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

BOREHOLE No	BHP17
SHEET	_1_ of _4_
REFERENCE No	H9901

	JECT													
	ATION	24m RIGHT,1.8m STH FROM EASTN PILE OF PIER 17 OF EXIST BRIDGE COORDINATE 16 FG5423 DATE STARTED 28/04/06 GR										4 E; 52351.0 N		
													PROJECT DA	
JÓB	No	_165/_	122/35		HEIGHT DATUM AHD BEARING			DATE COM	1PLETED .	28/04	<u>1/06</u>	DRILLER	CAIRNS DRIL	LING
o DEPTH (m)	R.L. (m) -0.82	CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT STRENGTH ボデェミンドゴ	DEFECT SPACING (mm)	GRAPHIC LOG		ODITIONAL AND FEST RESU		SAMPLES TESTS
-1	V.V.			Α	ESTUARINE SAND & SHELL Pale grey, wet, mainly very loose to loose. Slightly organic; fine to medium grained sand; partly decomposed shell fragments throughout; high organic content.		(SP SM)	-			pH _F = 7.7 pH _{Fox} = 2 pH _F = 7.6 pH _{Fox} = 5	94	ASS Sample stored at Herston Geotechnical Laboratory	SPT
3	-3.82			В	ESTUARINE SILTY CLAY Dark grey, moist to mainly wet, very soft. High organic content and high plasticity.	**************************************	(OH				ρH _F = 7.3 ρH _{Fox} = 5	 3 07	RW N<1	SPT
MRD_LIB_V1.2.GLB_25/10/06	-5.32			C	ALLUVIAL SILTY CLAY Pale grey green to dark grey, moist to wet, very soft. Minor sand fraction; high plasticity.		(CH	-	-		pH _F = 7.4 pH _{Fox} = 1	 5 .64	HW,HW,2 ASS Sample stored at Herston Geotechnical Laboratory	SPT
- L	-6.32 -7.32			D	ALLUVIAL SILTY SAND / SAND Pale grey to grey, moist, medium dense.		(SP SM)			 	pH _F = 7.4 pH _{Fax} = 6		5,7,11 N=18	SPT
A ENGINEERING BOREHOLE LOG W LITHOLOGY FG5423 HIGHWAY BRIDGE,GP)	-10.82			E.	ALLUVIAL SILTY SANDY CLAY Pale grey to grey, moist, very stiff. Medium to high plasticity; occasional slightly lateritic and concreted zones; becoming more sandy with depth.		(CI- CH)				pH _F = 7.1 pH _{Fox} = 6	6 50	4,7,11 N=18 ASS Sample stored at Herston Geotechnical Laboratory	SPT
R	EMARK\$	_FIN	E TO ME	וּטַוַט	M GRAINED MAINLY LAMINATED POORLY CEM	ENT	<u>D</u> SE	DIMENTARY	ROCK_		_		LOGGED BY	
										BW / ADISS				



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

BOREHOLE No	BHP17
SHEET	_2_ of _4_
REFERENCE No	<u>H9901</u>

PROJECT LOCATION				SHWAY BRIDGE DUPLICATION - HOUGHT I STH FROM EASTN PILE OF PIER 17 OF E						ES 39072.4 E;	— — — — 52351 0 N	
				SURFACE R.L0.82 PLUNGE								
JOB No				HEIGHT DATUM _AHD BEARING			·					
CEPTH (m)	CASING WASH BORING CORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	OLOGY		INTACT DEFECT STRENGTH SPACING (mm) 000000000000000000000000000000000	GRAPHIC LOG	A	DDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
10 -10.8	32 ऄ≥Ŭ	REC %	δ	ALLUMIAL SILTY SANDY CLAY		ວັ∣≷	11111	Ö				% <u>⊬</u>
112			F	ALLUVIAL SILTY SANDY CLAY (As above.)		(CI-CH)	;				4,6,9 N=15	SPT
-15.i	32		G	ALLUVIAL SILTY SAND Brown, wet, medium dense. Minor fraction of high plastic clay.							4,6,9 N=15	SPT
17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	82		н	Containing occasional gravel sizing up to 20mm below 16.5m.		(SM)			- Becomin depth.	ng more gravelly w	5,7,14 N=21 vith	SPT
				ALLUVIAL SANDY GRAVEL Pale brown, wet, medium dense to dense. Gravel fraction - Angular to subangular quartzitic fragments sizing up to 30mm.	0000	(GP)			_ _			-
remar REMAR		E TO MFI		M GRAINED MAINLY LAMINATED POORLY CEM		DSF	L			LOG	GED BY	<u> </u>
	''5					- 4-					ADISS	



