## **COPYRIGHT NOTICE**

This geotechnical log and its associated data (the Document) is licensed by the Queensland Department of Transport and Main Roads under the <u>Creative Commons Attribution 4.0 Licence</u> (CC BY 4.0). When reusing the Document, in whole or in part, please attribute the Department and author as follows: "(c) State of Queensland (Department of Transport and Main Roads) 2020, licensed under the CC BY 4.0 Licence, prepared by Jacobs". This licence does not apply to the Queensland Government logo or trademarks.

## LIMITATION OF LIABILITY

The CC BY 4.0 Licence contains a comprehensive Disclaimer of Warranties and Limitation of Liability. In addition, please note that this Document was prepared for Departmental use only. Reuse of the Document by anyone for any other purpose could result in error and/or loss. You should obtain professional advice before making decisions based on the contents of the Document.

When reproducing any part of this Document, you must also reproduce this limitation of liability notice in addition to the italicised attribution statement above.

Retrieved from the Queensland Geotechnical Database http://qgd.org.au/

This log has been contributed to the Queensland Geotechnical Database with the permission of Jacobs.

HOLE NO: BH BV 6 **SOIL LOG** PAGE: 1 OF 10 PROJECT: Brisbane Valley Grade Separation JOB NO: QB10200.4 POSITION : E: 470417, N: 6949721 (56 MGA94) LOCATION: Brisbane Valley Hwy SURFACE ELEVATION: 57.7 (AHD) RIG TYPE: Hydrapower Scout DIP / AZIMUTH : 90° CONTRACTOR: GeoDrill - T Partleton STANDARD: AS1736 DATE DRILLED: 16/5/11 to 16/5/11 LOGGED BY: LN CHECKED BY: VP LAB DATA SAMPLES & SPT DATA GRAPHIC LOG DRILLING WATER DETAIL MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components MOISTURE COMMENTS Ξ Moisture Conten Atterberg Limits Dry Density % Fines Field Test Data 凒 & Other Observations S/L F/MD St/D VSt/V' 0.00: FILL CLAY - sandy CLAY, high plasticity, dark red brown in colour, some fine to medium sand, moist, firm. М CLAY - high plasticity, red brown, trace fine to medium sand, moist, stiff М CLAY - high plasticity, brown mottled and streaked red, moist, stiff 1.45m 1.50m М SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <-DrawingFile>> 29/11/2011 11:34  $\mbox{CLAY}$  - sandy  $\mbox{CLAY}$  , high plasticity, brown mottled and streaked red, fine to medium sand, moist, stiff 2.45m CLAY - sandy CLAY, high plasticity, grey brown mottled dark red, fine to medium sand, trace silt, moist, stiff 2, 2, 4 N=6 М Log SAMPLES & FIELD TESTS (WORKIN-BRISBANE) **DRILLING** CONSISTENCY (Su) {N-value} DENSITY (N-value) Disturbed Sample Env Soil Sample SPT SPT Sample U Undisturbed Tube Sample Hand Auger HQ **HQ** Coring VL Very Loose 0 - 4 ٧S Very Soft < 12 kPa {0-2} Auger Washbore NQ PQ NQ Coring PQ Coring Loose 4 - 10 S Soft 12 - 25 {2-4} EW Env Water Sample W Water Sample MD Medium Dense 10 - 30 25 - 50 {4-8} Firm Rock Rolling NMLC NMLC Coring D Dense 30 - 50 St Stiff 50 - 100 {8-15} **HP Hand Penetrometer** MOISTURE CONDITION
D = Dry M = Moist W = Wet **GROUNDWATER SYMBOLS** HV Hand Vane Shear D = Dry
(P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight VD Very Dense 50 - 100 VSt Very Stiff 100 - 200 {15-30} = Water level (static) CO Compact >50/150mm Н Hard > 200 kPa {>30} = Water level (during drilling) AGS RW SPT penetration by rod weight SKN

