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ENGINEERING BOREHOLE LOG

BOREHOLE No	BH4
SHEET	_ <u>1</u> _ of _ <u>5</u> _
REFERENCE No	<u>H12011</u>

PRO													
						SURFACE R.L. <u>212.52m</u> PLUNGE _		_				COORDINATES <u>416161.3 E; 6937854.7 N</u>	
JOB						HEIGHT DATUM <u>AHD</u> BEARING _							
O DEPTH (m)	R.L. (m)	R JG I BORING	DRILLING	RQD	SAMPLE	MATERIAL DESCRIPTION		Т		INTACT DEFECT SPACING (AS1726) LETTERS AS A CONTROL OF THE CONTRO	r T		TESTS
-1-12	211.02				A	Gravelly SILT (COLLUVIUM) Brown, dry, firm. Angular gravel fragments up to 20mm in size Gravelly, sandy SILT (COLLUVIUM) Pale brown, dry to moist, hard. Angular gravel fragments up to 20mm in size			GM)			4,16,24 SP 28,26,30/130 SP	-
- - - - -3 -	209.52				С	Sandy CLAY with Cobbles and Boulders (COLLUVIUM)		V		± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±		18,26,30/110 SP	- - - - - - - - -
4						Orange brown, moist. Generally comprises a hard Sandy Clay of intermediate plasticity which contains a mix of high strength cobbles and boulders up to 300mm in size.						■ Sandstone cobble	
- - - - - - - - - - - - - - - - - - -				100								- Broken zone	
-6 - - - - - - - - - - - - - - - - - -					D			\	CI)			30/50 SP	-
8 9 9				64	E							SP' Sandstone cobble 8.5m some water loss 9.0m total circulation loss Soft clay seam	T -
- - - - - 10	EMARKS	S								<u>+</u>		LL = 53; PI = 34; LS = 13.4; MC = 16.5%; Emerson Class 1 LOGGED BY TAH	



ENGINEERING BOREHOLE LOG

BOREHOLE No	<u>BH4</u>
SHEET	2 of5
REFERENCE No	H12011

PRO:	JECT															
	ATION		ow the r												OORDINATES 416161.3 E; 693785	<u> 4.7 N</u>
		o <u>FG</u>	6128 _												14 GRID DATUM MGA94	
JOB	No				HEIGHT DATUM _	AHD	BEARING _			DΑ	TE COM	PLET	ED _7	/ <u>11/1</u>	14 DRILLER <u>Hinterland</u>	
	R.L. (m)	O	RQD						(D	II STE	NTACT RENGTH	DEF	FECT	(0	ADDITIONAL DATA	
DEPTH (m)	()	IR NG H BORING			M	IATERIAL		λĐ	RING	011	RENGTH AS1726)	(AS	S1726)	GRAPHIC LOG	AND	S
ЕРТ		SH BG	CORE	SAMPLE	DES	SCRIPTION	1	LITHOLOGY	TH.				>>	PHC		SAMPLES
10	202.52	A S S S	REC 9	SAN				島	WE	立 > :	┸⋝┐⋛Щ	й>с: ———	≥≥≶ű ⊔⊔⊔	GR/	TEST RESULTS	SAN
-			100	-	Sandy CLAY with Co (COLLUVIUM) as be	obbles an	d Boulders	00				- : : :			□– Sandstone cobble	-
_					(OOLLOVIOIII) do be	1010				: :		- - -: : :]
-								60			: : : 	- : : :		5	□ Sandstone cobble □ Sandstone boulder	-
_ _ 11			67					000				-: : :		19	Sandstone cobble	
-			60					0				- : : :			Soft clay seam	_
_								000				- : : :			Sandstone boulder	_
-								0								
- 12								000				-: : :				_
								0				- : : : - : : :				
-			79	\perp				00				-: : : -: : :				_
-								6		: :						
- 13								000				- : : : -: : :				_
-			100					6								
-			100	_				000		: :	: : : : =	-: : :			□– Soft clay seam □– Soft clay seam	_
-								0							Soft clay seam	
- 14								000			: : : -	-: : :				_
-								0							Soft clay seam with rock fragments	
-			96					000				-: : :			- Sandstone boulder	_
-			30	\rightarrow				0							Soft clay seam with rock fragments	-
- - 15								000	(CI)			-: : :		1 1	☐— Soft clay seam ☐— Sandstone cobble	
-								6			-	- : : :			Soft clay seam with rock fragments	-
_			88	+				000				- -: : :			Soft clay seam Soft clay seam with rock fragments Permeability test: 1.5 x 10 sm/s	
-			48	\nearrow				$[\circ]$: :		- : : :			Fracture at 0° planar polished - drilling induced?	-
- - 16								000				-: : :				_
-				\mathcal{M}				0				- : : :				-
_			0					000		: :		-: : :			□– Soft clay seam	
-								0			<u> </u>	- : : :			— Ook day scam	-
17								000			:::: :	- -: : :				
-											<u> </u>	- : : :				-
-			100									-: : :			Fracture at 0° planer poliched	=
-								$[\circ]$							Fracture at 0° planar polished - drilling induced?	
18 								00				-: : :			Soft clay seam Total circulation loss	_
								$[\circ]$				- : : : - : : : :			Fractured sandstone boulder	
-												-: : :			Broken zone	-
				\boxtimes				$\frac{1}{2}$								
- 19								000				-: : :		H	☐─ Broken zone with basalt fragment	
			64					600						Н	Broken zone	
-			37					000		: :		-: : :				-
20								$\frac{1}{2}$							LL = 55; LS = 15.8; DD = 1.55t/m WD = 1.92t/m ³ ; MC = 26.39	1 ³ ;
R	EMARK	s													LOGGED BY	
															TAH	



