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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010 BOREHOLE No BH C45

SHEET __1_ of __2_

REFERENCE NO __H11133___

No	CATION					tion C COORDINATES 471333.5 E; 7095327.			7095327.1	N.		
RIUD Secretary	OJECT No				SURFACE R.L 79.70m_ PLUNGE	DATE STARTED _22/08/11 GR				A <u>94</u>	- 100	
MATERIAL DESCRIPTION TOPSOL: T	3 No	232/	10 <u>A</u> /2		HEIGHT DATUM _AHD BEARING			DATE COMPLETED	22/08	<u>/11</u> DRILLER <u>Dril</u>	sure Pty Lt	<u>id_</u>
TOPSOIL: Cray y SILT (Residual): Molted greybrown, moist SiLTSTONE (XW): Exhibits angineering properties of a bownormarye, fire grained, moist, stiff to very stiff, intermediate to high plasticity sity city. Tr. 05. B RHYOLITE (XW): Exhibits engineering properties of a brown, noist, fine grained, very stiff, intermediate to high plasticity sarely city. Tr. 70. B RHYOLITE (XW): Exhibits engineering properties of a brown, noist, fine grained, very stiff, intermediate to high plasticity sarely city. Tr. 70. CO SHAPOLITE (MW): Creybrown, fine to medium grained, massive, mainly high strength. Defects: Creybrown, fine to medium grained, massive, mainly high strength. Defects series are planar tight or closed, slightly rough, clay infilled, iron stained, quartz infilled. Tr. 80. SILICIOUS SILTSTONE (MW): Greybrown, fine grained, subtly foliated, negration to high strength, indurated and/or slightly rectamorphosed. Defect surfaces are planar tight or closes, Schill to the grained, subtly foliated, register to the grained of the graine	(m)	AUGER CASING WASH BORING CORE DRILLING	()%	SAMPLE		LITHOLOGY	USC		GRAPHIC LOG	AND		SAMPLES
The content of the	79.70		ILEO X	0,		37.4		+				
Siltstone (Wi): A Exhibits engineering properties of a brown/orange, fine grained, moist, stiff to very stiff, intermediate to high plasticity silty clay. Siltstone intermediate to high plasticity silty clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, weny stiff, intermediate to high plasticity sandy clay. Siltstone in grained, went sand, in grained, went sand, in grained, went sand, in grained, sand, in grained, went sand, in grained, went sand, in grained, sand, in grained, went sand, in grained, went sand, in grained, sand, in grained, went sand, in grained, went sand, in grained, sand, in grained, went sand, in grained, w					Clayey SILT (Residual):	Ш	(ML)			Based on driller's logs only		
77.08 B RHYOLITE (XW): Exhibits engineering properties of a brown, moist, fine grained, very stiff, intermediate to high plasticity sandy clay. 78.70 (i) RHYOLITE (MW): Greybrown, fine to medium grained, massive, mainty high strength. Defects: -Quartz veining and infill throughoutJoint at 20"-25" (5/m) -Joint at 20"-35" (5/m) -Joint at 30"-35" (5/m) -Joint at 50"-35" (2-3/m) -Joint at 60"-35" (2-3/m) -Joint at 70" (1/m) Defects: -Interpretation of the strength of th					SILTSTONE (XW): Exhibits engineering properties of a	× ×		+			468	
77.08 B RHYOLITE (XW): Exhibits engineering properties of a brown, moist, fine grained, very stiff, intermediate to high plasticity sandy clay. 75.70 (0) RHYOLITE (MW): Greybrown, fine to medium grained, massive, mainly high strength. Defects: -Quartz veining and infill throughoutJoint at 20*-25* (5m) -Joint at 20*-25* (5m) -Joint at 20*-25* (5m) -Joint at 70* (1m) -Joint at 70* (56/m) -Joint at 10*				A	brown/orange, fine grained, moist, stiff to very stiff, intermediate to high plasticity silty		XW	† † †				S
Exhibits engineering properities of a brown, moist, fine grained, very stiff, intermediate to high plasticity sandy clay. 75.70 (0) GRHYOLITE (MW): Grey/brown, fine to medium grained, massive, mainly high strength. Defacts: -Quartz veining and infill throughoutJoint at 20"-25" (5/m) -Joint at 30"-35" (5/m) -Joint at 30"-35" (5/m) -Joint at 30"-35" (5/m) -Joint at 30"-35" (2-3/m) -Joint at 70" (1/m) Defact spacing is generally close. Defact surfaces are planar, tight or closed, slightly rough, clay infilled, iron stained, (0) SILICIOUS SILTSTONE (MW): Grey/brown, fine grained, subtly foliated, audity fol	77.05			_ p	PLINCO LITE (MAD.	× × ×		+			8,12,15	9