File: QB10200.4 BH BV 6 Page 1 OF 10

-		7							SOIL LOG	HOLE NO: <b>BH BV</b>
PROJEC	СТ	: Bri	isban	e Val	ley Gra	ide (	Sepa	aration	JOB NO : QB10200.4	PAGE : 2 OF 10
						721	(56	MGA94		LOCATION : Brisbane Valley Hv
RIG TYF DATE D						11			CONTRACTOR: GeoDrill - T Partleton  LOGGED BY: LN CHECKED BY: VP	STANDARD : AS1736
oX .			B DAT							
DRILLING & WATER DETAIL	Moisture Content	Dry Density	% Fines	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	COMMENTS Field Test Data 8. Other Observations
	4						-		CLAY - sandy CLAY, high plasticity, grey brown mottled dark red, fine to medium sand, trace silt, moist, stiff (continued)	M
					4.00m SPT 4, 13, 23 N=36	- 53.7-	4.0		4.00m  SILT - sandy SILT, high plasticity fines, orange mottled grey, some fine to medium (orange) sand, moist, very stiff.	
					4.45m	53.2-	4.5			M
Groundwater					5.00m SPT 6, 8, 10 N=18	- 52.7-	5.0		5.00m SILT - sandy SILT, hgih plasticity fines, orange mottled grey, fine to medium sand, moist, very stiff.	
					6.00m SPT 11, 13, 30/120m N=R	52.2- - 51.7-	5.5		6.10m SAND - silty SAND, fine to medium, orange, some silt, moist, medium dense.	M
					6.42m 6.50m D 6.60m	- -51.2-	6.5		IRONSTONE - dark red brown, extermely weathered and of extermely low 6.6 Merogth, dense.  SILT - gravely SILT, high plasticity fines, grey mottled orange red, fine to medium extremely weathered and extremely low strength ironstone gravel, moist, hard.  Som  SILT - high plasticity fines, grey mottled orange, fine to medium sand, moist, hard.	M
AS Au NB Wa	and Auger	uger ore	RILLIN	HQ NQ	HQ Cor NQ Cor PQ Cor	ring		ES En	SAMPLES & FIELD TESTS  sturbed Sample SPT SPT Sample v Soil Sample U Undisturbed Tube Sample v Water Sample U Water Sample	0 - 4 VS Very Soft < 12 kPa { 4 - 10 S Soft 12 - 25 {2-
RR Ro	GR GR = V	olling OUNI Vater	DWAT	NMLC ER SY static)	C NMLC (MBOLS	Cori	ng	HP Har HV Har (P: Pea N SPT HW SP	MD Medium Den Dense Not Vane Shear Not Vane Shear Not Sture Condition Dense Not Very Dense CO Compact  MD Medium Den Dense VD Very Dense CO Compact  T penetration by hammer weight T penetration by rod weight	30 - 50 St Stiff 50 - 100 {8

File: QB10200.4 BH BV 6 Page 2 OF 10

		7							SOIL LOG		•	HOLL HO.	BH BV
PROJE	СТ	: Br	isban	e Vall	ey Gra	de S	Sepa	aration	JOB NO: QB10200.4		PAGE	: 3 OF 10	
						721	(56	MGA94)	SURFACE ELEVATION : 57.7 (AHD)			TION : Brisba	
RIG TYI DATE D						11			CONTRACTOR: GeoDrill - T Partleton  LOGGED BY: LN CHECKED BY	: VP		AZIMUTH : 90 IDARD : AS17	
~*			B DAT										
DRILLING & WATER DETAIL	Moisture Content	Dry Density	% Fines	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteris Secondary and Minor Components	stic E	CONSISTENCE RELATIVE DENSITY  O D D D D D D D D D D D D D D D D D D	COI Field & Other	MMENTS Test Data Observations
					SPT 8, 14, 17 N=31		-		SILT - high plasticity fines, grey mottled orange, fine to mediu hard. (continued)	um sand, moist,	0 1 0 3		
					7.45m	50.2-	 7.5 			N	4		
					8.00m SPT 17, 27, 30/115mi		-8.0		.00m SILT - high plasticity fines, grey mottled orange, occassional ((thin), moist hard.	fine sand layering			
					N=R 8.42m	49.2-				N	4		
Groundwater							- - -						
					9.00m SPT 17, 29, 30/105mr N=R	- 48.7− n	-9.0 - -		.uom SILT -high plasticity fines, grey, readily fractures into flake like hard.	e pieces, moist,			
					9.41m	48.2-	- -9.5 -			N			
					10.00m SPT 26, 30/115mr N=R	-47.7 <del>-</del>	_ _ _10.0		0.00m SILT - high plasticity fines, grey with some orange mottling, tr in thin layers, moist, hard.	cace of fine sand			
					10.27m		-			N			
AS AM	Z = V	uger ore olling OUNI /ater	DWAT level (	HQ NQ PQ NMLC ER SY static)	HQ Cor NQ Cor PQ Cor NMLC MBOLS drilling)	ing ing Corir	ng	HP Han HV Han (P: Peal N SPT HW SP	d Penetrometer d Vane Shear  D = Dor, M = Moist, W = Wort	L Loose 4 MD Medium Dense 10 D Dense 30 VD Very Dense 50	- 4 - 10	CONSISTENCY VS Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard	Y (Su) {N-value} < 12 kPa {0-1 12 - 25 {2-4} 25 - 50 {4-8} 50 - 100 {8-1 100 - 200 {15 > 200 kPa {>6}

