP20
SHEET 1 of 4
REFERENCE No H9903

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT
LOCATION 24m RIGHT,1m NTH FROM EASTN PILE OF PIER 20 OF EXIST BRIDGE COORDINATES 39108.8 E; 52427.9 N
PROJECT No FG5423 SURFACE R.L. -0.81 PLUNGE DATE STARTED 02/05/06 GRID DATUM PROJECT DATUM
JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 02/05/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (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	-0.81				**ESTUARINE SILTY CLAY / CLAYEY SILT** Dark grey, wet, very soft. Frequent partly decomposed shell fragments; slightly organic content.								
1				A			(CL-ML)					pH_F = 7.50 pH_{Fox} = 2.80	HW N<1 SPT
2				B	Becoming fine sand with depth.							pH_F = 8.30 pH_{FOX} = 7.47	U50
3	-3.81			C								pH_F = 7.39 pH_{Fox} = 2.68	HW N<1 SPT
				D	**ESTUARINE SILTY CLAY** Dark grey, moist to mainly wet, very soft. High organic content and high plasticity; occasional shell fragments.		(OH)					pH_F = 7.77 pH_{FOX} = 6.75	U50
4	-5.21			E								pH_F = 6.94 pH_{Fox} = 2.36	RW,RW,1 N=1 SPT
5				F	**ALLUVIAL CLAYEY SAND** Pale grey green to grey, moist, dense. Fine to medium grained sand.		(SC)						7,16,24 N=40 SPT
6	-6.81				**ALLUVIAL SILTY CLAY** Pale mottled orange to pale grey brown, moist, stiff to mainly very stiff. Medium to high plasticity; slightly lateritic and concreted zones.								
7				G									5,6,10 N=16 SPT
8							(CI-CH)						
9													
10	-10.81												

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

REMARKS

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

BOREHOLE No BHP20
SHEET 2 of 4
REFERENCE No H9903

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT
LOCATION 24m RIGHT,1m NTH FROM EASTN PILE OF PIER 20 OF EXIST BRIDGE COORDINATES 39108.8 E; 52427.9 N
PROJECT No FG5423 SURFACE R.L. -0.81 PLUNGE DATE STARTED 02/05/06 GRID DATUM PROJECT DATUM
JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 02/05/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (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	-10.81			H	**ALLUVIAL SILTY CLAY** (As above.) Becoming clayey sand with depth.		(CI-CH)					7,7,11 N=18	SPT
11													
12													
13	-13.81			J	**ALLUVIAL CLAYEY / SILTY SAND** Pale green brown to mottled red brown, moist, medium dense. Fine grained sand.		(SC-SM)					5,7,11 N=18	SPT
14													
15													
16	-16.21			K	**ALLUVIAL SANDY GRAVEL** Brown to dark brown, wet, medium dense to dense. Coarse fraction - Subangular to subrounded, quartzitic gravel sizing up to 50mm. Fine fraction - Angular to subangular quartz particles with minor silt and clay fraction. Becoming less sand and no clay fraction.							7,12,14 N=26	SPT
17													
18				L			(GP-GM)					9,20,15 N=35	SPT
19				M								20,18,22 N=40	SPT
20	-20.81												

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

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BOREHOLE No BHP20
SHEET 3 of 4
REFERENCE No H9903