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

BOREHOLE No	BHP17
SHEET	_3_ of _4_
REFERENCE No	H9901

	ROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT OCATION 24m RIGHT,1.8m STH FROM EASTN PILE OF PIER 17 OF EXIST BRIDGE COORDINATES 39072.4 E; 52351.0 N												
			FG5423 SURFACE R.L0.82 PLUNGE DATE STARTED _28/04/06 GRID DATUM _PROJECT_DA										
JOB I					HEIGHT DATUM AHD BEARING								
JOB	_	100/	122/30		HEIGHT DATONAHD BEAKING			DATE COMPLETED _	20/04/	<u>06</u>	DRILLER _	CAIRNS DRIL	LING
	R.L. (m)	υğ	RQD ()%				m	INTACT DEFECT STRENGTH SPACING	(y)	ΑI	DDITIONAL DA	ATA	
DEРТН (m)	,	BORING	, , , ,		MATERIAL	ું	RING	(mm)	GRAPHIC LOG		AND		_ω
EPT			CORE	SAMPLE	DESCRIPTION	LITHOLOGY	ATH.		PHIC			TO.	SAMPLES
20	-20.82 S	ŠÖ	REC %	SAN		Ė	NE NE	STRENGTH SPACING (mm)	GR/		TEST RESUL	15	SAMPLI
-					ALLUVIAL SANDY GRAVEL (As above.)	00		‡					-
	- 1				i '	6		1 1]
-	- 1				(Coarse fraction > Fine fraction)	00		‡					1
E ,	- 1					6		<u> </u>					- 1
-21	- 1	1				°V PO		Ŧ				9,13,17	SPT
-	- 1							‡				N=30	351
	- 1							士					3
-	- 1					000	(GP)	†					1
-22 r	- 1					°Ŏ		‡					
	- 1					00]					3
-	- 1					0		†				8,11,15	
[- 1			K		60		Ī				N=26	SPT
-23	- 1			\Box		0		+					-
-						60		†					1
-	-24.32				ALLUVIAL GRAVELLY SAND	6 11 6	1	 					-
	- 1				Pale grey to white, wet, mainly loose with			‡					= =
-24	- 1				some loose and medium dense areas.	þ∭]	1 +					-
F	- 1			L	(Fine fraction > Coarse fraction)]				3,4,6 N=10	SPT
-	- 1	Н			Fine fraction - Subangular to subrounded	0		‡	'				-
	- 1	Ш			quartzitic particles with high silt content.	5		1 1					
-25	- 1				Coarse fraction - Angular to subangular	4		1					3
-	- 1				quartz and sandstone particles sizing up to 30mm.	0		†					-
	- 1				oonini.	0		1 ‡					
-			7	M		[4]		‡				2,2,2 N=4	SPT
26	- 1					0		1 1				No recovery	-
	- 1						1	1					-
-	- 1						:	†					- 4
F	- 1					0	(SP	l Ŧ					- 3
-			,				ŠΜ)	‡					-
- 27				NI.				Ī	'			4,3,4	Sing.
} <u> </u>		ll.		N				‡				4,3,4 N=7	SPT I
<u>:</u> []		1						İ					-
								<u> </u>					-
28													=
								1 1					1
#			1	. 10		þ.]					247	
				P			1	1 ‡				3,4,7 N=11	SPT :
-29								+					-
						5	1	‡					
[F						:# :#	-	‡					-
[<u>130</u>]	-30.82	C13.1	E TO M		AA ODAINIED MAINI VI AMINATED BOOK VOS	[:0]] -NIT-	<u> </u>	T T T T T T T T T T T T T T T T T T T			<u> </u>	00000 01	
RI	REMARKSFINE_TO_MEDIUM_GRAINED_MAINLY_LAMINATED_POORLY_CEMENTED_SEDIMENTARY_ROCK LOGGED BY BW / ADISS												