HOLE NO: BH BV 6 **SOIL LOG** PAGE: 4 OF 10 PROJECT: Brisbane Valley Grade Separation JOB NO: QB10200.4 POSITION : E: 470417, N: 6949721 (56 MGA94) LOCATION: Brisbane Valley Hwy SURFACE ELEVATION: 57.7 (AHD) RIG TYPE: Hydrapower Scout DIP / AZIMUTH : 90° CONTRACTOR: GeoDrill - T Partleton STANDARD: AS1736 DATE DRILLED: 16/5/11 to 16/5/11 LOGGED BY: LN CHECKED BY: VP LAB DATA SAMPLES & SPT DATA GRAPHIC LOG DEPTH (m) DRILLING WATER DETAIL MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components MOISTURE COMMENTS Ξ Moisture Conten Atterberg Limits Dry Density Field Test Data % Fines 닕 & Other Observations S/L F/MD St/D VSt/VD SILT - high plasticity fines, grey with some orange mottling, trace of fine sand in thin layers, moist, hard. *(continued)* М 21, 30/15mr N=R 11.17m IRONSTONE - dark red brown, extremely weathered, moist, very low strength. SILT - high plasticity fines, grey with some orange mottling, trace of fine sand in thin layers, moist, hard. SILT - high plasticity fines, grey, with some orange, fine to medium sand in thin layers (at approx. 12.15 m), moist, hard. SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <-DrawingFile>> 29/11/2011 11:34 core fractures easily into angular fine to medium gravel size pieces. 12.45m SILT - high plasticity fines, grey, moist, hard 27, 30/65m М Log SAMPLES & FIELD TESTS (WORKIN-BRISBANE) **DRILLING** CONSISTENCY (Su) {N-value} DENSITY (N-value) Disturbed Sample Env Soil Sample SPT SPT Sample U Undisturbed Tube Sample Hand Auger HQ **HQ** Coring VL Very Loose 0 - 4 ٧S Very Soft < 12 kPa {0-2} Auger Washbore NQ PQ NQ Coring PQ Coring Loose 4 - 10 S Soft 12 - 25 {2-4} EW Env Water Sample W Water Sample MD Medium Dense 10 - 30 25 - 50 {4-8} Firm Rock Rolling NMLC NMLC Coring D Dense 30 - 50 St Stiff 50 - 100 {8-15} **HP Hand Penetrometer** MOISTURE CONDITION
D = Dry M = Moist W = Wet **GROUNDWATER SYMBOLS** HV Hand Vane Shear D = Dry
(P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight VD Very Dense 50 - 100 VSt Very Stiff 100 - 200 {15-30} = Water level (static) CO Compact >50/150mm Н Hard > 200 kPa {>30} = Water level (during drilling) AGS RW SPT penetration by rod weight SKN