71.90 (0) CRHYOLITE (MW): Greybrown, fine to medium grained, massive, mainly high strength. Defects: -Quartz veining and infill throughoutJoint at 20°-25° (5/m) -Joint at 30°-35° (5/m) -Joint at 30°-35° (5/m) -Joint at 70° (1/m) Defect spacing is generally close. Defect surfaces are planar, tight or closed, slightly rough, clay infilled, iron stained, quartz infilled. 71.90 SILICIOUS SILTSTONE (MW): Greybrown, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed. Defects: -Joint at 10° (5-6/m)				0	Exhibits engineering properites of a brown, moist, fine grained, very stiff, intermediate	1/ N	xw	 			N=27 !	
Defects: -Quartz veining and infill throughoutJoint at 30°-35° (5/m) -Joint at 30°-35° (5/m) -Joint at 70° (1/m) Defect spacing is generally close. Defect surfaces are planar, tight or closed, slightly rough, clay infilled, iron stained, quartz infilled. Oil Comparison	75.70	4	(0)	С	Grey/brown, fine to medium grained,	$\langle \nabla \rangle$			ļ	J, 70°, PI, C, QZ	<u>5/0</u> N>50	
DD = 2.59/m², MC = 4.1%. Defect spacing is generally close. Defect surfaces are planar, tight or closed, slightly rough, clay infilled. WMW SILICIOUS SILTSTONE (MW): Grey/brown, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed. Defects: Joint at 10° (5-6/m) Joint at 10° (5-6/m) Joint at 50°-65° (5-6/m) Joint at 50°-65° (5-6/m) Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained. Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained. Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained. Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained.	i		(0)		massive, mainly high strength. Defects: -Quartz veining and infill throughoutJoint at 20°-25° (5/m) -Joint at 30°-35° (5/m) -Joint at 50°-55° (2-3/m)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				├ J. 50°, PI, T. QZ		
Defect surfaces are planar, tight or closed, slightly rough, clay infilled, iron stained, quartz infilled. (0) SILICIOUS SILTSTONE (MW): Grey/brown, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed. Defects: -Joint at 10° (5-6/m) -Joint at 60°-65° (5-6/m) -Joint at subvertical (2-3/m) Defect spacing is very close to close. Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained.			(29)			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				$DD = 2.39t/m^3$. M	C = 4.1%; =50.2MPa	U
71.90 SILICIOUS SILTSTONE (MW): Grey/brown, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed. Defects: -Joint at 10° (5-6/m) -Joint at 60°-65° (5-6/m) -Joint at subvertical (2-3/m) Defect spacing is very close to close. Defects urfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained. SILICIOUS SILTSTONE (MW): X X X X X X X X X X X X X X X X X X X					Defect surfaces are planar, tight or closed, slightly rough, clay infilled, iron stained,	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	MW			J, 25°, Pl, C, Q2 IS(50) = IS(50) =	1.5UIVIPa	
71.90 SILICIOUS SILTSTONE (MW): Grey/brown, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed. Defects: Joint at 10° (5-6/m) Joint at 60°-65° (5-6/m) Joint at subvertical (2-3/m) Defect spacing is very close to close. Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained. SILICIOUS SILTSTONE (MW): X X X X X X X X X X X X X X X X X X X						V. N				J, 50°, PI, T, Thinly Clnf, FeSt		
Grey/brown, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed. Defects: -Joint at 10° (5-6/m) -Joint at subvertical (2-3/m) Defect spacing is very close to close. Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled, iron stained. SILCIOUS SILTSTONE (MWV): X X X X X X X X X X X X X X X X X X X	71.90		(0)			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				†1		
tight or closed, slightly rough, clay infilled, X X X X X X X X X X X X X X X X X X X			65	X	Grey/brown, fine grained, subtly foliated, medium to high strength, indurated and/or	X X						
tight or closed, slightly rough, clay infilled, X X X X X X X X X X X X X X X X X X X			(0)		Defects: -Joint at 10° (5-6/m) -Joint at 60°-65° (5-6/m)	× × × × × × × × × × × × × × × × × × ×	MW				į	
		-	(0)		Defect surfaces are planar or irregular, tight or closed, slightly rough, clay infilled,	X X					4 471814	
					iron stained.	××	<u>L</u>					L



ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

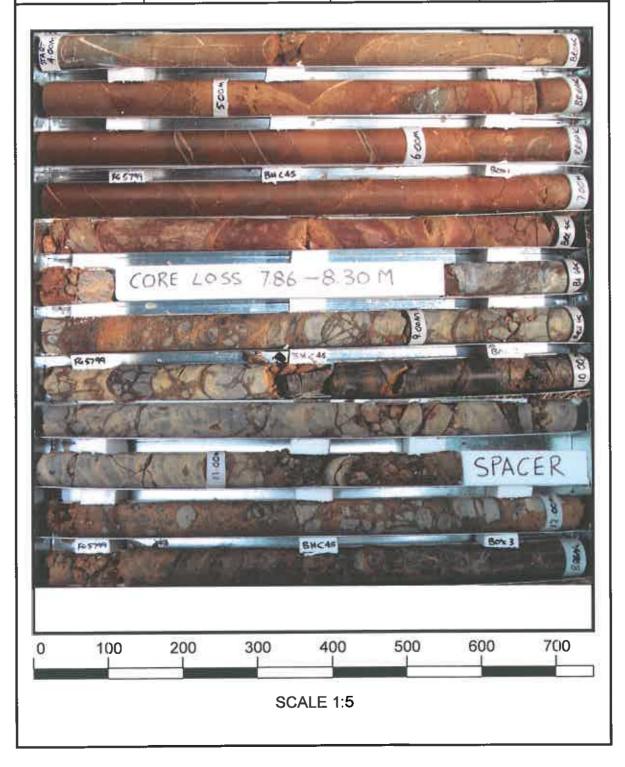
PROJECT LOCATION	LOCATION <u>Cut 11</u> COORDINATES <u>471333.5 E;</u>				
PROJECT No JOB No		SURFACE R.L79.70m_ PLUNGE	DATE STARTED 22/08/11 GRID DATUM MGA94 DATE COMPLETED 22/08/11 DRILLER Drillsure Pty Ltd		
(E) R.L. (m)	AUGGE AUGGE CORE DRILLING CORE DRILLING SAMPLE	MATERIAL DESCRIPTION	ADDITIONAL DATA AND SAMPLES AND CORRESPONDENCE CORRESPOND		
OREHOLE LOG WLITHOLOGY FGS789 - BRUCE HWY UPGRADE SECTION C.GPJ DWG46352.20DW Datgel CPT Tool gINI Add-In 12/12/2011 16:30	(0)	SILICIOUS SILTSTONE (SHEAR ZONE) (HW): Grey/brown, fine grained, brecciated, extremely low to very low strength rock. Defects: -Sheared and brecciated throughout. Defects are extremely closely spaced. Defect surfaces are irregular, tight or closed, slightly rough, clay infilled, iron stained. SILICIOUS SILTSTONE (SW): Grey/brown, fine grained, subtly foliated, high strength, indurated and/or slightly metamorphosed. Defects: -Joint at 10°-20° (2-3/m) -Joint at 30°-35° (2-3/m) -Joint at 70°-75° (~1/m) -Joint at 80°-90° (1/m) Defect spacing is generally close to medium. Defect surfaces are planar or irregular, tight or open, slightly rough, clay infilled, iron stained. Petrographic report identifies sample as a volcanoclastic siltstone and sandstone.	BZ		
REMARKS			LOGGED BY JA/DC		

DEPARTMENT OF TRANSPORT & MAIN ROADS Geotechnical Branch 35 Butterfield Street, HERSTON Qld 4006 Phone 07 3115 3035 Fax 07 3115 3011



CORE PHOTO LOG - BH C45

Project Name:	BRUCE HIGHWAY UPGRADE - SECTION C			
Project No.:	FG5799	Date:	08/09/2011	
Details:	Cut 11	Start Depth (m):	4.00	
Reference No.:	H11133	Finish Depth (m):	17.77	





CORE PHOTO LOG - BH C45

Project Name:	BRUCE HIGHWAY UPGRADE - SECTION C			
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