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LOCATION 24m RIGHT,1m NTH FROM EASTN PILE OF PIER 20 OF EXIST BRIDGE COORDINATES 39108.8 E; 52427.9 N
PROJECT No FG5423 SURFACE R.L. -0.81 PLUNGE DATE STARTED 02/05/06 GRID DATUM PROJECT DATUM
JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 02/05/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH 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	-20.81												
					ALLUVIAL SANDY GRAVEL (As above.) Minor clay seams along the profile.								
				N			(GP-GM)					6,12,24 N=36	SPT
21													
	-22.81												
22				P	**ALLUVIAL SANDY GRAVEL** Mainly pale grey, wet, mainly medium dense becoming very dense with depth. (Coarse fraction > Fine fraction) Coarse fraction - Subangular to subrounded, quartzitic and sandstone particles sizing up to 40mm.							12,12,11 N=23	SPT
23				Q	Fine fraction - Angular to subangular quartzitic particles with minor silt and clay fraction. Becoming less sand with no clay fraction.							8,9,14 N=23	SPT
24							(GP)						
25				R								10,9,10 N=19	SPT
26													
				S								23,24,30 N=54	SPT
27	-27.81				**SANDSTONE** **FINE GRAINED LAMINATED POORLY CEMENTED SEDIMENTARY ROCK** **HW** : Grey to dark grey, slightly moist to mainly dry, very dense silty sand, gradually grading into very low to low strength rock.									
28				T			HW					25,30/70 N>50	SPT
29													
	-30.31												
			(98)		**SW**: Pale grey to grey, fine grained, laminated, low to medium strength.		SW					Is(50)=0.08 MPa	x
30	-30.81												

REMARKS

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DEPTH (m)	R.L. (m)	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
30	-30.81				**SW:** (As above.) Frequent mudstone interbeds up to 20mm. Defects: Generally rare. - Drilling-induced lamination partings <20° (3-5/m).		SW					Is(50)=0.10 MPa		o
												Is(50)=0.22 MPa		x
												Is(50)=0.31 MPa		o
31												Is(50)=0.29 MPa		x
												Is(50)=0.26 MPa		o
												Is(50)=0.38 MPa		x
												Is(50)=0.58 MPa		o
32												Is(50)=0.30 MPa		x
												Is(50)=0.64 MPa		o
												Is(50)=0.13 MPa		o
												Is(50)=0.04 MPa		x
												Is(50)=0.23 MPa		x
	-33.31		96									Is(50)=0.24 MPa		o
					Borehole terminated at 32.5m							Core left down the borehole.		
33														
34														
35														
36														
37														
38														
39														
40														

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REMARKS

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Project: **Houghton Highway Bridge Duplication**

Borehole No: **BHP20**

Start Depth: 29.50m
Finish Depth: 32.50m
Project No: FG5423
H No: 9903

SCALE 1:5

Queensland Government
Department of Main Roads

Main Roads Department
Geotechnical Branch
35 Butterfield Street
Herston Qld 4006

Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation
Project No: FG5423

Date Sampled 02/05/06 **Date Tested 31/05/06**
Feature: N/A
Sample Type: NMLC Core

Report No. FG5423/GS06-414/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/414.A	BHP 20	29.82	D	0.08	0.08	VL	Sandstone
GS06/414.B	BHP 20	29.85	A	0.11	0.10	VL	Sandstone
GS06/414.C	BHP 20	30.18	D	0.23	0.22	L	Sandstone
GS06/414.D	BHP 20	30.20	A	0.30	0.31	M	Sandstone
GS06/414.E	BHP 20	30.57	D	0.29	0.29	L	Sandstone
GS06/414.F	BHP 20	30.60	A	0.25	0.26	L	Sandstone
GS06/414.G	BHP 20	31.18	D	0.39	0.38	M	Sandstone
GS06/414.H	BHP 20	31.20	A	0.59	0.58	M	Sandstone
GS06/414.J	BHP 20	31.76	D	0.30	0.30	L	Sandstone
GS06/414.K	BHP 20	31.79	A	0.63	0.64	M	Sandstone

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:

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 P. Simson 14/6/06
(Mr Peter Simson)

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Accreditation Number: 2302
Accredited for compliance with ISO/IEC 17025
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Queensland Government
Department of Main Roads

Main Roads Department
Geotechnical Branch
35 Butterfield Street
Herston Qld 4006

Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation
Project No: FG5423

Date Sampled 02/05/06 **Date Tested 31/05/06**
Feature: N/A
Sample Type: NMLC Core

Report No. FG5423/GS06-414/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/414.L	BHP 20	32.05	A	0.13	0.13	L	Sandstone
GS06/414.M	BHP 20	32.07	D	0.04	0.04	VL	Sandstone
GS06/414.N	BHP 20	32.30	D	0.24	0.23	L	Sandstone
GS06/414.P	BHP 20	32.33	A	0.24	0.24	L	Sandstone

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)

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