		S	}	K	1	1					SOIL LOG			Н	OLE NO: BH BV 6					
ŀ	PRC	).JF(	ìΤ	Bri	shar	ne Val	lev Gra	ade	Sen	aration	JOB NO : QB10200.4		PAGE: 5 OF 10							
- 1										MGA94					ON: Brisbane Valley Hwy					
- 1						wer S					CONTRACTOR: GeoDrill - T Partleton		DIP / AZIMUTH : 90°							
ŀ	DAT	E D	RILL				o 16/5/	/11	ı		LOGGED BY: LN CHECKED BY: VP		STA	AND/	ARD : AS1736					
	DRILLING &	WATER	Moisture Content	Dry Density	B DA	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE	CONSISTE RELAT DENSI		COMMENTS Field Test Data & Other Observations					
							SPT 30/50mm N=R 14.05m	ŋ	-		SILT - high plasticity fines, grey, moist, hard. (continued)	м			-					
ŀ	+							┢		1111111	14.20m Continued as Cored Borehole			1904000						
									ŀ					ij	-					
-									-					$\parallel$	-					
-								43.2	14.5					$\parallel$	_					
-									-					ij	-					
									-						-					
														$\perp$	-					
														ij	_					
								42.7-	15.0						_					
								42.7	13.0					$\perp$						
														ij	_					
														$\parallel$	-					
														$\perp$	-					
									ŀ					H	-					
								42.2	15.5					$\ \cdot\ $	_					
11:34									-					$\perp$	-					
/2011									L						-					
29/11									F					$\ \cdot\ $	-					
File>									-					$\perp$	-					
rawing								41.7	16.0					il	_					
Ş ₩															-					
3S.GP															<u>-</u>					
SH LO														il	_					
AND															_					
TP,AH																				
NOIT								41.2	16.5					11	_					
PAR/															-					
ADE SI									-						-					
FY GR									-						-					
VALLE									-						-					
BANE								40.7	17.0						_					
BRIS									-						-					
IL LOG									-						-					
OS M									-						-					
og Sk									-						-					
GLB L											<del></del>		1111							
SKM AGS REVOZ 1 (WORKIN-BRISBANE),GLB LOG SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TPAH AND BH LOGS.GPJ <-DrawingFiles- 28/11/2011 11:34	HA AS WB RR	Au W	and Ai	iger re	RILLIN	HQ NQ PQ	HQ Co NQ Co PQ Coi	ring rina	ina	ES Er	SAMPLES & FIELD TESTS  turbed Sample SPT SPT Sample v Soil Sample U Undisturbed Tube Sample v Water Sample W Water Sample  MD Medium D	4 -	4 10	VS S F						
RR Rock Rolling NMLC NMLC Coring  GROUNDWATER SYMBOLS									ııy		nd Penetrometer MOISTURE CONDITION D Dense	30 -		St	t Stiff 50 - 100 {8-15}					
/02.1 (	■ Water level (static) ■ Water level (during drilling)									(P: Pea	Individual Shear D = Dry M = Moist W = Wet CO Compact		100 1/150mm	VS H						
3S RE	≥ Vater level (during drilling)							1		HW SF	blows per 300mm T penetration by hammer weight									
SKM AC										KW SF	T penetration by rod weight									

	S	1		N	Ĺ				ROC	CK LOG				HOI	LE NO: <b>E</b>	BH BV 6			
Ī	PROJEC	CT :	Brisl	bane	e Va	lley Gr	ade Separati	on JOB NO :	: QB10200.4					PAGE : 6 OF 10					
-							721 (56 MG/		ELEVATION	: 57.7 (AHD	)				l : Brisbane	Valley Hwy			
F	RIG TYF	PE :	Hydra	apov	ver S	Scout		CONTRAC	CTOR: GeoDr	rill - T Partleto	n			DIP / AZIM	UTH: 90°				
[	DATE D			16/5	/11	to 16/5	/11	LOGGED		CHEC	(ED	BY : VP	1	STANDAR	D : AS1736	I			
F	DRI	LLING	3	┝			T	M.	ATERIAL			FOTHER STORES	_	CTS & COM					
	DRILLING & WATER DETAIL	HISTORY ROD	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	(texture,	DESCRIPTYPE: Colour, Gfabric, mineral coion, cementation,	irain size, Struct Imposition, hard	ness	Weathering	ESTIMATED STRENGT Is(50)	SPACING (mm)	Description o defects,	MENTS f joints, seams, additional and comments	INSTALLATION DETAIL			
					-	11 11 1	START COR	ING AT 14.20m						— 14.20: GOF	- RE LOSS -				
	Run 1	100% TCR		43.2-				- faintly layered, grey,	, very low to low stre	ength ,sligthly	SW				- - - -				
11 11:36	nuiii	100% RQD	15.07m 15.20m	42.7 <del>-</del>	15.0   15.5		SILTSTONE moderately v	-brown, extremely low reathered.	v strength to very lo		HW				- - - -				
SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM ROCK(BRISBANE) BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ < <drawingfile>&gt; 29/11/2011 11:36</drawingfile>		15.60		41.7-			SILTSTONE	- grey, very low to low			SW				- - - - -				
RISBANE VALLEY GRADE SEPARATION TP,AH /	Run 2	98% TCR 69% RQD		41.2-			SILTSTONE strength, mo	- red brown layered g derately weathered.	rey, extremely low s	strength to low	HW MW				- - - - - -				
ALB Log SKM ROCK(BRISBANE) B		17.10 100% TCR 94% RQD	_	40.7-	—17.0 —		CORE LOSS SANDSTON and bluestor weathered.	E - massive, medium s e gravel in layers, me	sand, grey, trace m dium strength, mod	edium quartz erately	sw			— 17.07: COF	RE LOSS -				
1 AGS REV02.1 (WORKIN-BRISBANE).(	T F	NQ Cor FCR S RQD S (rr GF	Coring ing core core cock fra ROUNI				red) DLS	SAMPLES & FIELD TESTS  D Disturbed Sample ES Env Soil Sample W Water Sample EW Env Water Sample SPT SPT Sample U Undisturbed Tube Sample  PHOTOGRAPHS YES NO			F D S	DEFEC'S Crushed Seam Z Crushed Zone B Drill Break Z Fractured Zone T Joint S Infilled Seam IZ Shear Zone N Vein	CT Coating SN Stain	Cu Curved IR Irregular PR Planar ST Stepped Un Undulated	0-0.03 E 0.03-0.1 V 0.1-0.3 L 0.3-1.0 M 1.0-3.0 H	IGTH (Is50 MPa) xtremely Low ery Low ow ledium igh ery High			