ENGINEERING BOREHOLE LOG

BOREHOLE No	<u>BH4</u>
SHEET	3 of5
REFERENCE No	H12011

	DJECT Mt Whitestone: Slope Instability Investigation - Preliminary Inclinometer Boreholes COORDINATES 416161.3 E; 6937854.7 N													
					SURFACE R.L. <u>212.52m</u> PLUNGE _			_		— – ΔRTFΓ) 4			
JOB		100												
	R.L. (m)	R IG BORING I	POD		MATERIAL				INTACT STRENGTH (AS1726)	DEFE	СТ		ADDITIONAL DATA	
DEPTH (m)				ш	DESCRIPTION	LOG	HEN.		(A01720)	(A31720	y	HCL	AND	LES
-	192.52	AASIN MASIN	CORE REC %	SAMPLE	BESSIAI FISH	LITHOLOGY	JSC WEAT	Щ.	=====================================	 ≥	\$≧	GRAPHIC	TEST RESULTS	SAMPLES
_20	192.52		100	0,	Sandy CLAY with Cobbles and Boulders	b \sim			: : : : +		++		Emerson Class 1 Shrink Swell Index 1.1%pF	-
-			100		(COLLUVIUM) as before	00		:	: : : : : :				Stilling Swell index 1.170pi	
-			100			000			: : : : =	-: : : :				-
-						00			:::: 				— Circulation loss	
-21 -						000		:	: : : : : ‡				Broken zone	-
-				> <		00		:	: : : : ‡					
-			95			000		:	: : : : : ‡	-: : : :				-
-					21.7m increased sand content in matrix,	00			::::: :				Brecciated Zone Fracture at 0° planar polished - drilling induced?]
-22 -					water loss slowing	000			: : : : = =	-: : : :			aniling induced?	-
-						00		:	:::::]
-						000			: : : : 	-				-
-						00		:	: : : : : =]
-23 -						000			: : : : =	-: : : :				-
-						00			: : : : : :]
-			100			000			: : : 	-				
						60		:	: : : : =					
-24 -						000			: : : : =	-: : : :				-
-						60			: : : : : :					
-		Ш	100	\square	OA Oas Damas a hill to tast (investigle to the second)	00			#				Sandstone cobble	-
-					24.6m Permeability test: (invalid test result)	00			: : : : ‡			•	☐ Sandstone boulder ☐— Soft clay seam with rock fragments	
- 25 -			85	$\overline{}$			(CI)	:	= = = = = = = = = = = = = = = = = = = =	-: : : :				-
-						60			: : : : : :				☐ Sandstone cobble]
-				X		00				-: : : :				
-			46			60			: : : : -				Soft clay seam with rock fragments VWP installed Soft clay seam with rock fragments	
-26 -			10	abla					:::: <u>†</u>	-			Soft clay seam with rock fragments	
-				IXI		60		:	: : : : : ‡					
-				\vdash		000		:		-			⇒– Broken zone with quartzite fragments	
- -						60			: : : : : ‡					-
- 27 -			52			00				-				_
						60		:	; ; ; ; ; ‡					
-						00								
-			100			60			: : : : : ‡				≕– Broken zone	-
-28 -						00		:					⇒– Soft clay seam	
-						60		:	::::: ‡					
-			400			000			<u> </u>	-: : : :		_	Sandstone cobble	
-			100			60			: : : : : :			H	Soft clay seam with rock fragments Soft clay seam with rock fragments	
-29 -						0		:	: : : : = =		: :	\square	Soft alov coom with rock from out-	
						60			: : : : : :				Soft clay seam with rock fragments Soft clay seam with rock fragments	
-			60			000			: : : : 	-: : : :		į	Sandstone boulder	
30						60			: : : : 			1	Sandstone boulderSandstone cobble	
	EMARKS												LOGGED BY	
''								_					TAH	