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

 BOREHOLE No
 __BHP17___

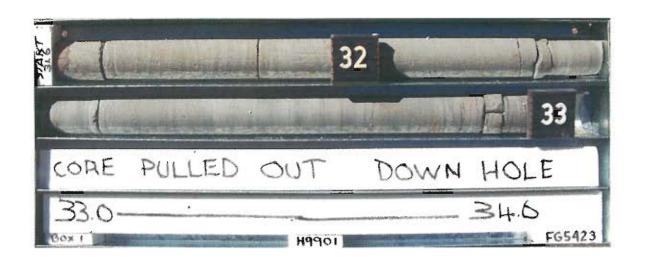
 SHEET
 4 of _4_

 REFERENCE No
 _H9901___

PRO	JECT	HOU	IGHTON	<u>HIG</u>	HWAY BRIDGE DUPLICATION - HOUGHTO	<u>М</u> С	<u>IIGH</u>	WAY UPGRADE PR	<u>OJE(</u>	Ç <u>T</u>	
	CATION 24m RIGHT, 1.8m STH FROM EASTN PILE OF PIER 17 OF EXIST BRIDGE COORDINATES 39072.4 E; 52351.0 N										
PROJECT No FG5423 SURFACE R.L0.82 PLUNGE DATE STARTED 28/04/06 GRID DATUM PROJECT DATU JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 28/04/06 DRILLER CAIRNS DRILLIN											
							 		<u> </u>	T DIRECT OFFICE	
ε	R.L. (m)	SN LING LING	()%		MATERIAL		ပ္ခ	INTACT DEFECT STRENGTH SPACING	ဗ္ဗ	ADDITIONAL DATA	
DEPTH (m)		SS BOR DRIL		픠	DESCRIPTION	LITHOLOGY	HERI	(mm)	GRAPHIC LOG	AND	LES
30	-30.82	CASIN WASH	CORE REC %	SAMPLE		LITHO	USC	STRENGTH SPACING (mm)	GRAP	TEST RESULTS	SAMPLES
-	00.02				ALLUVIAL SANDY GRAVEL (As above.)	0					-
	04.00			•	(Gravel fraction > Sand fraction)		(GP)	† †			<u>-</u> -
31	-31,82				SANDSTONE (See Remarks.) HW: White to dark grey, slightly moist to mainly dry, very dense silty sand rapidly		нW	1			-
	-32,32		(95)	Q	grading into low strength rock. SW: Pale grey to grey, fine grained,	 				30/100mm_ N>50	SPT
-32			()		slightly massive to mainly laminated, poorly cemented, mainly low strength.	:::				Is(50)=0.12 MPa Is(50)=0.14 MPa	0 .
					Defects: Generally rare Some drilling-induced lamination partings					Is(50)=0.16 MPa Is(50)=0.14 MPa	0
					< 10° (1-2/m).					ls(50)=0.14 MPa ls(50)=0.28 MPa	o :
- 33		-	(0)				sw	1		ls(50)=0.15 MPa	0 -
-				4		: : :		<u> </u>			-
					-	:::		† †		Core left down borehole.	
-34				4		::::		<u> </u>			
35	-35.42		0			:::		+			
3					Borehole terminated at 34.6m			#			
35								Ī			-
								‡			-
36								<u> </u>			
								‡			
								<u> </u>			-
-37								† +			
36 36 36 36 36 36 36 36 36 36 36 36 36 3								<u>†</u>			
-								<u> </u>			_
38								1 1			_
;;								‡			
								‡			_
								† †			
39											-
								+			-
								<u> </u>			
(<u>L401</u> RE	EMARKS	 	NE TO M	<u> DIÑ</u>	I M GRAINED MAINLY LAMINATED POORLY CEMI	I ENTE	L D SE	EDIMENTARY ROCK		_ LOGGED BY	
										BW / ADISS	

Project: Houghton Highway Bridge Duplication

Borehole No: BHP17
Start Depth: 31.60m
Finish Depth: 34.00m
Project No: FG5423
H No: 9901





Main Roads Department Geotechnical Branch 35 Butterfield Street Herston Old 4006

Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 28/04/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-413/AS4133.4.1

Date Tested 31/05/06

			:				
Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	ls (MPa)	ls50 (MPa)	Strength Descriptor*	Lithology *
GS06/413.A	BHP 17	31.62	D	0.12	0.12	1	Sandstone
GS06/413.B	BHP 17	31.64	Ā	0.15	0.14	Ĺ	Sandstone
GS06/413.C	BHP 17	32.11	D	0.16	0.16	L	Sandstone
GS06/413.D	BHP 17	32.13	Α	0.14	0.14	L	Sandstone
GS06/413.E	BHP 17	32.50	D	0.15	0.14	L	Sandstone
GS06/413.F	BHP 17	32.52	Α	0.31	0.28	L	Sandstone
GS06/413.G	BHP 17	32.97	Α	0.16	0.15	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 (laken 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

(Mr Peter Simson)



Accreditation Number: 2302 Accreditation compliance with ISO/IEC 17025 This document is issued in

ces on attached cover page.