	S	SKM  ROJECT : Brisbane Valley Grade S							HOLE NO: BH BV 6										
Ī	ROJE	CT :	Brisl	oane	e Va	llev Gra	ade Separati	on JOB NO: QB	310200.4					PAGE: 7	OF 10				
							721 (56 MG/			57.7 (AHD)	)				l : Brisbane	Valley Hwy			
F	RIG TYF	PE :	Hydra	apov	ver S	Scout	·	CONTRACTO						DIP / AZIM	UTH : 90°				
	ATE D	RILLI	ED :	16/5	/11	to 16/5/	/11	LOGGED BY	: LN	CHECK	ŒD	BY : VP	STANDARD : AS1736						
L	DRI	LLING	3					MATE	RIAL				+	CTS & COM	MENTS				
	DRILLING & WATER DETAIL	HAND TCR/RQD	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	(texture,	DESCRIPTION TYPE : Colour, Grain fabric, mineral compo ion, cementation, etc a	size, Structu sition, hardn	ess	Weathering	ESTIMATED STRENGTH Is(50)  • Axial • Diametral	SPACING (mm)	Description o defects,	MENTS f joints, seams, additional and comments	INSTALLATION DETAIL			
	Run 3	BEI III			-		and blueston weathered. (	E - massive, medium sand,	strength, model	rately trace of	SW				- - -				
		100% TCR 94% RQD	18.00m 18.18m	39.7-	- -18.0 -		moderately w	tz and bluestone gravel in I reathered. Ē - medium sand, grey, trac avel in layers, medium strer	ce of medium qu	artz and	MW				- - - -				
	99.2—18.5 SANDS quartz (					medium strei sand.	E - coarse sand, grey, some gth, moderately weathered	d, recovered as eaked grey, son	coarse ne fine	HW				- - -					
					_		weathered. SANDSTON	, low to medium strength, s E - coarse sand, light grey v ım strength, slightly to mod	with some fine o	uartz	MW SW				- - -				
29/11/2011 11:36	Run 4	100% TCR 86%	18.96m 19.12m	38.7-	19.0 										- - -				
GS.GPJ < <drawingfile>&gt; 29/11/2011 11:36</drawingfile>		86% RQD		38.2-	- - - 19.5			E - coarse sand, orange, fin moderately weathered.	ne quartz gravel	, medium	MW				- - -				
ARAIION IP,AH AND BH LOG		20.00	19.80m 20.00m	37.7-											- - - -				
3HISBANE VALLET GRADE GEL		95% TCR			_			E - coarse sand, orange br dium strength, moderately ν		quartz	MW				- - -				
SKM AGS HEVUZ.1 (WOHKIN-BRISBANE).GLB LOG SKM HOCK(BHISBANE) BRISBANE VALLEY GRADE SEPARATION IP,AH AND BH LO 	Run 5	70% RQD		37.2-	- - -			E - coarse sand, redbrown , ngth, moderately weathered		rtz gravel, of	MW			— j, sv, w, оро	- - - en -				
HEV02.1 (WORKIN-BRISDANE).G.	NMLC NMLC Corin NQ NQ Coring TCR % core RQD % core (rock fra			run i run : ction	recov > 100 only TER	HQ I PQ I vered 0mm long measure SYMBO	ed)	SAMPLES & FIELD TESTS D Disturbed Sample ES Env Soil Sample			C D F.	S Crushed Seam Z Crushed Zone B Drill Break Z Fractured Zone I Joint S Infilled Seam Z Shear Zone N Vein	CT Coating SN Stain VR Veneer POL Polished RF Rough S Smooth	Cu Curved IR Irregular PR Planar ST Stepped Un Undulated	0-0.03 E 0.03-0.1 V 0.1-0.3 L 0.3-1.0 M 1.0-3.0 H	IGTH (Is50 MPa) xtremely Low ery Low ow ledium igh ery High			
SKM AGS	GROUNDWATER SYMBOLS  W = Water level (static)  W = Water level (during drilling)						ıg)	PHOTOGRAPHS NOTES	YES	NO NO			SL Slickensid	eu					