ENGINEERING BOREHOLE LOG

BOREHOLE No	<u>BH4</u>
SHEET	4 of5
REFERENCE No	H12011

	JECT Mt Whitestone: Slope Instability Investigation - Preliminary Inclinometer Boreholes ATION Below the road COORDINATES 416161.3 E; 6937854.7 N												
					SURFACE R.L. <u>212.52m</u> PLUNGE _				DATE STARTED			RID DATUM MGA94	
JOB			<u></u>		HEIGHT DATUM <u>AHD</u> BEARING _				ATE COMPLETED _			DRILLER Hinterland	
DEPTH (m)	R.L. (m)	JGER ASING ASH BORING ORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	OLOGY		l II	INTACT DEFECT SPACING (AS1726) (AS1726) (AS1726)	T	AI	DDITIONAL DATA AND TEST RESULTS	SAMPLES
30	182.52	 ₹9≷9		<i>/</i> S	Sandy CLAV with Cabbles and Bauldon	5	ĭĭ ≅			5	Prokon 70	uno.	/S ==
-31 -32 -33 -33			100 100 100 85		Sandy CLAY with Cobbles and Boulders (COLLUVIUM) as before						□ material Carbonac Carbonac Sandston Soft clay Sandston □ Soft clay Sandston □ Soft clay Sandston □ Soft clay S□ Sandston □ S	e boulder one seam, carbonaceous eous layer e cobble seam e boulder e cobble seam ### Cobble ### Seam ### Pass 2.360mm = 46 ### Pass 0.075mm = 24 ### Pass 0.002mm = 5	
-	177.62		100		34.87m Some polished surfaces. Organic material.	600					— Sandston	e boulder]
-35 -	177.38 177.12				Interbedded SILTSTONE and SANDSTONE	j	HW			-	Soft clay s Colluvium polihed st	/ bebrock interface 50.99MPa Is(50) = 0.61MPa	x - o -
-36			100		Interbedded SILTSTONE and SANDSTONE MW: Interbedded SILTSTONE and SANDSTONE SW:Dark to light grey, fine grained, medium to high strength. Laminations at 0-5° Defects: LP: 0-5° (1/m); PI-Un/Ro, OP. Js: 0-10° (1/m); PI-St/Ro, OP-CD. Js: 20-30° (<1/m); PI/Ro, CD. Js: 20-30° (<1/m); PI/Ro, TI	_					Clay layer	UCS (rock) = 5.38 MPa Is(50) = 0.44MPa Is(50) = 0.68MPa e bedding @ 0-10° ins @ 0-5°	X - 0
-38 38 39 39 			100		Js: 20-30° (<1/m); PI/Ro, TI. Some minor carbonaceous material throughout (rootlets?)		SW				Relict dist	Is(50) = 0.30MPa Is(50) = 0.49MPa	X
R	EMARKS	S									-	LOGGED BY	
											_	TAH	