	- 5	3		V				ROCK LOC	HOLE NO: BH BV 6					
Ī	PROJE	CT :	Brisl	oane	· Va	lley Gra	ade Separati	on JOB NO: QB10200.4				PAGE: 8	OF 10	
							721 (56 MG/		D)			LOCATION	I : Brisbane	Valley Hwy
	RIG TYI		-					CONTRACTOR: GeoDrill - T Partle				DIP / AZIM	UTH: 90°	
ļ	DATE D			16/5/	/11 t	to 16/5/	/11		CKE	BY : VP	1		D : AS1736	
F	DRI	LLING	Т		$\neg$			MATERIAL		ESTIMATED STRENGTH		CTS & COM		
	DRILLING & WATER DETAIL	DEJIH TCR/RQD	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	(texture,	DESCRIPTION TYPE : Colour, Grain size, Structure fabric, mineral composition, hardness ion, cementation, etc as applicable)	Weathering	STIMALED STRENGTH  s(50)   Axial   O - Diametral	SPACING (mm)	Description of defects,	MENTS joints, seams, additional and comments	INSTALLATION DETAIL
SKM AGS REVOC.1 (WORKIN-BRISBANE).GLB Log SKM ROCK(BRISBANE) BRISBANE VALLEY GRADE SEPARATION TP, AH AND BH LOGS.GPJ <-DrawingFile>> 29/11/2011 11:36	Run 6	95% TCR 70% RQD 21.50	23.00m 23.15m 23.30m	36.2- 35.7- 34.7-			SANDSTON gravel, of me CORE LOSS CORE LOSS CORE LOSS SANDSTON some fine quarter of the company o	E - medium to coarse sand, orange treaked grey, artz gravel, medium strength, moderately weathered.  E - medium to coarse sand, orange streaked grey, artz gravel, medium strength, moderately weathered.  E - medium to coarse sand, orange, some fine quartz um strength, moderately weathered.  E - medium to coarse sand, grey, of high strength, nered.  E - medium to coarse sand, orange to red brown large to red brown deratley weathered.	MW			— 21.43: COF = 0.07 ~ 21.50: COF = 0.16 j, sv, w, opt	RELOSS —	
EV02.1 (WORKIN-BRISBANE).G	-	NQ Co FCR ' RQD ' (r	Coring ring % core % core ock fra	run r run >	ecov 100 only	PQ I	ed)	SAMPLES & FIELD TESTS  D Disturbed Sample ES Env Soil Sample W Water Sample EW Env Water Sample SPT SPT Sample U Undisturbed Tube Sample	ole	CS Crushed Seam CZ Crushed Zone DB Drill Break FZ Fractured Zone JT Joint S Infilled Seam SZ Shear Zone VN Vein	CT Coating SN Stain VR Veneer POL Polished RF Rough S Smooth	Cu Curved IR Irregular PR Planar ST Stepped Un Undulated	0-0.03 E 0.03-0.1 V 0.1-0.3 L 0.3-1.0 N 1.0-3.0 F	NGTH (Is50 MPa) extremely Low Gery Low ow Medium ligh Gery High
SKM AGS R		<b>V</b> = '	Water	evel	(stati			PHOTOGRAPHS YES NOTES NOTES	0		SL Slickension	ted		

	S	1		N				ROCK	LOG			HOI	LE NO: <b>E</b>	BH BV 6
Ī	PROJE	CT :	Brish	oane	. Va	llev Gı	rade Separati	on JOB NO: QB10200.4				PAGE: 9	OF 10	
							9721 (56 MG		7.7 (AHD)				l : Brisbane	Valley Hwy
F	RIG TYF	PE :	Hydra	pov	ver S	Scout		CONTRACTOR: GeoDrill -	T Partleton	1		DIP / AZIM	UTH : 90°	
[	DATE D	RILLE	ED : '	16/5	/11	to 16/5	5/11	LOGGED BY: LN	CHECKE	ED BY: VP		STANDAR	D : AS1736	
L	DRI	LLING	3					MATERIAL				CTS & COM	MENTS	
	DRILLING & WATER DETAIL	HIN TCR/ROD	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	(texture,	DESCRIPTION TYPE : Colour, Grain size, Structure fabric, mineral composition, hardnes ion, cementation, etc as applicable)	es ss	Weathering Weathering Weathering Weathering Parallel Street	SPACING (mm)	Description o defects,	MENTS f joints, seams, additional and comments	INSTALLATION DETAIL
	Run 7		24.92m		-		(layered in c	E - medium to coarse sand, orange to red bro olour), trace of fine quartz gravel, of medium : veathered. <i>(continued)</i>		/W			- - -	
		100% TCR 95% RQD	25.06m	32.7-	- - - - - 25.5			E - medium to coarse sand, red brown (layer of fine quartz gravel, of medium strength, m					- - - -	
11 11:36				31.7-			SANDSTON moderately v	E - medium to coarse sand, grey, medium str veathered.	N	AW 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		— j 45 w oper	- - - -	-
11/20		26.10	1		-		: CORE LOSS	3		loopoopoopoo		- 26.09: COF = 0.01	RE LOSS -	_
, 59/					_	: : : :	SANDSTON	E - medium to coarse sand, grey, some fine our to high strength, moderately weathered.	quartz				-	-
GS.GPJ < <drawingfile>&gt; 29/11/2011 11:36</drawingfile>					-		SANDSTON	E - medium to coarse sand, grey, some fine t I, medium to high strength, moderately weath	o medium ered.				-	
TP,AH AND BH LOGS.GP	Run 8	98% TCR 89%		31.2-	-26.5 - -		SANDSTON strength, mo	E - coarse sand, orange streaked grey, mediu derately weathered.	um to high				- - -	
DE SEPARATION		RQD		30.7-	 27.0 		SANDSTON moderately v	E - coarse sand, grey, medium to high streng veathered.	gth,				- -	
Y GRA					_			E - coarse sand, grey, some fine to medium on medium control on medium strength, moderately weathered.	quartz		4		-	
RISBANE VALLE					_ _		SILTSTONE weathered.	- fine, grey, very low strength, slightly to mod	lerately	sw		— 27.44: COF	- RE LOSS	
ILB Log SKM ROCK(BRISBANE) BI		100% TCR 50% RQD		30.2-	-27.5 - -		grain sandst	- clayey siltstone, grey, layered, extemely los slightly to moderate or content of the content o	thered			= 0.06	- - - -	
SKM AGS REV02.1 (WORKIN-BRISBANE) GLB Log SKM ROCK(BRISBANE) BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LO 	T	NQ Col FCR S RQD S (re	Coring ring % core % core ock fra ROUNE Water I	run run ction OWA	recor > 100 only TER (stat	0mm loi measu SYMB0	red) DLS	SPT SPT Sample U Undisturbed Tube Sample		CS Crushed S CZ Crushed Z DB Drill Break	Zone VR Veneer  m POL Polished	Cu Curved IR Irregular PR Planar ST Stepped Un Undulated	0-0.03 E 0.03-0.1 V 0.1-0.3 L 0.3-1.0 M 1.0-3.0 H	NGTH (Is50 MPa) xtremely Low ery Low ow ledium igh ery High