ENGINEERING BOREHOLE LOG

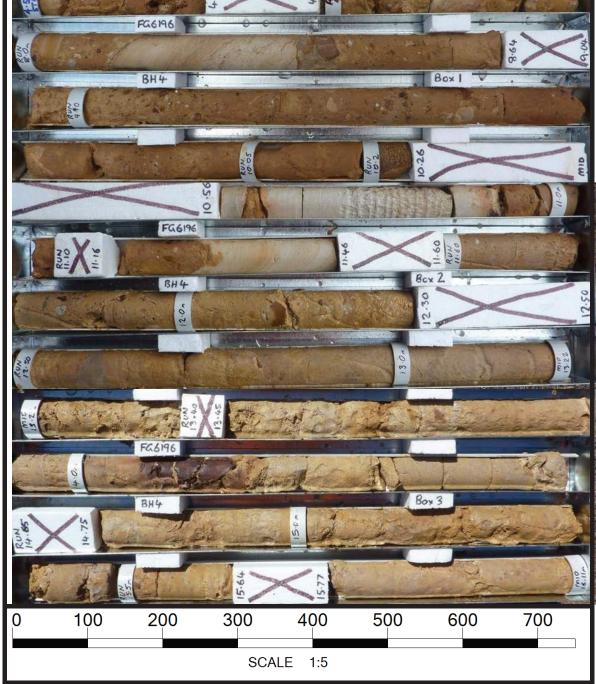
BOREHOLE No	<u>BH4</u>
SHEET	<u>5</u> of <u>5</u>
REFERENCE No	H12011

PRO	ROJECT Mt Whitestone: Slope Instability Investigation - Preliminary Inclinometer Boreholes										
LOC	ATION	Belov	w the roa	ad_				COORD	NATES <u>416161.3 E; 6937854.7</u>	<u>_N</u>	
PRO	JECT No	_FG6	128		SURFACE R.L212.52m PLUNGE			DATE STARTED <u>4/11/14</u>	GRID DATUM MGA94		
JOB	No				HEIGHT DATUM <u>AHD</u> BEARING _			DATE COMPLETED 7/11/14	DRILLER Hinterland		
DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT DEFECT STRENGTH SPACING (AS1726) (AS1726) H H T T T T T T T T T T T	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
	170.92		100		Interbedded SILTSTONE and SANDSTONE as before		SW	—Inc		x -	
-44 -43 -44 -45 -46 -47 -47 -47 -47 -47 -47 -49 -49					Borehole terminated at 41.6m				Is(50) = 0.46MPa	0	
F	REMARKS	3							LOGGED BY TAH		
									ΙАП		

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



066 3336			Government
Project Name	Mt Whitestone (Detailed Investi	igation)	
Project No.	FG6196	Start Date	4/11/14
Borehole No.	BH 4	Finish Date	7/11/14
Location		Start Depth (m)	4.50
Detail	Gatton Clifton Rd -313	Finish Depth (m)	41.60
Chainage	15.04-15.40km	Submitted By	TH
Remarks		·	
	Facine O O O	Tabah Arabah Ara	1
Sec.			13%
	BH4	BoxI	. 6



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DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Drainat Nama	Mt Whitestone (Detailed Investigation)		
Project Name	wit willtestone (Detailed investigation)		
Project No.	FG6196	Start Date	4/11/14
Borehole No.	BH 4	Finish Date	7/11/14
Location		Start Depth (m)	4.50
Detail	Gatton Clifton Rd -313	Finish Depth (m)	41.60
Chainage	15.04-15.40km	Submitted By	TH
Remarks			



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DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mt Whitestone (Detailed Investigation)		
Project No.	FG6196	Start Date	4/11/14
Borehole No.	BH 4	Finish Date	7/11/14
Location		Start Depth (m)	4.50
Detail	Gatton Clifton Rd -313	Finish Depth (m)	41.60
Chainage	15.04-15.40km	Submitted By	TH
Remarks			



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DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



66 3336						Governmen
Project Name	Mt Whitestone	(Detailed In	vestigation)			
Project No.	FG6196	-		Start Da	ate	4/11/14
Borehole No.	BH 4			Finish D	Date	7/11/14
Location				Start De	epth (m)	4.50
Detail	Gatton Clifton Rd -313			Finish D	Finish Depth (m)	
Chainage	15.04-15.40km			Submitt	Submitted By	
Remarks						
	FC6196 BH4				S Box10	Space
			18.0		1,31,344	
1360,			•			
36.6	FG6196		CLEA			
	884				80x11	
				NO.		
	3402					
39.68 39.68	Fa6169	ner franklin skrive i sa	430			
View and	The second second		V.			61.6
	BH4			END	Box 12	HOLE.
0 100	200	300	400	500	600	700

Page 4 GEOT043/2

SCALE 1:5

Stand Pipe Details - SP4