	S	}		N						ROCK	LOG							НС	DLE NO: E	BH BV 6
Ī	PROJEC	CT :	Brisl	oane	. Va	llev Gra	ade Separati	on JOB NO	) : QB102	200.4								PAGE :	10 OF 10	
-							721 (56 MG/			ATION: 57	7.7 (AHD)								N : Brisbane	Valley Hwy
Ī	RIG TYF	PE :	Hydra	apow	ver S	Scout		CONTR	RACTOR :	: GeoDrill -								DIP / AZI	MUTH : 90°	
-	DATE D			16/5. T	/11	to 16/5/	11	LOGGE	D BY : L		CHECKE	ED	BY:	VP					RD : AS1736	
ŀ		LLING							MATERIA	AL .			ESTIMA	TED STRE	NGTH		DEFI ECT	ECTS & CO	MMENTS MMENTS	
	DRILLING & WATER DETAIL	HIGH TOR/ROD	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	(texture,	DESCR TYPE : Colour fabric, mineral ion, cementation	, Grain size compositie	on, hardnes	s	Weathering	. 0	Is(50)  - Axial - Diametra	J	SPA (n	CING nm)	Description defect observation	of joints, seams, s, additional s and comments	INSTALLATION DETAIL
SKM AGS REVOZ.1 (WORKIN-BRISBANE),GLB Log SKM ROCK(BRISBANE), BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ < <drawningfile>&gt; 29/11/2011 11:36</drawningfile>	Run 9	100% TOR ROD	30.00m	29.2- 28.7- 27.2-			Terminated ( No water end		grey, layered tely weathere	, externely lowed. (continued)		JW SW		,					DRE LOSS	
KM AGS REV02.1 (WORKIN-BRISBANE).GLB	T F	NQ Cor FCR % RQD % (rd GR V = V	Coring ing 6 core 6 core ock fra COUNI Water	run r run z ction OWA	recov > 100 only TER (stat	PQ F vered Omm long measure SYMBO	ed) LS	W Water Sa SPT SPT San	d Sample Imple Inple Inple Inple Sa	•	il Sample	C D F	Z Crus B Drill Z Frac I Joint Infille	shed Se shed Zo Break tured Zo d Seam ar Zone	eam Cone Cone V	BBRE N Cle T Coa N Sta R Ver	an ating in neer olished ough nooth	Cu Curved IR Irregular PR Planar ST Stepped Un Undulate	0-0.03 E 0.03-0.1 V 0.1-0.3 L 0.3-1.0 M d 1.0-3.0 F	NGTH (Is50 MPa) ixtremely Low fery Low ow Medium ligh ery High



CLIENT:TMR LOGGED BY:LN CORE PHOTOGRAPHS JOB NO.: QB10200.4 BOREHOLE: BH BV 6 COORDS: PROJECT: Brisbane Valley Grade Separation
LOCATION: Warrego – Brisbane Valley Hwy Intersection
DEPTH:30.5 m RL:57.7

DRILL RIG: Hydra Scout CHECKED BY:VP

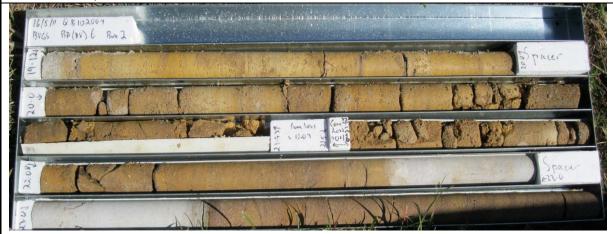
CONTRACTOR: Geodrill

DATE:16/5/11

CORE: BH BV 6, 14.2 m to 19.12



CORE: BH BV 6, 19.12 m to 24.02 m



CORE: BH BV 6, 24.02 m to





CORE PHOTOGRAPHS JOB NO.: QB10200.4 BOREHOLE: BH BV 6

COORDS:

PROJECT: Brisbane Valley Grade Separation LOCATION: Warrego – Brisbane Valley Hwy Intersection

DEPTH:30.5 m RL:57.7

DRILL RIG: Hydra Scout CONTRACTOR: Geodrill

LOGGED BY:LN **CHECKED BY:VP** DATE:16/5/11 CORE: BH BV 6, to 30.5 m 17/5/11 GB10200 BV63 Box 4 BH. (m) 6 CORE: CORE